STOEL RIVES LLP
ATTORNEYS AT LAW

DOCKET
11-AFC-1
DATE 4-11-11
RECD. 4-12-11

900 Capitol Mall, Suite 1600
Sacramento, California 95814
main 916.447.0700
fax 916.447.4781
www.stoel.com

KIMBERLY J. HELLWIG
Direct (916) 319-4742
kjhellwig@stoel.com

April 11, 2011

VIA EMAIL AND HAND DELIVERY

Mr. Eric Solorio, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Pio Pico Energy Center Project (11-AFC-1)
Applicant's Prevention of Significant Deterioration Permit Application and Related Air Quality Modeling Files

Dear Mr. Solorio:

Pursuant to your request, on behalf of Pio Pico Energy Center, LLC ("Applicant") please find enclosed herein three (3) paper copies and fifteen (15) discs containing Applicant's Prevention of Significant Deterioration Permit Application ("Application") for the Pio Pico Energy Center Project. The discs also contain electronic copies of the Application's related air quality modeling files. This application package was submitted to the United States Environmental Protection Agency, Region IX on or about April 1, 2011.

Should you have any questions regarding this submittal, please do not hesitate to contact Maggie Fitzgerald or me.

Respectfully submitted,

Kimberly J. Hellwig
Paralegal
KJH:jmw

cc: David Jenkins, Pio Pico Energy Center, LLC
Maggie Fitzgerald, URS Corporation, Inc.
John A. McKinsey, Esq., Stoel Rives LLP
Melissa A. Foster, Esq., Stoel Rives LLP

Pio Pico Energy Center, LLC
P.O. Box 95552
South Jordan, UT 84095

April 1, 2011

Mr. Gerardo Rios
Chief, Permits Office
USEPA Region IX
75 Hawthorne Street
San Francisco, CA 94105

Subject: Pio Pico Energy Center
Application for a Prevention of Significant Deterioration Permit

Dear Mr. Rios:

Enclosed please find an Application for a Prevention of Significant Deterioration (PSD) Permit for the proposed Pio Pico Energy Center, filed by Pio Pico Energy Center, LLC, to be located in Otay Mesa, California. The Application for Certification (AFC) was filed with the California Energy Commission on February 9, 2011, concurrent with an application for Authority to Construct submitted to the San Diego County Air Pollution Control District. The portions of the AFC materials that are relevant to the PSD permitting process are enclosed for your review. Supplemental PSD modeling data files have not been included, because, based on guidance from Region 9 staff last year, modeling cannot be completed for the 1-hour NO_2 standard until EPA has reviewed the proposed list of non-project facilities to include in the modeling. Included with the materials we are providing are the additional impact analysis (including impacts on soil, vegetation, visibility, and potential for growth inducement), and special PSD compliance demonstrations.

The generating facility will include three General Electric (GE) LMS100 natural gas-fired combustion turbine generators (CTGs), each equipped with water injection to the combustors for reducing production of oxides of nitrogen (NOx), a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia (NH_3) injection to further reduce NOx emissions, and an oxidation catalyst to reduce carbon monoxide (CO) emissions. The total net generating capacity would be approximately 300 MW. The new emitting units will be installed on a 9.9 acre parcel in the southeast quadrant of the intersection of Alta Road and Calzada De La Fuente Road, adjacent to the Otay Mesa Energy Center. The Project will be a new major source under the federal Prevention of Significant Deterioration (PSD) program because it will have the potential to emit more than 100,000 TPY of greenhouse gases (GHGs), a federally regulated pollutant, and construction will commence after July 1, 2011.

The applicant's contact information is:

Gary Chandler
President, Pio Pico Energy Center, LLC
P.O. Box 95592
2542 Singletree Lane
South Jordan, UT 84095

If you have any questions regarding this application, please contact the applicant's representative David Jenkins at (317) 431-1004 or Gary Rubenstein at (916) 444-6666.

Sincerely,

Gary Chandler
President, Pio Pico Energy Center, LLC

enclosures

cc: (w/o enclosure)
John McKinsey, Stoel Rives LLP
David Jenkins, Apex Power Group
Steve Moore, SDAPCD
Steve Hill, Sierra Research

sierra research

Application to the U.S. EPA for a Prevention of Significant Deterioration Permit
Pio Pico Energy Center
San Diego County, California

prepared for:

Pio Pico Energy Center, LLC

April 2011

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

DRAFT REPORT

Application to the U.S. EPA for a Prevention of Significant Deterioration Permit Pio Pico Energy Center San Diego County, California

prepared for:

Pio Pico Energy Center, LLC

April 2011

Principal author:

Steve Hill

Sierra Research, Inc.
1801 J Street
Sacramento, CA 95811
(916) 444-6666

Application to the U.S. EPA for a Prevention of Significant Deterioration Permit Pio Pico Energy Center San Diego County, California

Table of Contents

Page

1. Introduction 1

2. AFC Sections Incorporated into the PSD Permit Application 4

3. Class I Area Impact Analysis 5

4. Class II Visibility Impairment Analysis 7

   4.1 Methodology 7
   4.2 Results 10

5. Impacts on Soils and Vegetation 13

6. Growth-Inducing Impacts 14

7. Demonstration of Compliance with NAAQS 15

   7.1 Compliance with the Federal 1-Hour NO_2 Standard 15
   7.2 Compliance with the Federal 24-hour $PM_{2.5}$ Standard 24

List of Figures

Figure Page

Figure 7-1 NOx Stationary Sources in Near Vicinity (within 10 km) of PPEC.....20

Figure 7-2 NOx Stationary Sources in Vicinity (within 50 km) of PPEC.....21

Figure 7-3 $PM_{2.5}$ Stationary Sources in Near Vicinity (within 10 km) of PPEC.....26

Figure 7-4 $PM_{2.5}$ Stationary Sources in Vicinity (within 50 km) of PPEC 27

List of Tables

Table Page

Table 1-1 PSD Applicability....2

Table 2-1 AFC Sections Incorporated into the PSD Permit Application 4

Table 3-1 Class I Air Quality Impact Screening Analysis....6

Table 4-1 Visibility Parameter Significance Thresholds....9

Table 4-2 FLM Class II Areas Within 50 km of PPEC....10

Table 4-3 PPEC Impacts on Visibility in Cleveland National Forest (Worst Case) 11

Table 4-4 PPEC Impacts on Visibility in Cabrillo National Monument (Worst Case) 12

Table 5-1 Project Maximum Concentrations and EPA Guidance Levels....13

Table 7-1 Identification of Nearby Sources....29

1. INTRODUCTION

In this Application for a Prevention of Significant Deterioration (PSD) permit, Pio Pico Energy Center, LLC (PPEC LLC or "Applicant") is seeking approval from the U.S. Environmental Protection Agency (EPA) to construct and operate a power generation facility, the Pio Pico Energy Center (PPEC), within the County of San Diego. PPEC LLC seeks EPA approval in order to satisfy an obligation to supply electrical capacity and energy to San Diego Gas & Electric (SDG&E) under a 20-year Power Purchase Agreement (PPA).

PPEC is a proposed simple-cycle power generation project that consists of three General Electric (GE) LMS100 natural gas-fired combustion turbine generators (CTGs). The total net generating capacity would be 300 megawatts (MW), with each CTG capable of generating 100MW. The proposed plant will be owned and operated by PPEC LLC. The electricity generated by this project would be in support of a contract with SDG&E.

The generating facility will include three GE LMS100 natural gas-fired combustion turbine generators (CTGs), each equipped with water injection to the combustors for reducing production of oxides of nitrogen (NOx), a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia (NH_3) injection to further reduce NOx emissions, and an oxidation catalyst to reduce carbon monoxide (CO) emissions. The total net generating capacity would be approximately 300 MW. The new emitting units will be installed on a 9.9 acre parcel in the southeast quadrant of the intersection of Alta Road and Calzada De La Fuente Road, adjacent to the Otay Mesa Energy Center. The Project will be a new major source under the federal Prevention of Significant Deterioration (PSD) program because it will have the potential to emit more than 100,000 TPY of greenhouse gases (GHGs), a federally regulated pollutant, and construction will commence after July 1, 2011.

Table 1-1 PSD Applicability						
Pollutant	Major Source Threshold[a] (TPY)	PSD Significant Emission Threshold[b] (TPY)	PPEC Emissions[c] (TPY)	Major Source?	Significant Emissions?	Subject to PSD?
SO_2	250	40	4.1	No	No	No
PM_{10}	250	15	37.2	No	Yes	**Yes**
$PM_{2.5}$	250	10	37.2	No	Yes	**Yes**
NOx	250	40	70.4	No	Yes	**Yes**
VOC	250	40	20.7[e]	No	No	No
CO	250	100	96.4	No	No	No
Lead	250	0.6	0.0	No	No	No
GHGs	100,000[d]	75,000[d]	685,000	Yes	Yes	**Yes**

[a] 40 CFR 52.21(b)(1)
[b] 40 CFR 52.21(b)(23)
[c] AFC Table 5.2-31
[d] 40 CFR 52.21(b)(49)
[e] AFC Table 5.2-35

Portions of the Application for Certification (AFC) submitted to the California Energy Commission and the San Diego Air Pollution Control District are also relevant to EPA's PSD review, and are incorporated by reference. The relevant sections, and the portions of EPA's review that they address, are listed in Section 2.

USEPA's *New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting* states the following:

> *Although each applicant for a PSD permit must perform an additional impacts analysis, the depth of the analysis generally will depend on existing air quality, the quantity of emissions, and the sensitivity of local soils, vegetation, and visibility in the source's impact area.*[*]

These topic areas are addressed in the various AFC sections incorporated into this PSD permit application.

The additional impacts analysis required by federal regulation[†] is also contained in this application report.

[*] *Ibid*, page D.1.
[†] *Ibid*.

The remaining sections of this permit application are as follows:

- Section 3 presents the Class I Impact Analysis.
- Section 4 presents the Class II Visibility Impairment Analysis.
- Section 5 describes impacts on soils and vegetation.
- Section 6 describes the potential for growth-inducing impacts
- Section 7 describes the methodology for demonstrating compliance with 1-hour NO_2 and 24-hour $PM_{2.5}$ ambient air quality standards, and presents the list of nearby sources to be included in cumulative impact modeling.
- Attachment 1 comprises relevant sections of the Application for Certification (AFC), submitted on February 9, 2011 to the California Energy Commission.
- Attachment 2 is a subsequent addendum to the AFC submitted on March 8, 2011.

2. AFC SECTIONS INCORPORATED INTO THE PSD PERMIT APPLICATION

Table 2-1
AFC Sections Incorporated into the PSD Permit Application

AFC Section	PSD Requirement
1.0 Executive Summary	Applicant Information, Project Location
2.0 Project Objectives	Project Description
3.0 Facility Description	Project Description
5.1 Introduction	Project Description
5.2 Air Quality	Emissions Estimates, Air Quality Data, Air Quality Impact Analysis, Compliance with Other Regulations
5.6 Biological Resources	Soils and Vegetation, Endangered Species
5.9 Land Use	Soils and Vegetation
5.10 Socioeconomics	Growth-inducing Impacts
5.16 Public Health	Additional Information
Appendix G—Air Quality	Emission Estimates, Best Available Control Technology (BACT) Analysis, Air Quality Impact Analysis
Appendix J—Biological Resources	Soils and Vegetation, Endangered Species
Appendix M—Land Use	Soils and Vegetation
Appendix P—Public Health	Additional Information

3. CLASS I AREA IMPACT ANALYSIS

Class I areas are areas of special national or regional natural, scenic, recreational, or historic value for which the PSD regulations provide special protection. If a proposed major source or major modification may affect a Class I area, the federal PSD regulations require the reviewing authority to provide written notification of any such proposed source to the Federal Land Managers (FLM) (and the USDI and USDA officials delegated permit review responsibility). The meaning of the term "may affect" is interpreted by EPA policy to include all major sources or major modifications which propose to locate within 100 kilometers (km) of a Class I area.

The two nearest Class I areas are listed below, with only one being within 100 km of the project site.

- Agua Tibia Wilderness (91 km)
- San Jacinto Wilderness (122 km)

The impact analysis presented below is different than the analysis proposed in the modeling protocol submitted for this project (see Appendix G-8 of the AFC). The guidance that forms the basis for the analysis below is more recent than the guidance upon which the protocol was based, and therefore better reflects current standards of review.

The Federal Land Managers' Air Quality Related Values (AQRV) Work Group (FLAG) has published guidance for a screening approach to determine whether a more refined Class I Air Quality Impact Analysis is required.[*] This screening approach, which applies to projects located more than 50 km from a Class I area, requires adding all of the visibility-related emissions (SO_2, NOx, PM_{10}, and sulfuric acid mist) from a project (in units of tons per year)[†] and dividing the sum by the distance between the project and the Class I area. If the result is less than 10, the project is presumed to have no adverse impact.

Table 3-1 shows that the project's emissions are well below the FLAG screening criteria. As indicated previously, all Class I areas are more than 50 km from the project site. No further Class I impact analysis is required.

[*] U.S Forest Service et. al., "Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised (2010)," October 2010, p. 18

[†] Emissions (in tons per year) are equal to the maximum daily emissions (lb/day) * 365 days/2000 lb/ton.

Table 3-1 Class I Air Quality Impact Screening Analysis				
Pollutant	PPEC Emissions[a] (max 24-hours, lb/day)	PPEC Emissions[b] (max 24-hours, TPY)	Q/D Screening Threshold[c]	Class I Analysis Required?
SO_2	136.8	25.0	--	--
PM_{10}	411.8	75.2	--	--
NOx	864.3	157.7	--	--
Sulfuric Acid Mist	0	0	--	--
Total	--	257.9	--	--
Distance, km	--	91	--	--
Q/D	--	2.8	10	**NO**

[a] AFC Table 5.2-20

[b] TPY = max daily emissions (lb/day) *365/2000

[c] U.S Forest Service et. al., "Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised (2010)," October 2010, p. 18-19

4. CLASS II VISIBILITY IMPAIRMENT ANALYSIS

The Class II Visibility Impairment Analysis is distinct from the Class I visibility analysis. The goal of the analysis is to determine the degree to which the PSD project will impair visibility in sensitive areas such as state parks, wilderness areas, scenic sites, and overlooks.

As proposed in the Modeling Protocol for this project (see AFC Appendix G-8), a Class II Visibility Impairment Analysis was performed for this project; however, the methodology proposed in the modeling protocol was updated to reflect the procedure recently recommended by the Federal Land Managers' Air Quality Related Values Work Group (FLAG).[*] The methodology and the results are presented below.

4.1 Methodology

In general, the Class II Visibility Analysis methodology follows the methodology for a Class I Visibility Analysis. The procedure is divided into two parts, reflecting very different procedures for near-field analysis (where plumes or layers are compared against a viewing background) and far-field analysis (where distant plumes affect the general appearance of a scene.

4.1.1 Distant/multi-source visibility impacts

The first step in evaluating distant visibility impacts is an initial screening step. This step is identical to the Class I screening analysis presented in Section 3. If the ratio Q/D of emissions to distance is less than 10 when D = 50 km, then no further analysis is required for receptors beyond this distance.

4.1.2 Near-field visibility impairment (plume impact)

In this part of the analysis, the potential for the project's plume to affect visibility in Class II areas managed by federal land managers (FLM Class II areas) within 50 km of the project is evaluated. If there are no FLM Class II areas within the study area, then the screening procedure is complete; otherwise, a Visibility Screening Analysis must be conducted.

[*] U.S Forest Service et. al., "Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised (2010)," October 2010, p. 18-53.

4.1.2.1 Visibility Screening Analysis

Screening Level 1

The Level 1 visibility screening analysis is a series of conservative calculations designed to identify those emission sources that have little potential of adversely affecting visibility. The VISCREEN model is used in the Level 1 analysis to model visibility impacts for observers located at each sensitive Class II site for which the FLM screening value is exceeded. Calculated values relating source emissions to visibility impacts are compared to a standardized screening value. Those sources with calculated values greater than the screening criteria are judged to have potential visibility impairments. If potential visibility impairments are identified, then the Level 2 analysis is undertaken.

There are two different types of visibility impacts that may be considered, based on visibility impairment inside or outside the park. The first type is the potential impairment of vistas inside the park. For this, the screening analysis assesses the project's potential to impact the view of one part of the park as seen by an observer elsewhere in the park.

The second type of visibility impact is the potential impairment of vistas outside the park. This screening analysis also assesses the project's potential to impact views of the surrounding area as seen by an observer within the park. Protection of vistas outside of Class I areas is not automatic, and protection of vistas outside of Class II areas is uncommon.

The relevant visibility parameters are "apparent contrast" and "delta E," which can be computed by the screening visibility model VISCREEN. The significance thresholds for these two visibility parameters, used as significance criteria in the Class II screening analysis, are the Class I area thresholds (i.e., 0.05 and 2.00 for apparent contrast and delta E, respectively) increased by the ratio of the PSD Class II PM_{10} increment to the PSD Class I PM_{10} increment (i.e., 30 $\mu g/m^3$ divided by 8 $\mu g/m^3$). As shown in Table 4-1, the Class II significance thresholds are an apparent contrast of 0.19 and a delta E of 7.50.[*]

[*] The Class I threshold is the level at which the FLM is likely not to object to the issuance of the PSD permit based on near field visibility impacts to a Class I area. The Class II threshold has been extrapolated from the Class I thresholds using the ratio of Class II PM_{10} increment to Class I PM_{10} increment. A less-stringent threshold for triggering the much more complex Level 2 analysis is justified because (a) there is a distinction between the degrees of protection applicable to Class I and Class II areas; (b) Class I areas can be protected through AQRV analysis, whereas protection of Class II areas can be achieved using BACT requirements; (c) the results of the visibility analysis are for informational, not regulatory, purposes.

Table 4-1 Visibility Parameter Significance Thresholds					
Visibility Parameter or Criteria Pollutant	Averaging Period/Units	Federal Class I Area PSD Ambient Air Increment	Federal Class II Area PSD Ambient Air Increment	Federal Class I Area Significance Threshold	Federal Class II Area Significance Threshold
Apparent Contrast	1 hour [a]/(-)	NA	NA	0.05[b]	0.19[c]
Delta E	1 hour [a]/(-)	NA	NA	2.00[b]	7.50[c]
PM_{10}	24 hours/ ($\mu g/m^3$)	8[d]	30[d]	Not used	Not used

NA = not applicable

[a] Shortest-period emission rates of visibility-related criteria pollutants used in VISCREEN model. U.S. EPA, *Workbook for Plume Visual Impact Screening and Analysis (Revised),* EPA-454/R-92-023, October 1992.

[b] U.S Forest Service et. al., "Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised (2010)," October 2010, p. 21.

[c] Estimated by multiplying the federal Class I area significance threshold for the visibility parameter by the ratio of the 24-hr average federal Class II and Class I area PM_{10} PSD increments.

[d] These maximum allowable increases are found in the Code of Federal Regulations, Title 40, Part 52, Section 52.21(c), *Ambient air increments*.

Screening Level 2

The Level 2 screening procedure is similar to the Level 1 analysis in that its purpose is to estimate impacts during worst-case meteorological conditions; however, more specific information regarding the source, topography, regional visual range, and meteorological conditions is assumed to be available. The analysis may be performed with the aid of hand calculations, reference tables and figures, VISCREEN, or a computer-based visibility model called "PLUVUE II."

If the Levels 1 and 2 screening analyses indicate the possibility of visibility impairment, a still more detailed analysis is undertaken in Level 3.

Level 3 Analysis

The Level 3 analysis, no longer a screening analysis, uses the plume visibility model and meteorological and other regional data to provide an accurate description of the magnitude and frequency of occurrence of impact. The procedures for utilizing the plume visibility model are described in the document *User's Manual for the Plume Visibility Model*, which is available from EPA.

4.2 Results

4.2.1 Distant/multi-source visibility impacts

As shown in Table 3-1, Q = 257.9 TPY. At 50 km, Q/D = 5.2. Because Q/D is less than 10 for all receptors 50 km away or further, there are no receptors for which distant/multi-source visibility impacts must be evaluated. No further analysis of distant receptors is required.

4.2.2 Near-field visibility impairment (plume impact)

The FLM Class II areas listed in Table 4-2 were identified as being wholly or partially located within a 50 km radius of the project, with the minimum distance to the project as indicated. A Level 1 visibility screening analysis was conducted for each of these areas.

Table 4-2
FLM Class II Areas Within 50 km of PPEC

Site	Distance from Project (km)	FLM Screening Value (tons/km)
Cleveland National Forest	23	11.2
Cabrillo National Monument	33	7.8

Screening Level 1

The methodology used for these analyses was described above. Results of these analyses, using absolute worst-case project emissions, are summarized in Tables 4-3 and 4-4. These tables show that, under absolute worst-case project emissions and dispersion conditions, the project's potential visibility impacts inside Class II areas are below the Class I thresholds for significance. Impacts on views outside the Class II areas are below the Class II thresholds for significance, but above the Class I thresholds. Because all project visibility impacts are below the Class II thresholds, and because the vistas outside the parks are unlikely to be subject to the stringent visibility protection standards applicable to Class I areas, no further analysis is required.

Table 4-3
PPEC Impacts on Visibility in Cleveland National Forest (Worst Case)

Background Ozone:0.04 ppm		Emission	Density	Diameter
Background Visual Range: 95 km[b]	Particulate:	2.08 g/s	2.5	1
Source-Observer Distance: 23 km	NOx:	4.54 g/s		
Min. Source-Class II Distance: 23 km	Primary NO2	0.00 g/s		
Max. Source-Class II Distance: 50 km	Soot	0.00 g/s	2.0	1
Stability: 6	Sulfate	0.00 g/s	1.5	4
Wind Speed: 1.00 m/s				

Maximum Visual Impacts INSIDE Class II Area [a]

					Delta E		Contrast	
Background	Theta	Azi	Dist	Alpha	Criterion	Plume	Criterion	Plume
Sky	10	145	32.8	24	7.5	1.26	0.19	-0.011
Sky	140	145	32.8	24	7.5	0.902	0.19	-0.006
Terrain	10	159	50	9	7.5	1.184	0.19	0.014
Terrain	140	159	50	9	7.5	0.528	0.19	0.015

Maximum Visual Impacts OUTSIDE Class II Area [a]

					Delta E		Contrast	
Background	Theta	Azi	Dist	Alpha	Criterion	Plume	Criterion	Plume
Sky	10	1	1	168	7.5	2.376	0.19	-0.04
Sky	140	1	1	168	7.5	1.896	0.19	-0.014
Terrain	10	1	1	168	7.5	5.445	0.19	0.069
Terrain	140	1	1	168	7.5	2.438	0.19	0.077

[a] Impacts based on 4 startups and 4 shutdowns of each turbine in a single day, remainder of day at peak operation.

[b] National Park Service, Visibility Monitoring Data, http://www.nature.nps.gov/air/monitoring/vismon.cfm#data (accessed 3/17/2011)

Table 4-4
PPEC Impacts on Visibility in Cabrillo National Monument (Worst Case)

Background Ozone:0.04 ppm		Emission	Density	Diameter
Background Visual Range: 95 km[b]	Particulate:	2.08 g/s	2.5	1
Source-Observer Distance: 23 km	NOx:	4.54 g/s		
Min. Source-Class II Distance: 23 km	Primary NO2	0.00 g/s		
Max. Source-Class II Distance: 50 km	Soot	0.00 g/s	2.0	1
Stability: 6	Sulfate	0.00 g/s	1.5	4
Wind Speed: 1.00 m/s				

Maximum Visual Impacts INSIDE Class II Area [a]

					Delta E		Contrast	
Background	Theta	Azi	Dist	Alpha	Criterion	Plume	Criterion	Plume
Sky	10	93	33	75	7.5	0.752	0.19	-0.005
Sky	140	93	33	75	7.5	0.524	0.19	-0.003
Terrain	10	84	32	84	7.5	0.603	0.19	0.004
Terrain	140	84	32	84	7.5	0.234	0.19	0.005

Maximum Visual Impacts OUTSIDE Class II Area [a]

					Delta E		Contrast	
Background	Theta	Azi	Dist	Alpha	Criterion	Plume	Criterion	Plume
Sky	10	0	1	168	7.5	1.75	0.19	-0.028
Sky	140	0	1	168	7.5	1.034	0.19	-0.01
Terrain	10	0	1	168	7.5	3.621	0.19	0.051
Terrain	140	0	1	168	7.5	1.548	0.19	0.055

[a] Impacts based on 4 startups and 4 shutdowns of each turbine in a single day, remainder of day at peak operation.

[b] National Park Service, Visibility Monitoring Data, http://www.nature.nps.gov/air/monitoring/vismon.cfm#data (accessed 3/17/2011)

5. IMPACTS ON SOILS AND VEGETATION

For most types of soils and vegetation, ambient concentrations of criteria pollutants below the secondary NAAQS will not result in harmful effects because the secondary NAAQS are set to protect public welfare, including animals, plants, soils, and materials. One section of the AFC submitted to the CEC provides a discussion of the Facility's potential impacts on soils and vegetation: Section 5.6 – Biological Resources. This section is incorporated by reference into the PSD permit application.

EPA provided guidance* in 1980 to determine if maximum modeled ground-level concentrations of project-emitted criteria pollutants NO_2, SO_2, and CO could have an impact on plants, soils, and animals. As shown in Table 5-1, the maximum modeled concentrations from the Project are well below the thresholds.

Table 5-1
Project Maximum Concentrations and EPA Guidance Levels

Criteria Pollutant and Guidance [a] Averaging Time	EPA Screening Concentration ($\mu g/m^3$)	Modeled Maximum Concentrations [b] ($\mu g/m^3$)	Averaging time
SO_2 1-Hour	917	6	1 hour
SO_2 3-Hour	786	3	3 hour
SO_2 Annual	18	<0.1	Annual
NO_2 4-Hours	3,760	111	1 hour
NO_2 1-Month	564	111	1 hour
NO_2 Annual	94	0.3	Annual
CO Weekly	1,800,000	52	8 hour

[a] "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals," EPA 450/2-81-078, December 1980.
[b] Table 5.2-27 of Section 5.2 of the AFC.

* USEPA. *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals," EPA 450/2-81-078, December 1980.*

6. GROWTH-INDUCING IMPACTS

The project's less-than-significant potential growth-inducing impacts on population, housing, schools, utilities, and emergency and other services are discussed in the AFC, Section 5.10 – Socioeconomics, pages 5.10-7 through 5.10-18.

Little to no associated commercial growth is expected as a result of the project. The proposed project is an electrical generating station. The proposed plant will be located immediately adjacent to another existing electrical generating station. Immediately to the north of the project are state and county detention facilities, and a third privately run detention facility has been proposed nearby. Therefore, little or no associated industrial, commercial, or residential source growth is expected to occur in the area due to the project.

7. DEMONSTRATION OF COMPLIANCE WITH NAAQS

The worst-case modeling analysis, in which maximum project impacts were added to maximum measured background concentrations, demonstrated compliance with all ambient air quality standards except for the federal 1-hour NO_2 standard and the federal 24-hour $PM_{2.5}$ standard (see Appendix G-4 of the AFC; note that some tables were amended in the AFC supplement). A more refined analysis that more closely matches the actual ambient concentrations with the modeled project impact under the same meteorological conditions is presented below to provide a more realistic assessment of the expected impacts of the proposed project.

The methodology for performing this more refined analysis is described in detail in the modeling protocol submitted to EPA on December 1, 2010 (Appendix G-8 of the AFC). The methodology described in that protocol has been, for the most part, be followed; some changes have been made, however, to incorporate newly available modeling guidance. The methodology that was followed and the changes from the protocol are described below. It should be noted that this analysis, although more refined than the screening analysis, is still conservative, for reasons that are discussed below.

Before the analysis can be completed, EPA must review and approve the list of stationary sources to be included in the cumulative impact portion of the analysis. The proposed list of sources, and the basis for their selection, are presented below.

The stack parameters used for this analysis are shown in Table G-7.1 in Appendix G-7 of the AFC, as amended in the AFC supplement.

7.1 Compliance with the Federal 1-Hour NO_2 Standard

7.1.1 Form of the Standard

The federal 1-hour NO_2 standard is met if the 3-year average of the 98th percentile highest daily 1-hour average NO_2 concentration, including background, does not exceed 100 ppb. At standard temperature and pressure, this is equivalent to 188 $\mu g/m^3$. The standard is converted to $\mu g/m^3$ for the analysis because the modeling results are in those units.

The procedure for determining compliance is to determine the highest 1-hour NO_2 concentration, including background, for each calendar day in the year at every receptor. These concentrations are rank-ordered at each receptor, highest to lowest, and the 98th

percentile value (8th highest concentration for a reasonably complete data set) is selected to represent that year for that receptor. These values are then averaged, for each receptor, over the five years included in the analysis. The resulting average must be less than or equal to 188 µg/m^3 for all receptors.

7.1.2 Compliance Demonstration Procedure

The output from the dispersion model provides the worst-case project impact at all of the receptors in the impact area (the area where the maximum project impact exceeds the Significant Impact Level [SIL])[*] for each hour of the year (see Figures G-7.1 and G-7.2, as amended in the AFC supplement). Receptors outside the impact area are excluded from the analysis because the project impact cannot, by definition, cause or contribute significantly to a violation of the standard if the project impact, by itself, does not exceed the SIL.[†]

Use of the worst-case modeled impact is the first conservative assumption in this analysis. It is conservative because it assumes that the project will be operating under its worst case conditions (i.e., all three turbines in simultaneous startup, for NO_2) every single hour of the year. Although this is clearly unrealistic, it is not possible to further refine the assumptions for a peaking turbine facility; given the expected frequency of turbine startups, it is possible, although extremely unlikely, that such operation will line up with each of the 8 highest background hours during the year.

The ambient background NO_2 concentration for each hour is then added to the modeled impact at each receptor. The ambient background concentration is comprised of two components: regional background and nearby sources. The regional background concentration is developed from ambient measurements at a nearby monitoring station or stations. Nearby sources are those that have the potential to create significant concentration gradients in the significant impact area, creating locally elevated concentrations that are not adequately reflected in the ambient monitoring data.

Once the modeled impact for each hour has been added to the corresponding ambient background concentration, the highest combined impact for each calendar day is determined. Daily maxima are rank ordered; because the data set is complete, the 8th highest result at each receptor is averaged with those from the other years in the analysis to determine compliance with the ambient air quality standard.

The final step of the significant contribution analysis is based on the source's contribution to a modeled violation paired in time and space. The significant contribution

[*] It should be noted that the U.S. EPA has not adopted a SIL for the 1-hour NO_2 standard. Following EPA guidance, the interim SIL value of 4 ppb (7.5 µg/m^3) was used for this analysis.

[†] "[W]e deem it appropriate and acceptable in most cases to limit the cumulative impact analysis to only those receptors that have been shown to have significant impacts from a proposed new source based on the initial SIL analysis, assuming that the design of the original receptor grid was adequate to determine all areas of ambient air where the source could contribute significantly to modeled violations." Memo, T. Fox (EPA) to Regional Air Division Directors, "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 Ambient Air Quality Standard," March 1, 2011, p. 3.

analysis is not limited to analyzing the source's contribution associated only with the modeled design value based on the 98th percentile cumulative air quality impact at the receptor, but rather must examine all cases where the air quality impact exceeds the NAAQS at or below the 98th percentile. The analysis will examine the source's contribution, paired in time and space, to every multiyear average of daily maximum 1-hour, beginning with the 8th highest (98th percentile), continuing down the ranked distribution until the cumulative impact is below the NAAQS. If the project impact at any of these receptors at any of these times exceeds the SIL, the project may not be approved as proposed.

Regional Background Concentrations

EPA has requested that the actual background concentrations corresponding in time to the meteorological conditions not be used for this analysis. Instead, another conservative adjustment has been made to the results: for each calendar month, a composite daily background profile has been used. The composite daily background profile for a given calendar month is comprised of the highest ambient monitor NO_2 reading from the month for each clock GMT hour. The same 24 hourly values are repeated as the background concentrations for each day of the month.[*]

All ambient air quality data used in this analysis were published by the California Air Resources Board (CARB) on the ADAM website and/or by U.S. Environmental Protection Agency (EPA) on the AIRS data website. Ambient air concentrations of ozone (O_3), NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ are recorded at monitoring stations throughout San Diego County. The immediate area surrounding the project site (within 1.5 to 2 miles) is an area with sparse population. Further out, areas to the north, northeast, east, and southeast are all vacant, hilly terrain with very sparse population. However, areas more than 2 miles to the south (Tijuana), 5 miles west (Otay Mesa West), and northwest (Sunbowl) are urban or suburban areas with moderate to high-density residential areas. Most air quality monitoring stations in the region record measurements for only one or two criteria pollutants, except for those stations located in urban areas. The monitoring stations were generally positioned to represent area-wide ambient conditions rather than the localized impacts of any particular emission source or group of sources. In rural areas of the county, pollutant concentrations are not expected to vary dramatically from one location to the next, because the emission sources are few and widely distributed. Concentrations of pollutants emitted by industrial and vehicular sources are generally higher in the more populated areas of greater San Diego than in the rest of the county.

The closest air quality monitoring station to the Project is located in Otay Mesa at the Otay Mesa-Paseo International Border crossing 1.2 miles south of the Project. However, the pollutant concentrations recorded at this station are heavily influenced by the emissions from the hundreds of Mexican vehicles waiting each hour at the border entry

[*] Memo, T. Fox (EPA) to Regional Air Division Directors, "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 Ambient Air Quality Standard," March 1, 2011, p. 18-19.

point of Otay Mesa-Paseo International, burning fuels that do not meet strict United States and California standards. In contrast, the Chula Vista station is not impacted by nearby sources, and is only 9 miles from the project site. Comparison of the highest 24-hour PM_{10} data collected at the two monitors[*] shows that maximum PM_{10} concentrations at the border station are about twice as high as maximum concentrations at the alternate site. The border trucks impact all combustion pollutant measurements at the Otay Mesa monitor, not just PM_{10}.

The San Diego - Overland Street and San Diego - 1110 Beardsley Street monitoring stations are each more than 15 miles away from the PPEC facility, and each is located in the coastal area. The air quality data at these monitoring stations are not representative of the greater Lower Otay Lake area.

Therefore, after consultation with the District, data from the Chula Vista monitoring station located at 80 East J Street, approximately 9 miles northwest of the project site, were used to represent background air pollutant concentrations for the vicinity of the Project.

Processed background air quality data files were obtained from the District. Data for periods of time with invalid data were replaced by the District using data substitution procedures consistent with EPA guidance. Data substitution ensures that there will be no gaps in the data. This prevents exclusion of modeled high impact hours because of missing monitoring data.

Nearby Sources

Identification of non-project sources to be included in characterization of background concentrations for the compliance demonstration begins by developing a list of facilities with emissions above a threshold. The threshold that is selected for this purpose is low enough to ensure that potentially significant sources are not overlooked. The geographical area included in the search is large enough to ensure that sources that may have a significant impact anywhere in the project's impact area are identified. The most distant receptor with a significant project impact was 24 km east of the project site.

The District was asked to provide a list of all stationary sources within the District and within 80 km of the project (approximate distance to the farthest significant impact plus 50 km), with actual emissions above 5 TPY of either NOx or PM_{10}.[†] The District was also asked to provide a list of all new projects with recently issued permits (i.e., after January 1, 2005) or recently submitted applications and a potential to emit above 5 TPY NOx or PM_{10}. Because the District's database could not determine whether a source was

[*] CARB ADAM database, accessed November 28, 2010. Because the Otay Mesa-Richard Correctional Facility monitor collects only PM_{10} data, and does not include data from 2004, data from this monitor will not be used for this air quality impact analysis.

[†] District emission inventories for PM_{10} are more complete than for $PM_{2.5}$. Because $PM_{2.5}$ is a subset of PM_{10}, the list of facilities generated by a PM_{10} threshold will be more extensive, and completely overlap, the list of facilities that would have been generated using a $PM_{2.5}$ threshold.

within 80 km of the project, the District provided a list of all facilities within the District with emissions above 5 TPY of either pollutant. This list is presented in Table 7-1 (at the end of this section).

Figures 7-1 and 7-2 show the location and relative strength of NO_2 sources near the project. Also shown are the site of the meteorological monitor, the site of the ambient air quality monitor, the impact area for 1-hour NO_2 standard, and a wind rose for the area.

Figure 7-1
NOx Stationary Sources in Near Vicinity (within 10 km) of PPEC

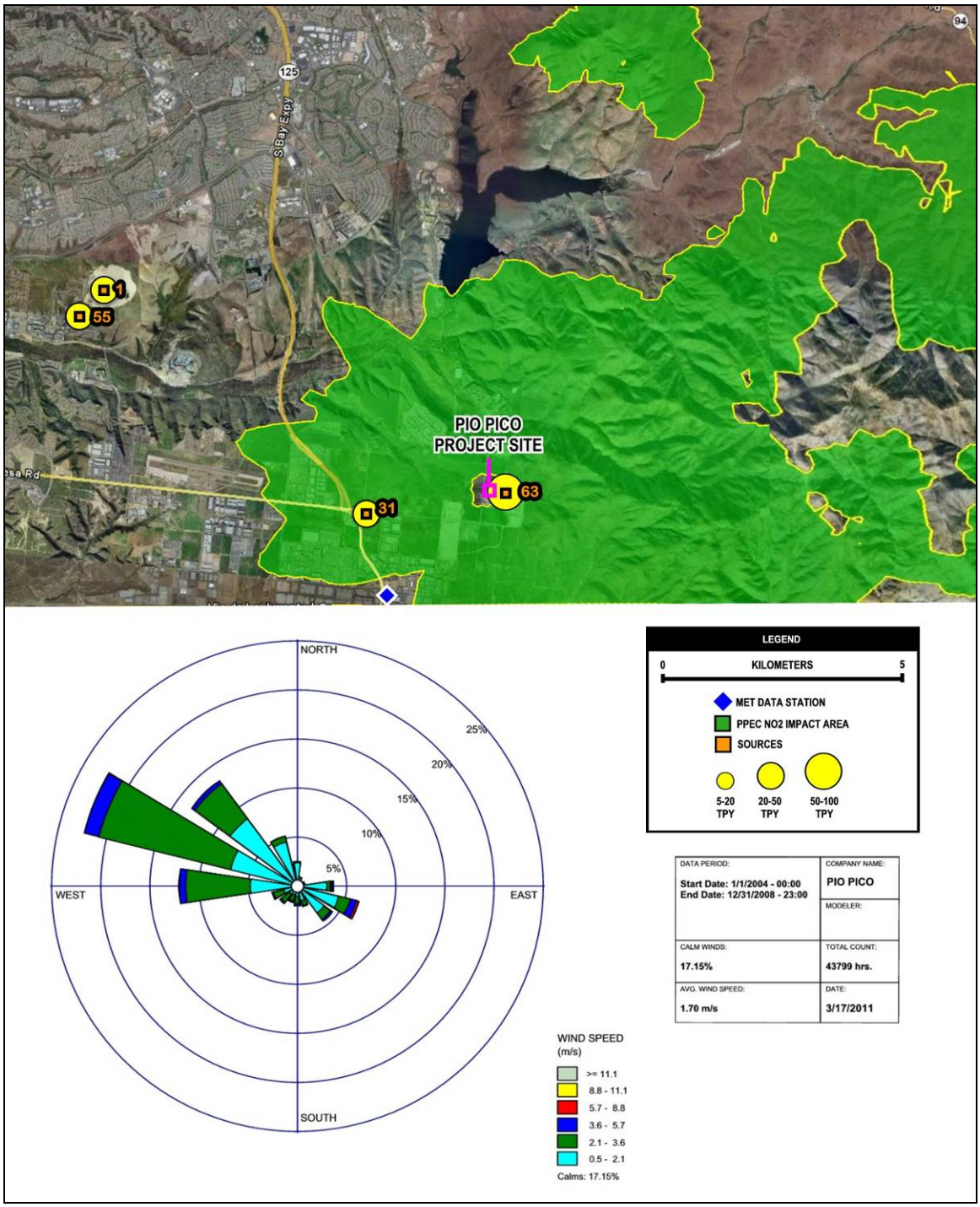


Figure 7-2
NOx Stationary Sources in Vicinity (within 50 km) of PPEC

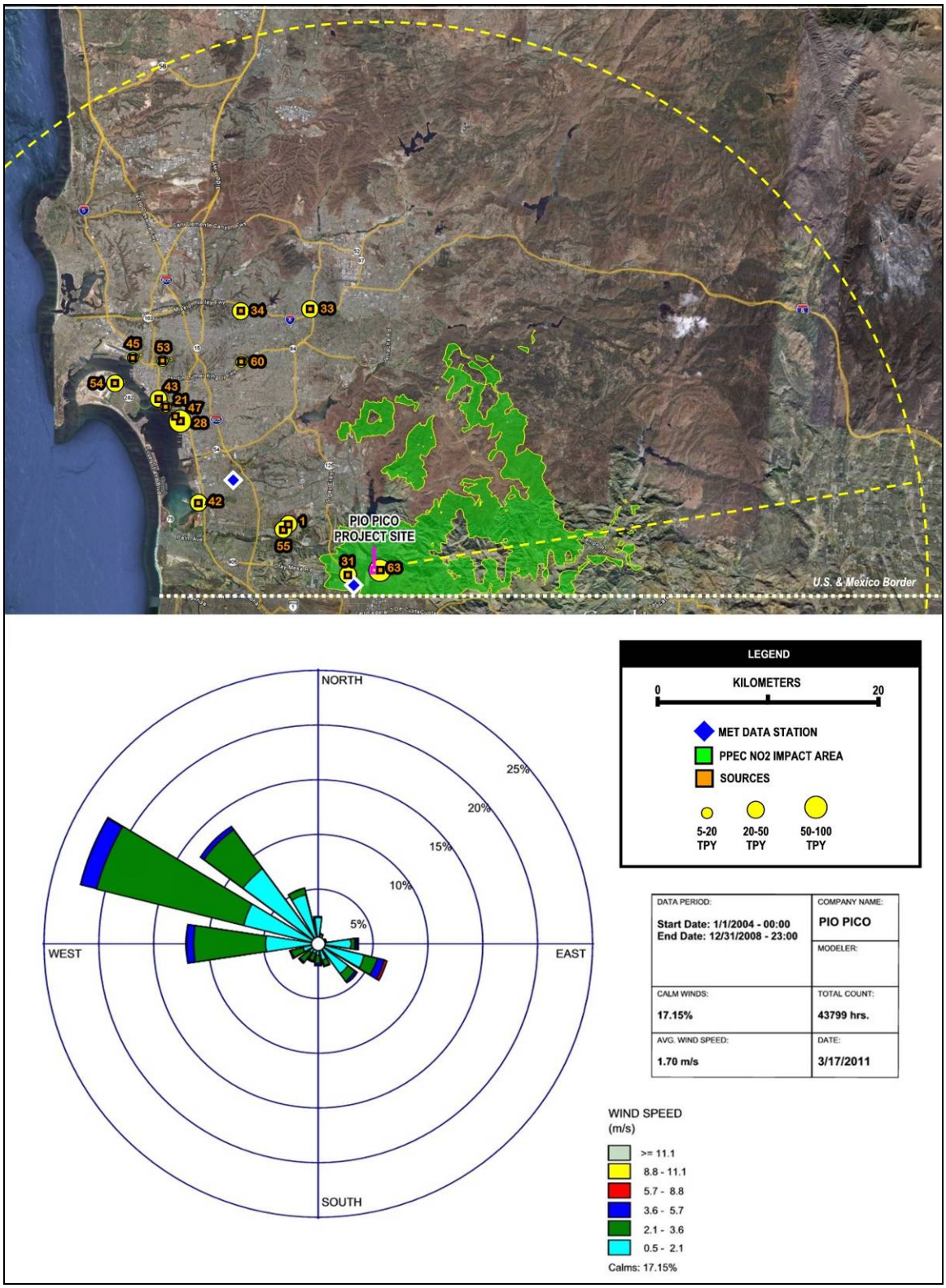


Table 7-1 also indicates which non-project facilities and emissions are proposed for inclusion in the compliance demonstration: NOx emissions from Larkspur Energy Facility (a small peaking plant located 2.5 km west of the project site); NOx emissions from Pacific Recovery Corp (landfill gas waste-to-energy facility 9.2 km west of the project site); and NOx and $PM_{2.5}$ emissions from Otay Mesa Generating Company (a power plant located adjacent to the project site). These facilities are all large enough and close enough to the project site to have the potential to directly impact the project's significant impact area. Additionally, the energy facilities are likely to operate at peak capacity at the same time as PPEC.

The decision to include or exclude a specific facility is based on a number of considerations. The purpose of the analysis is to identify non-project sources that might contribute to a modeled violation at a time and place where the project has a significant impact; the size of the non-project source is important. A preliminary analysis that evaluated the combined impact of project and regional background, but no non-project sources, indicated that the project would raise the design value only 3 $\mu g/m^3$, from 153 $\mu g/m^3$ to 156 $\mu g/m^3$.[*] In order to result in a violation, a non-project source (or combination of non-project sources) would therefore have to have an impact of more than 32 $\mu g/m^3$ *at the same time and place* as the project's significant impact—about 10 times as great as the project's impact.

Because the averaging time is a short one (hourly for NO_2, daily for $PM_{2.5}$), a non-project source would need to be on the same (windward) side of the project impact area as the project in order to impact the project impact area at the same time.

Described below are the factors taken into account while reviewing the list of candidate sources.

- *Proximity*: Current EPA guidance[†] suggests that "emphasis on determining which nearby sources to include in the modeling analysis should focus on the area within about 10 kilometers of the project location in most cases."

- *Size*: In order to affect the analysis, the candidate project or projects must have an impact 10 times as great as the project's impact at the same time and place as the project.

- *Location relative to impact areas*: For short-term impacts, a non-project facility must be on the same side of the impact area as the project in order to have an impact at the same time and place as the project.

- *Location relative to the ambient monitor***:** Sources upwind of the ambient monitor are more likely to be adequately reflected in ambient monitoring data.

[*] AFC Addendum, Table G-7.2.

[†] Memo, T. Fox (EPA) to Regional Air Division Directors, "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 Ambient Air Quality Standard," March 1, 2011, p. 12-16

- **Operating schedule:** The variability of source operation, and the frequency of relatively high emission operations, can affect the source's contribution to significant concentration gradients. In this case, high emissions from peaking power plants are likely to align with startup emissions from the project.

Most of the facilities in Table 7-1 are proposed for exclusion from the analysis because they are too far away from the project to be likely to create a significant impact gradient in the project's impact area. All of the excluded facilities except for Hanson Aggregates are more than 10 km away from the project, and more than 10 km away from the relevant significant impact area.

Based upon project modeling, the extent of the project's significant NO_2 impact was 24 km for an annual emission rate of 70 TPY. The ratio of emissions to distance to the limits of significant impact for the project is 70/24 TPY/km, or 2.9.[*] This ratio was used as a rough screening tool for estimating the impact of other facilities relative to the project. A facility with about the same emissions and about the same stack height can be expected to have similar impacts at a given distance. Because a non-project facility would need to have a much higher impact than the project in order to result in noncompliance, this screening level was a useful starting point for considering non-project facilities.

It should be noted that distance over which a facility might have a significant impact for short-term standards (e.g., hourly NO_2) is determined by short-term maximum emission rates rather than annual emission rates. In fact, the PPEC impact area is determined by the peak emission rates that occur during startup and shutdown. District emission inventories report annual emission rates. If a candidate facility is operated in a way that the ratio of peak emissions to average emissions is much higher than for PPEC, use of the ratio of annual emissions distance to screen for impact is less valid. For this reason, facilities that were screened out because the annual emission-to-distance ratio of 2.9 TPY/km or lower were examined to determine if there was a likelihood that short-term emission rates would be much higher than annualized emission rates.

Other sources were screened out for the reasons outlined below.

- *Otay Landfill; Sycamore Landfill; Hanson Aggregates* – These facilities are on the list because they have large PM_{10} emissions. However, the $PM_{2.5}$ fraction of fugitive dust emissions is low (on the order of 20% of PM_{10}). If the $PM_{2.5}$ emissions are estimated by adjusting total $PM_{10,}$ the emission-to-distance ratio falls below the screening level. Furthermore, $PM_{2.5}$ from fugitive dust would be expected to settle out close to the source, when compared with combustion $PM_{2.5}$ emitted from a hot stack. Finally, the ratio of peak emissions to annual average emissions will be much lower for the fugitive dust sources. All of these factors combine to support excluding these sources from the analysis.

[*] The ratio for $PM_{2.5}$ impacts is much higher (35.8TPY/3.8 km = 9.4).

- *Manson Construction and Engineering* – This is the storage location for portable equipment. Emissions occur throughout the District.

- *Solar Turbines, Inc.* – Peak emissions from this turbine testing facility are lower than peak emissions from the 300 MW PPEC, and the distance from the facility to the PPEC significant impact area is much more than 24 km. Based on the PPEC modeling, it is not likely that this facility will have a significant impact on concentrations in the PPEC significant impact area.

- *Dynegy South Bay* – This facility is in the process of being decommissioned, and ceased operation on December 31, 2010.

The next step in the compliance demonstration is to include the modeled impacts at all receptors in the significant impact area from the nearby sources identified above in background impacts for the compliance demonstration. This step will be performed after EPA has reviewed and approved the list of nearby sources to include in the analysis.

7.2 Compliance with the Federal 24-hour $PM_{2.5}$ Standard

7.2.1 Form of the Standard

The federal 24-hour $PM_{2.5}$ standard is met if the three-year average of the 98th percentile daily 24-hour average $PM_{2.5}$ concentration, including background, does not exceed 35 $\mu g/m^3$.

The procedure for determining compliance is to determine the 24-hour $PM_{2.5}$ concentration, including background, for each calendar day in the year at every receptor. These concentrations are rank-ordered, highest to lowest, and the 98th percentile value (8th highest concentration for a reasonably complete data set) is selected to represent that year. These values are then averaged over the three years included in the analysis. The resulting average must be less than or equal to 35 $\mu g/m^3$.

7.2.2 Compliance Demonstration Procedure

The output from the dispersion model provides the worst-case project impact at all of the receptors in the impact area (the area where the maximum project impact exceeds the Significant Impact Level [SIL]) for each hour of the year. Receptors outside the impact area are excluded from the analysis because the project impact cannot, by definition, cause or contribute significantly to a violation of the standard if the project impact alone does not exceed the SIL. The ambient background concentration for each day is then added to the modeled impact at each receptor.

Once the modeled impact for each day has been added to the corresponding ambient background concentration, daily impacts are rank ordered; because the data set is complete, the 8th highest result is averaged with those from the other years in the analysis to determine compliance.

Regional Background Concentrations

Regional background concentrations have been obtained from the District. See the discussion above for NO_2, as well as the discussions in Section 5.2 of the AFC and in the modeling protocol, for more information about ambient monitoring, including representativeness.

Nearby Sources

The decision to include or exclude a specific facility is based on a number of considerations. The purpose of the analysis is to identify non-project sources that might contribute to a modeled violation at a time and place where the project has a significant impact; the size of the non-project source is important. A preliminary analysis that evaluated the combined impact of project and regional background, but no non-project sources, indicated that the project would raise the design value only 0.1 $\mu g/m^3$, from 25.8 $\mu g/m^3$ to 25.9 $\mu g/m^3$.[*] In order to result in a violation, a non-project source (or combination of non-project sources) would therefore have to have an impact of more than 9 $\mu g/m^3$ *at the same time and place* as the project's significant impact—more than 10 times as great as the project's impact.

Because the averaging time is short (daily for $PM_{2.5}$), a non-project source would need to be on the same (windward) side of the project impact area as the project in order to impact the project impact area at the same time.

Figures 7-3 and 7-4 show the location and relative strength of $PM_{2.5}$ sources near the project. Also shown are the site of the meteorological monitor, the site of the ambient air quality monitor, the impact area for 24-hour $PM_{2.5}$ standard, and a wind rose for the area.

[*] AFC Addendum, Table G-7.2.

Figure 7-3
$PM_{2.5}$ Stationary Sources in Near Vicinity (within 10 km) of PPEC

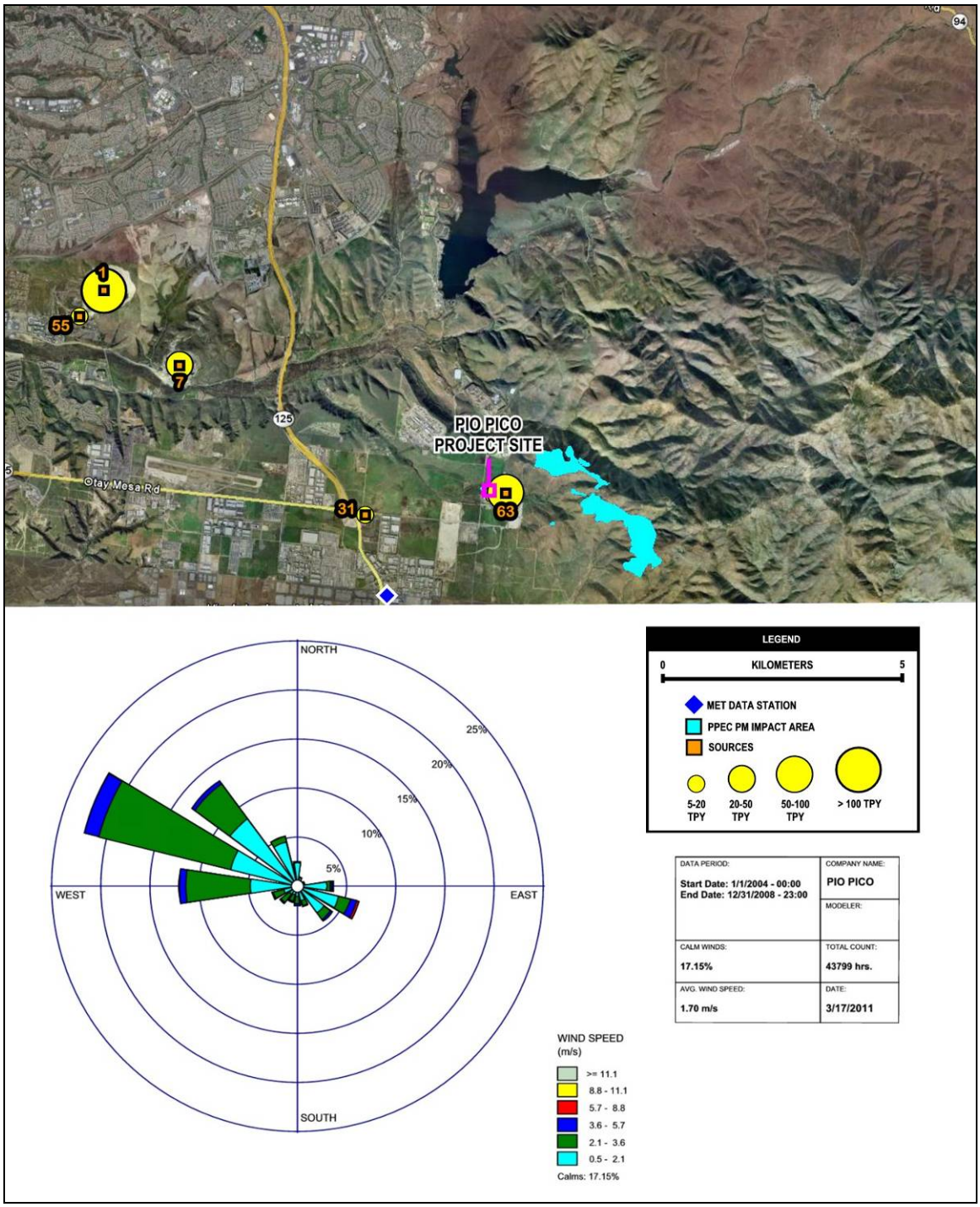
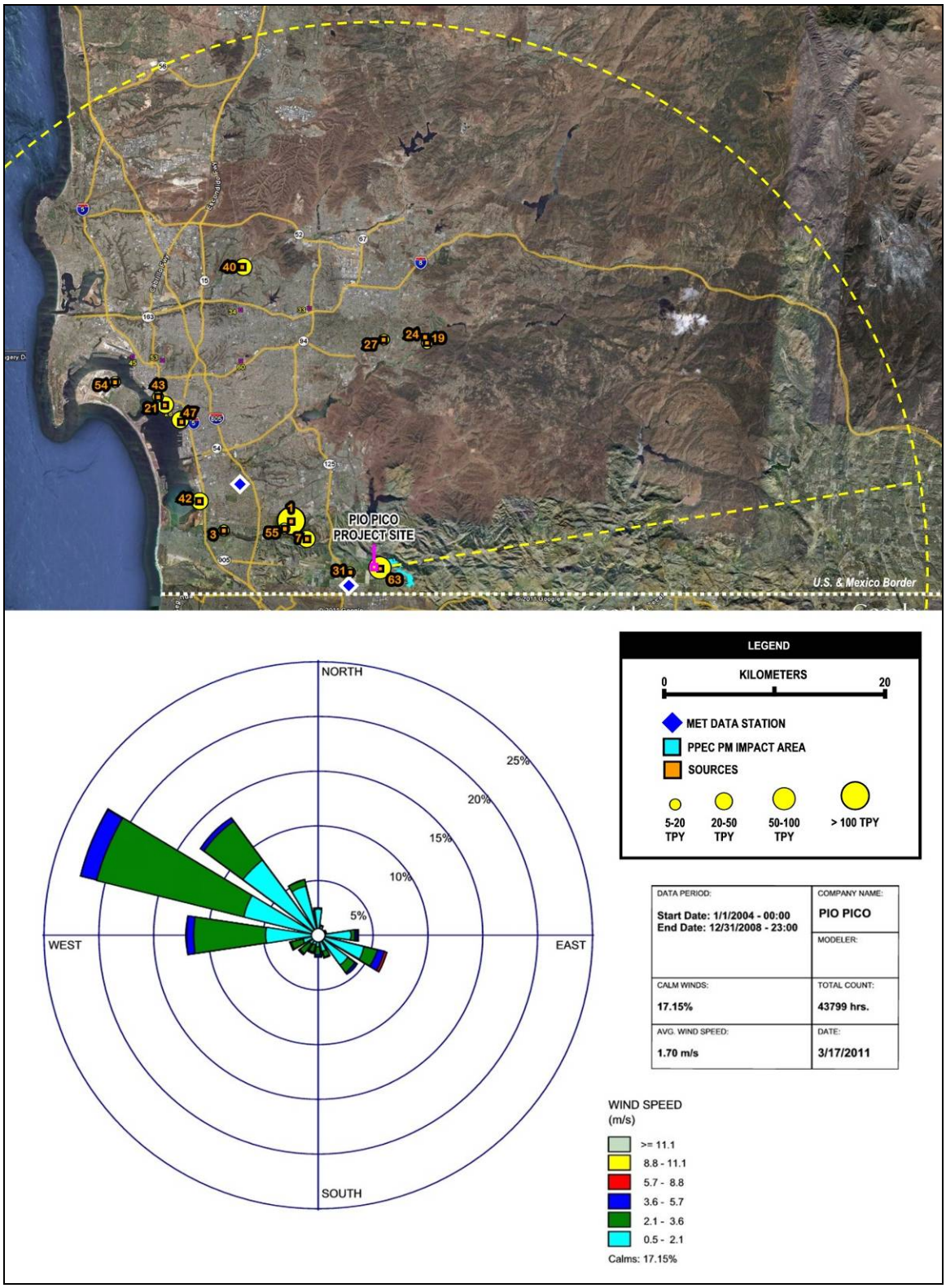


Figure 7-4
$PM_{2.5}$ Stationary Sources in Vicinity (within 50 km) of PPEC



The same emission/distance ratio of 2.9, derived from NO_2 impacts, was used for initial screening of $PM_{2.5}$ sources. This conservative approach was taken because it simplifies the screening process. It avoids the need to account for the contribution that non-combustion sources make to project impacts, and it makes little difference in the number of sources that will be included in the cumulative impact analysis. Special factors taken into consideration for inclusion or exclusion of $PM_{2.5}$ sources are described above in Section 8.1.2.

7.2.3 Compliance Demonstration Results

The next step in the compliance demonstration is to include the modeled impacts at all receptors in the significant impact area from the nearby sources identified above in background impacts for the compliance demonstration. This step will be performed after EPA has reviewed and approved the list of nearby sources to include in the analysis.

Table 7-1
Identification of Nearby Sources

Facility Name	Source Type	Distance from Pio Pico Project Site (kilometers)	NOx Emissions (TPY)	PM_{10} Emissions (TPY)	Emission/ Distance Ratio (NOx)	Emission/ Distance Ratio ($PM_{2.5}$)	Include in Cumulative Impact	Basis for Exclusion
31. Larkspur Energy Facility	Electricity Generation	2.5	50	7.0	20.0	2.8	NOx	Emission-to-distance ratio ($PM_{2.5}$)
55. Pacific Recovery Corp	Electricity Generation	9.2	44.6	15.5	4.8	1.7	NOx	Emission-to-distance ratio ($PM_{2.5}$)
63. Otay Mesa Generating Company[a]	Power	0.1	100	99.5	1000.0	995.0	NOx, $PM_{2.5}$	
1. Otay Landfill Inc.	Landfill	9.0	20.7	187.5	2.3	20.8		Fugitive Dust Source[b]
2. Sycamore Landfill Inc.	Landfill	33.6	9.5	418.5	0.3	12.5		Fugitive Dust Source[b]
3. Hanson Aggregates – 7th & Main	Aggregate Production	14.4		16.8		1.2		Emission-to-distance ratio
4. Hanson Aggregates – Escondido	Aggregate Production	62.9		9.1		0.1		Emission-to-distance ratio
5. Superior Ready Mix Concrete	Concrete Mix Production	64.0		10.0		0.2		Emission-to-distance ratio
6. Hamilton Sundstrand Power Systems	Aerospace components (including auxiliary power systems)	33.7	12.6		0.4			Emission-to-distance ratio
7. Hanson Aggregates - Otay Valley Rd.	Aggregate Production	6.9		47.1		6.8		Emission-to-distance ratio
8. Manson Construction & Engineering	Marine Construction and Dredging	Portable source	13.8					Portable Source
9. Hanson Aggregates - Harris Plant	Aggregate Production	37.4		10.4		0.3		Emission-to-distance ratio
10. USN Air Station Noris	Unknown	30.7	9.1		0.3			Emission-to-distance ratio

Table 7-1
Identification of Nearby Sources

Facility Name	Source Type	Distance from Pio Pico Project Site (kilometers)	NOx Emissions (TPY)	PM_{10} Emissions (TPY)	Emission/ Distance Ratio (NOx)	Emission/ Distance Ratio ($PM_{2.5}$)	Include in Cumulative Impact	Basis for Exclusion
11. Duplicate facility (#28)								Duplicate
12. Hanson Aggregates - Carroll Canyon	Aggregate Production	42.0		15.5		0.4		Emission-to-distance ratio
13. USMC Camp Pendleton - Military Schools	Unknown	89.0	6.2		0.1			Emission-to-distance ratio
14. USMC Camp Pendleton - Unpermitted Sources	Unknown	89.6	11.6		0.1			Emission-to-distance ratio
15. Hanson Aggregates - Twin Oaks	Aggregate Production	65.0		21.7		0.3		Emission-to-distance ratio
16. Hanson Aggregates - Sycamore Landfill	Aggregate Production	34.6		29.4		0.8		Emission-to-distance ratio
17. California Commercial Asphalt	Asphalt Production	37.4		12.4		0.3		Emission-to-distance ratio
18. Agri Service	Composting Facility	79.4		5.5		0.1		Emission-to-distance ratio
19. J Cloud Inc	Construction Materials Recycling	21.1		6.4		0.3		Emission-to-distance ratio
20. Encina Wastewater Authority	Wastewater Treatment	70.7	6.9		0.1			Emission-to-distance ratio
21. National Steel & Shipbuilding	Steel and Ship Production	24.3	12.9	23.2	0.5	1.0		Emission-to-distance ratio
22. Hanson Aggregates - Hwy 67 Lakeside	Aggregate Production	37.3		18.6		0.5		Emission-to-distance ratio
23. Pacific Gas Turbine Center	Electricity Production	40.7	12.9		0.3			Emission-to-distance ratio
24. Hanson Aggregates - El Cajon	Aggregate Production	21.3		5.0		0.2		Emission-to-distance ratio
25. So. Cal. Edison - San Onofre	Electricity Generation	106.3	27.2		0.3			Emission-to-distance ratio

Table 7-1 Identification of Nearby Sources								
Facility Name	Source Type	Distance from Pio Pico Project Site (kilometers)	NOx Emissions (TPY)	PM_{10} Emissions (TPY)	Emission/ Distance Ratio (NOx)	Emission/ Distance Ratio ($PM_{2.5}$)	Include in Cumulative Impact	Basis for Exclusion
26. Kyocera	Electronic Goods Production	34.5	16.9		0.5			Emission-to-distance ratio
27. CW Mcgrath	Quarry	20.6		5.9		0.3		Emission-to-distance ratio
28. USN Supships - 32nd St	Unknown	23.0	6.4		0.3			Emission-to-distance ratio
29. Gas Recovery System - San Marcos	Electricity Generation	63.2	16.1		0.3			Emission-to-distance ratio
30. Gas Recovery Systems - Santee	Electricity Generation	33.1	20.4		0.6			Emission-to-distance ratio
32. Encina Power Plant	Electricity Generation	73.6	54.6	47.6	0.7	0.6		Emission-to-distance ratio
33. Grossmont District Hospital	Medical Services	24.4	39.1		1.6			Emission-to-distance ratio
34. San Diego State University	University	26.6	25.4		1.0			Emission-to-distance ratio
35. Solar Turbines Inc.	Small Combustion Turbine Production	33.4	94.4	7.5	2.8	0.2		Emission-to-distance ratio
36. Pt. Loma Wastewater Treatment Plant	Wastewater Treatment	32.9	45.2	11.2	1.4	0.3		Emission-to-distance ratio
37. Qualcomm - Morehouse Dr.	Electronic Goods Production	44.0	26.5		0.6			Emission-to-distance ratio
38. Minnesota Methane - North City Facility	Cogeneration	42.7	25.3	8.5	0.6	0.2		Emission-to-distance ratio
39. Minnesota Methane - Miramar Facility	Cogeneration	37.4	42.2	14.9	1.1	0.4		Emission-to-distance ratio
40. Canyon Rock - Mission Gorge	Aggregate Production	29.9		35.9		1.2		Emission-to-distance ratio

Table 7-1
Identification of Nearby Sources

Facility Name	Source Type	Distance from Pio Pico Project Site (kilometers)	NOx Emissions (TPY)	PM_{10} Emissions (TPY)	Emission/ Distance Ratio (NOx)	Emission/ Distance Ratio ($PM_{2.5}$)	Include in Cumulative Impact	Basis for Exclusion
41. Vulcan Materials	Aggregate Production	31.2		44.3		1.4		Emission-to-distance ratio
42. Dynegy South Bay	Electricity Generation	17.3	35.7	36.8	2.1	2.1		Ceased Operation
43. CP Kelco US Inc	Food Ingredients Production	25.3	38.8	6.4	1.5	0.3		Emission-to-distance ratio
44. Applied Energy LLC MCRD	Electricity Generation	32.6	40.4	12.8	1.2	0.4		Emission-to-distance ratio
45. Solar Turbines - Pacific Hwy	Small Combustion Turbine Production	29.5	16.6		0.6			Emission-to-distance ratio
46. RCP Block & Brick	Concrete Block and Brick Production	30.8		5.8		0.2		Emission-to-distance ratio
47. Applied Energy - Naval Station	Electricity Generation	22.5	56.2	22.3	2.5	1.0		Emission-to-distance ratio
48. BAE Systems Ship Repair	Ship Repair	45.0	7.3		0.2			Emission-to-distance ratio
49. UC San Diego	University	44.9	9.4	9.8	0.2	0.2		Emission-to-distance ratio
50. San Diego Union Tribune	Newspaper Production	31.3	8.0		0.3			Emission-to-distance ratio
51. US Marine Corps Miramar	Unknown	39.2	87.7	5.3	2.2	0.1		Emission-to-distance ratio
52. US Marine Corps Miramar – 3rd MAW	Motor Transportation Maintenance	39.6	21.2		0.5			Emission-to-distance ratio
53. Navy Hospital	Medical Services	27.3	10.7		0.4			Emission-to-distance ratio
54. Applied Energy - North Island	Electricity Generation	29.3	22.0	15.5	0.8	0.5		Emission-to-distance ratio

Table 7-1
Identification of Nearby Sources

Facility Name	Source Type	Distance from Pio Pico Project Site (kilometers)	NOx Emissions (TPY)	PM_{10} Emissions (TPY)	Emission/ Distance Ratio (NOx)	Emission/ Distance Ratio ($PM_{2.5}$)	Include in Cumulative Impact	Basis for Exclusion
56. Vulcan Materials - Black Mtn. Rd.	Aggregate Production	41.2		27.1		0.7		Emission-to-distance ratio
57. SDG&E Palomar Energy Center	Electricity Production	63.3	95.4	37.6	1.5	0.6		Emission-to-distance ratio
58. Goal Line LP - Escondido	Electricity Generation	62.7	18.9	26.0	0.3	0.4		Emission-to-distance ratio
59. San Diego County - San Marcos Landfill	Closed Landfill	62.7	9.6		0.2			Emission-to-distance ratio
60. San Diego City - South Chollas Landfill	Closed Landfill	22.6	6.3		0.3			Emission-to-distance ratio
61. San Diego City - Miramar Landfill	Landfill	38.8		82.2		2.1		Emission-to-distance ratio
62. San Diego Metro Pumping Station #2	Water Pumping Facility	32.2	13.6		0.4			Emission-to-distance ratio

[a] Emissions from Otay Mesa Generating Company are maximum permitted annual emissions.
[b] Fugitive dust emission source. See text for discussion of factors resulting in exclusion.

TABLE OF CONTENTS

SECTION 1.0 EXECUTIVE SUMMARY 1-1

1.1 INTRODUCTION 1-1

1.2 FACILITY LOCATION AND DESCRIPTION 1-2

1.2.1 Facility Location 1-2
1.2.2 Facility Description 1-2
1.2.3 Fuel Gas Supply 1-2
1.2.4 Water Supply and Discharge 1-3
1.2.5 Transmission Facilities 1-3

1.3 PROJECT SCHEDULE 1-3

1.4 PROJECT OWNERSHIP 1-3

1.5 SUMMARY OF ENVIRONMENTAL IMPACTS 1-3

SECTION 2.0 PROJECT OBJECTIVES/NEED 2-1

2.1 SDG&E REQUEST FOR OFFERS 2-1

2.2 RESPONSE TO REQUEST FOR OFFERS 2-2

2.3 SDG&E CONTRACT 2-2

SECTION 3.0 FACILITY DESCRIPTION 3-1

3.1 INTRODUCTION 3-1

3.2 FACILITY NEED 3-3

3.3 PROJECT SITE, LINEARS, AND TEMPORARY LAYDOWN AREA 3-3

3.4 SITE DESCRIPTION 3-4

3.4.1 Topography 3-4
3.4.2 Geologic Setting and Seismology 3-5
3.4.3 Hydrological Setting 3-5

3.5 FACILITY DESCRIPTION 3-6

3.5.1 Overview 3-6
3.5.2 Project Site Access 3-7
3.5.3 Site Layout 3-7
3.5.4 Power Plant Cycle 3-8
3.5.5 Major Electrical Equipment and Systems 3-11
3.5.6 Fuel Gas System 3-14
3.5.7 Water Supply and Treatment 3-15

3.5.8 Waste Management 3-21
3.5.9 Emissions Control and Monitoring Equipment 3-24
3.5.10 Fire Protection System 3-25
3.5.11 Plant Auxiliaries 3-26
3.5.12 Heating, Ventilation, and Air Conditioning 3-29
3.5.13 Plumbing 3-30
3.5.14 Noise Emission Abatement Equipment 3-30

3.6 CIVIL/STRUCTURAL FEATURES 3-30

3.6.1 Overview 3-31
3.6.2 Stacks 3-31
3.6.3 Buildings 3-31
3.6.4 Transformer Foundations and Firewalls 3-31
3.6.5 Yard Tanks 3-31
3.6.6 Roads 3-32
3.6.7 Site Security 3-32
3.6.8 Site Grading and Drainage 3-32
3.6.9 Site Flood Issues 3-33
3.6.10 Sanitary System 3-33
3.6.11 Earthwork 3-33

3.7 ELECTRICAL INTERCONNECTION 3-34

3.7.1 PPEC Switching Station and Interconnect Specifications 3-34
3.7.2 Transmission Structures 3-35
3.7.3 Transmission System Evaluation 3-35
3.7.4 Transmission Line Safety and Nuisance 3-36
3.7.5 Transmission System Design Laws, Ordinances, Regulations, and Standards 3-40
3.7.6 Transmission System Involved Agencies and Agency Contacts 3-41

3.8 PIPELINES 3-42

3.8.1 Natural Gas Supply Line 3-42
3.8.2 Pneumatic Testing 3-44
3.8.3 Sewer Line 3-45

3.9 PROJECT CONSTRUCTION 3-45

3.10 FACILITY OPERATIONS AND MAINTENANCE 3-47

3.10.1 Introduction 3-47
3.10.2 Power Plant Facility 3-47
3.10.3 Transmission System Operation and Maintenance 3-48
3.10.4 Pipeline Operation and Maintenance 3-48

TABLE OF CONTENTS CONTINUED

3.11 FACILITY CLOSURE 3-48

3.11.1 Temporary Closure....3-48
3.11.2 Permanent Closure 3-49
3.11.3 Closure Mitigation 3-49

3.12 SAFETY, AVAILABILITY, AND RELIABILITY....3-50

3.12.1 Safety Precautions and Emergency Systems 3-50
3.12.2 Aviation Safety – Power Generation Stacks....3-52
3.12.3 Facility Availability 3-52
3.12.4 Equipment Reliability and Redundancy....3-52
3.12.5 Fuel/Water Availability....3-54
3.12.6 Project Quality and Control 3-55

3.13 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS....3-55

3.14 REFERENCES....3-55

SECTION 4.0 ALTERNATIVES 4-1

4.1 PROJECT OBJECTIVES AND SCOPE OF THE ALTERNATIVES ANALYSIS 4-1

4.2 NO PROJECT ALTERNATIVE 4-3

4.3 GENERATION TECHNOLOGY ALTERNATIVES....4-4

4.4 WATER/COOLING/WASTEWATER CYCLE ALTERNATIVES 4-6

4.5 SITE LOCATION AND LINEAR ROUTE ALTERNATIVES - SCREENING AND COMPARATIVE ANALYSIS 4-7

4.5.1 Alternative Site Locations....4-9
4.5.2 Comparative Summary of Alternative Sites' Ability to Meet Screening Criteria....4-15
4.5.3 Environmental Impacts 4-17
4.5.4 Detailed Comparison of Two Feasible Alternatives 4-19
4.5.5 Environmental, Engineering and Economic Merits Summary 4-21

SECTION 5.0 ENVIRONMENTAL INFORMATION 5-1

5.1 INTRODUCTION 5.1-1

5.2 AIR QUALITY 5.2-1

5.2.1 Affected Environment....5.2-3
5.2.2 Involved Agencies and Agency Contacts 5.2-14
5.2.3 Laws, Ordinances, Regulations, and Standards 5.2-15
5.2.4 Environmental Consequences 5.2-30

5.2.5 Cumulative Air Quality Impacts 5.2-56
5.2.6 Consistency with Laws, Ordinances, Regulations, and Standards....5.2-61
5.2.7 Mitigation Measures....5.2-67
5.2.8 Permits Required and Permit Schedule....5.2-68
5.2.9 References....5.2-69

5.3 GEOLOGICAL HAZARDS AND RESOURCES....5.3-1

5.3.1 Affected Environment....5.3-1
5.3.2 Environmental Consequences....5.3-10
5.3.3 Cumulative Impacts....5.3-10
5.3.4 Mitigation Measures and Conditions of Certification....5.3-11
5.3.5 Laws, Ordinances, Regulations, and Standards....5.3-11
5.3.6 References....5.3-12

5.4 SOILS....5.4-1

5.4.1 Affected Environment....5.4-1
5.4.2 Environmental Impacts....5.4-4
5.4.3 Cumulative Impacts....5.4-11
5.4.4 Mitigation Measures and Conditions of Certification....5.4-12
5.4.5 Laws, Ordinances, Regulations and Standards....5.4-13
5.4.6 References....5.4-15

5.5 WATER RESOURCES....5.5-1

5.5.1 Affected Environment....5.5-1
5.5.2 Project Water and Wastewater Needs....5.5-8
5.5.3 Environmental Consequences....5.5-16
5.5.4 Mitigation Measures and Conditions of Certification....5.5-21
5.5.5 Laws, Ordinances, Regulations, and Standards....5.5-21
5.5.6 Agencies Involved and Agency Contacts....5.5-31
5.5.7 Permits Required and Permit Schedule....5.5-32
5.5.8 References....5.5-32

5.6 BIOLOGICAL RESOURCES....5.6-1

5.6.1 Methods....5.6-2
5.6.2 Affected Environment....5.6-4
5.6.3 Environmental Consequences....5.6-18
5.6.4 Cumulative Impacts....5.6-20
5.6.5 Avoidance, Minimization, and Mitigation Measures....5.6-21
5.6.6 Laws, Ordinances, Regulations, and Standards....5.6-30
5.6.7 Involved Agencies and Agency Contacts....5.6-35
5.6.8 Permits Required and Permitting Schedule....5.6-35
5.6.9 References....5.6-35

TABLE OF CONTENTS CONTINUED

5.7 CULTURAL RESOURCES 5.7-1

5.7.1 Affected Environment 5.7-1
5.7.2 Environmental Consequences 5.7-49
5.7.3 Cumulative Impacts 5.7-51
5.7.4 Mitigation Measures and Conditions of Certification 5.7-51
5.7.5 Laws, Ordinances, Regulations, and Standards 5.7-64
5.7.6 Involved Agencies and Agency Contacts 5.7-72
5.7.7 Permits Required and Permit Schedule 5.7-72
5.7.8 References 5.7-72

5.8 PALEONTOLOGICAL RESOURCES 5.8-1

5.8.1 Affected Environment 5.8-3
5.8.2 Environmental Consequences 5.8-7
5.8.3 Cumulative Impacts 5.8-8
5.8.4 Mitigation Measures and Conditions of Certification 5.8-8
5.8.5 Compliance with Laws, Ordinances, Regulations, and Standards 5.8-14
5.8.6 Agencies and Agency Contacts 5.8-17
5.8.7 Permits Required and Permit Schedule 5.8-17
5.8.8 References 5.8-18

5.9 LAND USE 5.9-1

5.9.1 Affected Environment 5.9-3
5.9.2 Environmental Consequences 5.9-12
5.9.3 Cumulative Impacts 5.9-13
5.9.4 Mitigation Measures and Conditions of Certification 5.9-13
5.9.5 Laws, Ordinances, Regulations and Standards (LORS) 5.9-13
5.9.6 References 5.9-23

5.10 SOCIOECONOMICS 5.10-1

5.10.1 Affected Environment 5.10-1
5.10.2 Environmental Consequences 5.10-7
5.10.3 Environmental Justice 5.10-19
5.10.4 Cumulative Impacts 5.10-21
5.10.5 Mitigation Measures and Conditions of Certification 5.10-23
5.10.6 Applicable Laws, Ordinances, Regulations, and Standards (LORS) 5.10-23
5.10.7 References 5.10-26

5.11 TRAFFIC AND TRANSPORTATION 5.11-1

5.11.1 Affected Environment 5.11-1
5.11.2 Environmental Consequences 5.11-11
5.11.3 Cumulative Impacts 5.11-23
5.11.4 Mitigation Measures and Conditions of Certification 5.11-24
5.11.5 Laws, Ordinances, Regulations, and Standards 5.11-25
5.11.6 Involved Agencies and Agency Contacts 5.11-34

5.11.7 Permits Required and Permit Schedule 5.11-34
5.11.8 References 5.11-35

5.12 NOISE 5.12-1

5.12.1 Fundamentals of Acoustics 5.12-1
5.12.2 Affected Environment 5.12-5
5.12.3 Summary of Noise Level Design Goals 5.12-12
5.12.4 Environmental Consequences 5.12-15
5.12.5 Cumulative Impacts 5.12-28
5.12.6 Mitigation Measures and Conditions of Certification 5.12-29
5.12.7 Laws, Ordinances, Regulations, and Standards 5.12-32
5.12.8 Involved Agencies and Agency Contacts 5.12-41
5.12.9 Permits Required 5.12-41
5.12.10 References 5.12-41

5.13 VISUAL RESOURCES 5.13-1

5.13.1 Affected Environment 5.13-1
5.13.2 Environmental Consequences 5.13-15
5.13.3 Cumulative Impacts 5.13-25
5.13.4 Mitigation Measures and Conditions of Certification 5.13-26
5.13.5 Laws, Ordinances, Regulations, and Standards 5.13-27
5.13.6 Involved Agencies and Agency Contacts 5.13-32
5.13.7 Permits Required and Permit Schedule 5.13-32
5.13.8 References 5.13-32

5.14 WASTE MANAGEMENT 5.14-1

5.14.1 Affected Environment 5.14-1
5.14.2 Environmental Consequences 5.14-4
5.14.3 Cumulative Impacts 5.14-10
5.14.4 Mitigation Measures and Conditions of Certification 5.14-10
5.14.5 Laws, Ordinances, Regulations, and Standards 5.14-13
5.14.6 Involved Agencies and Agency Contacts 5.14-17
5.14.7 Permits Required and Permit Schedule 5.14-18
5.14.8 References 5.14-19

5.15 HAZARDOUS MATERIALS HANDLING 5.15-1

5.15.1 Affected Environment 5.15-1
5.15.2 Environmental Consequences 5.15-2
5.15.3 Cumulative Impacts 5.15-16
5.15.4 Mitigation Measures and Conditions of Certification 5.15-16
5.15.5 Laws, Ordinances, Regulations, and Standards 5.15-20
5.15.6 Involved Agencies and Agency Contacts 5.15-24
5.15.7 Permits Required and Permit Schedule 5.15-25
5.15.8 References 5.15-25

5.16 PUBLIC HEALTH 5.16-1

5.16.1 Affected Environment 5.16-2
5.16.2 Environmental Consequences 5.16-5
5.16.3 Cumulative Impacts 5.16-15
5.16.4 Mitigation Measures and Conditions of Certification 5.16-15
5.16.5 Laws, Ordinances, Regulations, and Standards 5.16-16
5.16.6 Involved Agencies and Agency Contacts 5.16-19
5.16.7 Permits Required and Permit Schedule 5.16-19
5.16.8 References 5.16-20

5.17 WORKER SAFETY 5.17-1

5.17.1 Affected Environment 5.17-1
5.17.2 Environmental Consequences 5.17-1
5.17.3 Cumulative Impacts 5.17-15
5.17.4 Mitigation Measures and Conditions of Certification 5.17-16
5.17.5 Laws, Ordinances, Regulations, and Standards 5.17-17
5.17.6 Involved Agencies and Agency Contacts 5.17-20
5.17.7 Permits Required and Permit Schedule 5.17-21
5.17.8 References 5.17-22

5.18 CUMULATIVE IMPACTS 5.18-1

5.18.1 Introduction 5.18-1
5.18.2 Cumulative Projects 5.18-3
5.18.3 Stipulated Conditions of Certification 5.18-10
5.18.4 Mitigation Measures 5.18-10
5.18.5 Laws, Ordinances, Regulations, and Standards 5.18-10
5.18.6 Involved Agencies and Agency Contacts 5.18-10
5.18.7 Permits Required and Permit Schedule 5.18-11
5.18.8 References 5.18-11

SECTION 6.0 FINANCIAL INFORMATION 6-1

SECTION 7.0 LIST OF PREPARERS 7-1

LIST OF TABLES

TABLE 3.5-1 MAJOR EQUIPMENT INFORMATION 3-6

TABLE 3.5-2 SEASONAL HEAT AND MASS BALANCES 3-10

TABLE 3.5-3 DESIGN CONDITION ANNUAL OPERATING CHARACTERISTICS 3-10

TABLE 3.5-4 DAILY AND ANNUAL WATER FLOWS 3-16

TABLE 3.5-5 EXPECTED AVERAGE WATER QUALITY OF RECYCLED AND POTABLE WATER 3-16

TABLE 3.5-6 COOLING WATER QUALITY LIMITS 3-18

TABLE OF CONTENTS CONTINUED

TABLE 3.5-7 PROCESS WASTE CHARACTERIZATION 3-19
TABLE 3.5-8 ESTIMATED WASTE GENERATED DURING CONSTRUCTION AND OPERATION 3-22
TABLE 3.7-1 TRANSMISION LINE SAFETY AND NUISANCE LORS 3-39
TABLE 3.7-2 DESIGN AND CONSTRUCTION LORS FOR THE PROPOSED TRANSMISSION LINE AND SWITCHYARD 3-40
TABLE 3.7-3 AGENCIES WITH JURISDICTION FOR TRANSMISSION SYSTEM ENGINEERING AND DESIGN CONSIDERATIONS 3-42
TABLE 3.9-1 PROJECT CONSTRUCTION DATES 3-45
TABLE 3.9-2A PROJECT WORKFORCE PROJECTIONS 3-46
TABLE 3.9-2B PROJECT WORKFORCE PROJECTIONS 3-46
TABLE 3.12-1 EQUIPMENT REDUNDANCY 3-53
TABLE 4.4-1 WATER ALTERNATIVES – POLICY & COSTS 4-7
TABLE 4.5-1 ALTERNATIVE SITE COMPARISON OF SCREENING CRITERIA 4-18
TABLE 5.2-1 AVERAGE TEMPERATURES AND PRECIPITATION IN BONITA, SAN DIEGO COUNTY (1915-1970) 5.2-4
TABLE 5.2-2 NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS 5.2-5
TABLE 5.2-3 OZONE LEVELS AT CHULA VISTA (PPM) 5.2-8
TABLE 5.2-4 NITROGEN DIOXIDE LEVELS AT CHULA VISTA (PPM) 5.2-9
TABLE 5.2-5 CARBON MONOXIDE LEVELS AT CHULA VISTA (PPM) 5.2-10
TABLE 5.2-6 SULFER DIOXIDE LEVELS AT CHULA VISTA (PPM) 5.2-11
TABLE 5.2-7 PARTICULATE MATTER (PM10) LEVELS AT CHULA VISTA (µG/M3) 5.2-12
TABLE 5.2-8 PARTICULATE MATTER (PM2.5) LEVELS AT CHULA VISTA (µG/M3) 5.2-13
TABLE 5.2-9 AGENCY CONTACTS 5.2-15
TABLE 5.2-10 PSD SIGNIFICANT EMISSION THRESHOLDS 5.2-17
TABLE 5.2-11 PSD INCREMENTS AND SIGNIFICANT IMPACT LEVELS 5.2-18
TABLE 5.2-12 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS 5.2-27
TABLE 5.2-13 ESTIMATED CONSTRUCTION EQUIPMENT/VEHICLE USAGE 5.2-32
TABLE 5.2-14 MAXIMUM DAILY CONSTRUCTION EMISSIONS, POUNDS PER DAY MONTH 8 (COMBUSTION) MONTH 2 (FUGITIVE DUST) 5.2-34
TABLE 5.2-15 MAXIMUM ANNUAL CONSTRUCTION EMISSIONS, TONS PER YEAR 5.2-34
TABLE 5.2-16 NOMINAL FUEL PROPERTIES—NATURAL GAS 5.2-35
TABLE 5.2-17 COMMISSIONING EMISSIONS (PER TURBINE) 5.2-37
TABLE 5.1-18 MAXIMUM EMISSION RATES—COMBUSTION TURBINES 5.2-38
TABLE 5.2-19 STARTUP AND SHUTDOWN EMISSIONS (PER TURBINE) 5.2-39
TABLE 5.2-20 EMISSION SUMMARY 5.2-40

TABLE OF CONTENTS CONTINUED

TABLE 5.2-21 CRITERIA POLLUTANT SOURCES AND EMISSION TOTALS FOR MODELING 5.2-41
TABLE 5.2-22 NON-CRITERIA POLLUTANT EMISSION TOTALS FOR MODELING 5.2-42
TABLE 5.2-23 PROJECT GREENHOUSE GAS EMISSIONS 5.2-43
TABLE 5.2-24 CONSTRUCTION GREENHOUSE GAS EMISSIONS 5.2-43
TABLE 5.2-25 MODELED MAXIMUM IMPACTS DURING CONSTRUCTION 5.2-50
TABLE 5.2-26 MODELED MAXIMUM IMPACTS DURING COMMISSIONING 5.2-51
TABLE 5.2-27 SUMMARY OF MODELING RESULTS 5.2-53
TABLE 5.2-28 SUMMARY OF RESULTS (MODELED MAXIMUM IMPACTS PLUS BACKGROUND) 5.2-55
TABLE 5.2-29 SUMMARY OF RESULTS OF DEMONSTRATION OF COMPLIANCE WITH FEDERAL 1-HOUR NO2 AND 24-HOUR PM2.5 STANDARDS 5.2-56
TABLE 5.2-30 COMPARISON OF PROJECT EMISSIONS TO REGIONAL PRECURSOR EMISSIONS IN 2010: ANNUAL BASIS1 ..... 5.2-57
TABLE 5.2-31 PSD SIGNIFICANT EMISSION THRESHOLDS 5.2-61
TABLE 5.2-32 COMPLIANCE WITH 40 CFR 60 SUBPART KKKK 5.2-62
TABLE 5.2-33 APPLICABILITY OF BACT REQUIREMENTS UNDER NSR 5.2-65
TABLE 5.2-34 SUMMARY OF PROPOSED BACT 5.2-65
TABLE 5.2-35 PPEC OFFSET AND MITIGATION REQUIREMENTS AND ERC AVAILABILITY 5.2-68
TABLE 5.3-1 MAGNITUDE 5.5 AND GREATER EARTHQUAKES OCCURING BETWEEN 1800 AND APRIL 2010 WITHIN 62 MILES (100 KM) OF THE PROJECT SITE 5.3-5
TABLE 5.3-2 PLANNING LEVEL 2007 CBC SEISMIC DESIGN PARAMETERS MAXIMUM CONSIDERED EARTHQUAKE, ASCE 7 STANDARD 5.3-7
TABLE 5.3-3 LORS APPLICABLE TO GEOLOGIC HAZARDS AND RESOURCES 5.3-11
TABLE 5.3-4 APPLICABLE AGENCIES AND AGENCY CONTACTS 5.3-12
TABLE 5.3-5 PERMITS REQUIRED 5.3-12
TABLE 5.4 1 SOIL TYPES IN THE STUDY AREA (IN PROXIMITY TO PPEC)1 ..... 5.4-3
TABLE 5.4 2 SUMMARY OF EROSION CALCULATIONS 5.4-7
TABLE 5.4 3 ASSUMPTIONS FOR SOIL EROSION CALCULATIONS 5.4-8
TABLE 5.4 4 WATER AND WIND EROSION CALCULATIONS 5.4-9
TABLE 5.4 5 LORS APPLICABLE TO SOILS RESOURCES 5.4-13
TABLE 5.4 6 AGENCY CONTACTS 5.4-15
TABLE 5.4 7 APPLICABLE PERMITS 5.4-15
TABLE 5.5-1 MONTHLY TEMPERATURE DATA (°F) FOR EL CAJON, CALIFORNIA 5.5-3
TABLE 5.5-2 AVERAGE MONTHLY PRECIPITATION (EL CAJON, CALIFORNIA) (INCHES) 5.5-3

TABLE OF CONTENTS CONTINUED

TABLE 5.5-3 DAILY AND ANNUAL WATER FLOWS....5.5-9
TABLE 5.5-4 EXPECTED AVERAGE WATER QUALITY OF RECYCLED WATER, POTABLE WATER, AND PROCESS WASTEWATER....5.5-9
TABLE 5.5-5 LORS RELATED TO WATER RESOURCES....5.5-28
TABLE 5.5-6 AGENCY CONTACTS....5.5-31
TABLE 5.5-7 PERMITS REQUIRED....5.5-32
TABLE 5.6-1 VEGETATION COMMUNITIES/LAND COVER TYPES OBSERVED WITHIN THE STUDY AREA....5.6-4
TABLE 5.6-2 OBSERVED PLANT SPECIES....5.6-6
TABLE 5.6-3 OBSERVED WILDLIFE SPECIES....5.6-8
TABLE 5.6-4 SPECIAL-STATUS PLANTS AND THEIR POTENTIAL FOR OCCURRENCE WITHIN THE PROJECT FOOTPRINT....5.6-9
TABLE 5.6-5 SPECIAL-STATUS WILDLIFE AND THEIR POTENTIAL FOR OCCURRENCE WITHIN THE PROJECT FOOTPRINT....5.6-13
TABLE 5.6-6 IMPACTS TO VEGETATION COMMUNITIES / LAND COVER TYPES....5.6-19
TABLE 5.6-8 SUMMARY OF BIOLOGICAL RESOURCES LORS AND COMPLIANCE....5.6-30
TABLE 5.6-9 AGENCY CONTACT LIST....5.6-35
TABLE 5.6-10 APPLICABLE PERMITS....5.6-35
TABLE 5.7-1 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS WITHIN PROJECT SITE AND RECORD SEARCH RADIUS....5.7-16
TABLE 5.7-2 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN PROJECT SITE AND RECORD SEARCH RADIUS....5.7-31
TABLE 5.7-3 ARCHAEOLOGICAL SITES WITHIN THE ARCHAEOLOGICAL SURVEY AREA WITH NO RIGHT OF ENTRY....5.7-38
TABLE 5.7-4 ARCHAEOLOGICAL SITES WITHIN THE ARCHAEOLOGICAL SURVEY AREA WITH RIGHT OF ENTRY....5.7-40
TABLE 5.7-5 PREVIOUSLY UNRECORDED HISTORIC ARCHITECTURE PROPERTIES WITHIN THE ARCHITECTURE HISTORY SURVEY AREA....5.7-44
TABLE 5.7-6 PREVIOUSLY RECORDED HISTORIC ARCHITECTURE PROPERTIES WITHIN THE ARCHITECTURE HISTORY SURVEY AREA....5.7-45
TABLE 5.7-7 LEGAL AND REGULATORY AUTHORITIES....5.7-68
TABLE 5.7-8 AGENCY CONTACT LIST FOR LORS....5.7-72
TABLE 5.8-1 APPLICABLE PALEONTOLOGICAL RESOURCES LAWS, ORDINANCES, REGULATIONS, AND STANDARDS....5.8-15
TABLE 5.8-2 INVOLVED AGENCIES AND AGENCY CONTACTS....5.8-17
TABLE 5.9-1 PROJECT SITE AND SURROUNDING LAND USES (WITHIN ONE MILE OF PROJECT SITE AND ONE-QUARTER MILE OF PROJECT LINEAR FACILITIES)....5.9-5
TABLE 5.9-2 RECENT DISCRETIONARY APPLICATIONS – EAST OTAY MESA....5.9-10
TABLE 5.9-3 LORS AND COMPLIANCE FOR LAND USE....5.9-21

TABLE OF CONTENTS CONTINUED

TABLE 5.9-4 AGENCY CONTACTS 5.9-22
TABLE 5.9-5 PERMITS AND APPROVALS 5.9-23
TABLE 5.10-1 HISTORICAL AND PROJECTED POPULATIONS IN THE PROJECT AREA, COUNTY, REGION, AND STATE 5.10-2
TABLE 5.10-2 HOUSING CHARACTERISTICS IN THE PROJECT AREA, COUNTY, REGION, AND STATE 5.10-3
TABLE 5.10-3 SAN DIEGO COUNTY EMPLOYMENT BY INDUSTRY: HISTORICAL AND PROJECTED 5.10-4
TABLE 5.10-4 EMPLOYMENT CHARACTERISTICS IN THE STATE AND STUDY AREA 5.10-5
TABLE 5.10-5 CONSTRUCTION LABOR PERSONNEL REQUIREMENTS PER MONTH. 5.10-11
TABLE 5.10-6 CONSTRUCTION AND OPERATION OCCUPATIONAL PROJECTIONS OF EMPLOYMENT IN PROJECT REGION 5.10-12
TABLE 5.10-7 ESTIMATED PROJECT STAFF DURING OPERATIONS 5.10-12
TABLE 5.10-8 PPEC ESTIMATED CONSTRUCTION AND OPERATION LOCAL SALES TAX IN SAN DIEGO COUNTY 5.10-16
TABLE 5.10-9 ETHNIC AND ECONOMIC CHARACTERISTICS OF PROJECT REGION AND WITHIN SIX MILES OF THE PROPOSED PROJECT 5.10-22
TABLE 5.10-10 FEDERAL POVERTY THRESHOLDS 5.10-22
TABLE 5.10-11 LORS APPLICABLE TO SOCIOECONOMICS 5.10-23
TABLE 5.10-12 INVOLVED AGENCIES AND CONTACTS 5.10-25
TABLE 5.10-13 APPLICABLE SOCIOECONOMIC PERMITS AND FEES 5.10-26
TABLE 5.11-1 STUDY INTERSECTIONS 5.11-9
TABLE 5.11-2 STUDY ROADWAY SEGMENTS 5.11-9
TABLE 5.11-3 ROADWAY SEGMENT LOS – EXISTING CONDITIONS 5.11-10
TABLE 5.11-4 PEAK-HOUR INTERSECTION LOS – EXISTING CONDITIONS 5.11-10
TABLE 5.11-5 LEVEL OF SERVICE DESCRIPTIONS 5.11-11
TABLE 5.11-6 COUNTY OF SAN DIEGO SEGMENT DAILY CAPACITY AND LEVEL OF SERVICE STANDARDS 5.11-12
TABLE 5.11-7 PEAK PROJECT CONSTRUCTION TRIP GENERATION 5.11-17
TABLE 5.11-8 PROJECT OPERATIONS TRIP GENERATION 5.11-18
TABLE 5.11-9 ROADWAY SEGMENT LOS – YEAR 2013 NO PROJECT CONDITIONS ... 5.11-18
TABLE 5.11-10 PEAK-HOUR INTERSECTION LOS – YEAR 2013 NO PROJECT CONDITIONS 5.11-19
TABLE 5.11-11 ROADWAY SEGMENT LOS – YEAR 2013 PEAK PROJECT CONSTRUCTION CONDITIONS 5.11-19
TABLE 5.11-12 PEAK-HOUR INTERSECTION LOS – YEAR 2013 PEAK PROJECT CONSTRUCTION CONDITIONS 5.11-20
TABLE 5.11-13 ROADWAY SEGMENT LOS – YEAR 2014 NO PROJECT CONDITIONS. 5.11-21

TABLE 5.11-14 PEAK-HOUR INTERSECTION LOS – YEAR 2014 NO PROJECT CONDITIONS 5.11-22
TABLE 5.11-15 ROADWAY SEGMENT LOS – YEAR 2014 PEAK PROJECT OPERATIONS CONDITIONS 5.11-22
TABLE 5.11-16 PEAK-HOUR INTERSECTION LOS – YEAR 2014 PEAK PROJECT OPERATIONS CONDITIONS 5.11-23
TABLE 5.11-17 SUMMARY OF LORS 5.11-30
TABLE 5.11-18 AGENCY CONTACT LIST FOR LORS 5.11-34
TABLE 5.11-19 APPLICABLE PERMITS 5.11-35
TABLE 5.12-1 SOUND LEVELS OF TYPICAL NOISE SOURCES AND NOISE ENVIRONMENTS (A-WEIGHTED SOUND LEVELS) 5.12-4
TABLE 5.12-2 25-HOUR SOUND LEVEL MEASUREMENT AT LT-1 (DBA) 5.12-8
TABLE 5.12-3 SHORT-TERM SOUND LEVEL MEASUREMENTS AT ST-1 (DBA) 5.12-9
TABLE 5.12-4 25-HOUR SOUND LEVEL MEASUREMENT AT LT-2 (DBA) 5.12-9
TABLE 5.12-5 SHORT-TERM SOUND LEVEL MEASUREMENTS AT ST-2 (DBA) 5.12-11
TABLE 5.12-6 NOISE-SENSITIVE RECEIVER CONSTRUCTION NOISE LIMIT GOALS 5.12-12
TABLE 5.12-7 NOISE-SENSITIVE RECEIVER OPERATIONAL NOISE DESIGN GOALS 5.12-14
TABLE 5.12-8 PPEC PLANT SITE CONSTRUCTION NOISE LEVELS AT NOISE-SENSITIVE RECEIVERS 5.12-16
TABLE 5.12-9 PPEC TRANSMISSION LINE (ROUTE A) CONSTRUCTION NOISE LEVELS AT NOISE-SENSITIVE RECEIVERS 5.12-17
TABLE 5.12-10 PPEC TRANSMISSION LINE (ROUTE B) CONSTRUCTION NOISE LEVELS AT NOISE-SENSITIVE RECEIVERS 5.12-17
TABLE 5.12-11 PPEC NATURAL GAS LINE (ROUTE A) CONSTRUCTION NOISE LEVELS AT NOISE-SENSITIVE RECEIVERS 5.12-18
TABLE 5.12-12 PPEC NATURAL GAS LINE (ROUTE B) CONSTRUCTION NOISE LEVELS AT NOISE-SENSITIVE RECEIVERS 5.12-19
TABLE 5.12-13 PROJECT ROADWAY SEGMENTS 5.12-19
TABLE 5.12-14 CHANGES IN SOUND LEVEL DUE TO PROJECT CONSTRUCTION TRAFFIC 5.12-20
TABLE 5.12-15 PROJECT SOUND LEVEL ALONG OTAY MESA ROAD AND ALTA ROAD DUE TO CONSTRUCTION TRAFFIC 5.12-20
TABLE 5.12-16 PROJECT OPERATIONAL TRAFFIC 5.12-21
TABLE 5.12-17 EQUIPMENT SOUND POWER LEVELS 5.12-23
TABLE 5.12-18 NOISE MODELING RESULTS AT AMBIENT NOISE MEASUREMENT LOCATIONS 5.12-26
TABLE 5.12-19 EXISTING CNEL PLUS PROJECT CNEL 5.12-26
TABLE 5.12-20 NIGHTTIME LEQ VALUES AT EXISTING NOISE-SENSITIVE RECEIVERS 5.12-27

TABLE 5.12-21 NIGHTTIME L90 VALUES AT EXISTING NOISE-SENSITIVE RECEIVERS 5.12-27

TABLE 5.12-22 CAL-OSHA PERMISSIBLE NOISE EXPOSURES 5.12-33

TABLE 5.12-23 COUNTY OF SAN DIEGO LAND USE/NOISE COMPATIBILITY GUIDELINES (TABLES N-1 AND N-2 OF THE NOISE ELEMENT OF THE COUNTY OF SAN DIEGO GENERAL PLAN, 2010) 5.12-36

TABLE 5.12-24 COUNTY OF SAN DIEGO EXTERIOR NOISE STANDARDS 5.12-38

TABLE 5.12-25 SUMMARY OF LAWS, ORDINANCES, REGULATIONS AND STANDARDS 5.12-39

TABLE 5.12-26 INVOLVED AGENCIES AND AGENCY CONTACTS 5.12-41

TABLE 5.13-1 VISUAL IMPACT SIGNIFICANCE MATRIX – SENSITIVE VIEWING AREAS 5.13-16

TABLE 5.13-2 VISUAL IMPACT SUSCEPTIBILITY – SENSITIVE VIEWING AREAS 5.13-17

TABLE 5.13-3 VISUAL IMPACT SEVERITY – SENSITIVE VIEWING AREAS 5.13-19

TABLE 5.13-4 MAJOR COMPONENT DESIGN CHARACTERISTICS 5.13-20

TABLE 5.13-5 VISUAL IMPACT SIGNIFICANCE – SENSITIVE VIEWING AREAS 5.13-22

TABLE 5.13-6 HEAT AND MASS BALANCE OF WSAC 5.13-24

TABLE 5.13-7 SUMMARY OF LAWS, ORDINANCES, REGULATIONS, AND STANDARDS 5.13-29

TABLE 5.13-8 AGENCY CONTACT LIST FOR LAWS, ORDINANCES, REGULATIONS, AND STANDARDS 5.13-32

TABLE 5.14-1 WASTE RECYCLING/DISPOSAL FACILITIES 5.14-3

TABLE 5.14-2 SUMMARY OF CONSTRUCTION WASTE STREAMS AND MANAGEMENT METHODS 5.14-5

TABLE 5.14-3 OPERATING WASTE STREAMS AND MANAGEMENT METHODS 5.14-7

TABLE 5.14-4 SUMMARY OF LORS – WASTE MANAGEMENT 5.14-13

TABLE 5.14-5 AGENCY CONTACT LIST FOR LORS 5.14-18

TABLE 5.14-6 APPLICABLE PERMITS 5.14-18

TABLE 5.15-1 HAZARDOUS MATERIALS USAGE AND STORAGE DURING CONSTRUCTION BASED ON TITLE 22 HAZARDOUS CHARACTERIZATION 5.15-2

TABLE 5.12-2 HAZARDOUS MATERIALS USAGE AND STORAGE DURING CONSTRUCTION BASED ON MATERIAL PROPERTIES 5.15-3

TABLE 5.15-3 HAZARDOUS MATERIALS USAGE AND STORAGE DURING OPERATION BASED ON TITLE 22 HAZARDOUS CHARACTERIZATION 5.15-4

TABLE 5.15-4 HAZARDOUS MATERIALS USAGE AND STORAGE DURING OPERATION BASED ON MATERIAL PROPERTIES 5.15-5

TABLE 5.15-5 DISPERSION MODEL PARAMETERS 5.15-13

TABLE 5.15-6 DISPERSION MODELING RESULTS 5.15-14

TABLE 5.15-7 SUMMARY OF LORS – HAZARDOUS MATERIALS HANDLING 5.15-20

TABLE 5.15-8 AGENCY CONTACT LIST FOR LORS 5.15-24

TABLE 5.15-9 APPLICABLE PERMITS 5.15-25

TABLE 5.16-1 ANNUAL AVERAGE CONCENTRATIONS AND CANCER RISKS FOR MONITORED TACS FOR YEAR 2007 - CHULA VISTA MONITORING STATION 5.16-5

TABLE 5.16-2 MAXIMUM ONSITE CONSTRUCTION DPM EMISSIONS 5.16-6

TABLE 5.16-3 NON-CRITERIA POLLUTANT EMISSIONS FROM ACTIVITIES AT PPEC 5.16-7

TABLE 5.16-4 TOXICITY VALUES USED TO CHARACTERIZE HEALTH RISKS 5.16-10

TABLE 5.16-5 SUMMARY OF POTENTIAL HEALTH RISKS FROM PROJECT OPERATION 5.16-11

TABLE 5.16-6 COMPARISON OF PROJECT LEAD IMPACTS WITH STATE AND FEDERAL STANDARDS 5.16-12

TABLE 5.16-7 COMPARISON OF MAXIMUM 8-HOUR AVERAGE IMPACTS FROM PROJECT OPERATION WITH 8-HOUR RELS 5.16-13

TABLE 5.16-8 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS APPLICABLE TO PUBLIC HEALTH 5.16-17

TABLE 5.16-9 AGENCY CONTACTS 5.16-19

TABLE 5.16-10 PERMITS AND PERMIT SCHEDULES FOR PUBLIC HEALTH 5.16-20

TABLE 5.17-1 POTENTIAL WORKER HAZARDS DURING PROJECT CONSTRUCTION .. 5.17-2

TABLE 5.17-2 BASIC PROTECTIVE EQUIPMENT GUIDE 5.17-5

TABLE 5.17-3 POTENTIAL WORKER HAZARDS DURING PROJECT OPERATION AND MAINTENANCE 5.17-7

TABLE 5.17-4 LOCATION OF POTENTIAL WORKER HAZARDS AT PIO PICO ENERGY CENTER (OPERATIONAL PHASE) 5.17-8

TABLE 5.17-5 SAMPLE EMERGENCY ACTION/EMERGENCY RESPONSE PLAN OUTLINE 5.17-14

TABLE 5.17-6 SUMMARY OF LORS – WORKER SAFETY 5.17-17

TABLE 5.17-7 AGENCY CONTACT LIST FOR LORS 5.17-21

TABLE 5.17-8 APPLICABLE PERMITS 5.17-21

TABLE 5.18-1 POTENTIAL PROJECTS CONSIDERED 5.18-4

TABLE 5.18-3 AGENCY CONTACTS 5.18-10

LIST OF FIGURES

FIGURE 3.1-1 REGIONAL LOCATION

FIGURE 3.1-2 SITE VICINITY

FIGURE 3.1-3A SITE ARRANGEMENT

FIGURE 3.1-3B SITE ARRANGEMENT AND POTENTIAL OFFSITE TRANSMISSION LINE STRUCTURE LOCATIONS

FIGURE 3.3-1 FACILITY PLOT PLAN

FIGURE 3.3-2 PROJECT LOCATION

FIGURE 3.3-3 POTENTIAL LINEARS

FIGURE 3.3-4 EXISTING SETTING WITHIN 1-MILE RADIUS OF POTENTIAL TRANSMISSION LINES

FIGURE 3.4-1 2010 SITE TOPOGRAPHY

FIGURE 3.4-2 BASELINE SITE TOPOGRAPHY

FIGURE 3.4-3 PRELIMINARY GRADING AND DRAINAGE PLAN

FIGURE 3.5-1 SITE ARRANGEMENT ELEVATIONS

FIGURE 3.5-2A HEAT AND MASS BALANCE – SPRING/FALL

FIGURE 3.5-2B HEAT AND MASS BALANCE – SUMMER

FIGURE 3.5-2C HEAT AND MASS BALANCE – PEAK

FIGURE 3.5-2D HEAT AND MASS BALANCE – WINTER

FIGURE 3.5-3 ELECTRICAL ONE-LINE DIAGRAM

FIGURE 3.5-4A WATER BALANCE FLOW DIAGRAM

FIGURE 3.5-4B WATER BALANCE FLOW VALUES

FIGURE 3.5-5 FIRE PROTECTION SYSTEM

FIGURE 3.7-1A 230KV SWITCHYARD TUBULAR STEEL H-FRAME STRUCTURE

FIGURE 3.7-1B 230KV T-LINE TUBULAR STEEL TANGENT STRUCTURE

FIGURE 3.7-1C 230KV T-LINE TUBULAR STEEL DEAD-END STRUCTURE

FIGURE 3.7-1D 230KV UG CABLE RISER/DEAD-END STRUCTURE AND DUCT BANK

FIGURE 4.5-1 ALTERNATIVE SITE LOCATIONS

FIGURE 5.3-1A GEOLOGY

FIGURE 5.3-1B GEOLOGY

FIGURE 5.3-2 REGIONAL FAULTS AND EARTHQUAKE EPICENTERS

FIGURE 5.4-1 SOILS

FIGURE 5.4-2 EXISTING LAND USE

FIGURE 5.5-1 REGIONAL HYDROLOGIC SETTING

FIGURE 5.5-2 SURFACE WATER FEATURES AND FLOOD INUNDATION AREAS

FIGURE 5.6-1 BIOLOGICAL STUDY AREA

FIGURE 5.6-2 BIOLOGICAL RESOURCES WITHIN A 1-MILE RADIUS OF THE SITE

FIGURE 5.6-3 BIOLOGICAL RESOURCES WITHIN A 10-MILE RADIUS OF THE SITE

FIGURE 5.6-4 VEGETATION COMMUNITIES/LAND COVER TYPES

FIGURE 5.7-1 REGIONAL LOCATION MAP

FIGURE 5.7-2 SITE VICINITY MAP

FIGURE 5.7-3 SURVEY AREAS (AERIAL)

FIGURE 5.7-4 SURVEY AREAS (USGS)

FIGURE 5.8-1 SITE VICINITY

FIGURE 5.8-2 EXPOSURE OF THE OTAY FORMATION NEAR PROJECT SITE

FIGURE 5.9-1 JURISDICTIONAL BOUNDARIES AND EXISTING LAND USES SURROUNDING SITE

FIGURE 5.9-2 CITY AND COUNTY ZONING DESIGNATIONS

FIGURE 5.9-3 CITY GENERAL PLAN LAND USE DESIGNATIONS

FIGURE 5.9-4 SPECIFIC PLAN LAND USE MAP

FIGURE 5.9-5 PROPERTIES WITHIN ONE MILE OF PROJECT SITE AND QUARTER MILE OF PROJECT LINEARS, AND FMMP DATA

FIGURE 5.10-1 MINORITY POPULATION DISTRIBUTION BY CENSUS TRACTS WITHIN 6 MILES OF PROJECT

FIGURE 5.10-2 POVERTY POPULATION DISTRIBUTION BY CENSUS TRACTS WITHIN 6 MILES OF PROJECT

FIGURE 5.11-1 REGIONAL TRANSPORTATION SETTING

FIGURE 5.11-2 TRANSPORTATION SETTING OF THE LOCAL PROJECT AREA AND AFFECTED ROADWAYS

FIGURE 5.11-3 PROJECT STUDY AREA

FIGURE 5.11-4 EXISTING GEOMETRICS AND INTERSECTION CONTROLS

FIGURE 5.11-5 EXISTING TRAFFIC VOLUMES

FIGURE 5.11-6 YEAR 2013 BASELINE TRAFFIC VOLUMES

FIGURE 5.11-7 YEAR 2013 PROJECT CONSTRUCTION PLUS CUMULATIVE PROJECTS TRAFFIC VOLUMES

FIGURE 5.11-8 YEAR 2014 BASELINE TRAFFIC VOLUMES

FIGURE 5.11-9 YEAR 2014 PROJECT OPERATIONS PLUS CUMULATIVE TRAFFIC VOLUMES

FIGURE 5.12-1 AMBIENT NOISE MEASUREMENT LOCATIONS

FIGURE 5.12-2 EXISTING LAND USE SURROUNDING PROJECT SITE

FIGURE 5.12-3 PREDICTED PROPERTY BOUNDARY NOISE LEVEL CONTOUR

FIGURE 5.13-1 SENSITIVE VISUAL RESOURCES VISUAL SPHERE OF INFLUENCE (VSOI) MAP

FIGURE 5.13-2 AERIAL OF PROJECT VICINITY

FIGURE 5.13-3 KEY OBSERVATION POINTS

FIGURE 5.13-4 CHARACTER PHOTOS OF PROJECT AREA (FIGURE 1 OF 6)

FIGURE 5.13-5 CHARACTER PHOTOS OF PROJECT AREA (FIGURE 2 OF 6)

FIGURE 5.13-6 CHARACTER PHOTOS OF PROJECT AREA (FIGURE 3 OF 6)

FIGURE 5.13-7 CHARACTER PHOTOS OF PROJECT AREA (FIGURE 4 OF 6)

FIGURE 5.13-8 CHARACTER PHOTOS OF PROJECT AREA (FIGURE 5 OF 6)

FIGURE 5.13-9 CHARACTER PHOTOS OF PROJECT AREA (FIGURE 6 OF 6)
FIGURE 5.13-10 EXISTING VIEW OF PROJECT FROM KOP #1
FIGURE 5.13-11 SIMULATED VIEW OF PROJECT FROM KOP #1
FIGURE 5.13-12 EXISTING VIEW OF PROJECT FROM KOP #2
FIGURE 5.13-13 SIMULATED VIEW OF PROJECT FROM KOP #2
FIGURE 5.13-14 EXISTING VIEW OF PROJECT FROM KOP #3
FIGURE 5.13-15 SIMULATED VIEW OF PROJECT FROM KOP #3
FIGURE 5.13-16 EXISTING VIEW OF PROJECT FROM KOP #4
FIGURE 5.13-17 SIMULATED VIEW OF PROJECT FROM KOP #4
FIGURE 5.15-1 THREAT ZONES USING MITIGATION TECHNIQUES OF CONCRETE BERM AND UNDERGROUND SUMP WITH A 24-INCH DIAMETER DRAIN
FIGURE 5.18-1 CUMULATIVE PROJECTS

LIST OF APPENDICES

APPENDIX A CIVIL ENGINEERING DESIGN AND CRITERIA
APPENDIX B STRUCTURAL ENGINEERING DESIGN AND CRITERIA
APPENDIX C MECHANICAL ENGINEERING DESIGN AND CRITERIA
APPENDIX D ELECTRICAL ENGINEERING DESIGN AND CRITERIA
APPENDIX E CONTROL SYSTEMS ENGINEERING DESIGN AND CRITERIA
APPENDIX F CHEMICAL ENGINEERING DESIGN AND CRITERIA
APPENDIX G AIR QUALITY
APPENDIX H CAISO AGREEMENT & PROOF OF PAYMENT
APPENDIX I WATER RESOURCES
APPENDIX J BIOLOGICAL RESOURCES
APPENDIX K CULTURAL RESOURCES
APPENDIX L PALEONTOLOGICAL RESOURCES
APPENDIX M LAND USE
APPENDIX N TRAFFIC COUNTS
APPENDIX O NOISE
APPENDIX P PUBLIC HEALTH
APPENDIX Q PHASE I ESA
APPENDIX R HAZARDOUS MATERIALS HANDLING

1.1 INTRODUCTION

In this Application for Certification (AFC), Pio Pico Energy Center, LLC (PPEC LLC or "Applicant") is seeking approval from the California Energy Commission (CEC) to construct and operate a power generation facility, the Pio Pico Energy Center (PPEC), within the County of San Diego. PPEC LLC seeks CEC approval in order to satisfy an obligation to supply electrical capacity and energy to San Diego Gas & Electric (SDG&E) under a 20-year Power Purchase Agreement (PPA).

PPEC is a proposed simple-cycle power generation project that consists of three General Electric (GE) LMS100 natural gas-fired combustion turbine generators (CTGs). The total net generating capacity would be 300 megawatts (MW), with each CTG capable of generating 100MW. The proposed plant will be owned and operated by Pio Pico Energy Center, LLC (PPEC LLC). The electricity generated by this project would be in support of a contract with SDG&E. Section 2.0, Project Objectives, describes the contract in more detail.

The GE LMS100 is the first intercooled gas turbine system developed especially for the peaking electrical needs of the power generation industry. The LMS100 is designed for cyclic applications with 10-minute starts that provide flexible power generation for peaking and intermediate solutions vital to support variable demand and variable renewable energy sources that SDF&E is increasingly contracting for.

The project site consists of previously disturbed and prepared land within an industrial park, the Otay Mesa Business Park, in the County of San Diego, adjacent to the existing Otay Mesa Generating Project. The site is served by prepared, paved streets, water and other utilities. Besides short connections in the streets for water and sewer, PPEC will require only a natural gas transmission pipeline and an electrical transmission connection line. Surrounding uses are highly compatible with PPEC. For these reasons, PPEC will have minimal adverse environmental impacts while providing a valuable peaking and load shaping needs for the San Diego area.

PPEC is designed to directly satisfy the San Diego area demand for peaking and load-shaping generation, near and long term. Power would come from three GE LMS100 natural gas-fired CTGs. Each CTG would be equipped with water injection for reducing oxides of nitrogen (NO_x) emissions, a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia (NH_3) injection to further reduce NO_x emissions, and an oxidation catalyst to reduce carbon monoxide (CO) and volatile organic compound (VOC) emissions. Auxiliary equipment would include inlet air filters with evaporative coolers, a turbine compressor section intercooler, a partial dry-cooling system, circulating water pumps, water treatment equipment, natural gas compressors, generator step-up and auxiliary transformers, and water storage tanks.

This AFC has been prepared in accordance with the requirements of the Warren Alquist Act (Public Resources Code section 25000 et. seq) and regulations adopted pursuant to that law. The AFC provides:

- A detailed description of the proposed PPEC project.

- An assessment of the anticipated project impacts on the existing environment.
- A discussion of compliance with applicable laws, ordinances, regulations, and standards (LORS).

The remainder of this Executive Summary summarizes the more detailed information presented in the balance of the AFC.

1.2 FACILITY LOCATION AND DESCRIPTION

1.2.1 Facility Location

The project site is located in an unincorporated area of San Diego County known as Otay Mesa. It is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection in an industrial park entitled the Otay Mesa Business Park. The proposed project site comprises the entire parcel Assessor's Parcel Number (APN) 648-040-45, and the laydown area is 6.00 acres of APN 648-040-46 (Figure 3.3-2, Project Location). A natural gas supply pipeline will be constructed along one of two routes to connect the project to an existing natural gas supply pipeline. A 230 kV transmission line will be constructed on one of two routes to connect the project to an existing 230 kV switchyard. Existing site and surrounding land uses include two correctional facilities (State and County) and an existing natural gas-fired electrical generating station.

1.2.2 Facility Description

PPEC is designed to directly satisfy the San Diego area's current and long-term requirements or peaking and load-shaping generation. As previously stated, the generating facility would consist of three GE LMS100 natural gas-fired CTGs. Each CTG is equipped with water injection for reducing NO_x emissions, a SCR system with 19 percent NH_3 injection to further reduce NO_x, and an oxidation catalyst to reduce CO and VOC emissions. The total net generating capacity would be approximately 300MW.

Each CTG would generate approximately 100MW at summer design ambient conditions. The project would have a maximum annual capacity factor of approximately 46 percent (4,000 hours per year). Associated equipment would include emission control systems necessary to meet the proposed emission limits. Stack emission NO_x in normal operation would be controlled to 2.5 parts per million, volumetric dry (ppmvd) corrected to 15 percent oxygen through a combination of water injection in the combustors and operation of the SCR system. The oxidation catalyst would limit normal operation CO stack emissions to 4 ppmvd adjusted to 15 percent oxygen.

Refer to Appendix A through F for the engineering design criteria for the project.

1.2.3 Fuel Gas Supply

The CTGs would fire natural gas exclusively. At full load, each CTG would require up to 825 million British thermal units per hour (MMBtu/hr) low heating value (LHV) of natural gas, for a total plant demand of 2,475 MMBtu/hr LHV. SDG&E would build, own, and operate a

gas pipeline from SDG&E's existing gas pipeline to the south and west. The AFC proposes two alternate routes for the gas supply line.

1.2.4 Water Supply and Discharge

PPEC is designed and intended to use recycled water. Process water uses include plant service water, cooling system makeup, combustion turbine NO_x injection (after treatment), and combustion turbine inlet air evaporative cooler makeup. The CTG injection water would be treated using an ultra filtration (UF) system, a reverse osmosis (RO) system, and skid-mounted ion exchange vessels. Process water would also serve as a secondary source of fire protection water. A connection to the Otay Water District potable water would supply facility drinking water, showers, sinks, toilets, eye wash stations, and safety showers in hazardous chemical areas. It would also serve as the facility's primary source of fire protection water. In the event that recycled water is not available upon start up of the project, the project would temporarily use potable water for all plant needs until such time as recycled water is available.

1.2.5 Transmission Facilities

PPEC will be connected to the nearby existing 230kv Otay Mesa Switchyard via one of two proposed new transmission lines.

1.3 PROJECT SCHEDULE

Construction for PPEC is expected to begin in 2013 following the CEC approval of this AFC. Startup, testing and commercial operation would begin in 2014.

1.4 PROJECT OWNERSHIP

- Owner: Pio Pico Energy Center, LLC
- Operator: Pio Pico Energy Center, LLC

1.5 SUMMARY OF ENVIRONMENTAL IMPACTS

Like all major power plants, the proposed project has the potential to adversely impact the existing environment. The Applicant, however, has carefully chosen the project location and incorporated innovative design measures to ensure that any potential project impacts will be at or below a level of significance. Section 5 of this AFC assesses environmental impacts according to the standard CEC structure of topics. Transmission Safety Line and Nuisance, Power Plant Reliability and Power Plant Efficiency, however, are located in Section 3. The AFC demonstrates that the project will have no unmitigated significant adverse environmental impacts.

TABLE OF CONTENTS

2.1 SDG&E REQUEST FOR OFFERS 2-1
2.2 RESPONSE TO REQUEST FOR OFFERS 2-2
2.3 SDG&E CONTRACT 2-2

The Pio Pico Energy Center (PPEC) is a simple-cycle power generation project that has been designed and developed to conform to the requirements of San Diego Gas and Electric (SDG&E) and the California Public Utilities Commission (CPUC). This project's primary goal is to meet the objectives of SDG&E's 2009 Request for Offers (RFO) and the resulting contractual requirements contained in the Power Purchase Agreement between SDG&E and Pio Pico Energy Center, LLC (PPEC LLC).

2.1 SDG&E REQUEST FOR OFFERS

The CPUC approved the SDG&E long-term resource plan. In this proceeding, SDG&E submitted its long-term resource needs and the increments of generation required to meet these load projections. SDG&E indicated that most of the required generation would be acquired to satisfy peaking and shoulder loads, and would be dispatchable. According to CPUC's decision that approves SDG&E's long-term resource plan, SDG&E was authorized and encouraged to seek new peaking dispatchable generation through a bidding process to satisfy projected system loads.

In response to this decision, SDG&E issued its 2009 RFO. SDG&E also indicated that, in accordance with the CPUC decision, SDG&E would utilize an "Independent Evaluator" to oversee the RFO process. SDG&E notified prospective bidders that their bids would be evaluated utilizing a number of factors, including market valuation, portfolio fit, transmission impact, environmental characteristics, and conformance with SDG&E's nonprice terms and conditions.

These RFO objectives are derived from a need for new electric power generation as projected and authorized by the CPUC and California Independent System Operator (CAISO). SDG&E, as authorized by the CPUC, issued an RFO in June 2009 and awarded PPEC LLC a Power Purchase Agreement in January 2011 under the RFO Product 2 category. Following is an excerpt from that Product 2 offering:

> **Product 2 - New Local Generation Projects, online in 2010 – 2014.**
>
> SDG&E seeks a minimum of 100 MW of peaking or intermediate-class resources as new construction or expansion projects within SDG&E's territory. Any resulting contract will be a tolling agreement with a term of 20 years and online dates of May 1- or October 1 in either 2010, 2011, 2012, 2013, or 2014. The generation must be located physically within SDG&E's service territory (as more specifically described in the Addendum) or have its sole generator transmission system interconnection (gen-tie) directly interconnected to the electric network internal to SDG&E's local area as currently defined by the California Independent System Operator ("CAISO") such that the unit supports SDG&E's Local RA requirement. … Products offered in this category shall be capable of operating under all permits at annual capacity factors of a minimum of 30% with an availability of >98%. It is anticipated that heat rates will be no higher than 10,500 btu/kWh. For this product, SDG&E requires flexible resources that are capable of providing regulation during the morning and evening ramps and/or units that can be started and shut down as needed. In addition, SDG&E will include the

additional value provided from projects that can provide quick start operations in the ranking of Offers. SDG&E also requires that each Offer contain pricing for, and an option to provide, black start capability.

These SDG&E RFO objectives are listed below:

1. Be online by 2014.
2. Be a minimum of 100 megawatts (MW) of peaking and intermediate-class resources.
3. Locate in SDG&E service territory.
4. Operate under a fuel tolling agreement over a 20-year contract.
5. Be capable of operating under all permits at annual capacity factors of a minimum of 30% with an availability of >98%.
6. Heat rates will be no higher than 10,500 British thermal units per kilowatt hour (Btu/kWh).
7. Use flexible resources that can provide regulation during the morning and evening ramps and/or units that can be started and shut down as needed.
8. Provide quick start operations.

2.2 RESPONSE TO REQUEST FOR OFFERS

The Applicant, upon evaluation of all the RFO Product offerings, decided that Product 2 (peaking power) was the most compatible offering with the Applicant's power development experience. PPEC LLC was incorporated and a bid into the SDG&E RFO was submitted in August 2009. The PPEC team believes that a relatively large number of offers were submitted to SDG&E in response to its June 9, 2009, RFO.

In December 2009, PPEC LLC was informed by SDG&E that the PPEC bid had been short-listed and that power purchase agreement negotiations would begin in earnest. See Section 4.0, Alternatives, for more details on PPEC's RFO response. As noted above, a PPA was executed between SDG&E and PPEC, LLC in January 2011.

2.3 SDG&E CONTRACT

SDG&E evaluated the offers and created a short list of potential projects. Following the submittal of additional information to SDG&E, the list of projects was further shortened. In December 2009, SDG&E informed PPEC LLC that its project had been accepted on a final list, thereby commencing negotiations over contract terms and conditions. Rigorous negotiation ensued over contract terms that culminated in a contract signed in January 2011 for generation services.

Salient contract provisions include:

- A contract term of 20 years.
- PPEC would be constructed on a leased parcel of land located in San Diego County.
- PPEC would have three General Electric LMS100 combustion turbine machines.
- Each of these combustion turbines would provide approximately 100MW of capacity in summer peak conditions for a total of 300MW.
- A turbine efficiency level no higher than 10,500 Btu/kWh is to be produced at 100 percent rated capacity, summer peak conditions.
- SDG&E has the ability to dispatch each of the units as system conditions require.
- The entire three-turbine project is to be online and available for SDG&E to dispatch into the grid on or before May 27, 2014.

TABLE OF CONTENTS

3.1 Introduction 3-1

3.2 Facility Need 3-3

3.3 Project Site, Linears, and Temporary Laydown Area 3-3

3.4 Site Description 3-4

3.4.1 Topography 3-4

3.4.2 Geologic Setting and Seismology 3-5

3.4.3 Hydrological Setting 3-5

3.5 Facility Description 3-6

3.5.1 Overview 3-6

3.5.2 Project Site Access 3-7

3.5.3 Site Layout 3-7

3.5.4 Power Plant Cycle 3-8

3.5.5 Major Electrical Equipment and Systems 3-11

3.5.6 Fuel Gas System 3-14

3.5.7 Water Supply and Treatment 3-15

3.5.8 Waste Management 3-21

3.5.9 Emissions Control and Monitoring Equipment 3-24

3.5.10 Fire Protection System 3-25

3.5.11 Plant Auxiliaries 3-26

3.5.12 Heating, Ventilation, and Air Conditioning 3-29

3.5.13 Plumbing 3-30

3.5.14 Noise Emission Abatement Equipment 3-30

3.6 Civil/Structural Features 3-30

3.6.1 Overview 3-31

3.6.2 Stacks 3-31

3.6.3 Buildings 3-31

3.6.4 Transformer Foundations and Firewalls 3-31

3.6.5 Yard Tanks 3-31

3.6.6 Roads 3-32

3.6.7 Site Security 3-32

3.6.8 Site Grading and Drainage 3-32

3.6.9 Site Flood Issues 3-33

3.6.10 Sanitary System 3-33

3.6.11 Earthwork 3-33

3.7 Electrical Interconnection 3-34

3.7.1 PPEC Switching Station and Interconnect Specifications 3-34

3.7.2 Transmission Structures 3-35
3.7.3 Transmission System Evaluation 3-35
3.7.4 Transmission Line Safety and Nuisance 3-36
3.7.5 Transmission System Design Laws, Ordinances, Regulations, and Standards 3-40
3.7.6 Transmission System Involved Agencies and Agency Contacts 3-41
3.8 Pipelines 3-42
3.8.1 Natural Gas Supply Line 3-42
3.8.2 Pneumatic Testing 3-44
3.8.3 Sewer Line 3-45
3.9 Project Construction 3-45
3.10 Facility Operations and Maintenance 3-47
3.10.1 Introduction 3-47
3.10.2 Power Plant Facility 3-47
3.10.3 Transmission System Operation and Maintenance 3-48
3.10.4 Pipeline Operation and Maintenance 3-48
3.11 Facility Closure 3-48
3.11.1 Temporary Closure 3-48
3.11.2 Permanent Closure 3-49
3.11.3 Closure Mitigation 3-49
3.12 Safety, Availability, and Reliability 3-50
3.12.1 Safety Precautions and Emergency Systems 3-50
3.12.2 Aviation Safety – Power Generation Stacks 3-52
3.12.3 Facility Availability 3-52
3.12.4 Equipment Reliability and Redundancy 3-52
3.12.5 Fuel/Water Availability 3-54
3.12.6 Project Quality and Control 3-55
3.13 Laws, Ordinances, Regulations, and Standards 3-55
3.14 References 3-55

LIST OF TABLES

Table 3.5-1 Major Equipment Information 3-6
Table 3.5-2 Seasonal Heat and Mass Balances 3-10
Table 3.5-3 Design Condition Annual Operating Characteristics 3-10
Table 3.5-4 Daily and Annual Water Flows 3-16
Table 3.5-5 Expected average Water Quality of Recycled and Potable Water 3-16
Table 3.5-6 Cooling Water Quality Limits 3-18

Table 3.5-7 Process Waste Characterization 3-19
Table 3.5-8 Estimated Waste Generated During Construction and Operation 3-22
Table 3.7-1 TRANSMISION LINE SAFETY AND NUISANCE LORS 3-39
Table 3.7-2 Design and Construction LORS for the Proposed Transmission Line and Switchyard 3-40
Table 3.7-3 Agencies with Jurisdiction for Transmission System Engineering and design considerations 3-42
Table 3.9-1 Project Construction Dates 3-45
Table 3.9-2A Project Workforce Projections 3-46
Table 3.9-2B Project Workforce Projections 3-46
Table 3.12-1 Equipment Redundancy 3-53

LIST OF FIGURES

Figure 3.1-1 Regional Location
Figure 3.1-2 Site Vicinity
Figure 3.1-3A Site Arrangement
Figure 3.1-3B Site Arrangement and Potential Offsite Transmission Line Structure Locations
Figure 3.3-1 Facility Plot Plan
Figure 3.3-2 Project Location
Figure 3.3-3 Potential Linears
Figure 3.3-4 Existing Setting within 1-Mile Radius of Potential Transmission Lines
Figure 3.4-1 2010 Site Topography
Figure 3.4-2 Baseline Site Topography
Figure 3.4-3 Preliminary Grading and Drainage Plan
Figure 3.5-1 Site Arrangement Elevations
Figure 3.5-2A Heat and Mass Balance – Spring/Fall
Figure 3.5-2B Heat and Mass Balance – Summer
Figure 3.5-2C Heat and Mass Balance – Peak
Figure 3.5-2D Heat and Mass Balance – Winter
Figure 3.5-3 Electrical One-Line Diagram
Figure 3.5-4A Water Balance Flow Diagram
Figure 3.5-4B Water Balance Flow Values
Figure 3.5-5 Fire Protection System
Figure 3.7-1A 230kV Switchyard Tubular Steel H-Frame Structure
Figure 3.7-1B 230kV T-Line Tubular Steel Tangent Structure
Figure 3.7-1C 230kV T-Line Tubular Steel Dead-End Structure
Figure 3.7-1D 230kV UG Cable Riser/Dead-End Structure and Duct Bank

3.1 INTRODUCTION

The Pio Pico Energy Center (PPEC), proposed by Pio Pico Energy Center, LLC (PPEC LLC), is a simple-cycle electrical generating facility that is contracted under a 20-year power purchase agreement (PPA) with San Diego Gas & Electric (SDG&E) in response to their 2009 Request for Offers (RFO). The RFO was a broad solicitation for power generation that included peaking facilities, like PPEC, as well as demand-side management and generation from renewable energy resources.

PPEC, which would be owned and maintained by PPEC LLC, is designed to directly satisfy the San Diego area peaking and load-shaping generation current and long-term requirements. Key among these requirements is supporting wind and solar generation, whose overall output varies. As wind, hydro, solar, and other renewable resource output drops, PPEC can be dispatched from 'cold iron' to 300 megawatts (MW) in fewer than 10 minutes to make up the lost grid capacity. Thus, PPEC would support and allow heightened penetration of renewable energy into SDG&E's service territory.

Electric power generated at PPEC would be sold to SDG&E under a 20-year PPA between PPEC LLC and SDG&E. Design of the plant and equipment selection is based on requirements in the PPA.

The project would be located on a disturbed and development-prepared parcel within an unincorporated industrial area within San Diego County (see Figure 3.1-1, Regional Location, and Figure 3.1-2, Site Vicinity). The project site and facilities would encompass 9.99 acres of permanent improvement and would temporarily utilize 6.0 acres of laydown area. The project also has linears comprised of a natural gas pipeline having a maximum length of approximately 10,300 feet, and an electrical transmission line having a maximum length of approximately 2,650 feet. The project will also connect to water supply and discharge pipelines in the paved streets adjacent to the site. The project site is adjacent to or nearby all necessary supporting infrastructure. Specifically:

- The 230-kilovolt (kV) SDG&E Otay Mesa switchyard is located within 1,800 feet.
- An SDG&E intrastate gas transmission line is located within two miles.
- Otay Water District will provide potable and, eventually, recycled water directly to the project site through Otay Water District water lines immediately adjacent to the site.
- Sewer discharge mains area located immediately adjacent to the project site along Alta Road and Calzada de la Fuente.
- The site is easily accessible by existing primary County roads.

Photograph: View of the project site near the intersection of Calzada de la Fuente and Alta Road (northwest corner of the project site) and facing generally east. The existing Otay Mesa Generating Project, which is located directly east of the PPEC project property, is shown on the photograph.

The generating facility would include three General Electric (GE) LMS100 natural gas-fired combustion turbine generators (CTGs), each equipped with water injection to the combustors for reducing production of oxides of nitrogen (NO_x); a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia (NH_3) injection to further reduce NO_x emissions; and an oxidation catalyst to reduce carbon monoxide (CO). The total net generating capacity would be approximately 300MW.

The GE LMS100 is the first intercooled gas turbine system developed especially for the power generation industry. It uses heavy-duty gas turbine and aero-derivative gas turbine technology. The LMS100 produces approximately 100MW at an efficiency rate that is approximately ten percent higher than that of other commercial simple-cycle gas turbines. The LMS100 is specifically designed for cyclic applications; it provides flexible power and ten-minute starts. Equipment locations and dimensions are depicted on Figure 3.1-3A, Site Arrangement.

The LMS100 combines GE's existing and proven frame, the MS6001FA, and GE's aero-derivative CF6-80 gas turbine technologies to provide high thermal efficiency in power generation applications. The GE CF6-80 gas turbine has over 100 million hours of operating experience in both aircraft engines and industrial applications, and the MS6001FA medium

duty gas turbine F class technology family has over 28 million operating hours in power generation and other applications. Combining the high pressure compressor technology of the CF6, the low pressure compressor technology of the MS6001FA, and the optimum design of other components and systems based on proven designs and operating experience provides the advanced design and performance of the LMS100. The LMS100 technology is GE Power's growth platform in the peaking and loading power generation market.

Electricity generated by PPEC would be delivered to an existing 230kV SDG&E switchyard located approximately 1,800 feet from the project site, as shown in Figure 3.1-3B, Site Arrangement and Potential Offsite Transmission Line Structure Locations. The 230kV connecting transmission line will be built and owned by PPEC LLC, with ownership shifting to SDG&E at the switchyard entrance.

3.2 FACILITY NEED

The project would improve reliability within the SDG&E service territory, complement the increasing use of renewable energy sources through its ten-minute start and high-efficiency characteristics, and help allow the retirement of the South Bay Power Plant.

Upon approval by the California Public Utilities Commission (CPUC), SDG&E issued an all-source RFO in June 2009. The RFO sought demand responses and supply resources to: support reliability within the SDG&E service territory; to supply energy to bundled customers; and/or to meet other portfolio needs, including Resource Adequacy (RA) requirements. The RFO sought seven different products, and PPEC LLC responded to a request for new local generation projects coming online between 2010 and 2014.

3.3 PROJECT SITE, LINEARS, AND TEMPORARY LAYDOWN AREA

PPEC consists of the project site, linears, and a temporary laydown area (Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears). The project site is located in an unincorporated area of San Diego County known as Otay Mesa. It is comprised of a 9.99 acre parcel located in the southeast corner of the Alta Road and Calzada de la Fuente intersection. The proposed project site comprises the entire parcel with Assessor's Parcel Number (APN) 648-040-45, and the laydown area is 6.00 acres of an adjacent parcel to the south (APN 648-040-46) (Figure 3.3-2, Project Location). The existing setting within one-mile of the project site and potential transmission line routes are presented on Figure 3.3-4, Existing Setting within 1-Mile Radius of Potential Transmission Lines. The project affects the following areas:

- Plant site – 9.99 acres.
- Temporary laydown and parking area – 6.00 acres, on an adjacent parcel that is contiguous to the project site.
- Natural Gas pipeline – There are two possible routes for the gas supply pipeline. Both routes would connect to an existing SDG&E natural gas pipeline, but at different locations. Route A would extend approximately 8,000 feet south along Alta Road to near the U.S.–Mexico border, at which point it would connect to the existing SDG&E natural

gas pipeline. Route B would extend approximately 2,375 feet south along Alta Road, turn west on Otay Mesa Road, and continue approximately 7,920 feet to Harvest Road at which point it would connect to the existing SDG&E natural gas pipeline for a total of approximately 10,300 feet. The pipeline will be constructed, owned, and operated by SDG&E.

- Sewer pipeline – A short connection will be made to an existing 12-inch sewer main along Calzada de la Fuente along the north project site boundary, or to an existing 15-inch sewer main along Alta Road, along the west project site boundary.

- Stormwater pipeline – A short connection will be made from a detention pond located at the northwest corner of the project site to an existing 30-inch stormwater pipeline located along Calzada de la Fuente, adjacent to the project site.

- Power line – Two possible routes are provided for a 230kV transmission line that will connect the project into the existing 230kV Otay Mesa switchyard. Route A would begin as an overhead power line along Calzada de la Fuente, extend approximately 1,700 feet east where it would then be routed underground for approximately 400 feet into the Otay Mesa switchyard (total length of Route A would be approximately 2,100 feet). Route B would begin as an overhead power line from the eastern edge of the project site, run south approximately 550 feet, then turn east along the northern border of the parcels with APN 648-040-48 and APN 648-040-43 for 1,400 feet, and finally turn north for approximately 700 feet into the Otay Mesa switchyard (total length of Route B would be approximately 2,650 feet). The power line will be owned and maintained by the Applicant.

- Water supply pipelines – The project will make a short connection to the potable service system, either at an existing 12-inch main along Calzada de la Fuente, or at an existing 24-inch main along Alta Road. Upon the Otay Water District (OWD)'s completion of the planned Otay Mesa area recycled water system, the project will make a connection to an existing 8-inch recycled water main along Calzada de la Fuente or a new recycled water main to be constructed in Alta Road.

These features are illustrated on Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears. The project site, laydown and parking area, and sewer, stormwater, water supply, and power line routes are located in Section 30 of Township 18 South, Range 1 East, within the USGS Otay Mesa Quadrangle, San Bernardino Base Meridian (SBBM). The natural gas pipeline Route A crosses Sections 30 and 31 of Township 18 South, Range 1 East (Otay Mesa Quadrangle, SBBM), while Route B may cross Sections 30 and 31 of Township 18 South, Range 1 East, and Sections 25 and 36 of Township 18 South, Range 1 West (Otay Mesa Quadrangle, SBBM).

3.4 SITE DESCRIPTION

3.4.1 Topography

The site topography as of December 2010 is provided on Figure 3.4-1, 2010 Site Topography. The industrial park developer will grade the property in first quarter 2011 as described in the

2009-2010 County of San Diego Grading Permit 2700-1555. This planned soil removal and grading of the property was already planned for prior to the inception of this project and will occur regardless of the submittal of this AFC or its eventual approval. Site elevation for purposes of this project will be approximately 635 feet above mean sea level (msl). This will establish the baseline conditions that this AFC is founded upon. The baseline site topography is shown on Figure 3.4-2, Baseline Site Topography.

The project preliminary grading and drainage is shown on Figure 3.4-3, Preliminary Grading and Drainage Plan.

3.4.2 Geologic Setting and Seismology

The geologic and seismologic setting of the proposed plant site is discussed below and presented in more detail in Section 5.3, Geologic Hazards and Resources.

3.4.2.1 Subsurface Conditions

The PPEC geologic study area, which generally consists of the area within two miles of the project site and associated transmission line and natural gas pipeline routes, comprises basement complex metamorphic rocks, poorly to weakly cemented nonmarine rocks, and alluvial sediments. A more detailed summary of subsurface conditions will be provided in a geotechnical investigation report based on geotechnical analysis conducted soon after the landowner completes his grading plan for the project site.

3.4.2.2 Seismology and Seismic Shaking

The PPEC site is not located within an Alquist-Priolo Earthquake Fault Zone, and no faults were identified within the PPEC geologic study area. The project site area (and all of the San Diego County area) is designated within a Seismic Zone 4, and like most of Southern California, is subject to ground shaking. The project would be designed in accordance with the 2007 California Building Code seismic design parameters, as detailed in Section 5.3.

3.4.2.3 Liquefaction Potential

Liquefaction is not known to have occurred in San Diego County. Historically, seismic shaking levels have not sufficed to trigger liquefaction, and ground failures or damage to structures has not occurred as a consequence of liquefaction. The risk of liquefaction at the project site and surrounding area is considered low. Please refer to Section 5.3, Geologic Hazards and Resources, for further details.

3.4.3 Hydrological Setting

The PPEC site is in the Otay River watershed, which is part of the San Diego Bay watershed. The site is approximately ten miles east of San Diego Bay.

The climate in the vicinity of PPEC can be characterized as semi-arid. Based on 31 years of historical records, the average annual temperature for El Cajon is 65.2 degrees Fahrenheit (°F). The El Cajon station is at elevation 400 feet msl and is approximately 15 miles north of the project site.

Precipitation in the area is characterized by long dry summers and intermittent wet periods. Based on the 31-year record of precipitation at El Cajon, the average annual precipitation is approximately 12 inches, of which approximately 90 percent occurs from November through April.

3.4.3.1 Surface Water

The project site is not located within a Federal Emergency Management Agency 100-year floodplain (Zone A). Further details on surface water are presented in Section 5.5, Water Resources.

3.4.3.2 Groundwater

Depth to groundwater underlying the PPEC site is unknown, however, results from a geotechnical investigation conducted in 1997 for the adjacent Otay Mesa Generating Project indicate that the groundwater table in the vicinity of the project site is below elevation 580 feet (See Section 5.3). The presence or lack of shallow or perched groundwater will be determined as part of the geotechnical investigation for the project site. Groundwater resources, if present, will not be accessed or used for the project.

3.5 FACILITY DESCRIPTION

3.5.1 Overview

The generating facility will consist of three GE LMS100 natural gas-fired CTGs, each equipped with water injection to the combustors for reducing production of NO_x, an SCR system with 19 percent NH_3 injection to further reduce NO_x emissions, and an oxidation catalyst to reduce CO and volatile organic compound (VOC) emissions. The total net generating capacity would be approximately 300MW. Table 3.5-1 provides a description of major equipment, and Figure 3.5-1, Site Arrangement Elevations illustrates project elevations.

TABLE 3.5-1
MAJOR EQUIPMENT INFORMATION

Description	Dimensions			
	Capacity	Length (ft)	Width (ft)	Height (ft)
Combustion Turbines (3)	103MW	130	30	40
Intercooler Heat Exchangers (3)	120 MMBtu/hr	44	15	13.5
CTG Stacks (3)	--	--	14.5 diameter	100
Variable Bleed Vents, with Silencers (3)	--	--	12	53
Hot SCR	--	70	25	35
Wet Cooling Components (12)	120 MMBtu/hr	26	14	22
Dry Cooling Components (9)		47	14	15
Raw Water Storage Tank	500,000 gal	--	54 diameter	30
Demineralized Water Storage Tank	240,000 gal	--	38 diameter	30

Description	Dimensions			
	Capacity	Length (ft)	Width (ft)	Height (ft)
Wastewater Collection Tank	95,000 gal	--	26 diameter	24
Gas Compressor Enclosure (3)	--	50	17	15

Notes:
CTG = combustion turbine generator
ft = foot (feet)
gal = gallon(s)
MMBtu/hr = million British thermal units per hour
MW = megawatt
SCR = selective catalytic reduction

Each CTG would generate approximately 100MW at summer design ambient conditions. The project would have a maximum annual capacity factor of approximately 46 percent (4,000 hours per year).

Associated equipment would include emission control systems necessary to meet the proposed emission limits. Emissions are described in Section 5.2, Air Quality.

Refer to Appendices A through F for the project's engineering design criteria.

3.5.2 Project Site Access

Access to the PPEC site would be via Calzada de la Fuente, west of the Otay Mesa Generating Project (OMGP).

3.5.3 Site Layout

The PPEC site layout, including the location and size of the plant facilities and the temporary construction parking and laydown areas, is depicted on Figure 3.1-3A, Site Arrangement, and Figure 3.3-1, Facility Plot Plan. A site elevation view of the new plant is illustrated on Figure 3.5-1, Site Arrangement Elevations. Off-site linear improvements, including the gas pipeline, and electric transmission line, are described in Section 3.3, Project Site, Linears, and Temporary Laydown Area, and shown on Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears.

The plant facilities have been arranged for optimum use of the property and ease of operation and maintenance. Grading and drainage for the project site are shown on Figure 3.4-3, Preliminary Grading and Drainage Plan.

The maximum area of construction disturbance (i.e., in the event that the longest natural gas pipeline and transmission line routes [Route B in each case] are installed) would be approximately 32.68 acres, which is comprised of 9.99 acres for the plant site, 6.00 acres for the temporary construction laydown area, 11.82 acres for the Route B natural gas pipeline, and 4.87 acres for the Route B 230kV transmission line.

3.5.4 Power Plant Cycle

Each simple-cycle LMS100 CTG produces approximately 100MW of electricity. Output depends on inlet air ambient conditions and inlet evaporative cooling. The CTG design incorporates a compressor intercooler and increased firing temperatures to achieve high efficiency and optimum performance under high ambient temperatures. The CTGs are equipped with hot SCRs to reduce NO_x, CO, and VOC emissions.

3.5.4.1 Combustion Turbine Generator

Thermal energy is produced in the CTGs through the combustion of natural gas, which is converted into mechanical energy to drive the combustion turbine compressors and electric generators.

Three GE LMS100 CTGs were selected for the plant. The LMS100 integrates features of GE's frame and aero-derivative CTG design features. The low-pressure compressor is derived from the heavy-duty frame engine designs, and the high-pressure compressor, combustor, and power turbine components are derived from the aero-derivative designs. Each CTG consists of a stationary combustion turbine-generator and associated auxiliary equipment.

Turbine compressor inlet air is drawn through the air inlet ductwork above the combustion turbine. The inlet air filter removes dust and particulate from the intake air. During hot weather the filtered air is cooled by contact with water in the evaporative cooler section of the air inlet ductwork.

Filtered and cooled air drawn into the gas turbine low-pressure compressor section is compressed to an intermediate pressure. Compressing the air causes the air temperature to rise along with the increase in pressure. Cooling the intermediate pressure air before final compression improves the efficiency of the compression process. Hot intermediate pressure air is cooled in a water-cooled heat exchanger (intercooler), external to the compressor, before it enters the high-pressure compressor section.

Hot high-pressure compressed air from the high-pressure compressor discharge flows to the combustion turbine combustor, where high-pressure natural gas is injected into the compressed air and ignited. Water is injected into the combustor to temper the combustion temperature, which reduces the production of thermal NO_x.

Heated air and combustion gas pass from the combustor through the expansion section of the turbine, causing it to rotate. The expander draws energy from the hot compressed gases, causing them to cool as they progress through the expander.

The expander section of the turbine produces enough power to drive both the compressor and the electric generator. Integrating the intercooler between compressor stages in the LMS100, together with higher combustor firing temperatures, has resulted in gross turbine generator efficiency that is approximately ten percent more efficient than similar simple-cycle combustion turbines.

The metal acoustical enclosure, which contains the CTGs and accessory equipment, will be located outdoors. The CTGs will be equipped with the following required accessories to provide safe, reliable operation:

- Evaporative coolers (enhance hot weather performance)
- Inlet air filters (remove dust and particulate from the air)
- Metal acoustical enclosure (reduce sound emissions)
- Duplex shell and tube lube oil coolers for the turbine and generator (cool lubricating oil)
- Annular standard combustor combustion system
- Compressor wash system (cleans compressor blades and restores compressor performance)
- Fire detection and protection system
- Compressor intercooler (improves the efficiency of the compressor)
- Hydraulic starting system
- Combustor water injection system (for NO_x control and output enhancement)
- Compressor variable bleed valve vent (prevent compressor surge in off-design operation)
- The combustion gases exit the turbine at approximately 770ºF and then pass through the hot SCR system for NO_x emission control and an oxidizing catalyst for control of CO and VOC emissions. The SCR is used in conjunction with NH_3 injection for the control of NO_x emissions. A 19 percent aqueous NH_3 solution is injected into the CTG exhaust gas stream that passes over a catalyst bed, which reduces the NO_x to inert nitrogen.
- The SCR equipment includes a reactor chamber, catalyst modules, NH_3 storage, vaporization and injection system, and monitoring equipment and sensors. The NH_3 storage area will consist of a tank on a concrete pad with a boxed containment wall. After passing through the SCR, the exhaust gases exit through the attached stack.

3.5.4.2 Performance Data and Plant Efficiency

Each CTG will generate approximately 100MW under most ambient conditions. The PPEC plant will be limited to a maximum capacity factor of 46 percent, which is equivalent to 4,000 hours per year for each CTG.

The full-load performance of each CTG on a typical day (70 degrees ºF and 57 percent relative humidity) is as follows:

- Power Output 102.4.7MW at the generator terminals

- Fuel Flow 808 million British thermal units per hour (MMBtu/hr) low heating value (LHV), or 39,203 pounds per hour (lb/hr)
- Heat Rate 7,894 British thermal units per kilowatt hour (Btu/kWh) LHV

Auxiliary power loads for CTG auxiliaries and for the balance of plant equipment will reduce the net electrical power output transmitted from the generator terminals to the transmission grid. The project operating characteristics during season (i.e., Winter, Spring/Fall, and Summer) and peak periods are provided on the heat and mass balance diagrams presented on Figures 3.5-2A through 3.5-2D, and key characteristics are summarized in Table 3.5-2, Seasonal Heat and Mass Balances. Annual operating characteristics (per CTG and total plant) are presented in Table 3.5-3, Design Condition Annual Operating Characteristics.

TABLE 3.5-2
SEASONAL HEAT AND MASS BALANCES

	Winter	Spring/Fall	Summer	Peak
Conditions				
Ambient Dry Bulb, ºF	59	70	80	93
Relative Humidity, %	60	57	38	22
Performance				
CTG Output (each), MW	104.3	102.4	101.0	99.3
Heat Rate, Btu/kWh, LHV	7,856	7,894	7,926	7,964
Fuel Flow, MMBtu/hr, LHV	819	808	800	791
NO_x Water Injection, lb/hr	26,388	25,255	24,910	24,472
CT Exhaust Flow, klb/hr	1,708	1,685	1,669	1,650

ºF = degrees Fahrenheit
klb/hr = kilo pound per hour
lb/hr= pound per hour
LHV= lower heating value
MW = megawatts

TABLE 3.5-3
DESIGN CONDITION ANNUAL OPERATING CHARACTERISTICS

	Winter (per CTG)	Spring/Fall (per CTG)	Summer (per CTG)	Peak (per CTG)	Total Annual (Per CTG)	Total Annual Plant (3 CTGs)
Operating Hours	1,100	1,600	1,000	300	4,000	4,000
Fuel Consumption[1], MMBtu, LHV	900,900	1,292,800	800,000	237,300	3,231,000	9,693,000
Net Electrical Energy Produced[1], MWhr	114,730	163,840	101,000	29,790	409,360	1,228,080

MMBtu = One million Btu
MWhr = Megawatt-hour
LHV = lower heating value
[1] Assumes 500 startups and shutdowns per year.

3.5.4.3 Emissions Data

After commissioning of the CTG units, the emissions from the stack of each CTG at full-load conditions would be as follows:

- NO_x 2.5 parts per million volumetric dry (ppmvd) corrected to 15 percent oxygen (O_2)
- CO 4.0 ppmvd corrected to 15 percent O_2
- VOC 2.0 ppmvd corrected to 15 percent O_2
- NH_3 Slip 5.0 ppmvd corrected to 15 percent O_2
- Particulate matter less than 10 micrometers in diameter (PM_{10}) 5.5 lb/hr

3.5.5 Major Electrical Equipment and Systems

The net electric power generated by the PPEC facility would be transmitted to the power grid through a 230kV interconnection with the SDG&E Otay Mesa switchyard. A small percentage of electric power would be utilized on site to power auxiliaries, such as pumps, natural gas compressors, cooling fans, control systems, and general facility electric loads, including lighting, heating, and air conditioning. Some of the auxiliary power would also be converted from alternating current (AC) to direct current (DC) and would be used as back-up power for control systems and other uses.

The CTGs will generate power at 13.8kV, which will be stepped-up by fan-cooled generator step-up unit (GSU) transformers to 230kV for transmission to the utility switchyard and grid. When the units are off-line, the auxiliary power would be back-fed through each step-up and auxiliary transformer. Once the units are running, they will supply their own auxiliary power. Surge arresters will be provided at the high-voltage bushings to protect the transformers from surges on the 230kV system caused by lightning strikes or other system disturbances. The high-voltage side of the step-up transformers would be connected to gas-insulated (SF_6) circuit breakers located in the facility's 230kV switchyard.

Each subsection generally describes provisions that would be incorporated into the system's design. Specific equipment and system ratings will be established during detailed design.

3.5.5.1 Step-up Transformers

An overall one-line diagram of the PPEC facility's electrical generation and distribution system is shown on Figure 3.5-3, Electrical One-Line Diagram. The power will be generated at 13.8kV by the three power blocks, each consisting of one GE LMS100 gas turbine generator. The electricity generated at 13.8kV will be stepped up by GSU transformers to 230kV for transmission. The output of each generator will be connected by isolated phase bus to the two-winding, oil-filled GSU transformer. Surge arresters at the high-voltage bushings will protect the transformer from surges in the 230kV systems resulting from lightning strikes or other system disturbances. The transformers will be set on concrete pads with oil

containment provisions provided. A deluge type fire protection system will be provided for each step-up transformer. As recommended by the National Fire Protection Association (NFPA) 850, firewalls or separation will be installed between transformers to protect each transformer from a fire from any adjacent transformers. The firewalls will also offer a degree of protection to other equipment and structures in the immediate area.

3.5.5.2 Facility 230kV Switchyard

The facility's 230kV switchyard will consist of a 230kV radial feed type configuration, 230kV circuit breakers and disconnect switches, and structural bus supports. An outgoing 230kV generation tie line will be constructed using either Route A or Route B to connect the plant to the existing SDG&E Otay Mesa switchyard located approximately 1,800 feet east of the plant site. All equipment required to interface with the plant will be provided. As stated in Section 3.3, Route A would begin as an overhead power line along the north side of Calzada de la Fuente, extend approximately 1,700 feet east where it would then be routed underground for approximately 400 feet into the Otay Mesa switchyard (total length of Route A would be approximately 2,100 feet). Route B begins as an overhead power line from the eastern edge of the project site, would run south approximately 550 feet, then turn east along the northern border of the parcels with APN 648-040-48 and APN 648-040-43 for 1,400 feet, and finally turn north for approximately 700 feet into the Otay Mesa switchyard (total length of Route B would be approximately 2,650 feet).

3.5.5.3 Auxiliary AC Power Distribution

When the PPEC facility is shut down, SDG&E will provide electricity for the project site by back feeding from the SDG&E switchyard and tie line. When the facility generation is in operation, balance-of-plant (BOP) auxiliary power requirements will be supplied internally.

Auxiliary power to the facility loads will be distributed at 4.16kV AC by two unit auxiliary transformers. The auxiliary transformers will supply all electrical power to the BOP auxiliary equipment. The auxiliary transformers are oil-filled, two-winding, three-phase, 60 hertz (Hz) transformers with delta connected high side and wye-connected low-resistance grounded low-side windings. An off-load tap changer may be required on the GSU transformers and/or auxiliary supply transformers, as required by the connecting utility. Each auxiliary transformer's 4.16kV secondary winding will be connected by nonsegregated phase bus duct to the double ended 4.16kV switchgear through a normally closed main switchgear breaker.

The 4.16kV volt switchgear lineup will supply power to the various 4,000-volt (V) motors and to the secondary unit substation (SUS) transformers rated 4.16kV to 480V for 480V power distribution. The 4.16kV switchgear will have vacuum-operated metal-clad breakers for the main feeds. Fused contactors will be used for power distribution to the SUS transformer feeders and to 4,000 volt motors. The 4.16kV system will be low-resistance grounded to limit the maximum ground fault current.

Each auxiliary transformer will supply power to BOP and combustion turbine auxiliary loads in normal operation. Each auxiliary power transformer will be sized to accommodate the entire facility's complete auxiliary load in case there is any failure or shut down of an

auxiliary power transformer or one GSU transformer. The double ended 4.16kV switchgear will be equipped with a tie breaker for interconnecting both 4.16kV switchgear buses in case of a failure of one of the auxiliary transformers.

SUS transformers will be outdoor dry-type and will each supply 480V, three-phase power to the SUS buses through normally closed SUS main breakers. The 480V system will be high-resistance grounded to minimize the need for individual ground fault protection.

SUS transformers will each be sized to provide full 480V auxiliary load to the BOP facility loads. The 480V switchgear lineup will each be designed to be interconnected by a tie breaker in case of emergency, to supply power from only one 480V secondary substation transformer if required. Separate 480V transformers will be supplied to feed 480V loads on each CTG, the water treatment system, and the closed-cooling water system components.

SUS transformers will provide power through feeder breakers to the various large 480V motors and to motor control centers (MCCs). MCCs will distribute power to smaller 480V motors, 480V power panels, and other intermediate 480V loads. The normal supply for the two BOP MCCs will be from the SUS transformers, but automatic transfer switches will allow supply from an alternative source. MCCs will distribute power to 480-480/277V isolation transformers for 277V single-phase lighting loads. MCC fed 480V power panels will distribute power to small 480V loads.

The 480V MCCs and 480V power panels will provide power for the AC power supply (120/208V) system. The 480-120/208V solidly grounded dry-type transformers will provide transformation of 480V power to 120/208V power.

3.5.5.4 DC Power Supply

The DC power supply system for BOP loads will consist of one 125V DC battery bank, two 125V DC full-capacity battery chargers, ground detectors, and distribution panels. The 125V DC battery bank will feed all station DC loads and the uninterruptible power supply (UPS). Additional 125V DC systems may also be supplied as part of the CTG equipment.

Under normal operating conditions, the battery chargers will supply DC power to the DC loads. The battery chargers will receive 480V, three-phase AC power from the AC power supply (480V) system and continuously float charge the battery while supplying power to the DC loads. The ground detection scheme will detect grounds on the DC power supply system.

Under abnormal or emergency conditions when power from the AC power supply (480V) system is unavailable, the battery will supply DC power to the DC power supply system loads. Recharging of a discharged battery will occur whenever 480V power becomes available from the AC power supply (480V) system. The rate of charge will depend on the characteristics of the battery bank, battery charger, and the connected DC load during charging. However, the anticipated maximum recharge time will be 24 hours.

The BOP 125V DC system will be used to provide control power to the 4.16kV switchgear, the 480V SUSs, and critical control circuits.

3.5.5.5 Uninterruptible Power Supply System

The CTGs will also have an essential service 120V AC, single-phase, 60 Hz power source to supply AC power to essential instrumentation, controls, monitoring, critical equipment loads, and unit protection and safety systems that require uninterruptible AC power. The essential service AC system and the DC power supply system will be designed to ensure that all critical safety and unit protection control circuits always have power and can take the correct action on a unit trip or loss of plant AC power.

The essential service AC system will consist of one full-capacity inverter, a solid-state transfer switch, a manual bypass switch, an alternate source transformer and voltage regulator, and AC panel boards for each CTG.

One source of power to the system will be from the DC power supply system through the inverter to the panel boards. A solid-state static transfer switch will continuously monitor both the inverter output and the alternate AC source. The transfer switch will automatically transfer essential AC loads without interruption from the inverter output to the alternate source upon loss of the inverter output.

A manual bypass switch will also be included to enable isolation of the inverter-static transfer switch for testing and maintenance without interruption to the essential service AC loads.

3.5.5.6 Emergency Power System

In the event of a total loss of auxiliary power, or in situations when the utility transmission system is out of service, the emergency power required for emergency lighting and CTG critical loads, such as turbine lube oil pumps and jacking gear motors, will be provided from batteries.

3.5.6 Fuel Gas System

The combustion turbine generators will fire natural gas exclusively. At full load, each CTG will require up to 819 MMBtu/hr LHV of natural gas, for a total plant demand of 2,457 MMBtu/hr LHV. SDG&E will build, own, and operate a high pressure gas pipeline from SDG&E's nearby 36-inch 800-psig (per square inch gauge) gas pipeline. There are two possible routes for the gas pipeline. The gas pipeline will convey natural gas via a pipeline (up to 12 inches) that will utilize one of the following routes. Route A would extend south along Alta Road for approximately 8,000 feet to just before the U.S.–Mexico border, at which point it would connect to the existing SDG&E natural gas pipeline. Route B would extend approximately 2,375 feet south along Alta Road, turn west on Otay Mesa Road, and continue approximately 7,920 feet to Harvest Road, at which point it would connect to the existing SDG&E natural gas pipeline (total length of Route B would be approximately 10,300 feet).

Gas pressure available from SDG&E varies seasonally. The gas supply pressure at the PPEC plant boundary metering station is expected to be approximately 500 pounds per square inch (psi). The CTGs require the fuel pressure at the turbine connection to be approximately 920 psi.

To ensure adequate fuel flow and pressure for the entire project, three 50 percent of plant capacity electric-motor-driven fuel gas compressors (two operating and one installed spare) will be provided to boost the natural gas pressure as needed by the CTGs. The compressors will be reciprocating compressors that have lubricated, double-acting, single-stage, two-throw, horizontally-opposed cylinders.

To protect the compressors from liquid slugs and debris, the natural gas will be filtered and separated from entrained liquids before flowing into the compressors. Gas exiting the compressors will be cooled by a trim cooler and passed through filter coalescers and a liquid separator to prevent potential liquid ingestion into the turbine combustors.

3.5.7 Water Supply and Treatment

The Otay Water District plans to establish additional recycled water supply in the Otay Mesa area. Recycled water will be the primary source of process water for the PPEC. Process water uses include plant service water, cooling system make-up, combustion turbine injection, combustion turbine evaporative cooler make-up, and secondary fire protection water. Upon the District's commissioning of the proposed Otay Mesa area recycled water system, the project will make a connection to a recycled water main either along Calzada de la Fuente or along Alta Road.

In the event that this system is not available, the project plans to rely on potable water supplied by Otay Water District. The project would make short connections to the potable service system either at an existing 12-inch main along Calzada de la Fuente, or at an existing 24-inch main along Alta Road. Once the project's process water needs are supplied using recycled water, PPEC's permanent potable water needs would consist of drinking water, showers, sinks, toilets, eye wash stations, safety showers, and primary fire protection water. The water balance, as described in more detail in Section 5.5, Water Resources, is based on recycled water quality parameters, which presents a worst case scenario, based on volume.

Process water uses include plant service water, cooling system makeup, combustion turbine NO_x injection (after demineralization), and combustion turbine inlet air evaporative cooler makeup. The CTG injection water will be demineralized using an ultra filtration (UF) system, a reverse osmosis (RO) system, and skid-mounted ion exchange vessels. Process water will also serve as a secondary source of fire protection water.

The connection to Otay Water District potable water will supply facility drinking water, showers, sinks, toilets, eye wash stations, and safety showers in hazardous chemical areas. It will also serve as the facility's primary source of fire protection water.

3.5.7.1 Facility Water Balance

Up to 120 MMBtu/hr of heat rejection is required for the intercooler and lube oil coolers connected to each of the facility's LMS100 CTGs. The plant will use a partial dry-cooling system (PDCS) in a closed-loop configuration. By doing this, the heat will be rejected by first using ambient air, followed by an external water evaporation portion of the loop. This allows the plant water consumption to be dramatically decreased in two ways. First, the dry-cooling section will reduce the total amount of water evaporated during the cooling process. Second,

the closed-loop cooling allows the contaminants in the evaporative water to be concentrated to a much greater extent than in a traditional open-loop cooling system because that water does not pass through the combustion turbine equipment.

Compared to a typical open-loop system with no dry cooling, the PDCS described above will decrease the annual plant water consumption by approximately 53 percent and the wastewater production rate by 59 percent. Table 3.5-4, Daily and Annual Water Flows, shows the maximum daily, average daily, and average annual water supply and disposal flows.

Figure 3.5-4A, Water Balance Flow Diagram and Figure 3.5-4B, Water Balance Flow Values show all of the water flow streams for various operating conditions.

TABLE 3.5-4
DAILY AND ANNUAL WATER FLOWS

Flow Stream	Maximum Daily (1,000 gpd)	Average Daily (1,000 gpd)	Annual (acre-ft/yr)
Recycled Water Supply			
Cooling System Makeup	248	124	139
UF and RO Systems	315	147	165
Evaporative Cooler Makeup	255	64	71
Service Water	7	3	4
Total Process Water Requirements	825	338	379
Potable Water Supply	3	1	1
Process Wastewater			
Cooling System Blowdown	124	57	64
Oil-water Separator	26	12	13
Total Process Wastewater	150	69	77
Sanitary Wastewater	3	1	1
Total Wastewater to City Sewer	153	70	78

acre-ft/yr = acre feet per year
gpd = gallons per day
RO = reverse osmosis
UF = ultra filtration
See Figure 3.5-4A for the water balance diagram.

3.5.7.2 Water Quality

The typical expected water quality data for the recycled water and potable water are presented in Table 3.5-5 below, and discussed in Section 5.5, Water Resources.

TABLE 3.5-5
EXPECTED AVERAGE WATER QUALITY OF RECYCLED AND POTABLE WATER

Constituent	Units	Recycled Water[1]	Potable Water[2]
Conductivity	µS/cm	1,450	895
pH		6.9	8.1
Total Suspended Solids (TSS)	ppm	2	NA
Total Dissolved Solids (TDS)	ppm	887	545
Ion Chemistry, as $CaCO_3$			
Total Alkalinity	mg/L	85	122

Constituent	Units	Recycled Water[1]	Potable Water[2]
Hardness	mg/L	279	249
Calcium	mg/L	167	59
Cations			
Magnesium	mg/L	112	24
Sodium	mg/L	332	87
Potassium	mg/L	22	4.6
Bicarbonate	mg/L	85	NA
Sulfate	mg/L	245	180
Chloride	mg/L	326	89
Nitrate-Nitrite	mg/L	52	ND
Trace Metals			
Aluminum	mg/L	0.057	NA
Antimony	mg/L	<0.001	NA
Arsenic	mg/L	0.0015	ND
Barium	mg/L	0.086	NA
Beryllium	mg/L	<0.001	NA
Boron	mg/L	0.41	125
Cadmium	mg/L	<0.0005	NA
Chromium	mg/L	0.0024	NA
Cyanide	mg/L	<0.005	NA
Copper	mg/L	0.05	<1.3
Fluoride	mg/L	0.525	0.9
Iron	mg/L	0.03	NA
Lead	mg/L	0.00078	NA
Manganese	mg/L	<0.002	NA
Mercury	mg/L	<0.0002	NA
Nickel	mg/L	<0.005	NA
Selenium	mg/L	<0.005	NA
Silver	mg/L	0.0012	NA
Thallium	mg/L	<0.001	NA
Zinc	mg/L	0.09	NA
Silica, SiO_2	mg/L	12	NA

Notes:

[1] Water quality for recycled water is based on data for the Ralph W. Chapman Water Recycling Facility for 2007, 2008, and 2009 (OWD, 2008, 2009, and 2010b).

[2] Water quality for potable water is from Otay Water District, 2009 and 2010. No margin has been added to the two samples used to estimate potable water quality.

mg/L = milligrams per liter

NA = not available

ND = not detected, detection limit not available

ppm = parts per million

µS/cm = microsiemens per centimeter

3.5.7.3 Water Treatment

Cooling System Makeup Water

The planned-for makeup water will be from the Otay Water District recycled water supply with total dissolved solids (TDS) content of approximately 1,150 milligrams per liter (mg/L). Should recycled water not be available an alternative supply of potable water would be utilized until such time as recycled water is available, should there be an interruption with the primary supply. The raw water supplied by Otay Water District will be stored in a raw water storage tank. The PDCS makeup water will be pumped or gravity fed from the tank to the cooling module basins as required, replacing water lost from evaporation, blowdown, and

drift. The cooling water blowdown rate will be set to maintain approximately 5.0 cycles of concentration. The concentration limit is determined based on the water chemistry of the recycled water and is aided by the use of highly corrosion-resistant materials in the PDCS.

A chemical feed system will supply water-conditioning chemicals to the cooling water to minimize corrosion, bio-fouling, and the formation of mineral scale. Sulfuric acid is anticipated to be fed into the cooling water system in proportion to makeup water flow for alkalinity reduction to control the scaling tendency of the cooling water. The acid feed equipment will consist of a bulk sulfuric acid storage tank and two full-capacity sulfuric acid metering pumps.

To further inhibit scale formation, a scale-inhibiting solution will be fed into the cooling water system as a sequestering agent in an amount proportional to the cooling water blowdown flow. The scale inhibitor feed equipment will consist of a chemical solution bulk storage tank and two full-capacity scale inhibitor metering pumps.

To prevent bio-fouling in the cooling water system, a sodium hypochlorite solution will be fed into the system. The hypochlorite feed equipment will consist of a bulk storage tank and two full-capacity hypochlorite metering pumps. Two full-capacity metering pumps will be provided for feeding either stabilized bromine or sodium bromide as supplemental biocides.

In general, the cooling system water treatment system will be used to maintain the cooling water quality within the requirements of the cooling system manufacturer, as shown in Table 3.5-6, Cooling Water Quality Limits.

TABLE 3.5-6
COOLING WATER QUALITY LIMITS

Constituent	Concentration (ppm)
Alkalinity, as $CaCO_3$	100 to 500
Silica, as SiO_2	<150
Iron	<3.0
Manganese	<0.1
Sulfides	<1.0
NH_3	<50
TDS	<5000
Calcium as $CaCO_3$	<900
Chlorides, as Cl	<1,500
Sulfates as $CaCO_3$	<2,000
Nitrates, as NO_3	<300

Notes:
< = less than
NH_3 = ammonia
ppm = parts per million
TDS = total dissolved solids

Demineralized Water

Raw water will be filtered and sent through an RO system to remove all of the suspended solids and most of the dissolved solids from the water. The RO system rejects approximately 28 percent of the feed water, along with the impurities that were removed. The product water from the RO system is sent through skid-mounted mixed-bed ion exchange demineralizers

and then to a demineralized water storage tank. The mixed-bed resins will be regenerated by an off-site contractor. In addition to being used for CTG NO_x control, a portion of the demineralized water will also be used for CTG compressor washing.

3.5.7.4 Wastewater Treatment and Discharge

The two process wastewater streams are cooling system blowdown and RO reject. Both of these streams will be routed to an on-site wastewater storage tank and then discharged to an adjacent sewer that connects to the Johnson Canyon Trunk Line owned and managed by San Diego County.

The PDCS external water will be concentrated by evaporative losses and will include the residues of chemicals added to the water. These chemicals control scaling and biological growth in the cooling system and corrosion of the heat exchanger tubes. Cooling water treatment will require the addition of a pH control agent (acid), a mineral scale dispersant (polyacrylate polymer or equivalent), corrosion inhibitors (phosphate based), and biocide (sodium hypochlorite and sodium bromide or equivalent). The blowdown will then be removed from the cooling system to prevent mineral scale formation on heat transfer surfaces. Table 3.5-7, Process Waste Characterization, shows the major wastewater streams and the resultant wastewater for disposal. Refer to the water balances on Figure 3.5-4A and Figure 3.5-4B for wastewater flows.

TABLE 3.5-7
PROCESS WASTE CHARACTERIZATION

Constituent	Units	Process Wastewater[1]	Industrial Wastewater Limits[2]
Conductivity	µS/cm	8.080	NA
pH		7.8	5 to 12.5
Total Suspended Solids	ppm	30	100[3]
Total Dissolved Solids	ppm	5,252	NA
Ion Chemistry, as $CaCO_3$			
Total Alkalinity	mg/L	150	NA
Hardness	mg/L	1,851	NA
Calcium	mg/L	950	NA
Cations			
Magnesium	mg/L	900	NA
Sodium	mg/L	1,882	NA
Potassium	mg/L	123	NA
Bicarbonate	mg/L	151	NA
Sulfate	mg/L	1,715	NA
Chloride	mg/L	1,850	NA
Nitrate-Nitrite	mg/L	294	NA
Trace Metals, µg/L (ppb), as Such (i.e., as chemical species identified below)			
Aluminum	mg/L	-	NA
Antimony	mg/L	-	NA
Arsenic	mg/L	-	NA
Barium	mg/L	-	NA
Beryllium	mg/L	-	NA
Boron	mg/L	-	NA
Cadmium	mg/L	-	1.0
Chromium	mg/L	-	5.0
Cyanide	mg/L	-	1.9

Constituent	Units	Process Wastewater[1]	Industrial Wastewater Limits[2]
Copper	mg/L	0.28	11.0
Fluoride	mg/L	-	NA
Iron	mg/L	0.17	NA
Lead	mg/L	-	5.0
Manganese	mg/L	-	NA
Mercury	mg/L	-	NA
Nickel	mg/L	-	13
Selenium	mg/L	-	NA
Silver	mg/L	-	NA
Thallium	mg/L	-	NA
Zinc	mg/L	0.51	24
Silica, SiO2	mg/L	68	NA

Notes:

[1] Estimated by Kiewit and based on a worse-case use of recycled water, not potable water. Process wastewater quality assumes chemical addition and materials upgrades to equipment in contact with wastewater. Trace metals given at their minimum detection limit were not propagated throughout the system. Conductivity is a field measurement but is estimated in the table.

[2] Based on City of San Diego Metropolitan Wastewater Department's Industrial Wastewater Control Program's Current Local Limits (MWD, 2006)

[3] Federal pretreatment standards for power plant discharges to a sewer system limit total suspended solids for a maximum one day at 100 mg/L and average 30-day to 30 mg/L (40 CFR 423)

mg/L = milligrams per liter

NA = not available

ND = not detected, detection limit not available

ppm = parts per million

µS/cm = microsiemens per centimeter

- = not estimated

Plant Drains and Wash-down

Area drains will be located by mechanical equipment where it is determined that oil could mix with rainwater or other water sources. The water collected by these drains will go to the oil-water separator, which separates out any oil before the effluent goes to the sewer. The oil-contaminated fluid will be pumped out by a vacuum truck on an as-needed basis and disposed of at a facility specifically qualified to handle such waste. Hazardous containments will not have drains, but they will be pumped out by vacuum pump if hazardous materials are present.

Domestic/Sanitary Wastewater

The sanitary waste drains will be sent to the San Diego County sewer line via the dedicated connection pipe that would also carry the RO rejects and cooling tower blowdown.

Stormwater Drainage

Stormwater will be managed by employing Best Management Practices (BMPs) that prevent soil erosion and impacts on surrounding vegetation. Generally, gravel will be used in lieu of concrete and asphalt paving, where possible, to allow for on-site stormwater infiltration. Remaining stormwater will be routed through culverts and swales to an onsite stormwater pond and then discharged to the Otay Mesa stormwater drainage system located along Calzada de la Fuente. See Figure 3.4-3 for the Preliminary Grading and Drainage Plan. See Section 5.5, Water Resources, for further discussion on stormwater drainage.

3.5.8 Waste Management

Waste management is the process and procedures whereby all wastes produced at PPEC will be properly collected, treated (where applicable), and disposed. Project-related wastes include wastewater, solid nonhazardous waste, and both liquid and solid hazardous waste. See Table 3.5-8, Estimated Waste Generated during Construction and Operation, for details regarding the project waste characterization and management. Refer to Section 5.14 for additional information on waste management.

3.5.8.1 Solid Waste – Nonhazardous

PPEC will produce maintenance and plant wastes typical of natural gas-fired power generation operations. Generation plant wastes include oily rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, and other solid wastes, including the typical refuse generated by workers. Recyclable materials will be taken off site. Waste collection and disposal will be in accordance with applicable regulatory requirements to minimize health and safety effects.

Construction Waste

Construction of PPEC will generate wastes typical for the construction of simple-cycle, natural gas-fired combustion turbine power generation plants. Wastes will include packing materials and dunnage, surplus excavated materials, excess materials trimmed from standard dimension materials (whether wood, metal, wire, or other basic building materials), concrete spoil, temporary weather covers, consumable abrasive and cutting tools, broken tools, parts and electrical and electronic components, construction equipment maintenance materials, empty containers, oily rags, and other solid wastes, including the typical refuse generated by workers (see Table 3.5-8).

Solid waste will be segregated, where practical, for recycling. Nonrecyclable waste will be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

PPEC expects to generate less than 100 kilograms per month of hazardous waste. Hazardous wastes generated during construction and operation, if any, will be handled and disposed of in accordance with applicable LORS. Some hazardous solid waste, such as welding materials and dried paint, may also be generated. The hazardous waste will be collected in satellite accumulation containers near the points of generation. This waste will be moved daily to the contractor's 90-day hazardous waste storage area. The waste will be delivered to an authorized hazardous waste management facility before the expiration of the 90-day storage limit.

Startup will generate wastes typical of normal operation plus initial cleaning wastes, such as rags, consumable materials, and failed components. See Table 3.5-8, Solid Waste Generated During Construction and Operation, for a list of solid waste expected to be generated during construction.

TABLE 3.5-8
ESTIMATED WASTE GENERATED DURING CONSTRUCTION AND OPERATION

Waste Stream	Waste Classification	Amount	Disposal Method
CONSTRUCTION			
Paper, wood, glass, and plastics from packing materials, waste lumber, insulation, and empty nonhazardous containers	Nonhazardous	25 tons	Weekly collection for recycling and/or disposal at a Class III Landfill
Concrete	Nonhazardous	17 tons	Weekly collection/disposal at a Class III Landfill
Metal, including steel from welding/ cutting operations, packing materials, empty nonhazardous containers, aluminum waste from packing materials, and electric wire	Nonhazardous	7 tons	Recycling dumpsters. If not recyclable, then disposal at a Class III Landfill
Empty hazardous material containers – drums	Hazardous recyclable	2 cubic yards/week	Recondition, recycle, or waste disposal at Class I Landfill
Used and waste lube oil during CTG and STG lube oil flushes	Hazardous[2] recyclable	<55 gal per flush period, approximately 3-week duration	Recycle
Oil-absorbent mats from CTG and STG lube oil flushes and normal construction	Nonhazardous	1,000 sq. ft. per month, as needed	Waste disposal facility or laundry (permitted to wash rags)
Spent batteries; lead acid	Hazardous	2 batteries/yr	Recycle
Spent batteries; alkaline type, sizes AAA, AA, C, and D	Hazardous Recyclable	60 batteries/month	Recycle
CTG cleaning waste	Hazardous	1,000 gal per cleaning	Hazardous waste disposal facility or recycle
Sanitary waste-portable chemical toilets and construction office holding tanks	Sanitary	1,500 gal per week	Weekly collection (minimum) and off-site treatment/disposal
Waste oil, including used motor oil, transmission fluid, hydraulic fluid, and antifreeze	Hazardous[2]	20 gal per week	Hazardous waste disposal facility or recycle
Waste paint, thinners, and solvents	Hazardous	2 gal per week	Hazardous waste disposal facility or recycle
Oily rags	Hazardous[2]	2-3 55-gal drums	Hazardous waste disposal facility or recycled
Oil absorbents	Hazardous[2]	Less than 1 cubic yard per week	Hazardous waste disposal facility
OPERATION			
Paper, wood, plastic, cardboard, insulation, yard debris, and deactivated equipment and parts	Nonhazardous	100 lbs per week	Weekly collection for recycling and/or disposal at a Class III Landfill
Empty hazardous material containers	Hazardous	50 lbs per week	Recondition or recycle
Used hydraulic fluids, oils, grease, oily filters	Hazardous[2]	<5 gal per day	Recycle
Spent batteries	Hazardous	5 batteries per year	Recycle
Spent selective catalytic reduction (SCR) catalyst	Hazardous	250 lbs every 3 to 5 years	Recycle
Spent carbon monoxide (CO) catalyst	Hazardous	250 lbs every 3 to 5 years	Recycle
Cooling tower basin sludge	Nonhazardous	2 tons per year	Recycle or dispose at nonhazardous waste facility

Waste Stream	Waste Classification	Amount	Disposal Method
CONSTRUCTION			
Used oil from oil-water separator	Recyclable Hazardous[2]	50 gal per year	Recycle
Oily rags	Hazardous[2]	100 lbs per year	Hazardous waste disposal facility or recycled
Oily absorbent	Recyclable Hazardous[2]	55 gal per month	Recycle or hazardous waste disposal facility
Used air filters	Nonhazardous	2,000 filters every 5 years	Recycle
Sanitary wastewater	Nonhazardous	1,000 gal per day	Liquids disposed to on-site leaching field; sludge disposed to a sanitary waste disposal facility
Combustion turbine generator (CTG) periodic operational chemical cleaning	Hazardous	100 gal per cleaning (2 cleanings every 5 years)	Hazardous waste disposal facility (by licensed subcontractors)

Source: Kiewit Power Engineers, 2010.
Notes:
[1] Under California regulations.
< = less than
CTG = combustion turbine generator
gal = gallon(s)
sq. ft. = square feet
STG = steam turbine generator

Operations Waste

Operation of the PPEC facility will generate wastes resulting from processes, routine facility maintenance, and office activities (see Table 3.5-8). Nonhazardous waste during facility operation will be recycled to the greatest extent practical; a certified waste-handling contractor will remove the remainder on a regular basis.

The plant will produce maintenance and plant waste typical of power generation operations. The following types of nonhazardous solid waste may be generated: paper, wood, plastic, cardboard, broken and rusted metal and machine parts, defective or broken electrical materials, empty nonhazardous containers, and other miscellaneous solid wastes, including the typical refuse generated by workers.

Office paper, newsprint, aluminum cans, wood, insulation, yard debris, concrete, gravel, scrap metal, cardboard, glass, plastic containers, and other nonhazardous waste material will be recycled to the extent practical, and a certified waste-handling contractor will remove the remainder on a regular basis for disposal at a Class III landfill.

Hazardous waste will be accumulated at the generating facility according to California Code of Regulations (CCR) Title 22 requirements for satellite accumulation. A licensed hazardous waste hauler will collect hazardous waste with the use of a hazardous waste manifest. Waste will only be shipped to authorized hazardous waste management facilities. Biannual hazardous waste generator reports will be prepared and submitted to the California Department of Toxic Substances Control (DTSC). Copies of manifests, reports, waste analyses, and other documents will be kept on site and remain accessible for inspection for at least three years.

Waste lubricating oil will be recovered and recycled by a waste oil-recycling contractor. Spent oil filters and oily rags will be recycled. Spent SCR and oxidation catalysts will be recycled by the supplier, if possible, or disposed of in a Class I landfill. Laboratory analysis wastes will be recycled if possible, or disposed of in a Class I landfill. Please refer to Section 5.14, Waste Management, for a list of solid waste expected to be generated during operation.

3.5.8.2 Liquid Wastes – Nonhazardous

Nonhazardous liquid wastes that are nonrecoverable, such as cooling system blowdown and RO reject water, will be disposed of into the County's sewer line. Sanitary waste will also flow into this sewer line.

3.5.9 Emissions Control and Monitoring Equipment

Air emissions from the combustion of natural gas in the CTGs will be controlled using state-of-the-art systems. Emissions that will be controlled include:

- NO_x
- CO
- Particulate matter (PM)
- VOCs
- Oxides of sulfur (SO_x)

3.5.9.1 NO_x Production and Control Mechanisms

The project would control NO_x emission production during the CTG combustion and post-combustion processes. The CTG combustors will be equipped with water injection capability to reduce thermal NO_x formed during the combustion process. Water is injected into the combustor to reduce the combustion temperature, which reduces the production of thermal NO_x. NO_x concentrations in the exhaust gas emitted to the atmosphere would be 2.5 ppmvd adjusted to 15 percent O_2 from the gas turbines/SCR systems.

Post-combustion NO_x emissions control would occur through the catalyst housings on the CTG discharge (one per CTG), which are equipped with SCR catalyst modules to further reduce NO_x in the CTG exhaust gas. The SCR process will use 19 percent aqueous NH_3 as the reducing agent in the presence of high-temperature to activate the catalyst. Diluted NH_3 vapor will be injected into the exhaust gas stream via a grid of nozzles located upstream of the catalyst module. The subsequent chemical reaction on the catalyst will reduce NO_x to nitrogen and water. The resulting exhaust gas would have a NO_x concentration no greater than 2.5 ppmvd, adjusted to 15 percent O_2, on a three-hour average basis. NH_3 slip, or the concentration of unreacted NH_3 in the exiting exhaust gas, would be limited to 5.0 ppmvd adjusted to 15 percent O_2 on a dry basis. The SCR equipment will include a reactor chamber, catalyst modules, NH_3 storage system, NH_3 vaporization and injection system, and monitoring equipment and sensors.

3.5.9.2 Dry Low NO_x Combustors

Dry low NO_x combustors are not commercially proven in the LMS100 CTGs; therefore, they are not considered for this project.

3.5.9.3 CO and VOC Emissions

An oxidation catalyst will be installed within the catalyst housing to reduce the concentration of CO in the exhaust gas emitted to atmosphere to no greater than 4.0 ppmvd when adjusted to 15 percent O_2 on a dry basis.

VOCs include all unburned hydrocarbons except methane. VOC emissions are low because of proper combustion controls in the CTG. No other controls are required for VOC reduction.

3.5.9.4 Particulates

Particulate emissions will be controlled by the use of natural gas, which is low in particulates, as the sole fuel for the CTGs. Particulates from cooling tower drift will also be minimized by using a partial-dry cooling system.

3.5.9.5 SOx Emissions

SO_x emissions will be controlled by the use of natural gas, which is low in sulfur, as the sole fuel for the CTGs. Utilization of SCR and oxidation catalyst promotes formation of sulfite (SO_3) from sulfur dioxide (SO_2).

3.5.9.6 Emission Monitoring

Continuous Emissions Monitoring Systems (CEMS) will sample, analyze, and record fuel gas flow rate, NO_x and CO concentration levels, and the percentage of O_2 in the stack gas. This system will generate reports of emissions data in accordance with permit requirements and will send alarm signals to the plant's control system when emissions approach or exceed preselected limits.

3.5.10 Fire Protection System

3.5.10.1 Firewater System

The fire protection system will mitigate personnel injury, loss of life, property loss, and plant downtime due to fire. The fire protection system will be connected to the Otay Water District's potable water system as its primary water source. A reduced-pressure principal backflow preventer will be used at the connection to prevent any possibility of potable water contamination with the raw (recycle) water. As a back-up to the primary fire water supply, the lower portion of the 500,000-gallon raw/service water storage tank will be reserved for fire protection. The dedicated volume in the 500,000-gallon storage tank will provide 2 hours of protection from an on-site worst-case single fire. An electric fire protection pump will activate automatically if the fire protection system pressure drops below acceptable levels.

A dedicated underground firewater distribution system with fire hydrants, sprinkler systems, and deluge systems, designed in conformance with the NFPA code, will be used to distribute the fire protection water. The system will have sectionalizing valves so that a failure in any part of the system can be isolated while allowing the remainder of the system to function properly. Fire hydrants and fixed suppression systems will be supplied from the firewater loop. Fire hydrants will be spaced at approximately 300-foot intervals around the facility in accordance with NFPA 850 and local fire codes.

In addition, the combustion turbines and associated electrical modules will be protected by a carbon dioxide (CO_2) fire protection system.

3.5.10.2 Fixed Fire Protection Systems

The fire protection water supply is shown on Figure 3.5-5, Fire Protection System. Fixed-fire protection systems will be provided for the oil-filled GSU transformers and the turbine lubrication oil system. In addition, buildings will have sprinkler systems, as required by NFPA and local fire codes. Sprinkler and fixed-spray systems will be designed and installed in accordance with NFPA 13 and NFPA 15. Electronic and electrical equipment rooms will have smoke detectors and alarms, as well as local hand held fire extinguishers.

3.5.10.3 Fire Alarm and Detection

Fire alarms will be installed in buildings in accordance with NFPA 72 and as required by local fire codes. The alarm system will include alarm annunciation and supervisory and trouble signals. Alarms will require urgent action by the plant operators. Supervisory signals indicate abnormal conditions that require investigation. Trouble signals indicate adverse conditions, such as ground fault or power supply problems, which should be rectified by qualified personnel.

3.5.10.4 Portable Extinguishers

Hand-held CO_2 and dry chemical fire extinguishers will be located throughout the plant in accordance to NFPA 10.

3.5.10.5 Miscellaneous Fire Safety Items

All material used in construction of the PPEC plant and its auxiliary systems will be free of asbestos and will meet the fire and smoke rating requirements of NFPA 255.

3.5.11 Plant Auxiliaries

3.5.11.1 Lighting

See Section 5.13, Visual Resources, for details on lighting. Lighting will be provided in the following areas:

- Interior of office, control, maintenance, and other buildings

- Exterior entrances to buildings
- Platforms and walkways
- Transformer and switchyard areas
- Plant roads
- Parking areas
- Entry gate
- Cooling system equipment

Lighting will be designed to minimize visual impacts while providing adequate lighting for normal operations and maintenance and ensuring security and safety requirements are met. Switches or motion detectors will control lighting in areas not normally accessed as part of routine operation or to ensure safety of personnel and property.

Emergency lighting fixtures with integral battery packs will be located in areas of regular personnel traffic to allow exit from areas where normal lighting has failed. In areas with major control equipment and electrical distribution equipment, emergency lighting located in these areas will suffice to allow operations to reestablish auxiliary power during a normal lighting failure.

3.5.11.2 Grounding and Lightning Protection

Electrical systems are susceptible to ground faults, lightning, and switching surges, all of which can lead to a rise in unit ground potential. This rise is a hazard to both site personnel and electrical equipment. Hence, a grounding system will be instituted to provide an adequate path to allow the dissipation of ground fault currents and thereby minimize rises in the ground potential.

The station-grounding grid will be designed with sufficient capacity to dissipate heat from the ground current under the most severe fault conditions in places of high ground fault current concentration. The grid spacing will be set to maintain safe step voltage gradients.

Bare copper conductors will be installed below grade in a grid pattern. Each junction of the grid will be bonded together by either an exothermal welding process or mechanical connectors.

Ground resistivity readings, performed as part of the subsurface investigations, will be used to determine the necessary numbers of ground rods and grid spacing to ensure safe step and touch potentials under fault conditions.

Grounding cables will be brought from the ground grid to connect to building steel and non-energized metallic parts of electrical equipment. Insulated grounding conductors to the isolated ground will be provided for sensitive control systems.

Lightning protection will be furnished for buildings and structures in accordance with NFPA 780 or Underwriters Laboratories (UL) 96 and UL 96A.

3.5.11.3 Cathodic Protection

A cathodic protection system will be present for buried carbon steel pipes and structures (except rebar). Cathodic protection will be provided by an impressed current system, a sacrificial system, or a combination of both.

3.5.11.4 Programmable Logic Controller (or Digital Control System)

The programmable logic controller (PLC) provides modulating control, digital control, monitoring, and indicating functions for the plant power block systems. The following functions will be provided:

- Controlling the CTGs and other systems in a coordinated manner
- Controlling the BOP systems in response to plant demands
- Monitoring controlled plant equipment and process parameters and delivering this information to plant operators
- Monitoring the CTG CEMS units for critical alarms and collecting data for historical logging
- Providing control displays (printed logs, operator interface) for signals generated within the system or received from input/output (I/O) signals
- Providing consolidated plant process status information through displays presented in a timely and meaningful manner
- Providing alarms for out-of-limit parameters or parameter trends, displaying this information on operator interface units, and recording on an alarm log printer
- Providing storage and retrieval of historical data

The PLC will be a redundant microprocessor-based system consisting of the following major components:

- Liquid crystal display (LCD) flat-screen displays on operator workstations
- Engineer work station
- Distributed processing units
- I/O card cabinets
- Printers
- Data link to the combustion turbines

The PLC will have redundant processing units linked to a group of operator workstations and the engineer workstation by redundant data highways. Each processor will be programmed to perform specific dedicated tasks for control information, data acquisition, and annunciation. By being redundant, no single processor failure can cause or prevent a unit trip.

The PLC will interface with the control systems furnished by the CTG supplier to provide supervisory remote control capabilities, as well as data acquisition, annunciation, and historical storage of turbine and generator operating information.

3.5.11.5 Plant Instrument and Service Air System

The plant service and instrument air system will consist of packaged air compressor skid(s) and a distribution system with a main header and branches that distribute air to various locations in the power block. The main components of the air compressor skid will include three 50 percent air compressors, two 100 percent air dryers with pre-filters and after-filters, and an air receiver.

The air compressors will be oil-flooded, air-cooled, rotary screw air compressors with a discharge pressure rated at 125 pounds psig and sized for instrument and service air capacity requirements. The compressors will be provided with inlet filters, after-coolers, totally enclosed fan-cooled (TEFC) motors, controls, automatic condensate trap, piping, and valves.

The air dryers will be heatless, dual tower, regenerative desiccant type. Coalescing pre-filters, particulate after-filters, a moisture-indicating instrument, and a regulator will be supplied with the dryer.

The air receiver will be American Society of Mechanical Engineers (ASME) code rated. Typically a vertical vessel, the receiver will have a pressure safety valve to prevent over-pressure.

The main header will distribute air from the receiver and deliver it by a network of branches from the header throughout the plant, where needed. A pressure-regulating valve will be provided at each service and utility station to prevent the service air system from degrading the instrument air pressure.

Service air headers will be routed to hose connections located at various points throughout the facility. Instrument air will be routed to locations within the facility equipment areas and within the water treatment facility where pneumatic operators and devices will be located.

3.5.12 Heating, Ventilation, and Air Conditioning

The heating, ventilation, and air-conditioning (HVAC) system will provide an acceptable environment for personnel comfort and equipment operation within the plant buildings.

Only the administration and control building will be air conditioned. The HVAC system will be designed in accordance with the California Building Code (CBC) and the Uniform Mechanical Code (UMC), as prescribed by the CCR.

Air conditioning in the control room and administrative areas will maintain a suitable environment for plant personnel. If required for proper equipment operation, humidity control will be provided in the control room.

Outside air ventilation systems will be provided for buildings where air-conditioning is not required. Electric heaters will be used for winter heating.

Every building and respective portion of the building will be supplied with fresh air in accordance with the CBC; American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 62; and the CCR.

3.5.13 Plumbing

The plumbing system will supply potable water to all plumbing fixtures and will collect and convey waste fluids to the waste collection system. The system will be designed and constructed in accordance with the California Plumbing Code.

3.5.14 Noise Emission Abatement Equipment

The PPEC facility equipment would be individually specified with source controls, such that overall noise from the facility at noise-sensitive receptors meets regulatory requirements. During normal operations, the nature of noise from the proposed facility would be essentially continuous and broadband (no tones).

Anticipated equipment source controls would include the following:

- CTGs housed within high performance acoustic enclosures
- CTG enclosures equipped with ventilation system silencers
- CTG air inlet equipped with high performance acoustical silencer
- Combustion turbine air inlet compressor equipped with a variable bleed valve silencer
- SCR and CO emission control systems with integral stack/silencer system
- Gas compressors housed within acoustical enclosures
- Water treatment equipment located within a building

3.6 CIVIL/STRUCTURAL FEATURES

This section describes the buildings, structures, and other civil/structural features that will constitute the PPEC facility, as shown on Figure 3.1-3A, Site Arrangement.

3.6.1 Overview

The power block will consist of three separate simple-cycle combustion turbine power generation trains, each consisting of one GE LMS100 CTG, an air inlet system, an intercooler and variable bleed valve silencer, an SCR system, one stack, a power control module, an intercooler motor control center, a fuel gas filter/separator, and a generator step-up transformer.

In addition to the three combustion turbine power generation trains, there will be a cooling system (PDCS), an NH_3 storage tank, natural gas compressors, a water treatment facility, and two auxiliary transformers. BOP mechanical and electrical equipment will also be present.

The major equipment will be supported on reinforced concrete foundations at grade. Individual reinforced pads at grade will be used to support the BOP mechanical and electrical equipment. The gas compressors and water treatment equipment will be in an enclosed building(s).

3.6.2 Stacks

The SCR/CO system will include an integral stack/silencer system. The stack will be a 100-foot tall self-supporting steel stack and will include the associated appurtenances, such as sampling ports, exterior ladders, side step platforms, and electrical grounding.

3.6.3 Buildings

The plant buildings will include a main plant building consisting of an administration and control area and warehouse area, a water treatment building, a firewater pump modular enclosure, switchgear modules, and gas compressor modules. Building dimensions are shown on Figure 3.1-3A, Site Arrangement. All of the buildings or modules will be supported on mat foundations or individual spread footings.

3.6.4 Transformer Foundations and Firewalls

There will be three 13.8kV to 230kV generator step-up oil-filled transformers and two 13.8kV to 4.16kV auxiliary oil-filled transformers. Each will be supported on reinforced concrete foundations at grade. Construction of a concrete retention basin around each transformer will provide oil containment in the event of a transformer failure. Concrete firewalls will be provided as required by NFPA 850 for each step-up transformer and auxiliary transformer to limit a potential transformer fire to its concrete basin area.

3.6.5 Yard Tanks

The yard water storage tanks will include the raw water storage tank (500,000 gallons), the demineralized water storage tank (240,000 gallons), and the wastewater collection tank (95,000 gallons).

The yard storage tanks will be vertical, cylindrical, field-erected, or shop-fabricated steel tanks. Each tank will be supported on a suitable foundation consisting of either a reinforced concrete ring wall with an interior bearing layer of compacted sand for the tank bottom or a reinforced concrete mat.

3.6.6 Roads

Access to the project site will be through controlled access gates. The new facility will be served by the road network shown on Figure 3.3-1, Facility Plot Plan. New roads, miscellaneous access drives, and permanent parking areas within the project site boundaries will be asphalt or aggregate surfaced roads. Surrounding the equipment will be a network of roads for fire equipment and facility maintenance access. Primary access to the site will be from Calzada de la Fuente, and the construction and laydown area access will be from Alta Road or Paseo de la Fuente.

3.6.7 Site Security

A temporary chain-link security fence surrounding the project site perimeter will enclose the new facility during construction. Upon completion of the project, a permanent chain link security fence will encompass the facility. In addition, the facility switchyard will be enclosed within a chain-link fence for the safety of the workforce. A controlled-access gate will be located at the main entrance from Calzada de la Fuente. During construction, a temporary chain-link security fence will be erected around the outside perimeter of the laydown site. This fence will be removed at the conclusion of the construction phase.

3.6.8 Site Grading and Drainage

The PPEC plant site will consist of paved roads, paved parking areas, and graveled areas. Stormwater that does not infiltrate the project site will be routed through culverts and swales to an onsite detention pond and then discharged to the Otay Mesa stormwater system along Calzada de la Fuente. Stormwater entering the property from off site will be diverted away from the plant area using ditches. The grading and drainage facilities will be designed in accordance with the San Diego County Drainage Design Manual, San Diego County Hydrology Manual, and the County of San Diego Standard Urban Stormwater Mitigation, and BMPs will be implemented to reduce erosion and remove silt. The site grading and drainage plan for the project is shown on Figure 3.4-3, Preliminary Grading and Drainage Plan. See Appendix I, Water Resources, for the detention basin calculations.

A Stormwater Pollution Prevention Plan (SWPPP) will be prepared in accordance with the State Water Resources Control Board General Permit for Discharges of Storm Water Associated with Construction Activities, prior to construction of PPEC. This plan will be used at PPEC to control stormwater during the facility's construction. The plan will use BMPs such as stabilized construction entrances, silt fencing, berms, hay bales, and detention basins to control runoff from all construction areas.

3.6.9 Site Flood Issues

According to the Federal Emergency Management Agency (FEMA), the site is outside of the 100-year floodplain.

3.6.10 Sanitary System

The sanitary system will consist of a sewer connection to the existing San Diego County sewer designed to handle the sanitary flow from the administration and control building and any restrooms, located on the site. The sewer connection will be on site near the administration and control building, connecting to the linear sewer line.

3.6.11 Earthwork

Excavation activities are expected to be minimal based on previous grading activities conducted by the landowner. Excavation work will consist of the removal, storage, and/or disposal of earth, sand, gravel, vegetation, organic matter, loose rock, boulders, and debris to the lines and grades necessary for construction. Materials suitable for backfill will be stockpiled at designated locations using proper erosion protection methods.

The site is currently vacant industrial land located immediately west of the OMGP. Graded areas will be smooth, compacted, free from irregular surface changes, and sloped to drain. Cut-and-fill slopes for permanent embankments will be designed to withstand horizontal ground accelerations for Seismic Zone 4. For slopes requiring soil reinforcement to resist seismic loading, geogrid reinforcement will be used for fills and soil nailing for cuts. Slopes for embankments will be no steeper than 4:1 (horizontal:vertical). Construction will be at existing grade, which is fairly level; therefore, major cuts and fills are not anticipated.

Areas to be backfilled will be prepared by removing unsuitable material and rocks. The bottom of an excavation will be examined for loose or soft areas. Such areas will be excavated fully and backfilled with compacted fill.

Backfilling will be done in layers of uniform, specified thickness. Soil in each layer will be properly moistened to facilitate compaction to achieve the specified density. To verify compaction, representative field density and moisture-content tests will be performed during compaction. Structural fill supporting foundations, roads, and parking areas will be compacted to at least 95 percent of the maximum dry density, as determined by American Society for Testing Materials (ASTM) D698. Embankments, dikes, bedding for buried piping, and backfill surrounding structures will be compacted to a minimum of 90 percent of the maximum dry density. Backfill placed in remote and/or unsurfaced areas will be compacted to at least 85 percent of the maximum dry density.

Where fills are to be placed on subgrades sloped at 6:1 (horizontal:vertical) or greater, keys into the existing subgrade may be provided to help withstand horizontal seismic ground accelerations.

3.7 ELECTRICAL INTERCONNECTION

The new generation will be interconnected to the SDG&E transmission grid through a newly constructed transmission line, which will connect to the existing SDG&E 230kV Otay Mesa switchyard east of the facility. The transmission line route will have a right-of-way (ROW) width of 80 feet. Representative switchyard, transmission pole structures, and underground transmission line structures are presented on Figure 3.7-1A (230kV Switchyard Tubular Steel H-Frame Structure), Figure 3.7-1B (230kV Transmission Line Tubular Steel Tangent Structure), Figure 3.7-1C (230kV Transmission Line Tubular Steel Dead-End Structure), and Figure 3.7-1D (230kV Underground Cable Riser/Dead-End Structure and Duct Bank) which the PPEC proposes to use to transition the 230kV circuits to the existing switchyard.

3.7.1 PPEC Switching Station and Interconnect Specifications

The on-site interconnection facilities will consist of a switchyard, which includes the following major equipment:

- 230kV SF_6 gas-filled high-voltage circuit breakers, each rated 2,000 amperes continuous capacity (ACC), 40 thousand amps interrupting capacity (KAIC).
- 230kV, 2,000-amperes (amp), three-phase breaker disconnect switches, manually operated, each mounted horizontally upright on a low-profile steel support structure.
- 230kV, 2,000-amp three-phase line disconnect switch mounted on a low-profile switch support structure underneath a 230kV dead end/pull off structure for the new 230kV transmission line connection. This 2,000-amp switch serves as a line disconnect on the SDG&E side.
- 230kV coupling capacitor voltage transformers (CCVTs) on one-phase or three-phase steel support structures.
- All necessary yard lighting standards and lighting fixtures along with yard receptacle fixtures providing 120/240V one-phase power. One outdoor lighting panel will be installed for this.
- Drivable cable trenches and/or duct bank, and pull boxes.
- 230kV dead-end/pull off structure/switch support structures for 230kV transmission line to the SDG&E Otay Mesa switchyard. Concrete foundations for all aboveground structures, supports, and equipment.
- One main ground grid system.
- Entrance gate or gates.
- One chain-link fence system with an isolated fence ground, including entrance gates and emergency personnel gates.

- SCADA remote terminal unit (RTU) for station automation, as required by SDG&E.
- Communication hardware, including fiber-optic terminal equipment for fiber links for current differential line protection, as required by SDG&E.
- All instrumentation and control required.

The switchyard design and transmission line interconnection will be coordinated with SDG&E as required.

3.7.1.1 Conductor

The 230kV generation-tie line connecting the project to the existing SDG&E switchyard will be constructed using overhead and potentially some underground conductors, to be approved by SDG&E. Overhead conductor will be one 1113 kilo-circular mil (kcmil) aluminum conductor steel reinforced (ACSR) per phase and underground conductor will nominally be one 2300kcmil Al XLPE cable per phase.

3.7.1.2 Ground Wire

The transmission line will have shield or ground wires in place. The location of the shield wires in relation to conductors will be in accordance with best industry practices and determined by the surrounding terrain. The shield wire will be extra high-strength galvanized-steel or copper-clad steel, as determined by the location and the detailed design.

3.7.2 Transmission Structures

The transmission structures associated with the PPEC 230kV interconnecting transmission line will include 230kV pole structures designed to accommodate overhead shield/ground wire. As described above, the transmission structures will be placed within an 80-foot wide right-of-way. Refer to Figures 3.7-1A through 3.7-1D, which provide representative project transmission structure detail. Refer to Figure 3.1-3A, Site Arrangement, and Figure 3.1-3B, Site Arrangement and Potential Offsite Transmission Line Structure Locations, for potential locations of the new structures for the transmission interconnection.

3.7.3 Transmission System Evaluation

3.7.3.1 Transmission System Reliability Criteria

SDG&E performed the evaluation of the transmission system based on criteria as established by the North American Electric Reliability Council (NERC), the Western Electricity Coordinating Council (WECC), the California Independent System Operator (CAISO), and the SDG&E reliability criteria.

3.7.3.2 CAISO Interconnection Study

PPEC LLC submitted an Interconnect Application to CAISO in January 2010 for the cluster study process. The resulting studies will include work previously known as the System Impact Study and Facilities Study. The studies are underway, and are expected to provide an acceptable plan and executable LGIA for project interconnection. See Appendix H for CAISO interconnection study agreement and proof of payment.

3.7.4 Transmission Line Safety and Nuisance

3.7.4.1 Transmission Line Description

One 230kV transmission line will be routed along one of the two alternate routes, as described in Section 3.3, from PPEC to the existing SDG&E Otay Mesa switchyard. The electric effects of the high-voltage lines fall into two categories: field effects and corona effects. Field effects comprise of electric and magnetic fields. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. A transmission line's field effects are the voltages and currents that may be induced in nearby conduction objects.

3.7.4.2 Generation of Electric and Magnetic Fields

Power lines, electrical wiring, electrical machinery, and appliances all produce electric and magnetic fields, commonly referred to as electromagnetic field (EMF). The EMF produced by the alternating current from PPEC would have a frequency of 60 Hz, which means that the intensity and orientation of the field changes 60 times per second. When a conductor is energized, both an electric and magnetic field will form around the conductor directly proportional to the energization voltage and current, respectively. The magnitude of the EMF depends on the current in the conductor, geometry of the structures, degree of cancellation from other conductors, and the distance of the receptor from the conductors. Maximum magnetic fields are produced at the maximum conductor currents. Both electric and magnetic field magnitudes are inversely proportional to the distance from the conductors, meaning that EMF will attenuate as a function of distance from the conductors.

Considerable research has been conducted over the last 30 years on the possible biological effects and human health effects from EMF. This research has produced many studies that offer no uniform conclusions about whether long-term exposure to EMF is harmful. In the absence of conclusive evidence, some states, including California, have chosen not to specify maximum acceptable levels of EMF. Instead, California mandates a program of prudent avoidance whereby EMF exposure to the public would be minimized by encouraging electric utilities to use cost-effective techniques to reduce the levels of EMF.

To reduce electric and magnetic fields, overhead transmission lines are designed to carry power over three conductors with currents and voltages that are 120 degrees out of phase with each other. Combined, the phase differences tend to cancel out the fields from the conductors. However, within a close range, such as when a person stands on the ROW under a

transmission line, one conductor will be significantly closer; hence, it will contribute a net uncancelled field at the person's location.

EMFs occur independently of one another as electric and magnetic fields at the 60-Hz frequency used in transmission lines, and both are created by electric charges. Electric fields exist when these charges are not moving. Magnetic fields are created when the electric charges are moving. The magnitude of both electric and magnetic fields falls off rapidly as the distance from the source increases (proportional to the inverse of the square of distance).

California does not have regulatory levels for electric and magnetic fields. The estimated PPEC electric field at the center of the proposed transmission line ROW is 1.8 kV/meter, and is 0.45 kV/meter at the edge of the ROW. The estimated PPEC magnetic field directly under the 230kV transmission line is 70 mG (0.07 G), and 40 mG (0.04G) at the edge of the ROW, which are well below those established by states that do have limits. Other states have established regulations for magnetic field strengths that have limits ranging from 150 mG to 250 mG at the edge of the ROW, depending on voltage.

3.7.4.3 Corona Effect

An electric field is generated in the air surrounding a transmission line conductor when the transmission line is in operation. A corona discharge occurs at the conductor surface when the intensity of the electric field at the conductor surface exceeds the breakdown strength of the surrounding air. The electrical energy released from the conductors during this process is known as corona loss and is manifested as audible noise and radio/television interference.

Corona may result in certain radio and television reception interference, audible noise, light, and production of ozone, which are described in further detail below. The effects of corona are greatest at locations on the conductor where the field is enhanced by protrusions, such as nicks, insects, or drops of water (for instance during wet weather).

3.7.4.4 Audible Noise, Radio and Television Interference, Visible Light, and Photochemical Reactions

Energized electric transmission lines can also generate audible noise by a process called corona discharge, most often perceived as a buzz or hum. This condition is usually worse when the conductors are wet. The EPRI has conducted several transmission line tests and studies that measured sound levels for several power line sizes with wet conductors (*Transmission Line Reference Book, 345 kV and Above,* EPRI 1975, 1982). *Transmission Line Reference Book, 345 kV and Above* also notes that the noise produced by a conductor attenuates (decreases) by 2 to 3 dB for each doubling of the distance from the source.

Many factors contribute to the pre-project ambient noise levels in the plant area. The project transmission line will be designed such that noise from the line will continue to be well below undesirable levels, as described below. Any noise or radio/TV interference complaints will be logged, investigated, and, to the degree possible, mitigated.

- **Audible Noise.** Corona-generated audible noise from transmission lines are generally characterized as a buzz or hum noise. The Electric Power Research Institute (EPRI) has conducted several transmission line studies that measure the sound levels for several line sizes with wet conductors (EPRI, 1975, 1982). The EPRI found that the noise produced by a conductor attenuates by 2.0 to 3.0 decibels (dB) for each doubling of the distance from the source. As previously noted, the project transmission line will be designed according to CPUC and California code, which will also serve to keep noise effects from reaching undesirable levels. Any complaints will be logged, investigated, and, to the degree possible, mitigated.

- **Radio and Television Interference.** Radio and television interference, known as gap-type noise, is caused by a film on the surface of two hardware pieces that are in contact. The film acts as an insulator between the surfaces. This results in small electric arcs that produce noise and interference. Corona-generated radio interference is most likely to affect the amplitude modulation (AM) broadcast band (535 to 1,605 kilohertz); frequency modulation (FM) radio is rarely affected. Only AM receivers located very near to transmission lines have the potential to be affected by interference. The potential for interference with radio or television use is expected to be minimal or nonexistent. This type of noise is not a problem in well-maintained transmission lines. Well-trained transmission line maintenance crews will maintain the project transmission line; therefore, problems that might occur can be readily pinpointed and corrected. As previously noted, the project transmission line will be designed according to CPUC and California code, which will also serve to keep interference effects from reaching undesirable levels. Any complaints will be logged, investigated, and, to the degree possible, mitigated.

- **Visible Light.** Corona may be visible at night as a bluish glow or as bluish plumes. On the transmission lines in the area, the corona levels are so low that the corona on the conductors usually is observable only under the darkest conditions with the aid of binoculars.

- **Photochemical Reactions.** When coronal discharge is present, the air surrounding the conductors is ionized and many chemical reactions take place producing small amounts of ozone and other oxidants. Approximately 90 percent of the oxidants are ozone, and the remaining ten percent are composed principally of nitrogen oxides.

3.7.4.5 Induced Currents and Hazardous/Nuisance Shocks

A conducting object such as a vehicle or person in an electric field will experience induced voltages and currents. The strength of the induced current will depend upon the object-to-ground resistance and the electric field strength and the size and shape of the conduction object. When a conducting object is isolated from the ground and a grounded person touches the object, a perceptible current or shock may occur as the current flows to the ground. The mitigation for hazardous and nuisance shocks is to ensure that metallic objects on or near the ROW are grounded and that sufficient clearances are provided at roadways and parking lots to keep electric fields at these locations low enough to prevent vehicle short-circuit currents from exceeding 5.0 milliamperes (mA).

Similarly, magnetic fields also induce voltages and currents in conducting objects. Typically, this requires a long, metallic object, such as a wire fence or aboveground pipeline that is grounded at only one location. Again, a person closing an electrical loop by grounding the object at a different location will experience a shock similar to one caused by the electric field described above. The mitigation for magnetic field effects is to ensure multiple grounds for fences or pipelines, especially those oriented parallel to the transmission line.

The on-site 230kV transmission interconnection and transmission line will be constructed in conformance with California Public Utility Commission (CPUC) General Order (GO) 95 requirements and Title 8 CCR 2700 requirements. In this way, hazardous shocks are highly unlikely to occur as a result of the project construction, operation, and maintenance.

3.7.4.6 Transmission Line Safety and Nuisance Laws, Ordinances, and Standards

This sections provides a list of applicable laws, ordinances, regulations, and standards (LORS) relating to transmission line safety and nuisance that apply to the proposed transmission line, substation, and engineering. Refer to Table 3.7-3 for agencies with jurisdiction to issue permits or approvals, conduct inspections, or enforce the above-referenced LORS.

TABLE 3.7-1
TRANSMISION LINE SAFETY AND NUISANCE LORS

LORS	Applicability	Conformance
Design and Construction LORS for the Proposed Transmission Line and Switchyard		
Title 8 CCR, Section 2700 et seq. "High Voltage Electrical Safety Orders"	Establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical installation and equipment to provide practical safety and freedom from danger.	Section 3.7.4.5
GO-52, CPUC, "Construction and operation of power and communication lines for the prevention or mitigation of inductive interference"	Applies to the design of facilities to provide or mitigate inductive interference.	Section 3.7.4.5
IEEE 1119, "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Recommends clearance practices to protect persons outside the facility from electric shock.	Section 3.7.4.5
Electric and Magnetic Fields		
Decision 93-11-013, CPUC	CPUC position on EMF reduction.	Section 3.7.4.2
GO-131D, CPUC, "Rules for Planning and Construction of Electric Generation, Line, and Substation Facilities in California"	CPUC construction application requirements, including requirements related to EMF reduction.	Section 3.7.4.2
Hazardous Shock		
8 CCR 2700 et seq. "High Voltage Electrical Safety Orders"	Establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.	Section 3.7.4.5
NESC, ANSI C2, Section 9, Article 92, Paragraph E; Article 93, Paragraph C	Covers 5 mA vehicle short circuit current limitation.	Section 3.7.4.5

LORS	Applicability	Conformance
Design and Construction LORS for the Proposed Transmission Line and Switchyard		
Communications Interference		
47 CFR 15.25, "Operating Requirements, Incidental Radiation"	Prohibits operations of any device emitting incidental radiation that causes interference to communications; the regulation also requires mitigation for any device that causes interference.	Section 3.7.4.4
GO-52, CPUC	Covers all aspects of the construction, operation, and maintenance of power and communication lines and specifically applies to the prevention or mitigation of inductive interference.	Section 3.7.4.5

3.7.5 Transmission System Design Laws, Ordinances, Regulations, and Standards

This section provides a list of applicable laws, ordinances, regulations, and standards (LORS) that apply to the design and construction of the proposed transmission line and connection to the proposed SDG&E switchyard of the PPEC. As shown in Figure 3.5-3, the output of each CGT generator will be stepped up to 230kV, and will be connected to the project switchyard via a 1200 ampere rated, SF_6-cooled, circuit breaker. The project switchyard bus will be connected to the SDG&E PPEC substation via the 230kV interconnection, as shown on Figures 3.3-1 and 3.5-3. All transmission and interconnection facilities will be built in conformity with applicable LORS.

Table 3.7-2 lists the applicable LORS for the design and construction of the proposed transmission line and proposed connection to the SDG&E switchyard.

TABLE 3.7-2
DESIGN AND CONSTRUCTION LORS FOR THE PROPOSED TRANSMISSION LINE AND SWITCHYARD

LORS	Applicability	Conformance
ANSI/IEEE 80, "IEEE Guide for Safety in AC Substation Grounding"	Presents guidelines for assuring safety through proper grounding of AC outdoor substations.	Section 3.7.1
ANSI/IEEE 693,"IEEE Recommended Practices for Seismic Design of Substations"	Provides recommended design and construction practices.	Sections 3.5.5, 3.7.1, 3.7.2, 3.7.3, 3.7.4; and Figures 3.5.3, 3.7-1A through and 3.7-1D.
IEEE 980 "Containment of Oil Spills for Substations"	Provides recommendations to prevent release of oil into the environment.	Sections 3.5.5, 3.5.8, and 3.6.4
IEEE 998 "Direct Lightning Stroke Shielding of Substations"	Provides recommendations to protect electrical system from direct lightning strokes.	Sections 3.5.5, 3.7.1, 3.7.2, 3.7.3, 3.7.4; and Figures 3.5.3, 3.7-1A through and 3.7-1D.
IEEE 1119 "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Provides recommended clearance practices to protect persons outside the facility from electric shock.	Sections 3.5.5, 3.7.1, 3.7.2, 3.7.3, 3.7.4; and Figures 3.5.3, 3.7-1A through and 3.7-1D.
NESC, ANSI C2, Section 9, Article 92, Paragraph E; Article 93, Paragraph C	Covers grounding methods for electrical supply and communications facilities.	Sections 3.5.11.2, 3.7.1, and 3.7.2

LORS	Applicability	Conformance
14 CCR Sections 1250-1258, "Fire Prevention Standards for Electric Utilities"	Provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply.	Section 3.5.5 and 3.5.10.2, and Figure 3.7.1A through 3.7-1D
47 CFR 15.25, "Operating Requirements, Incidental Radiation"	Prohibits operations of any device emitting incidental radiation that causes interference to communications; the regulation also requires mitigation for any device that causes interference.	Section 3.7.4.4
Title 8 California Code of Regulations (CCR), Section 2700 et seq. "High Voltage Electrical Safety Orders"	Establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical installation and equipment to provide practical safety and freedom from danger.	Sections 3.5.5, 3.7.1, 3.7.2, 3.7.3, 3.7.4; and Figures 3.5.3, 3.7-1A through and 3.7-1D.
General Order 52 (GO-52), CPUC, "Construction and Operation of Power and Communication Lines":	Applies to the design of facilities to provide or mitigate inductive interference.	Section 3.7.4
General Order 95 (GO-95), CPUC, "Rules for Overhead Electric Line Construction"	CPUC rule covers required clearances, grounding techniques, maintenance, and inspection requirements. The rule covers all aspects of design, construction, operation, and maintenance of electric transmission line and fire safety (hazards).	Sections 3.5.5, 3.7.1, 3.7.2, 3.7.3, 3.7.4; and Figures 3.5.3, 3.7-1A through and 3.7-1D.
General Order 128 (GO-128), CPUC, "Rules for Construction of Underground Electric Supply and Communications Systems"	Applies to the design and construction of underground transmission lines. Specifically establishes requirements and minimum standards to be used for the underground installation of AC power and communications circuits.	Sections 3.5.5, 3.7.1, 3.7.2, 3.7.3, 3.7.4; and Figure 3.7-1D.
GO-131D, CPUC, "Rules for Planning and Construction of Electric Generation, Line, and Substation Facilities in California"	CPUC construction application requirements, including requirements related to EMF reduction.	Section 3.7.4.2
Suggestive Practices for Raptor Protection on Power lines, April 1996	Provides guidelines to avoid or reduce raptor collision and electrocution.	Sections 3.5.5; 3.7.2 and 3.7.4; and Figures 3.7-1A through and 3.7-1D.

3.7.6 Transmission System Involved Agencies and Agency Contacts

Table 3.7-3 identifies federal, state, and local agencies with jurisdiction to issue permits or approvals, conduct inspections, and/or enforce the above referenced LORS. Table 3.7.3 also identifies the associated responsibilities of these agencies as they relate to the construction and operation of PPEC.

TABLE 3.7-3
AGENCIES WITH JURISDICTION FOR TRANSMISSION SYSTEM ENGINEERING AND DESIGN CONSIDERATIONS

Agency	Jurisdiction	Contact Information
Caltrans Department of Aeronautics	Grants permits to private heliports in California. May advise local jurisdictions regarding obstructions to helicopter navigation.	Division of Aeronautics 1120 N Street, Room 3300 Sacramento, CA 95814 916-654-4959
CEC	New transmission lines associated with thermal power plants that are 50 MW or more. (PRC § 25500).	1516 Ninth Street Sacramento, CA 95814 800-555-7794
CEC	Lines out of a thermal power plant to the interconnection point to the utility grid. (PRC § 25107).	1516 Ninth Street Sacramento, CA 95814 800-555-7794
CEC	Modifications of existing facilities that increase peak operating voltage or peak kilowatt capacity 25 percent. (PRC § 25123).	1516 Ninth Street Sacramento, CA 95814 800-555-7794
CPUC	Regulates construction and operation of overhead transmission lines. (General Order No. 95 and 131-D) (those not regulated by the CEC).	San Francisco Office (Headquarters) 505 Van Ness Avenue San Francisco, CA 94102 415-703-2782
CPUC	Regulates construction and operation of power and communications lines for the prevention of inductive interference. (General Order No. 52).	San Francisco Office (Headquarters) 505 Van Ness Avenue San Francisco, CA 94102 415-703-2782
FAA	Establishes regulations for marking and lighting of obstructions in navigable airspace. (AC No. 70/7460-1G).	Western-Pacific Region 15000 Aviation Boulevard Hawthorne, CA 90250 310-725-3550
CAISO	Provides Final Interconnection Approval.	P.O. Box 639014 Folsom, CA 95763-9014 916-351-4400
County of San Diego	Issues applicable permits, leases, or approvals to enforce LORS.	Planning and Land Use 5201 Ruffin Road, Suite B San Diego, CA 92123 858-694-2960

3.8 PIPELINES

The project includes one underground natural gas supply pipeline to be constructed and routed, as indicated on Figure 3.3-1 Facility Plot Plan.

3.8.1 Natural Gas Supply Line

Natural gas will be delivered to the PPEC plant site from a connection to an SDG&E gas transmission line. A new metering and regulator station will be provided on the project site. The gas will be metered as it enters the plant. The gas will be compressed as required and directed to each CTG. Additional flow metering will be provided at each CTG.

3.8.1.1 Description

Piping will be installed underground from the connection at the SDG&E gas transmission line to the point where it enters the project site. At the project site boundary, the piping will be routed to the aboveground gas metering and regulation station and either routed aboveground or below ground to the gas compressors. From the gas compressors, the pipeline will be routed underground to each CTG. The gas piping system will be constructed of carbon steel materials suitable for the design pressures and temperatures. Isolation and control valves will be provided as required by design, operational, and safety requirements.

3.8.1.2 Natural Gas Pipeline Routes

The PPEC project will require the construction of an off-site pipeline to supply natural gas to the project site. Two possible routes are proposed. Route A would extend south along Alta Road for approximately 8,000 feet to just before the U.S.–Mexico border, at which point it would connect to the existing SDG&E natural gas pipeline. Route B would extend approximately 2,375 feet south along Alta Road, turn west on Otay Mesa Road, and continue approximately 7,920 feet to Harvest Road, at which point it would connect to the existing SDG&E natural gas pipeline, for a total of approximately 10,300 feet (Figure 3.3-3, Potential Linears).

3.8.1.3 Buried Pipe

SDG&E will construct all gas pipelines outside of the project site limits up to and including the new metering station. Construction will primarily use an open trench method and will comply with all requirements for the protection of biological resources.

The pipeline will be constructed of carbon steel in accordance with the American Petroleum Institute (API) specifications for gas pipelines or specifications of the ASTM. The pipe will have corrosion-protection coating that is either factory- or field-applied. Joints will be welded, inspected using x-ray, and wrapped with a corrosion-protection coating.

Trenching

The trench width depends on the soil type encountered. The pipeline will be buried with a minimum 36-inch cover. The excavated soil will be piled on one side of the trench and later used for backfilling after the pipe is installed in the trench.

Stringing

The pipe will be laid out (stringing) on wooden skids along the side of the open trench during installation.

Installation

Installation consists of:

- Welding, coating, and bending of pipe

- Laying sand or fine spoil on the trench floor
- Lowering the pipe string into the trench

Welding will meet the applicable API and ASTM standards and will be performed by qualified welders. Welds will undergo radiographical inspection by an independent, qualified radiography contractor. All coatings will be checked for holidays and will be repaired before lowering the pipe into the trench.

Backfilling

Backfilling consists of returning excavated soil or slurry fill back into the trench around and on top of the pipe and up to the original grade of the surface. The backfill will be compacted to protect the stability of the pipe and minimize subsequent subsidence. Backfilling will return the trench to the original grade.

Plating

Plating consists of covering any open trenches, for safety purposes, with solid rectangular plates in areas of foot or vehicular traffic at the end of a workday. Plywood plates can be used in areas of foot traffic and steel plates on areas of vehicular traffic.

3.8.2 Pneumatic Testing

Pneumatic testing consists of plugging both open ends of a pipeline that is to be tested, filling the pipe with air up to a pressure specified by code requirements, and maintaining the pressure for a period of time.

Cleanup

Cleanup consists of restoring the ground surface by removing construction debris, grading the surface to its original state, and replanting vegetation.

Commissioning

Commissioning consists of cleaning and drying the interior of the pipeline, purging air from the pipeline, and filling the pipeline with natural gas.

Safety

Measures to ensure safety during construction and maintenance of the pipeline include complying with all applicable California Occupational Safety and Health Administration (Cal/OSHA), OSHA, and other regulations and standards as well as the contractor's specific safety plans for the project, which will address specific pipeline safety issues. This installation will also comply with all of the County of San Diego regulations, as required.

3.8.3 Sewer Line

Wastewater from the project site will be connected to either the existing 12-inch sewer main along Calzada de la Fuente along the northern project site boundary, or the existing 15-inch sewer main immediately adjacent and to the west of the project site along Alta Road.

3.9 PROJECT CONSTRUCTION

Construction of the generating facility, from site preparation and grading to commercial operation, is expected to require 16 months. The major construction schedule milestones are listed in Table 3.9-1, Project Construction Dates.

TABLE 3.9-1
PROJECT CONSTRUCTION DATES

Activity	Date
Begin Construction	February 2013
Startup and Test	March 2014
Commercial Operation	May 2014

As shown in Tables 3.9-2A and 3.9-2B, Project Workforce Projections, the average monthly and peak monthly workforce are projected to be 148 and 284, respectively, construction craft people, supervisory, support, and construction management personnel on site during construction.

Construction will typically take place between 7:00 a.m. and 5:30 p.m., Monday through Friday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. During some construction periods and during the startup phase of the project, some activities may continue 24-hrs per day, seven-days per week.

The peak construction site workforce level is expected to last from Month 6 through Month 10 of the construction period following commencement of construction.

TABLE 3.9-2A
PROJECT WORKFORCE PROJECTIONS

Plant Construction																	
	Months After Construction Notice-to-Proceed													Commissioning			
Discipline	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**Total**
Insulation Workers	0	0	0	0	0	0	0	8	8	8	17	4	3	0	0	0	48
Boilermakers	0	0	0	0	0	14	14	14	14	14	14	11	11	11	0	0	117
Carpenters/Cement Finishers	4	12	19	19	19	15	13	8	5	4	4	4	2	2	1	0	131
Electricians	3	11	9	9	19	28	36	53	55	51	29	17	10	5	5	5	345
Ironworkers	0	3	5	31	29	31	31	29	25	22	19	17	8	3	0	0	253
Laborers	6	11	15	20	20	20	20	20	20	17	12	8	4	3	2	2	200
Millwrights	0	0	0	7	8	13	28	41	41	41	30	9	9	1	1	1	230
Operating Engineers	8	8	8	9	9	9	9	9	9	4	1	1	1	1	1	0	87
Painters	0	0	0	0	0	4	9	9	9	4	4	2	2	2	0	0	45
Pipefitters	4	16	26	26	33	33	35	45	48	24	16	10	4	4	4	4	332
Sheetmetal Workers	0	0	0	0	0	3	6	7	9	7	7	7	2	1	0	0	49
Surveyors	4	5	5	3	3	2	2	2	2	2	2	2	2	2	0	0	38
Teamsters	4	3	5	3	2	2	2	2	2	2	2	2	1	1	1	0	34
Commissioning Group	0	0	2	2	2	2	2	2	2	2	4	5	5	5	5	5	45
Management Staff	17	21	24	35	37	40	35	35	34	34	27	25	19	13	12	12	420
Total Workforce	**50**	**90**	**118**	**164**	**181**	**216**	**242**	**284**	**283**	**236**	**188**	**124**	**83**	**54**	**32**	**29**	2,374

TABLE 3.9-2B
PROJECT WORKFORCE PROJECTIONS

Linear Piping Construction																	
Months After Construction Notice-to-Proceed																	
Discipline	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**Total**
Laborers	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Surveyors	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Teamsters	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Management Staff	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total Workforce	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**

3.9.1.1 Execution Plans – Engineering and Construction Phases

This is an engineering, procurement, and construction (EPC) type project. As such, a single general contractor will be selected for the design, procurement, and construction of the facility. The general contractor will select subcontractors for specialty work portions as needed.

Materials and supplies will be delivered to the project site by truck. Truck deliveries of construction materials and equipment will generally occur on weekdays between 6:00 a.m. and 6:00 p.m.; however, some larger heavy-load deliveries may be delivered outside those hours. PPEC site access will be controlled for both personnel and delivery vehicles.

3.10 FACILITY OPERATIONS AND MAINTENANCE

This section discusses operation and maintenance procedures that PPEC staff will follow to ensure safe and reliable, operation of the power plant, transmission system, and pipelines, consistent with environmental laws and regulations.

3.10.1 Introduction

Plant operations staff will include a total of four operators, four maintenance technicians, one environmental technician, one administrative staff member, one operations supervisor, and a plant manager. The plant will operate and be staffed 24 hours per day, seven days per week. Plant operations will be directed from a control room. All system equipment will be controlled through a programmable logic controller (PLC) or digital control system (DCS) system, and the project equipment will be integrated into this proven control system.

3.10.2 Power Plant Facility

PPEC is designed as a simple-cycle, peaking, and intermediate load facility with three LMS100 CTGs. The project will be designed to emphasize efficiency and flexibility.

3.10.2.1 Plant Operation

As an intermediate load and peaking facility, each unit will be limited to operate no more than 4,000 hr/yr. The plant will be dispatched by SDG&E in accordance with its economic dispatch procedures. The time required for startup is approximately ten minutes. The SDG&E contract allows for 500 startups and shutdowns per unit per calendar year in addition to the 4,000 hours of normal operation.

3.10.2.2 Controls

The plant control system will consist of a state-of-the-art, integrated, microprocessor-based DCS. The control system will provide for startup, shutdown, and control of plant operation limits and will provide protection for the equipment.

Interlock and logic systems will be provided via hard-wired relays or remote PLC(s).

Process switches (i.e., pressure, temperature, level, flow) used for protective functions will be connected directly to the DCS or PLCs and the protective system.

3.10.2.3 Degree of Automation

The PPEC plant will be designed with automation where practical to reduce the required actions performed by operating personnel. Through subsystem automation and use of the DCS, the number of individual control switches and indicators that confront the operator will be greatly reduced.

3.10.2.4 Centralized Control

The majority of the equipment required to support plant operation will be located in the control room and electrical equipment rooms. The control room will contain the DCS-based operator workstations and any auxiliary control panels. In addition, the control room will contain the alarm, utility, and log printers.

Local control panels or stations will be furnished where operator attention is required to set up a system for operation, or where the equipment requires intermittent attention during plant operation. Main control room indicators and control functions will be duplicated for those variables critical to plant availability.

3.10.3 Transmission System Operation and Maintenance

Transmission line facilities will be operated and maintained in accordance with industry general practice and SDG&E interconnection requirements.

3.10.4 Pipeline Operation and Maintenance

SDG&E will own, operate, and maintain the natural gas pipeline from the existing fuel gas supply lines in accordance with applicable Federal Energy Regulatory Commission (FERC) and U.S. Department of Transportation (DOT) regulations. This piping system will be inspected periodically as part of SDG&E's pipeline maintenance program.

Industrial wastewater and sanitary systems will be discharged to the San Diego County's sewer system.

3.11 FACILITY CLOSURE

Facility closure can be either temporary or permanent. Facility closure can result from two circumstances: (1) the facility is closed suddenly and/or unexpectedly because of unplanned circumstances, such as a natural disaster or other unexpected event (e.g., a temporary shortage of facility fuel) or (2) the facility is closed in a planned, orderly manner, such as at the end of its useful economic or mechanical life or due to gradual obsolescence. The two types of closure are discussed in the following sections.

3.11.1 Temporary Closure

Temporary or unplanned closure can result from a number of unforeseen circumstances, ranging from natural disaster to economic forces. For a short-term unplanned closure, where facility damage does not result in a hazardous substance release, the facility would be kept "as

is," ready to resume operations when the unplanned closure event is rectified or ceases to restrict operations.

In the event that a hazardous substance is possibly released, the project owner will notify the CEC compliance unit and follow emergency plans in accordance with the emergency Risk Management Plan (RMP). Depending upon the expected duration of the shutdown, chemicals may be drained from the storage tanks and other equipment. All waste (hazardous and nonhazardous) will be disposed of according to LORS in effect at the time of the closure. Facility security will be retained so that the PPEC facility is secure from trespassers.

3.11.2 Permanent Closure

The generation facility's anticipated life is 30 years. However, if the facility were economically viable at the end of the 30-year operating period, it could continue to operate for a longer period of time.

3.11.3 Closure Mitigation

At the time of facility closure, decommissioning will be completed in a manner that: (1) protects the health and safety of the public and (2) is environmentally acceptable. One year prior to a planned closure, the project owner will submit a specific decommissioning plan that would include the following:

- Identification, discussion, and scheduling of the decommissioning activities to include the power plant, applicable transmission lines, and other pertinent facilities constructed as part of the project.

- Description of the measures to be taken that will ensure the safe shutdown and decommissioning of all equipment, including the draining and cleaning of all tanks and the removal of any hazardous waste.

- Identification of all applicable LORS in effect at the time, and how the specific decommissioning will be accomplished in accordance with the LORS.

- Notification of state and local agencies.

- Once land is used for industrial or commercial purposes, it rarely reverts back to its natural state. Reuse of the land will be encouraged in this case, as opposed to taking additional land for future industrial or commercial purposes. If the PPEC plant site is to return to its natural state, the specific decommissioning plan will include the removal of all aboveground and underground objects and material and an erosion control plan that is consistent with sound land management practices.

In the event of an unplanned closure due to earthquake damage or other circumstances, the project owner will meet with the CEC and local agencies and submit a detailed decommissioning closure plan in a timely manner.

No decommissioning plan will be submitted for a temporary shutdown.

3.12 SAFETY, AVAILABILITY, AND RELIABILITY

3.12.1 Safety Precautions and Emergency Systems

Safety precautions and emergency systems will be implemented as part of the PPEC plant's design and construction to ensure safe and reliable operation of the facilities. Administrative controls will include classroom and hands-on training in operating and maintenance procedures and general safety items and a well-planned maintenance program. These controls will work with the system design and monitoring features to enhance safety and reliability.

Safety, auxiliary, and emergency systems will consist of lighting, grounding, DC back-up for controls, fire and hazardous materials safety systems, security systems, and natural gas, steam, and chemical safety systems. The plant will include its own utilities and services, such as emergency power, plant and instrument air, fire suppression, and potable water systems.

3.12.1.1 Safety Precautions

Worker Safety

PPEC will implement programs to ensure that compliance with federal and state occupational safety and health program requirements is maintained. In addition, PPEC will identify and implement plant-specific programs that effectively assess potential hazards and mitigate them routinely.

A complete discussion of worker safety is provided in Section 5.17, Worker Safety.

Hazardous Materials Handling

Hazardous materials will be stored and used at PPEC during construction and operation. Design and construction of hazardous materials storage and dispensing systems will be in accordance with applicable laws, regulations, and standards. Hazardous materials storage areas will be curbed or diked to contain spills or leaks.

Potential hazards that are associated with hazardous materials will be further mitigated by implementing a hazards communication (HAZCOM) program. This program involves thorough training of employees on proper identification, handling, and emergency response to spills or accidental releases.

Emergency eyewashes and showers will be provided at appropriate locations, and appropriate Personal Protective Equipment (PPE) will be provided during facility construction and operation. A detailed discussion of hazardous materials handling is presented in Section 5.15, Hazardous Materials Handling.

Security

The PPEC plant site will be enclosed with a security fence, and limited access gates will be employed. In addition to the perimeter security fence, the switchyard and transformer area will be fenced and provided with access gates. Security will be maintained on a 24-hour basis with either surveillance devices or personnel.

Public Health and Safety

The programs implemented to protect worker health and safety will also benefit public health and safety. Facility design will include controls and monitoring systems to minimize the potential for upset conditions that could result in public exposure to acutely hazardous materials. Potential public health impacts associated with operation of the project will be mitigated by development and implementation of an Emergency Response Plan (ERP); a HAZCOM Program; a Spill Prevention, Control, and Countermeasures (SPCC) Plan; safety programs; and employee training.

PPEC will coordinate with local emergency responders, provide them with copies of the plant site ERP, conduct plant site tours to point out the location of hazardous materials and safety equipment, and encourage these providers to participate in annual emergency response drills.

3.12.1.2 Emergency Systems

Fire Protection Systems

PPEC will have on-site fire protection systems and will be supported by local fire protection services. Section 3.5.10, Fire Protection System, includes a detailed description of the fire protection systems.

Portable and fixed-fire suppression equipment and systems will be included in the project. Portable fire extinguishers will be at strategic locations throughout the project site. Smoke detectors, sprinkler systems, and fire hydrants with hoses are included in the facility design. Based on a detailed design, the fixed-fire protection system may also include a CO_2 or a deluge spray system.

Employees will be given fire safety training, including instruction in fire prevention, the use of portable fire extinguishers and hose stations, and reporting fires to the local fire department. Employees will only suppress fires in their incipient stage. Fire drills will be conducted at least twice each year for each work area.

The San Diego County Rural Fire Protection District (RFPD), Community Facilities District (CFD) No. 09-1 will provide primary fire protection, firefighting, and emergency response services to the PPEC site. Both fire and emergency service will be provided out of RFPD Interim Station 22, located at 446 Alta Road, which is approximately 0.25 mile north of the project site. The estimated response time to the site is four minutes. The RFPD Fire Marshall will perform a final fire safety inspection upon completion of construction and, thereafter, will conduct periodic fire safety inspections. Prior to plant startup, the RFPD Fire Marshall will be requested to visit the project site to review project emergency response procedures.

Medical Services and Emergency Response

PPEC will have an ERP, which will address potential emergencies, including chemical releases, fires, and injuries, and will describe emergency response equipment and its location, evacuation routes, procedures for reporting to local emergency response agencies, responsibilities for emergency response, and other actions to be taken in the event of an emergency.

Employee response to an emergency will be limited to an immediate response to minimize the risk of escalation of the accident or injury. Employees will be trained to respond to fires, spills, earthquakes, and injuries. A first-aid facility with adequate first-aid supplies and personnel qualified in first-aid treatment will be on site.

3.12.2 Aviation Safety – Power Generation Stacks

The Federal Aviation Administration (FAA) regulations establish standards for determining obstructions in navigation space and set forth requirements for notification of construction. These regulations require notification of any construction over 200 feet in height above ground level. The closest airfield with commercial flights is Brown Field, approximately two miles away.

Three 100-foot tall self-supporting steel stacks with integral stack/silencer systems and associated appurtenances will be the tallest structures at the PPEC facility. A lighting system on the top of the stacks will not be required in this instance, per FAA Advisory Circular for Obstruction Marking and Lighting.

3.12.3 Facility Availability

The PPEC facility would consist of three simple-cycle gas turbines and generators that are specifically designed for peaking services. To support dispatch service, each turbine generator is commonly operated between 50 and 100 percent of its full capacity; hence, the facility will be operated to support dispatch service and automatic generation control in response to customer demands for electricity.

The facility is designed for an operating life of 30 years. Reliability and availability projections are based on this operating life. Operations and maintenance procedures will be consistent with industry standard practices to ensure the plant components' useful life span.

The overall plant availability is best defined by the Equivalent Availability Factor (EAF) which is equal to the amount of energy the plant would actually produce if called upon divided by the maximum theoretical capacity for each time period. This method takes into account unit derates as well as complete outages. The EAF for this plant is projected to be in excess of 98 percent over its operating lifetime.

The Capacity Factor (CF) is equal to the actual energy produced over a period of time divided by the maximum theoretical capacity for that time period. Based on the maximum operating load (i.e., 4,000 hours per year for each CTG), the CF would be 45.66 percent. A reasonable projection is that the plant will operate at an annual CF between 25 and 45 percent, resulting in a lifetime estimated CF of approximately 35 percent.

3.12.4 Equipment Reliability and Redundancy

The following subsections identify equipment redundancy as it applies to plant availability, and Table 3.12-1 lists equipment redundancy.

TABLE 3.12-1
EQUIPMENT REDUNDANCY

Description	Number
CTGs	Three trains
Closed-Loop Cooling Water Pumps	Two, 100% capacity
PDCS Cooling Water Pumps	N+1 redundancy
Demineralized-RO System	Two, 60% trains
Natural Gas Compressor	Three, 50% capacity
Generator Step-up Transformers	Three (one per CTG)
Auxiliary Transformers	Two, 100% capacity

Notes:
CTG = combustion turbine generator
PCDS = partial dry-cooling system
RO = reverse osmosis

3.12.4.1 Combustion Turbine

The power block consists of three separate CTGs operating in simple-cycle mode. Each CTG power train will provide approximately 33 percent of the total facility output. The major components of each turbine generator power train consist of the following systems.

Combustion Turbine Generator Subsystems

The combustion turbine subsystems include the combustion turbine, inlet air filtration and evaporative inlet cooling system, intercooling system, generator and excitation systems, and turbine control and instrumentation. The combustion turbine consists of a compressor, intercooler system, a combustion section, and a turbine section. Compressed air from the compressor section is cooled by the intercooler and then heated by the combustion of natural gas in the combustion section. The heated compressed gasses expand in the turbine section, where the expansion turns the rotor to produce mechanical energy to drive the compressor section and the generator. Exhaust gas from the combustion turbine will be directed into an SCR system to control NO_x emissions and an oxidation catalyst to control CO emissions. The generator will be air-cooled. The generator excitation system will be a solid-state static system. A combustion turbine control and instrumentation system (interfaced with the plant control system) will cover the turbine governing system and the turbine protection system.

Control and Information System

The control system will be designed with a redundancy level such that critical controls and indications do not fail due to a single component failure. Critical functions and parameters will have redundant sensors and controls. Control systems in general, and especially the equipment protection systems, will be designed according to stringent reliability criteria.

Digital control system (DCS) microprocessors will be fully redundant with automatic tracking and switchover capability in the event of a failure of the primary microprocessor. Two fully redundant data communications networks will be provided. The system will permit either network to be disconnected and reconnected while the system remains online and in control. The control system will incorporate online, self-diagnostic features to verify proper operation of system hardware, software, and related support functions, such as control power, field contact interrogating power, and system modules in position.

The GE Mark VIe CTG control system includes controllers that are arranged in a single, dual, or triple modular redundant arrangement, depending on the criticality of the system being controlled. In addition to the Mark VIe controllers, there are independent generator monitors for vibration, fire, and gas.

Plant operation will be controlled from the operator workstations located in the control room. The operator workstations will consist of three individual LCD/keyboard workstations and one engineering workstation. Each workstation will be an independent electronic package so that failure of a single package does not disable more than one workstation. The engineering workstation will allow the control system operator interface or logic to be revised by authorized personnel.

Demineralized Water System

A demineralized water system will provide high-purity water to be used as injection water into the turbine combustor for NO_x control. The demineralized water system will consist of two 60 percent capacity RO mixed-bed demineralizer trains. Makeup water to the demineralized water system will be from a 500,000-gallon raw water/firewater storage tank. Demineralized water will be stored in a 240,000-gallon demineralized water storage tank.

Water Injection Makeup and Storage System

The water injection makeup and storage subsystem will provide demineralized water storage and pumping capabilities to supply high-purity water for water injection. Major components of the system are the demineralized water storage tank (240,000 gallons), providing approximately a 24-hr supply of demineralized water at peak load, and two full-capacity, horizontal, centrifugal, makeup water pumps.

Closed-Loop Cooling Water Systems

The closed-loop cooling water systems will provide cooling water to each combustion turbine's intercoolers and lube oil coolers. Two 100 percent capacity cooling water pumps will be the prime movers for these systems.

3.12.5 Fuel/Water Availability

3.12.5.1 Gas Supply

SDG&E will supply fuel through its gas distribution and transmission system. A new gas pipeline between the project site and existing SDG&E lines will be constructed as part of the project.

3.12.5.2 Water Availability

Process water will be readily available from Otay Water District, as described in Section 5.5, Water Resources. Refer to Appendix I for the project water supply agreement with the Otay Water District.

3.12.6 Project Quality and Control

The general contractor, the design-engineer contractor, and all significant vendors, suppliers, and subcontractors for the project will be required to develop a project-specific quality control program prior to beginning work. Each program will define quality goals, processes to measure events, and incentive programs. Quality standards will include safety and environmental compliance objectives.

3.12.6.1 Quality Assurance

The quality assurance manual will define the quality management system and processes, management responsibility and organization, project execution, and measurement methods. Other elements of the quality assurance program will include a procedure manual, standards, job quality analysis, quality tours, preventive action planning, internal and external assessment, training, and trending.

Key quality indicators will be tracked and include surveillance, deficiencies, non-conformances, weld reject rate, audit results, quality incidents, and rework. The quality indicators will be metrically measured and reported.

3.12.6.2 Quality Control Records

Quality records will be maintained during the project's detailed design phase, construction phase, and plant commissioning. Quality records include written documentation that procedures and standards are followed, including inspection and testing reports, audit checklists, audit reports, and quality incident investigation reports.

3.13 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The applicable LORS for each engineering discipline are included as part of Appendices A through F.

3.14 REFERENCES

California Building Code (CBC). 2010. California Code of Regulations, Title 24, Part 2, Volume 2 of 2. California Building Standards Commission.

California Public Utilities Commission. Decision 93-11-013.

California Public Utilities Commission. General Order 128 – Rules for Construction of Underground Electric Supply and Communications Systems.

California Public Utilities Commission. General Order 131D – Rules for Planning and Construction of Utilities Generation, Line, and Substation Facilities.

California Public Utilities Commission. General Order 52 – Construction and Operation of Power and Communication Lines

California Public Utilities Commission. General Order 95 – Rules for Overhead Electric Line Construction.

County of San Diego. 2003. San Diego County General Plan, Part II Regional Land Use Element. December.

Electric Power Research Institute (EPRI). 1975, 1982. *Transmission Line Reference Book, 345 kV and Above.*

IEEE Power Engineering Society. 1985. Corona and Field Effects of AC Overhead Transmission Lines, Information for Decision Makers. July.

International Conference of Building Officials. 2007. Uniform Building Code, Volumes 1 and 2, Structural Engineering Design Provisions.

National Electrical Safety Code. ANSI C2.

Southwire. Overhead Conductor Manual.

URS Greiner Woodward Clyde, 1999. Application for Certification Otay Mesa Generating Project. August.

U.S. Department of Transportation (DOT). 2007. Federal Aviation Administration (FAA), *Advisory Circular for Obstruction Marking and Lighting, AC 70/7460-IK,* Federal Aviation Administration. February.

United States of America. 14CFR1250-1258 – Fire Prevention Standards for Electric Utilities.

United States of America. 15CFR77 – Objects Affecting Navigable Airspace.

United States of America. 47CFR15.25 – Operating Requirements, Incidental Radiation.

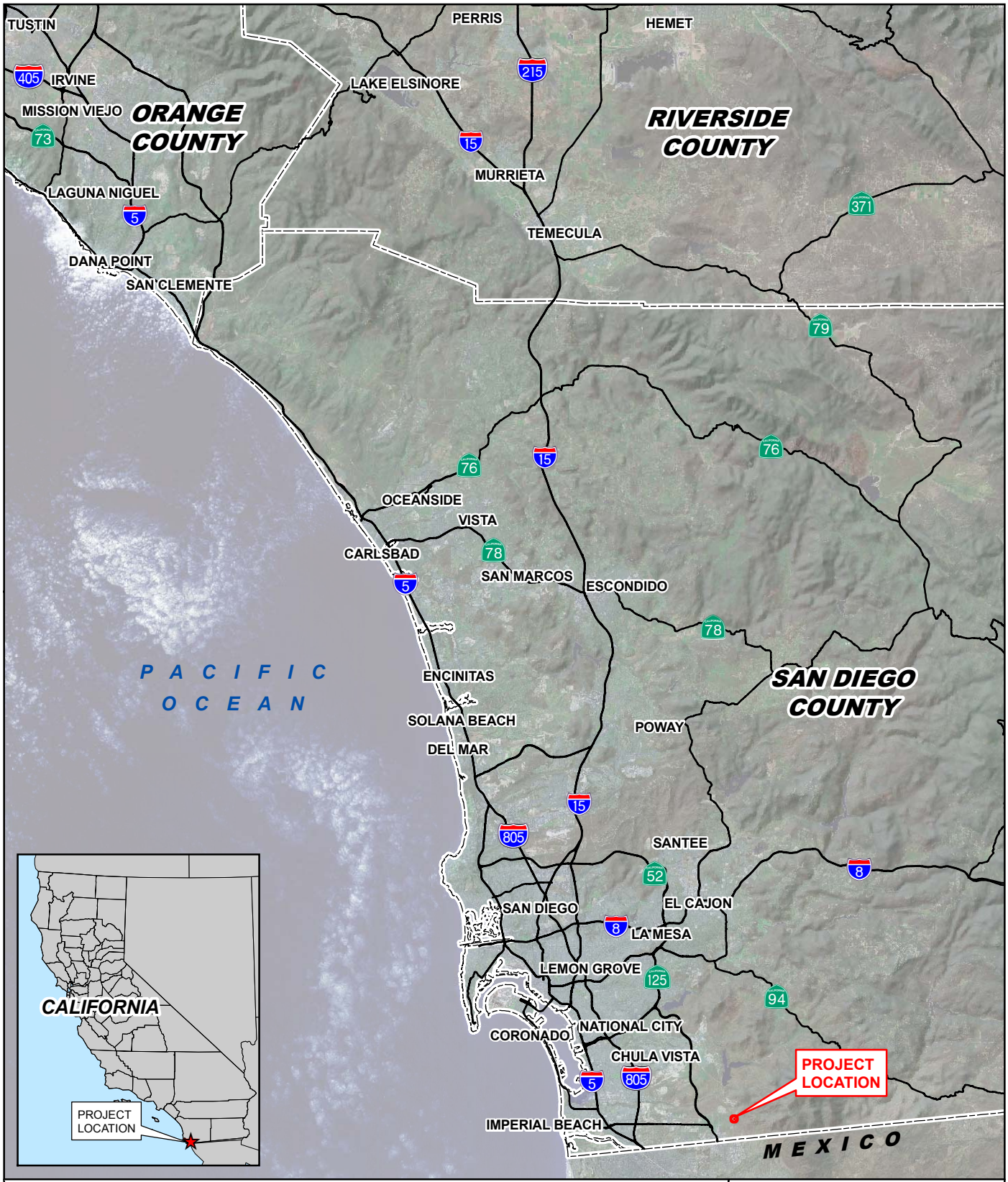


FIGURE 3.1-1
REGIONAL LOCATION

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Legend

Project Site

N

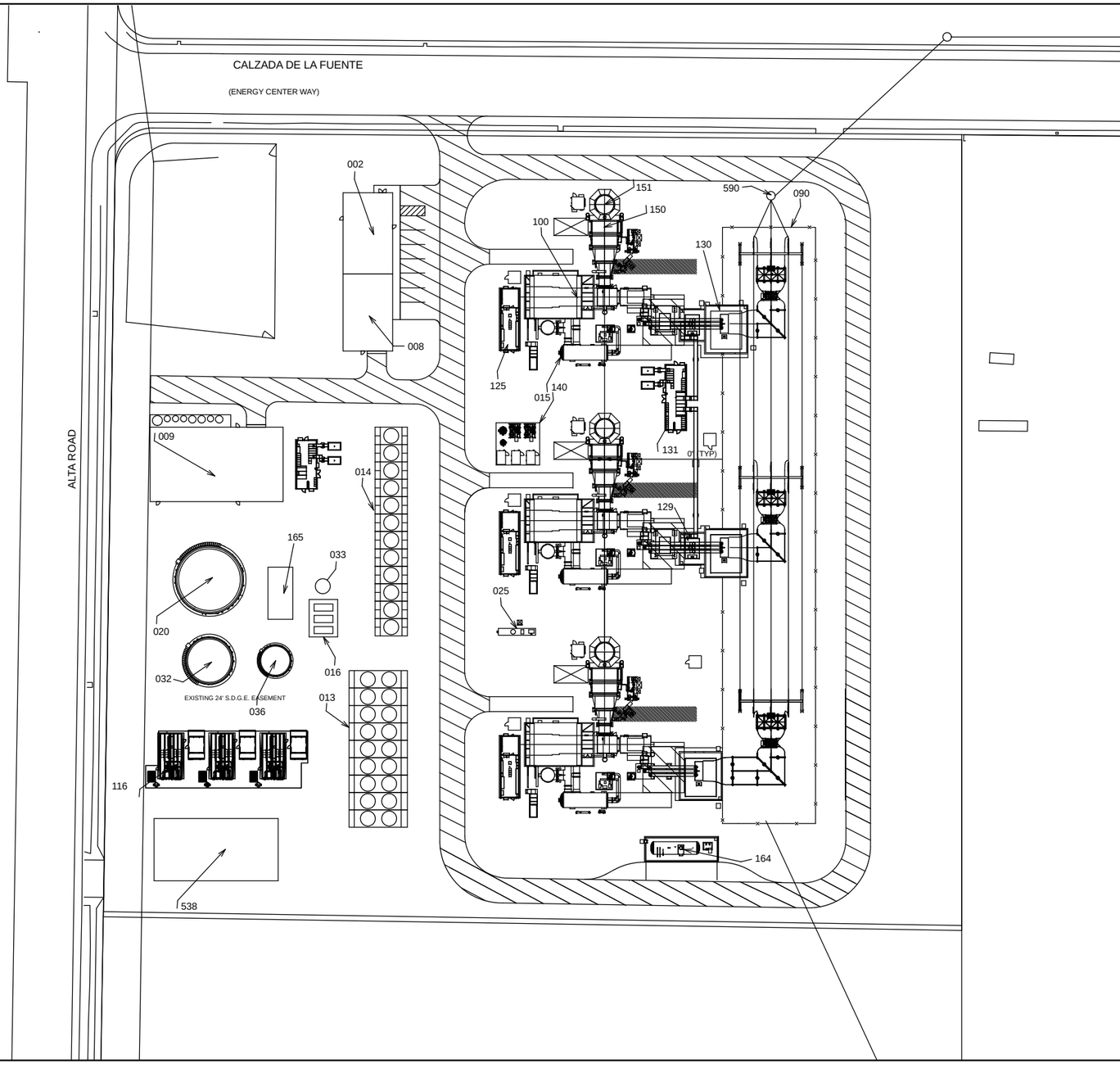
0 2,000 4,000 Feet

FIGURE 3.1-2
SITE VICINITY

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS



NO	EQUIPMENT TITLE
002	CONTROL ROOM
008	WAREHOUSE
009	WATER TREATMENT
013	DRY AIR COOLERS
014	WET AIR COOLERS
015	INTERCOOLER
016	CIRCULATING WATER PUMPS
020	SERVICE WATER TANK
025	OIL/WATER SEPERATOR
032	DEMINERALIZED WATER TANK
033	CIRCULATING WATER EXPANSION TANK
036	WASTE WATER TANK
090	PLANT SWITCHYARD
100	COMBUSTION TURBINE
116	GAS COMPRESSOR MODULE
125	CTG POWER/CONTROL MODULE
129	AUXILIARY TRANSFORMER
130	GENERATOR TRANSFORMER
131	5KV ELECTRICAL MODULE
140	AIR COMPRESSOR
150	SCR
151	STACK
164	AMMONIA STORAGE
165	FIRE WATER PUMP BUILDING
538	GAS METERING STATION
590	TRANSMISSION LINE

N

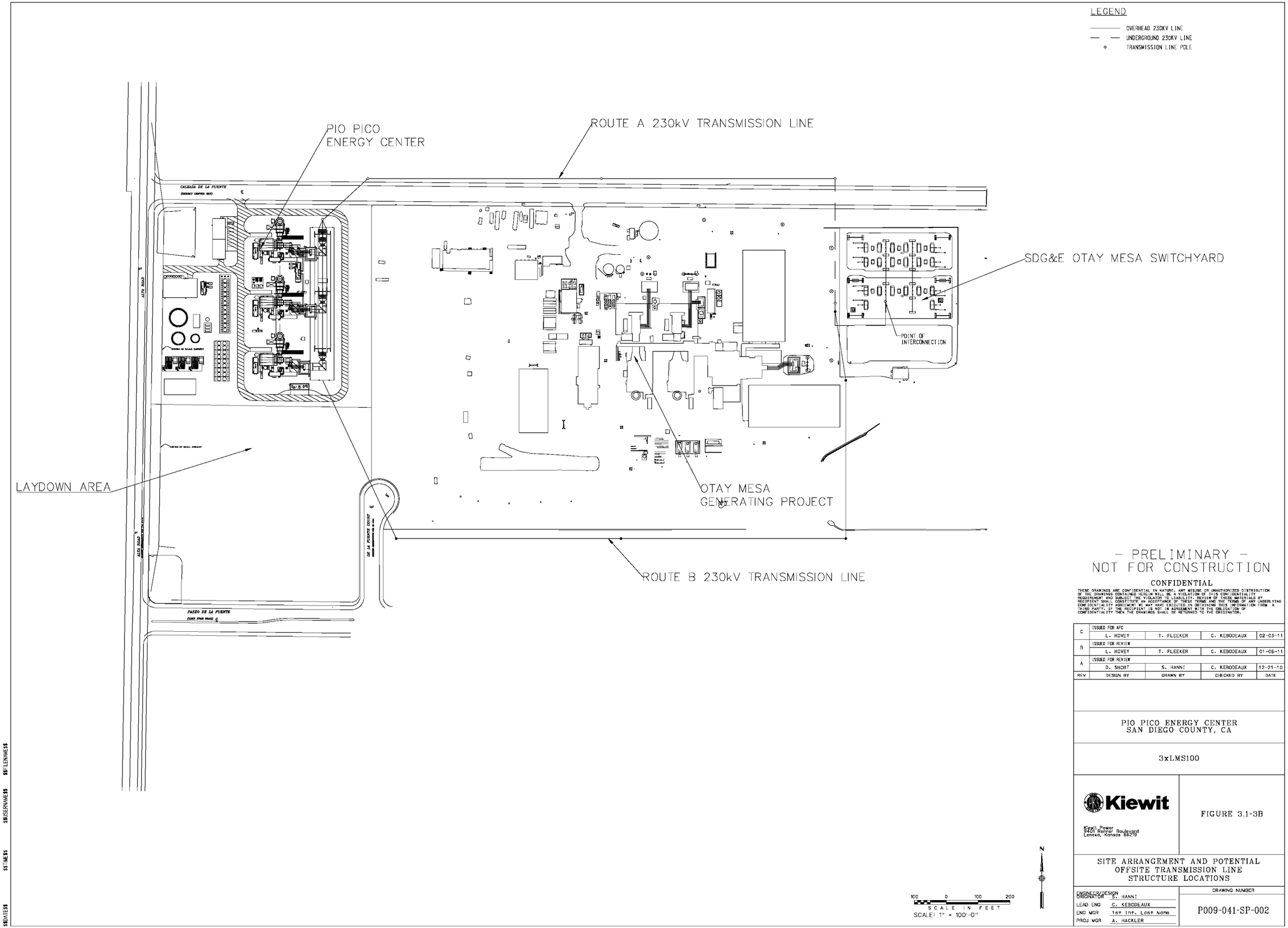
30 0 30 60
SCALE IN FEET
SCALE: 1" = 30'-0"

FIGURE 3.1-3A
SITE ARRANGEMENT

PIO PICO
ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS



– PRELIMINARY –
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV	DESIGN BY	DRAWN BY	CHECKED BY	DATE
C	ISSUED FOR AFC			
	L. HOVEY	T. FLEEKER	C. KEBODEAUX	02-03-11
B	ISSUED FOR REVIEW			
	L. HOVEY	T. FLEEKER	C. KEBODEAUX	01-06-11
A	ISSUED FOR REVIEW			
	D. SHORT	S. HANNI	C. KEBODEAUX	12-21-10

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit

Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

FIGURE 3.1-3B

SITE ARRANGEMENT AND POTENTIAL
OFFSITE TRANSMISSION LINE
STRUCTURE LOCATIONS

ENGINEER/DESIGN
ORIGINATOR S. HANNI
LEAD ENG C. KEBODEAUX
ENG MGR 1st Int. Last Name
PROJ MGR A. HACKLER

DRAWING NUMBER
P009-041-SP-002

$$DATE$$ $$TIME$$ $$USERNAME$$ $$FILENAME$$

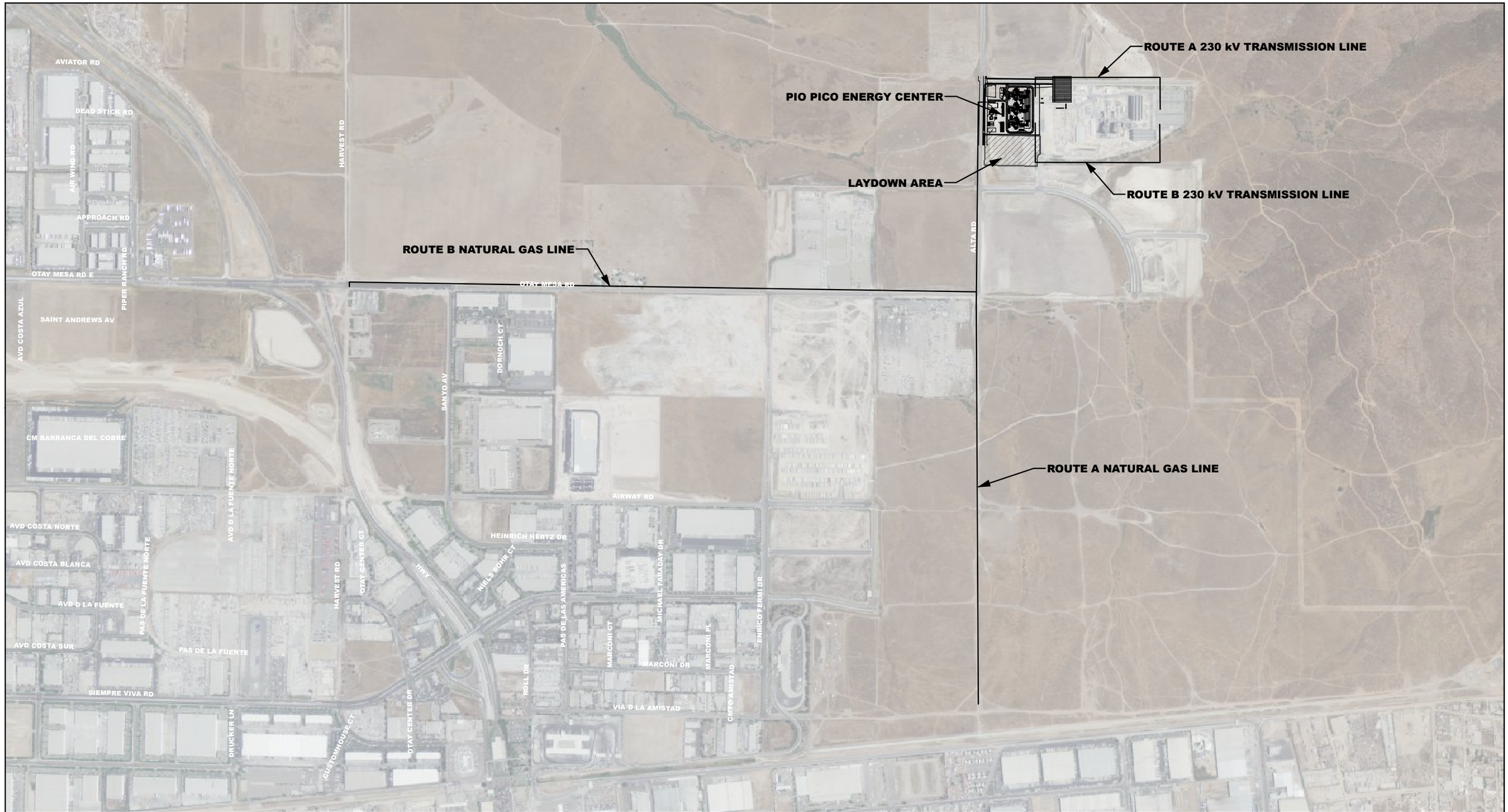
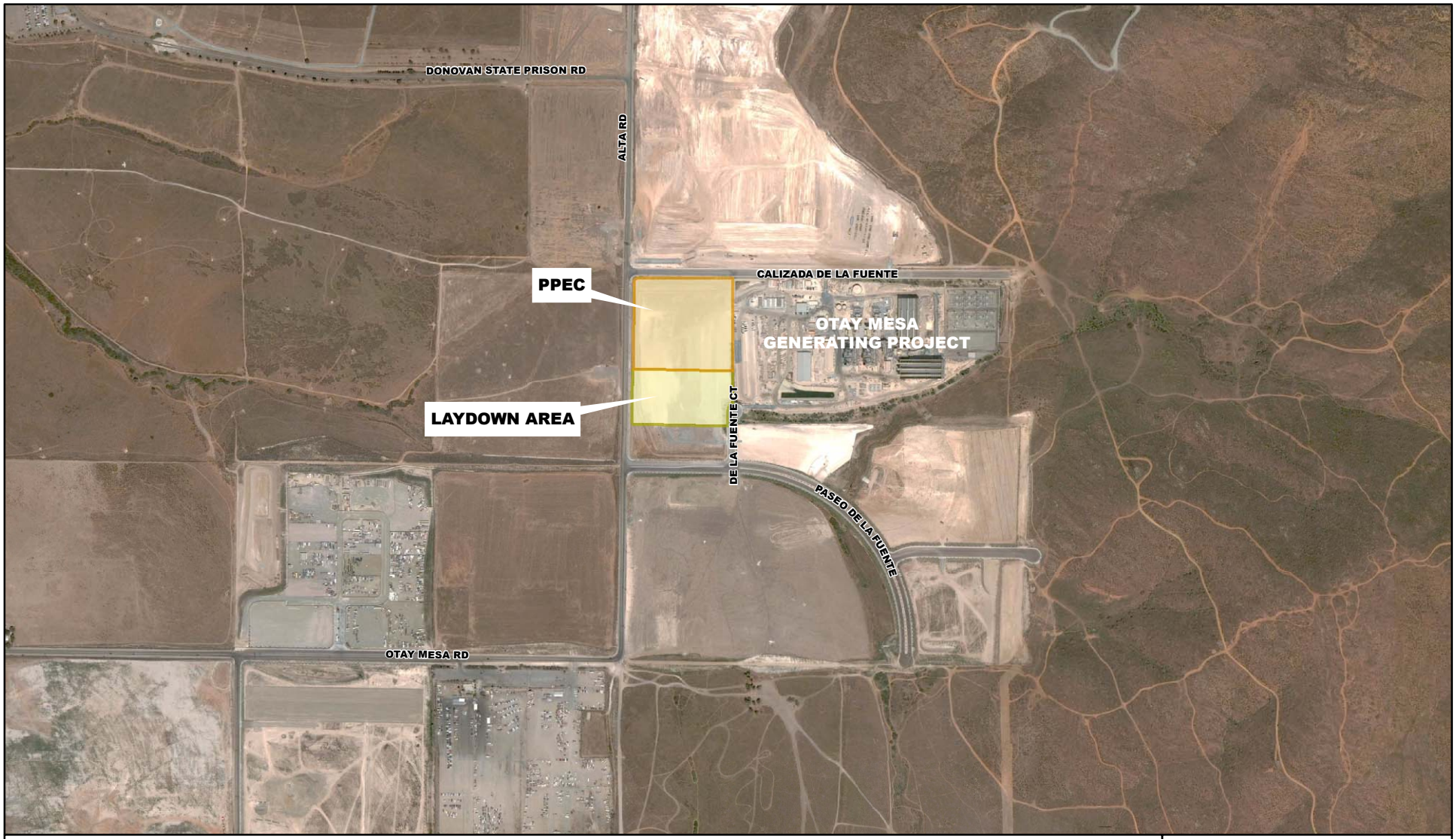


FIGURE 3.3-1
FACILITY PLOT PLAN

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS



Legend

- Project Site
- Laydown Area

N

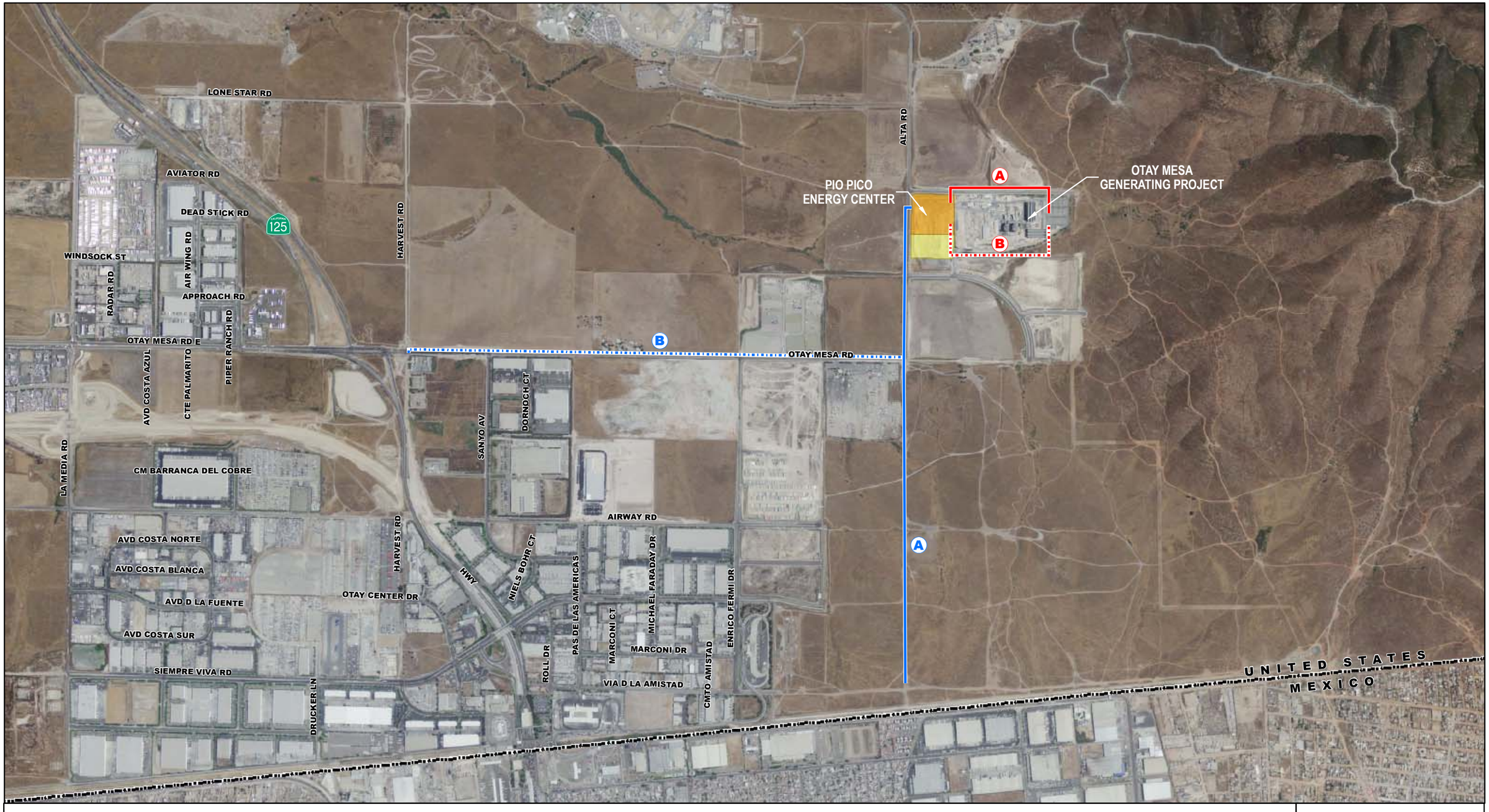
0 500 1,000 Feet

FIGURE 3.3-2
PROJECT LOCATION

PIO PICO
ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS



LEGEND

- Project Site
- Laydown Area
- United States/Mexico Border
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line

N

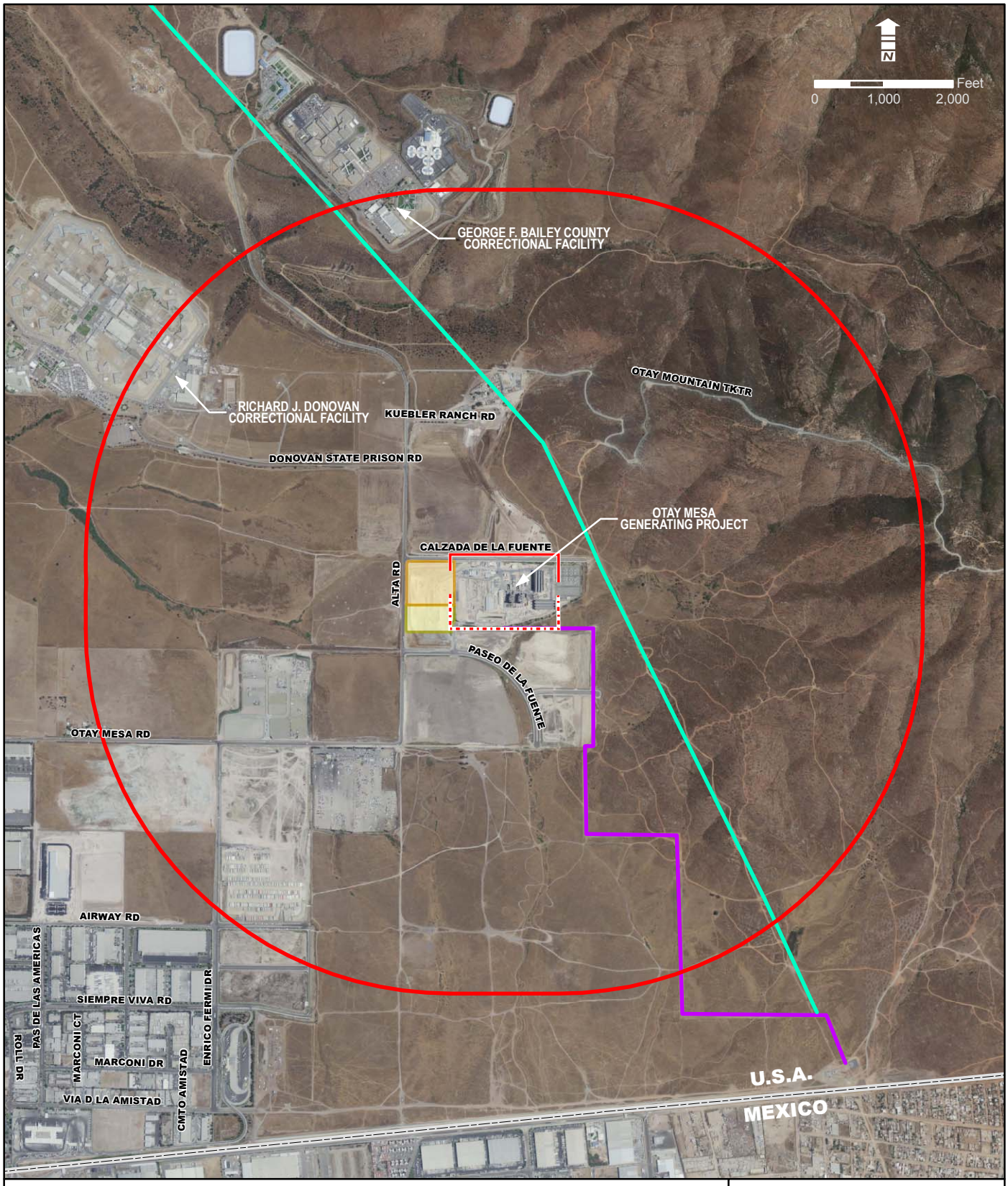
0 750 1,500 Feet

FIGURE 3.3-3
POTENTIAL LINEARS

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: NOVEMBER 2010

URS



Legend

- 1-Mile Radius of Potential Transmission Lines
- Project Site
- Laydown Area
- Existing 230 kV Transmission Line
- Existing Natural Gas Line
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line

FIGURE 3.3-4
EXISTING SETTING WITHIN 1-MILE RADIUS OF POTENTIAL TRANSMISSION LINES

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Legend

- Potential Project Site
- Existing Topography

N

0 50 100 Feet

FIGURE 3.4-1
2010 SITE TOPOGRAPHY

PIO PICO
ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

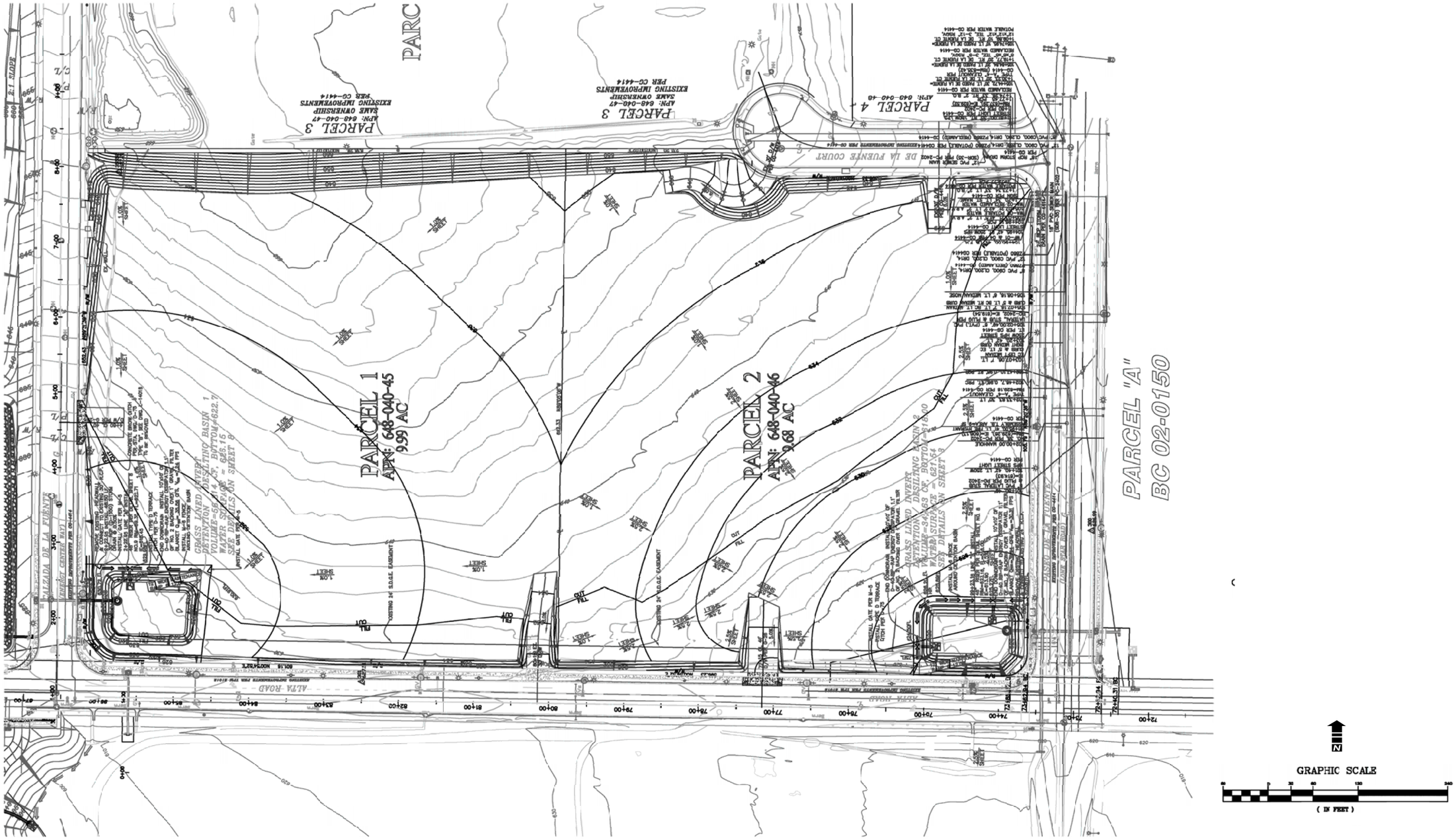


FIGURE 3.4-2
BASELINE SITE TOPOGRAPHY

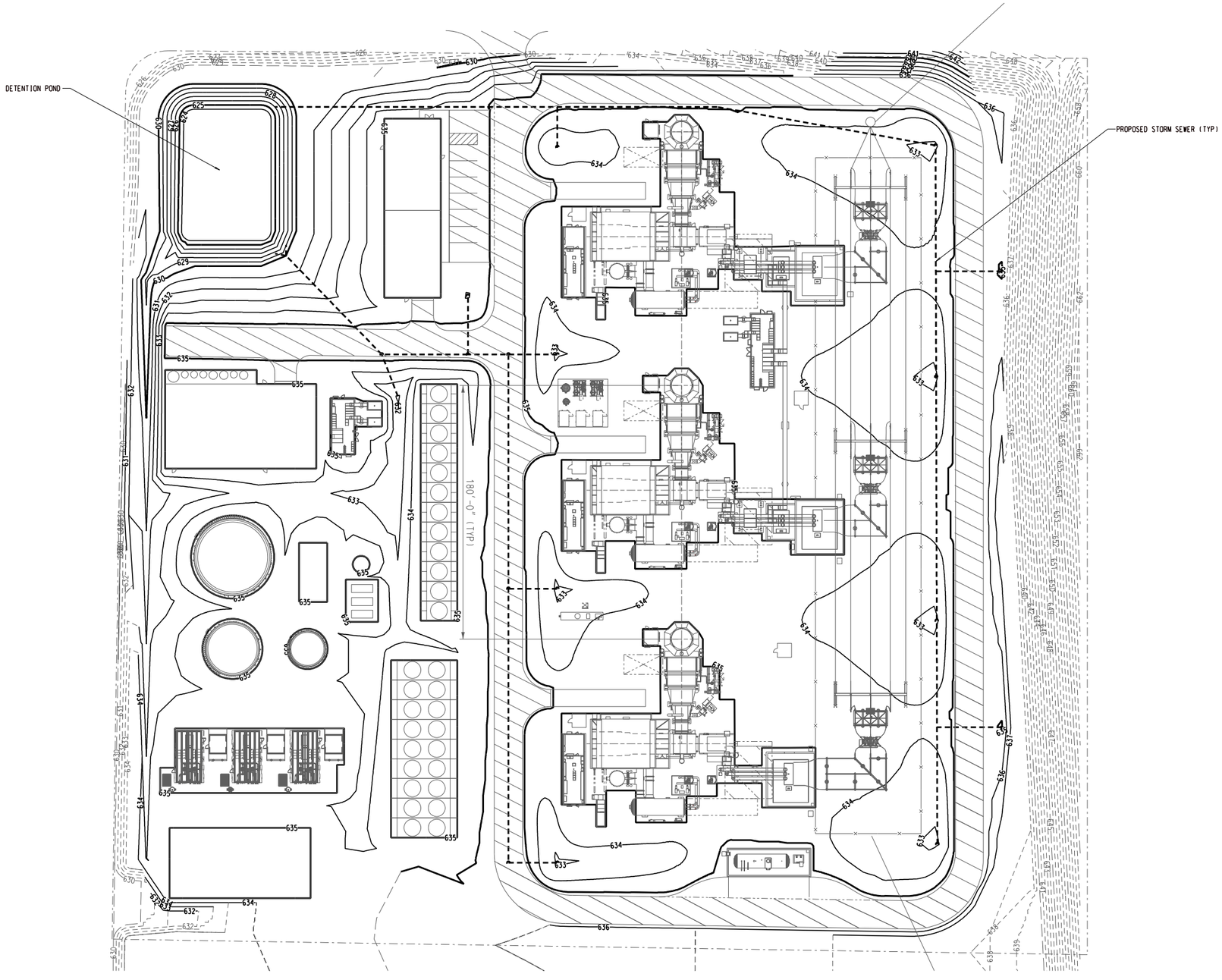
PIO PICO
ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

NOTES:

1. ALL SLOPES GREATER THAN 3:1 SHALL HAVE EROSION PROTECTION.
2. PERMANENT PLANT AREA: 9.99 AC.
3. PERMANENT PLANT VOLUME: CUT 6,530 CY: FILL 11,900 CY



SCALE: 1" = 30'-0"

- PRELIMINARY -
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV	DESIGN BY	DRAWN BY	CHECKED BY	DATE
C	ISSUED FOR REVIEW	S. BADDELEY	S. BADDELEY	S. HANNI	12-21-10
B	ISSUED FOR REVIEW	S. BADDELEY	S. BADDELEY	S. HANNI	12-03-10
A	ISSUED FOR REVIEW	S. BADDELEY	S. BADDELEY	S. HANNI	11-05-10

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit

Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

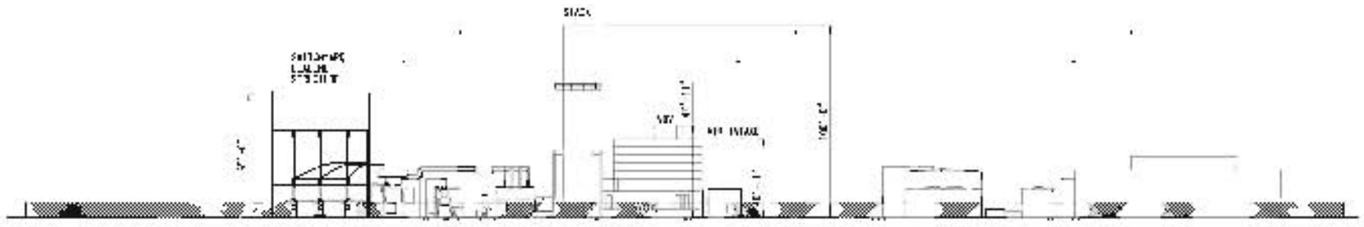
FIGURE 3.4-3

PRELIMINARY GRADING AND DRAINAGE PLAN

ENGINEER/DESIGN ORIGINATOR	S. BADDELEY
LEAD ENG	
ENG MGR	C. KEBODEAUX
PROJ MGR	E. ELAM

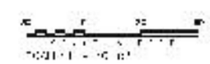
DRAWING NUMBER: P009-041-CG-002

2009041-CG-002.dgn 12/21/2010 9:30:20 AM scott.baddeley



ELEVATION LOOKING SOUTH

ELEVATION LOOKING WEST

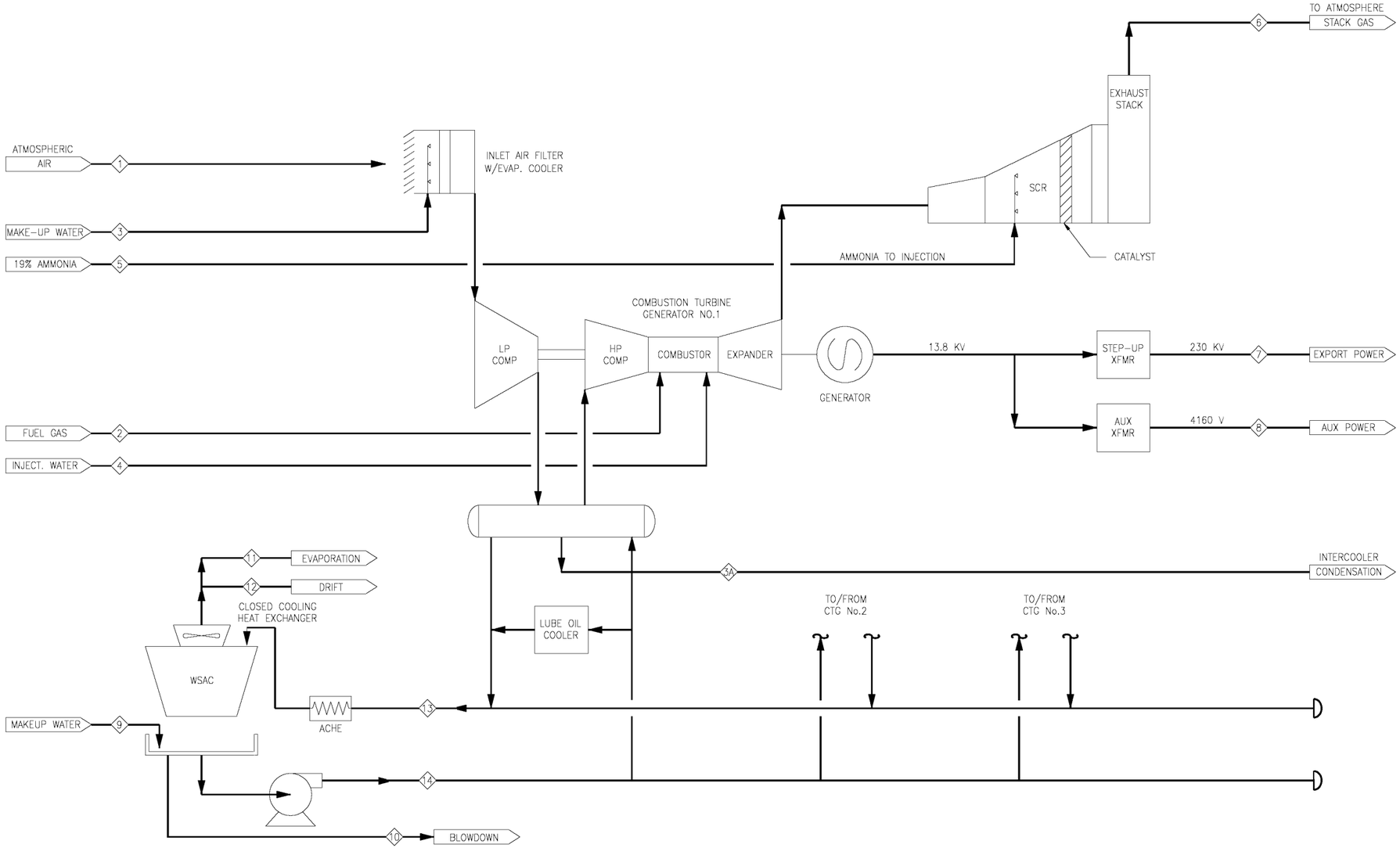


- PRELIMINARY -
NOT FOR CONSTRUCTION

CONFIDENTIAL

Kiewit

OPEN



NOTES

1. STREAM DESIGNATION ◇6
2. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT 100% LOAD AND THE GIVEN AMBIENT CONDITION IS 102,350 KW EACH.
3. AMBIENT CONDITION 70^F DB/60^F WB.
4. VALUES ARE FOR CTG'S AT 100% LOAD WITH EVAPORATIVE COOLING ON.

HEAT AND MATERIAL BALANCE FOR NOTE 3 AMBIENT CONDITION

		ONE COMBUSTION TURBINE GENERATOR									THREE (3) COMBUSTION TURBINE GENERATORS														
	UNITS	1	2	3	3A	4	5	6	7	8	1	2	3	3A	4	5	6	7	8	9	10	11	12	13	14
FLOW	lb/hr	1,625,068	39,203	46,500	4,680	25,255	182	1,684,846			4,875,204	117,609	139,500	14,040	75,765	546	5,054,538			89,000	42,500	127,000	39	4,800,000	4,800,000
FLOW	gpm			93.0	9.4	50.5	0.4						279	28.1	151.5	1.1				178	85	254	0.08	9,600	9,600
TEMPERATURE	^F	70	212	80	80	100	80	787			70	212			100	80	787			65	85			114	85
LHV HEAT INPUT	mmBtu/hr		808									2,424													
GROSS POWER	KW								102,351	2,250								307,053	6,750						
Gr.LHV HEAT RATE	Btu/kwhr								7894									23,682							

– PRELIMINARY –
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT HE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV.	DESIGN BY	DRAWN BY	CHECKED BY	DATE
B	C. KEBODEAUX	T. FLEEKER	B. BROWN	OPEN
	UPDATED FOR REVISED SITE			
A	B. BROWN	S. HANNI	E. ELAM	08-12-10
	ISSUED FOR PERMIT			

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit
Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

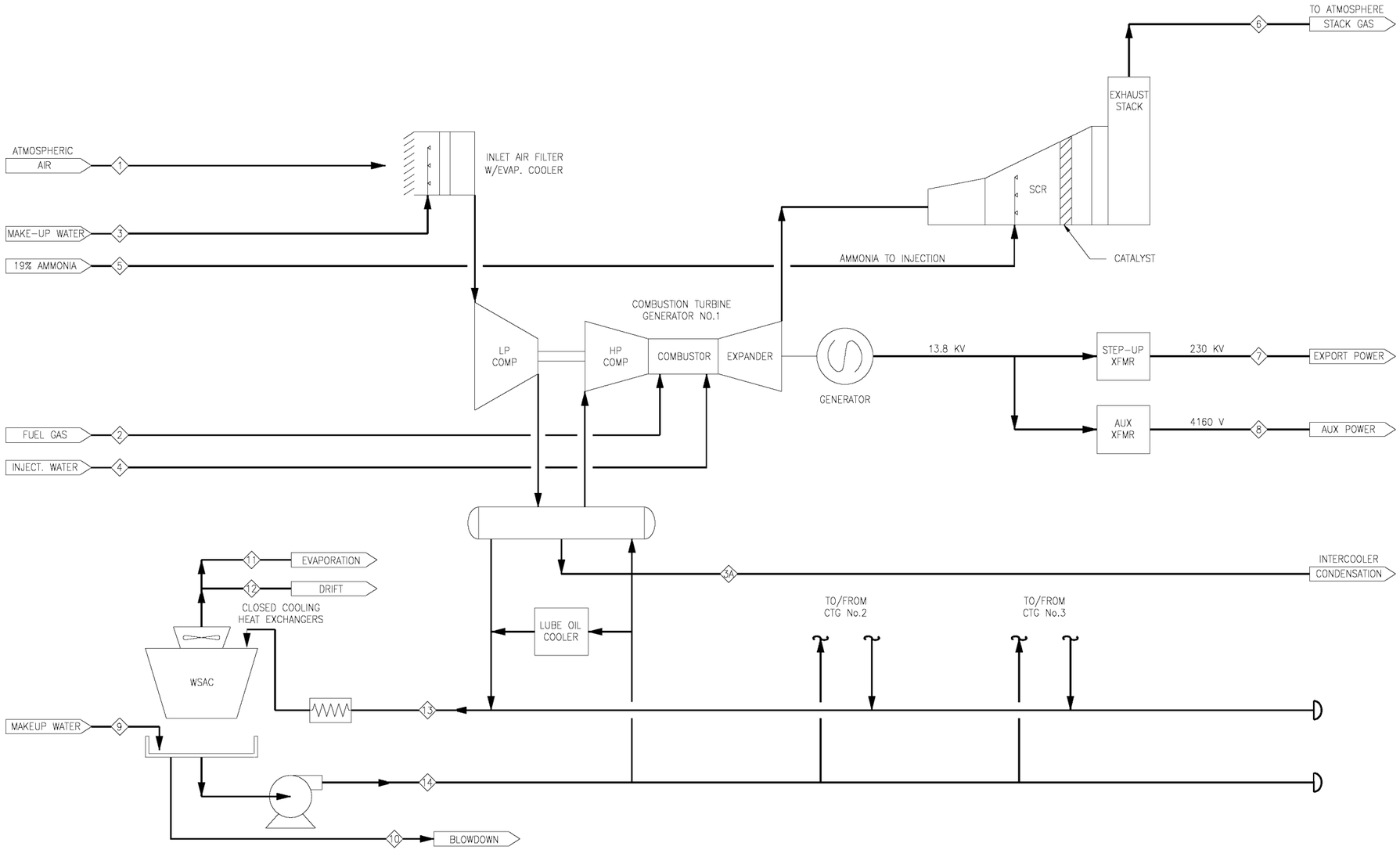
FIGURE 3.5-2A

HEAT AND MASS BALANCE
SPRING/FALL

ENGINEER/DESIGN ORIGINATOR	S. HANNI
LEAD ENG	B. BROWN
ENG MGR	E. ELAM
PROJ MGR	---

DRAWING NUMBER

P009-041-HMBS/F-001



NOTES

1. STREAM DESIGNATION (6)
2. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT 100% LOAD AND THE GIVEN AMBIENT CONDITION IS 100,990 KW EACH.
3. AMBIENT CONDITION 80^F DB/63^F WB.
4. VALUES ARE FOR CTG'S AT 100% LOAD WITH EVAPROATIVE COOLING ON.

HEAT AND MATERIAL BALANCE FOR NOTE 3 AMBIENT CONDITION

		ONE COMBUSTION TURBINE GENERATOR									THREE (3) COMBUSTION TURBINE GENERATORS														
	UNITS	1	2	3	3A	4	5	6	7	8	1	2	3	3A	4	5	6	7	8	9	10	11	12	13	14
FLOW	lb/hr	1,611,310	38,835	81,000	5,760	24,910	182	1,669,295			4,833,930	116,505	243,000	17,280	74,730	5,007,885				88,500	44,500	155,500	39	4,800,000	4,800,000
FLOW	gpm			162	11.5	49.8	0.4						486	34.6	149.5	1.1				177	89	311	.08	9,600	9,600
TEMPERATURE	^F	80	212	80	80	100	80	790			80	212			80	80	790			75	85			119	85
LHV HEAT INPUT	mmBtu/hr		800									2,400													
GROSS POWER	KW								100,994	2,250								302,982	6,750						
Gr.LHV HEAT RATE	Btu/kwhr								7,926									23,778							

– PRELIMINARY –
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV.	DESIGN BY	DRAWN BY	CHECKED BY	DATE
B	UPDATED FOR NEW SITE: C. KEBODEAUX	T. FLEEKER	B. BROWN	OPEN
A	ISSUED FOR PERMIT: B. BROWN	S. HANNI	E. ELAM	08-12-10

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit

Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

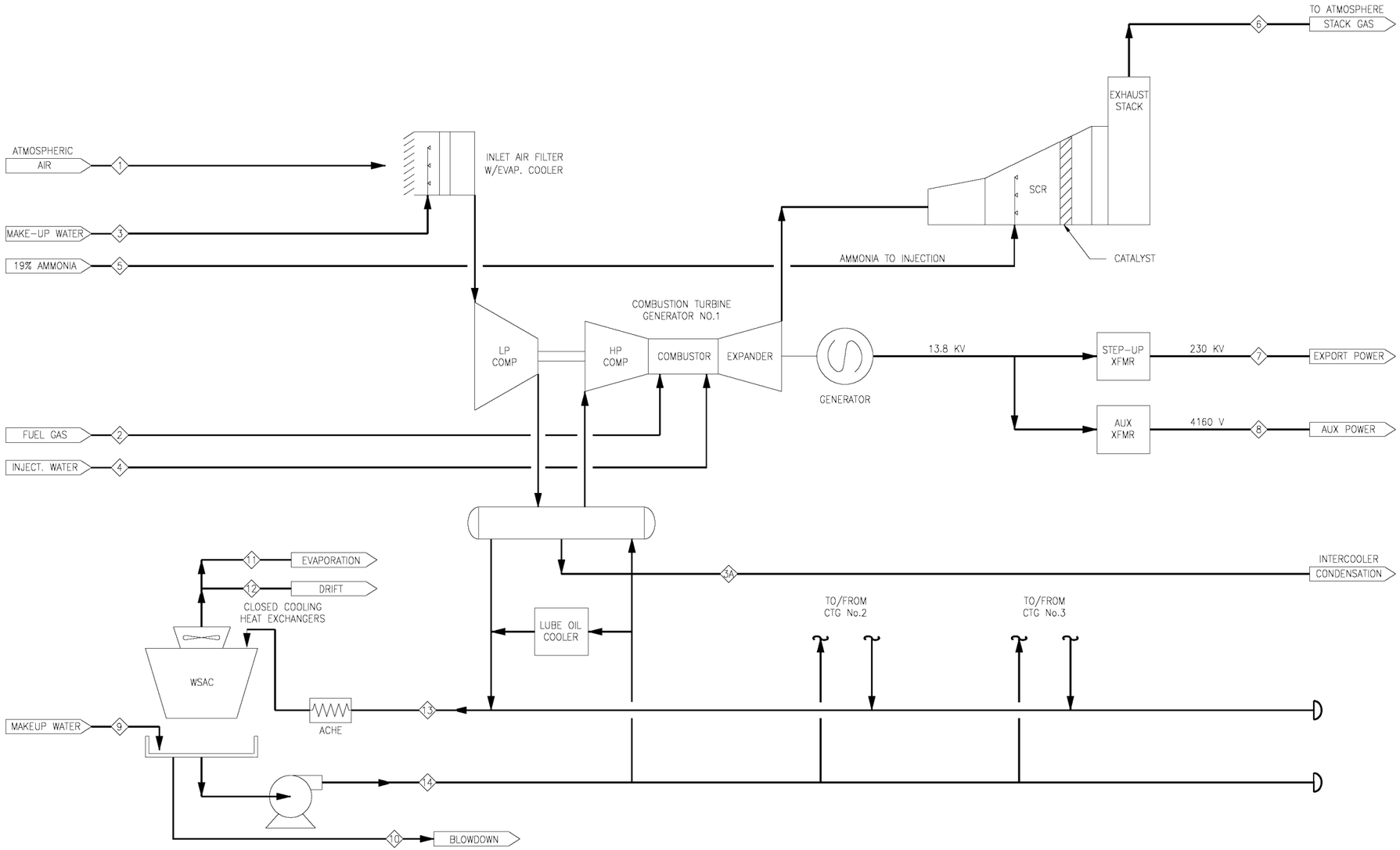
FIGURE 3.5-2B

HEAT AND MASS BALANCE
SUMMER

ENGINEER/DESIGN ORIGINATOR	S. HANNI
LEAD ENG	B. BROWN
ENG MGR	E. ELAM
PROJ MGR	1st Int.Last Name

DRAWING NUMBER

P009-041-HMBS-001



NOTES

1. STREAM DESIGNATION (6)
2. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT 100% LOAD AND THE GIVEN AMBIENT CONDITION IS 99,300 KW EACH.
3. AMBIENT CONDITION 93^F DB/65^F WB
4. VALUES ARE FOR CTG'S AT 100% LOAD WITH EVAPORATIVE COOLING ON.

HEAT AND MATERIAL BALANCE FOR NOTE 3 AMBIENT CONDITION

		ONE COMBUSTION TURBINE GENERATOR									THREE (3) COMBUSTION TURBINE GENERATORS														
	UNITS	1	2	3	3A	4	5	6	7	8	1	2	3	3A	4	5	6	7	8	9	10	11	12	13	14
FLOW	lb/hr	1,593,927	38,370	127,000	7200	24,472	180	1,649,569			4,781,781	115,110	381,000	21,600	73,416	540	4,948,707			92,500	51,500	192,500	39	4,800,000	4,800,000
FLOW	gpm			254	14.4	48.9	0.4						762	43.2	146.7	1.2				185	103	385	.08	9,600	9,600
TEMPERATURE	^F	93	212	80	80	100	80	794			93	212			80	80	799			80	85			119	85
LHV HEAT INPUT	mmBtu/hr		791									2,373													
GROSS POWER	KW								99,305	2,250								297,915	6,750						
Gr.LHV HEAT RATE	Btu/kwhr								7964									23,892							

- PRELIMINARY -
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT HE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV.	DESIGN BY	DRAWN BY	CHECKED BY	DATE
B	UPDATED FOR NEW SITE: C. KEBODEAUX	T. FLEEKER	B. BROWN	OPEN
A	ISSUED FOR PERMIT: B. BROWN	S. HANNI	E. ELAM	08-12-10

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit
Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

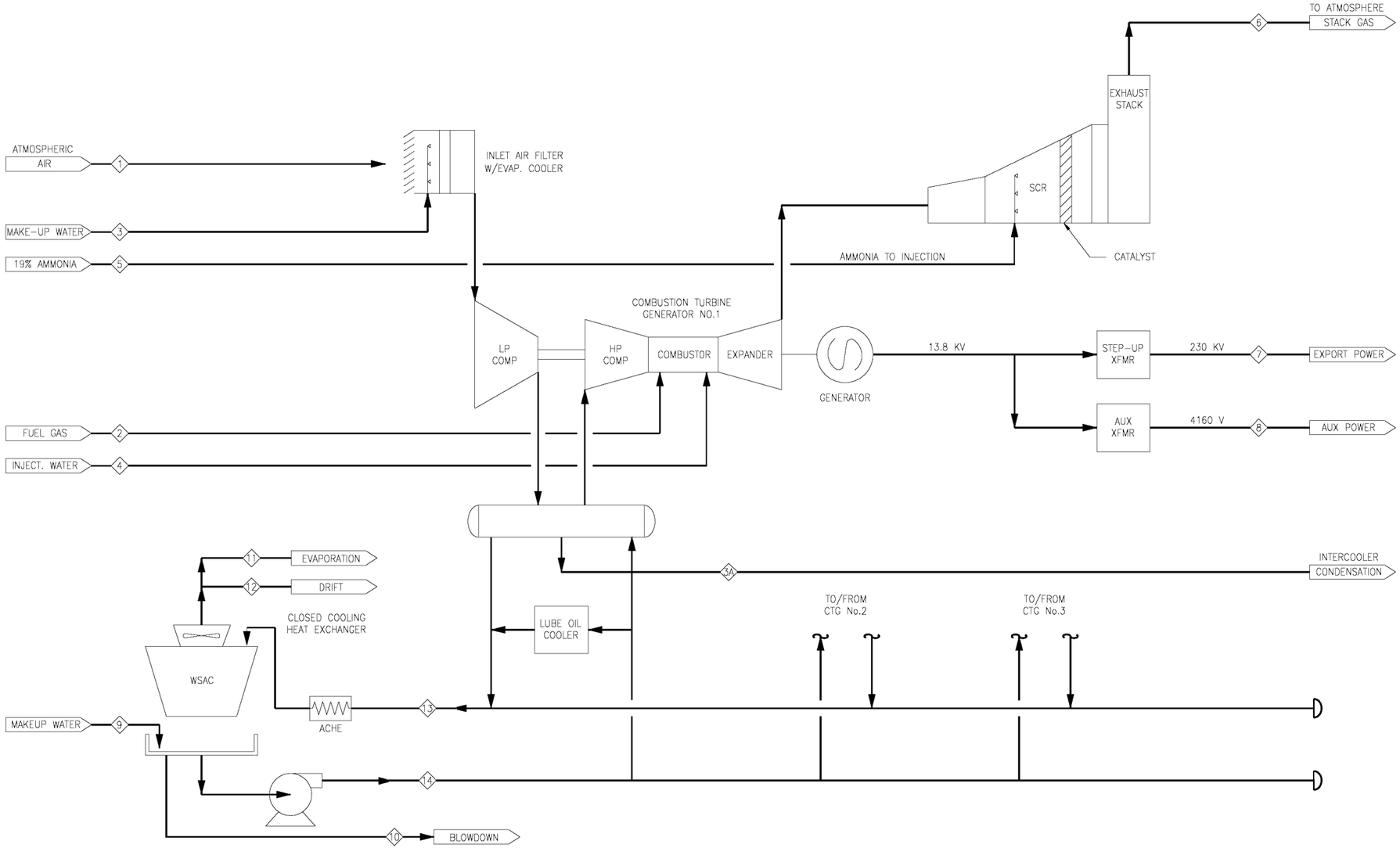
FIGURE 3.5-2C

HEAT AND MASS BALANCE
PEAK

ENGINEER/DESIGN ORIGINATOR	S. HANNI
LEAD ENG	B. BROWN
ENG MGR	E. ELAM
PROJ MGR	---

DRAWING NUMBER

P009-041-HMBP-001



NOTES

1. STREAM DESIGNATION ◇6
2. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT 100% LOAD AND THE GIVEN AMBIENT CONDITION IS 104,300 KW EACH.
3. AMBIENT CONDITION 59^F DB/51^F WB.
4. VALUES ARE FOR CTG'S AT 100% LOAD WITH EVAPORATIVE COOLING OFF.

HEAT AND MATERIAL BALANCE FOR NOTE 3 AMBIENT CONDITION

		ONE COMBUSTION TURBINE GENERATOR									THREE (3) COMBUSTION TURBINE GENERATORS														
	UNITS	1	2	3	3A	4	5	6	7	8	1	2	3	3A	4	5	6	7	8	9	10	11	12	13	14
FLOW	lb/hr	1,642,160	39,755	0	0	26,388	184	1,708,303			4,926,480	119,265	0	0	79,164	552	5,124,909			107,500	42,500	95,900	39	4,800,000	4,800,000
FLOW	gpm	———	———	0.0	0.0	52.8	0.4						0.0	0.0	158.4	1.1				215	85	191	0.08	9,600	9,600
TEMPERATURE	^F	59	212			100	80	783			59	212			80	80	763			60	85			113	85
LHV HEAT INPUT	mmBtu/hr		819									2,457													
GROSS POWER	KW								104,302	2,250								312,906	6,750						
Gr.LHV HEAT RATE	Btu/kwhr								7,856									23,568							

– PRELIMINARY –
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT HE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV.	DESIGN BY	DRAWN BY	CHECKED BY	DATE
B	UPDATED FOR NEW SITE: C. KEBODEAUX	T. FLEEKER	B. BROWN	OPEN
A	ISSUED FOR PERMIT: B. BROWN	S. HANNI	E. ELAM	08-12-10

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit
Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

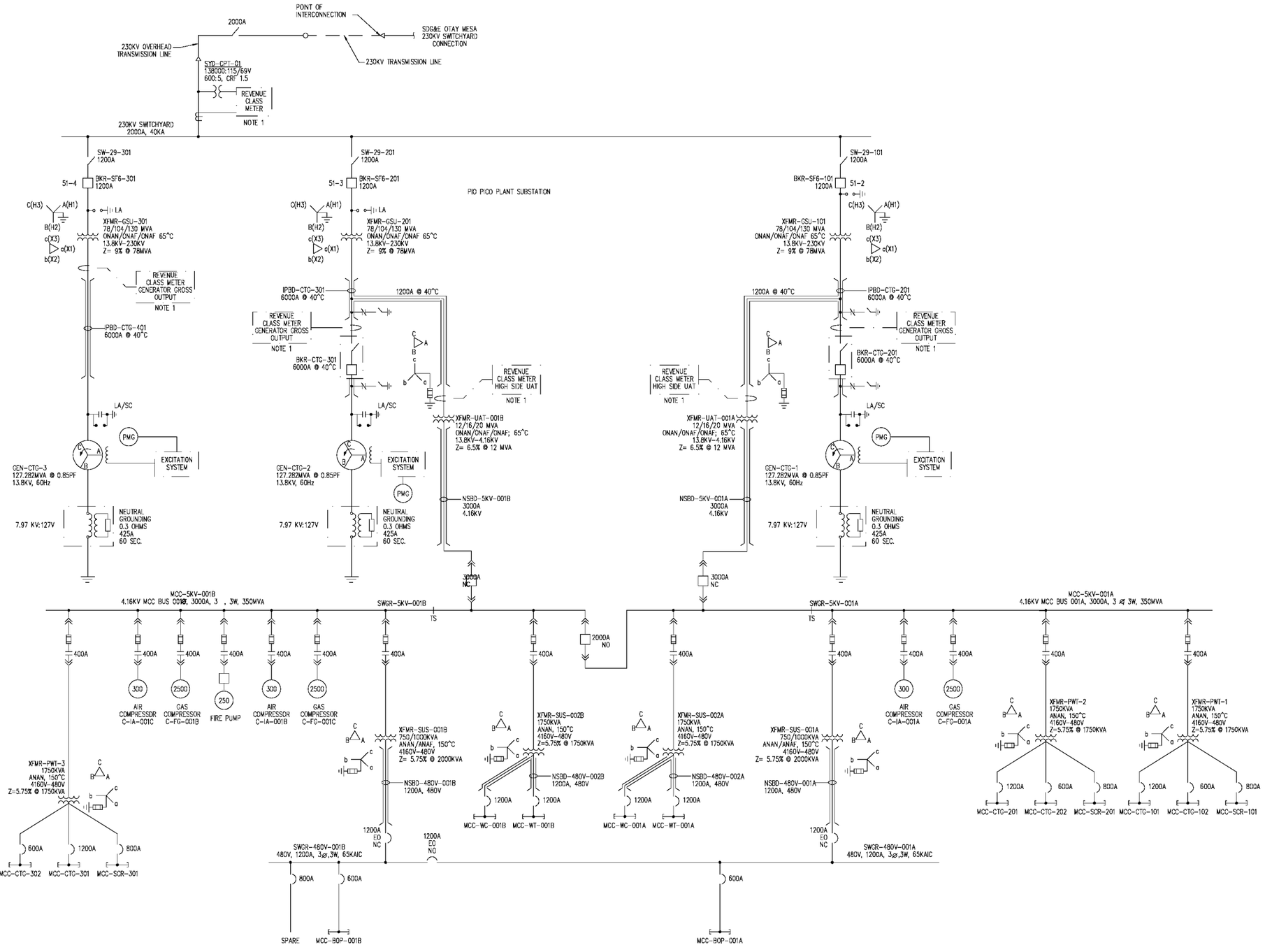
FIGURE 3.5-2D

HEAT AND MASS BALANCE
WINTER

ENGINEER/DESIGN ORIGINATOR	S. HANNI
LEAD ENG	B. BROWN
ENG MGR	E. ELAM
PROJ MGR	---

DRAWING NUMBER

P009-041-HMBW-001



NOTES

1. ALL METERS & CT'S CAL-ISO QUALITY.
2. ALL BREAKER RATINGS ARE FRAME SIZE ONLY.

—PRELIMINARY—
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF ITS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. VIEWING OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE TO THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT. IF ACCESS GAINED IN ERROR OR OTHERWISE FROM A THIRD PARTY, IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATIONS OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO KIEWIT POWER ENGINEERS.

REV	DESCRIPTION	DWN	CHK	APP	DATE
F	ISSUED FOR REVIEW				01-04-11
E	ISSUED FOR REVIEW				12-21-10
D	ISSUED FOR REVIEW				12-17-10
C	ISSUED FOR REVIEW				08-19-10
B	ISSUED FOR AFC				05-13-10
A	PRELIMINARY				date

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

FIGURE 3.5-3

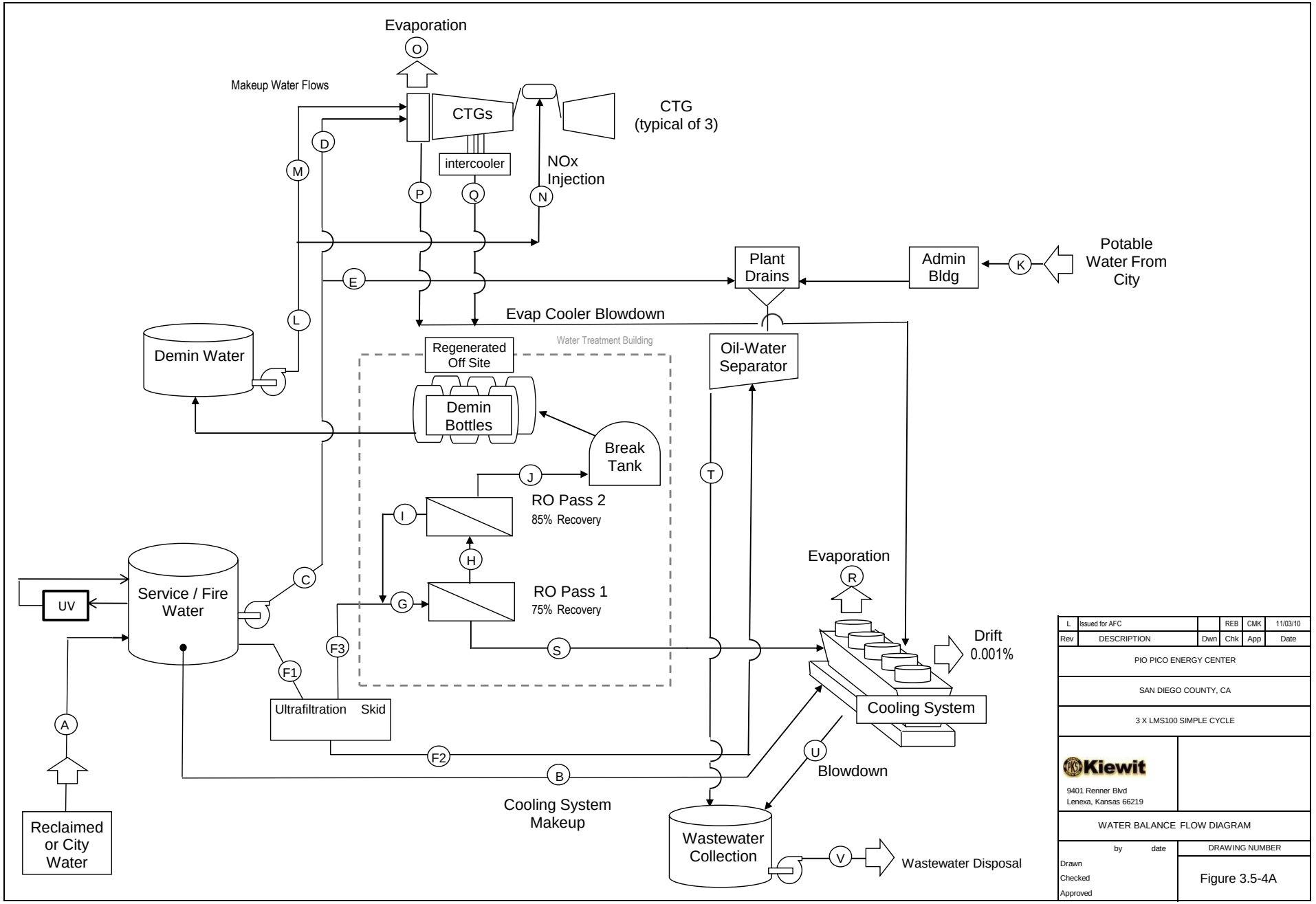
OVERALL ONE-LINE DIAGRAM

	by	date
DESIGNED		
DRAWN		
CHECKED		
APPROVED		

DRAWING NUMBER

P009-041-EO-001

$$DATE$$ $$TIME$$ $$USERNAME$$ $$FILENAME$$


Evaporation
O
Makeup Water Flows
CTGs
CTG
(typical of 3)
intercooler
NOx
Injection
D
M
P
Q
N
E
Plant
Drains
Admin
Bldg
K
Potable
Water From
City
L
Evap Cooler Blowdown
Water Treatment Building
Demin Water
Regenerated
Off Site
Oil-Water
Separator
Demin
Bottles
Break
Tank
T
J
RO Pass 2
85% Recovery
I
H
Evaporation
R
UV
Service / Fire
Water
C
G
RO Pass 1
75% Recovery
Drift
0.001%
F3
S
F1
Ultrafiltration Skid
Cooling System
A
F2
U
Blowdown
B
Cooling System
Makeup
Wastewater
Collection
V
Wastewater Disposal
Reclaimed
or City
Water
L Issued for AFC REB CMK 11/03/10
Rev DESCRIPTION Dwn Chk App Date
PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA
3 X LMS100 SIMPLE CYCLE
Kiewit
9401 Renner Blvd
Lenexa, Kansas 66219
WATER BALANCE FLOW DIAGRAM
by date
DRAWING NUMBER
Drawn
Checked
Approved
Figure 3.5-4A

	CASE	ISO	Average High	Summer High	Peak Hour	Peak Day Average
	Ambient Temperature	59	70	80	93	82
	Wet Bulb Temperature	51	60	63	65	63
	Relative Humidity, %	60	57	38	22	38
	Ambient Pressure	14.36	14.36	14.36	14.36	14
	Gross Turbine Output, MW	104.3	102.4	101.0	99.3	100.7
	Inlet Air Cooler Status	Off	On	On	On	On
	Description CTs in service	3	3	3	3	3
A	Water Required by Plant	452	497	564	658	573
B	Required Makeup to Cooling System	215	178	177	185	172
C	Service Water Flow	5	98	167	259	182
D	Service water to evap coolers	0	93	162	254	177
E	Washdown hose use	5	5	5	5	5
F1	UF System Feed	232	222	219	215	218
F2	UF System Backwash	12	11	11	11	11
T	Oil/Water Sep Effluent	19	18	18	18	18
F3	RO System Feed	220	211	208	204	208
G	RO Pass 1 Inlet Flow	248	238	234	230	234
H	RO Pass 2 Inlet Flow	186	178	176	173	175
I	RO Pass 2 Reject to Pass 1	28	27	26	26	26
J	RO Product Water	158	152	149	147	149
S	RO rejects	62	59	59	58	58
K	Potable water to admin bldg	2	2	2	2	2
L	Demineralized Water Flow	158	152	149	147	149
M	Demin water to evap coolers	0	0	0	0	0
N	NOx injection	158	152	149	147	149
O	Evap cooler evaporation	0	19	32	51	35
	Evap cooler Cycles of Concentration	1.25	1.25	1.25	1.25	1.25
P	Evaporative cooler blowdown	0	74	130	203	142
	Evap cooler Total Makeup	0	93	162	254	177
	Evap cooler makeup demin fraction	0%	0%	0%	0%	0%
Q	Intercooler condensation	0	28	35	43	36
	Heat Rejection (MMBtu/hr)	118	123	124	126	124
	Percent Dry Cooling	71%	63%	56%	46%	54%
R	Cooling System Evaporation	191	254	311	385	322
	Cooling System Cycles of Concentration	3.25	4.00	4.50	4.75	4.75
U	Cooling System Blowdown	85	85	89	103	86
	Cooling System Total Makeup	277	339	400	488	408
V	Wastewater Flow	104	103	107	121	104
						Annual
	Annual Operation hours	1,100	1,600	1,000	300	4,000
	Water Used Acre-ft	92	147	104	36	378
	Water Saved, compared to Acre-ft	139	173	92	23	427
	100% evaporative cooling %	60%	54%	47%	39%	53%
	Wastewater Disposal Acre-ft	21	30	20	7	78

Notes:

1) All Flows are displayed in GPM
2) Based on GE APPS performance
3) Ultrafilter recovery rate 95%
4) RO 1st Pass Recovery Rate 75%
5) RO 2nd Pass Recovery Rate 85%
6) Overall RO Recovery Rate 72%
7) Cooling System Drift 0.0010%
8) Service Water Use, gpm 5
9) Annual Capacity Factor 46%
10) Annual Water Savings 53%
    compared to 100% evaporative cooling
11) Operating hours are estimated
    to maximize operation at higher temperatures

L	Issued for AFC		REB	CMK	11/03/10

PIO PICO ENERGY CENTER

SAN DIEGO COUNTY, CA

3 X LMS100 SIMPLE CYCLE

Kiewit
9401 Renner Blvd
Lenexa, Kansas 66219

WATER BALANCE FLOW VALUES

by date

Drawn
Checked
Approved

DRAWING NUMBER

Figure 3.5-4B

CALZADA DE LA FUENTE

(ENERGY CENTER WAY)

℄

℄

ALTA ROAD

FIRE WATER PUMP BUILDING

EXISTING 24' S.D.G.E. EASEMENT

EXISTING 24' S.D.G.E. EASEMENT

FH-1

FH-2

FH-3

FH-4

FH-5

FH-6

FH-7

FH-8

FH-9

0° (TYP)

LEGEND

① GSU DELUGE SYSTEM (TYP)

② LUBE OIL SKID (TYP)

FH-X FIRE HYDRANT (TYP)

30 0 30 60

SCALE IN FEET

SCALE: 1" = 30'-0"

N

— PRELIMINARY —
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREON WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV	DESIGN BY	DRAWN BY	CHECKED BY	DATE
A	PRELIMINARY			12-21-10

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

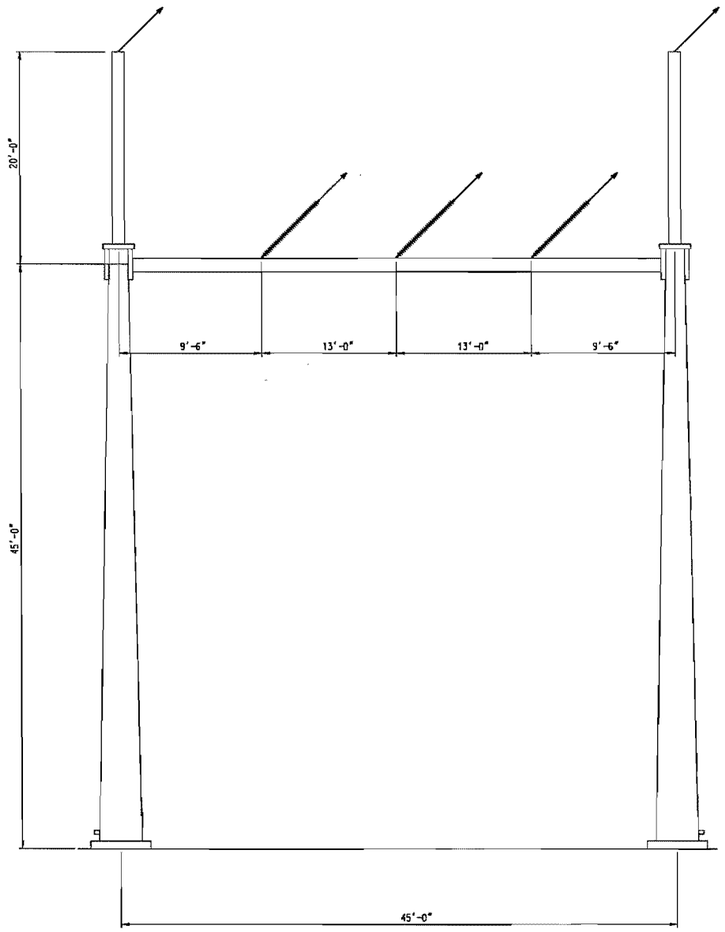
FIGURE 3.5-5

FIRE PROTECTION SYSTEM

ENGINEER/DESIGN ORIGINATOR	DRAWING NUMBER
LEAD ENG	P009-041-FP-001
ENG MGR	
PROJ MGR	

NOTES

1.



-PRELIMINARY-
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACKNOWLEDGEMENT OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THESE DRAWINGS SHALL BE RETURNED TO KIEWIT POWER ENGINEERS.

REV	DESCRIPTION	DWN	CHK	APP	DATE
A	PRELIMINARY	TEF	DPM	SM	01-18-11

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit

Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

FIGURE 3.7-1A

230KV SWITCHYARD TUBULAR
STEEL H-FRAME STRUCTURE

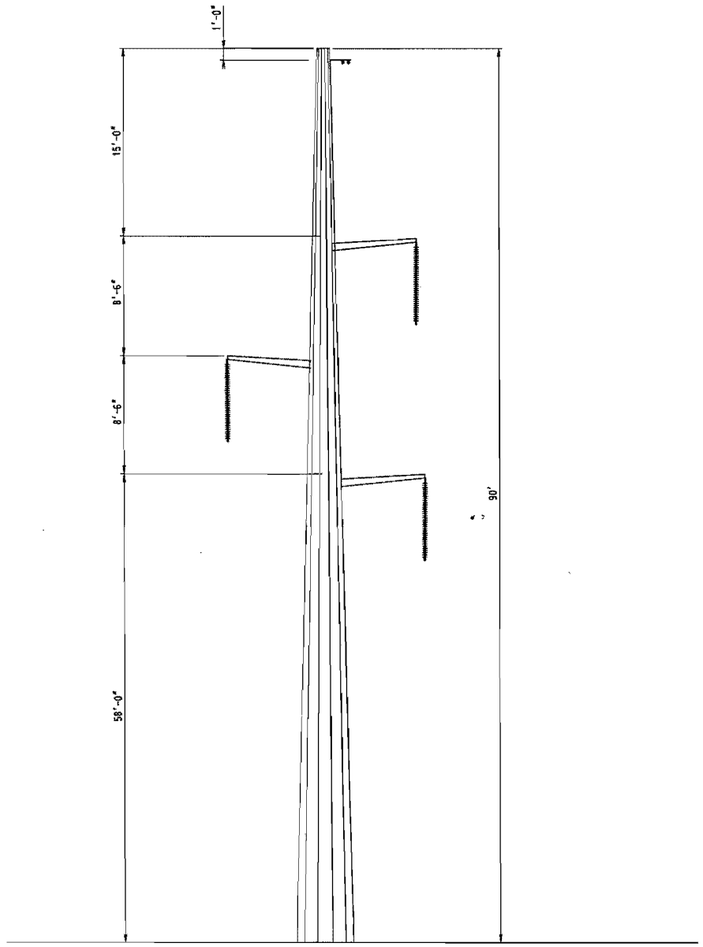
	by	date
DESIGNED	TEF	01-17-11
DRAWN	TEF	01-17-11
CHECKED	DPM	01-18-11
APPROVED	SM	01-18-11

DRAWING NUMBER

P009-041-PDS-700

NOTES

1.



-PRELIMINARY-
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO KIEWIT POWER ENGINEERS.

REV	DESCRIPTION	DWN	CHK	APP	DATE
A	PRELIMINARY	TEF	DPM	SM	01-18-11

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit

Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

FIGURE 3.7-1B

230KV T-LINE TUBULAR
STEEL TANGENT STRUCTURE

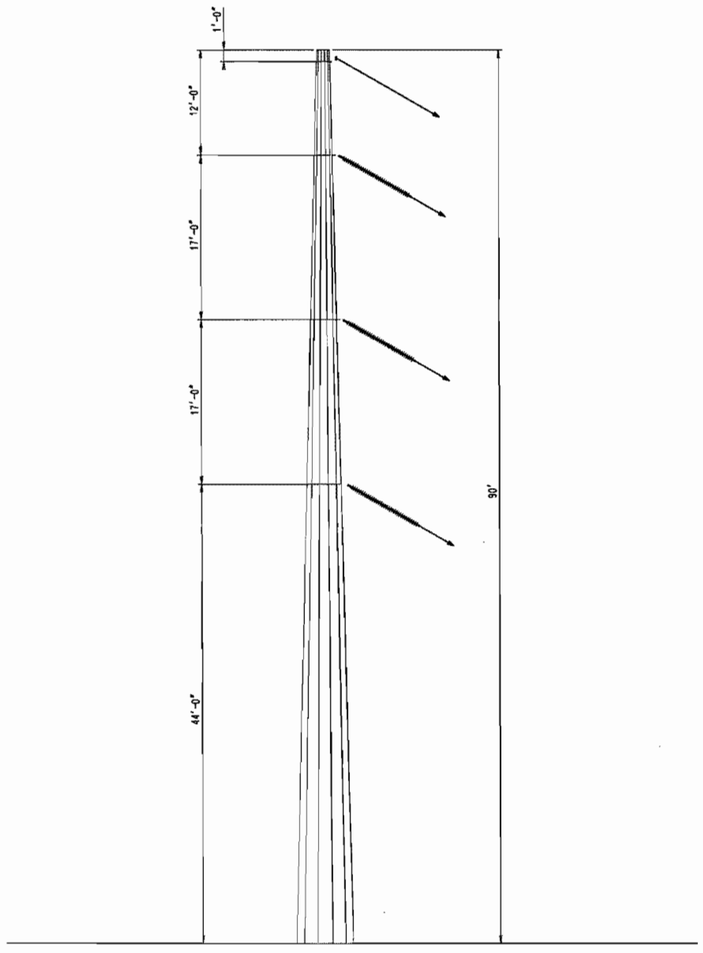
	by	date
DESIGNED	TEF	01-18-11
DRAWN	TEF	01-18-11
CHECKED	DPM	01-18-11
APPROVED	SM	01-18-11

DRAWING NUMBER

P009-041-PDT-900

NOTES

1.



-PRELIMINARY-
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE REQUESTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO KIEWIT POWER ENGINEERS.

REV	DESCRIPTION	DWN	CHK	APP	DATE
A	PRELIMINARY	TEF	DPM	SM	01-18-11

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit

Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

FIGURE 3.7-1C

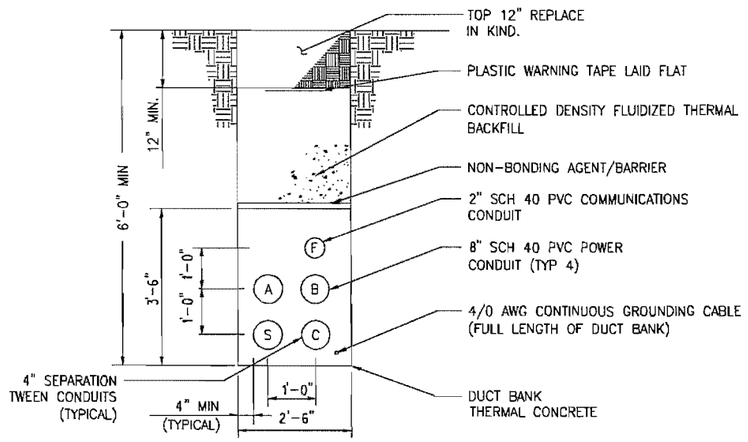
230KV T-LINE TUBULAR
STEEL DEAD-END STRUCTURE

	by	date
DESIGNED	TEF	01-18-11
DRAWN	TEF	01-18-11
CHECKED	DPM	01-18-11
APPROVED	SM	01-18-11

DRAWING NUMBER

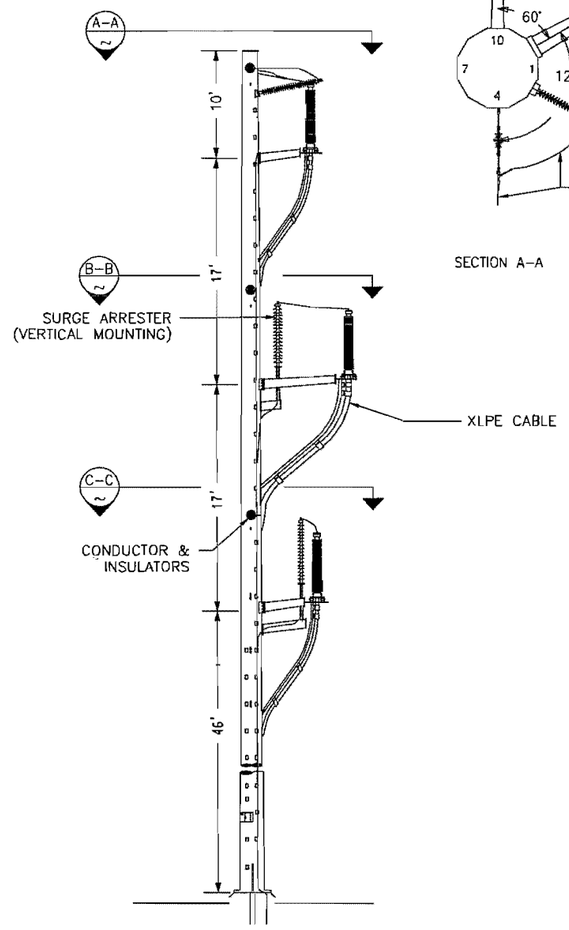
P009-041-PDT-902

...\!BD\ELE\P009-041-PDT-902.dgn 1/18/2011 1:58:38 PM Tom.Fleeker



TYPICAL 230 KV DUCT BANK

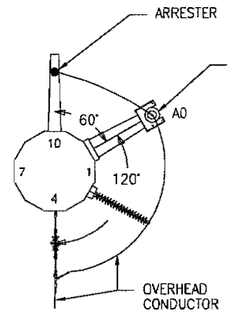
SCALE: NTS



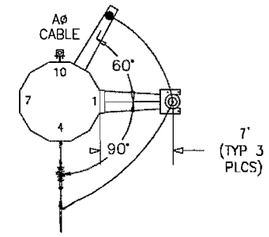
230 KV UG CABLE RISER STRUCTURE

SCALE: NTS

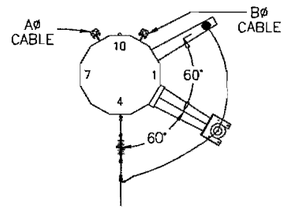
WITH ARM SUPPORTS FOR TERMINATORS AND ARRESTORS IN VERTCIAL POSITIONS



SECTION A-A



(+L)
SECTION B-B



SECTION C-C

NOTES

1.

-PRELIMINARY-
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO KIEWIT POWER ENGINEERS.

EJS DPM SM

REV	DESCRIPTION	DWN	CHK	APP	DATE
A	PRELIMINARY	EJS	DPM	SM	01-18-11

PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CA

3xLMS100

Kiewit

Kiewit Power
9401 Renner Boulevard
Lenexa, Kansas 66219

FIGURE 3.7-1D

230KV UG CABLE RISER / DEADEND STRUCTURE AND DUCT BANK

	by	date
DESIGNED	TEF	01-17-11
DRAWN	TEF	01-17-11
CHECKED	DPM	01-18-11
APPROVED	SM	01-18-11

DRAWING NUMBER

P009-041-PDS-512

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Efficiency** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Sections 1.1, 1.2, 3.1, 3.5.1,3.5.4, 3.5.6, 3.5.7, 3.10.2, and 4.3		
Appendix B (h) (4) (A)	Heat and mass balance diagrams for design conditions for each mode of operation.	Section 3.5.4.2 Figures 3.5-2A through 3.5-2D		
Appendix B (h) (4) (B)	Annual fuel consumption in BTUs for each mode of operation, including hot restarts and cold starts.	Section 3.5.4.2, and 3.10.2.1 Table 3.5-3		
Appendix B (h) (4) (C)	Annual net electrical energy produced in MWh for each mode of operation including starts and shutdowns.	Section 3.5.4.2 Table 3.5-3		
Appendix B (h) (4) (D)	Number of hours the plant will be operated in each design condition in each year.	Section 3.5.4.2 Table 3.5-3		
Appendix B (h) (4) (E)	If the project will be a cogeneration facility, calculations showing compliance with applicable efficiency and operating standards.	Not applicable		
Appendix B (h) (4) (F)	A discussion of alternative generating technologies available for the project, including the projected efficiency of each, and an explanation why the chosen equipment was selected over these alternatives.	Sections 3.1 and 4.3		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Efficiency** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Not applicable		
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Not applicable		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Not applicable		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Not applicable		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Facility Design** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (h) (1) (A)	A description of the site conditions and investigations or studies conducted to determine the site conditions used as the basis for developing design criteria. The descriptions shall include, but not be limited to, seismic and other geologic hazards, adverse conditions that could affect the project's foundation, adverse meteorological and climatic conditions, and flooding hazards, if applicable.	Sections 1.1, 3.4, and 3.6.		
Appendix B (h) (1) (B)	A discussion of any measures proposed to improve adverse site conditions.	Sections 3.4 and 3.6.		
Appendix B (h) (1) (C)	A description of the proposed foundation types, design criteria (including derivation), analytical techniques, assumptions, loading conditions, and loading combinations to be used in the design of facility structures and major mechanical and electrical equipment	Appendix B		
Appendix B (h) (1) (D)	For each of the following facilities and/or systems, provide a description including drawings, dimensions, surface-area requirements, typical operating data, and performance and design criteria for protection from impacts due to adverse site conditions:	--		
Appendix B (h) (1) (D) (i)	The power generation system;	Section 3.5.4 Table 3.5.1 Figures 3.1.3 and 3.3.1		
Appendix B (h) (1) (D) (ii)	The heat dissipation system;	Sections 3.5.7.1 and 3.5.7.3		
Appendix B (h) (1) (D) (iii)	The cooling water supply system, and, where applicable, pre-plant treatment procedures;	Section 3.5.7 Figures 3.5-4A and 3.5-4B		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Facility Design** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (h) (1) (D) (iv)	The atmospheric emission control system;	Section 3.5.9		
Appendix B (h) (1) (D) (v)	The waste disposal system and on-site disposal sites;	Section 3.5.8		
Appendix B (h) (1) (D) (vi)	The noise emission abatement system;	Section 3.5.14		
Appendix B (h) (1) (D) (vii)	The geothermal resource conveyance and re-injection lines (if applicable);	N/A		
Appendix B (h) (1) (D) (viii)	Switchyards/transformer systems; and	Sections 3.5.5 and 3.7		
Appendix B (h) (1) (D) (ix)	Other significant facilities, structures, or system components proposed by the applicant.	N/A		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Project Overview** Project: ____ Technical Staff: ____

Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Cal. Code Regs., tit. 20, § 1704, (a) (3) (A)	Descriptions of all significant assumptions, methodologies, and computational methods used in arriving at conclusions in the document.	Sections 1.0 through 5.18 Appendices A through R		
Cal. Code Regs., tit. 20, § 1704, (a) (3) (B)	Descriptions, including methodologies and findings, of all major studies or research efforts undertaken and relied upon to provide information for the document; and a description of ongoing research of significance to the project (including expected completion dates; and	Sections 1.0 through 5.18 Appendices A through R		
Cal. Code Regs., tit. 20, § 1704, (a) (3) (C)	A list of all literature relied upon or referenced in the documents, along with brief discussions of the relevance of each such reference	Section 3.14 Section 5.2.9 Section 5.3.6 Section 5.4.6 Section 5.5.8 Section 5.6.7 Section 5.7.8 Section 5.8.8 Section 5.9.6 Section 5.10.7 Section 5.11.8 Section 5.12.10 Section 5.13.8 Section 5.14.8 Section 5.15.8 Section 5.16.8 Section 5.17.8 Section 5.18.8		
Cal. Code Regs., tit. 20, § 1704, (a) (4)	Each principal subject area covered in a notice or application shall be set forth in a separate chapter or section, each of which shall identify the person or persons responsible for its preparation.	Table of Contents Section 7.0		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Project Overview** Project: ____ Technical Staff: ____

Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (a) (1) (A)	A general description of the proposed site and related facilities, including the location of the site or transmission routes, the type, size and capacity of the generating or transmission facilities, fuel characteristics, fuel supply routes and facilities, water supply routes and facilities, pollution control systems, and other general characteristics.	Sections 1.1, 1.2, 3.3, 3.5.6, 3.5.7, and 3.5.9		
Appendix B (a) (1) (B)	Identification of the location of the proposed site and related facilities by section, township, range, county and assessor's parcel numbers.	Section 3.3		
Appendix B (a) (1) (C)	A description of and maps depicting the region, the vicinity, and the site and its immediate surroundings.	Sections 3.1 and 3.3 Figures 3.1-1, 3.1-2, 3.3-2, and 3.3-4		
Appendix B (a) (1) (D)	A full-page color photographic reproduction depicting the visual appearance of the site prior to construction, and a full-page color simulation or artist's rendering of the site and all project components at the site, after construction.	Figures 5.13-10 through 5.13-17.		
Appendix B (a) (1) (E)	In an appendix to the application, a list of current assessor's parcel numbers and owners' names and addresses for all parcels within 500 feet of the proposed transmission line and other linear facilities, and within 1000 feet of the proposed powerplant and related facilities.	Appendix M		
Appendix B (a) (2)	Project Schedule: Proposed dates of initiation and completion of construction, initial start-up, and full-scale operation of the proposed facilities.	Table 3.9-1		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Project Overview** Project: ____ Technical Staff: ____

Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (a) (3) (A)	A list of all owners and operators of the site(s), the power plant facilities, and, if applicable, thermal host, the geothermal leasehold, the geothermal resource conveyance lines, and the geothermal re-injection system, and a description of their legal interest in these facilities.	Sections 1.4 and 6.0		
Appendix B (a) (3) (B)	A list of all owners and operators of the proposed electric transmission facilities.	Section 3.3		
Appendix B (a) (3) (C)	A description of the legal relationship between the applicant and each of the persons or entities specified in subsections (a)(3)(A) and (B).	Sections 1.4, 2.3, 3.1, and 6.0		
Appendix B (b) (1)	In a section entitled, "Generation Facility Description, Design, and Operation" provide the following information:	--		
Appendix B (b) (1) (A)	Maps at a scale of 1:24,000 (1" = 2000'), (or appropriate map scale agreed to by staff) along with an identification of the dedicated leaseholds by section, township, range, county, and county assessor's parcel number, showing the proposed final locations and layout of the power plant and all related facilities;	Figures 3.1-3A, 3.1-3B, 3.3-1, and 5.9-5		
Appendix B (b) (1) (B)	Scale plan and elevation drawings depicting the relative size and location of the power plant and all related facilities to establish the accuracy of the photo simulations required in Sections (a)(1)(D) and (g)(6)(F);	Figures 3.3-1 and 3.5-1		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Project Overview** Project: ____ Technical Staff: ____

Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (b) (1) (C)	A detailed description of the design, construction and operation of the facilities, specifically including the power generation, cooling, water supply and treatment, waste handling and control, pollution control, fuel handling, and safety, emergency and auxiliary systems, and fuel types and fuel use scenarios; and	Sections 3.5 through 3.12		
Appendix B (b) (1) (D)	A description of how the site and related facilities were selected and the consideration given to engineering constraints, site geology, environmental impacts, water, waste and fuel constraints, electric transmission constraints, and any other factors considered by the applicant.	Sections 3.6 and 4.0		
Appendix B (b) (2)	In a section entitled, "Transmission Lines Description, Design, and Operation" provide the following information:	--		
Appendix B (b) (2) (A)	Maps at a scale of 1:24,000 (or appropriate map scale agreed to by staff) of each proposed transmission line route, showing the settled areas, parks, recreational areas, scenic areas, and existing transmission lines within one mile of the proposed route(s);	Figure 3.3-4		
Appendix B (b) (2) (B)	A full-page color photographic reproduction depicting a representative above ground section of the transmission line route prior to construction and a full-page color photographic simulation of that section of the transmission line route after construction.	Figures 5.13-10 through 5.13-17.		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Project Overview** Project: ____ Technical Staff: ____

Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (b) (2) (C)	A detailed description of the design, construction, and operation of any electric transmission facilities, such as power lines, substations, switchyards, or other transmission equipment, which will be constructed or modified to transmit electrical power from the proposed power plant to the load centers to be served by the facility. Such description shall include the width of rights-of-way and the physical and electrical characteristics of electrical transmission facilities such as towers, conductors, and insulators.	Section 3.7		
Appendix B (b) (2) (D)	A description of how the route and additional transmission facilities were selected, and the consideration given to engineering constraints, environmental impacts, resource conveyance constraints, and electric transmission constraints; and	Section 4.0		
Appendix B (e) (1)	A discussion of how facility closure will be accomplished in the event of premature or unexpected cessation of operations.	Section 3.11		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Reliability** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Sections 1.1, 1.2, 3.1, 3.2, 3.4, 3.5, 3.12, and Section 5 resources analyses.		
Appendix B (h) (3) (A)	A discussion of the sources and availability of the fuel or fuels to be used over the estimated service life of the facilities.	Sections 3.5.6 and 3.12.5		
Appendix B (h) (3) (B)	A discussion of the anticipated service life and degree of reliability expected to be achieved by the proposed facilities based on a consideration of:	--		
Appendix B (h) (3) (B) (i)	Expected overall availability factor, and annual and lifetime capacity factors;	Sections 3.5.1 and 3.12.3		
Appendix B (h) (3) (B) (ii)	The demonstrated or anticipated feasibility of the technologies, systems, components, and measures proposed to be employed in the facilities, including the power generation system, the heat dissipation system, the water supply system, the reinjection system, the atmospheric emission control system, resource conveyance lines, and the waste disposal system;	Sections 3.3, 3.5.4, 3.5.5, 3.5.6, 3.5.7, 3.5.8, and 3.5.9.		
Appendix B (h) (3) (B) (iii)	Geologic and flood hazards, meteorologic conditions and climatic extremes, and cooling water availability;	Sections 3.4.1, 3.4.2, 3.4.4, 3.5.7, and 3.12.4.2.		
Appendix B (h) (3) (B) (iv)	Special design features adopted by the applicant or resource supplier to ensure power plant reliability including equipment redundancy; and	Sections 3.12.4 and 3.12.6		
Appendix B (h) (3) (B) (v)	For technologies not previously installed and operated in California, the expected power plant maturation period.	N/A		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Reliability** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 3.13		
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Section 3.13, and Appendix A through F		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Section 3.13, and Appendix A through F		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 3.13, and Appendix A through F		

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date ____

Technical Area: **Trans Line Safety & Nuisance** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Sections 1.0, 2.0, and 3.7.4		
Appendix B (g) (18) (A)	The locations and a description of the existing switchyards and overhead and underground transmission lines that would be affected by the proposed project.	Sections 3.3, 3.5.5, and 3.7 Figures 3.1-1, 3.1.3B, 3.3-1, 3.3-3, 3.3-4, and 3.7-1A through 3.7-1D		
Appendix B (g) (18) (B)	An estimate of the existing electric and magnetic fields from the facilities listed in (A) above and the future electric and magnetic fields that would be created by the proposed project, calculated at the property boundary of the site and at the edge of the rights of way for any transmission line. Also provide an estimate of the radio and television interference that could result from the project.	Section 3.7.4		
Appendix B (g) (18) (C)	Specific measures proposed to mitigate identified impacts, including a description of measures proposed to eliminate or reduce radio and television interference, and all measures taken to reduce electric and magnetic field levels.	Section 3.7.4		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Trans Line Safety & Nuisance** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 3.7.4.6 Table 3.7-1		
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Sections 3.7.4.6 and 3.7.5 Table 3.7-3		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Table 3.7-3		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Sections 3.7.4.6 and 3.7.5		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Transmission System Design** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (h) (2) (A)	A discussion of the need for the additional electric transmission lines, substations, or other equipment, the basis for selecting principal points of junction with the existing electric transmission system, and the capacity and voltage levels of the proposed lines, along with the basis for selection of the capacity and voltage levels.	Section 2.0, Section 3.2		
Appendix B (h) (2) (B)	A discussion of the extent to which the proposed electric transmission facilities have been designed, planned, and routed to meet the transmission requirements created by additional generating facilities planned by the applicant or any other entity.	Section 3.3, Section 3.5.5, and Section 3.7		
Appendix B (b) (2) (C)	A detailed description of the design, construction, and operation of any electric transmission facilities, such as power lines, substations, switchyards, or other transmission equipment, which will be constructed or modified to transmit electrical power from the proposed power plant to the load centers to be served by the facility. Such description shall include the width of rights of way and the physical and electrical characteristics of electrical transmission facilities such as towers, conductors, and insulators. This description shall include power load flow diagrams which demonstrate conformance or nonconformance with utility reliability and planning criteria at the time the facility is expected to be placed in operation and five years thereafter; and	Section 3.5.5 and Section 3.7 Figures 3.1-3B, 3.5-3, and 3.7-1A through 3.7-1D		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Transmission System Design** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (b) (2) (D)	A description of how the route and additional transmission facilities were selected, and the consideration given to engineering constraints, environmental impacts, resource conveyance constraints, and electric transmission constraints.	Section 3.5.5 and Section 3.7		
Appendix B (b) (2) (E)	A completed System Impact Study or signed System Impact Study Agreement with the California Independent System Operator and proof of payment. When not connecting to the California Independent System Operator controlled grid, provide the executed System Impact Study agreement and proof of payment to the interconnecting utility. If the interconnection and operation of the proposed project will likely impact an transmission system that is not controlled by the interconnecting utility (or California Independent System Operator), provide evidence of a System Impact Study or agreement and proof of payment (when applicable) with/to the impacted transmission owner or provide evidence that there are no system impacts requiring mitigation.	Section 3.7 and Appendix H		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 3.7.5 and Table3.7-1		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Transmission System Design** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Section 3.7.5 and Table3.7-1, and Section 3.7.6 and Table 3.7-2		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Table 3.7-2		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 3.7.3.2		

5.1 INTRODUCTION

This section presents a description of the affected environment and potential environmental consequences associated with Pio Pico Energy Center (PPEC), along with measures to mitigate or avoid adverse impacts as appropriate. Supporting information to determine compliance with applicable laws, ordinances, regulations, and standards is included within the discussion in each applicable section.

The analyses presented in this section are based on the following:

- Details of the proposed project as presented in Sections 3 and 4
- Consideration of California Energy Commission (CEC) regulations, including regulations applicable to the expedited processing of projects
- Consideration of CEC staff input

The environmental assessments presented in this section are meant to comply with CEC requirements, including those of the California Environmental Quality Act (CEQA). In general, each section follows the same format of presenting the affected environment and existing site conditions, followed by the environmental consequences of the proposed project with measures proposed to mitigate significant adverse impacts.

TABLE OF CONTENTS

5.10 SOCIOECONOMICS 5.10-1
5.10.1 Affected Environment 5.10-1
5.10.2 Environmental Consequences 5.10-7
5.10.3 Environmental Justice 5.10-19
5.10.4 Cumulative Impacts 5.10-21
5.10.5 Mitigation Measures and Conditions of Certification 5.10-23
5.10.6 Applicable Laws, Ordinances, Regulations, and Standards (LORS) 5.10-23
5.10.7 References 5.10-26

LIST OF TABLES

Table 5.10-1 Historical and Projected Populations in the Project Area, County, Region, and State 5.10-2
Table 5.10-2 Housing Characteristics in the Project Area, County, Region, and State 5.10-3
Table 5.10-3 San Diego County Employment by Industry: Historical and Projected 5.10-4
Table 5.10-4 Employment Characteristics in the State and Study Area 5.10-5
Table 5.10-5 Construction Labor Personnel Requirements per Month 5.10-11
Table 5.10-6 Construction and Operation Occupational Projections of Employment in Project Region 5.10-12
Table 5.10-7 Estimated Project Staff during Operations 5.10-12
Table 5.10-8 PPEC Estimated Construction and Operation Local Sales Tax in San Diego County 5.10-16
Table 5.10-9 Ethnic and Economic Characteristics of Project Region and within Six Miles of the Proposed Project 5.10-22
Table 5.10-10 Federal Poverty Thresholds 5.10-22
Table 5.10-11 LORS Applicable to Socioeconomics 5.10-23
Table 5.10-12 Involved Agencies and Contacts 5.10-25
Table 5.10-13 Applicable Socioeconomic Permits and Fees 5.10-26

LIST OF FIGURES

Figure 5.10-1 Minority Population Distribution By Census Tracts Within 6 Miles of Project
Figure 5.10-2 Poverty Population Distribution By Census Tracts Within 6 Miles of Project

5.10 SOCIOECONOMICS

The socioeconomics section describes the potential impact on the social and economic structure within the project vicinity and region resulting from the construction and operation of the proposed Pio Pico Energy Center (PPEC). This discussion considers issues in project-related impacts on population, housing, public services (fire protection, emergency response services, law enforcement, schools, libraries, and medical services) and utilities, sales and property tax revenue, and indirect and induced economic effects from the project. This section also includes an analysis of cumulative impacts on the availability of labor within the area. Additionally this section provides agency contacts relevant to socioeconomics, and addresses the applicability of the following: permits required for the project; proposed mitigation measures and conditions of certification; and laws, ordinances, regulations, and standards (LORS). With the recommended conditions of certification, the project will not have any significant environmental impacts, and will be in compliance with all LORS.

5.10.1 Affected Environment

5.10.1.1 Study Area

The proposed project includes the construction and operation of an electrical generating facility in the southwestern portion of unincorporated San Diego County. San Diego County is the southernmost major metropolitan area in California and comprises 4,261 square miles, and the unincorporated County area comprises 3,572 square miles. The project site is located in the East Otay Mesa Specific Plan area, in the near vicinity of the City of San Diego, the City of Chula Vista, National City, and the City of Imperial Beach (refer to Figure 5.10-1).

The PPEC project site is located on an approximately 9.99-acre parcel (Assessor's Parcel Number [APN] 648-040-45) and includes a 6.00-acre laydown area (portion of APN 648-040-46). The property is disturbed land near the western County boundary, and is adjacent to the existing Otay Mesa Generating Project (OMGP) site. Other areas surrounding the project site are undeveloped. The U.S.–Mexico border is approximately 1.5 miles south of the project site.

This section describes existing and future (i.e., during operation of the proposed project) economic and demographic conditions in the following identified geographic regions. The socioeconomic study area pertinent to potential project impacts on population and housing includes unincorporated San Diego County; the nearby cities of Chula Vista, San Diego, National City, and Imperial Beach; and San Diego County as a whole (incorporated and unincorporated). The project area pertinent to regional workforce and indirect and induced economic impacts for the proposed project was identified to be the County of San Diego. The environmental justice analysis evaluates the demographics and poverty levels for the population located within a six-mile radius of the project site.

5.10.1.2 Population, Housing, Economic Base, and Employment

Population. San Diego County is the second-largest county by population in California (DOF 2010a) and the fifth-largest county by population in the United States, as estimated by the U.S. Census Bureau (U.S. Census Bureau 2009). Historical and projected population data for San

Diego County and the cities composing the project area are summarized in Table 5.10-1, which compiles available data from the San Diego Association of Governments (SANDAG), California Department of Finance (CDOF), and the U.S. Census Bureau. While the project area and region is forecast for population growth, SANDAG has determined that the growth rate in the project region and in California is slowing because of a continuing decline in birth rates (i.e., the average number of children born to each woman) (SANDAG 2008). Recent data has indicated that this is occurring across most ethnic groups, and that the sharpest drop is seen among the Hispanic population (SANDAG 2008).

The City of Chula Vista is forecasted to undergo the highest percentage growth (average of 2.2 percent per year) in the project area, and the City of San Diego is projected to experience the highest numeric increase in population.

TABLE 5.10-1
HISTORICAL AND PROJECTED POPULATIONS IN THE PROJECT AREA, COUNTY, REGION, AND STATE

Area	Population, 2000[1]	Population, 2004[2]	Projected Population, 2010[3]	Projected Population, 2020[2]	Projected Population, 2030[2]	Forecast Growth (2000 to 2030)	Percentage Growth per Year
San Diego County, Unincorporated	442,919[2]	476,089	503,320	545,290	616,401	173,482 (39%)	1.3%
City of Chula Vista	173,556	208,997	237,595	267,427	289,044	115,488 (67%)	2.2%
City of Imperial Beach	26,992	27,758	28,680	32,590	36,125	9,133 (34%)	1.1%
City of San Diego	1,223,400	1,287,175	1,376,173	1,542,528	1,689,254	465,854 (38%)	1.3%
National City	54,260	56,018	57,799	62,300	69,306	15,046 (28%)	0.9%
San Diego County	2,836,303	3,013,023	3,224,432	3,535,000	3,870,000	1,033,697 (36%)	1.2%
California	33,871,650	35,394,062	38,826,898	44,135,923	49,240,891	15,369,241 (45%)	1.5%

Sources:
[1] U.S. Census Bureau, 2007.
[2] California Department of Finance, 2010a.
[3] San Diego Association of Governments, 2010.

Housing. As of January 1, 2010, the CDOF reports that total housing stock, which includes single-family, multi-family, and mobile home residences, in the project area (unincorporated San Diego County, and cities of Chula Vista, Imperial Beach, National City, and San Diego) was 811,853 units, which comprises more than half of the total housing in San Diego County (1,149,426) (refer to Table 5.10-2). Vacancy rates in the project area range from a low of 4.5 percent (National City) to a high of 6.7 percent (unincorporated San Diego County). Compared with the County as a whole (incorporated and unincorporated areas), which averages 7.0 percent vacancy, the project area has higher rates of occupied housing. However, the California Department of Housing and Community Development estimates that a three to five percent vacancy rate generally indicates a balance between the supply and demand of housing. By this standard, vacancy rates in the project area generally indicate that a higher supply of housing is available (i.e., vacant) compared with the amount of demand for housing.

Median values of housing units in the project area, county, and state are also presented in Table 5.10-2. The reported values provide a relative comparison of housing prices, where housing in the City of San Diego tends to be higher priced than the housing prices in the project vicinity and San Diego County tends to have a higher housing median value than that of California. In contrast, the cities of Imperial Beach and National City have a greater proportion of lower-valued housing compared with that of the project area.

Temporary housing consists of vacant housing units offered for rent, and those offered both for rent and sale (U.S. Census Bureau 2011a). In 2010, the San Diego County area had an approximately 8.5 percent rental housing vacancy rate (U.S. Census Bureau 2011b). Compared with the state, which had a lower rental housing vacancy rate at approximately 7.6 percent in 2010 (U.S. Census Bureau 2011b), the San Diego County area offers more housing choices available for renting households. Additionally, San Diego County has one of the stronger hotel and lodging markets in the United States because of the County's popularity for tourism and as a convention destination. As a result, the County has numerous hotel and motel lodgings. However, the County's hotel and lodging market has experienced decreasing demand because of the current national economic downturn and, therefore, has been subject to higher vacancy rates. The project area is reported to have a total supply of 412,450 lodging rooms and was projected to have an average occupancy of 65.4 percent in 2009 (PKF Consulting 2008).

TABLE 5.10-2
HOUSING CHARACTERISTICS IN THE PROJECT AREA, COUNTY, REGION, AND STATE

Jurisdiction	Total Units (2010)[1]	Single-Family (2010)[1]	Multi-Family (2010)[1]	Mobile Homes (2010)[1]	Percentage Vacancy (2010)[1]	Median Value of Owner-Occupied Housing Units (2000)[2]
Unincorporated San Diego County	196,142	130,888	26,078	12,176	6.7	N/A
City of Chula Vista	78,244	47,923	26,566	3,755	5.3	$197,000
City of Imperial Beach	9,860	5,542	4,009	309	5.1	$171,700
City of San Diego	511,820	278,694	227,565	5,561	6.0	$233,100
National City	15,787	8,847	6,580	360	4.5	$141,500
San Diego County	1,149,426	696,379	410,174	42,873	7.0	$227,200
California	13,591,866	8,747,293	4,247,635	596,938	5.9	$211,500

Sources:
[1] California Department of Finance, 2010b.
[2] U.S. Census Bureau, 2010.

Economic Base and Employment. The project region contains developed metropolitan areas, which is reflected in San Diego County's relative employment by industry, as shown in Table 5.10-3. In 2010, the top industrial sectors by percentage employment were government (17.7 percent); professional and business services (16.3 percent); trade, transportation, and utilities (16.0 percent); and leisure and hospitality (12.8 percent). As identified in the industry positions in 2008 and 2010, San Diego County has experienced declines in employment in most industries (exceptions being Education and Health Services and Government industries, which experienced growth), which is also reflected in the Industry total (i.e., a total of 1,440,800 in 2008, which declined to 1,218,800 in 2010). The decline in positions from 2008 to 2010 in San Diego County is attributed to the effects of the current economic downturn on industry sectors (Briceno 2010).

However, as economic recovery is forecasted, employment growth is planned with the projected positions shown in Table 5.10-3 for 2018 (Briceno 2010).

Based on current (2010) estimates and projected 2018 industry employment, the fastest-growing industry sectors by numeric growth are Professions and Business Services (increase by 41,000 positions); Trade, Transportation, and Utilities (increase by 37,200 positions); and Construction (increase by 33,000 positions. The slowest growing industries by numeric growth based on 2010 estimates and forecasted 2018 conditions are Mining and Logging (no increase); Farm (increase by 1,300 positions); Other Services (increase by 4,100 positions); and Information (increase by 5,800 positions).

Several cities within the project area (Chula Vista, Imperial Beach, and National City), exhibit lower median house incomes compared to those of the state and the County as a whole (incorporated and unincorporated areas). Historical and current unemployment levels for San Diego County, the City of San Diego, and the City of Chula Vista are consistently lower than the state (Table 5.10-4). The City of Imperial Beach and National City, which are farther from the project area, have substantially lower median household income levels than those of the state. These cities also have higher unemployment rates compared with those of the state and the areas closest to the project area. Unemployment rates have not been forecasted, but are expected to follow the historical unemployment trend shown in Table 5.10-4.

TABLE 5.10-3
SAN DIEGO COUNTY EMPLOYMENT BY INDUSTRY:
HISTORICAL AND PROJECTED

Industry[1]	2000[2)]	2008[3)]	2010[2)]	2018 (Projected)[3)]
Total Farm	10,500 (0.8%)	10,500 (0.7%)	9,400 (0.8%)	10,700 (0.7%)
Construction	72,900 (5.9%)	76,100 (5.3%)	57,500 (4.7%)	90,500 (5.7%)
Education and Health Services	116,800 (9.5%)	137,300 (9.5%)	145,200 (11.9%)	165,700 (10.5%)
Financial Activities	72,100 (5.8%)	75,200 (5.2%)	68,000 (5.6%)	79,600 (5.0%)
Government	211,900 (17.2%)	225,100 (15.6%)	215,600 (17.7%)	246,200 (15.6%)
Information	39,000 (3.2%)	38,500 (2.7%)	35,400 (2.9%)	41,200 (2.6%)
Leisure and Hospitality	129,400 (10.5%)	164,000 (11.4%)	155,400 (12.8%)	176,800 (11.4%)
Manufacturing	123,300 (10%)	102,800 (7.1%)	91,100 (7.5%)	105,000 (6.6%)
Mining and Logging	300 (0.0%)	400 (0.0%)	300 (0.0%)	300 (0.0%)
Professional and Business Services	201,800 (16.3%)	215,100 (14.9%)	198,100 (16.3%)	239,100 (15.2%)
Trade, Transportation, and Utilities	214,800 (17.4%)	215,900 (15%)	195,100 (16.0%)	232,300 (14.7%)
Other Services	42,600 (3.4%)	48,400 (3.4%)	47,500 (3.9%)	51,600 (3.3%)
Total, All Industries	1,235,400	1,440,800	1,218,800	1,578,000

[1] Excludes: 1) Unincorporated self-employed (the estimated and projected employment numbers include all workers who are primarily self-employed and wage and salary workers who hold a secondary job as a self-employed worker); and 2) Unpaid family workers who are those persons who work without pay for 15 or more hours per week on a farm or in a business operated by a member of the household to whom they are related by birth or marriage.

Sources:

[2]California Employment Development Department, Labor Market Information Division, 2010b.

[3]California Employment Development Department, Labor Market Information Division, 2010c.

TABLE 5.10-4
EMPLOYMENT CHARACTERISTICS IN THE STATE AND STUDY AREA

Area	Median Household Income (2000 Census)	Unemployment (%)			
		2000	2004	2009	2010
City of Chula Vista	$44,861	4.6	5.6	11.3	12.4
City of Imperial Beach	$35,882	6.5	7.8	15.5	16.8
City of San Diego	$45,733	3.9	4.7	9.7	10.6
National City	$29,826	7.9	9.5	18.5	20.0
San Diego County	$47,067	3.9	4.7	9.7	10.6
California	$47,493	4.9	6.2	11.4	12.8

Sources:
State of California Employment Development Department, Labor Market Information Division, 2010c.
U.S. Census Bureau, 2010.

5.10.1.3 Public Services and Utilities

Fire Protection and Emergency Response. The project site is located in the East Otay Mesa Planning Area, which is located within the San Diego Rural Fire Protection District (RFPD) service territory. The RFPD operates 14 fire stations and serves over 26,500 people living in a 720 square mile area. The East Otay Mesa Planning Area contains two RFPD fire stations: Station 22 (Otay Mesa), which is temporarily located at the East Otay Mesa Detention Facility (i.e., interim fire station); and Station 26 (Donovan), which is located at the Donovan Correction Facilities. Both stations are located within 0.25 mile of the project site. Based on communication with RFPD, Station 22 (Otay Mesa) would be the first responder to project site (San Diego County RFPD 2010). Station 22 currently operates Type I and Type II fire engines, and will be adding an aerial ladder truck in January 2011. Station 26 (Donovan) is operated with Type I and Type III fire engines, and is staffed with full time firefighters. RFPD has identified the need to establish a full-time fire and emergency medical service in East Otay Mesa, and is currently in the process of developing a facility in conjunction with CAL FIRE and the San Diego Sheriff. The new facility is planned to be located at the intersection of Enrico Fermi Drive and Lone Star Road, which is less than one mile from the project site (County of San Diego 2010).

The RFPD has secured Automatic Aid agreements with both the City of Chula Vista and City of San Diego. Additionally, RFPD, the City of San Diego, City of Chula Vista, and County of San Diego are signatories to a County Mutual Aid Agreement. Furthermore, because the East Otay Mesa Planning Area is located within the State Responsibility area, the California Department of Forestry has the responsibility for wildland fires in East Otay Mesa (County of San Diego 2010a).

The RFPD coordinates emergency medical response and transportation with American Medical Responses (AMR). AMR staff includes emergency medical technicians, nurses, physicians, and support staff. AMR serves multiple areas in San Diego County, where AMR employs approximately 300 paramedics and emergency medical technicians (EMTs) and responds to approximately 60,000 calls annually (AMR 2010).

Medical Facilities. The project site is in the vicinity of several large medical care facilities. Kaiser Permanente operates the Otay Mesa Outpatient Medical Center (4650 Palm Avenue, San Diego), which provides urgent care, including surgery, internal medicine, occupation health, and

immediate care services, and is located 6.7 miles west of the project site. Sharp HealthCare has three medical facilities in the City of Chula Vista: the Sharp Rees-Stealy Otay Ranch Medical Center (1400 East Palomar Street, Chula Vista) is approximately 5.5 miles northwest of the project site and offers internal medicine, surgery, and other care services; the Sharp Chula Vista Medical Center (751 Medical Center Court, Chula Vista; approximately seven miles northwest of the project site) is a comprehensive care facility that includes a 343-bed hospital, 24-hour emergency services, surgery, and other care services; and Sharp Rees-Stealy Chula Vista (525 Third Avenue, Chula Vista; ten miles northwest of the project site) is an urgent care center that provides occupational treatment, internal medicine, otolaryngology, cardiology, surgery, and other services.

Law Enforcement. Law enforcement in the project area is served by the San Diego County Sheriff's Department. Currently, no sheriff facilities are located within East Otay Mesa, and the nearest sheriff station is the Imperial Beach Station, which is approximately 11.5 miles west of the project site. Patrol functions in the East Otay Mesa, including the project area are performed by several patrol units assigned to the East Otay Mesa area (County of San Diego 2010a). As discussed above, a permanent facility for both RFPD and sheriff stations are currently being planned at the intersection of Enrico Fermi Drive and Lone Star Road, which is less than one mile from the project site.

Schools and Libraries. The project area is served by two school districts: the San Ysidro Elementary School District and the Sweetwater Union High School District (SUHSD).

The San Ysidro Elementary School District is comprised of one (1) pre-school, five (5) elementary schools, one (1) K-8 elementary school, and one (1) middle school. During school year 2008-2009, the San Ysidro Elementary School District had a total enrollment of 4,851 students. The average class size schoolwide for 2008-2009 was 25.8 students with an average pupil-teacher ratio of 21.2, in comparison to the County average class size of 25.2 students per classroom and average pupil-teacher ratio of 20.8 (California Department of Education 2010a). The District issued a Long-Range Facilities Master Plan (May 2007) which identifies the metric for standard classrooms (excluding K-3 and special needs) at 30 students per classroom. The Master Plan also identified the need to construct additional school facilities, but also noted trends in declining enrollment (San Ysidro School District 2007). Based on the California Department of Education, subsequent academic years indicate that enrollment has continued to decline. Based on the threshold used for standard classroom sizes and declining enrollment, it is expected that the 2008-2009 school year enrollment of 4,851 students indicates that the San Ysidro Elementary School District has available remaining capacity. While limited data is currently available for the 2009-2010 school year, present records indicate that a total of 4,725 students were enrolled during the 2009-2010 school year (California Department of Education 2011a), which reflects a decline from the 2008-2009 school year. This trend is consistent with the Master Plan assessment identifying the continuing declining enrollment. However, the San Ysidro School District bases expected future enrollment upon the forecasted population levels, which as shown in Table 5.10-1, project an overall population growth.

SUHSD comprises 23 middle and high schools (grades 7 through 12). During the 2008-2009 school year, SUHSD had an enrollment of 42,804 students and an average class size of 27 students and pupil-teacher ratio of 23, which was greater than the County average class size of

25.2 students per class and pupil-teacher ratio of 20.8 (California Department of Education 2010b). These data indicate that SUHSD is operating at or exceeding enrollment capacity. While limited data is currently available for the 2009-2010 school year, present records indicate that a total of 42,209 students were enrolled during the 2009-2010 school year (California Department of Education 2011b), which indicates a decline in enrollment from the 2008-2009 school year. However, future enrollment is expected to increase, based upon the forecasted population levels provided in Table 5.10-1.

The project site is located within the San Diego County Public Library service area; however, currently no County branch libraries are located within the vicinity of the project site. Several libraries under the City of Chula Vista Public Library (Civic Center Branch, Eastlake Branch, and South Chula Vista Branch) and City of San Diego Public Library (San Ysidro Branch Library and Otay Mesa Branch Library) provide library services to the project region.

Water Supply and Sewer Services. The Otay Water District provides water service to the East Otay Mesa Specific Plan Area. Currently the County has plans for providing recycled water to the Specific Plan Area, and the Otay Water District will become the recycled water purveyor and distributor for recycled water. The East Otay Mesa Sewer Maintenance District provides sewer service to accommodate planned development within the East Otay Mesa Specific Plan Area.

Electrical Power and Natural Gas. San Diego Gas & Electric (SDG&E) is the regulated public utility that provides electrical power and natural gas service to San Diego County and the project area.

5.10.1.4 Fiscal Resources

Since the project site is located in unincorporated San Diego County, the County is the local agency with taxing authority on the project. As a result, in addition to federal and state funding, the County would experience direct fiscal impacts in the form of property and sales tax, permit fees, and other charges for services. Key factors impacting these revenues include real estate activity and consumer spending, which in turn, are greatly influenced by interest rates and employment levels (County of San Diego 2010b).

Based on actual totals for fiscal year 2009-2010, San Diego County operated a general fund of $3.1 billion, which reflected a 2.3 percent decrease from the actual general fund from fiscal year 2008-2009 (County of San Diego 2009). The majority of the 2009-2010 general fund source was received from taxes ($904.5 million, or 29 percent), followed by federal aid ($824.8 million, or 27 percent), and state aid ($815 million, or 26 percent) (San Diego County 2010b). In comparison, previous fiscal years have reflected an average General Fund annual growth rate of approximately five percent. For fiscal years 2010-2011 and 2011-2012, San Diego County proposes General Fund revised budgets of $3.7 billion and $3.5 billion, respectively (San Diego County 2010c).

5.10.2 Environmental Consequences

The criteria used in determining whether project-related socioeconomic impacts would be significant are presented in the California Environmental Quality Act (CEQA) Guidelines, Appendix G. Impacts attributable to the project are considered significant if they would:

- Induce substantial growth or reduction of population in an area
- Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere
- Induce a substantial increase in demand for public services and utilities
- Disrupt or divide the physical arrangement of an established community
- Result in substantial long-term disruptions to businesses

This analysis assesses the potential occurrence and significance of socioeconomic impacts for the construction and operation of PPEC. The methodology used to analyze the environmental justice aspects of the project is detailed in legislation and guidelines, as summarized in Section 5.10.3.

5.10.2.1 Population and Housing during Construction Phase

Estimated labor personnel requirements during the construction and commissioning phases of the project are shown in Table 5.10-5. As shown in Tables 5.10-3 and 5.10-6 and discussed further in Section 5.10.2.2, a large regional workforce is available within commuting distance to the project site and is anticipated to supply the labor required for the construction. It has been assumed for this analysis that manual labor staff would consist of local workers and contractor staff would be nonlocal workers temporarily working in the area. This analysis also assumes that during an average work week, nonlocal workers would lodge in local hotels and motels and then return home for the weekend. Local workers for PPEC are expected to commute to the project, rather than relocate.

The project estimates that the maximum percentage of nonlocal workers (excluding management) supporting the project during construction would be five percent. Based on this assumption, the maximum estimate of nonlocal workers, including the assumption that construction management staff are nonlocal, occurs during the sixth month, with potentially 49 nonlocal workers (Table 5.10-5). During construction, these workers are expected to temporarily lodge in hotels and motels within the project vicinity; following construction, the nonlocal workers are expected to return to their existing residences.

In consideration of the available local workforce and the number of nonlocal workers, PPEC does not anticipate significant impacts on housing in the project vicinity during project construction. Nonlocal workers are expected to temporarily lodge in hotels and motels within the project vicinity. Thus, based on the number of hotels and motels, and their vacancy rates in the project vicinity, PPEC anticipates a sufficient supply of lodging would be available to accommodate the workers. Additionally, because the project expects to be able to hire its additional staff from the existing labor force in the region, the project concludes that the impact on local housing will also be less than significant.

The proposed project site is located adjacent on the west side of the existing OMGP, and other areas surrounding the project site are undeveloped. PPEC does not involve changing, disrupting, or dividing the physical arrangement of an established community. Additionally, the project site is generally remote, such that construction activities would not result in disruption to businesses.

5.10.2.2 Employment during Construction

Project construction and commissioning is expected to occur over a total of 16 months and would require an average of 148 workers, with a peak workforce of 284 workers in the eighth month of construction. According to the Electric Power Research Institute's (EPRI's) report entitled, *Socioeconomic Impacts of Power Plants*, construction workers will commute as much as two hours to construction sites from their homes, rather than relocate. Representative construction trades and the associated available and projected number of trade workers in San Diego County are provided in Table 5.10-6. In general terms, the availability of approximately 78,770 (Standard Occupational Code [SOC] 47-200) construction workers in San Diego County in 2008 would more than suffice to meet the project workforce needs (approximately 0.4 percent of the regional workforce); although, a small number of workers in certain specialized trades may potentially come from outside the region (estimated maximum of 49 nonlocal workers during the sixth month of construction, as discussed in Section 5.10.2.1). Additionally, given the region's forecast growth in construction workforce (Table 5.10-6) and the current unemployment rates (Table 5.10-4), it is expected that the project would not encounter difficulties finding an available labor force within the daily commuting distance to supply the workforce required for construction.

PPEC would provide approximately $26 million (in 2010 dollars) in direct construction payroll. Indirect and induced employment as a result of project construction is discussed in Section 5.10.2.7.

5.10.2.3 Population and Housing during Operation

Permanent employees will commute as much as one hour to their workplace (EPRI, 1982). As shown in Table 5.10-7, the project is expected to require 12 full-time employees during operations. The data presented in Table 5.10-6 indicates that the regional workforce in San Diego County will be available to supply the workforce needed for project operation. As a result, it is expected that the 12 new employees are available and would be hired from the project region, rather than relocate. Operation of PPEC is not expected to cause an influx of operation workers to relocate to the local area and, therefore, will have no significant impact on the population and housing in the region.

Operation of PPEC does not involve changing, disrupting, or dividing the physical arrangement of an established community. Additionally, operation of the facility would not result in substantial long-term disruption to businesses.

5.10.2.4 Employment during Operation

PPEC will require a staff of 12 permanent employees for operation. These are long-term positions, and include six operating technicians, four maintenance technicians, and two management staff, as shown in Table 5.10-7. Permanent employees will commute as much as

one hour to their workplace (EPRI, 1982). As presented in Table 5.10-10, the regional workforce in San Diego County provides sizable resources of potential hires for the 12 positions. It is reasonably anticipated that the 12 positions required for the operation phase may be hired from a commuting distance from the proposed project. As a result, the proposed project does not expect to encounter substantial employee relocation effects for its operation. The average salary per employee is expected to be approximately $85,000 per year, including benefits. Combined, the annual operation payroll would be approximately $1,020,000 for PPEC.

5.10.2.5 Public Services

Fire Protection and Emergency Response. RFPD Station 22 (Otay Mesa), which is within 0.25 mile of the project facility, would be the first responder to incidents on the PPEC site (RFPD 2010). Based on communication with RFPD Station 22, fire department response time to the site in the event of an incident would be approximately four minutes (San Diego County RFPD Station 22 2010). County standards for response time are established in the Public Facility Element of the San Diego County General Plan. For the unincorporated East Otay Mesa area, the minimum acceptable response time for fire and emergency calls is five minutes; therefore, the RFPD Station 22 maintains the County standards. In the event that additional assistance is needed, resources at Station 26 (Donovan) as well as fire protection services from the City of Chula Vista and City of San Diego would be available to respond in accordance with the County Automatic Aid Agreement.

The project will take steps during construction and operation to minimize potential need for fire and emergency enforcement. Emergency services during construction would be coordinated with the RFPD and local medical facilities. As discussed previously in Section 5.10.1.3, an integrated paramedic service and multiple medical facilities are available in the project region. The project would be constructed and operated in accordance with all applicable safety standards required by the California Occupational Safety and Health Administration (Cal-OSHA) and San Diego County, as well as other applicable regulations and standards. During project construction, the general contractor would retain a safety manager, who would prepare and implement a site-specific safety plan. This plan would include contact information for a local urgent care facility for non-emergency physician referrals; availability of first-aid kits, including in construction offices; and first-aid training requirements for all foremen and supervisors and at least one person per construction crew.

As described in Section 3.5.10 (Fire Protection System), the PPEC facility will be designed with several fire protection systems. The facility design includes a firewater system that would be connected to the Otay Water District's potable water system for the primary water source, and a secondary (i.e., back-up) water supply from an onsite water storage tank. The firewater distribution system would be equipped with fire hydrants, sprinklers, and deluge systems, in accordance with National Fire Protection Association (NFPA) code. In addition, combustion turbines and associated electrical modules will be protected by a carbon dioxide (CO_2) fire protection system. Electronic and electrical equipment rooms will be equipped with smoke detection, alarm systems including alarm annunciation, supervisory, and trouble signals, and fire extinguishers. Hand-held CO_2 and dry chemical fire extinguishers will be located throughout the facility in accordance with NFPA standards.

TABLE 5.10-5
CONSTRUCTION LABOR PERSONNEL REQUIREMENTS PER MONTH

	Months After Commencement of Project Site Work																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Discipline	Construction Phase													Commissioning Phase			Total
Boilermakers	--	--	--	--	--	14	14	14	14	14	14	11	11	11	--	--	117
Carpenters/Cement Finishers	4	12	19	19	19	15	13	8	5	4	4	4	2	2	1	--	131
Electricians	3	11	9	9	19	28	36	53	55	51	29	17	10	5	5	5	345
Insulation Workers	--	--	--	--	--	--	--	8	8	8	17	4	3	--	--	--	48
Ironworkers	--	3	5	31	29	31	31	29	25	22	19	17	8	3	--	--	253
Laborers	6	11	15	20	20	20	20	20	20	17	12	8	4	3	2	2	200
Millwrights	--	--	--	7	8	13	28	41	41	41	30	9	9	1	1	1	230
Operating Engineers	8	8	8	9	9	9	9	9	9	4	1	1	1	1	1	--	87
Painters	--	--	--	--	--	4	9	9	9	4	4	2	2	2	--	--	45
Pipefitters	4	16	26	26	33	33	35	45	48	24	16	10	4	4	4	4	332
Sheet Metal Workers	--	--	--	--	--	3	6	7	9	7	7	7	2	1	--	--	49
Surveyors	4	5	5	3	3	2	2	2	2	2	2	2	2	2	--	--	38
Teamsters	4	3	5	3	2	2	2	2	2	2	2	2	1	1	1	--	34
Commissioning Group	--	--	2	2	2	2	2	2	2	2	4	5	5	5	5	5	45
Management Staff	17	21	24	35	37	40	35	35	34	34	27	25	19	13	12	12	420
Total Workforce	50	90	118	164	181	216	242	284	283	236	188	124	83	54	32	29	2,374

TABLE 5.10-6
CONSTRUCTION AND OPERATION OCCUPATIONAL PROJECTIONS OF EMPLOYMENT IN PROJECT REGION

Occupational Title	SOC[1] Code	Total Workforce, 2008	Total Projected Workforce, 2018	Projected Growth from 2008
Construction and Extraction Operations	470000	78,770	91,070	12,300 (15.6%)
Carpenters	472031	12,170	14,090	1,920 (15.8%)
Cement Masons and Concrete Finishers	472051	1,640	1,880	240 (14.6%)
Construction Laborers	472061	12,830	15,720	2,890 (22.5%)
Construction Trade Workers	47200	65,840	75,680	9,840 (14.9%)
Electrical Engineers	172071	1,660	1,720	60 (3.6%)
Electricians	472111	7,270	8,030	760 (10.5%)
Environmental Science and Protection Technicians, Including Health	194061	490	530	40 (8.2%)
Environmental Scientists and Specialists, Including Health	192041	1,560	1,710	150 (9.6%)
Industrial Truck and Tractor Operations	537051	4,090	4,380	290 (7.1%)
Insulation Workers	472131	230	250	20 (8.7%)
Mechanical Engineers	172141	2,880	3,050	170 (5.9%)
Operating Engineers and Other Construction Equipment Operators	472073	2,520	2,960	430 (17.0%)
Painters, Construction, and Maintenance	472141	7,660	8,310	650 (8.5%)
Plant and System Operators	518000	1,470	1,710	240 (16.3%)
Power Plant Operators	518013	310	350	40 (12.9%)
Plumbers, Pipe Fitters, and Steamfitters	472152	5,130	5,770	640 (12.5%)
Secretaries and Administrative Assistants	436000	40,370	44,280	3,910 (9.7%)
Supervisors, Construction	471000	7,510	9,060	1,550 (20.6%)
Surveyors	171022	570	590	20 (3.5%)
Welders, Cutters, Solderers, and Brazers	514121	2,510	2,660	150 (6.0%)

Source: State of California Employment Development Department, 2010e.
[1] SOC = Standard Occupational Code

TABLE 5.10-7
ESTIMATED PROJECT STAFF DURING OPERATIONS

Department	Position	Number of Employees	Shift	Workdays
Operations	Operators	4	Two 2-person shifts per day; overtime as required	7 days per week
Operations	Operations Supervisor	1	Standard 8-hour day	5 days per week
Maintenance	Maintenance Technician	4	Standard 8-hour day	5 days per week
Environmental	Environmental Technician	1	Standard 8-hour day	5 days per week
Management	Administrative Staff	1	Standard 8-hour day	5 days per week
Management	Plant Manager	1	Standard 8-hour day	5 days per week

Additionally, as mentioned previously, a permanent facility for both RFPD and sheriff stations are currently being planned at the intersection of Enrico Fermi Drive and Lone Star Road, which is less than one mile from the project site. Properties located within the East Otay Mesa area, which would be within the service area for the new facility, would be assessed a forthcoming CFD 09-1 Special Tax. Furthermore, the RFPD requires new developments to be assessed a Fire Mitigation Fee, which would generate additional funding required for the RFPD fire protection needs, including the development of the planned new facility (County of San Diego 2010a). The PPEC project's contribution to these funding mechanisms (i.e., the CFD 09-1 Special Tax and Fire Mitigation Fee, as described in further detail in Section 5.10.2.7) would help provide for expanded fire protection services in the project area.

In summary, based on the project fire protection design considerations and practices during facility construction and operation, the RFPD Station 22 current performance standards, and the project funding of the Fire Mitigation Fee and forthcoming CFD 09-1 Special Tax, the project is not expected to result in significant impacts on fire protection and emergency response services.

Medical Facilities. The project area is served by several hospitals equipped to provide 24-hour emergency room, acute care, and cardiology capabilities. Based on the project's health and safety practices, as described in Section 5.17, Worker Safety, and the available medical facilities identified in the vicinity of the project site (Section 5.10.1.3), significant impacts on medical services are not expected during construction and operation of PPEC.

Law Enforcement. The San Diego County Sheriff Department Imperial Beach Station would provide law enforcement services to the project site. In the event that an emergency call is placed from the project site, the Imperial Beach Station estimates that law enforcement response times would require between five to ten minutes for priority calls (San Diego County Sheriff Department, Imperial Beach Station 2010), and between 17 to 59 minutes for non-priority calls (County of San Diego 2010a). County standards for response time are established in the Public Facility Element of the San Diego County General Plan. For the unincorporated East Otay Mesa area, the minimum acceptable response time for priority calls is eight minutes, and 16 minutes for non-priority calls. As a result, the Imperial Beach Station response time to the project site area currently does not fully conform to the County General Plan response times. However, the County identified the need for additional law enforcement resources, and therefore has implemented plans to develop additional sheriff resources. These resources include provisions for a permanent new Sheriff facility that would be funded through the CFD 09-1 Special Tax applied as part of the assessed property tax in the Otay Mesa planning area (County of San Diego 2010a) (see Section 5.10.2.7).

The permanent facility serving for both RFPD and sheriff stations is currently being planned to be located at the intersection of Enrico Fermi Drive and Lone Star Road, which is less than one mile from the project site. Operation of this facility would increase law enforcement services, and is intended to provide the Sheriff Department with adequate resources to achieve the County standards.

The project will take steps during construction and operation to minimize potential need for law enforcement. During construction, the project includes installation of secured fencing around the entire project site (including laydown area) with controlled access. Upon completion of the

project, a permanent chain-link security fence will be installed, encompassing the facility. A controlled-access gate will be located at the entrance from Alta Road. Additionally, the facility switchyard will be enclosed within a separate chain-link fence with access gates, for worker safety. The project site would have 24-hour security measures using either surveillance devices or personnel (i.e., security guards). Furthermore, operation of the facility would result in negligible increases in population, if any, that would otherwise increase demand in law enforcement services.

In summary, based on the project's proposed safety and security practices, the project's operational workforce needs, and contribution of fair share funding for the planned permanent sheriff station, construction and operation of the PPEC would not be expected to substantially affect the Sheriff Department response services.

Schools and Libraries. Because a sufficient labor pool exists within commuting distance of the proposed project, it is anticipated that construction workers would commute to the project site, and nonlocal construction workers would stay in hotels and motels throughout the extent of construction, rather than relocate. Based on the regional workforce and existing high unemployment rates, the 12 additional employees required during project operation are expected to be hired within a commuting distance to the facility. As a result, the proposed project is expected to result in no or negligible impacts on schools and libraries during the project construction and operation.

5.10.2.6 Utilities

The following paragraphs summarize the project's approach to evaluate impacts on public utilities. PPEC will result in no significant impact on applicable utility services in the project vicinity.

Electricity. When the facility is shut down, electricity for the project site would be provided by SDG&E's existing power grid by backfeeding from the SDG&E tie line. When the facility generation is in operation, the balance of plant auxiliary power requirements would be supplied internally.

Natural Gas. Natural gas supply for the project is proposed to be delivered to PPEC through either Route A, which would run approximately 8,000 feet south along Alta Road to near the U.S.-Mexico border, at which point it would connect to the existing SDG&E pipeline. Route B would extend approximately 2,375 feet south along Alta Road, turn west on Otay Mesa Road, and continue approximately 7,920 feet to Harvest Road at which point it would connect to the existing SDG&E natural gas pipeline (Figure 3.3-3, Potential Linears) for a total of approximately 10,300 feet. Both possible routes would connect into an existing SDG&E trunkline, which would be capable of providing an adequate supply for the facility operation.

Water Supply. The project will make a short connection to the potable service system either at an existing 12-inch main along Calzada de la Fuente, or at an existing 24-inch main along Alta Road. As described in Section 3.0, the Otay Water District has plans to construct a new recycled water distribution system in the Otay Mesa area. Upon the District's commissioning of the proposed Otay Mesa area recycled water system, the project will make a connection to a new

recycled water main either along Calzada de la Fuente or along Alta Road. Process water uses include plant service water, cooling system make-up, combustion turbine injection, combustion turbine evaporative cooler make-up, and secondary fire protection water. PPEC's potable water needs for drinking water, showers, sinks, toilets, eye wash stations, safety showers, and primary fire protection water would be supplied through a connection to the Otay Water District. Refer to Section 5.5, Water Resources, for further information.

Sewage System. During construction, the project would provide portable restrooms for personnel. During operation, wastewater would be disposed through either a connection to an existing 12-inch sewer main along Calzada de la Fuente along the north project site boundary, or to an existing 15-inch sewer main located along Alta Road, along the west project site boundary.

5.10.2.7 Fiscal Resources

Property Tax. Based on the San Diego County Assessor's Office, the San Diego assessor has placed no value on the project site property. However, following construction of the project, the facility will be reassessed for property value and tax rate. California property tax assessments on electric generation facilities larger than 50MW are performed at the state level through the California Board of Equalization (BOE). The BOE will determine the Unitary Market Value (UMV) of the facility, based upon the project's cost, revenue, expenses, and land value, and then communicate the UMV to San Diego County (BOE, 2008). San Diego County is then responsible for assessing and collecting the property tax based on the BOE's assessed UMV.

The project capital cost is estimated to be in excess of $250 million. While the UMV determination is an extensive assessment process, the BOE estimates that a facility's UMV may be roughly estimated to be the initial capital cost, and that the applied tax rate would be approximately 1.2 percent. Since the initial capital cost of the facility is estimated to be in excess of $250 million, the estimated property tax for the project's first year of operation is expected to be approximately $3 million.

Community Facilities District (Number 09-1). As mentioned previously, the RFPD and Sheriff Department have plans to develop a permanent fire protection and sheriff facilities near the project site (at the intersection of Enrico Fermi Drive and Lone Star Road). To fund these facilities, the RFPD, with cooperation with the Sheriff's Department, implemented a special tax district, CFD 09-1 that would be assessed and applied in property tax collected in the East Otay Mesa areas served by the RFPD and Sheriff Department. The County Assessor would apply the special tax to property owners, including those of the PPEC site. The CFD 09-1 Special Tax is expected to be collected each fiscal year commencing in fiscal year 2010-2011. As of December 2010, the District rate and method of apportionment has not yet been finalized (Nissen 2010). Upon approval and commencing in the property taxes for fiscal year 2010-2011, the CFD 09-1 district special tax would be added to the PPEC site property tax rate.

Sales Tax. During construction, local commodities expenditures are expected to be approximately $7 million and would occur within San Diego County. San Diego County sales tax and allocations resulting from local expenditures are presented in Table 5.10-8. As shown,

the estimated total sales tax paid during construction is $612,500 for the County. Estimated local expenditures and sales tax are reported in 2010 dollars.

During project operation, local commodities expenditures are expected to be approximately $970,000 (based on 2010 dollars) annually and would occur within San Diego County. The estimated yearly operations sales tax and allocations are presented in Table 5.10-8. As shown, total sales tax paid in San Diego County annually during operation is estimated at $84,875, based on 2010 dollars.

TABLE 5.10-8
PPEC ESTIMATED CONSTRUCTION AND OPERATION
LOCAL SALES TAX IN SAN DIEGO COUNTY

Recipient	Percentage Sales Tax Allocation[1]	PPEC Construction Estimated Sales Tax[2] (2010 U.S. dollars)	PPEC Operation Estimated Sales Tax (2010 U.S. dollars)
Statewide Base Sales/Use Tax (8.25%)			
State General Fund	6.0	$420,000	$58,200
State Fiscal Recovery Fund (to pay off Economic Recovery Bonds [2004])	0.25	$17,500	$2,425
State Local Public Safety Fund (supports local criminal justice activities)(1993)	0.50	$35,000	$4,850
State Local Revenue Fund (supports local health and social services programs)(1991 Realignment)	0.50	$35,000	$4,850
Local County Transportation Funds	0.25	$17,500	$2,425
Local Allocation to City and County Operations	0.75	$52,500	$7,275
County District Tax3			
San Diego County Regional Transportation Commission (SDTC)	0.50	$35,000	$4,850
Total Sales/Use Tax, San Diego County	**8.75**	**$612,500**	**$84,875**

[1] California State Board of Equalization (CBOE), 2010.
[2] Sales tax is based on the estimated value of materials and supplies purchased during construction ($7,000,000) and operation ($970,000) in San Diego County.
[3] Tax rate for jurisdictions within San Diego County, with the exception of: the City of El Cajon, which has an additional 0.50% Service Preservation Transactions and Use Tax and 0.50% Public Safety Facilities Transactions and Use Tax; City of La Mesa, with an additional 0.75% Transactions and Use Tax; National City, which has an additional 1.0% Transactions and Use Tax; and City of Chula Vista, which has an additional 0.50% Transactions and Use Tax.

Fire Mitigation Fee Program. As mentioned in Section 5.10.2.5, the RFPD requires new developments to be assessed a Fire Mitigation Fee, which would generate additional funding required for the RFPD fire protection needs, including the development of the planned new facility (County of San Diego 2010a). The Fire Mitigation Fee is considered a self-mitigating measure for developers to offset the additional fire service costs of the proposed new development, and is applied at $0.46 per square foot of covered and enclosed, non-residential space. The calculated fees would be based on the final design for construction, and would be assessed prior to issuance of the project building permit.

School Impact Fees. The PPEC site is located within the San Ysidro Elementary School District and Sweetwater Union High School District boundaries. In accordance with California Government Code 65995, the current Statutory School Fees in effect at the end of fiscal year 2009-2010 applicable to new commercial or industrial development is $0.19 and $0.26 per square foot of covered and enclosed, non-residential space constructed for the San Ysidro Elementary School District and Sweetwater Union High School District, respectively. The school district fees on new commercial and industrial construction provide a self-mitigating measure for development projects to fund the needs for expanded or new school facilities. The project would be assessed a school district fee based on the "chargeable covered and enclosed space," which is defined as the covered and enclosed space determined to be within the perimeter of the industrial structure during plan review prior to issuance of building permits.

Indirect and Induced Economic Effects. The following sections assess expected secondary economic effects during construction and operation of PPEC. *Indirect effects* represent the impacts (e.g., change in employment) caused by the iteration of industries purchasing from industries resulting from direct final demand changes. *Induced effects* represent the impacts (e.g., change in employment) on all industries caused by the expenditures of new household income generated by the direct and indirect effects of direct final demand changes. The indirect and induced economic effects of the project are considered beneficial impacts on the project region. IMPLAN Professional Version 2.0.1025 was used to create an input/output model assessing these economic impacts.

Indirect and Induced Economic Effects during Project Construction. Construction activity would result in secondary economic and employment impacts (indirect and induced impacts) that would occur within San Diego County. The affected project region was determined based on San Diego County's available labor force within reasonable commuting distance to serve the project's construction needs and locations where supplies and materials are expected to be purchased.

Indirect and induced income and spending effects would occur because of purchases of goods and services by firms involved with construction. Indirect employment effects and induced employment result from construction workers spending their income in their local area and typically lag behind direct effects by six to 12 months.

The modeling input was based on the project's estimated initial capital cost of $300 million for project construction, expenditures of $7 million for locally-purchased materials and services, and an average direct construction employment of 148, having a combined payroll of $26 million. IMPLAN Pro Sector 41 (Other New Construction, Power Plants) was used for this analysis, and economic estimates were based on 2010 dollars. The estimated indirect and induced employment in San Diego County resulting from PPEC construction comprises 35 and 177 jobs, respectively. These additional jobs result from the estimated $7 million expenditures in local construction supplies and equipment and approximately $26 million in payroll over the PPEC construction timeframe. These additional jobs would result from local construction expenditures as well as from spending by local construction workers. These secondary jobs are expected to be filled locally and regionally. Assuming an average direct construction employment of 148, the employment multiplier associated with the construction

of PPEC is approximately 2.43 ([148 + 35 + 177]/148). This project construction employment multiplier is based on a Social Accounting Matrix (SAM) type model.

Indirect and induced income impacts were estimated at $2,070,145 and $78,083,101, respectively. Assuming a total annual local construction expenditure (payroll and materials and supplies) of $33 million ($26 million in payroll and $7 million in supplies), the project income multiplier based on a Type SAM model is approximately 1.31 ([$33,000,000 + $2,070,145 + $8,083,101]/$33,000,000).

The proposed project's output describes the value of production by the industry. Output includes spending for materials and supplies (nonlabor costs), plus value added, which comprises employee compensation, proprietary income, other property income, and indirect business taxes. PPEC's indirect and induced outputs for dollars generated by other industries supplying construction of power facilities are estimated at $4,890,823 and $24,378,854, respectively. The project output multiplier based on a Type SAM model is approximately 1.75 ([$39,179,996 + $4,890,823 + $24,378,854]/$39,179,996).

Indirect and Induced Effects from Project Operation. Similar to project construction, operation of PPEC would result in indirect and induced economic impacts in San Diego County. As with the construction phase, the affected project region during operation was similarly determined based on the available labor force within reasonable commuting distance and reasonable locations where operations and maintenance supplies and materials are expected to be purchased. Unlike construction indirect and induced impacts, operational indirect and induced impacts represent *permanent* increases in area jobs, income, and spending. These impacts would lag behind direct effects by 6 to 12 months.

The modeling input was based on an estimated annual operations and maintenance (O&M) budget of approximately $15 million, local operation expenditures of $970,000 for materials required to maintain and operate the facility, and an average direct employment of 12 people, having a combined payroll of $1,020,000. Fuel costs were not included in the IMPLAN modeling because natural gas prices are variable and unknown and the effects of the purchase would not likely occur within the project region. IMPLAN Pro Sector 30 (Power Generation and Supply) was used for this analysis, and economic estimates were based on 2010 dollars.

The resulting indirect and induced effects of the PPEC operation would be two and seven jobs, respectively, within San Diego County. These additional jobs result from the $15 million in O&M costs and $1,020,000 in payroll. Assuming a direct operation employment of 12, the employment multiplier associated with PPEC's operation is approximately 1.76 ([12 + 2 + 7]/12). The project operation employment multiplier is based on a SAM type model.

Indirect and induced income impacts are estimated at $110,468 and $289,506, respectively. The income multiplier associated with PPEC's operational phase is approximately 1.2 ([$1,990,000 + $110,468 + $289,506]/$1,990,000), which is based on a SAM type multiplier using 2010 dollars.

The project's indirect and induced outputs for dollars generated by other industries supplying power generation were estimated at $274,812 and $875,329, respectively. The project output multiplier is based on a Type SAM model using 2010 dollars and is approximately 1.35 ([$3,280,000 + $274,812 + $875,329]/$3,280,000).

5.10.3 Environmental Justice

In response to Executive Orders (EO) 12250 and 12898, the California Energy Commission (CEC) requires environmental justice analysis in the siting process. President Carter signed EO 12250 in 1980, which directed federal agencies to adopt *disparate impact* regulations. Disparate impacts may be claimed if a minority community can demonstrate unique, different, and negative effects on their population as a result of the actions of a state's permitting agency (Scoll 2003).

EO 12898 directs each federal agency and state agencies such as CEC that receive federal assistance to "make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high or adverse human health effects of its programs, policies, and activities on minority populations and low-income populations…" In this respect, the CEC considers a "high and adverse" environmental or health effect disproportionately falling upon a minority or low-income population in its analysis of environmental justice.

5.10.3.1 Environmental Justice Screening Analysis

In accordance with U.S. Environmental Protection Agency (USEPA) published guidelines for addressing environmental justice concerns, *Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA [National Environmental Policy Act] Compliance Analyses* (1998), the following criteria may be used during environmental justice screening and impact assessment:

- The minority or low-income population may be identified for the affected area if the minority or low-income population of the affected area is greater than 50 percent of the affected area's general population.

- The minority or low-income population percentage of the area is "meaningfully greater" than the minority population percentage in the general population or other appropriate unit of geographic analysis.

- Whether potential environmental impacts attributable to the project would fall disproportionately on the minority or low-income residents of the community.

In the following analysis, the percentages of minority and low-income populations were assessed for each census tract that falls entirely or partly within the project environmental justice area (EJ area), which is defined as a 6-mile radius around the proposed project site. Affected populations were characterized in terms of ethnic composition and poverty status using 2000 U.S. Census data, as presented in Table 5.10-9 and depicted on Figure 5.10-1 (Minority Population Distribution by Census Tracts Within 6 Miles of Project), and Figure 5.10-2 (Poverty Population Distribution by Census Tracts Within 6 Miles of Project).

To determine whether the project EJ area contains a minority or poverty population meaningfully greater than the regional geographic context, the project EJ area data were compared with similar data collected for San Diego County. For the purposes of this assessment, the portion of the project's EJ area within Mexico (approximately 1.5 miles south of the project site) was not included in this EJ analysis. Impacts were then assessed by determining whether disproportionate impacts associated with the proposed project would occur in an area occupied by low-income or minority populations as defined above.

Minority Population Analysis. The project EJ area overlays 11 census tracts, which consist of 45,461 inhabitants (Table 5.10-9 and Figure 5.10-1). Of the census tracts, four tracts have minority populations greater than 50 percent. Within the applicable EJ area, 40.1 percent of the inhabitants are minority residents. As a result, inhabitants in the project EJ area do not consist of minority populations exceeding the 50 percent threshold.

According to USEPA guidance, in addition to the 50 percent threshold, minority populations may also be identified where the proportion of minority residents within the project EJ area are "meaningfully greater" than the region as a whole. As indicated in Table 5.10-9, San Diego County has an overall minority percentage of 33.5 percent, which is lower than the project EJ area minority population by 6.6 percentage points. The project EJ area contains a higher percentage of minority inhabitants than that of San Diego County; however, because the difference (i.e., 6.6 percentage points) is not substantial, this analysis determines that the percentage of minority population within the project EJ area does not constitute a "meaningfully greater" percentage than the project geographic context.

As a result, this analysis concludes that no minority populations are present that: 1) exceed the 50 percent threshold within the project EJ area; and 2) are considered meaningfully greater than that of the project region.

Low-income Population Analysis. For the purposes of the low-income analysis, *low income* is defined as individuals living below the federally-adopted poverty levels (U.S. Department of Health and Human Services 2010), as presented in Table 5.10-10. As shown in Table 5.10-9 and Figure 5.10-2, no census tracts within the project EJ area contain low-income populations exceeding the 50 percent threshold. The project EJ area also contains a lower percentage of low-income population (3.1 percent) in comparison to San Diego County (12.4 percent). As a result, this analysis concludes that no poverty populations are present that: 1) exceed the 50 percent threshold within the project EJ area; and 2) are considered meaningfully greater than that of the project region.

Evaluation of Disproportionate Impacts. Typical project impacts associated with environmental justice concerns for power generation projects such as the proposed project pertain to air quality, residential or business displacements, noise, public health, public service, traffic, and water quality impacts. The proposed project, as designed, would not emit significant emissions of criteria pollutants that could lead to health effects in the project vicinity (Section 5.2, Air Quality); would not involve displacement of residences or businesses or be expected to result in negligible effects to local housing (Section 5.10.2.3); would not result in significant noise or health impacts at the residences (Section 5.12, Noise); would not result in significant emission of toxic air contaminants that could increase the ambient cancer risk or result in

noncancer health effects above established thresholds (Section 5.16, Public Health and Safety); and would not involve wastewater discharges that could affect drinking water supplies and quality (Section 5.5, Water Resources). The proposed project may result in temporary impacts to public transportation needs; however, these impacts would not be significant (see Section 5.11, Traffic and Transportation).

As previously determined, no minority or low-income populations are present within the project EJ area that: 1) exceed the 50 percent threshold within the project EJ area; and 2) are considered meaningfully greater than that of the project region. Furthermore, the proposed project would not result in potential environmental impacts having the likelihood of affecting populations more susceptible to pollution, environmental degradation, and public transportation. In summary, this analysis concludes that the proposed project would not result in environmental justice impacts.

5.10.4 Cumulative Impacts

Section 5.18, Cumulative Impacts, identifies other proposed projects considered in cumulative socioeconomic impacts. The potential for cumulative socioeconomic impacts exists where other projects are proposed in the region, construction schedules overlap, and employment opportunities are created. Projects with overlapping construction schedules and/or operations could cumulatively result in a demand for labor that cannot be met by the project area labor pool, which could lead to an influx of nonlocal workers and their dependents. Consequently, this potential population increase could impact socioeconomic resources.

It is important to note however, that the current economic downturn has generally slowed economic growth, and has resulted in delayed development. As a result, while the identified pending projects have active permitting status, the actual project permitting and/or construction timeframes occur further in the future than previously planned, and it is possible that fewer projects than identified will be developed during the PPEC construction timeframe. As indicated in the workforce data provided in Section 5.10.2.2 and 5.10.2.4, the project construction (peak workforce of 284 workers) and operation (12 permanent workers) represents a small portion of the existing and projected regional workforce in San Diego County. In conjunction with the current high unemployment rates in the project study area, as assessed in Section 5.10.1.2, construction and operation of the PPEC is not expected to result in a cumulatively significant demand on the regional workforce. Based on the large available workforce and employment base in the project region, the PPEC construction and operation workers are expected to commute and not relocate to the project site; thus, the project is expected to result in minimal, if any, impacts to increasing the project area population and housing demand. Therefore, the project's incremental contribution to population and housing is not expected to result in cumulative significant impacts.

Additionally, the PPEC's minimal (if any) impacts to increasing population would similarly result in minimal increases to the demand for fire protection, law enforcement, and education that would otherwise result from an increased population base. As described in Section 5.10.2.5, PPEC incorporates fire protection and security measures into the project design and practices to reduce the potential incidents that would increase demand for fire department and law enforcement services. Furthermore, as identified in Section 5.10.2.7, the project would be required to provide taxes and fees designated to fund the RFPD and Sheriff Department

resources. The County applies these taxes and fees as a self-mitigating measure for developers, which mitigates for increase cumulative demands for fire protection and law enforcement services associated with new and existing developments. In summary, with implementation of the project fire protection and security design measures and practices, and required payment of County taxes and fees, the project's incremental contribution to cumulative public service impacts is expected to be insignificant.

The project would generate revenue for the County in the form of taxes and fees, as described in Section 5.10.2.7. Additionally, the project would result in direct purchases and indirect and induced economic effects in the County area (Section 5.10.2.7). Considered with other proposed projects, the project would contribute cumulative, beneficial fiscal impacts.

TABLE 5.10-9
ETHNIC AND ECONOMIC CHARACTERISTICS OF PROJECT REGION AND WITHIN SIX MILES OF THE PROPOSED PROJECT

Census Tract Number	Total Population 2000	White Population (%)	Minority Population (%)	Individuals Above Federal Poverty Level (%)	Individuals Below Federal Poverty Level (%)
100.14	8,312	34.1%	65.9%	100%	0.0%
100.15	1,064	52.4%	47.6%	71%	29.4%
133.10	2,290	47.3%	52.7%	100%	0.2%
133.11	7,897	49.4%	50.6%	99%	0.6%
133.13	1,277	46.1%	53.9%	96%	3.7%
134.16	4,155	64.6%	35.4%	95%	4.7%
134.18	6,004	57.7%	42.3%	97%	3.1%
134.19	2,293	57.9%	42.1%	99%	1.1%
213.02	4,412	86.0%	14.0%	94%	6.4%
213.03	5,342	85.1%	14.9%	96%	3.7%
213.04	2,415	86.8%	13.2%	96%	3.7%
Census Tract Total Within 6-Mile Radius	45,461	59.1% (26,878)	40.1% (18,583)	96.9%[1] (44,073)	3.1%[1] (1,388)
San Diego County, Total	2,813,833	66.5% (1,871,839)	33.5% (941,994)	88.0% (2,475,434)	12.4% (338,399)

Source: U.S. Census 2000.
[1]Note: Minor arithmetic discrepancies occur because of data rounding.

TABLE 5.10-10
FEDERAL POVERTY THRESHOLDS

Size of Family	Poverty Threshold
1	$10,830
2	$14,570
3	$18,310
4	$22,050
5	$25,790
6	$29,530
7	$33,270
8	$37,010

Source: U.S. Department of Health and Human Services. 2010 Poverty Guidelines.

5.10.5 Mitigation Measures and Conditions of Certification

No significant adverse impacts pertaining to socioeconomics have been identified for PPEC. No mitigation measures or conditions of certification are proposed.

5.10.6 Applicable Laws, Ordinances, Regulations, and Standards (LORS)

Table 5.10-11 summarizes the LORS applicable to the socioeconomic impacts of PPEC.

TABLE 5.10-11
LORS APPLICABLE TO SOCIOECONOMICS

LORS	Description	AFC Conformance (Section)
Federal		
Executive Order 12250	Federal agencies to adopt disparate impact regulations, where a minority community may claim a "disparate impact" when it can demonstrate unique, different, and negative effects resulting from the state's permitting agency.	5.10.3
Executive Order 12898	Agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.	5.10.3
State		
California Constitution, Article 13, Section 3(b)	Property owned by a local government (except those that are outside of its boundaries) is exempt from property taxes.	5.10.2.7
Government Code Sections 65302 et seq.	Each city and county is required to develop a General Plan to guide planning and development within a jurisdiction.	5.10.6.5
Government Code Sections 65995-65997 (Education Code Section 17620)	Includes provisions for levies against development projects in school districts.	5.10.2.7
Local		
San Diego County General Plan, Part XII Public Facility Element	**Policy 2.1:** New development shall be required to finance its full and fair share of the facility and equipment needs that it generates. *Implementation:* Utilize the Fire Mitigation Fee Ordinance to enable fire protection agencies to meet the facility and equipment needs generated by new development.	5.10.2.7
San Diego County General Plan, Part XII Public Facility Element	**Policy 3.2:** New development shall be required to contribute toward financing sheriff facilities toward achieving the short term objective. *Implementation:* When the Sheriff's Department determines that additional or expanded sheriff facilities are needed, new development shall be required to contribute towards the cost of new or expanded facilities to achieve the short-term objective for the unincorporated area. The costs may include an impact fee paid by new development, direct payments by the developer for services, construction of facilities, or other means acceptable to the County.	5.10.2.7
County of San Diego East Otay Mesa Specific Plan, Public Facilities Element	**Policy F-7:** Property Owners in East Otay Mesa shall contribute their fair share toward financing a sheriff station. *Implementation:* A Community Facilities District was formed in 2009 for the purpose of constructing interim and permanent law enforcement facilities in East Otay Mesa. The interim sheriff station became operational in 2010.	5.10.2.7

5.10.6.1 Federal

Executive Order 12250. As discussed in Section 5.10.3, EO 12250 requires federal agencies to adopt disparate impact regulations, where a minority community may claim a *disparate impact* when it can demonstrate unique, different, and negative effects resulting from the state's permitting agency. Refer to Section 5.10.3 for environmental justice screening related to PPEC.

Executive Order 12898. Also discussed in Section 5.10.3, EO 12898 *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (1994) requires federal government agencies to identify and address disproportionately high and adverse effects of federal action on the health and environment of minority and low-income populations. The USEPA has adopted the Order, and the California Environmental Protection Agency has established a working group for environmental justice concerns. The CEC receives federal funding and therefore must address environmental justice concerns associated with projects under its permitting jurisdiction. Refer to Section 5.10.3 for environmental justice analysis related to PPEC.

5.10.6.2 State

Government Code Sections 65995-65997 and Education Code Sections 17620-17626. In the event that new development impacts schools to the extent of requiring new construction or reconstruction, Government Code Sections 65995-65997 and Education Code Sections 17620-17626 give governing boards the authority to collect developer fees for residential, commercial, and industrial development within a school district. To assess a fee, the district must conduct a Fee Justification Study that reasonably demonstrates a relationship between the fee and the type of development to be assessed. The study includes consideration for the number of employees increased as a result of that development and the housing provided for those employees.

Government Code Sections 65300-65303.4. California State Planning Law (Government Code Sections 65300-65303.4) requires that each city and county adopt a General Plan consisting of seven mandatory elements to guide planning and development within the jurisdiction. The San Diego County General Plan and San Diego County East Otay Mesa Specific Plan are described below in Section 5.10.6.3.

5.10.6.3 Local

Policies and associated implementation measures from the San Diego County General Plan and San Diego County East Otay Mesa Specific Plan applicable to the PPEC project are discussed below.

San Diego County General Plan, Part XII Public Facility Element, Policy 2.1. New development shall be required to finance its full and fair share of the facility and equipment needs that it generates.

Implementation: Utilize the Fire Mitigation Fee Ordinance to enable fire protection agencies to meet the facility and equipment needs generated by new development.

San Diego County General Plan, Part XII Public Facility Element, Policy 3.2. New development shall be required to contribute toward financing sheriff facilities toward achieving the short term objective.

Implementation: When the Sheriff's Department determines that additional or expanded sheriff facilities are needed, new development shall be required to contribute towards the cost of new or expanded facilities to achieve the short-term objective for the unincorporated area. The costs may include an impact fee paid by new development, direct payments by the developer for services, construction of facilities, or other means acceptable to the County.

East Otay Mesa Specific Plan, Public Facilities Element, Policy F-7. Property Owners in East Otay Mesa shall contribute their fair share toward financing a sheriff station.

Implementation: A Community Facilities District was formed in 2009 for the purpose of constructing interim and permanent law enforcement facilities in East Otay Mesa. The interim sheriff station became operational in 2010.

5.10.6.4 Involved Agencies and Agency Contacts

Various public service agencies were contacted in the course of the socioeconomics investigation to check on levels of activity and expected impacts of the project. Table 5.10-12, Involved Agencies and Contacts, lists those agencies.

TABLE 5.10-12
INVOLVED AGENCIES AND CONTACTS

Subject	Agency	Contact/Title	Telephone
Fiscal Resources	San Diego County Assessor/Recorder/County Clerk 1600 Pacific Highway San Diego, CA 92101-2400	Staff	(858) 505-6262
Fiscal Resources	San Diego County Treasurer-Tax Collector 1600 Pacific Highway - Room 162 San Diego, CA 92101	Staff	(877)829-4732
Education	San Ysidro Elementary School District 4350 Otay Mesa Road San Ysidro, CA 92173	Manuel H. Paul, Superintendent	(619) 428-4476
Education	Sweetwater Union High School District 1130 Fifth Avenue Chula Vista, CA 91911-2896	Dianne Russo, CFO	(619) 691-5550
Fire Protection Services	San Diego Rural Fire Protection District (Headquarters) 14024 Peaceful Valley Ranch Road Jamul, CA 91935	Chief Dave Nissen	(619) 669-1188
Fire Protection Services	Station #22 (Otay Mesa) 446 Alta Road San Diego, CA 92154	Staff	(619) 661-2820
Law Enforcement	San Diego County Sheriff's Imperial Beach Station 845 Imperial Beach Boulevard Imperial Beach, CA 91932-2796	Staff	(619) 498-2400 (Business)

5.10.6.5 Applicable Permits, Permit Schedule, and Fees

Table 5.10-13 summarizes the socioeconomic permits and fees applicable to PPEC. Please refer to Section 5.10.2.7 for a discussion of the identified fees. As shown, no applicable permits are required related to socioeconomic resources.

TABLE 5.10-13
APPLICABLE SOCIOECONOMIC PERMITS AND FEES

Jurisdiction	Potential Permit and Fee Requirements
Federal	No permits or fees have been identified
State	No permits or fees have been identified
Local	
San Ysidro Elementary School District and Sweetwater Union High School District	Statutory School Fee, collected during the project's application for the project building permit (for an applicable structure).
San Diego Rural Fire Protection Department (RFPD)	Fire mitigation fee, collected during the project's application for the project building permit (for an applicable structure).

5.10.7 References

American Medical Response. Website: http://www.amr.net/. Accessed December 13, 2010.

Briceno, Joe. 2010. California Employment Development Department Labor Market Consultant, San Diego County. Personal communication with URS (Jennifer Wu) on December 14, 2010.

California Department of Education, Educational Demographics Office. 2011a. 2009-10 Selected District Level Data, San Ysidro Elementary District. Website: http://cde.ca.gov. Accessed January 17.

2011b. 2009-11 Selected District Level Data, Sweetwater Union High. Website: http://cde.ca.gov. Accessed January 16.

2010a. 2008-09 Selected District Level Data, San Ysidro Elementary District. Website: http://cde.ca.gov. Accessed December 13.

2010b. 2008-09 Selected District Level Data, Sweetwater Union High. Website: http://cde.ca.gov. Accessed December 13.

California Department of Finance. 2010a. County Estimates Ranked by Size, Numeric, and percent Change Since July 1, 2009. July.

2010b. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2001-2010, with 2000 Benchmark. April.

California State Board of Equalization (CBOE). 2010. Detailed Description of the Sales and Use Tax Rate. November.

2008. Thompson, Ken, Valuation Division of Property Taxes Department. Personal communication with J.Wu/URS Corporation on August 1, 2008.

California State Employment Development Department, Labor Market Division. 2010a. Monthly Labor Force Data for Cities and Census Designated Places CDP), February 2010 – Preliminary. March 26.

2010b. San Diego-Carlsbad-San Marcos Metropolitan Statistical Area (San Diego County), Employment and Labor Force, 2000-Present, November.

2010c. San Diego-Carlsbad-San Marcos Metropolitan Statistical Area (San Diego County) 2008-2018 Industry Employment Projections, August 2010.

2010d. Unemployment Rates: California, County of San Diego, City of Chula Vista, City of Imperial Beach, National City, and City of San Diego.

2010e. 2008-2018 Occupational Employment Projections: San Diego-Carlsbad-San Marcos Metropolitan Statistical Area (San Diego County). September 21.

County of San Diego. 2010a. East Otay Mesa Business Park Specific Plan (Amended by SPA 10-001). September 15.

2010b. Comprehensive Annual Financial Report For the Fiscal Year Ended June 30, 2010. November 22.

2010c. CAO Proposed Operational Plan Change Letter, Fiscal Years 2010-2011 & 2011-2012. June 23.

2009. Comprehensive Annual Financial Report For the Fiscal Year Ended June 30, 2009. November 20.

Electric Power Research Institute (EPRI). 1982. Socioeconomic Impacts of Power Plants.

Nissen, Dave. Fire Chief, Rural Fire Protection District. 2010. Personal communication with URS (J.Wu). December 16.

PKF Consulting. 2008. The 2009 Southern California Lodging Forecast. November 13.

San Diego Association of Governments (SANDAG). 2010. Population and Housing Estimates 2010 (City of Chula Vista, City of Imperial Beach, City of National City, City of San Diego, County of San Diego, and Unincorporated San Diego County). August.

2008. 2030 Regional Growth Forecast Update. July.

San Diego County. 2009. Adopted Operational Plan: Fiscal Years 2009-2010 and 2010-2011. November.

San Diego County Environmental Development Agency. 2009. San Diego County General Plan: Part XII Public Facility Element. Amended October 14. Adopted March 13, 1991.

San Diego County Rural Fire Protection District (RFPD). 2010. URS (J.Wu) personal communication with Staff. December 16.

San Diego County Sheriff Department, Imperial Beach Station. 2010. URS (J.Wu) personal communication with Station Attendant. December 14.

San Diego County Treasurer-Tax Collector. 2010. URS (J. Wu) personal communication with Staff. December 13.

San Ysidro Elementary School District. 2007. Long-Range Facilities Master Plan. May.

Scoll, J.P. 2003. Environmental Justice in California Power Plant Siting. *Environmental Law News.* Vol. 12, Number 3.

Sharp HealthCare. Website: http://www.sharp.com/. Accessed April 16, 2010.

U.S. Census Bureau. 2010. State and County QuickFacts. February 23.

Census 2000. *Table DB-1. Profile of General Demographic Characteristics: 2000; Geographic Area: San Diego County, California.*

Census 2000. *Table DB-2. Profile of Selected Social Characteristics: 2000; Geographic Area: San Diego County, California.*

Census 2000. *Table DB-3. Profile of Selected Economic Characteristics: 2000; Geographic Area: San Diego County, California.*

Census 2000. *Table DB-4. Profile of Selected Housing Characteristics: 2000; Geographic Area: San Diego County, California.*

Census 2000. *Table DB-1. Profile of General Demographic Characteristics: 2000; Geographic Areas: Chula Vista City, Imperial Beach City, National City, and San Diego City, California.*

Census 2000. *Table DB-2. Profile of Selected Social Characteristics: 2000; Geographic Areas: Chula Vista City, Imperial Beach City, National City, and San Diego City, California.*

Census 2000. *Table DB-3. Profile of Selected Economic Characteristics: 2000; Geographic Areas: Chula Vista City, Imperial Beach City, National City, and San Diego City, California.*

Census 2000. *Table DB-4. Profile of Selected Housing Characteristics: 2000; Geographic Areas: Chula Vista City, Imperial Beach City, National City, and San Diego City, California.*

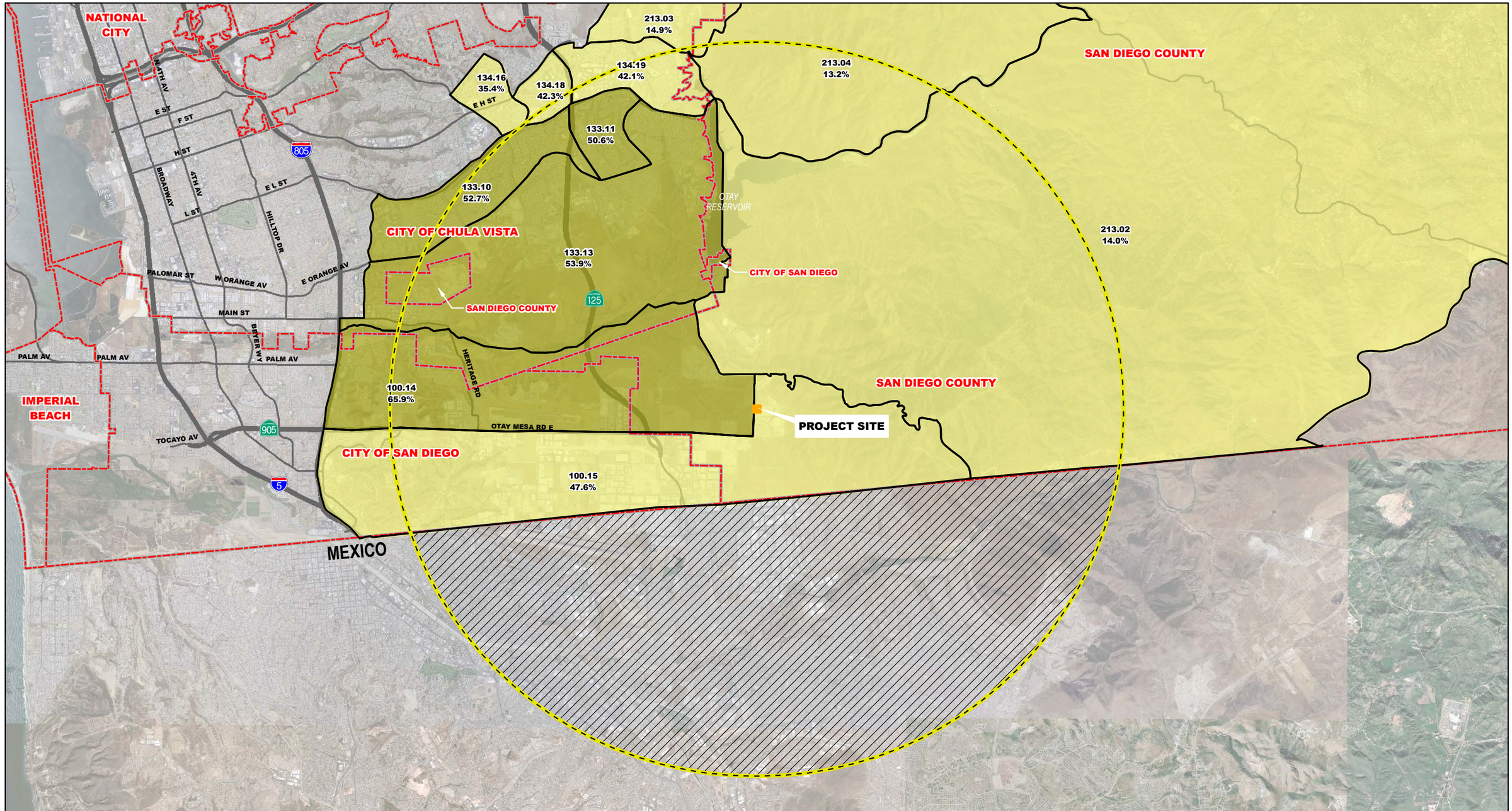
2009. Resident Population Estimates for the 100 Largest U.S. Counties Based on July 1, 2009 Population Estimates: April 1, 2000 to July 1, 2009 (CO-EST2009-07).

U.S. Census Bureau, Housing and Household Economic Statistics Division. 2011a. Housing Vacancies and Homeownership, Definitions and Explanations. http://www.census.gov/hhes/www/housing/hvs/hvs.html. Website accessed on January 15, 2011.

2011b. Housing Vacancies and Homeownership (Table 1 and Table 4, Rental Vacancy Rates). http://www.census.gov/hhes/www/housing/hvs/hvs.html. Website accessed on January 15, 2011.

U.S. Department of Health and Human Services. 2010. Federal Poverty Guidelines. August.

U.S. Environmental Protection Agency (USEPA). 1998. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses.*



Legend

- Project Site
- Jurisdictional Boundary
- 6-Mile Project Site Radius
- Area Not Included in Environmental Justice Analysis
- Census Tract Boundary
- Minority Population < 50%
- Minority Population > 50%

133.13 ← Census Tract ID
53.10% ← Minority Percentage

The minority percentage represents the number of residents that in 2000, were included in the following race or ethnicity categories (as defined by the U.S. Census): White Hispanic/Latino, Black or African American, American Indian and Alaskan Native, Native Hawaiian or Other Pacific Islander, Some Other Race, and Two or More Races.

N

0 1 2 Miles

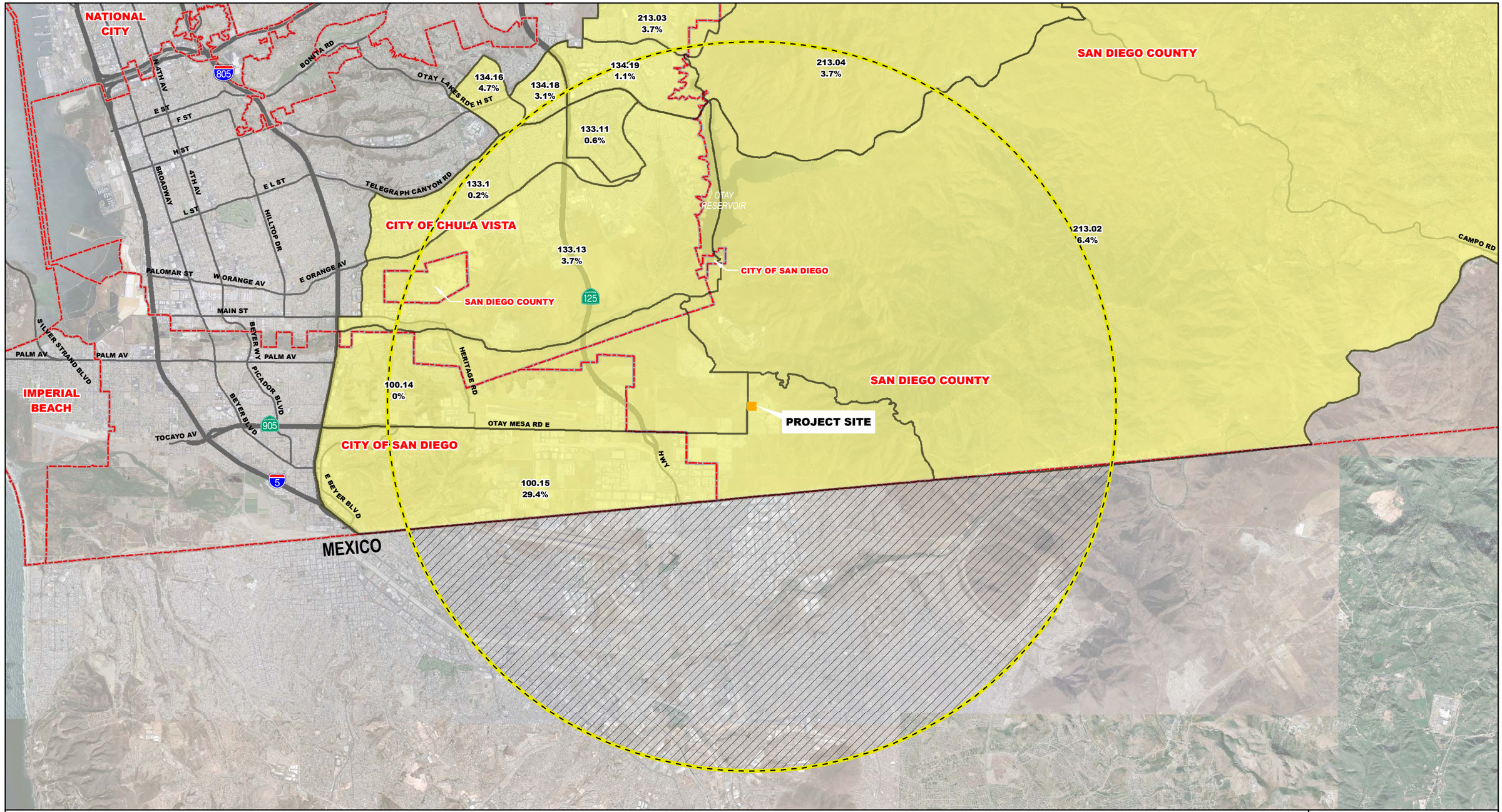
FIGURE 5.10-1
MINORITY POPULATION DISTRIBUTION BY CENSUS TRACTS WITHIN 6 MILES OF PROJECT

PIO PICO ENERGY CENTER

PROJECT NO.: 29874836
DATE: DECEMBER 2010

URS

Source: U.S. Census Bureau (www.census.gov), 2000



Legend

- Project Site
- Jurisdictional Boundary
- 6-Mile Project Site Radius
- Area Not Included in Environmental Justice Analysis
- Census Tract Boundary
- Poverty Population < 50%

133.13 ← Census Tract ID
3.7% ← Poverty Percentage

Low-income percentage represents the population of residents living below the U.S. Department of Health and Human Services 2000 Federal Poverty Thresholds.

N

0 1 2 Miles

FIGURE 5.10-2
POVERTY POPULATION DISTRIBUTION BY CENSUS TRACTS WITHIN 6 MILES OF PROJECT

PIO PICO ENERGY CENTER

PROJECT NO.: 29874836
DATE: DECEMBER 2010

URS

Source: SanGIS 2000 Census Income and Education, 2006.

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date ____

Technical Area: **Socioeconomics** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Sections 5.10.1, 5.10.2, 5.10.3, 5.10.4, 5.10.5, Tables 5.10-1 through 5.10-10.		
Appendix B (g) (7) (A)	A description of the socioeconomic circumstances of the vicinity and region affected by construction and operation of the project. Include:	Sections 5.10.1 and 5.10.2		
Appendix B (g) (7) (A) (i)	The economic characteristics, including the economic base, fiscal resources, and a list of the applicable local agencies with taxing powers and their most recent and projected revenues;	Sections 5.10.1.2, 5.10.1.4, and 5.10.2.7		
Appendix B (g) (7) (A) (ii)	The social characteristics, including population and demographic and community trends;	Tables 5.10-1 through 5.10-4, 5.10-9, and 5.10-10, Sections 5.10.1.2 and 5.10.3.1		
Appendix B (g) (7) (A) (iii)	Existing and projected unemployment rates;	Section 5.10.1.2		
Appendix B (g) (7) (A) (iv)	Availability of skilled workers by craft required for construction and operation of the project;	Table 5.10-6, and discussed in Sections 5.10.2.2 and 5.10.2.4		
Appendix B (g) (7) (A) (v)	Availability of temporary and permanent housing and current vacancy rate; and	Section 5.10.1.2 and Table 5.10-2.		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Socioeconomics** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (7) (A) (vi)	Capacities, existing and expected use levels, and planned expansion of utilities (gas, water and waste) and public services, including fire protection, law enforcement, emergency response, medical facilities, other assessment districts, and school districts. For projects outside metropolitan areas with a population of 500,000 or more, information for each school district shall include current enrollment and yearly expected enrollment by grade level groupings, excluding project-related changes for the duration of the project schedule.	Sections 5.10.1.3,Sections 5.10.1, 5.10.2.5, and 5.10.2.6		
Appendix B (g) (7) (B)	A discussion of the socioeconomic impacts caused by the construction and operation of the project (note year of estimate, model, if used, and appropriate sources), including:	Section 5.10.2.7 (economic modeling and analysis appears under heading, "Indirect and Induced Economic Effects"		
Appendix B (g) (7) (B) (i)	An estimate of the number of workers to be employed each month by craft during construction, and for operations, an estimate of the number of permanent operations workers during a year;	Tables 5.10-5 and 5.10-7		
Appendix B (g) (7) (B) (ii)	An estimate of the percentage of non-local workers who will relocate to the project area to work on the project;	Sections 5.10.2.1, 5.10.2.2, 5.10.2.3, and 5.10.2.4		
Appendix B (g) (7) (B) (iii)	An estimate of the potential population increase caused directly and indirectly by the project;	Sections 5.10.2.1, 5.10.2.3		
Appendix B (g) (7) (B) (iv)	The potential impact of population increase on housing during the construction and operations phases;	Sections 5.10.2.1 and 5.10.2.3		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Socioeconomics** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (7) (B) (v)	The potential impacts, including additional costs, on utilities (gas, water, and waste) and public services, including fire, law enforcement, emergency response, medical facilities, other assessment districts, and school districts. Include response times to hospitals and for police, and emergency services. For projects outside metropolitan areas with a population of 500,000 or more, information on schools shall include project-related enrollment changes by grade level groupings and associated facility and staffing impacts by school district during the construction and operating phases;	Sections 5.10.2.5 and 5.10.2.6		
Appendix B (g) (7) (B) (vi)	An estimate of applicable school impact fees;	Section 5.10.2.7 (under the heading “School Impact Fees”)		
Appendix B (g) (7) (B) (vii)	An estimate of the total construction payroll and separate estimates of the total operation payroll for permanent and short-term (contract) operations employees;	Sections 5.10.2.2 and 5.10.2.4		
Appendix B (g) (7) (B) (viii)	An estimate of the expenditures for locally purchased materials for the construction and operation phases of the project;	Section 5.10.2.7(under the heading “Sales Tax”)		
Appendix B (g) (7) (B) (ix)	An estimate of the capital cost (plant and equipment) of the project;	Section 5.10.2.7 (under the heading “Property Tax”)		
Appendix B (g) (7) (B) (x)	An estimate of sales taxes generated during construction and separately during an operational year of the project;	Section 5.10.2.7 (under the heading “Sales Tax”) (including Table 5.10-8)		
Appendix B (g) (7) (B) (xi)	An estimate of property taxes generated during an operational year of the project; and	Section 5.10.2.7 (under the heading, “Property Tax”)		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Socioeconomics** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (7) (B) (xii)	The expected direct, indirect, and induced income and employment effects due to construction, operation, and maintenance of the project.	Sections 5.10.2.7 (under the heading, "Indirect and Induced Economic Effects")		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Table 5.10-11		
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Table 5.10-13		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Section 5.10.6.4, Table 5.10-12		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 5.10.6.5, Table 5.10-13		

TABLE OF CONTENTS

5.16 PUBLIC HEALTH 5.16-1
5.16.1 Affected Environment 5.16-2
5.16.2 Environmental Consequences 5.16-5
5.16.3 Cumulative Impacts 5.16-15
5.16.4 Mitigation Measures and Conditions of Certification 5.16-15
5.16.5 Laws, Ordinances, Regulations, and Standards 5.16-16
5.16.6 Involved Agencies and Agency Contacts 5.16-19
5.16.7 Permits Required and Permit Schedule 5.16-19
5.16.8 References 5.16-20

LIST OF TABLES

Table 5.16-1 Annual Average Concentrations And Cancer Risks For Monitored TACS For Year 2007 - Chula Vista Monitoring Station 5.16-5
Table 5.16-2 Maximum Onsite Construction DPM Emissions 5.16-6
Table 5.16-3 Non-Criteria Pollutant Emissions From Activities at PPEC 5.16-7
Table 5.16-4 Toxicity Values Used To Characterize Health Risks 5.16-10
Table 5.16-5 Summary of Potential Health Risks From Project Operation 5.16-11
Table 5.16-6 Comparison of Project Lead Impacts with State and Federal Standards 5.16-12
Table 5.16-7 Comparison of Maximum 8-Hour Average Impacts From Project Operation with 8-hour RELS 5.16-13
Table 5.16-8 Laws, Ordinances, Regulations, and Standards Applicable to Public Health . 5.16-17
Table 5.16-9 Agency Contacts 5.16-19
Table 5.16-10 Permits and Permit Schedules for Public Health 5.16-20

5.16 PUBLIC HEALTH

This section presents the methodology and results of a human health risk assessment performed to assess potential impacts and public exposure associated with airborne emissions from the construction and operation of the Pio Pico Energy Center (PPEC). This screening health risk assessment has been performed in accordance with guidance established by the California Office of Environmental Health Hazard Assessment (OEHHA),[1] the California Air Resources Board (CARB),[2] and the San Diego Air Pollution Control District (SDAPCD).[3] The results of this risk assessment demonstrate that the potential impacts of the project will be below public health-related thresholds of significance. Beneficial aspects of the PPEC regarding protection of public health include the following:

- Use of clean-burning natural gas fuel
- Low-sulfur content of the natural gas, which reduces sulfate fine particulate and sulfur dioxide (SO_2) generation
- Highly efficient combustion gas turbine technology to minimize the amount of fuel and associated combustion emissions needed to produce electricity
- Water injection and selective catalytic reduction (SCR) technology to control nitrogen oxides (NO_x) emissions
- Oxidation catalyst technology to control carbon monoxide (CO) emissions, and to reduce emissions of various toxic air contaminants (TAC)
- Optimized stack height to reduce ground-level concentrations of exhaust pollutants below public health-related significance thresholds

These project features will ensure that the public health impacts of the PPEC will be minimized.

Impacts associated with the project's emissions of criteria pollutants (i.e., pollutants for which federal or California ambient air quality standards [AAQS] have been promulgated) are described in Section 5.2, Air Quality. Potential public exposure to accidental releases of hazardous materials on the project site during operation is addressed in Section 5.15, Hazardous Materials Handling. To ensure worker safety during operations and construction, safe work practices will be followed (see Section 5.17, Worker Safety).

The details of the public health analysis are contained in the following sections:

- Section 5.16.1, Affected Environment, describes the local environment surrounding the project site. Topographical information is provided. Sensitive receptors within a 3-mile radius of the project site are identified in Figure 5.16-1.

1 OEHHA. Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, April 2005.

2 CARB. Consolidated Table of OEHHA/CARB-Approved Risk Assessment Health Values, February 2009, at http://www.arb.ca.gov/toxics/healthval/healthval.htm.

3 SDAPCD. Personal communication, Michael Kehetian, SDAPCD, 12/30/2010.

- Section 5.16.2, Environmental Consequences, discusses the potential public health consequences of the project. The HRA approach is described. The project's emissions of toxic air pollutants are discussed, and the potential impacts of these emissions are evaluated. The results of the HRA show that the maximum incremental off-site cancer risk from the project will be below the accepted cancer risk significance threshold for new sources of 10 in 1 million. The results of the assessment also show that the chronic total hazard index (THI) and the acute 1- and 8-hour THIs are below the significance criteria of 1.0.

- Section 5.16.3, Cumulative Impacts, addresses the cumulative impacts of the project with other nearby sources of toxic air contaminants.

- Section 5.16.4, Mitigation Measures and Conditions of Certification, discusses mitigation measures to minimize the impacts of the project's emissions of TACs.

- Section 5.16.5, Laws, Ordinances, Regulations, and Standards, describes all applicable laws, ordinances, regulations, and standards (LORS) pertaining to the public health aspects of the project.

- Section 5.16.6, Involved Agencies and Agency Contacts, lists the agency contacts consulted in conducting the public health analysis.

- Section 5.16.7, Permits Required and Permit Schedule, lists the permits required and provides the permit schedule.

- Section 5.16.8, References, lists the references used to conduct the public health analysis.

5.16.1 Affected Environment

PPEC consists of the project site, linears, and a temporary laydown area (Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears). The project site is located in an unincorporated area of San Diego County known as Otay Mesa. It is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection. The proposed project site comprises the entire parcel with Assessor's Parcel Number (APN) 648-040-45, and the laydown area is 6.00 acres of an adjacent parcel to the south (APN 648-040-46) (Figure 3.3-2, Project Location). The existing setting within one-mile of the project site and potential transmission line routes are presented on Figure 3.3-4. The project affects the following areas:

- Plant site – 9.99 acres.

- Temporary laydown and parking area – 6.00 acres, on an adjacent parcel that is contiguous to the project site.

- Natural Gas pipeline – There are two possible routes for the gas supply pipeline. Both routes would connect to an existing SDG&E natural gas pipeline, but at different locations. Route A would extend approximately 8,000 feet south along Alta Road to near the U.S.–Mexico border, at which point it would connect to the existing SDG&E natural gas pipeline. Route B would extend approximately 2,375 feet south along Alta Road, turn west on Otay Mesa

Road, and continue approximately 7,920 feet to Harvest Road at which point it would connect to the existing SDG&E natural gas pipeline (Figure 3.3-3, Potential Linears) for a total of approximately 10,300 feet. The pipeline will be constructed, owned, and operated by SDG&E.

- Sewer pipeline – A short connection will be made to an existing 12-inch sewer main along Calzada de la Fuente along the north project site boundary, or to an existing 15-inch sewer main along Alta Road, along the west project site boundary.

- Stormwater pipeline – A short connection will be made from a detention pond located at the northwest corner of the project site to an existing 30-inch stormwater pipeline located along Calzada de la Fuente, adjacent to the project site.

- Power line – Two possible routes are provided for a 230kV transmission line that will connect the project into the existing 230kV Otay Mesa switchyard. Route A would begin as an overhead power line along Calzada de la Fuente, extend approximately 1,700 feet east where it would then be routed underground for approximately 400 feet into the Otay Mesa switchyard (total length of Route A would be approximately 2,100 feet). Route B would begin as an overhead power line from the eastern edge of the project site, run south approximately 550 feet, then turn east along the northern border of the parcels with APN 648-040-48 and APN 648-040-43 for 1,400 feet, and finally turn north for approximately 700 feet into the Otay Mesa switchyard (total length of Route B would be approximately 2,650 feet). The power line will be owned and maintained by the Applicant.

- Water supply pipelines – The project will make a short connection to the potable service system, either at an existing 12-inch main along Calzada de la Fuente, or at an existing 24-inch main along Alta Road. Upon the Otay Water District (OWD)'s completion of the planned Otay Mesa area recycled water system, the project will make a connection to an existing 8-inch recycled water main along Calzada de la Fuente or a new recycled water main to be constructed in Alta Road.

These features are illustrated on Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears. The project will be a new major stationary source under District New Source Review regulations because it will have a potential to emit more than 50 TPY of NO_x; it will also be a new major source under the federal PSD program because it will have a potential to emit more than 100,000 TPY of CO_2 and construction will commence after July 1, 2011.

The California Energy Commission (CEC) defines sensitive receptors as infants and children, the elderly, the chronically ill, and any other members of the general population who are more susceptible to the effects of exposure to environmental contaminants than the population at large. For the purposes of this analysis, sensitive receptors are defined as the locations occupied by groups of individuals who may be more susceptible to health risks from a chemical exposure: schools (public and private), day-care facilities, convalescent/nursing homes, retirement homes, health clinics, and hospitals. Because sensitive individuals may be located at any residential site, risk-based standards apply to existing residences and places where residences may be built without a change in zoning as well as sensitive receptors. If project impacts are protective of sensitive individuals at the point of maximum impact, they are protective at all locations.

Identification of sensitive receptors is typically done to ensure that notice of possible impacts is provided to the community.

There are no sensitive receptors in the U.S. within three miles of the project site. The closest residences are a group of rural residences to the WSW, located approximately 0.8 miles from the project boundary. Richard J. Donovan Correctional Facility is located 0.8 miles northwest of the project site.

The nearest U.S. school is Olympian High School, 3.9 miles to the northwest of the project. The nearest U.S. day care is the Danmar Day Care, 3.9 miles to the northwest of the project. The nearest U.S. convalescent home is Sharp Chula Vista Medical Center, 6.4 miles west of the project. The nearest U.S. retirement home is Erachel and H Street Board-Care, 6.2 miles northwest of the project. The nearest U.S. hospital is the Kaiser Hospital located on Zane Street, 6.4 miles west of the project site.

Several studies have been conducted recently related to respiratory illnesses to address health risks in the neighborhoods surrounding the project site. The California Office of Environmental Health Hazard Assessment and California Environmental Protection Agency investigated the effects of exposure to particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and several of its constituents—including elemental carbon (EC), organic carbon (OC), and nitrates (NO_3)—on hospital admissions for respiratory diseases among children 0–18 years of age in six California counties (including San Diego County). The methodology, results, discussion, and conclusions of this study are described in The Effects of Fine Particle Components on Respiratory Hospital Admissions in Children (Ostro et al., 2009). The study concluded that $PM_{2.5}$ and several of its constituents do have an important effect on hospital admissions associated with respiratory diseases, particularly in cases related to acute bronchitis and pneumonia. Specifically, the results of the study indicated a relationship between acute exposure to total $PM_{2.5}$ and total respiratory hospital admissions for children 0–18 years of age. Young children appear especially sensitive to the $PM_{2.5}$ effects, as 75% of the admissions for this age range were under five years of age.

Two other studies on childhood asthma were also conducted in San Diego County. The first study (English, 1998) examined the correlation between childhood asthma hospitalizations from 1983 to 1994 along the U.S.–Mexico border and the corresponding concentrations of ozone and particulate matter less than ten microns in diameter (PM_{10}) (two air pollutants known to aggravate asthma) in the two California border counties (San Diego and Imperial). The study found a decrease in childhood asthma hospitalization rates in San Diego County throughout the study period along with a general improvement in ozone and PM_{10} levels in San Diego County. The study concluded that improved access to preventive health care is imperative in border areas with high poverty rates and suggests that efforts should be made to reduce the exposure of children to sources of ozone and particulate matter, such as dust from unpaved roads and motor vehicle emissions, which may aggravate respiratory illness.

The second study (English, 1999) examined associations between childhood asthma and traffic flow in a low-income population in San Diego County. Although the study found no evidence of increased asthma risk with higher traffic counts near a child's residence, asthmatic children living near busy roads were found to have a higher chance of multiple medical care visits in a year compared to asthmatic children living near lower traffic flows. This suggests that higher

exposure to particulate matter and other air pollutants from traffic exhaust due to higher traffic flows may aggravate symptoms in individuals already diagnosed with asthma.

Working with the local public health department at San Diego County, cancer-related health studies could not be identified concerning the potentially affected population(s) within a 6- mile radius of the project site (Murphy, 2009).

The nearest California Air Resources Board (CARB) TAC monitor is in the City of Chula Vista, approximately 11 miles northwest of the project site. Although this station is in an urban neighborhood, the proximity to the PPEC site makes it conservatively representative of local air quality. The most recent monitoring data are from year 2007, which are presented in Table 5.16-1 along with the estimated excess cancer risk. Summing the risk from all monitored TACs predicts an incremental background cancer risk of 102 in a million. By comparison, the risk of getting cancer for an individual in the United States from all causes is about 1 in 3, or 333,000 in one million.

TABLE 5.16-1
ANNUAL AVERAGE CONCENTRATIONS AND CANCER RISKS FOR MONITORED TACS FOR YEAR 2007 - CHULA VISTA MONITORING STATION

Toxic Air Contaminant	Annual Concentration (ppbv)	Excess Cancer Risk (chances in one million)
Acetaldehyde	0.7	3
Benzene	0.273	25
1,3-Butadiene	0.056	21
Carbon Tetrachloride[1]	0.091	24
Chromium, Hexavalent	0.03 ng/m^3	5
Para-Dichlorobenzene[1]	0.15	10
Formaldehyde	1.83	13
Methylene Chloride	0.11	<1
Perchloroethylene	0.025	1
Total Cancer Risk		**102**

Notes:
ppb = parts per billion
ng/m^3 = nanograms per cubic meter
[1]Carbon Tetrachloride and para-Dichlorobenzene data are from year 2002.
Source: California ARB Almanac 2009 – Appendix C: Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants

5.16.2 Environmental Consequences

This section describes the evaluation of potential public health risks due to construction and operation of the proposed PPEC power generation facility and the methodology and results of the HRA. A significant impact is defined as a maximum incremental cancer risk greater than ten in one million, a chronic total hazard index (THI) greater than 1.0, or an acute THI greater than 1.0. Also, uncertainties in the HRA are discussed and other potential health impacts of the project are described

5.16.2.1 Construction Impacts

Construction of the PPEC is expected to take approximately 16 months. No significant public health effects are expected during construction. Strict construction practices that incorporate safety and compliance with applicable LORS will be followed. In addition, mitigation measures to reduce air emissions from construction impacts will be implemented as described in Section 5.2.

Temporary air emissions from construction are presented in detail in Appendix G-2, followed by a criteria pollutant air dispersion analysis that demonstrates ambient air quality standards will not be exceeded by construction of the project. The dominant emission with potential health risk is Diesel particulate matter (DPM) from combustion of Diesel fuel in construction equipment (e.g., cranes, dozers, excavators, graders, front-end loaders, backhoes). DPM emissions from on-site construction are summarized in Table 5.16-2.

TABLE 5.16-2
MAXIMUM ONSITE CONSTRUCTION DPM EMISSIONS

Emitting Activity	Pounds per Day	Tons per Year
Construction Equipment	1.6	0.2

The health risk assessment calculations in Appendix P demonstrate that the potential cancer risk of DPM emissions during project construction will not exceed the significance threshold of 10 in one million. This HRA was performed in accordance with OEHHA (2003) guidance, which requires adjusting the 70-year lifetime dosage to an exposure period of nine years (despite the fact that project construction will only last 16 months). When the dosage is adjusted to account for the reduced period of time that a worker is present at the workplace receptor that is the point of maximum impact (8 hours per day, 245 days per year), the calculated risk from this temporary activity is 3.2 in one million. This is below the significance threshold of ten in one million. The calculated risk is even lower at the nearest residential receptor.

Ambient air modeling for PM_{10}, $PM_{2.5}$, CO, SO_2 and NO_2 was performed as described in Section 5.2 and Appendix G-2. Construction-related emissions are temporary and localized, resulting in no long-term significant health impacts to the public.

Small quantities of hazardous waste may be generated during construction. Hazardous waste management plans will be in place so the potential for public exposure is minimal. (Refer to Section 5.14, Waste Management, for more information.) No acutely hazardous materials will be used or stored onsite during construction (see Section 5.15, Hazardous Materials Handling). To ensure worker safety during construction, safe work practices will be followed (see Section 5.17, Worker Safety).

5.16.2.2 Operations Impacts

Project emissions to the air will consist of combustion by-products from the natural gas-fired turbines. These pollutants include certain volatile organic compounds and polycyclic aromatic hydrocarbons (PAHs) from the combustion of natural gas, and ammonia from the SCR NOx control systems. These pollutants are listed in Table 5.16-3, and the detailed emission

summaries and calculations are presented in Appendix P. After dispersion to ground level, inhalation is the main pathway by which air pollutants can potentially cause public health impacts. Other pathways, including ingestion of soil, fish, and drinking water, and dermal absorption, are also evaluated for potential exposure. As discussed below, these health risks are not significant.

TABLE 5.16-3
NON-CRITERIA POLLUTANT EMISSIONS FROM ACTIVITIES AT PPEC

	Emissions (Per turbine)		Emissions (Total, 3 units)	
Pollutant	**Lb/hr**	**TPY**	**Lb/hr**	**TPY**
Turbines				
Ammonia	6.12E+00	1.33E+01	1.83E+01	3.98E+01
Propylene	3.37E-01	7.30E-01	1.01E+00	2.19E+00
Acetaldehyde	1.78E-02	3.86E-02	5.35E-02	1.16E-01
Acrolein	2.86E-03	6.19E-03	8.57E-03	1.86E-02
Benzene	5.33E-03	1.16E-02	1.60E-02	3.47E-02
1,3-Butadiene	1.92E-04	4.16E-04	5.75E-04	1.25E-03
Ethylbenzene	1.42E-02	3.09E-02	4.27E-02	9.26E-02
Formaldehyde	4.01E-01	8.69E-01	1.20E+00	2.61E+00
Hexane, n-	1.13E-01	2.45E-01	3.39E-01	7.36E-01
Naphthalene	5.81E-04	1.26E-03	1.74E-03	3.78E-03
PAHs (listed individually below)	2.86E-04	6.21E-04	8.59E-04	1.86E-03
Acenaphthene	8.30E-06	1.80E-05	2.49E-05	5.40E-05
Acenapthyene	6.42E-06	1.39E-05	1.93E-05	4.18E-05
Anthracene	1.48E-05	3.20E-05	4.43E-05	9.61E-05
Benzo(a)anthracene	9.87E-06	2.14E-05	2.96E-05	6.42E-05
Benzo(a)pyrene	6.07E-06	1.32E-05	1.82E-05	3.95E-05
Benzo(e)pyrene	2.38E-07	5.15E-07	7.13E-07	1.55E-06
Benzo(b)fluoranthrene	4.94E-06	1.07E-05	1.48E-05	3.21E-05
Benzo(k)fluoranthrene	4.81E-06	1.04E-05	1.44E-05	3.13E-05
Benzo(g,h,i)perylene	5.98E-06	1.30E-05	1.80E-05	3.89E-05
Chrysene	1.10E-05	2.39E-05	3.30E-05	7.16E-05
Dibenz(a,h)anthracene	1.03E-05	2.23E-05	3.08E-05	6.68E-05
Fluoranthene	1.89E-05	4.09E-05	5.66E-05	1.23E-04
Fluorene	2.53E-05	5.49E-05	7.60E-05	1.65E-04
Indeno(1,2,3-cd)pyrene	1.03E-05	2.23E-05	3.08E-05	6.68E-05
Phenanthrene	1.37E-04	2.97E-04	4.11E-04	8.92E-04
Pyrene	1.21E-05	2.63E-05	3.64E-05	7.90E-05
Propylene oxide	1.29E-02	2.80E-02	3.88E-02	8.41E-02
Toluene	5.81E-02	1.26E-01	1.74E-01	3.78E-01
Xylene	2.85E-02	6.19E-02	8.56E-02	1.86E-01
Cooling Tower				
Arsenic	9.90E-08	2.15E-07	9.90E-08	2.15E-07
Carbon Tetrachloride	1.16E-07	2.50E-07	1.16E-07	2.50E-07
Chlorine	1.27E-02	2.74E-02	1.27E-02	2.74E-02
Chromium	1.54E-07	3.34E-07	1.54E-07	3.34E-07
Copper	3.58E-07	7.75E-07	3.58E-07	7.75E-07
Fluoride	6.06E-05	1.31E-04	6.06E-05	1.31E-04
Lead	4.73E-08	1.03E-07	4.73E-08	1.03E-07
Total HAPs[a]				4.26

Note: a. Ammonia, propylene oxide, copper and fluoride are not HAPs so are not included in this total.

5.16.2.3 Public Health Impact Assessment Approach

Significance Criteria

Cancer risk is the probability or chance of contracting cancer over a human life span (assumed to be 70 years). Carcinogens are assumed to have no threshold below which there would be no human health impact. In other words, any exposure to a carcinogen is assumed to have some probability of causing cancer; the lower the exposure, the lower the cancer risk (i.e., a linear, no-threshold model). Under state and SDAPCD regulations, an incremental cancer risk greater than 10-in-one million due to a project is considered to be a significant impact on public health if the emitting units are determined by the District to be using Toxics Best Available Control Technology (T-BACT). The ten-in-one-million risk level is also used by the Air Toxics "Hot Spots" (AB 2588) program and California's Proposition 65 as the public notification level for air toxic emissions from existing sources.

Non-cancer health effects can be either long-term (chronic) or short-term (acute). In determining potential non-cancer health risks from air toxics, it is assumed there is a dose of the TAC below which there would be no impact on human health. The air concentration corresponding to this dose is called the Reference Exposure Level (REL). A non-cancer health risk is measured in terms of a health hazard quotient, which is the calculated maximum exposure (concentration) of each TAC divided by its REL. Health hazard quotients for TACs affecting the same target organ are typically summed with the resulting totals expressed as health hazard indices for each organ system. A health hazard index of less than 1.0 is considered to be a less-than-significant health risk.

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure, caused by chemicals accumulating in the body. Because chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The lowest no-effect chronic exposure level for a noncarcinogenic air toxic is the chronic REL. Below this threshold, the body is capable of eliminating or detoxifying the chemical rapidly enough to prevent its accumulation. The chronic hazard index was calculated using the hazard quotients calculated with annual concentrations.

Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. For most chemicals, the air concentration required to produce acute effects is higher than the level required to produce chronic effects because the duration of exposure is shorter. Because acute toxicity is predominantly manifested in the upper respiratory system at threshold exposures, all acute health hazard quotients are typically summed to calculate the acute health hazard index. The maximum one-hour average concentration of each TAC with acute health effects is divided by the TAC's acute REL to obtain a health hazard index for health effects caused by relatively high, short-term exposure to air toxics. An additional conservative procedure in this health risk assessment is that the health hazard quotients for all TACs having potential acute impacts were summed regardless of target organ. This method leads to an upper bound assessment.

Methodology

District Rule 1200 requires a health risk assessment (HRA). The potential human health risks posed by the project's emissions were assessed using procedures consistent with the San Diego Air Pollution Control District (SDAPCD) Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (SDAPCD, 2006),[4] Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines (Cal-EPA/OEHHA, 2003),[5] and guidance from SDAPCD staff. The SDAPCD and OEHHA guidelines were developed to provide risk assessment procedures, as required under the Air Toxics Hot Spots Information and Assessment Act of 1987, Assembly Bill 2588 (Health and Safety Code Sections 44360 et seq.). The Hot Spots law established a statewide program to inventory air toxics emissions from individual facilities, as well as guidance for execution of risk assessments and requirements for public notification of potential health risks.

Air dispersion modeling combined the project emissions with site-specific terrain and meteorological conditions to analyze short-term and long-term concentrations in the air for use in the health risk assessment. The EPA-recommended air dispersion model, AERMOD, was used along with three years (2006–2008) of compatible meteorological data from the Otay Mesa/Paseo International meteorological monitoring station assembled and provided by the staff of the SDAPCD. The meteorological data combined surface measurements made at Otay Mesa with upper air data from MCAS Miramar (see Section 5.2.2.6). Because Hotspots Analysis and Reporting Program (HARP) is built on a previous EPA-approved air dispersion model, Industrial Source Complex Short Term, Version 3 (ISCST3), the CARB HARP On-Ramp was used to integrate the air dispersion modeling output from the required air dispersion mode, AERMOD, with the risk calculations in the HARP risk module.[6,7]

The HRA modeling was prepared using CARB's HARP computer program (Version 1.4c, August 2010). The HARP model was used to assess cancer risk as well as non-cancer chronic and acute health hazards. The HRA includes the five following pathways: inhalation, dermal absorption, soil ingestion, drinking water ingestion, and fish ingestion.[8]

Health risks were evaluated for a hypothetical Maximum Exposed Individual (MEI) located at the point of maximum impact (PMI). The cancer risk to the MEI at the PMI is referred to as the Maximum Incremental Cancer Risk, or MICR. Human health risks associated with emissions from the project are unlikely to be higher at any other location than at the PMI. If there is no significant impact associated with concentrations in air at the PMI location, it is inferred that there would not be significant impacts in any other location. Health risks were also evaluated for a hypothetical Maximum Exposed Individual at an existing Residential receptor (MEIR), an

[4] SDAPCD, *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs)*, Version 1.0, March 1, 2006.

[5] Office of Environmental Health Hazard Analysis, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

[6] HARP On-Ramp Version 1, accessed at http://www.arb.ca.gov/toxics/harp/downloads.htm.

[7] The modeling protocol submitted for the project indicated that a unit-impact modeling technique would be used, based on the procedure described in Part B of Topic 8 of the HARP How-To Guides ("How to Perform Health Analyses Using a Ground-Level Concentration"). However, since CARB has officially released the HARP On-Ramp to facilitate the use of HARP with AERMOD, this more streamlined approach has been utilized in this screening HRA, consistent with CARB guidance.

[8] The drinking water and fish ingestion pathways were included at the request of the SDAPCD staff.

individual assumed to be located at the existing residence where the highest concentrations of air pollutants associated with facility emissions are predicted to occur. The PMI (and thus the MICR) is not necessarily associated with actual exposure because in many cases the PMI is in an uninhabited area. Therefore, the MICR is generally higher than the MEIR. Both the MICR and the MEIR are residential risks and are based on 24 hour per day, 365 day per year, 70-year lifetime exposure. Because this is a screening analysis, the MEIR is assessed at the PMI.

Health risks are also assessed for the hypothetical Maximum Exposed Individual at an existing Worker receptor, or MEIW. This assessment reflects potential workplace risks, which are lower than residential risks because of lower exposure. Workplace risks reflect 8 hour per day, 245 day per year, 40-year exposure. Because this is a screening analysis, the MEIW risk is assessed at the PMI (the most conservative assumption).

The inhalation cancer potency factors and RELs used to characterize health risks associated with modeled concentrations in air are taken from the *Consolidated Table of OEHHA/CARB Approved Risk Assessment Health Values* (CARB, October 18, 2010) and are presented in Table 5.16-4.

TABLE 5.16-4
TOXICITY VALUES USED TO CHARACTERIZE HEALTH RISKS

Toxic Air Contaminant	Inhalation Cancer Potency Factor (mg/kg-d)-1	Chronic Reference Exposure Level (µg/m3)	Acute Reference Exposure Level (µg/m3)
Acetaldehyde	0.010	140	470/3001
Acrolein	—	0.35	2.5/0.71
Ammonia	—	200	3,200
Benzene	0.10	60	1,300
1,3-Butadiene	0.60	20	—
Ethylbenzene	0.0087	2,000	—
Formaldehyde	0.021	9	55/91
Hexane	—	7,000	—
Naphthalene	0.12	9.0	—
PAHs		—	—
Acenaphthene	3.9	—	—
Acenapthyene	3.9	—	—
Anthracene	3.9	—	—
Benzo(a)anthracene0	0.39	—	—
Benzo(a)pyrene	3.9	—	—
Benzo(e)pyrene	3.9	—	—
Benzo(b)fluoranthrene	0.39	—	—
Benzo(k)fluoranthrene	0.39	—	—
Benzo(g,h,i)perylene	3.9	—	—
Chrysene	0.039	—	—
Dibenz(a,h)anthracene	4.1	—	—
Fluoranthene	3.9	—	—
Fluorene	3.9	—	—
Indeno(1,2,3-cd)pyrene	0.39	—	—
Phenanthrene	3.9	—	—
Pyrene	3.9	—	—
Propylene	—	3,000	—

Toxic Air Contaminant	Inhalation Cancer Potency Factor (mg/kg-d)-1	Chronic Reference Exposure Level (µg/m3)	Acute Reference Exposure Level (µg/m3)
Propylene oxide	0.013	30	3,100
Toluene	—	300	37,000
Xylene	—	700	22,000
Arsenic	12	0.015	0.20
Carbon Tetrachloride	0.15	40	1,900
Chlorine	—	0.2	210
Chromium (hexavalent)	510	0.2	20
Copper	—	—	100
Fluoride	—	13	40
Lead	0.042	—	(note 3)

Notes:
[1]Derived (Adjusted) Method used by San Diego Air Pollution Control District to determine compliance with Regulation 1200.
[2]The worker is assumed to be exposed at the work location 8 hours per day, instead of 24; 245 days per year, instead of 365; and for 40 years, instead of 70.
[3]Lead is a criteria pollutant with state and federal sub-chronic exposure standards. See Table 5.16-6.

Health Risk Assessment Results

The estimated potential maximum cancer risk associated with concentrations in air estimated for the Maximally Exposed Individual Residence location is shown in Table 5.16-5. The maximum carcinogenic risk is well below the 10×10^{-6} threshold of significance for emitting units determined by the District to be applying T-BACT.

TABLE 5.16-5
SUMMARY OF POTENTIAL HEALTH RISKS FROM PROJECT OPERATION

Receptor	Carcinogenic Risk (per million)[1]	Cancer Burden	Acute Health Hazard Index	Chronic Health Hazard Index
Maximum Incremental Cancer Risk (MICR) at Point of Maximum Impact (PMI)	0.094	0	--	--
Maximum Exposed Individual at an Existing Residential receptor (MEIR) (assumed to be at the PMI)	0.094	--	0.034	0.011
Maximally Exposed Individual at an Existing Worker receptor (MEIW) (assumed to be at the PMI)[2]	0.014	--	0.034	0.011
Significance Level and SDAPCD Rule 1200 Threshold	10	1.0	1.0	1.0

Notes:
[1]Derived (Adjusted) Method used by San Diego Air Pollution Control District to determine compliance with Regulation 12.
[2]The worker is assumed to be exposed at the work location 8 hours per day, instead of 24; 245 days per year, instead of 365; and for 40 years, instead of 70.

Cancer risks potentially associated with project operation also were assessed in terms of cancer burden. Cancer burden is a hypothetical upper-bound estimate of the additional number of cancer cases that could be associated with emissions from the project. Cancer burden is calculated as the maximum product of any potential carcinogenic risk greater than one in one million and the number of individuals at that risk level. Because the MICR is less than one in one million, the potential cancer burden is zero.

The maximum potential acute non-cancer health hazard index associated with concentrations in air is shown in Table 5.16-5. As indicated in the table, the acute non-cancer health hazard index for all target organs falls below 1.0, the threshold of significance.

Similarly, the maximum potential chronic non-cancer health hazard index associated with concentrations in air is also shown in Table 5.16-5. The chronic non-cancer health hazard index also falls below 1.0, the threshold of significance.

Therefore, the analyses of cancer and non-cancer risks associated with chronic or acute exposures demonstrate that the risks fall below significance thresholds used for regulating emissions of toxic air contaminants to the air, and the project will be in compliance with the requirements of District Regulation 12.

Lead is a criteria pollutant, with explicit ambient standards. The one-hour average impact of lead emissions from the cooling tower is compared with the applicable state and federal standards in Table 5.16-6. This comparison is extremely conservative, in that it compares one-hour modeled concentrations with longer term standards. Even this highly conservative assessment shows that impacts of lead from the cooling tower will be well below the ambient standards.

TABLE 5.16-6
COMPARISON OF PROJECT LEAD IMPACTS WITH STATE AND FEDERAL STANDARDS

Averaging Period	Standard (µg/m^3)	Maximum 1-hour Average Concentration (µg/m^3)	Complies? (Y/N)
30 day Average (state)	1.5	5.49E-07	Y
Calendar Quarter (federal)	1.5	5.49E-07	Y
Rolling 3-Month Average (federal)	0.15	5.49E-07	Y

The District also requested that predicted impacts of certain pollutants be compared with the eight-hour RELs published by OEHHA. The maximum eight-hour concentration for these pollutants was calculated by multiplying the eight-hour unit impact factor from the turbine impact screening runs (see Table P-1.4) times the emission rate for each pollutant. The result is the eight-hour concentration (in µg/m^3), which can be compared with the REL. Table 5.16-7 shows that the project impacts are below the eight-hour RELs.

TABLE 5.16-7
COMPARISON OF MAXIMUM 8-HOUR AVERAGE IMPACTS FROM PROJECT OPERATION WITH 8-HOUR RELS

Pollutant	8-hour REL[1] (µg/m³)	Maximum 8-hour Average Concentration (µg/m³)	Complies? (Y/N)
Acetaldehyde	300	0.02	Y
Acrolein	0.7	0.003	Y
Formaldehyde	9	0.4	Y

Notes:
[1]OEHHA, *Table of All Acute, Chronic and 8 hour Reference Exposure Levels,* http://www.oehha.ca.gov/air/allrels.html (December 18, 2008)

Uncertainty in the HRA Results

Historically, exposure to any level of a carcinogen has been considered to have a finite risk of inducing cancer. There is no threshold for carcinogenicity. Because risks at low levels of exposure cannot be quantified directly by either animal or epidemiological studies, mathematical models have estimated such risks by extrapolation from high to low doses. This modeling procedure is designed to provide a highly conservative estimate of cancer risks based on the most sensitive species of laboratory animal for extrapolation to humans (i.e., the assumption being that humans are as sensitive as the most sensitive animal species). Therefore, the risk is not likely to be higher than risks estimated using inhalation cancer potency factors and is most likely lower, and could even be zero (EPA 1991).

The analysis of potential cancer risk described in this section employs methods and assumptions generally applied by regulatory agencies for this purpose. Given the importance of assuring public health, this analysis uses highly conservative methods and assumptions, meaning they tend to overpredict the potential for adverse effects. Conservative methodology and assumptions include those outlined below.

- The analysis includes representative weather data over a period of three years to ensure that the least favorable conditions producing the highest ground-level concentration of emissions are included. The analysis then assumes that these worst-case annual weather conditions, which in reality occurred only once in three years, will occur every year for 70 years.

- The PPEC is assumed to operate at hourly, daily, and annual emission conditions that produce the highest ground-level concentrations. In reality, the plant is expected to operate at a variety of conditions that will produce lower emissions and impacts.

- The location of the highest ground-level concentration of PPEC emissions is identified and the characterization of risk is based on the assumption that an individual resides at this location 24 hours a day, seven days a week over the entire 70 year period (or works at a workplace receptor eight hours per day, 250 days per year, for 40 years), even though these assumptions are physically impossible. In reality, people rarely live in their homes for 70 years; even if they do, they leave their homes to attend school, go to work, go shopping, and so on.

Taken together, these methods and assumptions create a scenario that is more potentially adverse to human health than conditions that exist in the real world. For example, if the worst-case weather conditions could occur on a winter evening but the worst-case emission rates could occur on a summer afternoon, the analysis nonetheless assumes that these events occur at the same time. The point of using these conservative assumptions is to consciously overstate the potential impacts of the project. No one individual will experience exposures as great as those assumed for this analysis. By determining that even this highly overstated exposure will not be significant, the analysis provides a high degree of confidence that the much lower exposures that actual persons will experience will not result in any significant increase in cancer risk. In short, the analysis ensures that there will not be any significant public health impacts at any location, under any weather condition, under any operating condition.

A separately transmitted compact disc contains the HRA modeling input and output files.

5.16.2.4 Hazardous Materials

Hazardous materials will be used and stored at the PPEC site. The hazardous materials stored in significant quantities on-site and descriptions of their uses are presented in Section 5.15. Use of chemicals at the project site will be in accordance with standard practices for storage and management of hazardous materials. Routine use of hazardous materials, therefore, will not pose significant impacts to public health. While mitigation measures will be in place to prevent releases, if an accidental release migrated offsite, potential impacts to the public could result.

The California Accidental Release Program (CalARP) regulations and Code of Federal Regulations (CFR) Title 40 Part 68 under the Clean Air Act establish emergency response planning requirements for acutely hazardous materials. These regulations require preparation of an RMP, which is a comprehensive program to identify hazards and predict the areas that may be affected by a release of a program-listed hazardous material. Materials listed in the RMP and proposed to be used at the facility include aqueous ammonia, as discussed in Section 5.15.

5.16.2.5 Operation Odors

A small amount of ammonia used to control NO_x emissions can "slip" past the SCR catalyst and be emitted from the exhaust stack, but this amount is less than that required to produce an odor offsite. The expected exhaust gas ammonia concentration, known as ammonia "slip," will be less than 5 ppmv. After mixing with the atmosphere, the concentration at ground level will be far below the detectable odor threshold of 5 ppmv that the Compressed Gas Association has determined to be acceptable, as well as being below the ACGIH[9] TLV[10] and STEL[11] values of 25 and 35 ppm respectively (adopted 2003). Therefore, potential ammonia emissions would not create a significant odor. Other combustion contaminants are not present at concentrations that could produce a significant odor.

[9] American Congress of Industrial Hygienists
[10] Threshold Limit Value
[11] Short-term Exposure Level

5.16.2.6 Electromagnetic Field Exposure

The PPEC will connect to the SDG&E transmission grid through a newly constructed transmission line, which will connect to the existing SDG&E 230 kV Otay Mesa switchyard east of the facility. The project will include additional onsite electric power handling transformers and associated equipment, as discussed in more detail in Section 3.7. Based on recent findings of the National Institute of Environmental Health Sciences (NIEHS, 1999), electromagnetic field exposures from the electric power handling equipment would not result in a significant impact on public health. The NIEHS report to the U.S. Congress found that "the probability that EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm"(NIEH 1999).

5.16.2.7 Summary of Impacts

Results from the health risk assessment based on emissions modeling indicate that there will be no significant incremental public health risks from construction or operation of the PPEC. The summary of health risks in Table 5.16-5 shows that the risks are below the thresholds in SDAPCD Rule 1200. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} would not exceed ambient air quality standards, with the exception of the state PM_{10} and $PM_{2.5}$ standards. For these pollutants, existing 24-hour average PM_{10} background concentrations and PM_{10} and $PM_{2.5}$ annual background concentrations already exceed state standards, while the project would not add a significant contribution. The ambient air quality standards protect public health with a margin of safety for the most sensitive subpopulations (Section 5.2).

5.16.3 Cumulative Impacts

An analysis of potential cumulative air quality impacts that may result from the PPEC and other reasonably foreseeable projects is required by the CEC. The following requirements for other projects to qualify for cumulative air quality impact analysis were submitted to the SDAPCD in a request letter on November 22, 2010:

- Have a net emissions increase of five tons per year or more of NO_x, PM_{10}, SO_x, or CO;
- Be located within a six-mile radius of the PPEC project site; and
- Be issued a new Authority to Construct permit after January 1, 2004.

The SDAPCD provided a list of permits within the county issued after January 1, 2004. None of the facilities had a net emissions increase exceeding five tons per year of the listed pollutants. Hence, a cumulative impacts analysis for either criteria pollutants or TACs is not required.

5.16.4 Mitigation Measures and Conditions of Certification

The criteria pollutant emissions from the project will be mitigated by the use of Best Available Control Technology (BACT) and through emissions offsets. These measures are described in Section 5.2, Air Quality. The toxic pollutant emissions from the project will also be mitigated by

the exclusive use of natural gas fuel. In addition, pollution control technologies employed to control criteria pollutants (specifically, the oxidation catalyst on the turbines) will further reduce turbine emissions of organic TACs. These measures satisfy the SDAPCD requirements for toxics (TBACT) for natural gas-fired generation units. Emissions from the cooling system will be limited by the use of an efficient drift control eliminator, and a biocide will be used to minimize the possibility of Legionella being transmitted from the cooling system.

The HRA presented in the foregoing subsections shows that the health effects impacts of the project as proposed would be well below the significance thresholds identified in Section 5.16.2.1. Therefore, no further mitigation of emissions from the project is required to protect public health.

5.16.5 Laws, Ordinances, Regulations, and Standards

An overview of the regulatory process for public health issues is presented in this section. The relevant LORS that affect public health and are applicable to the PPEC are identified in Table 5.16-8. The compliance of the project with each of the LORS applicable to public health is demonstrated is also presented in the table.

TABLE 5.16-8
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS APPLICABLE TO PUBLIC HEALTH

LORS	Purpose	Regulating Agency	AFC Section Explaining Conformance
Federal			
Clean Air Act (CAA) §160-169A and implementing regulations, Title 42 United States Code (USC) §7470-7491 (42 USC 7470-7491), Title 40 Code of Federal Regulations (CFR)	Protect public health by limiting emissions and resulting exposure to air contaminants	SDAPCD, with CARB and EPA oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3) Based on an ambient air quality modeling analysis performed in accordance with SDAPCD and EPA guidance, project criteria pollutant impacts would not exceed primary ambient air quality standards established to protect public health. (§5.2.4)
40 CFR Part 68 (Risk Management Plan)	Public exposure to acutely hazardous materials	EPA, San Diego Department of Environmental Health	As discussed in Section 5.15, Hazardous Materials Handling, an RMP will be developed prior to commencement of facility operations. (§5.16.2.4)
State			
California Health & Safety Code (H&SC) §25249.5 et.seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)	Inform public at a facility of potential exposure to chemicals known to cause cancer or reproductive toxicity	OEHHA	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines non-criteria pollutant emission rates and resulting doses and carcinogenic risks (see Section 5.16.2) will not exceed thresholds that require Proposition 65 exposure warnings.
H&SC §25531-25541; California Code of Regulations (CCR) Title 19 (Public Safety), Division 2 (Office of Emergency Services), Chapter 4.5 (California Accidental Release Prevention Program)	Public exposure to regulated substances	San Diego Department of Environmental Health	As discussed in Section 5.15, Hazardous Materials Handling, an RMP will be developed prior to commencement of facility operations. (§5.16.2.4)
California Public Resource Code § 25523(a); 20 CCR § 1752.5, 2300-2309, and Division 2 Chapter 5, Article 1, Appendix B, Part (1)	Ensure protection of environmental quality; requires a quantitative HRA.	CEC	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)
California Clean Air Act, TAC Program, HSC § 39650, et seq.	Requires quantification of TAC emissions, use of BACT, and preparation of an HRA.	SDAPCD with CARB oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)
HSC § 41700	Prohibits emissions in quantities that adversely affect public health, other businesses, or property.	SDAPCD with CARB oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)

LORS	Purpose	Regulating Agency	AFC Section Explaining Conformance
California Code of Regulations, Title 22, Section 60306	Requires use of a drift eliminator and biocides to minimize Legionella transmission from the cooling system.	SDAPCD with CARB oversight	Emissions from the cooling system will be limited by the use of an efficient drift control eliminator, and a biocide will be used to minimize the possibility of Legionella being transmitted from the cooling system. (§5.164)
Local			
SDAPCD Rule 1200, Toxic Air Contaminants New Source Review	Limit public exposure to toxic air contaminants from new sources	SDAPCD	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)
SDAPCD Regulation IV – Rule 51 - Nuisance	Prevents creation of a public nuisance	SDAPCD with CARB oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)

5.16.6 Involved Agencies and Agency Contacts

Table 5.16-9 provides contact information for agencies involved with public health.

TABLE 5.16-9
AGENCY CONTACTS

Agency	Authority	Contact
California Air Resources Board	Public exposure to air pollutants	Mike Tollstrup, Chief Project Assessment Branch California Air Resources Board 2020 L Street Sacramento, CA 95814 (916) 322-6026
Cal-EPA, Office of Environmental Health and Hazard Assessment (OEHHA)	Public exposure to chemicals known to cause cancer or reproductive toxicity	Cynthia Oshita or Susan Long Office of Environmental Health Hazard Assessment 1001 I Street, Sacramento, CA 95814 (916) 445-6900
California Office of Emergency Services	Public exposure to accidental releases of hazardous materials	Moustafa Abou-Taleb Governor's Office of Emergency Services 3650 Schriever Avenue Mather, CA 95655 (916) 845-8741
San Diego County Department of Environmental Health	Public exposure to accidental releases of hazardous materials	Matt Trainor County of San Diego Department of Environmental Health Administrative Offices 1255 Imperial Avenue, 3rd Floor San Diego, CA 92101 (619) 338-2372
San Diego Air Pollution Control District	Public exposure to air pollutants	Steve Moore, Senior Air Pollution Control Engineer San Diego County Air Pollution Control District 10124 Old Grove Road San Diego, CA 92131 858-586-2750

5.16.7 Permits Required and Permit Schedule

Agency-required permits related to public health are listed in Table 5.16-10 and include a Risk Management Plan for hazardous materials, and the SDAPCD Determination of Compliance (DOC). Upon approval of the PPEC by the CEC, the DOC serves as the SDAPCD Authority to Construct. A Permit to Operate will be issued by the SDAPCD after construction and commencement of operation. These requirements are discussed in detail in Sections 5.2 (Air Quality) and 5.15 (Hazardous Materials Handling).

TABLE 5.16-10
PERMITS AND PERMIT SCHEDULES FOR PUBLIC HEALTH

Permit	Agency	Schedule
Determination of Compliance/Authority to Construct/ Permit to Operate	San Diego Air Pollution Control District	District must issue a Preliminary DOC within 180 days after issuing the Application Completeness Determination Letter.
Risk Management Plan (CalARP)	San Diego County Department of Environmental Health	RMP application must be approved before arrival of hazardous materials on site.

5.16.8 References

California Air Resources Board (CARB). 2010. Consolidated table of OEHHA/ARB approved risk assessment health values. (http://arbis.arb.ca.gov/toxics/healthval/contable.pdf). October 18.

California Air Resources Board (CARB). HARP Model, Version 1.4c, http://www.arb.ca.gov/toxics/harp/harp.htm.

California Air Resources Board (CARB). HARP On-Ramp, Version 1, http://www.arb.ca.gov/toxics/harp/downloads.htm.

English, P., R. Neutra, et al. 1999. "Examining associations between childhood asthma and traffic flow using a geographic information system." *Environ Health Perspect* 107(9): 761-7.

English, Paul B., Julie Von Behren, Martha Harnly, and Raymond R Neutra. 1998. "Childhood asthma along the United States/ Mexico border: Hospitalizations and air quality in two California counties." Rev Panam Salud Publica [online]. 1998, vol.3, n.6, pp. 392-399. ISSN 1020-4989. doi: 10.1590/S1020-49891998000600005.

National Institute of Environmental Health Sciences (NIEHS). 1999. "Environmental Health Institute report concludes evidence is 'weak' that EMFs cause cancer." Press release. National Institute of Environmental Health Sciences, National Institutes of Health.

Office of Environmental Health Hazard Assessment (OEHHA). 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, California Environmental Protection Agency. August.

Office of Environmental Health Hazard Assessment (OEHHA). 2009. *Air Toxics Hot Spots Program Risk Assessment Guidelines Part II: Technical Support Document for Cancer Potency Factors*, California Environmental Protection Agency. May.

Ostro, B., Lindsey Roth, et al. 2009. "The Effects of Fine Particle Components on Respiratory Hospital Admissions in Children." Environmental Health Perspectives 117(3): 475-480.

San Diego Air Pollution Control District (SDAPCD). 2005. *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs).* March.

San Diego Air Pollution Control District (SDAPCD). 2009. Carlsbad Energy Center Project (CECP) Final Determination of Compliance (FDOC). August.

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Public Health** Project: Pio Pico Energy Center Technical Staff: ____
Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	See Below		
Appendix B (g) (9) (A)	An assessment of the potential risk to human health from the project's hazardous air emissions using the Air Resources Board Hotspots Analysis and Reporting Program (HARP) (HSC §§44360-44366) or its successor and Approved Risk Assessment Health Values. These values should include the cancer potency values and noncancer reference exposure levels approved by the Office of Environmental Health Hazard Assessment (OEHHA Guidelines, Cal-EPA 2005).	Section 5.16.2.3, Tables 5.16-4 and 5.16-5.		
Appendix B (g) (9) (B)	A listing of the input data and output results, in both electronic and print formats, used to prepare the HARP health risk assessment.	Input data shown in Appendix P-1, Tables P-1.1 to P-1.3. Electronic input/output files discussed in Section 5.16.2.3 (regarding attached modeling CD).		
Appendix B (g) (9) (C)	Identification of available health studies through the local public health department concerning the potentially affected population(s) within a six-mile radius of the proposed power plant site related to respiratory illnesses, cancers or related diseases.	Section 5.16.1		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Public Health** Project: Pio Pico Energy Center Technical Staff: ____
Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (9) (D)	A map showing sensitive receptors within the area exposed to the substances identified in subsection (g)(9)(A).	N/A (No sensitive receptors within 3 miles of the receptor site).		
Appendix B (g) (9) (E)	For purposes of this section, the following definitions apply:	--		
Appendix B (g) (9) (E) (i)	A sensitive receptor refers to infants and children, the elderly, and the chronically ill, and any other member of the general population who is more susceptible to the effects of the exposure than the population at large;	--		
Appendix B (g) (9) (E) (ii)	An acute exposure is one which occurs over a time period of less than or equal to one (1) hour; and	--		
Appendix B (g) (9) (E) (iii)	A chronic exposure is one which is greater than twelve (12) percent of a lifetime of seventy (70) years.	--		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 5.16, Table 5.16-8.		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Public Health** Project: Pio Pico Energy Center Technical Staff: ____
Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Section 5.16.6, Table 5.16-9 and Section 5.16.7, Table 5.16-10.		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Section 5.16.6, Table 5.16-9.		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 5.16.7, Table 5.16-10.		

5.2 TABLE OF CONTENTS

5.2 AIR QUALITY 5.2-1
5.2.1 Affected Environment 5.2-3
5.2.2 Involved Agencies and Agency Contacts 5.2-14
5.2.3 Laws, Ordinances, Regulations, and Standards 5.2-15
5.2.4 Environmental Consequences 5.2-30
5.2.5 Cumulative Air Quality Impacts 5.2-56
5.2.6 Consistency with Laws, Ordinances, Regulations, and Standards 5.2-61
5.2.7 Mitigation Measures 5.2-67
5.2.8 Permits Required and Permit Schedule 5.2-68
5.2.9 References 5.2-69

LIST OF TABLES

Table 5.2-1 Average Temperatures and Precipitation in Bonita, San Diego County (1915-1970) 5.2-4
Table 5.2-2 National and California Ambient Air Quality Standards 5.2-5
Table 5.2-3 Ozone Levels at Chula Vista (PPM) 5.2-8
Table 5.2-4 Nitrogen Dioxide Levels at Chula Vista (PPM) 5.2-9
Table 5.2-5 Carbon Monoxide Levels at Chula Vista (PPM) 5.2-10
Table 5.2-6 Sulfer Dioxide Levels at Chula Vista (PPM) 5.2-11
Table 5.2-7 Particulate Matter (PM_{10}) Levels at Chula Vista ($\mu g/m^3$) 5.2-12
Table 5.2-8 Particulate Matter ($PM_{2.5}$) Levels at Chula Vista ($\mu g/m^3$) 5.2-13
Table 5.2-9 Agency Contacts 5.2-15
Table 5.2-10 PSD Significant Emission Thresholds 5.2-17
Table 5.2-11 PSD Increments and Significant Impact Levels 5.2-18
Table 5.2-12 Laws, Ordinances, Regulations, and Standards 5.2-27
Table 5.2-13 Estimated Construction Equipment/Vehicle Usage 5.2-32
Table 5.2-14 Maximum Daily Construction Emissions, Pounds Per Day Month 8 (Combustion) Month 2 (Fugitive Dust) 5.2-34
Table 5.2-15 Maximum Annual Construction Emissions, Tons Per Year 5.2-34
Table 5.2-16 Nominal Fuel Properties—Natural Gas 5.2-35
Table 5.2-17 Commissioning Emissions (Per Turbine) 5.2-37
Table 5.1-18 Maximum Emission Rates—Combustion Turbines 5.2-38
Table 5.2-19 Startup and Shutdown Emissions (Per Turbine) 5.2-39
Table 5.2-20 Emission Summary 5.2-40
Table 5.2-21 Criteria Pollutant Sources and Emission Totals for Modeling 5.2-41
Table 5.2-22 Non-Criteria Pollutant Emission Totals For Modeling 5.2-42

Table 5.2-23 Project Greenhouse Gas Emissions 5.2-43
Table 5.2-24 Construction Greenhouse Gas Emissions 5.2-43
Table 5.2-25 Modeled Maximum Impacts During Construction 5.2-50
Table 5.2-26 Modeled Maximum Impacts During Commissioning 5.2-51
Table 5.2-27 Summary of Modeling Results 5.2-53
Table 5.2-28 Summary of Results (Modeled Maximum Impacts Plus Background) 5.2-55
Table 5.2-29 Summary of Results of Demonstration of Compliance with Federal 1-Hour NO_2 and 24-Hour $PM_{2.5}$ Standards 5.2-56
Table 5.2-30 Comparison of Project Emissions to Regional Precursor Emissions in 2010: Annual Basis[1] 5.2-57
Table 5.2-31 PSD Significant Emission Thresholds 5.2-61
Table 5.2-32 Compliance with 40 CFR 60 Subpart KKKK 5.2-62
Table 5.2-33 Applicability of BACT Requirements Under NSR 5.2-65
Table 5.2-34 Summary of Proposed BACT 5.2-65
Table 5.2-35 PPEC Offset AND MITIGATION Requirements and ERC Availability 5.2-68

5.2 AIR QUALITY

Pio Pico Energy Center (PPEC) is a proposed 300 megawatt (MW) simple-cycle electrical generating facility located in an industrial area of San Diego County, adjacent to the existing Otay Mesa Generating Project (OMGP). PPEC will supply fast response power to help San Diego Gas & Electric (SDG&E) meet cyclic demand and further utilize renewable resources. The project will be constructed on disturbed land and prepared land, and will include a 230 kilovolt (kV) transmission line, a natural gas supply pipeline, and short connections into adjacent streets for potable and recycled water supply, and sewer and stormwater discharge.

The generating facility would include three General Electric (GE) LMS100 natural gas-fired combustion turbine generators (CTGs), each equipped with water injection to the combustors for reducing production of oxides of nitrogen (NO_x), a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia (NH_3) injection to further reduce NO_x emissions, and an oxidation catalyst to reduce carbon monoxide (CO) emissions.

The project will be a new major stationary source under District New Source Review regulations because it will have a potential to emit more than 50 tons per year (TPY) of NO_x; it will also be a new major source under the federal Prevention of Significant Deterioration (PSD) program because it will have the potential to emit more than 100,000 TPY of greenhouse gases (GHGs), a federally regulated pollutant, and construction will commence after July 1, 2011.

This section of the AFC describes existing air quality conditions, maximum potential impacts from the project, compliance with applicable laws, ordinances, regulations and standards, and mitigation measures that keep project impacts below applicable thresholds of significance. The methodology and results of the air quality analysis used to assess potential impacts are also presented. The analysis has been conducted according to the California Energy Commissions (CEC) power plant siting requirements and also addresses San Diego Air Pollution Control District (SDAPCD) air permitting requirements. A separate PSD application will be submitted to EPA by mid-February, 2011.

The project will use the latest, most efficient generation technology to generate electricity in a manner that will minimize the amount of fuel needed, emissions of criteria pollutants, and potential effects on ambient air quality.

Other beneficial environmental aspects of the project that minimize adverse air quality impacts include the following:

- Clean-burning natural gas as fuel;
- Selective catalytic reduction (SCR) and combustion turbine water injection to reduce NOx emissions;
- Oxidation catalysts to reduce emissions of carbon monoxide and hazardous air pollutants; and
- Appropriately sized stacks to reduce ground-level concentrations of exhaust constituents.

Details of the air quality assessment of the project are contained in the following subsections:

- Section 5.2.1, Affected Environment, describes the local environment surrounding PPEC, including topography, climate, and existing air quality. The most representative meteorological data, including wind speed and direction, temperature, relative humidity, and precipitation, and the most representative recent ambient concentration measurements for criteria air pollutants are summarized.

- Section 5.2.2, Involved Agencies and Agency Contacts, lists the agency personnel contacted during preparation of the air quality assessment.

- Section 5.2.3, Laws, Ordinances, Regulations, and Standards, describes applicable laws, ordinances, regulations, and standards (LORS) pertaining to air quality aspects of the project.

- Section 5.2.4, Environmental Consequences, evaluates the maximum potential air quality impacts due to the project's emissions of nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), volatile organic compounds (VOCs), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Emission estimates for these pollutants are presented for the construction phase of the project, as well as for operation of the installed equipment over a full range of operating modes, including commissioning, startups and shutdowns, maintenance activities, and normal operation with operable pollution control systems. A dispersion modeling analysis for nitrogen dioxide (NO_2), CO, sulfur dioxide (SO_2), PM_{10}, and $PM_{2.5}$ is presented; the results show that the project would not cause or significantly contribute to exceedances of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS). Emissions of greenhouse gases (GHGs) from the project are also described.

- Section 5.2.5, Cumulative Air Quality Impacts, addresses the cumulative impacts of the project emissions with other potential new sources of air pollution in the area around PPEC.

- Section 5.2.6, Consistency with Laws, Ordinances, Regulations, and Standards, describes how the project will comply with applicable laws, ordinances, regulations, and standards (LORS) pertaining to air quality aspects of the project. This section also provides an analysis of best available control technology (BACT) for the proposed project and explains how the use of water injection with selective catalytic reduction (SCR) and ammonia injection satisfies the SDAPCD NO_x requirements for BACT for the PPEC turbines and how the use of an oxidation catalyst meets the corresponding CO BACT requirements.

- Section 5.2.7, Mitigation Measures, describes the project emission offsets strategy, including emission reduction credits (ERCs) that are proposed to offset project emissions.

- Section 5.2.8, Permits Required and Permit Schedule, lists the air quality permits required for the project and provides a permit schedule for the project.

- Section 5.2.9, References, lists the references used to conduct the air quality assessment.

Some air quality data are presented in other sections of this Application for Certification (AFC), including an evaluation of toxic air pollutants (see Section 5.16, Public Health and Safety) and information relating to the fuel characteristics, heat rate, and startup and operating limits of PPEC (see Section 3.0, Facility Description).

The District has required use of meteorological and ambient data for the period 2006 through 2008 for the purposes of this analysis, and has provided the data in files used to conduct the modeling. All results in this section are based on background data from that time period. EPA requires use of five years' worth of data (if available) for the PSD permit. The supplemental analysis in support of the PSD application will be submitted at a later date, after receipt of additional data from the District, and will be based on the five-year period 2004 through 2008.

5.2.1 Affected Environment

This section describes the regional climate and meteorological conditions that influence the transport and dispersion of air pollutants, as well as the existing air quality within the project region. The data presented in this section are representative of the project site.

PPEC is located in an industrial area of San Diego County, adjacent to the existing OMGP. The project site is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection. The proposed project site comprises the entire parcel with Assessor's Parcel Number (APN) 648-040-45, and the laydown area consists of 6.00 acres of an adjacent parcel to the south (APN 648-040-46) (Figure 3.3-2, Project Location).

5.2.1.1 Geography and Topography

The project site is near the western base of the San Ysidro Mountains at an elevation of approximately 635 feet above mean sea level. Terrain elevations are generally flat to the west and south of the project site

5.2.1.2 Meteorology and Climate

Consistent with the typical weather of coastal Southern California, western San Diego County in general enjoys a mild Mediterranean and semi-arid climate characterized by low precipitation, warm summers, mild winters, and temperature inversions. The area's climatic conditions are strongly influenced by the large-scale sinking and warming of air in the semi-permanent subtropical high-pressure center over the eastern Pacific. This high-pressure system effectively blocks out most mid-latitude storms, except in winter when the ridge is weaker and farther south. The coastal mountains on the eastern edge of the county also have a major influence on climate, serving as a meteorological boundary that effectively removes moisture from the marine air flowing from the Pacific.

The nearest full-time meteorological monitoring station to the proposed project site is maintained by the SDAPCD and is located at Otay Mesa on California State Route 905 at the U.S.–Mexico border, approximately 1.9 miles south of the project site. Based on five years of data collection in 2004-2008, the annual average temperature measured there is 63 degrees Fahrenheit (°F). Temperatures of 32°F or below rarely occur at this station, but temperatures of 90°F or above are more frequent, occurring from April through August. During the fall, Santa Ana winds can last

for several days. These are strong, dry, easterly winds from the inland desert areas and result in high temperatures (greater than 90°F) and low relative humidity (often below 20%) in the project area.

San Diego County receives most of its annual rainfall from November to March, when the semi-permanent high-pressure system over the eastern Pacific Ocean moves south, allowing storms to move through the area. The average annual precipitation at the project site is about 11 inches. Local wind circulations are driven by temperature differentials between the land and adjacent Pacific Ocean, creating a system of sea- and land-breezes. Winds are typically of light to moderate strength from the sector between northwest and southwest. Annual and quarterly wind roses and quarterly wind frequency distributions for the project area are provided in Appendix G-1.

During springtime, a local marine layer forms at night and can remain through the morning, causing considerable fogginess along the coastline and extending inland several miles. This fog typically dissipates during the late morning, and the afternoons are generally clear. Fog can also occur during the fall and winter months, lasting well into the day.

The nearest long-term meteorological station with available temperature and precipitation means and extremes is a National Weather Service Cooperative Network (COOP) station in Bonita. This weather station is located approximately 8.7 miles to the northwest of the PPEC at latitude 32°39.6'N, longitude 117°02.0'W. Data collected at this station over a 55-year period (1915-1970) are presented in Table 5.2-1. The hottest month, August, has an average maximum temperature of 80.8°F and an average minimum temperature of 60.7°F. The coldest month, January, has an average maximum temperature of 66.4°F and an average minimum temperature of 40.0°F.

TABLE 5.2-1
AVERAGE TEMPERATURES AND PRECIPITATION IN BONITA, SAN DIEGO COUNTY (1915-1970)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Max Temperature (°F)	66.4	67.3	68.6	70.9	72.6	75.0	79.4	80.8	80.6	77.0	73.5	68.4	73.4
Average Min Temperature (°F)	40.0	42.2	44.2	48.2	52.6	55.9	59.6	60.7	57.5	51.6	44.3	40.9	49.8
Precipitation (in)	2.14	2.09	1.75	0.97	0.36	0.06	0.01	0.06	0.18	0.55	1.09	2.25	11.51

Source: Western Regional Climate Center (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0968)
Notes:
°F = degrees Fahrenheit
in = inches
Max = maximum
Min = minimum

During winter, the semi-permanent, subtropical high-pressure system over the Pacific Ocean moves south, allowing the passage of frontal systems that bring most of the area's annual precipitation, which totals about 11 inches on average. Monthly mean precipitation amounts at Bonita range from 2.25 inches in December to 0.01 inches in July. Relative humidity levels are generally moderate. In the summer, relative humidity averages 60 to 70 percent in the early

morning and about 30 to 50 percent in the afternoon. In winter, relative humidity averages 70 to 80 percent in the early morning and 40 to 60 percent in the afternoon. At the Otay Mesa station, the prevailing wind direction for most of the year is from the northwest. Wind direction is much more variable during winter months, which can often be associated with the passing of winter storm systems. Wind speeds are normally light or calm.

5.2.1.3 Overview of Air Quality Standards

The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) for ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with aerodynamic diameter less than or equal to ten microns (PM_{10}), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and airborne lead. Areas with ambient levels above these standards are designated by EPA as "nonattainment areas" subject to planning and pollution control requirements that are more stringent than standard requirements.

The California Air Resources Board (CARB) has established California ambient air quality standards for ozone, CO, NO_2, SO_2, sulfates, PM_{10}, $PM_{2.5}$, airborne lead, hydrogen sulfide, and vinyl chloride at levels designed to protect the most sensitive members of the population, particularly children, the elderly, and people who suffer from lung or heart diseases.

Both state and national air quality standards consist of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is to be measured. Allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (one hour, for instance), or to a relatively lower average concentration over a longer period (eight hours, 24 hours, or one month). For some pollutants there is more than one air quality standard, reflecting both short-term and long-term effects. Table 5.2-2 presents the NAAQS and California ambient air quality standards for selected pollutants. The California standards are generally set at concentrations lower than the federal standards and, in some cases, have shorter averaging periods.

TABLE 5.2-2
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Averaging Time	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		--		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 µg/m³ [1]	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15.0 µg/m³		
Carbon Monoxide	8 Hour	9.0 ppm (1 mg.m³)	Non-Dispersive Infrared Photometry	9 ppm (10 mg.m³)	None	Non-Dispersive Infrared Photometry

Averaging Time	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
	1 Hour	20 ppm (23 mg.m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Gas Phase Chemiluminescence	53 ppb (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m^3)		100 ppb[2] (188 µg/m^3)	None	
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence	--	--	Ultraviolet Fluorescence Spectrophotometry (Parasaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		75 ppb[3] (196 µg/m^3)	--	
Lead	30 Day Average	1.5 µg/m^3	Atomic Absorption	--	--	--
	Calendar Quarter	--		1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	--		0.15 µg/m^3		
Visibility Reducing Particles	8 Hour	Extinction Coefficient of 0.23 per kilometer—visibility of ten miles or more due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Notes:
[1] To attain this standard, the 3-year average of the 98th percentile of the daily concentrations must not exceed 35 µg/m^3.
[2] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average must not exceed 100 ppb.
[3] To attain this standard, the 3-year average of the 99th percentiles of the daily maximum 1-hour average must not exceed 75 ppb.
Source: California Air Resources Board (09/08/10)

5.2.1.4 Existing Air Quality

All ambient air quality data presented in this section were published by the California Air Resources Board (CARB) on the ADAM website and/or by U.S. Environmental Protection Agency (EPA) on the AIRS data website. Ambient air concentrations of ozone (O_3), NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ are recorded at monitoring stations throughout San Diego County. The immediate area surrounding the project site (within 1.5 to two miles) is an area with sparse population. Further out, areas to the north, northeast, east, and southeast are all vacant, hilly terrain with very sparse population. However, areas more than two miles to the south (Tijuana), five miles west (Otay Mesa West) and northwest (Sunbowl) are urban or suburban areas with moderate to high-density residential areas. Most air quality monitoring stations in the region only record measurements for one or two criteria pollutants, except for those stations located in urban areas. The monitoring stations were generally positioned to represent area-wide ambient conditions rather than the localized impacts of any particular emission source or group of sources. In rural areas of the county, pollutant concentrations are not expected to vary

dramatically from one location to the next, because the emission sources are few and widely distributed. Concentrations of pollutants emitted by industrial and vehicular sources are generally higher in the more populated areas of greater San Diego than in the rest of the county.

The closest air quality monitoring station to the project is located in Otay Mesa at the Otay Mesa-Paseo International Border crossing 1.9 miles south of the project. However, the pollutant concentrations recorded at this station are heavily influenced by the emissions from the hundreds of Mexican vehicles waiting each hour at the border entry point of Otay Mesa-Paseo International, burning fuels that do not meet strict United States and California standards. The San Diego - Overland Street and San Diego - 1110 Beardsley Street monitoring stations are both more than 15 miles away from the PPEC facility, and both are located in the coastal area. The air quality data at these monitoring stations are not representative of the greater Lower Otay Lake area. Therefore, after consultation with the District, data from the Chula Vista monitoring station 9 miles northwest of the project site were used to represent background air pollutant concentrations for the vicinity of the project. As directed by the SDAPCD, background data for the 2006 to 2008 time period were selected for the air modeling analysis of the project, although five years of background data are presented below to characterize the existing conditions at the project site. The PSD supplement, which will be submitted at a later date, will use background data from 2004 through 2008.

Ambient concentrations of O_3, NO_2, SO_2, CO, $PM_{2.5}$, and PM_{10} are recorded at the Chula Vista monitoring station located at 80 East J Street, approximately 9 miles northwest of the project site. The closest station that monitors ambient lead is in Imperial County (Calexico-Ethel Street).

Ozone (O_3). Ozone is an end-product of complex reactions between VOC and NOx in the presence of ultraviolet solar radiation. VOC and NO_x emissions from vehicles and stationary sources, combined with daytime wind flow patterns, mountain barriers, temperature inversions, and intense sunlight, generally result in the highest O_3 concentrations. For purposes of both state and federal air quality planning, the entire San Diego air basin is classified as a nonattainment area with respect to both state and national ambient standards for ozone. Table 5.2-3 shows the measured ozone levels at the Chula Vista station during the period from 2004 to 2008. The one-hour ozone CAAQS of 0.09 parts per million (ppm) was exceeded four times during the five-year analysis period.

TABLE 5.2-3
OZONE LEVELS AT CHULA VISTA (PPM)

Chula Vista Station, San Diego County	2004	2005	2006	2007	2008
Maximum 1-hour Average	0.10	0.09	0.08	0.11	0.11
Number of Days Exceeding California 1-hour Standard (0.09 ppm)	1	0	0	2	1
Number of Days Exceeding Old National 1-hour Standard (0.12 ppm)[1]	0	0	0	0	0
Maximum 8-hour Average	0.09	0.08	0.07	0.09	0.08
Number of Days Exceeding California 8-hour Standard (0.07 ppm)	3	3	0	3	4
Number of Days Exceeding National 8-hour Standard (0.075 ppm)[2]	1	1	0	1	3

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html).
[1] EPA revoked the 1-hour ozone standard in all areas on June 15, 2005.
[2] To attain this standard, the 3-year average of the fourth-highest maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (Effective May 27, 2008).
ppm = parts per million

The federal eight-hour ozone NAAQS requires that the three-year average of the fourth-highest values for individual years be maintained at or below 0.075 ppm. Therefore, the number of days in each year with maximum eight-hour concentrations above the standard in Table 5.2-3 does not equate to the number of violations.

O_3 data completeness at the Chula Vista station averaged 97 percent over the five-year analysis period.

Nitrogen Dioxide (NO_2). NO_2 is formed primarily from reactions in the atmosphere between NO (nitric oxide) and oxygen (O_2) or ozone. NO is formed during high-temperature combustion processes, when the nitrogen and oxygen in the combustion air combine. Although NO is much less harmful than NO_2, it can be converted to NO_2 in the atmosphere within a matter of hours, or even minutes, under certain conditions. The control of NO and NO_2 emissions is also important because of the role of both compounds in the atmospheric formation of ozone.

Table 5.2-4 shows NO_2 levels recorded at the Chula Vista station for the years 2004 through 2008.

TABLE 5.2-4
NITROGEN DIOXIDE LEVELS AT CHULA VISTA (PPM)

Chula Vista Station, San Diego County	2004	2005	2006	2007	2008
Maximum 1-hour Average	0.072	0.071	0.074	0.082	0.072
Annual Average	0.016	0.016	0.017	0.015	0.015
Days Over State Standard (0.18 ppm, 1-hour)	0	0	0	0	0
Days Over Federal Standard (0.100 ppm, 1-hour)[1]	NA	NA	NA	NA	NA

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html).
[1]The new federal 1-hour average NO_2 standard of 0.100 ppm was announced by EPA on February 9, 2010 and became effective April 12, 2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average values at each monitor must not exceed 100 ppb.
NA = not applicable
ppm = parts per million

For purposes of both state and federal air quality planning, the San Diego air basin is in attainment with regard to NO_2. During the period from 2004 to 2008, there were no violations of the CAAQS one-hour standard (0.18 ppm) at any monitoring station in San Diego County. The highest one-hour concentration recorded at the Chula Vista station during the years 2004 to 2008 was 0.082 ppm in 2007. A new federal one-hour NO_2 standard of 0.100 ppm became effective on April 12, 2010. To attain this standard, the three-year average of the 98th percentile of the daily maximum one-hour average at each monitor within San Diego air basin must not exceed 0.100 ppm. Table 5.2-4 also shows that there were no violations of the annual NAAQS (0.053 ppm) or annual CAAQS (0.030 ppm) at the Chula Vista station during this period.

Data completeness for NO_2 concentrations at the Chula Vista station averaged 97 percent for the 2004 through 2008 period.

Carbon Monoxide (CO). Carbon monoxide is a product of incomplete combustion and is emitted principally from automobiles and other mobile sources of pollution. It is also a product of combustion from stationary sources (both industrial and residential) burning fuels. Peak CO levels occur typically during winter months due to a combination of higher emission rates and stagnant weather conditions.

Table 5.2-5 shows the available data on maximum one-hour and eight-hour average CO levels recorded at the Chula Vista station during the period from 2004 to 2008. As indicated by this table, the maximum measured one-hour average CO levels comply with the NAAQS and CAAQS (35.0 ppm and 20.0 ppm, respectively) and the maximum eight-hour values comply with the NAAQS and CAAQS of 9.0 ppm. The highest individual one-hour and eight-hour CO concentrations at this station during the period from 2006 to 2008 were 3.9 ppm and 2.5 ppm, respectively, both recorded in 2004. Because ambient CO concentrations are generally highest in the immediate vicinity of large fuel-burning sources, the concentrations at the Chula Vista

monitoring station provide a conservative overestimate of actual concentrations in the project site area. For purposes of both state and federal air quality planning, the San Diego air basin is in attainment with regard to CO.

TABLE 5.2-5
CARBON MONOXIDE LEVELS AT CHULA VISTA (PPM)

Chula Vista Station, San Diego County	2004	2005	2006	2007	2008
Maximum 1-hour Average	3.9	2.8	2.7	3.1	2.0
Maximum 8-hour Average	2.5	2.1	2.2	2.2	1.9
Days Over the 8-hour California Standard (9 ppm)	0	0	0	0	0
Days Over the 8-hour Federal Standard (9 ppm)	0	0	0	0	0

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AIRS Website (www.epa.gov/air/data/index.html)
ppm = parts per million

Data completeness for CO concentrations at the Chula Vista station averaged 95 percent over the five-year analysis period.

Sulfur Dioxide (SO_2). SO_2 is produced by the combustion of any sulfur-containing fuel. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains nearly negligible sulfur, whereas fuel oils may contain much larger amounts. Because of the complexity of the chemical reactions that convert SO_2 to other compounds (such as sulfates), peak concentrations of SO_2 occur at different times of the year in different parts of California, depending on local fuel characteristics, weather, and topography. The San Diego air basin is considered to be in attainment for SO_2 for purposes of state and federal air quality planning.

Table 5.2-6 shows the available data on maximum one-hour, three-hour, 24-hour, and annual average SO_2 levels recorded at the Chula Vista station during the period from 2004 to 2008. As indicated by this table, the maximum measured one-hour average SO_2 levels comply with the new NAAQS (75 ppb) and CAAQS (0.25 ppm), the maximum three-hour average SO_2 levels comply with the NAAQS (0.5 ppm), and the maximum 24-hour values comply with the NAAQS and CAAQS of 0.14 ppm and 0.04 ppm, respectively. The table also demonstrates compliance with the annual SO_2 NAAQS of 0.03 ppm. Note that the 24-hour and annual NAAQS for SO_2 have been superseded by the new one-hour NAAQS, which became effective on August 23, 2010. SO_2 data completeness at the Chula Vista station averaged 97 percent over the five-year analysis period.

TABLE 5.2-6
SULFER DIOXIDE LEVELS AT CHULA VISTA (PPM)

Chula Vista Station, San Diego County	2004	2005	2006	2007	2008
Highest 1-hour average	0.042	0.016	0.017	0.012	0.010
Highest 3-hour average	0.021	0.009	0.013	0.007	0.005
Highest 24-hour average	0.016	0.005	0.006	0.004	0.004
Annual Average	0.003	0.003	0.003	0.002	0.002
Days Over 1-hour State Standard (0.25 ppm)	0	0	0	0	0
Days Over 1-hour Federal Standard (75 ppb)[1]	0	0	0	0	0
Days Over 24-hour State Standard (0.04 ppm)	0	0	0	0	0
Days Over 3-hour Federal Standard (0.5 ppm)	0	0	0	0	0

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AIRS Website (www.epa.gov/air/data/index.html)
[1] Final rule signed June 22, 2010, effective August 23, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.
ppm = parts per million

Respirable Particulate Matter (PM_{10}). Particulates in the air are caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources and manufacturing processes; and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxides, and nitrogen oxides. Particulates with a diameter less than or equal to ten microns are referred to as PM_{10}, and are regulated because they can be inhaled, leading to health effects. Fine particulates, referred to as $PM_{2.5}$ and having a diameter equal to or less than 2.5 microns, are a subset of PM_{10} that are also regulated. $PM_{2.5}$ standards are discussed later in this section.

Table 5.2-7 shows the maximum PM_{10} levels recorded at the Chula Vista monitoring station during the period from 2004 through 2008 and the arithmetic annual average concentrations for the same period. (The arithmetic annual average is simply the arithmetic mean of the daily observations.) PM_{10} is monitored according to different protocols for evaluating compliance with the state and federal standards for this pollutant. Specifically, California uses a gravimetric or beta attenuation method, whereas compliance with federal standards is evaluated based on an inertial separation and gravimetric analysis. This accounts for the slightly differing 24-hour concentrations listed in Table 5.2-7 that represent data obtained by means of the state and federal samplers.

At the Chula Vista station, the maximum 24-hour PM_{10} levels exceed the CAAQS state standard of 50 micrograms per cubic meter (μg/m3) a few times per year. The maximum daily concentration recorded during the analysis period was 58 $\mu g/m^3$ (state samplers) in 2007. The maximum annual arithmetic mean concentration recorded at Chula Vista was 27.0 $\mu g/m^3$ in 2005, which is above the state standard of 20 $\mu g/m^3$. The federal annual PM_{10} standard was revoked by the EPA in 2006 due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution. San Diego County's attainment status for the federal PM_{10} standard is "unclassified." San Diego County is not in attainment with state PM_{10} standards.

PM_{10} concentration data completeness at the Chula Vista station averaged 99 percent for the five years analyzed.

TABLE 5.2-7
PARTICULATE MATTER (PM_{10}) LEVELS AT CHULA VISTA ($\mu g/m^3$)

Chula Vista Station, San Diego County	2004	2005	2006	2007	2008
Maximum 24-hour Average (federal testing samplers)	44	52	51	57	53
Maximum 24-hour Average (state testing samplers)	45	53	52	58	54
Annual Arithmetic Mean[1]	26.4	27.0	26.3	26.1	26.7
Estimated Number of Days Exceeding Federal Standard (150 µg/m³)	0	0	0	0	0
Estimated Number of Days Exceeding State Standard (50 µg/m³)	0	13.1	11.7	12.2	6.1

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html).
[1] On December 17, 2006, the annual PM_{10} federal standard (50 µg/m³) was revoked.
µg/m³ = micrograms per cubic meter
PM_{10} = particulate matter less than 10 microns in diameter

Fine Particulates ($PM_{2.5}$). Fine particulates result from fuel combustion in motor vehicles and industrial processes, residential and agricultural burning, and atmospheric reactions involving NOx, SOx, and organics. Fine particulates are referred to as $PM_{2.5}$ and have a diameter equal to or less than 2.5 microns. In 1997, EPA established annual and 24-hour NAAQS for $PM_{2.5}$ for the first time. The most recent revision to the standard regulating the 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations (35 µg/m3) became effective on December 17, 2006.

The $PM_{2.5}$ data in Table 5.2-8 show that the national 24-hour average NAAQS of 35 $\mu g/m^3$ was exceeded several times during the five-year analysis period, all during the 2007 calendar year. The maximum recorded 24-hour average value was 45.7 $\mu g/m^3$ in 2007. The highest value recorded in 2007 (77.8 $\mu g/m^3$) was excluded by the District as an exceptional event related to wild fires in the area. The annual $PM_{2.5}$ data are also presented in this table. The maximum annual arithmetic mean was 12.5 $\mu g/m^3$, recorded in 2007, which is below the national standard of 15 $\mu g/m^3$, but above the California standard of 12 $\mu g/m^3$. San Diego County's attainment status for the federal $PM_{2.5}$ standards is "unclassifiable/attainment." San Diego County is not in attainment with the state $PM_{2.5}$ standard.

TABLE 5.2-8
PARTICULATE MATTER ($PM_{2.5}$) LEVELS AT CHULA VISTA ($\mu g/m^3$)

Chula Vista Station, San Diego County	2004	2005	2006	2007	2008
Maximum 24-hour Average (federal only)1	32.7	34.3	30.2	45.7	32.9
Annual Arithmetic Mean	12.2	11.8	11.2	12.5	12.3
Estimated Number of Days Exceeding Federal Standard (35 µg/m3)	0	0	0	9.9	0

Source: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html).
[1] EPA lowered the 24-hour standard from 65 µg/m3 to 35 µg/m3 on December 17, 2006. Compliance with this standard is based on the 3-year average of the 98th percentile daily concentrations.
µg/m3 = micrograms per cubic meter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter

Airborne Lead (Pb). Lead pollution has historically been emitted predominantly from the combustion of fuels. However, legislation in the early 1970s required a gradual reduction of the lead content of gasoline. Beginning with the introduction of unleaded gasoline in 1975, lead levels have been dramatically reduced throughout the U.S., and violations of the ambient standards for this pollutant have been virtually eliminated.

On October 15, 2008, EPA revised the federal ambient air quality standard for lead, lowering it from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ for both the primary and the secondary standard. EPA determined that numerous health studies are now available that demonstrate health effects at much lower levels of lead than previously thought. EPA subsequently published the final rule in the Federal Register on November 12, 2008. This is the first time that the federal lead standard has been revised since it was first issued in 1978.

In addition to revising the level of the standard, EPA changed the averaging time from a quarterly average to a rolling three-month average. The level of the standard is "not to be exceeded" and is evaluated over a three-year period. Lead levels are measured as lead in total suspended particulate (TSP). The revised lead standard also includes new monitoring requirements.

As lead concentrations dropped dramatically and all areas of California attained the previous standard, most lead monitors were shut down by the early 1990s and resources deployed to other pollutants. As a result, insufficient monitoring data exist to determine designations, and most areas of the state, including San Diego County, are unclassifiable for the revised standard. No monitoring stations in San Diego County measure lead concentrations.

Particulate Sulfates. Sulfate compounds found in the lower atmosphere consist of both primary and secondary particles. Primary sulfate particles are directly emitted from open pit mines, dry lakebeds, and desert soils. Fuel combustion is another source of sulfates, both primary and secondary. Secondary sulfate particles are produced when oxides of sulfur (SO_x) emissions are transformed into particles through physical and chemical processes in the atmosphere. Particles can be transported long distances. The San Diego air basin is unclassified with respect to the state ambient standard for sulfates; there is no federal standard.

Other State-designated Criteria Pollutants. Along with sulfates, California has designated hydrogen sulfide and visibility-reducing particles as criteria pollutants, in addition to the federal criteria pollutants. The San Diego air basin remains unclassified for both pollutants.

5.2.2 Involved Agencies and Agency Contacts

The EPA has responsibility for enforcing, on a national basis, the requirements of many of the country's environmental and hazardous waste laws. California is under the jurisdiction of EPA Region 9, which has its offices in San Francisco. Region 9 is responsible for the local administration of EPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories. EPA's activities relative to the California air pollution control program focus principally on reviewing California's submittals for the State Implementation Plan (SIP). The SIP is required by the federal Clean Air Act to demonstrate how all areas of the state will meet the national ambient air quality standards within the federally specified deadlines (42 USC §7409, 7411).

The California Air Resources Board was created in 1968 by the Mulford-Carrell Air Resources Act, through the merger of two other state agencies. CARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update as necessary the state's ambient air quality standards; to review the operations of the local air pollution control districts; and to review and coordinate preparation of the SIP for achievement of the federal ambient air quality standards (California Health & Safety Code (H&SC) §39500 et seq.).

When the state's air pollution statutes were reorganized in the mid-1960s, local air pollution control districts (APCDs) were required to be established in each county of the state (H&SC §40000 et seq.). There are three different types of districts: county, regional, and unified. In addition, special air quality management districts (AQMDs), with more comprehensive authority over non-vehicular sources as well as transportation and other regional planning responsibilities, have been established by the Legislature for several regions in California (H&SC §40200 et seq.).

Air pollution control districts and air quality management districts in California have principal responsibility for:

- Developing plans for meeting the state and federal ambient air quality standard;
- Developing control measures for non-vehicular sources of air pollution necessary to achieve and maintain both state and federal air quality standards;
- Implementing permit programs established for the construction, modification, and operation of sources of air pollution;
- Enforcing air pollution statutes and regulations governing non-vehicular sources; and
- Developing employer-based trip reduction programs.

Each level of government has adopted specific regulations that limit emissions from stationary combustion sources, several of which are applicable to this project. The other air agencies having permitting authority for this project are shown in Table 5.2-9. The applicable federal laws, ordinances, regulations and standards (LORS) and compliance with these requirements are discussed in more detail in Subsections 5.2.3 and 5.2.6. An application for a Determination of Compliance will be filed with the SDAPCD at approximately the same time as the AFC is filed with the Commission. An application for an Acid Rain permit will be filed at approximately the same time as the AFC. An application for a Prevention of Significant Deterioration (PSD) permit will be filed shortly after the AFC is filed with the Commission. An application for a federal operating permit (Title V permit) will be filed within 12 months of commencement of operation of the facility.

TABLE 5.2-9
AGENCY CONTACTS

Agency	Authority	Contact
EPA Region 9	PSD Permit Issuance, Enforcement	Gerardo Rios, Chief Permits Office EPA Region 9 75 Hawthorne Street San Francisco, CA 94105
California Air Resources Board	Regulatory Oversight	Mike Tollstrup, Chief Project Assessment Branch California Air Resources Board 2020 L Street Sacramento, CA 95814 (916) 322-6026
San Diego Air Pollution Control District	Permit Issuance, Enforcement	Steve Moore, Senior Air Pollution Control Engineer San Diego County Air Pollution Control District 10124 Old Grove Road San Diego, CA 92131 858-586-2750

5.2.3 Laws, Ordinances, Regulations, and Standards

5.2.3.1 Federal LORS

The EPA implements and enforces the requirements of many of the federal environmental laws. The federal Clean Air Act, as most recently amended in 1990, provides EPA with the legal authority to regulate air pollution from stationary sources such as the project. EPA has promulgated the following stationary source regulatory programs to implement the requirements of the 1990 Clean Air Act:

- Prevention of Significant Deterioration (PSD);
- New Source Review (NSR);
- Standards of Performance for New Stationary Sources (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAPS);

- Title IV: Acid Deposition Control; and
- Title V: Operating Permits.

Prevention of Significant Deterioration Program

Authority: Clean Air Act §160-169A, 42 USC §7470-7491; 40 CFR Parts 51 and 52

Requirements: Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to prevent significant deterioration of ambient air quality. PSD applies to pollutants for which ambient concentrations do not exceed the corresponding NAAQS (i.e., attainment pollutants). The PSD program allows new sources of air pollution to be constructed, or existing sources to be modified, while preserving the existing ambient air quality levels, protecting public health and welfare, and protecting Class I areas (e.g., national parks and wilderness areas).

The PSD requirements apply to any project that is a new major stationary source or a major modification to an existing major stationary source. A major source is a listed facility (one of 28 PSD source categories listed in the federal Clean Air Act) that emits at least 100 TPY, or any other facility that emits at least 250 TPY.

Effective July 1, 2011, a stationary source that emits more than 100,000 TPY of greenhouse gases (GHGs) is also considered to be a major stationary source.

A major modification is any project at a major stationary source that results in a significant increase in emissions of any PSD pollutant. A PSD pollutant is a criteria pollutant for which the area is not nonattainment (for SDAPCD, the PSD pollutants are SO_2, PM_{10}, $PM_{2.5}$, NO_x, CO, lead, and GHGs).

A significant increase for a PSD pollutant is an increase above the significant emission rate for that pollutant (Table 5.2-10). It is important to note that, once PSD is triggered by any pollutant, PSD requirements apply to any PSD pollutant with an emission increase above the significance level, regardless of whether the facility is major for that pollutant. For PPEC, the facility is major because of GHG emissions. PSD applies to the project's significant increases of NO_x, PM_{10}, and $PM_{2,5}$, even though the facility will not be major for any of those pollutants.

An application for a PSD will be filed with EPA shortly after the AFC is filed with the Commission.

TABLE 5.2-10
PSD SIGNIFICANT EMISSION THRESHOLDS

Pollutant	PSD Significant Emission Threshold (TPY)[1]
SO_2	40
PM_{10}	15
$PM_{2.5}$	10
NOx	40
CO	100
Lead	0.6

[1] 40 CFR 52.21 (b)(1)(23).

The principal requirements for the PSD program include the following:

- Emissions of the PSD pollutants that are subject to PSD review must be controlled using BACT.
- Air quality impacts in combination with other increment-consuming sources must not exceed maximum allowable incremental increases.
- Air quality impacts of all sources in the area plus ambient pollutant background levels cannot exceed NAAQS.
- Pre- and/or post-construction air quality monitoring may be required.
- The air quality impacts on soils, vegetation, and nearby PSD Class I areas (specific national parks and wilderness areas) must be evaluated. (Note: The PPEC is located in a Class II area.)

Air Quality Monitoring

At its discretion, EPA Region 9 may require pre-construction and/or post-construction ambient air quality monitoring for PSD sources if representative monitoring data are not already available. Pre-construction monitoring data must be gathered over a one-year period to characterize local ambient air quality. Post-construction air quality monitoring data must be collected as deemed necessary by EPA Region 9 to characterize the impacts of proposed project emissions on ambient air quality.

Best Available Control Technology

BACT must be applied to any new or modified major source to minimize the emissions increase of those pollutants exceeding the PSD emission thresholds. EPA defines BACT as an emissions limitation based on the maximum degree of reduction for each subject pollutant, considering energy, environmental, and economic impacts, that is achievable through the application of available methods, systems, and techniques. BACT must be as stringent as any emission limit required by an applicable NSPS or NESHAP.

Air Quality Impact Analysis

An air quality dispersion analysis must be conducted to evaluate impacts of significant emission increases from new or modified facilities on ambient air quality. PSD source emissions must not cause or contribute to an exceedance of any ambient air quality standard, and the increase in ambient air concentrations must not exceed the allowable increments shown in Table 5.2-11. Once PSD is triggered for the project, all pollutants with emission increases above the PSD significance thresholds are subject to this requirement.

TABLE 5.2-11
PSD INCREMENTS AND SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Time	SILs (µg/m^3)[1]	Maximum Allowable Class II Increments[2]
SO_2	Annual	1.0	20
	24-hr	5	91
	3-hr	25	512
	1-hr	7.8[3]	No 1-hr increment
PM_{10}	Annual	1.0	17
	24-hr	5	30
$PM_{2.5}$	Annual	0.3	4
	24-hr	1.2	9
NO_2	Annual	1.0	25
	1-hr	7.5[3]	No 1-hr increment
CO	8-hr	500	No CO increments
	1-hr	2,000	

[1] 40 CFR 51.165 (b)(2).
[2] 40 CFR 52.21 (c)
[3] EPA has not yet defined significance impact levels (SILs) for one-hour NO_2 or SO_2 impacts. However, EPA has suggested that, until SILs have been promulgated, values of 4 ppb (7.5 µg/m^3) for NO_2 and 3 ppb (7.8 µg/m^3) for SO_2 may be used. These values will be used in this analysis wherever a SIL would be used for NO_2 or SO_2.

Protection of Class I Areas

The potential increase in ambient air quality concentrations for attainment pollutants (i.e., NO_2, PM_{10}, or SO_2) within Class I areas closer than approximately 100 km may need to be quantified if the new or modified PSD source were to have a sufficiently large emission increase as evaluated by the Class I area Federal Land Managers. In such a case, a Class I visibility impact analysis would also be performed.

Growth, Visibility, Soils, and Vegetation Impacts

Impairment to visibility, soils, and vegetation resulting from PSD source emissions as well as associated commercial, residential, industrial, and other growth must be analyzed. This analysis includes cumulative impacts to local ambient air quality.

Administering Agency: EPA Region 9.

Nonattainment New Source Review

Authority: Clean Air Act §171-193, 42 USC §7501 et seq.; 40 CFR Parts 51 and 52

Requirement: Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to allow industrial growth without interfering with the attainment and maintenance of ambient quality standards. In general, this program is implemented at the local level with EPA oversight.

- Emissions must be controlled to the lowest achievable emission rate (LAER).
- Sufficient offsetting emissions reductions must be obtained following the requirements in the regulations to continue reasonable further progress toward attainment of applicable NAAQS.
- The owner or operator of the new facility has demonstrated that major stationary sources owned or operated by the same entity in California are in compliance or on schedule for compliance with applicable emissions limitations in this rule.
- The administrator must find that the implementation plan has been adequately implemented.
- An analysis of alternatives must show that the benefits of the proposed source significantly outweigh any environmental and social costs.

Nonattainment new source review jurisdiction has been delegated to the SDAPCD for all pollutants and is discussed further under local LORS section below.

Administering Agency: SDAPCD, with EPA Region 9 oversight.

National Standards of Performance for New Stationary Sources

Authority: Clean Air Act §111, 42 USC §7411; 40 CFR Part 60

Requirements: Establishes national standards of performance to limit the emissions of criteria pollutants (air pollutants for which EPA has established NAAQS) from new or reconstructed facilities in specific source categories. Applicability of these regulations depends on equipment size, process rate, and date of construction. The project is subject to the following NSPS:

Subpart KKKK, Standards of Performance for Stationary Gas Turbines (constructed after February 18, 2005) is applicable to the simple-cycle gas turbines. Subpart KKKK limits NO_x and SO_2 emissions from new gas turbines based on power output. The limits for gas turbines greater than 30 MW which are applicable to the proposed project's gas turbines are 0.39 lb NO_x per MW-hr and 0.58 lb SO_2 per MW-hr. These standards are enforced at the local level with federal and state oversight.

Administering Agency: SDAPCD, with EPA Region 9 and CARB oversight.

National Emission Standards for Hazardous Air Pollutants

Authority: Clean Air Act §112, 42 USC §7412

Requirements: Establishes national emission standards to limit emissions of hazardous air pollutants (HAPs, or air pollutants identified by EPA as causing or contributing to the adverse health effects of air pollution but for which NAAQS have not been established) from facilities in specific source categories. These standards are implemented at the local level with federal oversight. Only the NESHAP for combustion turbines, which limits formaldehyde emissions from turbines, is potentially applicable to the proposed project.

Administering Agency: SDAPCD, with EPA Region 9 oversight.

Acid Rain Program

Authority: Clean Air Act §401 (Title IV), 42 USC §7651

Requirement: Requires the monitoring and reporting of emissions of acidic compounds and their precursors from combustion equipment owned by a utility. The principal source of these compounds is the combustion of fossil fuels. Therefore, Title IV established national standards to monitor, record, and, in some cases, limit SO_2 and NO_x emissions from electrical power generating facilities. These standards are implemented at the local level with federal oversight. SDAPCD has received delegation authority to implement Title IV.

Administering Agency: SDAPCD, with EPA Region 9 oversight.

Title V Operating Permits Program

Authority: Clean Air Act §501 (Title V), 42 USC §7661

Requirements: Requires the issuance of operating permits that identify all applicable federal performance, operating, monitoring, recordkeeping, and reporting requirements. Title V applies to major facilities, Phase II acid rain facilities, subject solid waste incinerator facilities, and any facility listed by EPA as requiring a Title V permit. SDAPCD has received delegation authority for this program.

Administering Agency: SDAPCD, with EPA Region IX oversight.

5.2.3.2 State LORS

The California Air Resources Board (CARB) was created in 1968 by the Mulford-Carrell Air Resources Act, through the merger of two other state agencies. CARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update, as necessary, the state's ambient air quality standards; to review the operations of the local air pollution control districts; and to review and coordinate preparation of the SIP for achievement of the federal ambient air quality standards. CARB has implemented the following state or federal stationary source regulatory programs in accordance with the requirements of the federal Clean Air Act and California Health & Safety Code (H&SC):

- State Implementation Plan (SIP);
- California Clean Air Act;
- Nuisance Regulation;
- Toxic Air Contaminant Program;
- Air Toxics "Hot Spots" Act;
- CEC and CARB Memorandum of Understanding; and
- California Climate Change Regulatory Program.

State Implementation Plan

Authority: Health & Safety Code (H&SC) §39500 et seq.

Requirements: Required by the federal Clean Air Act, the SIP must demonstrate the means by which all areas of the state will attain and maintain NAAQS within the federally mandated deadlines. CARB reviews and coordinates preparation of the SIP. Local districts must adopt new rules (and/or revise existing rules) and demonstrate that the resulting emission reductions, in conjunction with reductions in mobile source emissions, will result in the attainment of NAAQS. The relevant SDAPCD Rules and Regulations that have also been incorporated into the SIP are discussed with the local LORS.

Administering Agency: SDAPCD, with CARB and EPA Region 9 oversight.

California Clean Air Act

Authority: H&SC §40910 − 40930

Requirements: Established in 1989, the California Clean Air Act requires local districts to attain and maintain both national and state ambient air quality standards at the "earliest practicable date." Local districts must prepare air quality plans demonstrating the means by which the ambient air quality standards will be attained and maintained. The SJVAPCD Air Quality Plan is discussed with the local LORS.

Administering Agency: SJVAPCD, with CARB oversight.

Nuisance Regulation

Authority: CA Health & Safety Code §41700

Requirements: Provides that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

Administering Agency: SDAPCD and CARB

Toxic Air Contaminant Program

Authority: H&SC §39650 − 39675

Requirements: Established in 1983, the Toxic Air Contaminant Identification and Control Act created a two-step process to identify toxic air contaminants and control their emissions. CARB identifies and prioritizes the pollutants to be considered for identification as toxic air contaminants, and also assesses the potential for human exposure to a substance; the Office of Environmental Health Hazard Assessment (OEHHA) evaluates the corresponding health effects. Both agencies collaborate in the preparation of a risk assessment report, which concludes whether a substance poses a significant health risk and should be identified as a toxic air contaminant. In 1993, the Legislature amended the program to identify the 187 federal hazardous air pollutants as toxic air contaminants. CARB reviews the emission sources of an identified toxic air contaminant and, if necessary, develops air toxics control measures to reduce the emissions.

Administering Agency: SDAPCD and CARB

Air Toxic "Hot Spots" Act

Authority: H& SC §44300-44384; 17 CCR §93300-93347

Requirements: Established in 1987, the Air Toxics "Hot Spots" Information and Assessment Act (also known as AB 2588) supplements the toxic air contaminant program, by requiring the development of a statewide inventory of air toxics emissions from stationary sources. The program requires affected facilities to prepare (1) an emissions inventory plan that identifies relevant air toxics and sources of air toxics emissions; (2) an emissions inventory report quantifying air toxics emissions; and (3) a health risk assessment, if necessary, to characterize the health risks to the exposed public. Facilities whose air toxics emissions are deemed to pose a significant health risk must issue notices to the exposed population. In 1992, the Legislature amended the program to further require facilities whose air toxics emissions are deemed to pose a significant health risk to implement risk management plans to reduce the associated health risks. This program is implemented at the local level with state oversight.

Administering Agency: SDAPCD and CARB

CEC and CARB Memorandum of Understanding

Authority: CA Pub. Res. Code §25523(a); 20 CCR §1752, 1752.5, 2300-2309 and Div. 2, Chap. 5, Art. 1, Appendix B, Part (k)

Requirements: Provides for the inclusion of requirements in the CEC's decision on an application for certification to assure protection of environmental quality. The AFC is required to include information concerning air quality protection.

Administering Agency: California Energy Commission

California Climate Change Regulatory Program

Authority: Stats. 2006, Ch. 488 and CA Health & Safety Code § 38500-38599

Requirements: The State of California adopted the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) on September 27, 2006, which requires sources within the state to reduce carbon emissions by approximately 25% by the year 2020. The California Climate Action Registry had already published protocols for voluntary reporting of GHG emissions from a number of sectors of the economy, and CARB has adopted regulations to limit GHG emissions from electric power plants and other specific source categories. In addition, CARB has issued guidance with recommended emission factors for calculating GHG emissions.

Senate Bill (SB) 97, adopted August 21, 2007, requires the California Office of Planning and Research (OPR) to develop CEQA guidelines "for the mitigation of GHG emissions or the effects of GHG emissions" by July 1, 2009. SB 97 further requires the Resources Agency Secretary to adopt these CEQA guidelines by January 1, 2010. Finally, SB 97 removes GHG emissions as a cause of action under CEQA for specified state-financed infrastructure projects until January 1, 2010.

The AFC is required to include the project's emission rates of greenhouse gases (CO_2, CH_4, N_2O, and SF_6) from the stack, cooling towers, fuels and materials handling processes, delivery and storage systems, and from all on-site secondary emission sources.

On January 25, 2007, the PUC and CEC jointly adopted an interim Greenhouse Gas Emissions Performance Standard (EPS) in an effort to help mitigate climate change. The EPS is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have emissions no greater than a combined-cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour.

Administering Agencies: CARB and CEC.

5.2.3.3 Local LORS

When the state's air pollution statutes were reorganized in the mid-1960s, local air pollution control districts (APCDs) were required to be established in each county of the state (H&SC §4000 et seq.). There are three different types of districts: county, regional, and unified. In addition, special air quality management districts (AQMDs), with more comprehensive authority over non-vehicular sources as well as transportation and other regional planning responsibilities, have been established by the Legislature for several regions in California, (H&SC §40200 et seq.).

Air pollution control districts and air quality management districts in California have principal responsibility for:

- Developing plans for meeting the state and federal ambient air quality standard;

- Developing control measures for non-vehicular sources of air pollution necessary to achieve and maintain both state and federal air quality standards;

- Implementing permit programs established for the construction, modification, and operation of sources of air pollution; and

- Enforcing air pollution statutes and regulations governing non-vehicular sources; and for developing employer-based trip reduction programs.

Each level of government has adopted specific regulations that limit emissions from stationary combustion sources, several of which are applicable to this project. An application for a Determination of Compliance will be filed with SDAPCD at approximately the same time as the AFC is filed with the Commission.

San Diego Air Pollution Control District Rules and Regulations

Authority: CA Health & Safety Code §40001

Requirements: Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.

Administering Agency: SDAPCD, with CARB oversight.

Permits Required

Under Regulation II, Rule 10, Permits Required, and Rule 20.5, Power Plants, SDAPCD administers the air quality regulatory program for the construction, alteration, replacement, and operation of new power plants. As part of the AFC process, the project will be required to obtain a preconstruction Determination of Compliance (DOC) from the SDAPCD. Regulation II, Rule 10 incorporates other SDAPCD rules that govern how sources may emit air contaminants through the issuance of air permits (i.e., Authority to Construct [ATC] and Permit to Operate [PTO]). This permitting process allows the SDAPCD to review new and modified air pollution sources to ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls are used. Projects that are reviewed under the CEC AFC process must obtain a final DOC (equivalent under SDAPCD rules to an ATC upon issuance of a CEC Final Decision that includes all the conditions proposed in the DOC) from the local air district (in this case, SDAPCD) prior to construction of the new power plant. The ATC remains in effect until the PTO application is granted, denied, or canceled. Once the project commences operations and demonstrates compliance with the ATC, SDAPCD will issue a PTO. The PTO specifies conditions that the facility must meet to comply with all applicable air quality rules, regulations, and standards.

New Source Review Requirements

The SDAPCD's New Source Review (NSR) rule (Regulation II, Rule 20.3 NSR – Major Stationary Sources & PSD Stationary Sources) establishes the criteria for siting new and modified emission sources; this rule is applicable to the proposed project. SDAPCD has been delegated authority for NSR rule development and enforcement according to the terms of Rule 20.3. There are three basic requirements within the NSR rules. First, BACT and Lowest

Achievable Emission Rate (LAER) requirements must be applied to any new source with potential emissions above specified threshold quantities. Second, all potential emission increases of nonattainment pollutants or precursors from the proposed source above specified thresholds must be offset by real, quantifiable, surplus, permanent, and enforceable emission decreases in the form of ERCs. Third, an ambient air quality impact analysis must be conducted to confirm that the project does not cause or contribute to a violation of a national or California AAQS or jeopardize public health.

New Source Review Requirements for Air Toxics

The SDAPCD's New Source Review (NSR) rule for air toxics (Regulation XII, Rule 1200 (Toxic Air Contaminants - New Source Review) describes the requirements, procedures, and standards for evaluating the potential impact of toxic air contaminants (TAC) from new sources and modifications to existing sources. The rule also requires a demonstration that the source will not exceed the health risk thresholds in Section (d) of the rule.

New Source Performance Standards

The SDAPCD's New Source Performance Standards (Regulation X, Standards of Performance for New Stationary Sources) incorporates the federal NSPS from 40 CFR Part 60. The applicability and requirements of the New Source Performance Standards are discussed above under the federal regulations section.

Federal Programs and Permits

The federal Title IV acid rain program requirement and Title V operational permit requirements are in SDAPCD's Rule 1412 (Federal Acid Rain Program Requirements) and Regulation XIV Rule 1401/1410. The applicability and requirements of these programs and permits are discussed above under the federal regulations section.

Public Notification

Because the proposed PPEC project emissions will exceed the AQIA trigger levels, public notice under Rule 20.3 is required and the Applicant expects that the SDAPCD Air Pollution Control Officer will provide this notice in a timely manner.

Permit Fees

The SDAPCD requirements regarding permit fees are specified in Regulation III. This regulation establishes the filing and permit review fees for specific types of new sources, as well as annual renewal fees and penalty fees for existing sources.

Prohibitions

The SDAPCD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibition rules that apply to the proposed PPEC project are listed below.

- Rule 50 – Visible Emissions: This rule prohibits any source from discharging any emissions of any air contaminant that is darker in shade than that designated as Number 1 on the Ringelmann Chart for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes.

- Rule 51 – Nuisance: This rule prohibits the discharge from a facility of air contaminants that cause injury, detriment, nuisance, or annoyance to the public, or cause damage to business or property.

- Rule 52 – Particulate Matter Emission Standards: This rule prohibits the discharge from any source of particulate matter in excess of 0.10 grain per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas.

  Rule 62 – Sulfur Content of Fuels: This rule prohibits any stationary source to use any gaseous fuel containing more than 10 grains of sulfur compounds per 100 cubic feet of dry gaseous fuel.

All applicable LORS are summarized in Table 5.2-12.

TABLE 5.2-12
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
Federal					
Clean Air Act (CAA) §160-169A and implementing regulations, Title 42 United States Code (USC) §7470-7491 (42 USC 7470-7491), Title 40 Code of Federal Regulations (CFR) Parts 51 & 52 (40 CFR 51 & 52) (Prevention of Significant Deterioration Program)	Requires prevention of significant deterioration (PSD) review and facility permitting for construction of new or modified major stationary sources of air pollution. PSD review applies to pollutants for which ambient concentrations are lower than NAAQS.	EPA	Issues PSD Permit with conditions limiting emissions	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §171-193, 42 USC §7501 et seq. (New Source Review)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. NSR applies to pollutants for which ambient concentration levels are higher than NAAQS.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §401 (Title IV), 42 USC §7651 (Acid Rain Program)	Requires quantification of NO_2 and SO_2 emissions, and requires operator to hold allowances.	SDAPCD with EPA oversight	Issues Acid Rain permit after review of application	Application to be submitted 18 months prior to start of operation.	§5.2.6.1
CAA §501 (Title V), 42 USC §7661 (Federal Operating Permits Program)	Establishes comprehensive permit program for major stationary sources.	SDAPCD with EPA oversight	Issues Title V permit after review of application	Application to be submitted 12 months after start of operation.	§5.2.6.1
CAA §111, 42 USC §7411, 40 CFR Part 60 (New Source Performance Standards [NSPS])	Establishes national standards of performance for new stationary sources.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §112, 42 USC §7412, 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants [NESHAPs])	Establishes national emission standards for hazardous air pollutants.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
State					
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.2
H&SC §44300-44384; California Code of Regulations (CCR) §93300-93347 (Toxic "Hot Spots" Act)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.2
California Public Resources Code §25523(a); 20 CCR §1752, 2300-2309 (CEC & CARB Memorandum of Understanding)	Requires that CEC's decision on AFC include requirements to assure protection of environmental quality; AFC required to address air quality protection.	CEC	After project review, issues conditions of certification that includes the conditions in the FDOC		§5.2.6.2
Global Warming Solutions Act and other GHG reduction measures	Minimize emissions of GHG from all sources in CA; operator must purchase and surrender GHG allowances	CARB	CARB approval of GHG reporting and cap and trade compliance	Agency approval on an annual basis after operation	§5.2.6.2
Local					
California Health & Safety Code (H&SC) §40001 (Air pollution--general)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation II, Rule 10 (Permits required) and Rule 20.5 (Power Plants)	Administers air quality regulation program for power plants	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation II, Rule 20.3 (New Source Review)	Establishes criteria for siting new and modified emission sources.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation XII, Rule 1200 (Toxic Air Contaminants New Source Review)	Establishes procedures for review and control of toxic air contaminants from new sources	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation X, Standards of Performance for New Stationary Sources	Incorporates federal NSPS standards.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
SDAPCD Rules 1401, 1410, and 1412 (Federal permits)	Implements Acid Rain and Title V permit programs	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 20.3 (d)(4)	Public Notification Requirement	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation III (Permit Fees)	Permit fees	SDAPCD		Payment of fees required at time of application	§5.2.6.3
SDAPCD Rule 50 (Visible Emissions)	Prohibits visible emissions above certain levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 51 (Nuisance)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 52 (Particulate Matter)	Limits emissions of particulate matter	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 62 (Fuel Sulfur)	Limits fuel sulfur content	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3

5.2.4 Environmental Consequences

This section evaluates the potential air quality impacts of the project. Project impacts would be considered significant if emissions from the project cause or contribute to a violation of an ambient air quality standard. A project causes or contributes to a violation of an ambient air quality standard if it has a non-trivial impact at a time and location where a violation of an ambient air quality standard occurs.

Project operating emissions of nonattainment pollutants and their precursors will be offset to ensure that the project will result in no net regional increase in annual emissions of nonattainment pollutants. Emissions estimates for all aspects of both construction and operation of the project are presented in this subsection. Dispersion modeling was conducted to determine project impacts on ambient air quality, and those results are also presented in this section, along with a discussion of dispersion model selection and the selection of model input data (i.e., emissions scenarios and release parameters, building wake effects, meteorological data, and receptor locations). Documentation that the project will comply with applicable local, state, and federal air quality regulatory requirements is also provided.

5.2.4.1 Construction Emissions

Emissions during the construction phase of the project have been estimated, including an assessment of emissions from vehicle and equipment exhaust and the fugitive dust generated from vehicle movement and material handling. A dispersion modeling analysis was conducted based on these emissions. A detailed analysis of the construction emissions and associated ambient impacts is included in Appendix G-2. The results of the analysis indicate that the maximum construction impacts will be below the state and federal standards for all the criteria pollutants emitted. The best available emission control techniques will be used. The project construction impacts are not unusual in comparison to most construction sites; construction sites that use good dust suppression techniques and low-emitting vehicles typically do not cause violations of air quality standards.

The primary emission sources during construction will include exhaust from heavy construction equipment and vehicles and fugitive dust generated in areas disturbed by grading, excavating, and erection of facility structures. The projected construction schedule has a duration of 16 months, during which different areas within the proposed site and a nearby temporary laydown area will be disturbed. Estimated land disturbance for major construction activities is summarized in Section 3.0, Facility Description.

Construction equipment and vehicle exhaust emissions were estimated using equipment lists and construction scheduling information provided by the project design engineering firm, which are presented in Section 3.0, Facility Description, and Appendix G-2. The California Air Resources Board (CARB) OFFROAD2007 and EMFAC2007 models were used to generate equipment-specific emission factors for all criteria pollutants for diesel-fueled construction equipment and for on-road vehicles, respectively. Assumptions used in calculating project construction emissions included a 16-month construction period; five construction days per week; and a single-shift, eight-hour workday. The list of fueled equipment needed during each month of the construction effort (see Table 5.2-13) served as the basis for estimating pollutant emissions

throughout the term of construction and helped to identify the periods of probable maximum short-term emissions.

Fugitive dust emissions resulting from on-site soil disturbances were estimated using EPA AP-42 emission factors activities including bulldozing and dirt-pushing, travel on paved and unpaved roads, material handling, and wind erosion to storage of aggregate materials. A combined dust control efficiency of 92 percent was assumed to be achieved for traveling on unpaved surfaces at the project site and temporary construction area activities by the mitigation measures of frequent watering and limiting speeds to 15 miles per hour.

TABLE 5.2-13
ESTIMATED CONSTRUCTION EQUIPMENT/VEHICLE USAGE

Equipment/Vehicles	Horsepower (approx.)	Month of Construction (Unit: # per day) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Off-Road Equipment																	
Hydro Crane 35-50 Ton RT	200					1	1	1	1	1	1	1	1				
RT 760 - 60 ton Crane	250		1	1	1	2	2	2	2	2	2	2	1				
Hydro Crane 75-80 Ton RT	250									1	1	1	1	1	1	1	1
2250 Manitowoc 300 Ton (track mounted crane)	420					1	1	1	1	1	1						
40' - 60' Manlift	85					3	5	8	9	8	6	4	2				
90' Manlift	85					2	3	4	6	4	4	2	2				
Forklift	100	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1
Diesel Welder 400 Amp	22		2	2	2	2	2	2	3	3	3	3	2	2	2	1	1
185 CFM Compressor	49	2	2	2	2	2	2	2	2	2	2	2	1	1			
Light Tower 5 KW	22	2	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1
Water Truck 4000 Gal	225	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Track 330 Excavator	268	1	1	1	1	1											
RT Hoe 710 (Backhoe)	150		2	2	2	2	1	1	1	1	1	1	1				
Roller	100		1	1	1	1	1	1	1	1	1	1	1	1	1		1
950/960 Loader	280		2	2	2	2	1	1	1	1	1	1	1	1	1		
Cat D6 Dozer	250	1	1	1													
Dump Truck	250	1	1	1													
Grader	200	1	1	1									1	1	1		
Fusion Machine	22	3	3	3	3	3	3										
Asphalt Paver	120																1
Paving Equipment	120																1
On-Road Vehicles																	
Pickup trucks		27	28	28	39	39	42	37	37	36	36	31	30	24	18	17	
Concrete Deliveries			6	6	6	6	6	3	1	1	1						
Light/Medium Deliveries		3	3	6	12	15	21	21	21	21	21	21	21	21	15	15	
HD Truck Delivery						1	1	1	1	1							
Construction workers		50	90	118	164	181	216	242	284	283	236	188	124	83	54	32	29

Notes:
1. Construction schedule is provided by the Applicant.
- Total month construction 16 months
- Days per week 5 days
- Days per month 22 days
- Hours per day 8 hours

2. Construction phases are provided by the Applicant and listed as follows:
- Clearing and grubbing month 1
- Underground water line relocation month 2
- Access road widening work month 1-2
- Site grading month 2-3
- Underground gas and waste water linear month 2-3
- Relocation of the reclaimed/recycled water line month 2-3
- Facilities building month 4-15
- Lateral construction month 10-11
- Asphalt paving month 16

3. Delivery trips per day, distance, and origins are based on the information provided by the Applicant and assumptions.
4. Worker passenger vehicles will park in the laydown area so there will be no one traveling on site.
5. It is assumed the numbers of worker passenger vehicles are the numbers of workers divided by 1.5.

Emissions from on-road delivery trucks and worker commute trips were estimated using trip generation information presented in Table 3.9-2A in Section 3.9 and emission factors provided by CARB's EMFAC2007 model. Construction workers were assumed to commute to the proposed project site from locations within the greater San Diego area.

The short-term maximum emissions were calculated using Month 8 for construction equipment and Month 2 for fugitive dust. Activities in Month 8 include building and facility construction. Activities in Month 2 are primarily grading and other site preparation activities. Annual emissions were based on the worst 12 consecutive months of the construction period, which were Months 1-12 of the 16-month schedule for combustion emissions, and Months 2-13 for fugitive dust.

Maximum daily construction emissions are shown in Table 5.2-14. Maximum annual construction emissions are shown in Table 5.2-15. Modeled impacts are shown in Table 5.2-17.

TABLE 5.2-14
MAXIMUM DAILY CONSTRUCTION EMISSIONS, POUNDS PER DAY
MONTH 8 (COMBUSTION)
MONTH 2 (FUGITIVE DUST)

	NO_x	CO	VOC	SO_x	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	40.7	24.3	4.1	0.0	1.6	1.6
Fugitive Dust	--	--	--	--	19.7	2.9
Offsite						
Worker Travel, Truck Deliveries	11.2	63.8	6.3	0.1	0.1	0.1
Total	51.9	88.1	10.4	0.1	21.4	4.6

Notes:
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
VOC = volatile organic compound
CO = carbon monoxide
NO_x = nitrogen oxide(s)
SO_x = sulfur oxide(s)

TABLE 5.2-15
MAXIMUM ANNUAL CONSTRUCTION EMISSIONS, TONS PER YEAR

	NO_x	CO	VOC	SO_x	$PM_{2.5}$	PM_{10}
Onsite						
Construction Equipment	4.7	2.3	0.4	0.0	0.2	0.2
Fugitive Dust	--	--	--	--	2.5	0.6
Offsite						
Worker Travel, Truck Deliveries	0.8	2.6	0.3	0.0	0.0	0.0
Total	5.5	4.9	0.7	0.0	0.5	1.9

Notes:
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
VOC = volatile organic compound
CO = carbon monoxide
NO_x = nitrogen oxides
SO_x = sulfur oxides

5.2.4.2 Emitting Units

Key operating parameters are summarized below. Additional information relating to the fuel characteristics, heat rate, and startup and operating limits of PPEC may be found in Section 3.0, Facility Description, and Appendix G-3.

Gas Turbines (each, of three)

- LMS100 simple cycle combustion gas turbines
- 4,000 hours per year normal operation plus 500 startup/shutdown cycles (per turbine)
- Fueled exclusively with natural gas (see Table 5.2-16 for nominal natural gas fuel properties)

Partial Dry Cooling Tower

- 23,520 GPM water circulation rate
- Maximum TDS: 5,600 ppmw (4.67 cycles of concentration)
- 12 cells
- 0.001% drift rate
- 4,337 hours per year of full operation (more hours per year at proportionately reduced water circulation rate if all three turbines not fired simultaneously)

TABLE 5.2-16
NOMINAL FUEL PROPERTIES—NATURAL GAS

Component Analysis		Chemical Analysis	
Component	Average Concentration, Volume	Constituent	Percent by Weight
CH_4	95.88%	C	72.93 %
C_2H_6	1.85%	H	23.85 %
C_3H_8	0.32%	N	1.16 %
C_4H_{10}	0.11%	O	2.05 %
C_5H_{12}	0.03%	S	0.75 gr/100 scf
N_2	0.70%	Higher Heating Value	1,019 Btu/scf
CO_2	1.08%		22,840 Btu/lb
S	<0.0001%		

5.2.4.3 Turbine Commissioning

The commissioning period begins when the GE model LMS100 natural gas-fired turbines are prepared for first fire and ends upon successful completion of initial performance testing. The commissioning process entails several relatively short periods of operation prior to and during installation and testing of the SCR and CO catalyst systems. During these periods, NO_x emissions will be higher than normal operating levels because the NO_x emissions control system would not be fully operational and because the gas turbine would not be tuned for optimum performance. CO emissions would also be higher than normal because turbine performance would not be optimized and the CO emissions control system would not be fully operational.

Turbine commissioning activities can be broken down into five separate test periods, as described below. The first four periods occur prior to SCR system and oxidation catalyst installation, when the combustor is being tuned. In the first four phases, NOx emissions will be higher than normal because the NO_x emissions control system would not be functioning and because the combustors would not be tuned for optimum performance. The fifth phase occurs when the combustors have been tuned but the SCR and oxidation catalyst installation is not complete, and other parts of the turbine operating system are being checked out. Because the control system installation would not be complete, NO_x and CO emissions would be higher than for normal operations.

Commissioning activities are discussed in more detail below. Emission estimates are based on vendor-supplied emission rates for the various stages of commissioning. The estimated duration of each stage is based on the recent commissioning of the four GE LMS100 turbines at the Panoche Energy Center. To be conservative, the average duration of each stage during commissioning at Panoche was doubled for the expected commissioning of turbines at PPEC. Total commissioning at Panoche lasted 56 turbine operating hours for each turbine, whereas the total commissioning for PPEC is estimated to be up to 112 operating hours for each turbine. At the conclusion of the commissioning period, operational emissions rates will be at the controlled rates discussed below in this section. The required continuous emissions monitoring system (CEMS) for NO_x and CO will be calibrated and operating, but will not be certified until after the commissioning period.

Emissions associated with commissioning activities at PPEC are projected from actual commissioning experience at the Panoche Energy Center and from estimated emission data provided by General Electric. The five commissioning phases likely to be required for each LMS100 turbine are as follows:

- First Fire (operate unit at synchronous idle and perform a system check – 16 hours);
- Sync/AVR Testing (synchronize unit to the electrical grid and operate the unit at various loads to test the voltage regulator – 12 hours);
- SCR Burn-out/AVR Testing (operate the unit at various loads to test the voltage regulator – 20 hours);
- Water Injection Mapping (commissioning of the NO_x water injection system – 32 hours); and

- SCR Commissioning (unit operation to adjust SCR control – 32 hours).

During the commissioning activities, worst-case hourly NO_x and CO emission rates for each turbine are expected to be 50.0 lb/hour and 75.0 lb/hour, respectively. Actual activity durations will vary, but total commissioning emissions for each turbine are not expected to exceed totals based on these worst-case hourly rates over 112 hours of testing for each turbine (i.e., 3,700 lbs of NOx and 6,320 lbs of CO). The turbine commissioning emissions for all pollutants in each phase are presented in Table 5.2-17. In all likelihood, the commissioning of individual turbines will take place sequentially, but a worst-case emission scenario was modeled assuming all three turbines were commissioned at the same time (see the Air Quality Modeling CD submitted with this AFC).

During the first year of operation after turbines are commissioned, PPEC will operate in such a way as to ensure that the annual emissions limit for normal operations, shown in Table 5.2-20, will not be exceeded, even with the emissions from commissioning activities included.

TABLE 5.2-17
COMMISSIONING EMISSIONS (PER TURBINE)

			Pollutant Emission Rates				
Activity	Duration (Hours)	Heat Input (MMBTU/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)	SO_2 (lb/hr)	PM_{10} (lb/hr)
First Fire	16	75	11.3	45	1.1	0.17	5.5
Sync/AVR Testing	12	500	50	75	5	0.6	5.5
SCR Burnout/AVR Testing	20	500	50	75	5	0.6	5.5
Water Injection Mapping	32	500	50	75	5	0.6	5.5
Ammonia Injection Tuning	32	500	10	25	1.5	0.6	5.5

Notes:
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
VOC = volatile organic compounds
CO = carbon monoxide
NO_x = nitrogen oxides
SO_x = sulfur oxides

5.2.4.4 Operational Emissions

The principal emission sources of the project will be the three simple-cycle combustion turbine generators (CTGs), which will burn exclusively natural gas fuel. Annual operational emissions from each of the three project CTGs were estimated by summing the emissions from 4,000 hours per year of normal operations plus emissions associated with 500 startup and shutdown events for each CTG.

The only other source of emissions from project operations is the partial dry cooling tower. Emissions from this source are very low, especially when compared with emissions from combined cycle plants, because this cooling is used only for lubricating oil. Most of the cooling requirements for a combined cycle plant are associated with condensing the water used in the steam turbines. The cooling tower will emit drift droplets containing dissolved solids; when the water in the suspended droplets evaporates, the solids remain in the air as particulate matter.

Criteria pollutant emissions from the gas turbines are summarized in Table 5.2-18. Emissions of NO_x, CO, and VOC from the CTGs were calculated from emission exhaust concentration limits (expressed as ppmv @ 15 percent O_2) and the exhaust flow rates from vendor performance data. The proposed NO_x emission limit of 2.5 ppmv reflects the application of SCR. The proposed VOC emission limit of 2.0 ppmv reflects the use of good combustion practices. The proposed CO emission limit of 4.0 ppmv reflects the expected performance of the oxidation catalyst.

Maximum hourly PM_{10} emissions reflect expected turbine performance, based on emission limits from similar installations. For regulatory purposes, all of the particulate matter emitted from the fuel burning equipment and the cooling tower is assumed to be less than 2.5 microns in diameter. All references to PM_{10} from project sources include $PM_{2.5}$ as well, even though some fraction of PM_{10} emissions are likely to be larger than 2.5 microns in size.

SO_2 emissions were calculated from the heat input (in MMBtu) and an SO_2 emission factor (in lb/MMBtu). SO_2 emissions were calculated based on the proposed maximum allowable fuel sulfur content of 0.75 grain per 100 standard cubic feet (scf).

TABLE 5.1-18
MAXIMUM EMISSION RATES—COMBUSTION TURBINES

Pollutant	ppmv @ 15% O2	lb/MMBtu	lb/hr
Combustion Turbines (each)			
NO_x	2.5	0.0091	8.18
SO_2[1]	0.4	0.0021	1.90
CO	4.0	0.0088	7.97
VOC	2.0	0.0025	2.28
$PM_{10}/PM_{2.5}$[2]	—	—	5.5

Notes:
NO_x, CO, VOC, and PM_{10} emission rates exclude startups and shutdowns (see Table 5.1-19).
[1] Based on maximum natural gas sulfur content of 0.75 gr/100 scf. See text.
[2] Includes front and back half.

Combustion turbine performance was evaluated for a number of operating scenarios with different turbine loads (ranging from 50% load to 100% load), and ambient temperatures ranging from a low of 30°F to a high of 110°F. The maximum hourly emissions for all criteria pollutants from the turbine during normal operations are expected to occur under the conditions with the highest firing rate: 100% load, use of evaporative cooling, and 72°F ambient temperature.

The expected emissions and durations associated with individual turbine startup and shutdown events are summarized in Table 5.2-19. Based on vendor information, each turbine startup is expected to take 30 minutes; each turbine shutdown is expected to be completed within 10.5 minutes. The 30-minute startup NO_x emission rate was calculated using GE vendor data during the first nine minutes of the startup, and Panoche Energy Center Continuous Emissions Monitoring System (CEMS) data for minutes 10-30. The Panoche Energy Center is comprised of four GE LMS100 turbines operating in service similar to the proposed PPEC. To be conservative, a 20 percent buffer of additional emissions for each minute was added to the Panoche Energy Center actual startup emission data. Because hours that include startup and shutdown events may have higher NO_x, CO, and VOC emissions than the normal operating

condition with functioning SCR and CO catalyst, they were incorporated into the worst-case short- and long-term turbine emissions estimates in the model simulations pertaining to these pollutants.

TABLE 5.2-19
STARTUP AND SHUTDOWN EMISSIONS (PER TURBINE)

		Pollutant Emission Rates				
Activity	Duration (minutes)	NO_x (lb/event)	CO (lb/event)	VOC (lb/event)	SO_2 (lb/event)	PM_{10} (lb/event)
Startup	30	22.5	17.9	4.7	0.66	2.75
Shutdown	10.5	6.0	47.0	3.0	0.08	0.96

Notes:
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
VOC = volatile organic compound
CO = carbon monoxide
NO_x = nitrogen oxide(s)
SO_x = sulfur oxide(s)

The maximum expected emissions for each averaging period were used in the compliance demonstration modeling, and are summarized in Tables 5.2-20 and 5.2-21.

TABLE 5.2-20
EMISSION SUMMARY

Equipment	NO_x Max lb/hr	NO_x Max lb/day	NO_x Total TPY	SO_x Max lb/hr	SO_x Max lb/day	SO_x Total TPY	CO Max lb/hr	CO Max lb/day	CO Total TPY	VOC Max lb/hr	VOC Max lb/day	VOC Total TPY	PM_{10} Max lb/hr	PM_{10} Max lb/day	PM_{10} Total TPY
Turbine 1	26.6	288.1	23.5	1.9	45.6	1.4	53.5	428.9	32.1	6.5	85.9	6.9	5.5	132.0	11.9
Turbine 2	26.6	288.1	23.5	1.9	45.6	1.4	53.5	428.9	32.1	6.5	85.9	6.9	5.5	132.0	11.9
Turbine 3	26.6	288.1	23.5	1.9	45.6	1.4	53.5	428.9	32.1	6.5	85.9	6.9	5.5	132.0	11.9
Cooling Tower	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	15.8	1.4
Total	79.9	864.3	70.4	5.7	136.8	4.1	160.5	1,287	96.4	19.6	257.7	20.7	17.2	411.8	37.2

Notes:

1. Maximum hourly turbine emissions based on startup emissions for NO_x, shutdown emissions for CO, and worst case normal operations for other pollutants. See Appendix G-3, Table G-3.4 and G-3.5 for calculation of hourly emissions during startup/shutdown.
2. Annual emissions based on 4000 hours of normal operations at 100% load and average ambient temperature plus 500 startup and shutdown events.

TABLE 5.2-21
CRITERIA POLLUTANT SOURCES AND EMISSION TOTALS FOR MODELING

Averaging Time	Operating Equipment	Pollutant	Emission (lbs) Entire Period: Each CTG	Emission (lbs) Entire Period: Cooling System
1-hour	**NO_x**: One startup (all turbines) with remainder of the hour at worst case normal operation..	NO_x	26.6	
	CO: One shutdown (all turbines) with remainder of the hour at worst case normal operation.	CO	53.5	
	SO_2: Full load at worst case normal operation	SO_2	1.9	
3-hour	**SO_2**: Full load at worst case normal operation.	SO_2	5.7	
8-hour	**CO**: 8 hours at worst case 1-hour emissions (screening assessment)	CO	428	
24-hour	**SO_2**: Full load at worst case normal operation.	SO_2	136.8	
	PM_{10}: Full load at worst case normal operation plus cooling system	$PM_{10}/PM_{2.5}$	132.0	23.7
Annual	**All**: Each turbine operates for 4,000 hours at full load and annual average ambient temperature plus 500 startups, 500 shutdowns (4,337 total hours). Cooling system operates 4,337 hours.	NO_x	46,930	
		SO_2	2,745	
		$PM_{10}/PM_{2.5}$	23,840	2,855

Notes:
Emissions of SO_x for annual average based on fuel sulfur content of 0.25 gr/100 dscf. Emissions of SO_x for all other averaging times based on 0.75 gr/100 dscf.
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
VOC = volatile organic compounds
CO = carbon monoxide
NO_x = nitrogen oxides
SO_x = sulfur oxides

5.2.4.5 Non-Criteria Pollutant Emissions

A health risk assessment was performed to determine the potential for public health impacts of non-criteria pollutants emitted by the project. Emissions are summarized in Table 5.2-22. The health risk assessment itself is presented in Section 5.16, Public Health.

TABLE 5.2-22
NON-CRITERIA POLLUTANT EMISSION TOTALS FOR MODELING

	Emissions (Per turbine)		Emissions (Total, 3 units)	
Pollutant	Lb/hr	TPY	Lb/hr	TPY
Turbines				
Ammonia	6.12E+00	1.33E+01	1.83E+01	3.98E+01
Propylene	3.37E-01	7.30E-01	1.01E+00	2.19E+00
Acetaldehyde	1.78E-02	3.86E-02	5.35E-02	1.16E-01
Acrolein	2.86E-03	6.19E-03	8.57E-03	1.86E-02
Benzene	5.33E-03	1.16E-02	1.60E-02	3.47E-02
1,3-Butadiene	1.92E-04	4.16E-04	5.75E-04	1.25E-03
Ethylbenzene	1.42E-02	3.09E-02	4.27E-02	9.26E-02
Formaldehyde	4.01E-01	8.69E-01	1.20E+00	2.61E+00
Hexane, n-	1.13E-01	2.45E-01	3.39E-01	7.36E-01
Naphthalene	5.81E-04	1.26E-03	1.74E-03	3.78E-03
PAHs (listed individually below)	2.86E-04	6.21E-04	8.59E-04	1.86E-03
Acenaphthene	8.30E-06	1.80E-05	2.49E-05	5.40E-05
Acenapthyene	6.42E-06	1.39E-05	1.93E-05	4.18E-05
Anthracene	1.48E-05	3.20E-05	4.43E-05	9.61E-05
Benzo(a)anthracene	9.87E-06	2.14E-05	2.96E-05	6.42E-05
Benzo(a)pyrene	6.07E-06	1.32E-05	1.82E-05	3.95E-05
Benzo(e)pyrene	2.38E-07	5.15E-07	7.13E-07	1.55E-06
Benzo(b)fluoranthrene	4.94E-06	1.07E-05	1.48E-05	3.21E-05
Benzo(k)fluoranthrene	4.81E-06	1.04E-05	1.44E-05	3.13E-05
Benzo(g,h,i)perylene	5.98E-06	1.30E-05	1.80E-05	3.89E-05
Chrysene	1.10E-05	2.39E-05	3.30E-05	7.16E-05
Dibenz(a,h)anthracene	1.03E-05	2.23E-05	3.08E-05	6.68E-05
Fluoranthene	1.89E-05	4.09E-05	5.66E-05	1.23E-04
Fluorene	2.53E-05	5.49E-05	7.60E-05	1.65E-04
Indeno(1,2,3-cd)pyrene	1.03E-05	2.23E-05	3.08E-05	6.68E-05
Phenanthrene	1.37E-04	2.97E-04	4.11E-04	8.92E-04
Pyrene	1.21E-05	2.63E-05	3.64E-05	7.90E-05
Propylene oxide	1.29E-02	2.80E-02	3.88E-02	8.41E-02
Toluene	5.81E-02	1.26E-01	1.74E-01	3.78E-01
Xylene	2.85E-02	6.19E-02	8.56E-02	1.86E-01
Cooling Tower				
Arsenic	9.90E-08	2.15E-07	9.90E-08	2.15E-07
Carbon Tetrachloride	1.16E-07	2.50E-07	1.16E-07	2.50E-07
Chlorine	1.27E-02	2.74E-02	1.27E-02	2.74E-02
Chromium	1.54E-07	3.34E-07	1.54E-07	3.34E-07
Copper	3.58E-07	7.75E-07	3.58E-07	7.75E-07
Fluoride	6.06E-05	1.31E-04	6.06E-05	1.31E-04
Lead	4.73E-08	1.03E-07	4.73E-08	1.03E-07
Total HAPs[1]				4.26

[1] Ammonia, propylene oxide, copper and fluoride are not HAPs so are not included in this total.

5.2.4.6 Greenhouse Gas Emissions

Potential maximum annual GHG emissions for the operational PPEC were calculated using the calculation methods and emission factors from the California Air Resources Board GHG Reporting Regulation.[1] Table 5.2-23 presents the estimated GHG emissions due to project operations in carbon dioxide equivalent [CO_2e]. Emissions of methane, nitrous oxide, and sulfur hexafluoride have been converted to carbon dioxide equivalents using GHG warming potentials of 21, 310, and 23,900 respectively. The estimated emissions include the combustion emissions for the three turbines. They also include sulfur hexafluoride leakage emissions from three switchyard circuit breakers.

One-time GHG emissions from construction activities are presented in Table 5.2-24.

Appendix G-3 presents supporting technical information and calculation spreadsheets used to develop emissions data for the various scenarios of the operational project.

TABLE 5.2-23
PROJECT GREENHOUSE GAS EMISSIONS

Unit	CO_2, metric tons/year	CH_4, metric tons/year[2]	N_2O, metric tons/year[2]	SF_6, metric tons/year[2]	CO_2eq, metric tons/yr[1]	CO_2, metric tons/MWh
CTGs	621,000	222	364	<1	621,500	0.477

[1] Includes CH_4, N_2O, and SF_6.
[2] Expressed as CO_2 equivalent

TABLE 5.2-24
CONSTRUCTION GREENHOUSE GAS EMISSIONS

Unit	CO_2, metric tons/year	CH_4, metric tons/year	N_2O, metric tons/year	CO_2eq, metric tons/yr[1]
Offroad Fuel Use	78	3.19E-03	6.38E-04	
Worker Travel	307	1.30E-02	2.60E-03	
Truck Deliveries	81	3.34E-03	6.68E-04	
TOTAL	466	1.95E-02	3.91E-03	467

5.2.4.7 Air Dispersion Modeling

An assessment of impacts from the PPEC on ambient air quality has been conducted using EPA-approved air quality dispersion models, following the modeling protocol submitted to the agencies in November 2010 (see Appendix G-8). These models are based on various mathematical descriptions of atmospheric diffusion and dispersion processes in which a pollutant source impact can be calculated over a given area.

The District has required use of meteorological and ambient data for the time period 2006 through 2008. All results in this section are based on that time period. EPA requires use of five years' worth of data (if available) for the PSD permit. The supplemental analysis in support of

[1] CARB, *Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, Appendix A*, December 2007

the PSD application will be submitted at a later date, after receipt of the necessary information from the District, and will be based on the five-year time period 2004 through 2008.

The impact analysis was used to determine the worst-case ground-level impacts of the Project. The results were compared with established state and federal ambient air quality standards and PSD significance levels. If the standards are not exceeded under worst-case conditions then it is inferred that, in the operation of the facility, no exceedances are expected under any conditions. In accordance with the air quality impact analysis guidelines developed by EPA (40 CFR Part 51, Appendix W: Guideline on Air Quality Models) and CARB (Reference Document for California Statewide Modeling Guideline, April 1989), the ground-level impact analysis includes the following assessments:

- Impacts in simple, intermediate, and complex terrain;
- Aerodynamic effects (downwash) due to nearby building(s) and structures; and
- Impacts from inversion breakup (fumigation).

Simple, intermediate, and complex terrain impacts were assessed for all meteorological conditions that would limit the amount of final plume rise. Plume impaction on elevated terrain, such as on the slope of a nearby hill, can cause high ground-level concentrations, especially under stable atmospheric conditions. Another dispersion condition that can cause high ground-level pollutant concentrations is caused by building downwash. Building downwash can occur when wind speeds are high and a building or structure is in close proximity to the emission stack. This can result in building wake effects where the plume is drawn down toward the ground by the lower pressure region that exists in the lee side (downwind) of the building or structure.

Fumigation conditions occur when the plume is emitted into a low-lying layer of stable air (inversion) that then becomes unstable, resulting in a rapid mixing of pollutants towards the ground. The low mixing height that results from this condition allows little diffusion of the stack plume before it is carried downwind to the ground. Although fumigation conditions rarely last as long as an hour, relatively high ground-level concentrations may be reached during that period. Fumigation tends to occur under clear skies and light winds, and is more prevalent in the summer.

The basic model equation used in this analysis assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution about the centerline of the plume. Concentrations at any location downwind of a point source such as a stack can be determined from the following equation:

$$C(x,y,z,H) = \left(\frac{Q}{2\pi\sigma_y\sigma_z u}\right) * \left(e^{-1/2(y/\sigma_y)^2}\right) * \left(\left[e^{-1/2(z-H/\sigma_z)^2}\right] + \left[e^{-1/2(z+H/\sigma_z)^2}\right]\right)$$

Where:

C = the concentration in the air of the substance or pollutant in question

Q = the pollutant emission rate

σ_y,σ_z = the horizontal and vertical dispersion coefficients, respectively, at downwind distance x

u = the wind speed at the height of the plume center

x,y,z = the variables that define the 3-dimensional Cartesian coordinate system used; the downwind, crosswind, and vertical distances from the base of the stack

H = the height of the plume above the stack base (the sum of the height of the stack and the vertical distance that the plume rises due to the momentum and/or buoyancy of the plume)

Gaussian dispersion models are approved by EPA for regulatory use and are based on conservative assumptions (i.e., the models tend to over predict actual impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, no chemical reactions, etc.). The EPA models were used to determine if ambient air quality standards would be exceeded, and whether a more accurate and sophisticated modeling procedure would be warranted to make the impact determination. The following sections describe:

- Screening modeling procedures;
- Refined air quality impact analysis;
- Existing ambient pollutant concentrations and preconstruction monitoring;
- Results of the ambient air quality modeling analyses; and
- PSD increment consumption.

5.2.4.8 Model Selection

The screening and refined air quality impact analyses were performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) model, also known as AERMOD (current version 09292). The AERMOD model is a steady-state, multiple-source, Gaussian dispersion model designed for use with stack emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (i.e. complex terrain).[2] The model is capable of estimating concentrations for a wide range of averaging times (from one hour to one year). Inputs required by the AERMOD model include the following:

- Model options;
- Meteorological data;
- Source data; and

[2] AERMOD was adopted in November 2005 as a guideline model by EPA as a replacement for ISCST3. AERMOD incorporates an improved downwash algorithm as compared to ISCST3 (Federal Register, November 9, 2005; Volume 70, Number 216, Pages 68218-68261).

- Receptor data.

Model options refer to user selections that account for conditions specific to the area being modeled or to the emissions source that needs to be examined. Examples of model options include use of site-specific vertical profiles of wind speed and temperature; consideration of stack and building wake effects; and time-dependent exponential decay of pollutants. The model supplies recommended default options for the user for some of these parameters.

AERMOD uses hourly meteorological data to characterize plume dispersion. The representativeness of the data is dependent on the proximity of the meteorological monitoring site to the area under consideration, the complexity of the terrain, the exposure of the meteorological monitoring site, and the period of time during which the data are collected. The District provided a meteorological data set appropriate for use with AERMOD. The data set combined surface meteorological data (e.g., wind speed and direction, temperature) from the District's Otay Mesa/Paseo International monitoring station and upper air data from the Marine Corps Air Station Miramar (MCAS Miramar).

5.2.4.9 Good Engineering Practice Stack Height Analysis

For the purposes of modeling, a stack height beyond what is required by Good Engineering Practices (GEP) is not allowed (40 CFR Part 60 §51.164). However, this requirement does not place a limit on the actual constructed height of a stack. GEP as used in modeling analyses is the height necessary to ensure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies, or wakes that may be created by the source itself, nearby structures, or nearby terrain obstacles. In addition, the GEP stack height modeling restriction assures that any required regulatory control measure is not compromised by the effect of that portion of the stack that exceeds the GEP height. The EPA guidance ("Guideline for Determination of Good Engineering Practice Stack Height," Revised 6/85) for determining GEP stack height indicates that GEP is the greater of 65 meters or H_g, where H_g is calculated as follows:

$$H_g = H + 1.5L$$

Where:

H_g = Good Engineering Practice stack height, measured from the ground-level elevation at the base of the stack

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack

L = lesser dimension, height or maximum projected width, of nearby structure(s)

The turbine stack heights, at 100 feet, are less than the GEP limit of 65 meters (213 feet). Stack heights therefore do not need to be adjusted for GEP.

5.2.4.10 Receptor Grid Selection and Coverage

Receptor and source base elevations were determined from USGS National Elevation Dataset (NED) data in the GeoTIFF format at a horizontal resolution of 1 arc-second (approximately 30 meters). All coordinates were referenced to UTM North American Datum 1983 (NAD83), Zone 11. The AERMOD receptor elevations were interpolated among the DEM nodes according to standard AERMAP procedure. For determining concentrations in elevated terrain, the AERMAP terrain preprocessor receptor-output (ROU) file option were chosen; hills were not imported into AERMOD for CTDM-like processing.

Cartesian coordinate receptor grids were used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts, and to identify maximum impact locations. A 250-meter resolution coarse receptor grid was developed and extended outwards at least ten km (or more as necessary to calculate the significant impact area). For the full impact analyses, a nested grid was developed to fully represent the maximum impact area(s). This grid has 25-meter resolution along the facility fence-line in a single tier of receptors composed of four segments extending out to 100 meters from the fenceline, 100-meter resolution from 100 meters to 1,000 meters from the fenceline, and 250-meter spacing out to at least 10 km from the most distant source modeled, not to exceed 50 km from the project site. Additional refined receptor grids with 25-meter resolution were placed around the maximum first-high and maximum second-high coarse grid impacts and extended out 1,000 meters in all directions. Concentrations within the facility fenceline were not calculated. To simplify post-processing requirements, receptor locations at which the NO_2, $PM_{2.5}$, and PM_{10} significant impact levels were not exceeded were not included in PSD analyses for these pollutants.

The regions imported in Geographical Coordinates for the USGS National Elevation Dataset (NED) data are bounded as follows:

South West corner: Lat: 32.38, Lon: -117.82;

North East corner: Lat: 33.1, Lon: -116.26.

The analysis was limited to impacts in the United States.

5.2.4.11 Meteorological Data Selection

The District provided a meteorological dataset already processed by AERMET to generate AERMOD-compatible meteorological data for air dispersion modeling. The surface meteorological data were recorded at the District's Otay Mesa-Paseo International monitoring station, and the upper air data were recorded at the MCAS Miramar (No. 03190). EPA defines the term "on-site data" to mean data that would be representative of atmospheric dispersion conditions at the source and at locations where the source may have a significant impact on air quality. Representativeness has been defined in the PSD Monitoring Guideline as data that characterize the air quality for the general area in which the proposed project would be constructed and operated. The meteorological data requirement originates in the Clean Air Act at Section 165(e)(1), which requires an analysis "of the ambient air quality at the proposed site

and in areas which may be affected by emissions from such facility for each pollutant subject to regulation under [the Act] which will be emitted from such facility."

This requirement and EPA's guidance on the use of on-site monitoring data are also outlined in the *On-Site Meteorological Program Guidance for Regulatory Modeling Applications*.[3] The representativeness of the data depends on (a) the proximity of the meteorological monitoring site to the area under consideration, (b) the complexity of the topography of the area, (c) the exposure of the meteorological sensors, and (d) the period of time during which the data are collected. The District has determined, and the applicant concurs, that the District's Otay Mesa meteorological data are representative of conditions at the project site.

Representativeness is best evaluated when sites are climatologically similar, as are the project site and the Otay Mesa-Paseo International meteorological monitoring station. The Otay Mesa-Paseo International meteorological monitoring station is in close proximity to the proposed project site (distance between the two locations is approximately 1.9 miles with no significant intervening terrain features), and the same large-scale topographic features located to the east and north that influence the meteorological data monitoring station also influence the proposed project site in the same manner.

Upper air meteorological data are taken from soundings obtained at the Marine Corps Air Station at Miramar, California, located approximately 24 miles northwest of the project. No other upper air meteorological monitoring stations are located in the San Diego Air Basin. The next closest upper air station in California is located at Oakland International Airport.

5.2.4.12 Ambient Background Data Selection

Background ambient air quality data for the project area from the monitoring site most representative of the conditions that exist at the proposed project site were used to represent regional background concentrations. The District has determined that the Chula Vista monitoring station provides the most representative ambient air quality background data for PM_{10}, $PM_{2.5}$, NO_2, SO_2, O_3, and CO. Although the monitoring site at Otay Mesa-Paseo International is closer to the project site than the Chula Vista station, the Otay Mesa station is strongly impacted by traffic coming across the border from Mexico, and is therefore not representative of regional background concentrations.

> *Several thousand border-crossing trucks passing near the monitor each day heavily impact PM measurements at this location. To better gauge ambient PM_{10} concentrations throughout the Otay Mesa area as a whole, a second monitor was recently established in Otay Mesa, two miles north of the existing monitor. The additional monitor is not unduly influenced by specific local PM sources*[4]

PM_{10} concentrations at the border station are about twice as high as maximum concentrations at the alternate site. The border trucks impact all combustion pollutant measurements at the Otay Mesa monitor, not just PM_{10}. In contrast, the Chula Vista station is not impacted by nearby sources, and is only nine miles from the project site.

[3] EPA, *Supplement A to the Guideline on Air Quality Models (Revised)*, 1987.
[4] SDAPCD, *Measures to Reduce Particulate Matter in San Diego County*, December 2005, p. 3-6

The five-year period 2004-2008 is the most recent five-year period for which all required data are available. This is the period for which PSD modeling will be performed. The District has selected the three-year period 2006-2008 for use in demonstrating compliance with District requirements; the same three-year period is used to address CEC requirements.

Processed data files were obtained from the District. Data for periods of time with invalid data were replaced by the District using data substitution procedures consistent with EPA guidance. Data substitution ensures that there will be no gaps in the data. This will prevent exclusion of modeled high impact hours because of missing monitoring data.

5.2.4.13 Construction Impacts

Section 5.2.4.1 describes the development of project emissions estimates over the planned 16-month construction period. An Excel workbook was created to estimate pollutant emissions from construction activities. Emissions from worker commuter trips to and from the project site and heavy trucks delivering materials to and from the site during specific construction activities were also included (see Appendix G-2).

Worst-case modeling was conducted for short-term averaging times using all combustion emissions from all construction equipment from Month 8 and dust emissions from activities in Month 2 (see Table 5.2-13 and 5.2-14). Annual emissions were based on Months 1-12 for combustion and Months 2-13 for dust emissions.

Based on information provided by the engineering design contractor and the emission estimates in Appendix G-2, the peak month in terms of air pollutant emissions is expected to be the sixth month of construction. All construction activities were assumed to occur during an eight-hour work day. The annual emissions were modeled for Months 1-12 for combustion emissions and Months 2-13 for fugitive dust emissions after a determination that this consecutive 12-month period will have a higher level of construction activity and exhaust and dust emissions than any other over the full 16 months of construction. The modeling was performed with no downwash. The emission sources for the construction site were grouped into three categories: exhaust emissions, construction dust emissions, and windblown dust emissions. The exhaust and construction dust emissions were modeled as three volume sources with a vertical dimension of 6 meters. Among the three volume sources, one was used to represent the construction dust and combustion exhaust sources from the facility site, and two were used to represent construction dust and combustion exhaust sources from the laydown area. Based on the width of the construction area, the horizontal dimension for the volume source at the facility site was set to 177.2 meters, with sigma-y = 18.6 meters; the horizontal dimension for each of the two volume sources at the laydown area was set to 102.7 meters, with sigma-y = 23.9 meters. The fugitive dust emissions from disturbed areas were represented for modeling purposes as area sources. To assess impacts from fugitive dust, the facility site and the laydown area were modeled as two single area sources covering a combined disturbed area of 14.4 acres. The effective plume height for these two area sources was set at 0.5 meters in the modeling analysis.

The PVMRM option of AERMOD was used to account for the role of ambient ozone levels on the atmospheric conversion rate of NO_x emissions (initially mostly in the form of nitric oxide) to NO_2 (the pollutant addressed by ambient standards). Hourly ozone measurements at the

SDAPCD Chula Vista monitoring station during the same three years of the meteorological input data set were used to support the PVMRM calculations.

Modeling results are shown in Table 5.2-25.

TABLE 5.2-25
MODELED MAXIMUM IMPACTS DURING CONSTRUCTION

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	Maximum Background Concentration (µg/m³)	Total Concentration[1] (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	79	154	233	188	339
	Annual	6	32	38	100	57
SO_2	1-hr	0	45	45	196	655
	3-hr	0	34	34	1300	--
	24-hr	0	10	10	--	105
	Annual	0	8	8	80	--
CO	1-hr	63	4	67	40,000	23,000
	8-hr	34	2	36	10,000	20.000
PM_{10}	24-hr	21	57	78	150	50
	Annual	2.7	26.7	29.4	--	20
$PM_{2.5}$	24-hr	4.6	45.7	50.3	35	--
	Annual	0.2	12.5	12.7	15.0	12

[1] The total concentration shown in this table is the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.

Table 5.2.25 shows that worst-case background concentrations of PM_{10} and $PM_{2.5}$ are already above the state standards, while with the exception of 24-hour average $PM_{2.5}$, they are below the federal standards. The project's modeled annual PM_{10} and $PM_{2.5}$ impacts are small relative to the background; the annual $PM_{2.5}$ impact is below the federal threshold for significance of 0.3 $\mu g/m^3$.

The project's construction emissions will result in potentially significant impacts for PM_{10} and $PM_{2.5}$. As discussed in Section 5.2.7, emission offsets will be provided prior to the commencement of construction that will fully mitigate these impacts.

Table 5.2.25 indicates that the sum of the worst-case construction NO_2 impact and the worst-case ambient background concentration is greater than the federal 1-hour NO_2 standard. However, this does not mean that the project would result in a violation of that standard. This is because compliance with the federal standard is based on the 3-year average of the 98th percentile of daily maximum 1-hour average concentrations. Because the federal one-hour NO_2 standard requires averaging the concentrations over three years, the NO_2 impacts during the single year of construction would not be likely to cause a new violation of the federal one-hour NO_2 standard. Because construction is expected to last only 16 months, construction impacts would be much lower during the second year and zero during the third year of a compliance assessment with the federal one-hour NO_2 standard.

The project's construction emissions will result in potentially significant impacts for PM_{10} and $PM_{2.5}$. Mitigation measures to be used to minimize emissions during construction are described in detail in Appendix G-2. As discussed in Section 5.2.7, emission offsets will be provided prior to the commencement of construction that will fully mitigate these impacts.

Table 5.2-25 shows that construction emissions will not cause new exceedances of any other state or federal air quality standards.

5.2.4.14 Commissioning Impacts

Air quality impacts during the commissioning period were determined using the emission rates in Appendix G-3. One-hour average NO_2 impacts during commissioning were modeled using AERMOD_PVMRM and concurrent Chula Vista ozone data. Modeled impacts are shown in Table 5.2-26.

TABLE 5.2-26
MODELED MAXIMUM IMPACTS DURING COMMISSIONING

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	Background Concentration (µg/m³)	Total Concentration[1] (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	185	154	339	188	339
	Annual	--	32	--	NA	NA
SO_2	1-hr	3	45	48	196	655
	3-hr	1	34	35	1300	--
	24-hr	0	10	10	--	105
	Annual	--	8	--	NA	--
CO	1-hr	311	4	315	40,000	23,000
	8-hr	73	2	75	10,000	20.000
PM_{10}	24-hr	3	57	60	150	50
	Annual	--	26.7	--	--	NA
$PM_{2.5}$	24-hr	2.6	45.7	49	35	--
	Annual	--	12.5	--	NA	NA

[1] The total concentration shown in this table is the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.

Table 5.2-26 shows that commissioning emissions will not cause new exceedances of any state or federal air quality standards, with the exception of the federal 1-hour NO_2 standard. (Because commissioning is a temporary activity lasting a few weeks at most, the annual standards are not applicable. Commissioning emissions will count toward the limit on annual emissions for the first year of normal operations, so the analysis of annual impacts in Section 5.2.4.15 is applicable to commissioning). The table shows that worst-case background concentrations of PM_{10} are already above the state standard, although they are below the federal standard. The project's 24-hour PM_{10} impacts are lower than the federal significance threshold of 5 $\mu g/m^3$ (see Table 5.2-11). The table indicates that commissioning activities may contribute to existing exceedances of the federal 24-hour average $PM_{2.5}$ standard; however, this standard is evaluated based on the three-year average of the 98th percentile concentration and commissioning emissions, as a short-term activity, are not likely to contribute significantly to an exceedance in fact.

Table 5.2.26 indicates that the sum of the worst-case commissioning NO_2 impacts and the worst-case ambient background concentration is greater than the federal one-hour NO_2 standard. However, this does not mean that the project would result in a violation of that standard. This is because compliance with the federal standard is based on the 3-year average of the 98th percentile of daily maximum 1-hour average concentrations. Because the federal one-hour NO_2 standard requires averaging the concentrations over three years, the NO_2 impacts during the single year of commissioning would not be likely to cause a new violation of the federal one-hour NO_2 standard.

The project's commissioning emissions will not result in potentially significant air quality impacts. Nevertheless, the emission offsets required for operating emissions will be provided before commissioning begins, further mitigating commissioning impacts.

5.2.4.15 Normal Operations Impact Analysis

Screening Modeling Analysis

To ensure the impacts analyzed were for maximum emission levels and worst-case dispersion conditions, a screening procedure was used to determine the inputs to the impact modeling for the new gas turbine. The screening procedure is used to identify the CTG operating conditions that would result in the maximum impacts on a pollutant-specific basis. The operating conditions examined in this screening analysis, along with their exhaust and emission characteristics, are shown in Appendix G-3. These operating conditions represent CTG operation at maximum, average, and minimum ambient temperatures (110°F, 63°F and 30°F), and at full load and minimum load (50 percent).

Ambient impacts for each of the six operating cases were modeled using EPA's AERMOD model and three years of meteorological data, as described above. The results of the unit impact analysis are presented in Appendix G-3. The analysis showed that for short-term averaging periods, modeled impacts were highest under cold temperature, peak load operating conditions. For 24-hour and annual averages, impacts were highest under cold temperature, peak load operating conditions, except for PM_{10} impacts which were highest under cold temperature, low load conditions.

Refined Analysis

The screening modeling analysis described above was used to determine which CTG operating parameters (emission rates and stack parameters) would be used in the subsequent refined analyses. The results of the AERMOD assessment for normal plant operations are summarized in Table 5.2-27. Listed below are the operating assumptions used in developing the emission rates for each emissions unit and averaging period.

1-hour and 3-hour averages

- CTG at peak load, cold temperature (maximum impact case from screening analysis)

8-hour average

- CTG at peak load, cold temperature (maximum impact case from screening analysis)

24-hour averages

- For $PM_{10}/PM_{2.5}$ impacts: CTG at low load, cold temperature (maximum impact case from screening analysis)

- For all other pollutants, CTG at peak load, cold temperature (maximum impact case from screening analysis)

Annual Averages

- For $PM_{10}/PM_{2.5}$ impacts: CTG at low load, cold temperature (maximum impact case from screening analysis)

- For all pollutants, CTG at peak load, annual average temperature (maximum impact case from screening analysis)

- For all pollutants, maximum annual emissions used to calculate average hourly emission rate

TABLE 5.2-27
SUMMARY OF MODELING RESULTS

Pollutant	Averaging Period	Modeled Concentration (µg/m³)			PSD Significant Impact Level (µg/m³)
		Normal Operation	Startup	Inversion Breakup Fumigation[1]	
NO_2	1-hr	27	100	2.9	7.5[2]
	Annual	0.3	--	--	1.0
SO_2	1-hr	6	--	0.2	7.8[2]
	3-hr	3	--	0.1	25
	24-hr	1	--	0.1	5
	Annual	<0.1	--	--	1.0
CO	1-hr	26	202	5.8	2000
	8-hr	6	39	3.0	500
PM_{10}	24-hr	2.6	--	0.2	5
	Annual	0.26	--	--	1
$PM_{2.5}$	24-hr	2.6	--	0.2	1.2
	Annual	0.26	--	--	0.3

Notes:
[1] Inversion breakup fumigation is a short-term phenomenon and does not affect annual impacts.
[2] These are interim SILs and have not been formally adopted by EPA.

Startup and Shutdown Impacts Analysis

Short-term ambient NO_x and CO[5] impacts from the facility during turbine startup may be higher than impacts during normal operation because emission control systems are not fully operational during some part of the initial startup period when the turbine operates at low loads and the exhaust temperatures are low. (See Section 5.2.4.4 for a discussion of emissions.)

[5] SO_2 and $PM_{10}/PM_{2.5}$ emissions during startup are assumed to be the same as during normal operation.

For modeling the impacts during an hour including a startup or shutdown, CO and NO_x emission rates from Table 5.2-19 were used to calculate emissions during the transition period, while emissions during the remainder of the clock hour were assumed to be the maximum normal emission level. The NO_x and CO emission rates used for modeling startup impacts were shown in Table 5.2-21.

Turbine exhaust parameters for minimum load operation and under cold temperature conditions were used to characterize CTG exhaust during startup, because that operating case produced the highest modeled impacts in the screening analysis. Startup impacts were evaluated for the one-hour and eight-hour averaging periods for NO_x and CO. The emission rates and stack parameters used are shown in Appendix G-4. The results of the analysis are summarized in Table 5.2-27.

Inversion Breakup Fumigation Modeling

Inversion breakup fumigation occurs when a stable layer of air lies a short distance above the release point of a plume and unstable air lies below. Under these conditions, an exhaust plume may be drawn to the ground, causing high ground-level pollutant concentrations. Although fumigation conditions rarely last as long as one hour, relatively high ground-level concentrations may be reached during that time. For this analysis, fumigation was assumed to occur for up to 90 minutes, per EPA guidance.

The SCREEN3 model was used to evaluate maximum ground-level concentrations for short-term averaging periods (24 hours or less). Guidance from EPA[6] was followed in evaluating fumigation impacts. The maximum fumigation impact from this analysis, which is shown in more detail in Appendix G-3, showed that impacts under fumigation conditions are expected to be lower than the maximum concentrations calculated by AERMOD under downwash conditions. Inversion breakup impacts are also shown in Table 5.2-27.

For all pollutants, fumigation impacts are lower than the maximum predicted impacts from normal operations and meteorological conditions.

5.2.4.16 Demonstration of Compliance

The maximum facility impacts calculated from the modeling analyses described above are summarized in Table 5.2-27 above. The highest modeled short-term NO_2 and CO impacts are expected to occur under startup conditions; the highest impacts for other pollutants and averaging periods occur under normal operating conditions. To determine the project's air quality impacts, the modeled concentrations are added to the highest reported background ambient air concentrations and then compared to the applicable ambient air quality standards. The highest reported background ambient concentrations were discussed in Section 5.2.1.4 and the monitored concentrations during the past three years are shown in the Table 5.2-28. More detailed discussions of why the data collected at these stations are representative of ambient concentrations in the vicinity of the project are provided in Sections 5.2.1.4 and 5.2.4.12.

[6] EPA-454/R-92-019, "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised."

TABLE 5.2-28
SUMMARY OF RESULTS (MODELED MAXIMUM IMPACTS PLUS BACKGROUND)

Pollutant	Averaging Time	Maximum Predicted Impact (operating mode) (µg/m³)	Background Concentration (µg/m³)	Total Concentration (Maximum Impact plus Background) (µg/m³)	3 year Average of 98th Percentile of Total Concentration (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	100 (startup)	154	254	156	188	339
	Annual	0.3 (normal)	32	32	--	100	57
SO_2	1-hr	6 (normal)	45	51	--	196	655
	3-hr	3 (normal)	34	37	--	1300	--
	24-hr	1 (normal)	10	11	--	--	105
	Annual	<0.1 (normal)	8	8	--	80	--
CO	1-hr	202 (shutdown)	4	206	--	40,000	23,000
	8-hr	39 (shutdown)	2	41	--	10,000	20.000
PM_{10}	24-hr	3 (normal)	57	60	--	150	50
	Annual	0.3 (normal)	26.7	30	--	--	20
$PM_{2.5}$	24-hr	2.6 (normal)	45.7	--	25.8	35	--
	Annual	0.26 (normal)	12.5	12.8	--	15.0	12

[1] 40 CFR 51.165 (b)(2).

Table 5.2-27 (above) shows that project impacts exceed the PSD significance level only for the federal NO_2 one-hour and $PM_{2.5}$ 24-hour standards. All other project impacts are too low to have the potential to cause or contribute significantly to a violation of an ambient air quality standard. No further analysis is necessary for those pollutants and averaging periods.

As shown in Table 5.2-28, the combined project plus background impacts are below the most stringent air quality standard for all pollutants and averaging periods except for 1-hour federal NO_2, 24-hour average state PM_{10}, annual average state PM_{10}, 24-hour average federal $PM_{2.5}$, and annual average state $PM_{2.5}$. Each of these are addressed below.

Federal 1-hour NO_2 standard and federal 24-hour average $PM_{2.5}$ standard - The federal one-hour NO_2 and 24-hour $PM_{2.5}$ standards are statistically based. Unlike most of the other standards, which are generally not to be exceeded, compliance with these two standards is determined by averaging, for three consecutive years, the 98th percentile value of the annual values. For a full set of data, the 98th percentile equals the 8th highest (out of 365) $PM_{2.5}$ 24-hour average, and the 8th highest (out of 365) NO_2 daily 1-hour maximum.

Details of the compliance demonstration for the federal one-hour NO_2 and 24-hour $PM_{2.5}$ standards are presented in Appendix G-7, and are summarized in Table 5.2-29. Table 5.2-29 shows that the project will comply with these statistically-based federal standards.

State 24-hour average PM_{10} standard, state annual average PM_{10} standard, and state 24-hour average $PM_{2.5}$ standard - Table 5.2.28 shows that worst-case background concentrations of PM_{10} and $PM_{2.5}$ are already above the state standards. However, in each case the project's modeled PM_{10} and $PM_{2.5}$ impacts are small relative to the existing background levels. In fact, for each of these three pollutants/averaging periods, the project's impacts are below the federal thresholds of significance, as shown above in Table 5.2-27. Consequently, the impacts for these three pollutants do not contribute significantly to the existing observed exceedances of these state

standards. Nevertheless, and as discussed in Section 5.2.7, the project's PM emissions will be fully mitigated.

TABLE 5.2-29
SUMMARY OF RESULTS OF DEMONSTRATION OF COMPLIANCE WITH FEDERAL 1-HOUR NO_2 AND 24-HOUR $PM_{2.5}$ STANDARDS

Standard	Maximum Predicted Impact (µg/m³)	Maximum Background Concentration (µg/m³)	3 year Average of 98th Percentile of Total Concentration (µg/m³)	NAAQS (µg/m³)
Federal 1-hour NO_2	100 (startup)	154	156	188
Federal 24-hour $PM_{2.5}$	2.6 (normal)	45.7	25.8	35

5.2.5 Cumulative Air Quality Impacts

Two types of cumulative air quality impact analyses are often conducted in association with power plant projects: a CEQA analysis and a PSD analysis.

A CEQA cumulative impacts analysis examines potential cumulative air quality impacts that may result from the project and other reasonably foreseeable projects. Such an analysis is generally required only when project impacts are significant. To ensure that potential cumulative impacts of the project and other nearby projects are adequately considered, a cumulative impacts analysis has been conducted in accordance with the protocol included as Appendix G-4. The analysis demonstrates that the project will not cause or contribute to any significant cumulative air quality impacts.

The second type of cumulative impact analysis is part of the PSD review process, and is designed to ensure that industrial facilities that have the potential to cause locally elevated concentrations of air contaminants are adequately considered when determining the project's potential to cause or contribute to a violation of a federal air quality standard. The PSD air quality impact analysis process, as administered by EPA Region 9, is now an iterative process, requiring a series of submittals and approvals. The first step in the process is the submittal, review, and approval of the modeling protocol. The modeling protocol was provided to EPA for review in November 2010. The next step in the process will be to identify the nearby sources that will be explicitly modeled for the compliance demonstration. The final submittal will be the compliance demonstration itself.

Because EPA's PSD process is now an iterative one, it will require supplemental submittals on a different schedule than the CEC/District permitting process.

5.2.5.1 Nearby Sources

CEQA Cumulative Analysis

The CEC requires an analysis to determine the cumulative impacts of the project and other projects within a six-mile radius that have received construction permits, but are not yet operational or that are in the permitting process or can be expected to be so in the near future. The District provided a list of such projects (see Appendix G-6). The District has indicated that

all of these projects will have emissions of less than 5 TPY of any pollutant. Based on consultation with the District, and consistent with past practice, none of these sources were evaluated by cumulative modeling analysis.

PSD Cumulative Analysis

As discussed above, EPA's PSD review process now requires multiple submittals and intermediate approvals. The first step, approval of the modeling protocol, has not yet been completed.

Following EPA guidance, the District has been consulted to prepare a list of existing facilities to be screened for inclusion in the PSD cumulative impact analysis. The initial list of candidate facilities (see Appendix G-6) is comprised of all facilities in San Diego County[7] with annual emissions of NO_2 or PM_{10} of more than 5 TPY. The facilities on this list will be individually screened to determine whether they are likely to cause a significant concentration gradient in the area impacted by the project. Any facilities that are likely to do so will be explicitly included in the PSD cumulative impact analysis.

5.2.5.2 Regional Impacts

Regional impacts are evaluated by assessing the project's contribution to regional emissions. Although the relative importance of VOC and NO_x emissions in ozone formation differs from region to region and from day to day, state law requires reductions in emissions of both precursors to reduce overall ozone levels. The change in the sum of emissions of these pollutants, equally weighted, provides a rough estimate of the impact of the project on regional ozone levels. Similarly, a comparison of the emissions of PM_{10} and $PM_{2.5}$ precursor emissions from the project with regional PM_{10} and $PM_{2.5}$ precursor emissions provides an estimate of the impact of the project on regional PM_{10} and $PM_{2.5}$ levels.

Table 5.2-30 summarizes these comparisons. The project's emissions are compared with regional emissions in 2010. San Diego Air Basin emissions projections for 2010 were taken from CARB's web-based emission inventory projection software.

TABLE 5.2-30
COMPARISON OF PROJECT EMISSIONS TO REGIONAL PRECURSOR EMISSIONS IN 2010: ANNUAL BASIS[1]

Ozone Precursors – Annual Basis	
Total San Diego Air Basin Ozone Precursors, tons/year	120,487
Total Project Ozone Precursor Emission, tons/year	91
Ratio of Project to Basin Ozone Precursor Emissions,	0.0008
PM10 Precursors – Annual Basis	
Total San Diego Air Basin PM_{10} Precursors, tons/year	165,418
Total Project PM_{10} Precursor Emissions, tons/year	132
Ratio of Project to Basin PM_{10} Precursor Emissions,	0.0008

[7]The modeling protocol indicates that only facilities within six miles would be considered. Because the District's database could not produce a list that was limited to such facilities, a much larger set of candidate sources was received and screened.

PM2.5 Precursors – Annual Basis	
Total San Diego Air Basin $PM_{2.5}$ Precursors, tons/year	136,693
Total Project $PM_{2.5}$ Precursor Emissions, tons/year	132
Ratio of Project to Basin $PM_{2.5}$ Precursor Emissions,	0.0010

[1] Basin-wide emissions calculated as 365 times daily emissions

5.2.5.3 Greenhouse Gas Cumulative Effects Analysis

In the absence of established thresholds of significance or methodologies for assessing impacts, this analysis of GHG emission impacts consists of quantifying project-related GHG emissions, determining their significance in comparison to the goals of AB 32, and discussing the potential impacts of climate change within the state as well as strategies for minimizing those impacts.

As the CEC's 2009 Integrated Energy Policy Report[8] noted:

> *The Energy Commission's 'Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California' found that as California's integrated electricity system evolves to meet GHG emissions reduction targets, the operational characteristics associated with increasing renewable generation will increase the need for flexible generation to maintain grid reliability. The report asserts that natural gas-fired power plants are generally well-suited for this role and that California cannot simply replace all natural gas fired power plants with renewable energy without endangering the safety and reliability of the electric system. The report acknowledges that California will need to modernize its natural gas generating fleet to reduce environmental impacts, however. Overall, the report found that the future of natural gas plants will likely fill five auxiliary roles: 1) intermittent generation support, 2) local capacity requirements, 3) grid operations support, 4) extreme load and system emergencies support, and 5) general energy support. The question remains as to the quantity, type, and location of natural gas-fired generation to fill remaining electricity needs once preferred resource targets are achieved*. (p. 110)

The California Public Utilities Commission ("CPUC") and CEC joint recommendations to CARB state that renewable integration will be a "cornerstone" of emission reductions. Similarly, CARB's AB 32 scoping plan anticipates the implementation of a 33% Renewable Portfolio Standard ("RPS") and includes the RPS as an emission reduction measure. The current RPS requires all load serving entities to procure 20% of their power from eligible renewable resources by 2010. In addition, Governor Schwarzenegger issued Executive Order S.14-08, which directed California State agencies to implement a 33% RPS by 2020. The California Air Resources Board is in the midst of a rulemaking activity establishing a 33% renewable electricity standard to be effective by 2020.

Most renewable energy facilities such as wind and solar are "intermittent resources," meaning these resources are not available to generate in all hours and thus have limited operating capacity. For example, intermittent resources can be limited by meteorological conditions on an hourly, daily, and seasonal basis. Further, most renewable resources have no ability to provide

[8] CEC-100-2009-003-CMF, December 5, 2007, accessed at http://www.energy.ca.gov/2009publications/CEC-100-2009-003/CEC-100-2009-003-CMF.PDF

regulation—the ability to ramp up and down quickly at the system operator's direction to ensure electric system reliability. In addition, the availability of intermittent resources is often unrelated to the load profile they serve. For example, some photovoltaic resources reach peak production around 12:00 noon, while the electrical demand sometimes peaks between 5:00 p.m. and 7:00 p.m.

PPEC can be operated without the limitations affecting intermittent renewable resources. PPEC will provide fast-starting, flexible generating resources that will allow SDG&E to firm intermittent renewable resources and thus integrate renewable resources into SDG&E's generation portfolio without affecting electric system reliability. PPEC will allow SDG&E to take advantage of renewable resources that are out on the market, but are volatile, from a system operations perspective, and require significant, flexible resources to firm their power for system reliability. Accordingly, as a fast-starting, flexible generating resource, PPEC will enhance the reliability of existing and future intermittent renewable resources and thus further SDG&E's RPS and GHG goals.

The PPEC will help provide "firming" sources for SDG&E's existing and future intermittent renewable resources in support of SDG&E's RPS and GHG goals. "Firming" involves the use of fast-starting, flexible generation that is always available under all operating conditions to ramp up or ramp down, as necessary, to balance load and generation. Firming power is the cornerstone of system reliability. Thus, in the context of CEQA, the CEC's Integrated Energy Policy Report, and other state GHG policy documents, the PPEC would not be expected to cause a significant cumulative impact with respect to GHGs. Instead, the PPEC supports the state's strategy to reduce fuel use and GHG emissions. Further, even though it is possible to quantify how many gross GHG emissions are attributable to a project, it is difficult to determine whether this will result in a net increase of these emissions, and, if so, by how much, due to the displacement, by PPEC, of emissions from less efficient generating resources. Therefore, it would be speculative to conclude that any given project results in a cumulatively significant adverse impact resulting from greenhouse gas emissions.

As directed by SB 97, the Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions (GHG CEQA Guidance) on December 30, 2009. On March 18, 2010, those amendments became effective.

The GHG CEQA Guidance included the following elements:

- Quantification of GHG emissions;
- Determination of whether the project may increase or decrease GHG emissions as compared to existing environmental setting;
- Determination of whether the project emissions exceed a threshold of significance determined by the lead agency;
- The extent to which the project complies with state, regional, or local plans for reduction or mitigation of GHGs; and

- Mitigation measures.

Certain GHG reduction strategies will require increases in natural gas consumption; for example, some fraction of electric generation from coal-fired power plants will need to be replaced by natural gas-fired generation. As the 2007 IEPR and a 2009 CEC Siting Committee Report[9] acknowledged, "new gas-fired power plants are more efficient than older power plants, and they displace these older facilities in the dispatch order." The CEC's 2009 Framework report[10] further discussed the role of new gas-fired power plants in displacing GHG emissions, and furthering the State's efforts to reduce GHG emissions. The 2009 Framework report concludes that as California expands renewable energy generation to achieve its GHG emissions reduction goals, it cannot simply retire natural-gas fired power plants: rather, new natural-gas fired power plants may be needed.

Net GHG emissions for the integrated electric system will decline when new gas-fired power plants are added that: (1) serve load growth or capacity needs more efficiently than the existing fleet; (2) improve the overall efficiency of the electric system; and/or (3) permit increased penetration of renewable generation.[11] Because of its location and operational characteristics, PPEC will contribute to the reduction of GHG emissions because it will achieve all of these goals.

As a fast-starting, highly efficient simple-cycle facility, PPEC will meet all three of these criteria. The proposed project would have a net heat rate of approximately 8,694 Btu/kWh (HHV), which leads to an estimated GHG emission rate of 0.477 MT CO2/MWh. This GHG emission rate is quite low for a simple-cycle facility, and compares favorably with the GHG performance of the recently permitted Tracy Combined Cycle project (0.474 MT CO2/MWh) and the TID Almond 2 Power Plant project (0.510 MT CO2/MWh). With its low heat rate, PPEC will displace older, less-efficient peaking units in the SDG&E service territory. PPEC will also support the integration of renewable energy. The proposed simple-cycle LMS100 gas turbines will provide quick starting and fast ramping power that would be much more likely to foster integration of renewable energy than comparable non-renewable base load or intermediate energy resources.

Finally, PPEC will provide more than 1,300 GWh of natural gas-fired generation that could replace aging, less-efficient, coal-fired and/or once-through cooled generating resources.

In the Presiding Member's Proposed Decision for the Avenal Energy Project (CEC-800-2009-006-PMPD), the Committee has established a three-part test to ensure that new natural gas-fired power plants approved by the CEC will support the goals and policies of AB 32 and the related parts of California's GHG framework. The elements of this test are listed below:

(1) The project must not increase the overall system heat rate for natural gas plants;

[9] CEC-700-2009-004, "Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts In Power Plant Siting Applications," March 2009.
[10] CEC-700-2009-009, "Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California," May 2009.
[11] Ibid.

(2) The project must not interfere with generation from existing renewable facilities nor with the integration of new renewable generation; and

(3) Taking into account the factors listed in (1) and (2), the project must reduce system-wide GHG emissions and support the goals and policies of AB 32.

Based on the preceding discussion, the PPEC meets these requirements.

5.2.6 Consistency with Laws, Ordinances, Regulations, and Standards

This section considers consistency separately for federal, state, and local requirements.

5.2.6.1 Consistency with Federal Requirements

Prevention of Significant Deterioration Program

The PSD requirements apply, on a pollutant-specific basis, to any project that is a new major stationary source or a major modification to an existing major stationary source. A major source is a listed facility (one of 28 PSD source categories listed in the federal Clean Air Act) that emits at least 100 TPY, or any other facility that emits at least 250 TPY. Effective July 1, 2011, PSD will also apply to a new stationary source that emits more than 100,000 TPY of greenhouse gases (GHGs). Because the GHG emissions for the proposed project are above the PSD major source threshold of 100,000 TPY, the proposed project is subject to PSD review. Table 5.2-31 shows the pollutants that will trigger PSD review.

TABLE 5.2-31
PSD SIGNIFICANT EMISSION THRESHOLDS

Pollutant	PSD Significant Emission Threshold (TPY)[1]	Project Emissions (TPY)	Significant? (Y/N)
SO_2	40	4.1	N
PM_{10}	15	37.2	Y
$PM_{2.5}$	10	37.2	Y
NO_2	40	70.4	Y
CO	100	96.4	N
GHGs	75,000	685,000	Y
Lead	0.6	0.0	N

[1] 40 CFR 51.165 (a)(1)(xxvii)

PSD permits for major sources in the SDAPCD are issued by EPA Region 9. Because the proposed project is subject to PSD review, the applicant will need to seek a separate permit from EPA.

The permit application that will be submitted to the EPA for the proposed project will address the PSD requirements for the subject pollutants, as outlined below.

- Emissions of the PSD pollutants that trigger PSD review (NO_x, $PM_{10}/PM_{2.5}$ and GHGs) will be controlled using BACT.

- Air quality impacts in combination with other increment-consuming sources must not exceed maximum allowable incremental increases for $PM_{2.5}$, PM_{10}, and NO_2.

- Air quality impacts of all sources in the area plus ambient pollutant background levels cannot exceed NAAQS.

- Pre- and/or post-construction air quality monitoring may be required.

- The air quality impacts on soils, vegetation, and nearby PSD Class I areas (specific national parks and wilderness areas) must be evaluated. (Note: The PPEC is located in a Class II area.)

Nonattainment New Source Review

Nonattainment New Source Review jurisdiction has been delegated to the SDAPCD for all pollutants and is discussed further under local requirement conformance section below.

National Standards of Performance for New Stationary Sources

Establishes national standards of performance to limit the emissions of criteria pollutants (air pollutants for which EPA has established (NAAQS) from new or reconstructed facilities in specific source categories. Applicability of these regulations depends on equipment size, process rate, and date of construction. The proposed project will be subject to Subpart KKKK, Standards of Performance for Stationary Gas Turbines (constructed after February 18, 2005). This new source performance standard applies to gas turbines with a heat input in excess of 1 MMBtu/hr that commence construction after February 18, 2005, and is therefore applicable to the proposed project's gas turbines. Subpart KKKK limits NO_x and SO_2 emissions from new gas turbines based on power output. The limits for gas turbines greater than 30MW are 0.39 lb NO_x per MW-hr and 0.58 lb SO_2 per MW-hr. The emission limits of 2.5 ppmc NO_x (equivalent to approximately 0.077 lbs NOx/MW-hr) and 1.9 lbs/hr SO_2 (equivalent to approximately 0.019 lbs SOx/MW-hr) proposed for this project are well below the Subpart KKKK limits, as shown in Table 5.2-32.

TABLE 5.2-32
COMPLIANCE WITH 40 CFR 60 SUBPART KKKK

	Proposed Permit Limits			Subpart KKKK Limit,
Pollutant	ppmc	lb/hr	lb/MW-hr (max)	lb/MW-hr
SO_2	0.42	1.9	0.019	0.58
NO_2	2.5	8.2	0.077	0.39

Compliance with the NSPS limits must be demonstrated through an initial performance test. Because the proposed project's gas turbines will be equipped with a continuous NO_x emissions monitor, ongoing annual performance testing will not be required under the NSPS.

These standards are enforced at the local level with federal and state oversight.

National Emission Standards for Hazardous Air Pollutants

Establishes national emission standards to limit emissions of hazardous air pollutants (HAPs, or air pollutants identified by EPA as causing or contributing to the adverse health effects of air pollution but for which NAAQS have not been established) from facilities in specific source categories. These standards are implemented at the local level with federal oversight. Only the NESHAP for combustion turbines, which limits formaldehyde emissions from turbines, is potentially applicable to the proposed project. However, as shown in Table 5.2-22, the HAPs emissions for the proposed project are below the NESHAP major source thresholds of 10 TPY of any single HAP or 25 TPY of all HAPS. Therefore, this NESHAP is not applicable to the proposed project and NESHAP requirements will not be addressed further.

Acid Rain Program

Requires the monitoring and reporting of emissions of acidic compounds and their precursors from combustion equipment owned by a utility. The principal source of these compounds is the combustion of fossil fuels. Therefore, Title IV established national standards to monitor, record, and, in some cases, limit SO_2 and NO_x emissions from electrical power generating facilities. These standards are implemented at the local level with federal oversight. SDAPCD has received delegation authority to implement Title IV. PPEC will comply with the acid rain program requirements and will file an acid rain permit application in accordance with the deadlines in SDAPCD Regulation 14.

Title V Operating Permits Program

Requires the issuance of operating permits that identify all applicable federal performance, operating, monitoring, recordkeeping, and reporting requirements. Title V applies to major facilities, Phase II acid rain facilities, subject solid waste incinerator facilities, and any facility listed by EPA as requiring a Title V permit. SDAPCD has received delegation authority for this program. PPEC will comply with the requirements of Title V by filing a Title V permit application in accordance with the deadlines in SDAPCD Regulation 14.

5.2.6.2 Consistency with State Requirements

As discussed in Section 5.2.3.2, state law set up local air pollution control districts and air quality management districts with the principal responsibility for regulating emissions from stationary sources. The proposed project is under the local jurisdiction of the SDAPCD; therefore, compliance with SDAPCD regulations will assure compliance with state air quality requirements.

The PPEC CO_2 emission rate of 0.477 MT/MWh would meet the Emission Performance Standard of 0.51 MT/MWh. However, as a simple-cycle power plant, PPEC is not designed or intended for base load generation. The EPS only applies to procurements which entail an annualized capacity factor in excess of 60%. With an expected operating limit on PPEC that is the equivalent of 4000 full-load hours per year, PPEC's annualized capacity factor will be less than 50%. Therefore, the SB 1368 limitation does not apply to this facility.

5.2.6.3 Consistency with Local Requirements

The SDAPCD has been delegated responsibility for implementing local, state, and federal air quality regulations in the San Diego Air Basin. The proposed project is subject to District regulations that apply to new stationary sources, to the prohibitory regulations that specify emission standards for individual equipment categories, and to the requirements for evaluation of impacts from non-criteria pollutants. The following sections include the evaluation of facility compliance with applicable District requirements.

New Source Review Requirements

The SDAPCD's New Source Review (NSR) rule (Regulation II, Rule 20.3 NSR – Major Stationary Sources & PSD Stationary Sources) establishes the criteria for siting new and modified emission sources; this rule is applicable to the proposed project. There are three basic requirements within the NSR rules. First, BACT and Lowest Achievable Emission Rate (LAER) requirements must be applied to any new emission unit with potential emissions above specified threshold quantities. Second, all potential emission increases of nonattainment pollutants or precursors from the proposed source above specified thresholds must be offset by real, quantifiable, surplus, permanent, and enforceable emission decreases in the form of ERCs. Third, an ambient air quality impact analysis must be conducted to confirm that the project does not cause or contribute to a violation of a national or California AAQS or jeopardize public health.

BACT

A comparison of potential emissions with the BACT thresholds in SDAPCD Rule 20.3 is presented in Table 5.2-33. This table shows that the proposed gas turbines are required to use best available control technology (BACT) for NO_x, VOC, SO_2 and PM_{10}. Emissions from the proposed cooling tower are below the BACT threshold in the District's NSR rule; however, under federal PSD rules BACT must be evaluated for emissions from the cooling tower.

TABLE 5.2-33
APPLICABILITY OF BACT REQUIREMENTS UNDER NSR

Pollutant	BACT Threshold, lb/day	Unit Emissions, lb/day	BACT Required?
Gas Turbines, *each*			
NOx	10	288.1	yes
VOC	10	85.9	yes
SO_2	10	45.6	yes
PM_{10}	10	132.0	yes
Cooling Tower			
PM_{10}	10	9.4	no

A detailed BACT analysis was conducted to evaluate available control options for the proposed gas turbines under both PSD and NSR requirements; the analysis is presented in Appendix G-5. A summary of the proposed BACT is provided in Table 5.2-34.

TABLE 5.2-34
SUMMARY OF PROPOSED BACT

Pollutant	Control Technology	Concentration
NOx	Water injection and SCR and non-use of carbon control and capture system (CCS)	2.5 ppmvd @ 15% O_2 (1-hr avg)
CO	Catalytic Oxidation	4.0 ppmvd @ 15% O_2 (1-hr avg)
VOC	Good combustion practices	2.0 ppmvd @ 15% O_2 (1-hr avg)
SO_2	Pipeline Natural Gas	NA
$PM_{10}/PM_{2.5}$, gas turbines	Pipeline Natural Gas	NA
$PM_{10}/PM_{2.5}$, cooling tower	High-efficiency drift eliminator	NA
GHGs	Efficient simple-cycle gas turbine	NA

Offsets

SDAPCD Rule 20.1 requires that projects with operational emissions above 50 tons per year (TPY) of NO_x or VOC, 100 TPY of PM_{10} or SO_x, provide emission offsets by emission reductions from other sources. Based on emissions data presented in Section 5.2.4.4, Operational Emissions, annual emissions of NO_x from PPEC would exceed the District's offset trigger of 50 TPY. According to Rule 20.3, NO_x offsets need to be provided at a ratio of 1.2:1.

The actual mix of emission reduction credits (ERCs) and/or emission reduction projects that will be used to offset proposed project emissions will be determined based on availability and market conditions. The primary option is to purchase ERCs. SDAPCD regulations allow the use of interpollutant offsets in situations where one pollutant is a precursor to another or when two

pollutants are both precursors to another nonattainment pollutant. For example, because NOx and VOC both contribute to the formation of ozone, VOC ERCs could be used to offset some of the proposed project's NO_x emissions. PPEC will purchase ERCs sufficient to comply with SDAPCD requirements. Offset and mitigation requirements for the project are summarized in Table 5.2-35 below.

PPEC will submit its offset plan as a separate confidential filing.

Air Quality Impact Analysis

Under the SDACPD new source review regulations, an air quality impact analysis must be performed to confirm that the emission increases for a project will not interfere with the attainment or maintenance of an applicable ambient air quality standard or cause additional violations of a standard anywhere the standard is already exceeded. The modeling results presented in Section 5.2.4.16 show that the proposed project will not interfere with the attainment or maintenance of the applicable air quality standards or cause additional violations of any standards.

New Source Review Requirements for Air Toxics

The SDAPCD's New Source Review (NSR) rule for air toxics (Regulation XII, Rule 1200 (Toxic Air Contaminants - New Source Review) describes the requirements, procedures, and standards for evaluating the potential impact of toxic air contaminants (TAC) from new sources and modifications to existing sources. The rule also requires a demonstration that the source will not exceed the applicable health risk thresholds. PPEC will comply with the requirements of this rule. An air toxics health risk assessment consistent with SDAPCD requirements under Rule 1200 is provided in Section 5.16 of this AFC, Public Health and Safety.

New Source Performance Standards

The SDAPCD's New Source Performance Standards (Regulation X, Standards of Performance for New Stationary Sources) incorporates the federal NSPS from 40 CFR Part 60. The applicability and requirements of and compliance with the New Source Performance Standards are discussed above under the federal regulations section.

Federal Programs and Permits

The federal Title IV acid rain program requirement and Title V operational permit requirements are in SDAPCD's Rule 1412 (Federal Acid Rain Program Requirements) and Regulation XIV Rule 1401/1410. The applicability and requirements of and compliance with these programs and permits are discussed above under the federal regulations section.

Public Notification

Because the proposed PPEC project emissions will exceed the AQIA trigger levels, public notice under Rule 20.3 is required and the project expects the SDAPCD Air Pollution Control Officer will provide this notice in a timely manner.

Permit Fees

The SDAPCD requirements regarding permit fees are specified in Regulation III. This regulation establishes the filing and permit review fees for specific types of new sources, as well as annual renewal fees and penalty fees for existing sources. PPEC will pay the applicable fees in accordance with these requirements.

Prohibitions

The SDAPCD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibition rules that apply to the proposed PPEC project are listed below.

- Rule 50 – Visible Emissions: This rule prohibits any source from discharging any emissions of any air contaminant that is darker in shade than that designated as Number 1 on the Ringelmann Chart for a period or periods aggregating more than three minutes in any period of 60 consecutive minutes. The PPEC project use of natural gas would eliminate the possibility of a dark visible emissions. Therefore, the PPEC project is expected to comply with this requirement.

- Rule 51 – Nuisance: This rule prohibits the discharge from a facility of air contaminants that cause injury, detriment, nuisance, or annoyance to the public, or cause damage to business or property. The PPEC project would not emit odorous pollutants, and the screening level health risk assessment included in the Public Health Section demonstrates that the potential health risk from the emissions are less than significant.

- Rule 52 – Particulate Matter Emission Standards: This rule prohibits the discharge from any source of particulate matter in excess of 0.10 grain per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas. The proposed PPEC project will have particulate matter emissions less than 0.23 grams per dry standard cubic meter and will thus comply with this rule.

- Rule 62 – Sulfur Content of Fuels: This rule prohibits any stationary source from using any gaseous fuel containing more than ten grains of sulfur compounds per 100 cubic feet of dry gaseous fuel. The proposed PPEC project will have a range of 0.25 (long term) to 0.75 (short term) grains per 100 cubic feet of dry gaseous fuel, both of which are much less than the limit under this rule.

5.2.7 Mitigation Measures

Mitigation will be provided for project emissions in the form of offsets, as required by SDAPCD (District) regulations and the installation of BACT, also required under SDAPCD regulations. The cumulative air quality impacts analysis described in Section 5.2.5 shows that the project will not result in significant cumulative impacts.

As discussed in Section 5.2.6.3, SDAPCD Rule 20.1 requires that projects with operational emissions above 50 tons per year (TPY) of NO_x or VOC, or 100 TPY of PM_{10} or SO_x provide emission offsets through emission reductions from other sources. Annual emissions of NO_x from PPEC would exceed the District's offset trigger level of 50 TPY. According to Rule 20.3, NO_x offsets need to be provided at a ratio of 1.2:1.

In addition to the District's offset requirements, it is the CEC's policy to require mitigation for the full amounts of all nonattainment pollutants and their precursors at a ratio of at least 1:1. Accordingly, the Applicant will mitigate the full project emissions of NO_x, VOC, PM_{10}, $PM_{2.5}$ and SO_2. Mitigation for CO will not be required because of the current attainment designation of the San Diego air basin for this pollutant.

Table 5.2-35 summarizes the project's emissions, District offset and CEC mitigation requirements, and District ERC Registry-based availability.

TABLE 5.2-35
PPEC OFFSET AND MITIGATION REQUIREMENTS AND ERC AVAILABILITY

Pollutant	Project Emissions (TPY)	District Offset Requirements (TPY)	CEC Mitigation Requirements (TPY)	Available ERCs, District Registry (TPY)
NO_x	70.4	84.5	70.4	178
CO	96.4	--	--	--
VOC	20.7	--	20.7	373
SO_2	4.1	--	4.1	17
PM_{10}	37.2	--	37.2	157
GHGs	203,000 MT	--	Cap & Trade Allowances	--

The details of the offset/mitigation package have not yet been finalized, and disclosure of the preferred mitigation package at this time would compromise ongoing negotiations. The project's offset/mitigation strategy is being provided as a separate, confidential filing. The Applicant will submit additional confidential filings to the CEC as it enters into contracts for specific ERCs.

Table 5.2-35 shows that there are sufficient offsets available in the District's ERC registry to address project requirements.

As discussed above, the project's GHG impacts are not significant under CEQA. GHG regulatory offset requirements will be addressed through acquisition of allowances under CARB's Cap-and-Trade program.

5.2.8 Permits Required and Permit Schedule

Under Regulation II of its Rules and Regulations, SDAPCD regulates the construction, alteration, replacement, and operation of new stationary emissions sources and modifications to existing sources. In addition, pursuant to its Rule 20.5 Power Plants, the District's Air Pollution Control Officer will conduct a Determination of Compliance (DOC) review upon receipt of the AFC for the proposed PPEC project. This DOC for the project will be provided by SDAPCD as part of the CEC review to confirm that the project will meet all of the District's rules and regulations. A preliminary DOC (PDOC) is expected within approximately 180 days after acceptance of the application is complete. The PDOC will be circulated for public comment, and a final DOC (FDOC) will be issued by the SDAPCD after comment has been considered and addressed. Upon receiving CEC's final license, the SDAPCD will be responsible for issuing an Authority to Construct (ATC) permit and Permit to Operate (PTO) for PPEC. This permitting process allows the SDAPCD to adequately review new and modified air pollution sources to

ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls will be used. An ATC allows for the construction of the air pollution source and remains in effect until the PTO application is granted, denied, or canceled. Once the project has completed construction and commences operations, SDAPCD will require verification that PPEC conforms to the ATC application and, following such verification, will issue a PTO. The PTO specifies conditions that the air pollution source must meet to comply with all air quality standards and regulations.

The SDAPCD has also received delegation from EPA to administer the federal Title IV and Title V programs for sources in San Diego County. The proposed PPEC project will be exempt from many of the acid rain program requirements, but PPEC will be required to estimate SO_2 and CO2 emissions from the project and to monitor NOx emissions with a certified CEMS. The proposed PPEC must also submit a Title V permit application within 12 months after commencement of plant operations pursuant to SDAPCD Rule 1414.

EPA has not delegated authority to the SDAPCD to issue PSD permits. A PSD permit application will be submitted to EPA shortly after the AFC has been submitted. EPA will take an unknown amount of time to determine whether the application is complete. EPA has recently revised the PSD permit application process, building in iterations so that it can evaluate and approve one set of information before allowing the applicant to proceed to the next step. It is unlikely that EPA will determine that an application is complete until the end of the iterative process. Once the PSD application is determined to be complete, EPA regulations require a decision on the permit within one year. EPA will circulate a draft permit for public comment prior to finalizing its decision. Construction cannot begin until the PSD permit has been issued.

5.2.9 References

Auer, Jr., A.H. 1978. "Correlation of Land Use and Cover with Meteorological Anomalies." Journal of Applied Meteorology. 17: 636-643.

California Air Resources Board (CARB). 2007. Off-Road Mobile Source Emission Factors, Off-Road Emissions Inventory Program.

California Air Resources Board (CARB). 2010. ADAM Website (www.arb.ca.gov/adam/welcome.html). November.

California Energy Commission (CEC). 1997. "Regulations Pertaining to the Rules of Practice and Procedure and Plant Site Certification." Title 20, California Code of Regulations. Chapters 1, 2, and 5.

California Energy Commission (CEC). 2006. Rules of Practice and Procedure and Power Plant Site Certification Regulations Revisions, 04-SIT-2, December 14, 2006.

California Energy Commission (2007). 2007 Integrated Energy Policy Report – Scenario Analysis of California's Electricity System. http://www.energy.ca.gov/2007_energypolicy/documents/index.html.

California Energy Commission. Committee Report (08-GHG OII-01). Committee Guidance On Fulfilling California Environmental Quality Act Responsibilities For Greenhouse Gas Impacts In Power Plant Siting Applications. March 2009. http://www.energy.ca.gov/ghg_powerplants/documents/index.html.

California Energy Commission (2009). Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California, CEC-700- 2009-009-F, Prepared by: MRW and Associates. December 2009.

California Energy Commission (2009). Final Commission Decision for the Avenal Energy Plant (CEC-800-2009-006-CMF), December 2009.

San Joaquin Valley Air Pollution Control District. April 2010. Modeling Procedure to Address the New Federal 1 Hour NO_2 Standard.

Sierra Research. 2010 Modeling Protocol for the Pio Pico Energy Center, San Diego County, California. Prepared by URS Corporation for submittal to the San Diego Air Pollution Control District and the California Energy Commission. November.

South Coast Air Quality Management District. 1993. CEQA Air Quality Handbook. April 1993.

U.S. Environmental Protection Agency (EPA). 1985. Guideline for Determination of Good Engineering Stack Height (Technical Support Document for the Stack Height Regulation) (Revised), EPA-450/4-80-023R. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. June 1985.

U.S. Environmental Protection Agency (EPA). 1992a. Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised. EPA-454/R-92-019. October 1992.

U.S. Environmental Protection Agency (EPA). 1995a. Building Profile Input Program-Prime. Version 98086.

U.S. Environmental Protection Agency (EPA). 1995b. Screen3 Model User's Guide. EPA-454/B-95-004. September 1995.

U.S. Environmental Protection Agency (EPA). 1995c. User's Guide to the Building Profile Input Program (Revised), EPA-454/R-93-038, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. February.

U.S. Environmental Protection Agency (EPA). 2000. Meteorological Monitoring Guidance for Regulatory Modeling Applications. February 2000.

U.S. Environmental Protection Agency (EPA). 2003. Guideline on Air Quality Models. 40 CFR51 Appendix W. July 1, 2003 Edition.

U.S. Environmental Protection Agency (EPA). 2004. User's Guide for the AMS/EPA Regulatory Model-AERMOD. (EPA-454/B-03-001). September 2004.

U.S. Environmental Protection Agency (EPA). 2005. AERMOD Implementation Guide. September 2005.

U.S. Environmental Protection Agency (EPA). 2006a. Addendum to User's Guide for the AMS/EPA Regulatory Model-AERMOD. December 2006.

U.S. Environmental Protection Agency (EPA). 2006b. EPA AirData.

U.S. Environmental Protection Agency (EPA). 2008a. AERMOD Implementation Guide. January 2008.

U.S. Environmental Protection Agency (EPA). 2008b. AERSURFACE User's Guide. January 2008.

U.S. Environmental Protection Agency (EPA). 2010a. Notice Regarding Modeling for New Hourly NO_2 NAAQS. February.

U.S. Environmental Protection Agency (EPA). 2010b. EPA AIRS Website (www.epa.gov/air/data/index.htm). November.

Western Regional Climate Center. 2007. Desert Research Institute, Las Vegas, NV (http://www.wrcc.dri.edu).

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Air Quality** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	See Below		
Appendix B (g) (8) (A)	The information necessary for the air pollution control district where the project is located to complete a Determination of Compliance.	See Below		
Appendix B (g) (8) (B)	The heating value and chemical characteristics of the proposed fuels, the stack height and diameter, the exhaust velocity and temperature, the heat rate and the expected capacity factor of the proposed facility.	Heating value and chemical characteristics of fuel: Section 5.2.4.2, Table 5.2-16. Stack Height, diameter, exhaust velocity, and temperature: Appendix G-4, Tables G-4.1, G-4.2, G-4.3 and Appendix G-7, Table G-7.1. Heat rate and capacity factor: Section 3.5.4.2, Table 3.5-2.		
Appendix B (g) (8) (C)	A description of the control technologies proposed to limit the emission of criteria pollutants.	Sections 5.2.4.4 and 5.2.6.3, Table 5.2-34.		
Appendix B (g) (8) (D)	A description of the cooling system, the estimated cooling tower drift rate, the rate of water flow through the cooling tower, and the maximum concentrations of total dissolved solids.	Sections 3.5.7.1 and 5.2.4.2 and Appendix G-3, Table G-3.2.		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Air Quality** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (8) (E)	The emission rates of criteria pollutants and greenhouse gases (CO2, CH4, N2O, and SF6) from the stack, cooling towers, fuels and materials handling processes, delivery and storage systems, and from all on-site secondary emission sources.	Section 5.2.4.3, Table 5.2-17; Section 5.2.4.4, Tables 5.2-17 to 5.2-21; Section 5.2.4.6, Table 5.2-24.		
Appendix B (g) (8) (F)(i)	A description of typical operational modes, and start-up and shutdown modes for the proposed project, including the estimated frequency of occurrence and duration of each mode, and estimated emission rate for each criteria pollutant during each mode.	Section 5.4.4.4, Tables 5.2-19 to 5.2-21.		
Appendix B (g) (8) (F)(ii)	A description of the project's planned initial commissioning phase, which is the phase between the first firing of emissions sources and the commercial operations date, including the types and durations of equipment tests, criteria pollutant emissions, and monitoring techniques to be used during such tests.	Section 5.4.4.3, Table 5.2-17.		
Appendix B (g) (8) (G)	The ambient concentrations of all criteria pollutants for the previous three years as measured at the three Air Resources Board certified monitoring stations located closest to the project site, and an analysis of whether this data is representative of conditions at the project site. The applicant may substitute an explanation as to why information from one, two, or all stations is either not available or unnecessary.	Sections 5.2.1.4 and 5.2.4.12		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Air Quality** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (8) (H)	One year of meteorological data collected from either the Federal Aviation Administration Class 1 station nearest to the project or from the project site, or meteorological data approved by the California Air Resources Board or the local air pollution control district.	Section 5.2.4.11		
Appendix B (g) (8) (H) (i)	If the data is collected from the project site, the applicant shall demonstrate compliance with the requirements of the U.S. Environmental Protection Agency document entitled "On-Site Meteorological Program Guidance for Regulatory Modeling Applications" (EPA - 450/4-87-013 (August 1995)), which is incorporated by reference in its entirety.	N/A – Data not collected onsite.		
Appendix B (g) (8) (H) (ii)	The data shall include quarterly wind tables and wind roses, ambient temperatures, relative humidity, stability and mixing heights, upper atmospheric air data, and an analysis of whether this data is representative of conditions at the project site.	Sections 5.2.1.2 and 5.2.4.11, Appendix G.1, CD containing modeling files.		
Appendix B (g) (8) (I)	An evaluation of the project's direct and cumulative air quality impacts, consisting of the following:	See Below		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Air Quality** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (8) (I) (i)	A screening level air quality modeling analysis, or a more detailed modeling analysis if so desired by the applicant, of the direct criteria pollutant impacts of project construction activities on ambient air quality conditions, including fugitive dust (PM_{10}) emissions from grading, excavation and site disturbance, as well as the combustion emissions [nitrogen oxides (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter (PM2.5)] from construction-related equipment;	Section 5.2.4.13, Table 5.2-25.		
Appendix B (g) (8) (I) (ii)	A screening level air quality modeling analysis, or a more detailed modeling analysis if so desired by the applicant, of the direct criteria pollutant (NO_x, SO_2, CO, $PM_{10,}$ and $PM_{2.5}$) impacts on ambient air quality conditions of the project during typical (normal) operation, and during shutdown and startup modes of operation. Identify and include in the modeling of each operating mode the estimated maximum emissions rates and the assumed meteorological conditions;	Section 5.2.4.15, Tables 5.2-27 to 5.2-29.		
Appendix B (g) (8) (I) (iii)	A protocol for a cumulative air quality modeling impacts analysis of the project's typical operating mode in combination with other stationary emissions sources within a six mile radius which have received construction permits but are not yet operational, or are in the permitting process. The cumulative inert pollutant impact analysis should assess whether estimated emissions concentrations will cause or contribute to a violation of any ambient air quality standard; and	Section 5.2.5.1		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Air Quality** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (8) (I) (iv)	An air dispersion modeling analysis of the impacts of the initial commissioning phase emissions on state and federal ambient air quality standards for NO_X, SO_2, CO, PM_{10}, and $PM_{2.5}$.	Section 5.2.4.14, Table 5.2-26.		
Appendix B (g) (8) (J)	If an emission offset strategy is proposed to mitigate the project's impacts under subsection (g)(1), provide the following information:	See Below		
Appendix B (g) (8) (J) (i)	The quantity of offsets or emission reductions that are needed to satisfy air permitting requirements of local permitting agencies (such as the air district), state and federal oversight air agencies, and the California Energy Commission. Identify by criteria air pollutant, and if appropriate, greenhouse gas; and	For criteria pollutants: Sections 5.2.6.3 (offset subsection) and 5.2.7. For GHGs: Section 5.2.7.		
Appendix B (g) (8) (J) (ii)	Potential offset sources, including location, and quantity of emission reductions;	Confidential Filing		
Appendix B (g) (8) (K)	A detailed description of the mitigation, if any, which an applicant may propose, for all projects impacts from criteria pollutants that currently exceed state or federal ambient air quality standards, but are not subject to offset requirements under the district's new source review rule.	Section 5.2.7		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 5.2.3, Table 5.2-12.		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date ____

Technical Area: **Air Quality** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Sections 5.2.2 and 5.2.3.		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Section 5.2.2, Table 5.2-9.		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 5.2.8		

TABLE OF CONTENTS

5.6 BIOLOGICAL RESOURCES 5.6-1
5.6.1 Methods 5.6-2
5.6.2 Affected Environment 5.6-4
5.6.3 Environmental Consequences 5.6-18
5.6.4 Cumulative Impacts 5.6-20
5.6.5 Avoidance, Minimization, and Mitigation Measures 5.6-21
5.6.6 Laws, Ordinances, Regulations, and Standards 5.6-30
5.6.7 Involved Agencies and Agency Contacts 5.6-35
5.6.8 Permits Required and Permitting Schedule 5.6-35
5.6.9 References 5.6-35

LIST OF TABLES

Table 5.6-1 Vegetation Communities/Land Cover Types Observed within the Study Area 5.6-4
Table 5.6-2 Observed Plant Species 5.6-6
Table 5.6-3 Observed Wildlife Species 5.6-8
Table 5.6-4 Special-status Plants and Their Potential for Occurrence within the Project Footprint 5.6-9
Table 5.6-5 Special-status Wildlife and Their Potential for Occurrence within the Project Footprint 5.6-13
Table 5.6-6 Impacts to Vegetation Communities / Land Cover Types 5.6-19
Table 5.6-7 Summary of Biological Resources LORS and Compliance 5.6-30
Table 5.6-8 Agency Contact List 5.6-35
Table 5.6-9 Applicable Permits 5.6-35

LIST OF FIGURES

Figure 5.6-1 Biological Study Area
Figure 5.6-2 Biological Resources within a 1-Mile Radius of the Site
Figure 5.6-3 Biological Resources within a 10-Mile Radius of the Site
Figure 5.6-4 Vegetation Communities/Land Cover Types

5.6 BIOLOGICAL RESOURCES

The Pio Pico Energy Center Project (PPEC) is a proposed facility to be located within an unincorporated area south of the City of San Diego, California (see Figure 3.1-1, Regional Location). For the purposes of this section, the proposed PPEC project will be hereafter referred to as the "project." The project occurs within the San Bernardino Merdian, Section 30, Township 18 South, and Range 1 East of the Otay Mesa United States Geological Survey (USGS) 7.5-Minute Topographic Quadrangle Map (USGS, 1975). For the purposes of this evaluation, the project's "study area" is defined as the physical ground disturbance footprint (i.e., generating facility site, construction laydown area, transmission line pole locales, gas line, etc.) plus a 1,000-foot buffer (Figure 5.6-1). Facility placement and design were intended to avoid populations of special-status species within the region. The final design will also minimize impacts to wildlife connectivity and movement to avoid resource conflicts and permitting delays to the maximum extent practicable. Additionally, the industrial park developer grade the property in first quarter 2011 as described in the 2009-2010 County of San Diego Grading Permit 2700-1555. This planned soil removal and grading of the property was already planned for prior to the inception of this project and will occur regardless of the submittal of this Application for Certification (AFC) or its eventual approval. Site elevation for the purposes of this project will be approximately 635 feet above mean sea level (msl). This will establish the baseline conditions that this AFC is founded upon. The baseline site topography is shown on Figure 3.4-2, Baseline Site Topography.

This section of the AFC is intended to assess the impacts of the project on biological resources[1] and special-status species[2] and their habitats, as well as special aquatic resource areas[3]. The information contained in this section will only include summarized technical data, maps, and similar relevant information sufficient to allow assessment of any significant environmental consequences of the proposed project by reviewing agencies and members of the public. Furthermore, where the potential for significant impacts are identified, measures are presented to avoid, minimize, and mitigate impacts.

The botanical field studies have identified that no special-status plant species are found within the project study area.

The wildlife field studies identified the following special-status wildlife species have potential to occur within the project study area:

- San Diego Fairy Shrimp (*Branchinecta sandiegonensis*); and
- Burrowing Owl (*Athene cincularia*).

[1] For the purposes of this analysis, "biological resources" refers to the plants, wildlife, and habitats that occur, or have the potential to occur, within the Project's study area.

[2] For the purposes of this analysis, "special-status species" refers to any species that has been afforded special protection by federal, state, or local resource agencies (e.g., U.S. Fish and Wildlife Service, California Department of Fish and Game) or resource conservation organizations (e.g., California Native Plant Society). The term "special-status species" excludes those avian species solely identified under Section 10 of the Migratory Bird Treaty Act (MBTA) for federal protection. Nonetheless, MBTA Section 10 protected species are afforded avoidance and minimization measures per state and federal requirements.

[3] For the purposes of this analysis, special aquatic resource areas including vernal pools that are defined as potential: United States Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); Regional Water Quality Control Board (RWQCB) legal authority in accordance with Section 401 of the CWA and as defined within Section 13050(e) et seq. of the California Water Code (CWC) via the Porter-Cologne Water Quality Control Act (Porter-Cologne); and California Department of Fish and Game (CDFG) jurisdiction pursuant to Section 1600 et seq. of the California Fish and Game Code (CFG Code).

5.6.1 Methods

Prior to beginning field surveys, URS Corporation (URS) consulted resource specialists and reviewed available information from resource management plans and relevant documents to determine the locations and types of biological resources that have the potential to exist within and adjacent to the project study area; resources were evaluated within one mile and ten miles of the project pursuant to California Energy Commission's (CEC) evaluation guidelines. The materials reviewed included, but were not limited to, the following:

- County of San Diego, Biological Mitigation Ordinance (1996)
- County of San Diego in Conjunction with the United States Fish and Wildlife Service (USFWS) and California Department of Fish & Game (CDFG). Multiple Species Conservation Program
- USFWS Critical Habitat Mapper and File Data (USFWS, 2010a and 2010b)
- USFWS Carlsbad Field Office Species List for San Diego County
- The California Natural Diversity Database (CDFG, 2010) (See Appendix J-3)
- California Native Plant Society Electronic Inventory (CNPS, 2010)
- Aerial Photographs (Digital Globe 2009)
- Biological Database for California Department of Transportation (Caltrans) State Route (SR)-11 Project (URS, 2005)

Wildlife corridors were also evaluated within the study area. This evaluation included a literature review to identify any previously recognized regional[4] and/or local[5] wildlife corridors or linkages (Ogden Environmental, 1993). To evaluate the arrangement of open space for its usefulness as a wildlife corridor, a group of focal target species was selected as well. The focal species included the larger mammal species: mule deer (*Odocoileus hemionus*), mountain lion (*Felis concolor*), bobcat (*Felis rufus*), and coyote (*Canus latrans*). Detection of sign and/or visual observation of these species were documented during the various field efforts. These data will be analyzed to determine areas of high wildlife use.

Pedestrian-based field surveys were performed as well to assess general and dominant vegetation community types, community sizes, habitat types, and species present within communities. Detailed methods, field survey dates and results for the pedestrian-based field survey are provided in Appendix J-1, Biological Technical Report. In summary, community type descriptions were based on observed dominant vegetation composition based on the criteria and definitions of widely accepted vegetation classification systems (Holland 1986, Sawyer, Keeler-Wolf and Evens 2009). Plants were identified to the lowest taxonomic level sufficient to determine whether the plant species observed were non-native, native, or special-

4Regional corridors link two or more large areas of natural open space and serve to maintain demographic and genetic exchange between wildlife populations residing within these geographically distinct areas (Beier and Loe 1992).

5Local corridors give resident animals access to essential resources (e.g., water, food, cover, or den sites) within a large habitat patch and may also function as secondary connections to the regional corridor system (Beier and Loe 1992).

status. Plants of uncertain identity were subsequently identified from taxonomic keys (Hickman, 1993). Scientific and common species names were recorded according to Hickman (1993). The presence of a wildlife species was based on direct observation, and wildlife signs (e.g., tracks, burrows, nests, scat, or vocalization). Field data compiled for wildlife species included scientific name, common name, and evidence of sign when no direct observations were made. Wildlife of uncertain identity were documented and subsequently identified from specialized field guides and related literature (Burt and Grossenheider, 1980; Halfpenny, 2000; Sibley, 2000; Elbroch, 2003; and Stebbins, 2003).

The study area was also assessed for its potential to support special-status species based on habitat suitability comparisons with reported occupied habitats. The following definitions were utilized to determine the need for subsequent surveys and to assess project-related effects to special-status species:

Absent [A] - Species distribution is restricted by substantive habitat requirements, which do not occur within the project footprint, and no further survey or study is necessary to determine likely presence or absence of this species.

Low [L] - Species distribution is restricted by substantive habitat requirements, which are negligible within the project footprint, and no further survey or study is obligatory to determine likely presence or absence of this species.

Moderate [M] – Species distribution is restricted by substantive habitat requirements, which marginally occur within the Project's foot print, and further survey or study may be necessary to determine likely presence or absence of species.

Habitat Present [HP] - Species distribution is restricted by substantive habitat requirements, which occur within the project footprint, and further survey or study may be necessary to determine likely presence or absence of species.

Present [P] - Species or species sign were observed to be present in the project footprint.

Additionally, suspected special aquatic resource areas were examined and evaluated within the study area using the general methodology set forth in:

- The U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory, 1987);
- The USACE's Interim Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region Direction on Delineating Arid Streams (Wakeley et al., 2006);
- The USACE's and Environmental Protection Agency's June 2007 issued Clean Water Act (CWA) Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States Guidance Document (USACE, 2007); and
- Those analysis tools detailed in A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607 (ESD, 1994).

Detailed field survey methods are provided in the Preliminary Jurisdictional Delineation Report which presents our best effort at estimating jurisdictional boundaries using the most up-to-date regulations, written policies, and guidance from the USACE, Regional Water Quality Control Board (RWQCB), and CDFG. Nonetheless, only the USACE, RWQCB, and CDFG can make a final determination of jurisdictional boundaries for this Project.

As a result of the above-referenced literature reviews, the following focused surveys were determined to be necessary:

- Fairy Shrimp
- Burrowing Owl

5.6.2 Affected Environment

The majority of the study area has been previously disturbed and the region includes developed areas containing commercial and public infrastructure. The project's proposed ground disturbance footprint is relatively flat and insulated from the adjacent drainage and open space by roughly 200 feet. Additionally, the industrial park developer will grade the property in first quarter 2011 as described in the 2009-2010 County of San Diego Grading Permit 2700-1555. This planned soil removal and grading of the property was already planned for prior to the inception of this project and will occur regardless of the submittal of this AFC or its eventual approval. Site elevation for the purposes of this project will be approximately 635 feet above msl. This will establish the baseline conditions that this AFC is founded upon. The baseline site topography is shown on Figure 3.4-2, Baseline Site Topography. Facility placement and design were also intended to avoid special-status species within the region. The final design also will also minimize impacts to wildlife connectivity and movement to avoid resource conflicts and permitting delays. Figures 5.6-2 and 5.6-3 identify biological resources within a one-mile and ten-mile radius of the project, respectively (CNDDB, 2010; CNPS, 2010; and USFWS, 2010).

Vegetation Communities

The project study area includes four vegetation communities/land cover types, which are discussed further below and listed in Table 5.6-1. Figure 5.6-4 depicts the vegetation communities/land cover types observed within the project study area.

TABLE 5.6-1
VEGETATION COMMUNITIES/LAND COVER TYPES OBSERVED WITHIN THE STUDY AREA

Vegetation Community Type	Acres
Non-Native Grassland	604.7
Mule fat	0.54
Riparian	5.6
Developed/Disturbed	317.3

Non-Native Grassland

Non-native grassland generally occurs on fine-textured loam or clay soils that are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. This habitat is a disturbance-related community most often found in old fields or openings in native scrub habitats and is characterized by a dominant cover (greater than 50% cover) of annual grasses and occasionally native and nonnative annual forbs (Holland, 1986). Non-native grasses have replaced native grassland and coastal sage scrub at many localities throughout Southern California.

Mule Fat

Mule fat/scrub is a depauperate, tall, riparian scrub strongly dominated by mule fat (*Baccharis salicifolia*) and salt cedar (*Tamarix ramosissima*). This early seral community is maintained by frequent ephemeral flooding. Absent frequent flooding, most stands would succeed to cottonwood or sycamore dominated riparian forests or woodlands.

Riparian

Dominant riparian species within the study area include southern cattail (*Typha domingensis*), tall umbrella sedge (*Cyperus eragrostis*), and arroyo willow (*Salix lasiolepis*). This vegetation is present for most, or all, of the growing season in most years and is dominated by perennial species.

Developed/Disturbed

Developed lands within the study area include roadways, parking lots, vacant lots, residences and other private/public infrastructure with ornamental plantings. Species composition in developed communities within the study area varied and dominated by non-native cultivar species.

Disturbed or ruderal vegetation typically develops on sites with heavily compacted soils following intense levels of disturbance, such as grading, agriculture, off-road activities, or previous development. Disturbed areas are dominated by broad-leaf herbaceous species such as mustards (*Brassica* spp., *Hirshfeldia incana*), horseweed (*Conyza canadensis*), and thistles (*Centaurea* spp., *Silybum* spp., *Carduus* spp., etc.) and often have a subdominant cover (less than 50% cover) of annual non-native grasses.

Plant species observed within the project study area are identified in Table 5.6-2. Plant species observed within the study area are common to urban habitats and undeveloped natural areas.

TABLE 5.6-2
OBSERVED PLANT SPECIES

SCIENTIFIC NAME	COMMON NAME
FLOWERING PLANTS	
MONOCOTS	
Arecaceae	**Palm Family**
Washingtonia sp.	Fan palm
Cyperaceae	**Sedge Family**
Cyperus eragrostis	Tall umbrella-sedge
Poaceae	**Grass Family**
Avena barbata *	Slender wild oat
Avena fatua *	Wild oat
Bromus diandrus * †	Ripgut brome
Bromus hordeaceus *	Soft chess
*Bromus japonicus**	Japanese broom
Bromus madritensis *	Foxtail chess
Bromus sp.* †	Brome grass
Cynodon dactylon *	Bermuda grass
Elymus condensatus	Giant wildrye
Lolium multiflorum *	Italian wild rye
Piptatherum miliaceum	Smilo grass
Polypogon monspeliensis *	Annual beard grass
Typhaceae	**Cattail Family**
Typha domingensis	Southern cattail
DICOTS	
Aizoaceae	**Fig-Marigold Family**
Carpobrotus edulis	Iceplant
Anacardiaceae	**Sumac Family**
Rhus ovata	Sugar bush
Schinus molle *	Pepper tree
Apiaceae	**Carrot Family**
Foeniculum vulgare *	Sweet fennel
Apocynaceae	**Dogbane Family**
Nerium oleander	Oleander
Asteraceae	**Aster Family**
Ambrosia psilostachya	Ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	Mugwort
Baccharis pilularis	Coyote brush
Baccharis salicifolia	Mule fat
Conyza canadensis	Common horseweed
Encilia californica	California encilia
Heterotheca grandiflora	Telegraph weed
Isocoma menziesii var. *menziesii*	Goldenbush
Iva hayesiana **	San Diego marsh elder
Lactuca serriola *	Prickly lettuce
Picris echioides *	Bristly ox-tongue
Sonchus asper *	Prickly sow thistle
Sonchus oleraceus *	Sow thistle
Stephanomeria exigua	Wreath-plant
Brassicaceae	**Mustard Family**
Brassica nigra *	Black mustard
Hirschfeldia incana *	Shortpod mustard

SCIENTIFIC NAME	COMMON NAME
Cactaceae	**Cactus Family**
Cylindropuntia sp.	Cholla
Opuntia littoralis	Coastal prickly pear
Chenopodiaceae	**Goosefoot Family**
Atriplex semibaccata *	Australian saltbush
Salsola tragus *	Russian thistle
Convolvulaceae	**Morning Glory Family**
*Convolvulus arvensis**	Bindweed
Euphorbiaceae	**Spurge Family**
Chamaesyce polycarpa	Small seeded spurge
Eremocarpus setigerus	Doveweed
Ricinus communis *	Castor bean
Fabaceae	**Pea Family**
Melilotus alba *	White sweetclover
Trifolium repens *	White clover
Geraniaceae	**Geranium Family**
Erodium botrys *	Longbeak stork's bill
Erodium cicutarium *	Redstem stork's bill
Lamiaceae	**Mint Family**
Marrubium vulgare *	Common horehound
Malvaceae	**Mallow Family**
Malva parviflora *	Cheeseweed
Myrtaceae	**Myrtle Family**
Eucalyptus sp. *	Eucalyptus tree
Onagraceae	**Evening Primrose Family**
Oenothera elata	Hooker's evening primrose
Polygonaceae	**Buckwheat Family**
Rumex crispus *	Curly dock
Primulaceae	**Primrose Family**
Anagallis arvensis *	Scarlet pimpernel
Rosaceae	**Rose Family**
Heteromeles arbutifolia	Toyon
Salicaceae	**Willow Family**
Salix exigua	Sandbar willow
Salix lasiolepis	Arroyo willow
Solanaceae	**Nightshade Family**
Nicotiana glauca *	Tree tobacco
Tamaricaceae	**Tamarisk Family**
Tamarix ramosissima	Mediterranean tamarisk
Urticaceae	**Nettle Family**
Urtica dioica	Stinging nettle
Verbenaceae	**Verbena Family**
Lantana sp.*	Lantana

* Non-native (California Invasive Plant Council, 2006),

Wildlife

The study area provides habitat for a diversity of wildlife species; species observed within the project study area are listed in Table 5.6-3.

TABLE 5.6-3
OBSERVED WILDLIFE SPECIES

Scientific Name	Common Name
REPTILES	
PHRYNOSOMATIDAE	**SPINY LIZARDS**
Sceloperous occidentalis	Western fence lizard
BIRDS	
ACCIPITRIDAE	**HAWKS, KITES, AND EAGLES**
Buteo jamaicensis	Red-tailed Hawk
ARDEIDAE	**HERONS AND EGRETS**
Ardea alba	Great Egret
COLUMBIDAE	**PIGEONS AND DOVES**
Zenaida mcroura	Mourning Dove
FALCONIDAE	**FALCONS**
Falco sparverius	American Kestrel
ICTERIDAE	**NEW WORLD BLACKBIRDS AND ORIOLES**
Sturnella neglecta	Western Meadowlark
POLIOPTILIDAE	**GNATCATCHERS**
Polioptila caerulea	Blue gray Gnatcatcher
TROCHILIDAE	**HUMMINGBIRDS**
Calypte anna	Anna's Hummingbird
TYRANNIDAE	**TYRANT FLYCATCHERS**
Sayornis nigricans	Black Phoebe
Tyrannus vociferans	Cassin's Kingbird
TYTONIDAE	**BARN OWLS**
Tyto alba	Barn Owl
MIMIDAE	**MOCKINGBIRDS AND THRASHERS**
Mimus polyglottos	Northern Mockingbird
CORVIDAE	**JAYS AND CROWS**
Corvus brachyrhynchos	American Crow
Corvus corax	Common Raven
EMBERIZIDAE	**AMERICAN SPARROWS**
Zonotrichia leucophrys	White-crowned Sparrow
FRINGILLIDAE	**FINCHES**
Carpodacus mexicanus	House Finch
MAMMALS	
CANIDAE	**FOXES, DOGS, WOLVES, AND COYOTES**
Canis familiaris	Domestic Dog (sign)
Canis latrans	Coyote (sign)
LEPORIDAE	**RABBITS AND HARES**
Sylvilagus sp.	cottontail (sign)
SCIURIDAE	**SQUIRRELS**
Otospermophilus beecheyi	California ground squirrel (sign)

Special-Status Plants

Thirty-nine (39) special status plant species are reported to occur within the USGS Otay Mesa 7.5-minute Quadrangle Map that includes the project footprint (Table 5.6-4). Eight of the listed plants are considered endangered or threatened plant species. All 39 listed species were determined to have an "Absent" or "Low" potential for occurrence within the project disturbance footprint, and no further survey or study is necessary to determine presence or absence of these species.

TABLE 5.6-4
SPECIAL-STATUS PLANTS AND THEIR POTENTIAL FOR OCCURRENCE WITHIN THE PROJECT FOOTPRINT

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Acanthomintha ilicifolia San Diego thorn-mint	Annual herb. Found in chaparral, coastal scrub, valley and foothill grassland, and vernal pools/clay soils. Occurs from 33 to 3,150 ft. in elevation.	Apr-Jun	Fed: THR CA: END CNPS: List 1B.1 Local: NE	Low
Adolphia californica California adolphia	Deciduous shrub. Found in chaparral, coastal shrub, and valley and foothill grassland/clay soils. Occurs from 150 to 2,400 ft. in elevation.	Dec-May	Fed: NONE CA: NONE CNPS: List 2.1	Low
Ambrosia chenopodiifolia San Diego bur-sage	Shrub. Found in coastal scrub. Occurs from 180 to 540 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 2.1	Absent
Ambrosia monogyra Singlewhorl burrobush	Shrub. Found in chaparral and Sonoran desert scrub/sandy soils. Occurs from 33 to 1,640 ft. in elevation.	Aug-Nov	Fed: NONE CA: NONE CNPS: List 2.2	Absent
Atriplex coulteri Coulter's saltbush	Perennial herb. Found in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland/alkaline or clay soils. Occurs from 10 to 1,500 ft. in elevation.	Mar-Oct	Fed: NONE CA: NONE CNPS: List 1B.2	Low
Atriplex pacifica South Coast saltscale	Annual herb. Found in coastal bluff scrub, coastal dunes, coastal scrub, and playas. Occurs from 0 to 460 ft. in elevation.	Mar-Oct	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Bergerocactus emoryi Golden-spined cereus	Stem succulent. Found in closed-cone coniferous forest, chaparral, and coastal scrub/sandy soils. Occurs from 10 to 1,300 ft. in elevation.	May-Jun	Fed: NONE CA: NONE CNPS: List 2.2	Absent
Brodiaea orcuttii Orcutt's brodiaea	Bulbiferous herb. Found in closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools/mesic and clay soils, sometimes serpentine. Occurs from 100 to 5,500 ft. in elevation.	May-Jul	Fed: NONE CA: NONE CNPS: List 1B.1 Local: NE	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
California macrophylla Round-leaved filaree	Annual herb. Found in cismontane woodland and valley and foothill grasslands/clay soils. Occurs from 50 to 4,000 ft. in elevation.	Mar-May	Fed: NONE CA: NONE CNPS: List 1B.1	Low
Calochortus dunnii Dunn's mariposa-lily	Bulbiferous herb. Found in closed-cone coniferous forest, chaparral, and valley and foothill grassland/ gabbroic or metavolcanic, rocky soils. Occurs from 1,250 to 6,000 ft. in elevation.	Apr-Jun	Fed: NONE CA: RARE CNPS: List 1B.2 Local: NE	Absent
Camissonia lewisii Lewis' evening primrose	Annual herb. Found in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland/sandy or clay soils. Occurs from 0 to 980 ft. in elevation.	Mar-May	Fed: NONE CA: NONE CNPS: List 3	Low
Ceanothus cyaneus Lakeside ceanothus	Evergreen shrub. Found in closed-cone coniferous forest and chaparral. Occurs from 770 to 2,480 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 1B.2 Local: NE	Absent
Ceanothus otayensis Otay Mountain ceanothus	Evergreen shrub. Found in chaparral/metavolcanic or gabbroic rock. Occurs from 1,968 to 3,600 ft. in elevation.	Jan-Apr	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Comarostaphylis diversifolia* ssp. *diversifolia Summer holly	Evergreen shrub. Found in chaparral and cismontane woodland. Occurs from 100 to 1,800 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Cordylanthus orcuttianus Orcutt's bird's-beak	Annual herb; hemiparasitic. Found in coastal scrub. Occurs from 33 to 1,150 ft. in elevation.	Apr-Jul	Fed: NONE CA: NONE CNPS: List 2.1	Absent
Cylindropuntia californica* var. *californica Snake cholla	Perennial succulent. Found in chaparral and coastal scrub. Occurs from 100 to 165 ft. in elevation.	April - May	Fed: NONE CA: NONE CNPS: List 1B.1	Low
Deinandra conjugens Otay tarplant	Annual herb. Found in coastal scrub, and valley and foothill grassland/clay soils. Occurs from 246 to 985 ft. in elevation.	May-Jun	Fed: THR CA: END CNPS: List 1B.1 Local: NE	Low
Dudleya variegata Variegated dudleya	Perennial herb. Found in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools/clay soils. Occurs from 10 to 1,900 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 1B.2 Local: NE	Low
Eryngium aristulatm* var. *parishii San Diego button-celery	Annual/perennial herb. Found in coastal scrub, valley and foothill grassland, and vernal pools/mesic soil. Occurs from 66 to 2,035 ft. in elevation.	Apr-Jun	Fed: END CA: END CNPS: List 1B.1	Low
Ferocactus viridescens San Diego barrel cactus	Stem succulent. Found in chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Occurs from 10 to 1,500 ft. in elevation.	May-Jun	Fed: NONE CA: NONE CNPS: List 2.1	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Fremontodendron mexicanum Mexican flannelbush	Evergreen shrub. Found in closed-cone coniferous forest, chaparral, and cismontane woodland/ gabbroic, metavolcanic, or serpentinite. Occurs from 32 to 2,350 ft. in elevation.	Mar-Jun	Fed: END CA: RARE CNPS: List 1B.1	Absent
Harpagonella palmeri Palmer's grapplinghook	Annual herb. Found in chaparral, coastal scrub, and valley and foothill grassland/clay. Occurs from 66 to 3,130 ft. in elevation.	Mar-May	Fed: NONE CA: NONE CNPS: List 4.2	Low
Hesperocyparis forbesii Tecate cypress	Evergreen tree. Found in closed-cone coniferous forest and chaparral/clay soils, gabbroic or metavolcanic rock. Occurs from 836 to 4,900 ft. in elevation.	N/A	Fed: NONE CA: NONE CNPS: List 1B.1	Absent
Iva hayesiana San Diego marsh-elder	Perennial herb. Found in marshes and swamps and playas. Occurs from 33 to 1640 ft. in elevation.	Apr-Oct	Fed: NONE CA: NONE CNPS: List 2.2	Low
Lepechinia ganderi Gander's pitcher sage	Shrub. Found in closed-cone coniferous forest, chaparral, coastal scrub, and valley and foothill grassland/gabbroic or metavolcanic rock. Occurs from 1,000 to 3,300 ft. in elevation.	Jun-Jul	Fed: NONE CA: NONE CNPS: List 1B.3 Local: NE	Absent
Lepidium virginicum* var. *robinsonii Robinson's pepper-grass	Annual herb. Found in chaparral and coastal scrub. Occurs from 3 to 2,900 ft. in elevation.	Jan-Jul	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Monardella stoneana Jennifer's monardella	Perennial herb. Found in closed-cone coniferous forest, chaparral, coastal scrub, and riparian scrub/usually rocky intermittent streambeds. Occurs from 33 to 2,600 ft. in elevation.	Jun-Sept	Fed: NONE CA: NONE CNPS: List 1B.2	Low
Monardella viminea Willowy monardella	Perennial herb. Found in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland/alluvial ephemeral washes. Occurs from 165 to 740 ft. in elevation.	Jun-Aug	Fed: END CA: END CNPS: List 1B.1 Local: NE	Absent
Muilla clevelandii San Diego goldenstar	Perennial bulbiferous herb. Chaparral, coastal scrub, valley and foothill grassland, and vernal pools/clay. Occurs from 64 to 1,525 ft. in elevation.	Apr-May	Fed: NONE CA: NONE CNPS: List 1B.1	Low
Myosurus minimus* ssp. *apus Little mousetail	Annual herb. Found in valley and foothill grassland and vernal pools/alkaline soils. Occurs from 66 to 2,100 ft. in elevation.	Mar-Jun	Fed: NONE CA: NONE CNPS: List 3.1	Low
Nama stenocarpum Mud nama	Annual/perennial herb. Found in marshes and swamps (lake margins, riverbanks). Occurs from 16 to 1,650 ft. in elevation.	Jan-Jul	Fed: NONE CA: NONE CNPS: List 2.2	Absent

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Navarretia fossalis Spreading navarretia	Annual herb. Found in chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, and vernal pools. Occurs from 100 to 4265 ft. in elevation.	Apr-Jun	Fed: THR CA: NONE CNPS: List 1B.1	Low
Orcuttia californica California Orcutt grass	Annual herb. Found in vernal pools. Occurs from 50 to 2,165 ft. in elevation.	Apr-Aug	Fed: END CA: END CNPS: List 1B.1	Low
Pogogyne nudiuscula Otay Mesa mint	Annual herb. Found in vernal pools. Occurs from 295 to 820 ft. in elevation.	May-Jul	Fed: END CA: END CNPS: List 1B.1	Low
Quercus dumosa Nutall's scrub oak	Evergreen shrub. Found in closed-cone coniferous forest, chaparral, and coastal scrub/sandy, clay loam soils. Occurs from 50 to 1,312 ft. in elevation.	Feb-Apr	Fed: NONE CA: NONE CNPS: List 1B.1	Absent
Salvia munzii Munz's sage	Evergreen shrub. Found in chaparral and coastal scrub. Occurs from 390 to 3,500 ft. in elevation.	Feb-Apr	Fed: NONE CA: NONE CNPS: List 2.2	Absent
Stemodia durantifolia Purple stemodia	Perennial herb. Found in Sonoran desert scrub (often mesic, sandy soils). Occurs from 590 to 984 ft in elevation.	Jan-Dec	Fed: NONE CA: NONE CNPS: List 2.1	Absent
Streptanthus bernardinus Laguna Mountains jewel-flower	Perennial herb. Found in chaparral and lower montane coniferous forest. Occurs from 2,200 to 8,200 ft. in elevation.	May-Aug	Fed: NONE CA: NONE CNPS: List 4.3	Absent
Tetracoccus dioicus Parry's tetracoccus	Deciduous herb. Found in chaparral and coastal scrub. Occurs from 540 to 3,280 ft. in elevation.	Apr-May	Fed: NONE CA: NONE CNPS: List 1B.2	Absent

Status Codes
Federal designations: (Federal Endangered Species Act, USFWS):
END: Federal-listed, endangered.
THR: Federal-listed, threatened.
NONE: Not listed.

State designations: (California Endangered Species Act, CDFG)
END: State-listed, endangered.
THR: State-listed, threatened.
RARE: State-listed as rare
NONE: Not listed.

California Native Plant Society (CNPS) designations:
List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened, or endangered in California but more common elsewhere in their range.
List 3: Plants about which we need more information; a review list.
List 4: Plants of limited distribution; a watch list.

Threat Codes:
.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Fairly endangered in California (20-80% occurrences threatened)
.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Local Designation: City of Chula Vista MSCP Subarea Plan
NE: Narrowly Endemic

Special-Status Wildlife

Twenty-five (25) special status wildlife species are reported to occur within the USGS Otay Mesa Quadrangle Map that includes the project footprint (Table 5.6-5). Twenty-three (23) of these special-status wildlife species had an "Absent" or "Low" potential of occurrence within the project study area and therefore no further survey or study is necessary to determine presence or absence of these species. The remaining two special-status wildlife species were determined to have a moderate potential for occurrence, and further evaluation would be necessary to assess project-related effects to these species.

The two species with a moderate potential for occurrence within the study area include:

- San Diego fairy shrimp (*Branchinecta sandiegonensis*),
- Burrowing Owl (*Athene cunicularia*),

Of the aforementioned special-status wildlife species, the San Diego fairy shrimp is federally listed as endangered. As of December 2010, none of the aforementioned special-status wildlife species have been identified within the proposed ground disturbance footprint. Furthermore, no fish or wildlife species that have commercial value were observed or are expected to be detected within the proposed ground disturbance footprint.

TABLE 5.6-5 SPECIAL-STATUS WILDLIFE AND THEIR POTENTIAL FOR OCCURRENCE WITHIN THE PROJECT FOOTPRINT

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
INVERTEBRATES			
Branchinecta sandiegonensis San Diego fairy shrimp	Occurs in tectonic swales/earth slump basins in grassland and coastal sage scrub habitats. Inhabits seasonally astatic pools filled by winter/spring rains and hatches in warm water later in the season. Endemic to Orange and San Diego counties.	Fed: FE CA: NONE	Moderate
Callophrys thornei Thorne's hairstreak	Generally associated with chaparral or closed-coned coniferous habitats.	Fed: NONE CA: NONE *	Absent
Euphydryas editha quino Quino checkerspot butterfly	Occurs in open coastal sage scrub, chaparral and grassland habitats. Populations are limited to Riverside and San Diego counties.	Fed: FE CA: NONE	Absent
Streptocephalus woottoni Riverside fairy shrimp	Occurs in tectonic swales/earth slump basins in grassland and coastal sage scrub habitats. Inhabits seasonally astatic pools filled by winter/spring rains and hatches in warm water later in the season. Endemic to west Riverside, Orange, and San Diego counties.	Fed: FE CA: NONE	Absent
REPTILES AND AMPHIBIANS			
Aspidoscelis hyperythra Orange-throated whiptail	Frequents coastal chaparral, thornscrub, and streamside growth. Occurs in washes, streams, terraces, and other sandy areas, often where there are rocks and patches of brush and rocky hillsides.	Fed: NONE CA: SSC	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Aspidoscelis tigris stejnegeri Coastal whiptail	Inhabits grasslands, coastal sage scrub, chaparral, and woodlands that support adequate prey species.	Fed: NONE CA: NONE *	Low
Phrynosoma coronatum blainvillii San Diego coast horned lizard	Found in a wide variety of habitats, including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest. Key habitat elements are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	Fed: NONE CA: SSC	Low
Salvadora hexalepis virgultea Coast patch-nosed snake	Found in semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	Fed: NONE CA: SSC	Absent
Spea hammondii Western spadefoot	Occurs primarily in grasslands; occasional populations occur in valley-foothill hardwood woodlands. Ranges throughout the Central Valley and adjacent foothills; usually common where it occurs. In the Coast Ranges, it is found from Point Conception, Santa Barbara county, south to the Mexican border. Found from near sea level to 4470 ft in elevation.	Fed: NONE CA: SSC	Low
Thamnophis hammondii Two-striped garter snake	Generally found around pools, creeks, cattle tanks, and other water sources; often in rocky areas, oak woodland, chaparral, brushland, and coniferous forest.	Fed: NONE CA: SSC	Absent
BIRDS			
Athene cunicularia Burrowing Owl	Found in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester that is dependent upon burrowing mammals, most notably the California ground squirrel.	Fed: NONE CA: SSC	Moderate
Campylorhynchus brunneicapillus sandiegensis Coastal Cactus Wren	Found in coastal sage scrub habitat. Nests almost exclusively in prickly pear (*Opuntia littoralis*) and coastal cholla (*O. prolifera*).	Fed: NONE CA: SSC	Absent
Eremophila alpestris actia California Horned Lark	Occurs in open terrain, which is often sparsely vegetated.	Fed: NONE CA: NONE *	Low
Icteria virens Yellow-breasted Chat	Inhabits dense thickets, brush, and secondary growth. Nests in dense shrubs.	Fed: NONE CA: SSC	Absent
Polioptila californica californica Coastal California Gnatcatcher	Local, uncommon, obligate resident of arid coastal sage scrub vegetation on mesas, hillsides and in washes. Nests almost exclusively in California sagebrush.	Fed: FT CA: SSC	Absent

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Vireo belli pusillus Least Bell's Vireo	Resides in low riparian areas close to the water or dry riverbeds. Nests are usually constructed in bushes or within the branches of mesquite (*Prosopis* spp.), willows, and mule fat. Found below 2000 ft in elevation.	Fed: FE CA: SE	Absent
	MAMMALS		
Chaetodipus fallax fallax Northwestern San Diego pocket mouse	Found in sparse, low desert shrub lands up to dense, high coastal sage-scrub vegetation.	Fed: NONE CA: SSC	Low
Eumops perotis californicus Western mastiff bat	Forages in dry desert washes, floodplains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas. Roosts in colonies under exfoliating rock slabs (e.g., granite, sandstone, or columnar basalt) and in similar crevices in large boulders and buildings; generally high above ground.	Fed: NONE CA: SSC	Absent
Lasiurus blossevillii Western red bat	Occurs in riparian areas. Roosts alone, generally in the foliage of trees and shrubs.	Fed: NONE CA: SSC	Absent
Lepus californicus bennettii San Diego black-tailed jackrabbit	Occurs in coastal sage scrub and grassland habitats.	Fed: NONE CA: SSC	Low
Myotis ciliolabrum Western small-footed myotis	Occurs in rocky areas in coniferous forest, desert, chaparral, and riparian zones. Roosts alone or in small groups in cliff and rock crevices, buildings, concrete overpasses, caves, and mines.	Fed: NONE CA: NONE *	Absent
Myotis yumanensis Yuma myotis	Low-flying bat. Occurs in a wide variety of upland and lowland habitats, including riparian, arid scrublands and deserts, and forests. Often associated with permanent water sources, typically rivers and streams. Roosts in bridges, buildings, cliff crevices, caves, mines, and trees.	Fed: NONE CA: NONE *	Absent
Neotoma lepida intermedia San Diego desert woodrat	Typically found in the coastal scrub of southern California from San Diego County to San Luis Obispo County. Prefer moderate to dense vegetation canopies. They are particularly abundant in rock outcrops and rocky cliffs and slopes.	Fed: NONE CA: SSC	Absent
Nyctinomops femorosaccus Pocketed free-tailed bat	Found near large, open water sources in a variety of habitats, including desert shrub and pine-oak forest. Roosts in colonies in crevices of rugged cliffs, high rocky outcrops, slopes, and buildings.	Fed: NONE CA: SSC	Absent
Taxidea taxus American badger	Uncommon, permanent resident found throughout most of the state. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Extirpated from many areas in Southern California.	Fed: NONE CA: SSC	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE

Status Codes
FEDERAL
Federal Endangered Species Act
FE Federal Endangered
FT Federal Threatened
CH Critical Habitat
STATE
California Endangered Species Act
SE State Endangered
ST State Threatened
FP Fully Protected
CDFG Code
SSC California Species of Special Concern
* Other

Special Aquatic Resource Areas

Summary of USACE Jurisdiction Pursuant to Section 404 of the CWA

The USACE regulates discharge of fills to Waters of the United States (WoUS)[6] through Section 404 of the CWA. The study area contains six unnamed, potential WoUS drainage features. Each drainage feature is a non-Relatively Permanent Water (RPW) tributary to, and having a significant nexus with, a Traditional Navigable Water (TNW) and within the jurisdiction of Section 404 of the CWA. A total of 3.8 acres of CWA Section 404 jurisdiction occurs within the study area, consisting of 3.7 acres of non-wetland WoUS and 0.1 acres of WoUS with USACE-defined wetlands. Temporary impacts to CWA Section 404 jurisdiction within the project footprint include 0.1 acres of non-wetland WoUS. No permanent impacts to CWA Section 404 jurisdiction are expected with the project.

Summary of RWQCB Jurisdiction Pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act

The RWQCB regulates fills to Waters of the State (WoS) through the CWA Section 401 Water Quality Certification (WQC) Program and Porter-Cologne. Pursuant to CWA Section 401, the RWQCB's legal authority within the project's study area is equal to CWA Section 404 jurisdiction. Because the six drainage features within the study area are potentially subject to CWA Section 404 jurisdiction (and subsequently CWA Section 401 jurisdiction), there is no additional RWQCB jurisdiction subject to Porter-Cologne. A total of 3.8 acres of CWA Section 401 jurisdiction occur within the study area, consisting of 3.7 acres of non-wetland WoS and 0.1 acres of WoS with included wetlands. Temporary impacts to CWA Section 401 jurisdiction within the project footprint include 0.1 acres of non-wetland WoS. No permanent impacts to CWA Section 401 jurisdiction are expected with the project.

6 The term WoUS is defined as follows (33 CFR 328.3): (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as WoUS; (5) Tributaries of WoUS identified above; (6) The territorial seas; and (7) Wetlands adjacent to waters (other than waters that are themselves wetlands).

Summary of CDFG Jurisdiction Pursuant to Section 1600 (et seq.) of the CFG Code

Pursuant to Section 1600 (et seq.) of the CFG Code, the CDFG regulates diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. Six features within the study area contain a bed, bank, and channel and function as drainages that provide functions and values for wildlife and are therefore subject to CFG Code Section 1600 (et seq.) jurisdiction. These features are all unnamed drainages consisting of 5.8 acres of non-riparian bed, bank, and channel, and 0.3 acres of associated riparian vegetation. Temporary impacts to CFG Code Section 1600 (et seq.) jurisdiction include 0.1 acres of non-riparian bed, bank, and channel. No permanent impacts to CFG Code Section 1600 (et seq.) jurisdiction are expected as a result of the project. Detailed methods, field survey dates and results for the pedestrian-based field survey are provided in Appendix J-2, Preliminary Jurisdictional Determination Report.

Special Environmental Areas in the Project Vicinity

The study area has been identified as a minor amendment area within the San Diego County Multiple Species Conservation Program (MSCP) (Figure 5.6-1). The MSCP is one of three subregional habitat planning efforts in San Diego County that contribute to preservation of regional biodiversity though coordination with other habitat conservation planning efforts throughout southern California. The MSCP addresses multiple species habitat needs and the preservation of native vegetation communities. The plan is designed to streamline and coordinate existing procedures for review and permitting of project impacts on biological resources. The MSCP has been implemented in the County of San Diego under Ordinance No. 8845 as the Biological Mitigation Ordinance (BMO). The study area is also located within the San Diego National Wildlife Refuge (Otay-Sweetwater Unit). The Otay-Sweetwater Unit of the San Diego NWR is part of the National Wildlife Refuge System's contribution to the MSCP, a program designed to conserve enough open space and habitat for species survival while enabling orderly development to occur where necessary.

Wildlife Corridors

A wildlife corridor is defined as a linear landscape feature that allows animal movement between two patches of habitat or between habitat and geographically discrete resources (e.g., water, Ogden Environmental, 1993). Connections between extensive areas of open space are integral to maintaining regional biological diversity and population viability. Areas that serve as wildlife movement corridors are considered biologically unique because they facilitate the persistence of special-status species. In the absence of corridors, habitats become fragmented, isolated islands surrounded by development. Fragmented habitats support significantly lower numbers of species and increase the likelihood of extinction for select species. The pedestrian surveys and literature reviews suggest that the project study area does not support any regionally important wildlife movement areas. The proposed ground disturbance footprint is isolated from any obvious connections to the Otay Valley. Accordingly, the closest known wildlife corridor is Johnson Canyon, which is roughly four miles north of the proposed ground disturbance footprint. Furthermore, the surveys and literature reviews also suggest that the project study area does not support denning or nesting sites for common and/or special status species and that no active nesting raptor or passerine birds were observed within the study area.

5.6.3 Environmental Consequences

Potential and expected direct and indirect impacts to biological resources are discussed below. Significant impacts are those that would involve jeopardizing the continued existence of a sensitive plant or wildlife species or degradation of their habitat to non-sustainable levels. The project would have significant impacts to vegetation and wildlife if it would:

- Cause a fish or wildlife population to drop below self-sustaining levels (California Environmental Quality Act [CEQA] Guidelines, Section 15065 (a)).
- Threaten to eliminate a plant or animal community (CEQA Guidelines, Section 15065 (a)).
- Substantially affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of the species (CEQA Guidelines, Section 15065 (a), Appendix G (c), Appendix I (II.4.b) and (II.5.b)).
- Substantially diminish or reduce habitat for fish, wildlife, or plants (CEQA Guidelines, Section 15065 (a), Appendix G (t)).
- Interfere substantially with the movement of resident or migratory fish or wildlife species (CEQA Guidelines, Appendix G (d)).
- Change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects) (CEQA Guidelines, Appendix I (II.4.1) and (II.5.a)).
- Introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species (CEQA Guidelines, Appendix I (II.4.c) and (II.5.c)).
- Deteriorate existing fish or wildlife habitat (CEQA Guidelines, Appendix I (II.5.d)).
- Conflict with any regional Habitat Conservation Plans (HCPs).

The above criteria were used to evaluate the project's impacts to plant communities and wildlife. The potential impacts associated with the construction, operation, and maintenance of the project are discussed below.

Construction Impacts

Construction of the project is not likely to have an adverse impact on common plant and wildlife species, including special-status species, as the result of the permanent removal of 9.99 acres of non-native habitat. Table 5.6-6 shows the acres of permanent impacts to vegetation communities/land cover types.

As discussed in Section 5.6.2, Affected Environment, the environmental baseline for this assessment includes facility placement and design that targets the majority of project impacts towards lands that are adjacent to cleared or disturbed areas and roads. The lands abutting the

project's ground disturbance footprint include the Otay Mesa Generating Project (OMGP) and its appurtenance, which would further isolate the project's construction and operational activities. Any individual species present in the area or in adjacent/surrounding areas are assumed to have acclimated and developed tolerance to substantial noise, light, and other effects resulting from the presence of an active power plant and its access roads. Nonetheless, the measures listed in Section 5.6.5 are expected to reduce construction and operational impacts to a less than significant level.

TABLE 5.6-6
IMPACTS TO VEGETATION COMMUNITIES / LAND COVER TYPES

Vegetation Community / land cover type	Acres
Non-Native Grassland	0
Mule fat	0
Riparian	0
Developed/Disturbed	9.99

The project study area includes documentation of historic and current occurrences of special-status species. Specifically, the study area may support the following special-status wildlife species: burrowing owl (*Athene cunicularia*) and San Diego fairy shrimp (*Branchinecta sandiegonensis*). As of December 2010, none of these species have been observed within the project's proposed ground disturbance footprint.

Construction of the project may result in minimal temporary and permanent impacts to the aforementioned special-status species because of the permanent removal of 9.99 acres of non-developed/disturbed native habitat. Compliance with the state and federal Endangered Species Acts will ensure that impacts to listed species would be less than significant with mitigation. Construction activities may result in a short-term loss of habitat, but may only temporarily and incrementally increase habitat fragmentation on a regional level. Some breeding potential could be lost during construction activities for species that may breed in close proximity to the project and other areas proposed for disturbance. This loss of productivity would be limited to one season, and breeding individuals would be expected to reoccupy adjacent habitats following completion of construction activities.

Construction of the project will not likely impact any special aquatic resource areas. The project will not adversely effect on federal- or state-protected waters.

No significant impacts to wildlife movement are expected from project implementation. The project avoids the adjacent open space and undeveloped locales essential for the regional long-term viability of plants and wildlife. In this context, facility placement and design deliberately avoid open space and other biological resources to further consolidate high-quality habitats within the region and minimize impacts to wildlife connectivity and movement to avoid resource conflicts. The project design complements the long-term preservation of the ecological processes within the area and is important to the cohesiveness and quality of the surrounding land for ecological purposes.

Operation and Maintenance Impacts

Project operational impacts include intermittent air emissions, noise, light, vibration, and potential collision hazards associated with the three approximately 100-foot-tall stacks. Migratory birds generally fly at an altitude that would avoid ground structures, except when crossing over topographic features (e.g., ridge tops) or when inclement weather forces them closer to the ground. Topographic or ecological features are not present that would likely attract birds to the project area. Raptor and other migratory bird species that are protected by the Migratory Bird Treaty Act (MBTA) are expected to occur in the general area (i.e., barn owl [*Tyto alba*], red-tailed hawk [*Buteo jamaicensis*] and Cooper's hawk [*Accipiter cooperii*]) and could potentially collide with the stacks during inclement weather (e.g., fog and rain). Smaller birds are assumed to be more agile and are less likely to collide with project facilities. Because of the relatively low structure heights, the potential for wildlife collisions is considered less than significant. In addition, placement of downward-facing lighting on the stacks to reduce wildlife attraction would minimize the potential for collisions.

Post-construction operation and maintenance could temporarily displace special-status species from some habitat areas and impair their ability to establish territories. Noise, light, vibration, and human activities may cause some species (e.g., burrowing owl) to avoid an area until the disturbance conditions are eliminated or the individuals become accustomed to the chronic disturbance activities.

As human populations expand geographically, artificial lighting also expands, and it is now almost impossible to find areas free from human influence. Verheijen (1981b) was the first to apply the term "photopollution" to situations in which artificial light has adverse effects on wildlife. Additionally, some evidence indicates that the increasing use of artificial light at night is having an adverse effect on wildlife populations, particularly those that typically migrate at night (Verheijen, 1985).

No special status species (e.g., burrowing owl) known from the vicinity are expected to be affected by lighting impacts if lighting BMPs are implemented. Intermittent air emissions, noise, light, vibration, and human activities may cause wildlife to avoid an area until the disturbance conditions are eliminated or the wildlife become accustomed to the disturbance. The measures listed in Section 5.6.5 are expected to reduce operation impacts to a less than significant level.

5.6.4 Cumulative Impacts

The purpose of this section is to identify past, present, and reasonably foreseeable actions in the PPEC project area that could affect the same resources as those of the project and provide the following analysis:

- Determine if the impacts of PPEC and the other actions would overlap in time or geographic extent.
- Determine if the impacts of the proposed project would interact with, or intensify, the impacts of the other actions.
- Identify any potentially significant cumulative impacts.

Section 5.18 presents a list of potential projects that could result in cumulative impacts with the proposed project.

The project occurs within an area that includes non-native habitats. Accordingly, the proposed ground disturbance foot print includes low habitat value (existing non-native grasses and human disturbances) and provides only low-quality foraging opportunities for local wildlife species. Furthermore the following potential projects within the region were evaluated and include similar low habitat value non-native habitats:

- International Industrial Park
- Corrections Corporation of America Correctional Facility
- Vulcan Batch Plant
- Otay Hills Construction Aggregate Extraction Operation
- Otay Crossings Commerce Park

The aforementioned surrounding projects include roughly the same low quality habitat as this project. Accordingly, the addition of this project would not significantly contribute to cumulative impacts to biological resources within the region. Therefore, there is no potential for cumulative impacts related to these biological resources.

5.6.5 Avoidance, Minimization, and Mitigation Measures

The following measures will be implemented to avoid and minimize impacts to biological resources:

BIO-1 The project owner will assign a Designated Biologist to the project. The project owner will submit the resume of the proposed Designated Biologist, with at least three references and contact information, to the California Energy Commission (CEC) Compliance Project Manager (CPM) for approval.

The Designated Biologist must meet the following minimum qualifications:

- Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field; and
- Three years of experience in field biology or current certification of a nationally recognized biological society, such as the Ecological Society of America or the Wildlife Society; and
- At least one year of field experience with biological resources found in or near the project area.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the Conditions of Certification.

Verification: The project owner shall submit the specified information at least 90 days prior to the start of any site (or related facilities) mobilization. No site or related facility activities shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least ten working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities.

The Designated Biologist may be assisted by the approved Biological Monitor(s), but the Designated Biologist will be the contact for the project owner and CPM. The Designated Biologist shall:

1. Advise the project owner's Construction and Operation Managers on the implementation of the biological resources Conditions of Certification;

2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to be submitted by the project owner;

3. Be available to supervise, conduct, and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special-status species or their habitat;

4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;

5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (i.e., parking lots) for animals in harm's way;

6. Notify the project owner and the CPM of any noncompliance with any biological resources Condition of Certification;

7. Respond directly to inquiries of the CPM regarding biological resource issues;

8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Report; and

9. Train the Biological Monitors as appropriate and verify their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and all permits.

Verification: The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological resources activities. If actions may affect biological resources during operation, a Designated Biologist will be available for monitoring and reporting.

During project operation, the Designated Biologist will submit record summaries in the Annual Compliance Report, unless their duties are ceased as approved by the CPM.

BIO-3 The project owner's Designated Biologist will submit the resume, at least three references, and contact information of the proposed Biological Monitors to the CPM for approval. The resume will demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Biological Monitor(s) training by the Designated Biologist will include familiarity with the Conditions of Certification and the BRMIMP, WEAP, and all permits.

Verification: The project owner will submit the specified information to the CPM for approval at least 30 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist will submit a written statement to the CPM confirming that individual Biological Monitor(s) have been trained, including the date when training was completed. If additional Biological Monitors are needed during construction, the specified information will be submitted to the CPM for approval 10 days prior to their first day of monitoring activities.

BIO-4 Designated Biologist and Biological Monitor Authority. The project owner's Construction/Operation Manager will act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist and/or Biological Monitor(s), the project owner's Construction/ Operation Manager will halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist will:

1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;

2. Inform the project owner and the Construction/Operation Manager when to resume activities; and

3. Notify the CPM if there is a halt of any activities and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the work stoppage.

4. If the Designated Biologist is unavailable for direct consultation, the Biological Monitor will act on behalf of the Designated Biologist

Verification: The project owner will ensure that the Designated Biologist or Biological Monitor notifies the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any noncompliance or a halt of any

site mobilization, ground disturbance, grading, construction, and operation activities. The project owner will notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within 5 working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIO-5 Worker Environmental Awareness Program. The project owner will develop and implement a CPM-approved WEAP by which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure, is informed about sensitive biological resources associated with the project.

The WEAP must:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation through which supporting written material and electronic media (video or DVD) is made available to all participants.

2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas.

3. Present the reasons for protecting these resources.

4. Present the meaning of various temporary and permanent habitat protection measures.

5. Identify whom to contact if there are further comments and questions about the material discussed in the program.

6. Include a training acknowledgment form to be signed by each worker indicating that they received training and will abide by the guidelines.

7. The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

Verification: At least 60 days prior to the start of any site (or related facilities) mobilization, the project owner will provide to the CPM for review and comment, two copies each of the proposed WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The project owner will provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The project owner will submit two copies of the CPM-approved materials at least ten days prior to site and related facilities mobilization.

The signed training acknowledgement forms will be kept on file by the project owner for a period of at least six months after the start of commercial operation.

During project operation, signed statements for active project operational personnel will be kept on file for six months following the termination of an individual's employment.

BIO-6 The project owner will submit two copies of the proposed BRMIMP to the CPM (for review and approval) and implement the measures identified in the approved BRMIMP.

The BRMIMP will be prepared in consultation with the Designated Biologist and will identify:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner.

2. All biological resources Conditions of Certification identified as necessary to avoid or mitigate impacts.

3. All biological resources mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements.

4. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure.

5. All required mitigation measures for each sensitive biological resource.

6. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources.

7. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities.

8. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction. This includes the installation of prominently colored fencing or similar materials wherever the limits of grading are adjacent to native/non-native vegetation communities or other biological resources. Fencing will remain in place during all construction activities. Temporary fencing will also be shown on all grading plans and project specifications. Barriers and signage will be installed to direct public access to appropriate locations.

9. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities – one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen.

10. Duration for each type of monitoring and a description of monitoring methodologies and frequency.

11. Performance standards to be used to help decide if/when proposed mitigation is or is not successful.

12. All performance standards and remedial measures to be implemented if performance standards are not met.

13. A preliminary discussion of biological resources-related facility closure measures.

14. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

15. A copy of all biological resources related permits obtained.

Verification: The project owner will provide the specified document at least 60 days prior to start of any site (or related facilities) mobilization.

The CPM will determine the BRMIMP's acceptability within 45 days of receipt. If any permits have not yet been received when the BRMIMP is submitted, these permits will be submitted to the CPM within five days of their receipt, and the BRMIMP will be revised or supplemented to reflect the permit condition within ten days of their receipt by the project owner. Ten days prior to site and related facilities mobilization, the revised BRMIMP will be resubmitted to the CPM.

The project owner will notify the CPM no fewer than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval. Any changes to the approved BRMIMP must also be approved by the CPM to ensure no conflicts exist.

Implementation of BRMIMP measures will be reported in the Monthly Compliance Reports by the Designated Biologist (i.e., survey results, construction activities that were monitored, species observed). Within 30 days after completion of project construction, the project owner will provide to the CPM, for review and approval, a written construction closure report identifying which items of the BRMIMP have been completed; a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases; and which mitigation and monitoring items are still outstanding.

BIO-7 The project owner shall implement the following measures to manage their construction site and related facilities in a manner to avoid or minimize impacts on the local biological resources.

1. Install temporary fencing and provide wildlife escape ramps for construction areas that contain steep walled holes or trenches if outside of an approved, permanent exclusionary fence. The temporary fence shall be hardware cloth or similar materials that are approved by USFWS and CDFG. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals by the Designated Biologist or Biological Monitor.

2. Make certain all food-related trash is disposed of in closed containers and removed at least once a week from the project site.

3. Prohibit feeding of wildlife by staff and subcontractors.

4. Prohibit nonsecurity-related firearms or weapons from being brought to the project site.

5. Prohibit pets from being brought to the project site.

6. Report all inadvertent deaths of special-status species to the appropriate project representative.

7. Injured animals shall be reported to CDFG, and the project owner shall follow instructions that are provided by CDFG. The USFWS Office shall be notified in writing within three working days of the accidental death or injury to special-status species during project-related activities.

8. Contact USFWS and CDFG for specific notification procedures.

9. Minimize use of rodenticides and herbicides in the project area and prohibit the use of chemicals and pesticides known to cause harm to amphibians. If rodent control must be conducted, zinc phosphide or an equivalent product shall be used.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how all biological resource-related mitigation measures have been completed.

BIO-8 Any time the project owner modifies or finalizes the project design they shall incorporate all feasible measures to avoid or minimize impacts to the local biological resources, including:

1. Design, install, and maintain transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources.;

2. Design, install, and maintain transmission lines and all electrical components in accordance with the Avian Power Line Interaction Committee's (APLIC) Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (APLIC, 2006) to reduce the likelihood of electrocutions of large birds.

3. Eliminate any California Exotic Pest Plants of Concern (Cal-IPC, 2007) List A species from landscaping plans.

4. Prescribe a road sealant that is nontoxic to wildlife and plants.

5. Design, install, and maintain facility lighting to prevent side casting of light towards wildlife habitat.

6. Use straw wattles or silt fences to prevent sediment from reaching irrigation and drainage canals.

7. Fence buffer zones during construction to minimize habitat disturbance.

8. Restore temporarily impacted areas to approximate original site conditions.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

BIO-9 The project shall conduct a vernal pool and fairly survey derived from the *1996 USFWS Interim Survey Guidelines to Permittees for Recovery of Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* in the Fall of 2010 and early winter of 2011.

Verification: The project owner shall provide the specified documents at least 60 days prior to the start of any site (or related facilities) mobilization.

BIO-10 The project shall conduct a burrowing owl survey in the spring of 2011 following the *1993 California Department of Fish and Game Survey Guidelines to* Burrowing Owl Survey Protocol and Mitigation.

Verification: The project owner shall provide the specified documents at least 60 days prior to the start of any site (or related facilities) mobilization and appropriate avoidance and minimization measures shall be implemented.

BIO-11 If federally protected species (e.g., San Diego fairy shrimp) are identified within the proposed ground disturbance footprint, the applicants will comply with the state and federal Endangered Species Acts will ensure that impacts to special-status species would be less than significant with mitigation.

Verification: The project owner shall provide the specified documents at least 60 days prior to the start of any site (or related facilities) mobilization.

BIO-12 In order to comply with the Migratory Bird Treaty Act and relevant sections of the CDFG Code (e.g., 3503, 3503.4, 3504, 3505, et seq.), any vegetation clearing would take place outside of the typical avian nesting season (i.e., February 1st – August 31st), to the maximum extent practical. If this is not possible, prior to ground-disturbing activities, construction, and so forth within the Action Area, a qualified biologist will conduct and submit a migratory nesting bird and raptor survey report. A qualified biologist is an individual with sufficient education and field experience in local California ecology and biology to adequately identify local plant and wildlife species. The survey shall occur not more than 72 hours prior to initiation of project activities and any occupied passerines and/or raptor nests occurring within or adjacent to the Action Area will be delineated. To the maximum extent practicable, a minimum buffer zone from occupied nests will be maintained during physical ground-disturbing activities. Once nesting has been determined to cease, the buffer may be removed.

BIO-12 Closure/ decommissioning of the proposed project.

Facility closure activities are not expected to impact biological resources. In addition, the decommissioning and closure of the project should not negatively affect biological resources since the majority of the ground disturbed during decommissioning and closure would have been already disturbed, and mitigated as required, during construction and operation of the project. Upon completion of operation, all areas subject to ground disturbances, including the facility storage areas, roads installed by the project, transmission line tower pads, etc. shall be addressed within a project specific closure plan. The closure plan shall include mitigation measures similar to the construction mitigation measures that will reduce impacts to common and special status plant and wildlife species.

Verification: The project owner shall submit the final to the CPM at least 60 days prior to site mobilization.

5.6.6 Laws, Ordinances, Regulations, and Standards

The following are laws, ordinances, regulations and standards (LORS) that are applicable or potentially applicable to the project. Construction and operation associated with the proposed project will adhere to the LORS pertinent to biological resources.

TABLE 5.6-7 SUMMARY OF BIOLOGICAL RESOURCES LORS AND COMPLIANCE

JURIS-DICTION	AUTHORITY	AGENCY	DETAILS	COMPLIANCE	AFC SECTIONS
Federal	ESA of 1973: 16 United States Code (USC) Section 1531 et seq.; 50 Code of Federal Regulations (CFR) Parts 17 and 222	USFWS	The Federal Endangered Species Act (FESA)[7] protects plants and wildlife that are listed by the USFWS and the National Marine Fisheries Service as endangered or threatened (USA, 1973). Section 9 of the FESA prohibits the taking of endangered wildlife, where "taking" is defined as any effort to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land, and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 United States Code [USC] 1538). Under Section 7 of FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. The County of San Diego has been issued a Federal Section 10(a)(1)(B) permit by the USFWS and an NCCP authorization from the CDFG that allows the Incidental Take within the Subarea of those Covered Species determined by USFWS and CDFG to be adequately conserved by the MSCP Subregional Plan and the County Southwestern and Metro Subarea Plan in accordance with the County's IA. Through the IA, the County may issue Incidental Take of Covered Species by Third Party Beneficiaries under direct control of the County, specifically project implementation activities in conformance with an approval granted by the County in compliance with the County's IA. FESA specifies that the USFWS designated habitat for a species at the time of its listing in which the physical or biological features "essential to the conservation of the species" are found or that may require "special management consideration or protection...." (16 USC 1533[a][3].2, 1532[a]).	The project may result in adverse temporary and permanent impacts to federally protected species; however, avoidance and minimization measures are incorporated into the project and are expected to reduce impacts to a less than significant level. As of December 2011, no federal listed species have been identified.	5.6.1, 5.6.2, 5.6.3 and 5.6.6

7 Endangered Species Act of 1973 (16 USC 1531 et seq.), as amended.

JURIS-DICTION	AUTHORITY	AGENCY	DETAILS	COMPLIANCE	AFC SECTIONS
Federal	Migratory Bird Treaty Act: 16 USC Sections 703 – 711; 50 CFR Subchapter B	USFWS	The Migratory Bird Treaty Act (MBTA)[8] implements international agreements between the United States and other nations; the Treaty was created to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit (USA, 1918). As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 (General Permit Procedures) and 50 CFR part 21 (Migratory Bird Permits). The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code (CFGC).	The project may result in adverse temporary and permanent impacts to migratory bird species; however, avoidance and minimization measures are incorporated into the project and are expected to reduce impacts to a less than significant level.	5.6.3
Federal	Bald and Golden Eagle Protection Act: 16 USC Section 668-668d, 54 Stat.250	USFWS	The Bald and Golden Eagle Protection Act (The Eagle Act) (1940) amended in 1962, was originally implemented for the protection of bald eagles (*Haliaeetus leucocephalus*). In 1962, Congress amended the Eagle Act to cover golden eagles (*Aquila chrysaetos*), a move that was, partially, an attempt to strengthen protection of bald eagles, because the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than the bald eagle.	The project is not expected to result in a take of bald or golden eagle.	5.6.3

[8] Migratory Bird Treaty Act (16 USC 703 et seq.), as amended.

JURIS-DICTION	AUTHORITY	AGENCY	DETAILS	COMPLIANCE	AFC SECTIONS
	Clean Water Act of 1977: 33 USC Section 1251 - 1376; 30 CFR Section 330.5(a)(26)	USACE	The purpose of the Clean Water Act (CWA) (USA, 1977) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the U.S. Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing nationwide permits. A water quality certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB) in California.	The project will include measures requiring compliance with the Clean Water Act to minimize impacts to jurisdictional features.	5.6.1, 5.6.2, 5.6.3 and 5.6.6; Appendix J

JURIS-DICTION	AUTHORITY	AGENCY	DETAILS	COMPLIANCE	AFC SECTIONS
State	California Endangered Species Act of 1984: California Fish and Game Code Sections 2050 – 2098	CDFG	The California Endangered Species Act (CESA) generally parallels the main provisions of the FESA, but unlike its federal counterpart, CESA also applies take prohibitions to species proposed for listing (called "candidates" by the State) and has a much narrower definition of "take" (State of California, 1984). Section 2080 of the CFGC prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. "Take" is defined in Section 86 of the CFGC as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFG to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species.	The project may result in adverse temporary and permanent impacts to state listed species; however, avoidance and minimization measures are incorporated into the project and are expected to reduce impacts to a less than significant level. As of December 2011, no state listed species have been identified or are expected to be identified..	5.6.1, 5.6.2, 5.6.3 and 5.6.6
	California Fish and Game Code Section 3503	CDFG	This code section prohibits the taking and possessing of bird eggs and nests.	The project may result in adverse temporary and permanent impacts to California Fish and Game Code Section 3503 protected species; however, avoidance and minimization measures are incorporated into the project and are expected to reduce impacts to a less than significant level.	5.6.1, 5.6.2, 5.6.3 and 5.6.6
	California Fish and Game Code Section 3511, Section 4700, Section 5050, Section 5515	CDFG	This code section prohibits the taking of birds, mammals, reptiles, and fish listed as fully protected.	The project is not expected to result in a take of species listed as fully protected.	5.6.1, 5.6.2, 5.6.3 and 5.6.6

JURIS-DICTION	AUTHORITY	AGENCY	DETAILS	COMPLIANCE	AFC SECTIONS
State	CEQA, Public Resources Code Section 21000 et seq	CEC	The CEQA provides for protection of the environment in the State of California.	Provide information to the CEC through the AFC process showing protection of the environment and impact from the project.	5.6.1, 5.6.2, 5.6.3 and 5.6.6
	Multiple Species Conservation Program	County of San Diego	The study area is located within the San Diego Multiple Species Conservation Program (MSCP), which is a comprehensive, long-term habitat conservation plan that addresses the needs of multiple species and the preservation of natural vegetation communities in San Diego County. The MSCP addresses the potential impacts of urban growth and loss of natural habitat and species endangerment and creates a plan to mitigate for the potential loss of Covered Species and their habitat due to the direct, indirect, and cumulative impacts of future development of both public and private lands within the MSCP area. The MSCP is a subregional plan under the California Natural Community Conservation Planning (NCCP) Act of 1991. The MSCP Plan (August 1998) (MSCP Subregional Plan) was prepared for the Subregion, an area encompassing 12 jurisdictions and 582,243 acres. The MSCP Subregional Plan is implemented through local Subarea Plans.	Implement avoidance and minimization measures to reduce potentially significant temporary and permanent impacts in areas of the project that are located within the County MSCP boundaries.	5.6.3 and 5.6.6

5.6.7 Involved Agencies and Agency Contacts

Agencies with jurisdiction to issue applicable permits or enforce LORS related to biological resources are shown in Table 5.6-8.

TABLE 5.6-8
AGENCY CONTACT LIST

Agency	Contact	Address	Telephone
United States Fish And Wildlife Service (USFWS)	TBD	6010 Hidden Valley Road, Suite 101 Carlsbad, California 92011	(760) 431-9440
California Department of Fish and Game (CDFG)	TBD	4949 Viewridge Avenue San Diego, CA 92123	(858) 467-4201
United States Army Corps of Engineers (USACE)	TBD	911 Wilshire Blvd # 1525 Los Angeles, CA 90017	(213) 452-3908
Regional Water Quality Control Board (RWQCB)	TBD	9174 Sky Park Court, Suite 100 San Diego, CA. 92123-4340	(858) 467-2952

5.6.8 Permits Required and Permitting Schedule

A summary of applicable permits and permitting schedule is presented in Table 5.6-9.

TABLE 5.6-9
APPLICABLE PERMITS

Responsible Agency	Permit/Approval	Schedule
USACE	404 Nationwide Permit	TBD
CDFG	CDGC 1600 Stream Bed Alteration Agreement	TBD
RWQCB	401 Water Quality Certification	TBD

5.6.9 References

Burt, W.H. and R. P. Grossenheider. 1980. A Field Guide to Mammals: North America; North of Mexico. New York, NY: Houghton Mifflin Company.

CDFG (California Department of Fish and Game). 2010. RareFind California Department of Fish and Game Natural Diversity Database (CNDDB) La Habra USGS 7.5-Minute Quadrangle. Sacramento, CA: California Department of Fish and Game, Biogeographic Data Branch.

CNPS (California Native Plant Society). 2010. CNPS Electronic Inventory of Rare and Endangered Plants: CNPS.

County of San Diego, Board of Supervisors. 1996. Biological Mitigation Ordinance.

County of San Diego in conjunction with the United States Fish and Wildlife Service, California Department of Fish and Game. October 22, 1997. County of San Diego Multiple Species Conservation Program

Digital Globe. 2008. Aerial Photography: Digital Globe.

Elbroch, M. 2003. Mammal Tracks & Sign, A Guide to North American Species. Mechanicsburg, PA: Stackpole Books.

Halfpenny, J.C. 2000. Scats and Tracks of the Desert Southwest, A Field Guide to the Signs of 70 Wildlife Species. Helena, MT: Falcon Publishing, Inc.

Hickman, J.C. (ed) 1993. The Jepson Manual: Higher Plants of California. Berkeley: University of California Press.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California (California Department of Fish and Game The Resources Agency, ed), p. 156. Sacramento, CA.

Longcore, T., and C. Rich. 2004. Ecological light pollution. *Frontiers in Ecology and the Environment* 2(4):191-198.

Ogden Environmental and Energy Services. 1993. Baldwin Otay Ranch Wildlife Corridor Studies. Prepared for: Otay Ranch Project Team. December.

Rich, C., and T. Longcore (Eds.). 2006. *Ecological Consequences of Artificial Night Lighting*. Island Press.

Sawyer and Keeler-Wolf and Evens. 2009. *A Manual of California Vegetation.* Sacramento, CA: California Native Plant Society.

Sibley, D.A. 2000. National Audubon Society. The Sibley Guide To Birds. New York, NY: Alfred A. Knopf, Inc.

Stebbins, R.C. 2003. A Field Guide To Western Reptiles and Amphibians. New York, NY: Houghton Mifflin.

USGS (United States Geological Service). 1975 7.5-Minute Quadrangle Map La Habra, California.

USFWS (United States Fish and Wildlife Service). 2010a. Critical Habitat Portal. USFWS

USFWS (United States Fish and Wildlife Service). 2010b. San Diego Fish and Wildlife Office Endangered and Threatened Species List. In: U.S. Department of the Interior, editor. Carlsbad, CA: USFWS.

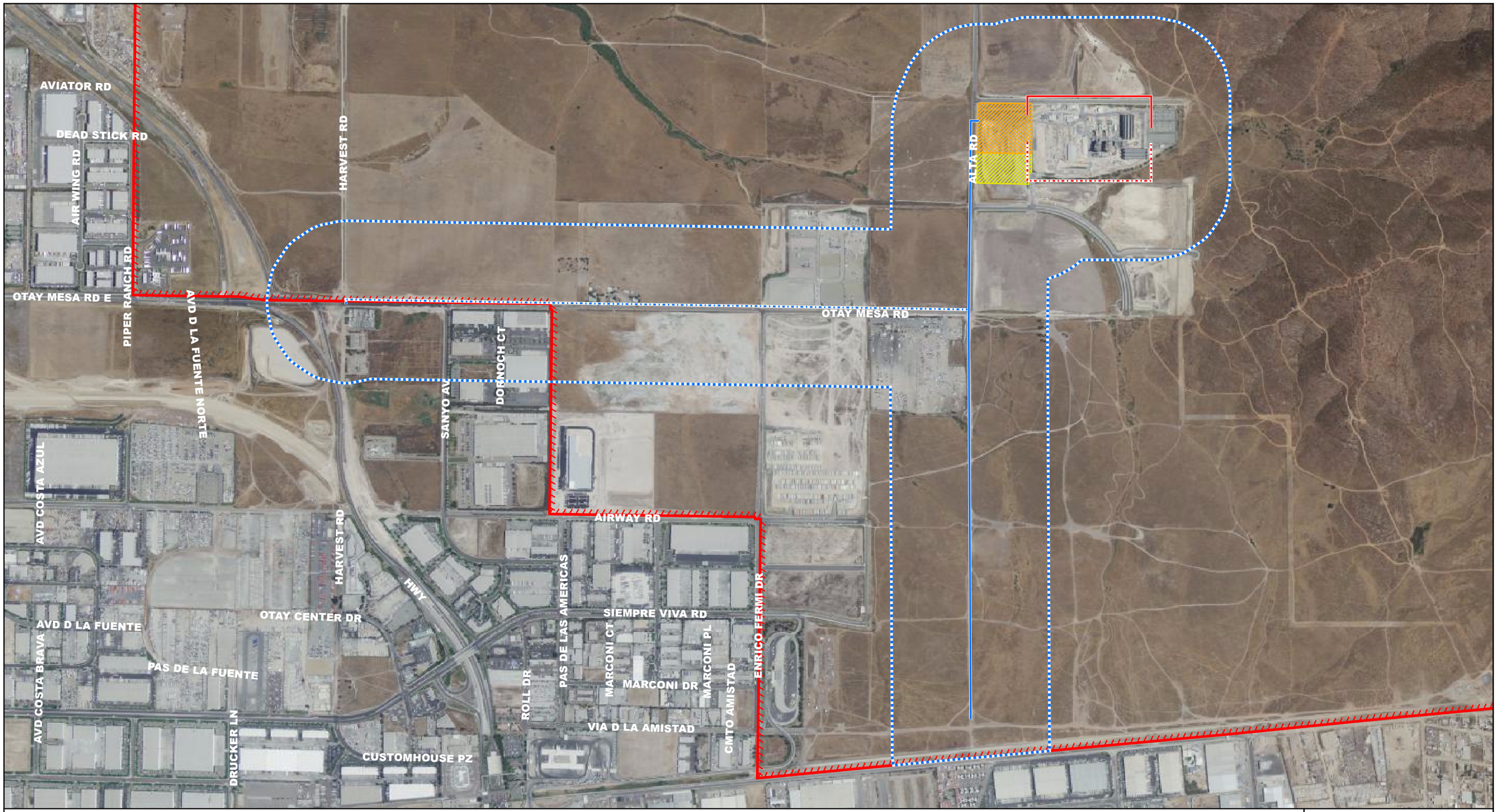
USA. 1918. Migratory Bird Treaty Act (16 USC 703 et seq.), as amended. USA.

USA. 1973. Endangered Species Act of 1973 (16 USC 1531 et seq.), as amended. USA.

USA. 1977. Clean Water Act of 1977 (33 USC 1251 et seq.). USA.

Verheijen, F.J. 1981. Bird kills at tall lighted structures in the USA in the period 1935-1973 and kills at a Dutch lighthouse in the period 1924-1928 show similar lunar periodicity. Ardea 69:199-203. In: Ecological Consequences of Artificial Night Lighting. Rich, Catherine, and T. Longcore (Eds.). Island Press. 2006.

Verheijen, F.J. 1985. Photopollution: Artificial light optic spatial control systems fail to cope with. Incidents, causations, remedies. Experimental Biology 44:1-18. In: Ecological Consequences of Artificial Night Lighting. Rich, Catherine, and T. Longcore (Eds.). Island Press. 2006.



Legend

- Biological Study Area
- Laydown Area
- Project Site
- MSCP Boundary
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line

N

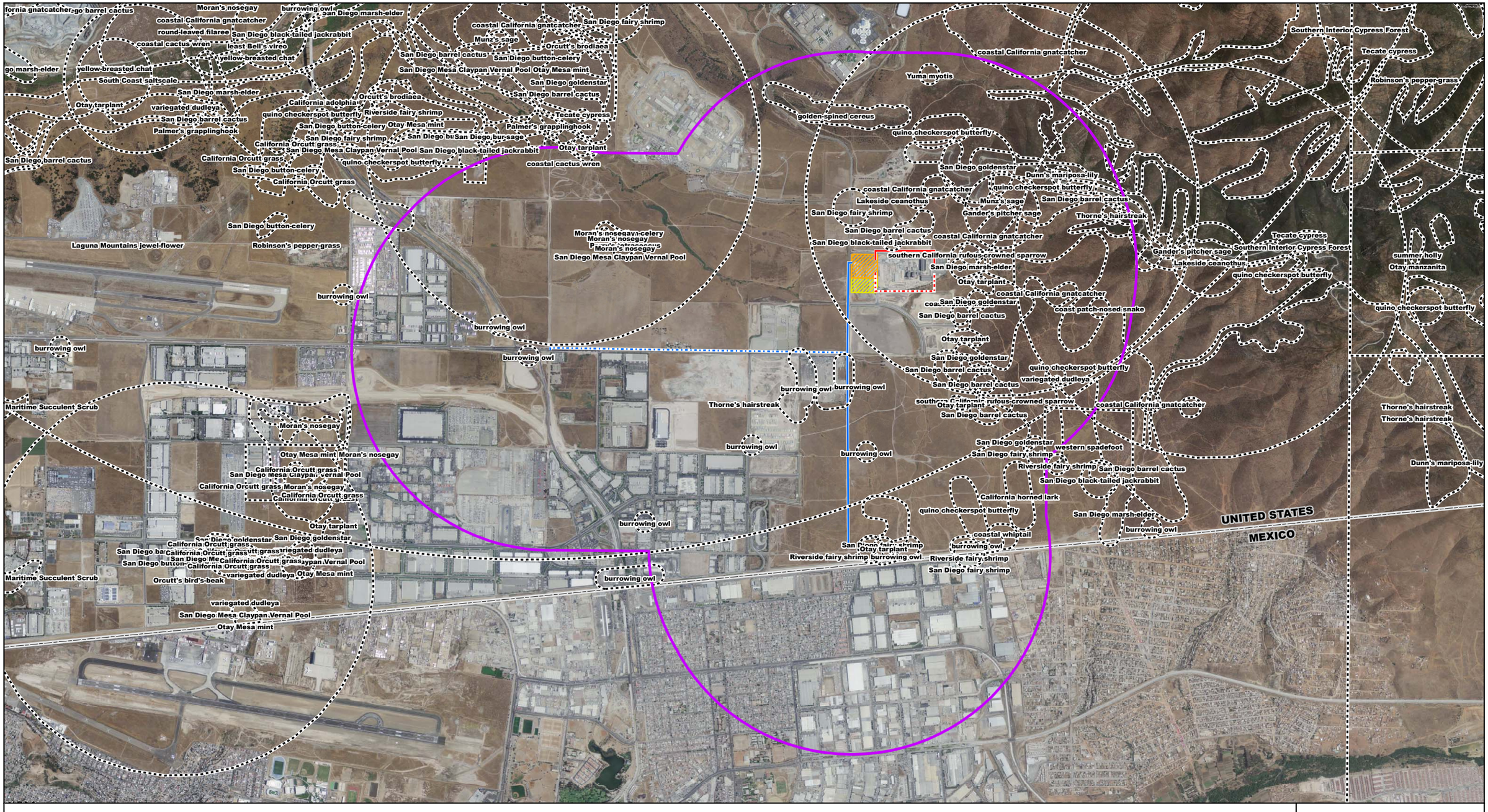
0 600 1,200 Feet

FIGURE 5.6-1
BIOLOGICAL STUDY AREA

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS



Legend

- 1-Mile Radius of Proposed Site
- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- California Natural Diversity Database (May 2010)

N

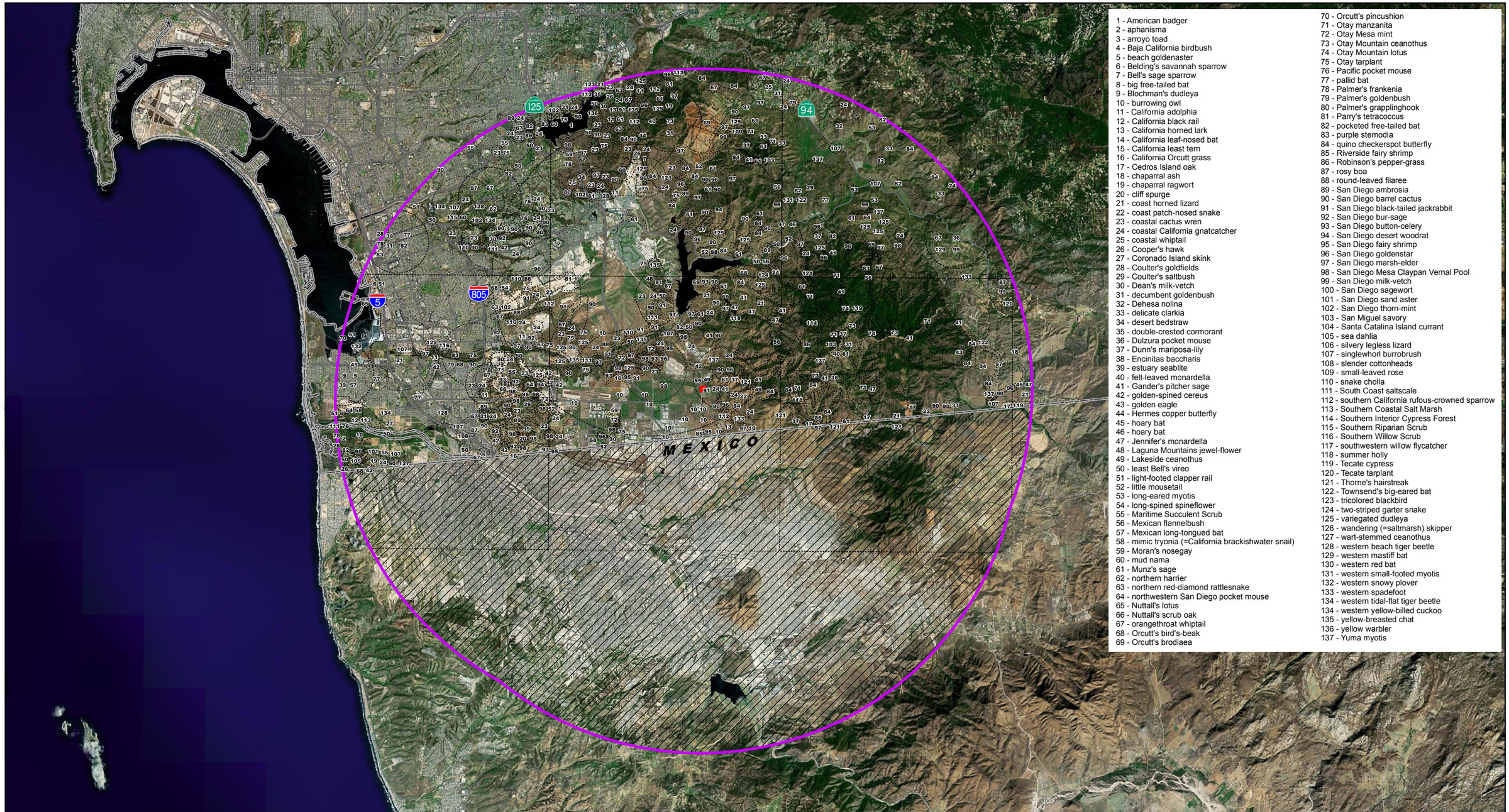
0 2,500 Feet

FIGURE 5.6-2
BIOLOGICAL RESOURCES WITHIN A 1-MILE RADIUS OF THE SITE

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS



1 - American badger
2 - aphanisma
3 - arroyo toad
4 - Baja California birdbush
5 - beach goldenaster
6 - Belding's savannah sparrow
7 - Bell's sage sparrow
8 - big free-tailed bat
9 - Blochman's dudleya
10 - burrowing owl
11 - California adolphia
12 - California black rail
13 - California horned lark
14 - California leaf-nosed bat
15 - California least tern
16 - California Orcutt grass
17 - Cedros Island oak
18 - chaparral ash
19 - chaparral ragwort
20 - cliff spurge
21 - coast horned lizard
22 - coast patch-nosed snake
23 - coastal cactus wren
24 - coastal California gnatcatcher
25 - coastal whiptail
26 - Cooper's hawk
27 - Coronado Island skink
28 - Coulter's goldfields
29 - Coulter's saltbush
30 - Dean's milk-vetch
31 - decumbent goldenbush
32 - Dehesa nolina
33 - delicate clarkia
34 - desert bedstraw
35 - double-crested cormorant
36 - Dulzura pocket mouse
37 - Dunn's mariposa-lily
38 - Encinitas baccharis
39 - estuary seablite
40 - felt-leaved monardella
41 - Gander's pitcher sage
42 - golden-spined cereus
43 - golden eagle
44 - Hermes copper butterfly
45 - hoary bat
46 - hoary bat
47 - Jennifer's monardella
48 - Laguna Mountains jewel-flower
49 - Lakeside ceanothus
50 - least Bell's vireo
51 - light-footed clapper rail
52 - little mousetail
53 - long-eared myotis
54 - long-spined spineflower
55 - Maritime Succulent Scrub
56 - Mexican flannelbush
57 - Mexican long-tongued bat
58 - mimic tryonia (=California brackishwater snail)
59 - Moran's nosegay
60 - mud nama
61 - Munz's sage
62 - northern harrier
63 - northern red-diamond rattlesnake
64 - northwestern San Diego pocket mouse
65 - Nuttall's lotus
66 - Nuttall's scrub oak
67 - orangethroat whiptail
68 - Orcutt's bird's-beak
69 - Orcutt's brodiaea
70 - Orcutt's pincushion
71 - Otay manzanita
72 - Otay Mesa mint
73 - Otay Mountain ceanothus
74 - Otay Mountain lotus
75 - Otay tarplant
76 - Pacific pocket mouse
77 - pallid bat
78 - Palmer's frankenia
79 - Palmer's goldenbush
80 - Palmer's grapplinghook
81 - Parry's tetracoccus
82 - pocketed free-tailed bat
83 - purple stemodia
84 - quino checkerspot butterfly
85 - Riverside fairy shrimp
86 - Robinson's pepper-grass
87 - rosy boa
88 - round-leaved filaree
89 - San Diego ambrosia
90 - San Diego barrel cactus
91 - San Diego black-tailed jackrabbit
92 - San Diego bur-sage
93 - San Diego button-celery
94 - San Diego desert woodrat
95 - San Diego fairy shrimp
96 - San Diego goldenstar
97 - San Diego marsh-elder
98 - San Diego Mesa Claypan Vernal Pool
99 - San Diego milk-vetch
100 - San Diego sagewort
101 - San Diego sand aster
102 - San Diego thorn-mint
103 - San Miguel savory
104 - Santa Catalina Island currant
105 - sea dahlia
106 - silvery legless lizard
107 - singlewhorl burrobrush
108 - slender cottonheads
109 - small-leaved rose
110 - snake cholla
111 - South Coast saltscale
112 - southern California rufous-crowned sparrow
113 - Southern Coastal Salt Marsh
114 - Southern Interior Cypress Forest
115 - Southern Riparian Scrub
116 - Southern Willow Scrub
117 - southwestern willow flycatcher
118 - summer holly
119 - Tecate cypress
120 - Tecate tarplant
121 - Thorne's hairstreak
122 - Townsend's big-eared bat
123 - tricolored blackbird
124 - two-striped garter snake
125 - variegated dudleya
126 - wandering (=saltmarsh) skipper
127 - wart-stemmed ceanothus
128 - western beach tiger beetle
129 - western mastiff bat
130 - western red bat
131 - western small-footed myotis
132 - western snowy plover
133 - western spadefoot
134 - western tidal-flat tiger beetle
134 - western yellow-billed cuckoo
135 - yellow-breasted chat
136 - yellow warbler
137 - Yuma myotis

Legend

- Proposed Site Location
- 10-Mile Radius of Proposed Site
- California Natural Diversity Database (CNDDB - May 2010)
- Outside U.S. Jurisdiction

N

0 2.5 Miles

FIGURE 5.6-3
BIOLOGICAL RESOURCES WITHIN A 10-MILE RADIUS OF THE SITE

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

AVIATOR RD
DEAD STICK RD
AIR WING RD
HARVEST RD
PIPER RANCH RD
OTAY MESA RD E
AVD D LA FUENTE NORTE
OTAY MESA RD
DORNOCH CT
SANYO AV
AVD COSTA AZUL
HARVEST RD
AIRWAY RD
HWY
OTAY CENTER DR
SIEMPRE VIVA RD
PAS DE LAS AMERICAS
MARCONI CT
MARCONI PL
ENRICO FERMI DR
AVD D LA FUENTE
AVD COSTA BRAVA
PAS DE LA FUENTE
ROLL DR
MARCONI DR
CMTO AMISTAD
DRUCKER LN
VIA D LA AMISTAD
CUSTOMHOUSE PZ

Legend

- Biological Study Area
- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- Developed/Disturbed
- Mulefat Scrub
- Riparian
- Non-Native Grassland

N

0 600 1,200 Feet

FIGURE 5.6-4
VEGETATION COMMUNITIES/ LAND COVER TYPES

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **BIOLOGY** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Sections 5.6.2, 5.6.3, 5.6.4, and 5.6.5 Appendix J		
Appendix B (g) (13) (A)	A regional overview and discussion of terrestrial and aquatic biological resources, with particular attention to sensitive biological resources within (10) miles of the project Include a map at a ten scale of 1:100,000 (or other suitable scale) showing sensitive biological resource location(s) in relation to the project site and related facilities and any boundaries of a local Habitat Conservation Plan or similar open space land use plan or designation. Sensitive biological resources include the following:	Section 5.6.2 Figure 5.6-3 Appendix J2		
Appendix B (g) (13) (A) (i)	species listed under state or federal Endangered Species Acts;	Section 5.6.2 Tables 5.6-4 and 5.6-5		
Appendix B (g) (13) (A) (ii)	resources defined in sections 1702(q) and (v) of Title 20 of the California Code of Regulations;	Section 5.6.2		
Appendix B (g) (13) (A) (iii)	species identified as state Fully Protected;	Section 5.6.2 Tables 5.6-4 and 5.6-5		
Appendix B (g) (13) (A) (iv)	species covered by Migratory Bird Treaty Act;	Section 5.6.2		
Appendix B (g) (13) (A) (v)	species and habitats identified by local, state, and federal agencies as needing protection, including but not limited to those identified by the California Natural Diversity Database, or where applicable, in Local Coastal Programs or in relevant decisions of the California Coastal Commission; and	Section 5.6.2		

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **BIOLOGY** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (A) (vi)	fish and wildlife species that have commercial and/or recreational value .	Section 5.6.2		
Appendix B (g) (13) (B)	Include a list of the species actually observed and those with a potential to occur within 1 mile of the project site and 1,000 feet from the outer edge of linear facility corridors. Maps or aerial photographs shall include the following:	Section 5.6.2 Figure 5.6-2 Tables 5.6-2 and 5.6-3		
Appendix B (g) (13) (B) (i)	Detailed maps at a scale of 1:6,000 or color aerial photographs taken at a recommended scale of 1 inch equals 500 feet (1:6,000) with a 30 percent overlap that show the proposed project site and related facilities, biological resources including, but not limited to, those found during project-related field surveys and in records from the California Natural Diversity Database, and the associated areas where biological surveys were conducted. Label the biological resources and survey areas as well as the project facilities;	Section 5.6.2 Figures 5.6-1 and 5.6-2		
Appendix B (g) (13) (B) (ii)	A depiction of the extent of the thermal plume at the surface of the water if cooling water is proposed to be discharged to a water source. Provide the location for the intake and discharge structures on an aerial photograph(s) or detailed maps. Water sources include, but are not limited to, waterways, lakes, impoundments, oceans, bays, rivers, and estuaries; and	Not Applicable		
Appendix B (g) (13) (B) (iii)	An aerial photo or wetlands delineation maps at a scale of (1:2,400) showing any potential jurisdictional and non-jurisdictional wetlands delineated out to 250 feet from the edge of disturbance if wetlands occur within 250 feet of the project site and/or related facilities that would be included with the US Army Corps of Engineers Section 404 Permit application. For projects proposed to be located within the coastal zone, also provide aerial photographs or maps as described above that identify wetlands as defined by the Coastal Act.	Appendix J2		

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **BIOLOGY** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (C)	A discussion of the biological resources at the proposed project site and related facilities. Related facilities include, but are not limited to, laydown and parking areas, gas and water supply pipelines, transmission lines, and roads. The discussion shall address the distribution of vegetation community types, denning or nesting sites, population concentrations, migration corridors, breeding habitats, and other appropriate biological resources including the following:	Section 5.6.2		
Appendix B (g) (13) (C) (i)	A list of all the species actually observed;	Section 5.6.2 Tables 5.6-2 and 5.6-3		
Appendix B (g) (13) (C) (ii)	A list of sensitive species and habitats with a potential to occur (as defined in (A) above); and	Section 5.6.2 Tables 5.6-2 and 5.6-3		
Appendix B (g) (13) (C) (iii)	If cooling water is taken directly from or discharged to a surface water feature source, include a description of the intake structure, screens, water volume, intake velocity hydraulic zone field of influence, and the thermal plume dispersion area as depicted in response to B(ii) above. Describe the thermal plume size and dispersion under high and low tides, and in response to local currents and seasonal changes. Provide a discussion of the aquatic habitats, biological resources, and critical life stages found in these affected waters. For repower projects that anticipate no change in cooling water flow, this information shall be provided in the form of the most recent federal Clean Water Act 316(a) and (b) studies of entrainment and impingement impacts that has been completed within the last five (5) years. For new projects or repower projects proposing to use once-through cooling and anticipating an increase in cooling water flow, provide a complete impingement and entrainment analysis per guidance in (D)(ii), below.	Not Applicable		

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **BIOLOGY** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (D)	A description and results of all field studies and seasonal surveys used to provide biological baseline information about the project site and associated facilities. Include copies of the California Natural Diversity Database records and field survey forms completed by the applicant's biologist(s). Identify the date(s) the surveys were completed, methods used to complete the surveys, and the name(s) and qualifications of the biologists conducting the surveys. Include:	Section 5.6.2 Appendix J-3		
Appendix B (g) (13) (D) (i)	Current biological resources surveys conducted using appropriate field survey protocols during the appropriate season(s). State and federal agencies with jurisdiction shall be consulted for field survey protocol guidance prior to surveys if a protocol exists;	Appendix J1 Appendix J2		
Appendix B (g) (13) (D) (ii)	If cooling water is proposed to be taken directly from or discharged to a surface water feature source seasonal aquatic resource studies and surveys shall be conducted. Aquatic resource survey data shall include, but is not limited to, fish trawls, ichthyoplankton and benthic sampling, and related temperature and water quality samples. For new projects or repower projects anticipating a change in cooling water flows, sampling protocols shall be provided to the Energy Commission staff for review and concurrence prior to the start of sampling. For repower projects not anticipating a change in cooling water flows, this information shall be provided in the form of the most recent federal Clean Water Act 316(b) impingement and entrainment impact study completed within five (5) years of the AFC filing date; and	Not Applicable		

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **BIOLOGY** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (D) (iii)	If the project or any related facilities could impact a jurisdictional or non-jurisdictional wetland, provide completed Army Corps of Engineers wetland delineation forms and/or determination of wetland status pursuant to Coastal Act requirements, name(s) and qualifications of biologist(s) completing the delineation, the results of the delineation and a table showing wetland acreage amounts to be impacted.	Appendix J2		
Appendix B (g) (13) (E)	Impacts discussion of the following:			
Appendix B (g) (13) (E) (i)	all impacts (direct, indirect, and cumulative) to biological resources from project site preparation, construction activities, plant operation, maintenance, and closure. Discussion shall also address sensitive species habitat impacts from cooling tower drift and air emissions;	Sections 5.6.3 and 5.6.4		
Appendix B (g) (13) (E) (ii)	facilities that propose to take water directly from, and/or discharge water to surface water features, daytime and nighttime impacts from the intake and discharge of water during operation, water velocity at the intake screen, the intake field of influence, impingement, entrainment, and thermal discharge. Provide a discussion of the extent of the thermal plume, effluent chemicals, oxygen saturation, intake pump operations, and the volume and rate of cooling water flow at the intake and discharge location; and	Not Applicable		
Appendix B (g) (13) (E) (iii)	Methods to control biofouling and chemical concentrations, and temperatures that are currently being discharged or will be discharged to receiving waters.	Not Applicable		
Appendix B (g) (13) (F)	A discussion of all feasible mitigation measures including, but not limited to the following:	Section 5.6.5		
Appendix B (g) (13) (F) (i)	All measures proposed to avoid and/or reduce adverse impacts to biological resources;	Section 5.6.5		

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **BIOLOGY** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (F) (ii)	All off -site habitat mitigation and habitat improvement or compensation, and an identification of contacts for compensation habitat and management;	Section 5.6.5		
Appendix B (g) (13) (F) (iii)	Design features to better disperse or eliminate a thermal discharge;	Not Applicable		
Appendix B (g) (13) (F) (iv)	All measures proposed to avoid or minimize adverse impacts of cooling water intake. This shall include a Best Technology Available (BTA) discussion. If BTA is not being proposed, the rationale for not selecting BTA must be provided; and	Not Applicable		
Appendix B (g) (13) (F) (v)	Educational programs to enhance employee awareness during construction and operation to protect biological resources.	Section 5.6.5		
Appendix B (g) (13) (G)	A discussion of compliance and monitoring programs to ensure the effectiveness of impact avoidance and mitigation measures incorporated into the project.	Section 5.6.5		
Appendix B (g) (13) (H)	Submit copies of any preliminary correspondence between the project applicant and state and federal resource agencies regarding whether federal or state permits from other agencies such as the U. S. Fish and Wildlife Service the National Marine Fisheries, Service, the U.S. Army Corps of Engineers, the California Department of Fish and Game, and the Regional Water Quality Control Board will the proposed project be required for	Pending		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 5.6.6 Table 5.6-7		

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **BIOLOGY** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Sections 5.6.6 and 5.6.7 Tables 5.6-7 and 5.6-8		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Section 5.6.7 Table 5.6-8		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 5.6.8 Table 5.6-9		

TABLE OF CONTENTS

5.9 LAND USE 5.9-1
5.9.1 Affected Environment 5.9-3
5.9.2 Environmental Consequences 5.9-12
5.9.3 Cumulative Impacts 5.9-13
5.9.4 Mitigation Measures and Conditions of Certification 5.9-13
5.9.5 Laws, Ordinances, Regulations and Standards (LORS) 5.9-13
5.9.6 References 5.9-23

LIST OF TABLES

Table 5.9-1 Project Site and Surrounding Land Uses (Within One Mile of Project Site and One-Quarter Mile of Project Linear Facilities) 5.9-5
Table 5.9-2 Recent Discretionary Applications – East Otay Mesa 5.9-10
Table 5.9-3 LORS and Compliance for Land Use 5.9-21
Table 5.9-4 Agency Contacts 5.9-22
Table 5.9-5 Permits and Approvals 5.9-23

LIST OF FIGURES

Figure 5.9-1 Jurisdictional Boundaries and Existing Land Uses Surrounding Site
Figure 5.9-2 City and County Zoning Designations
Figure 5.9-3 City General Plan Land Use Designations
Figure 5.9-4 Specific Plan Land Use Map
Figure 5.9-5 Properties Within One Mile of Project Site and Quarter Mile of Project Linears, and FMMP Data

5.9 LAND USE

This section provides an assessment of land use setting (present and future), issues and impacts for the Pio Pico Energy Center (PPEC).

An evaluation of the PPEC's conformance with local plans, land use regulations, and general land use compatibility is provided in this section. Land uses within one mile of the project site and one-quarter mile of project linear facilities are described.

PPEC is a proposed 300 megawatt (MW) simple-cycle electrical generating facility located in an industrial area of San Diego County, adjacent to the existing Otay Mesa Generating Project OMGP). PPEC will supply fast response power to help San Diego Gas & Electric (SDG&E) meet cyclic demand and further utilize renewable resources. The project will be constructed on disturbed, developed land and prepared land. PPEC will include a 230 kilovolt (kV) transmission line, a natural gas supply pipeline, and short connections into adjacent streets for potable and recycled water supply, and sewer and stormwater discharge.

PPEC consists of the project site, linears, and a temporary laydown area (Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears). The project site is located in an unincorporated area of San Diego County known as Otay Mesa. It is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection. The proposed project site comprises the entire parcel with Assessor's Parcel Number (APN) 648-040-45, and the laydown area is 6.00 acres of an adjacent parcel to the south (APN 648-040-46) (Figure 3.3-2, Project Location). The existing setting within one-mile of the project site and potential transmission line routes are presented on Figure 3.3-4. The project affects the following areas:

- Plant site – 9.99 acres.

- Temporary laydown and parking area – 6.00 acres, on an adjacent parcel that is contiguous to the project site.

- Natural Gas pipeline – There are two possible routes for the gas supply pipeline. Both routes would connect to an existing SDG&E natural gas pipeline, but at different locations. Route A would extend approximately 8,000 feet south along Alta Road to near the U.S.–Mexico border, at which point it would connect to the existing SDG&E natural gas pipeline. Route B would extend approximately 2,375 feet south along Alta Road, turn west on Otay Mesa Road, and continue approximately 7,920 feet to Harvest Road at which point it would connect to the existing SDG&E natural gas pipeline (Figure 3.3-3, Potential Linears) for a total of approximately 10,300 feet. The pipeline will be constructed, owned, and operated by SDG&E.

- Sewer pipeline – A short connection will be made to an existing 12-inch sewer main along Calzada de la Fuente along the north project site boundary, or to an existing 15-inch sewer main along Alta Road, along the west project site boundary.

- Stormwater pipeline – A short connection will be made from a detention pond located at the northwest corner of the project site to an existing 30-inch stormwater pipeline located along Calzada de la Fuente, adjacent to the project site.

- Power line – Two possible routes are provided for a 230kV transmission line that will connect the project into the existing 230kV Otay Mesa switchyard. Route A would begin as an overhead power line along Calzada de la Fuente, extend approximately 1,700 feet east where it would then be routed underground for approximately 400 feet into the Otay Mesa switchyard (total length of Route A would be approximately 2,100 feet). Route B would begin as an overhead power line from the eastern edge of the project site, run south approximately 550 feet, then turn east along the northern border of the parcels with APN 648-040-48 and APN 648-040-43 for 1,400 feet, and finally turn north for approximately 700 feet into the Otay Mesa switchyard (total length of Route B would be approximately 2,650 feet). The power line will be owned and maintained by the Applicant.

- Water supply pipelines – The project will make a short connection to the potable service system, either at an existing 12-inch main along Calzada de la Fuente, or at an existing 24-inch main along Alta Road. Upon the Otay Water District (OWD)'s completion of the planned Otay Mesa area recycled water system, the project will make a connection to an existing 8-inch recycled water main along Calzada de la Fuente or to a new recycled water main to be constructed in Alta Road.

These features are illustrated on Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears.

Land uses in California are regulated using various methods of land use controls. Cities and counties in California are required by law to adopt a comprehensive, long-term General Plan for the physical development of their jurisdictional areas. The General Plan is the constitution for the local agency and all other planning activities must be consistent with the General Plan. These plans include a Land Use Element that establishes a pattern of appropriate land uses, as well as policies and guidelines for development of those uses. Cities and counties are permitted to adopt specific plans to guide development in particular locations within the jurisdiction. Specific plans act as mini-General Plans, describing specific development requirements and constraints within the boundary of the specific plan area. Local zoning ordinances implement the Land Use Element of the General Plan and any specific plans. It is important to note that the Land Use Element reflects more generalized goals for development and that the zoning ordinances and zoning maps are intended to implement those goals. There may be multiple zoning designations that are compatible with and implement a single General Plan land use designation. All projects must be consistent with the General Plan, any specific plan and the zoning requirements. Building codes establish requirements for safe and sanitary structures. Subdivision controls and building and grading requirements regulate the design and improvement of subdivisions and structures.

PPEC will be consistent with County of San Diego land use ordinances. Project plans have been provided to the County of San Diego Department of Planning and Land Use (DPLU), as an Advisory Agency to the CEC, for review and comment. Reasonably foreseeable future development within the affected area is discussed in Section 5.18, Cumulative Impacts.

With proposed conditions of certification outlined in this section the project will have no significant environmental impacts, and will comply with all laws, ordinances, regulations and standards.

5.9.1 AFFECTED ENVIRONMENT

The affected environment is defined by the CEC based on the study area boundary. The County of San Diego has jurisdiction over the project site and the affected area within one mile of the project and a majority of the area within one quarter mile of project linear facilities. A small portion of a linear facility (gas line) may be located in the City of San Diego. The land use study area, along with major jurisdictional boundaries, is shown on Figure 5.9-1, Jurisdictional Boundaries and Existing Land Uses Surrounding Site.

5.9.1.1 Regional Setting

The PPEC project site is located within the jurisdictional boundaries of the County of San Diego, California. The project site is approximately two miles east of the South Bay Expressway (Highway 125), one mile north of State Route 11, and approximately 1.5 miles north of the U.S.–Mexico border.

5.9.1.2 Project Site and Vicinity

PPEC is located in the County of San Diego's Otay Subregional Planning Area. (Figure 5.9-1, Jurisdictional Boundaries and Existing Land Uses Surrounding Site). Adjacent incorporated jurisdictions near the project include the cities of San Diego to the east of the project site, and the City of Chula Vista northwest of the project site. The Zoning and General Plan designations in the immediate vicinity of the project allow for mostly planned industrial uses, however outlying areas include a mix of land use designations including commercial, residential and open space uses (Figures 5.9.2, City and County Zoning Designations and Figure 5.9.3, City General Plan Land Use Designations). The project site is in, and surrounded by parcels with the land use designation Heavy-Industrial.

The project parcel (9.99-acre parcel, with APN 648-040-45) is located on the southeast corner of Alta Road and Calzada de la Fuente, immediately west of an existing power plant facility known as the Otay Mesa Generating Project (OMGP). PPEC is located in the southeast quarter of Section 30 Township 18 South, Range 1 East, on the USGS 7.5-minute Quadrangle Map. The parcel is south of a joint federal/county and City of San Diego correctional/detention facility (George Bailey County/East Mesa Detention Facility) and a state prison (Richard J. Donovan Correctional Facility). Existing land uses are further discussed further below.

Site access will be via Calzada de la Fuente, which is an existing two-lane industrial/commercial collector road.

Existing Land Uses

The project site is currently vacant and disturbed, Existing land uses adjacent to the site include disturbed, undeveloped, industrially-zoned land to the immediate north and west, and similar land zoned for technology-business park purposes to the south. Two correctional facilities (state and County) are also located to the north of the project site.

Other land uses near the project include:

- North: Vacant, Undeveloped
- East: Power Plant – OMGP
- South: Vacant, Undeveloped
- West: Vacant, Undeveloped

Existing land uses at and within one-mile of the PPEC site, and one-quarter mile of the project's linear facilities, are shown in Figure 5.9-1, Jurisdictional Boundaries and Existing Land Uses Surrounding Site, and Table 5.9-1, Project Site and Surrounding Land Uses (Within One Mile of Project Site and One-Quarter Mile of Project Linear Facilities).

Agricultural Resources

Based on most recent data from the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) (CDOC 2010), the project site, laydown area, and areas within one-mile of the project site and quarter-mile of the project linears do not contain Prime Farmland, Farmland of Statewide Importance, or Unique Farmland (refer to Figure 5.9-5, Properties Within One-Mile of Project Site and Quarter-Mile of Project Linears and FMMP Data). The project site and laydown area are located on land the FMMP categorizes as Other Land, which is considered to be vacant and nonagricultural land. Areas within one-mile of the project site and one-quarter mile of the project linears contain lands categorized as Farmland of Local Importance, Grazing lands, Urban and Built-up Land, and Other Land. The FMMP considers Farmland of Local Importance to be land of importance to the local agricultural economy, as determined by the jurisdictional county. As shown on Figure 5.9-2, City and County Zoning Designations and Figure 5.9-4, Specific Plan Land Use, areas surrounding the project site, laydown area, and project linears do not contain agricultural-designated land uses. Additionally, as shown in Table 5.9-1, Project Site and Surrounding Land Uses (Within One Mile of Project Site and One-Quarter Mile of Project Linear Facilities), which is keyed to Figure 5.9-5, Properties Within One-Mile of Project Site and Quarter-Mile of Project Linears and FMMP Data, there are no existing agricultural land uses in the vicinity of the project area, and undeveloped land within this area is currently vacant, disturbed, or utilized as Open Space Preserve areas. Therefore, the project will not have direct, indirect or cumulative effects on agricultural land uses.

TABLE 5.9-1
PROJECT SITE AND SURROUNDING LAND USES
(WITHIN ONE MILE OF PROJECT SITE AND ONE-QUARTER MILE OF PROJECT LINEAR FACILITIES)

APN #	Zoning	*Specific Plan Land Use Designation***	General Plan Land Use	Property Owner	Description of Existing Land Use
Within one mile of project site:					
648-040-45	East Otay Mesa Specific Plan (SP)	*Heavy Industrial*	Specific Plan	Alta Parcels, L.P.	Vacant/Undeveloped (PROJECT SITE)
64604020	Holding Area	N/A	Public/Semi-Public Uses	State Of California	Jail/Prison
64608011	East Otay Mesa SP	*Technology Business Park*	Specific Plan	Rabago Investment Group LLC	Vacant/Undeveloped
64608012	East Otay Mesa SP	*Technology Business Park*	Specific Plan	Rabago Investment Group LLC	Residential
64608016	Holding Area	N/A	Public/Semi-Public Uses	State Of California	Jail/Prison
64608017	East Otay Mesa SP	*Technology Business Park*	Specific Plan	International Industrial Park Inc	Vacant/Undeveloped
64613027	East Otay Mesa SP	*Light Industrial*	Specific Plan	Hanna Makram A & Maureen T	Vacant/Undeveloped
64613039, 64613040, 64613041, 64613042	East Otay Mesa SP	*Technology Business Park*	Specific Plan	South County Commerce Center LLC	Vacant/Undeveloped
64631004, 64631005, 64631016	East Otay Mesa SP	*Technology Business Park*	Specific Plan	First American Trust Tr No 1082-0284-00	Vacant/Undeveloped
64801032, 64801034	Holding Area	N/A	Public/Semi-Public Uses	County Of San Diego	Jail/Prison
64801102	East Otay Mesa SP	*Conservation/Limited Use & Heavy Industrial*	Specific Plan	D&D Landholdings	Open Space Park/Preserve
64801103	East Otay Mesa SP	*Conservation/Limited Use & Heavy Industrial*	Specific Plan	American International Racing Inc	Open Space Park/Preserve
64801104	Holding Area	N/A	Public/Semi-Public Uses	State Of California	Jail/Prison
64802007	Holding Area	N/A	Estate Residential	International Industrial Park Inc	Open Space Park/Preserve
64802008	Holding Area	N/A	Estate Residential	Rancho Vista Del Mar	Open Space Park/Preserve
64804011	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	CCA Western Properties Inc	Vacant/Undeveloped
64804013	East Otay Mesa SP	*Technology Business Park*	Specific Plan	Fong-Hsu Trust 06-29-04	Vacant/Undeveloped
64804014	East Otay Mesa SP	*Technology Business Park*	Specific Plan	TO Development LLC	Vacant/Undeveloped
64804015	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	Rancho Vista Del Mar	Salvage Yard
64804020	East Otay Mesa SP	*Technology Business Park*	Specific Plan	Rancho Vista Del Mar	Vacant/Undeveloped
64804017, 64804023	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	Rancho Vista Del Mar	Vacant/Undeveloped
64804025	East Otay Mesa SP	*Technology Business Park*	Specific Plan	International Industrial Park Inc	Vacant/Undeveloped
64804026	Holding Area	N/A	Public/Semi-Public Uses	State Of California	Jail/Prison
64804027, 64804028	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	International Industrial Park Inc	Vacant/Undeveloped

APN #	Zoning	*Specific Plan Land Use Designation***	General Plan Land Use	Property Owner	Description of Existing Land Use
64804031, 64804034	East Otay Mesa SP	*Conservation/Limited Use & Heavy Industrial*	Specific Plan	Rancho Vista Del Mar	Vacant/Undeveloped
64804035	East Otay Mesa SP	*Technology Business Park*	Specific Plan	O M C Properties LLC	Vacant/Undeveloped
64804036, 64804037	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	O M C Properties LLC	Vacant/Undeveloped
64804038	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	Calpine Corp OMC Properties LLC	Vacant/Undeveloped
64804039, 64804040, 64808013, 64808014, 64808025	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	D&D Landholdings	Vacant/Undeveloped
64804041, 64804042, 64804043	East Otay Mesa SP	*Mixed Industrial & Heavy Industrial*	Specific Plan	Alta Parcels LP	Vacant/Undeveloped
64804046, 64804048	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	Alta Parcels, L.P.	Vacant/Undeveloped
64804047	East Otay Mesa SP	*Heavy Industrial*	Specific Plan	Calpine Corp DGEN LP	Power Plant
64805005	Holding Area	N/A	Multiple Rural Use	USA - Bureau Of Land Management	Open Space Park/Preserve
64805013, 64805014	East Otay Mesa SP	*Rural Residential*	Specific Plan	Otay Hills LLC	Vacant/Undeveloped
64805017	East Otay Mesa SP	*Rural Residential*	Specific Plan	Kyddlf&Rdlfg Ft No 1 LLC	Vacant/Undeveloped
64805020	East Otay Mesa SP	*Conservation/Limited Use*	Specific Plan	KYDDLF & RDLFGFT No 1 LLC	Open Space Park/Preserve
64807003, 64808027	East Otay Mesa SP	*Mixed Industrial*	Specific Plan	Kearny PCCP Otay 311 LLC	Vacant/Undeveloped
64807009	East Otay Mesa SP	*Technology Business Park*	Specific Plan	TPO LLC	Vacant/Undeveloped
64807013	East Otay Mesa SP	*Technology Business Park*	Specific Plan	Kouladjian Family Revoc Trust	Auto Auction
64807014	East Otay Mesa SP	*Technology Business Park*	Specific Plan	Mckany Michael J	Vacant/Undeveloped
64807017	East Otay Mesa SP	*Light Industrial*	Specific Plan	Hawano Corporation NV	Vacant/Undeveloped
64807018	East Otay Mesa SP	*Light Industrial*	Specific Plan	Otay Water District	Vacant/Undeveloped
64807021	East Otay Mesa SP	*Mixed Industrial*	Specific Plan	Otay Business Park LLC	Vacant/Undeveloped
64807031, 64807032	East Otay Mesa SP	*Light Industrial*	Specific Plan	Otay Logistics Industrial LLC	Vacant/Undeveloped
64808016, 64808017	East Otay Mesa SP	*Mixed Industrial*	Specific Plan	Rancho Vista Del Mar	Vacant/Undeveloped
64808018	East Otay Mesa SP	*Mixed Industrial*	Specific Plan	Rancho Vista Del Mar	Vacant/Undeveloped
64808026	East Otay Mesa SP	*Mixed Industrial*	Specific Plan	D&D Landholdings	Vacant/Undeveloped
Within one-quarter mile of project linear facilities					
64608032, 64608033 64631001 thru 64631015	East Otay Mesa SP	*Technology Business Park*	Specific Plan	First American Trust Tr No 1082-0284-00	Vacant/Undeveloped
64612109, 64612110 64612113, 64612114, 64613057	Planned District	N/A	Industrial	Owner Information Not Available	Vacant/Undeveloped
64613026	East Otay Mesa SP	*Light Industrial*	Specific Plan	Scannell Properties No 102 LLC, HS LLC et al, c/o James C Carlino	Manufacturing/Industrial
64613027	East Otay Mesa SP	*Light Industrial*	Specific Plan	Hanna Makram A & Maureen T	Vacant/Undeveloped

APN #	Zoning	*Specific Plan Land Use Designation***	General Plan Land Use	Property Owner	Description of Existing Land Use
64613039, 64613040 64613041, 64613042	East Otay Mesa SP	*Technology Business Park*	Specific Plan	South County Commerce Center LLC	Vacant/Undeveloped
64613045	Planned District	N/A	Industrial	San Diego Gas&Electric Co	Public Facility
64613050	Planned District	N/A	Industrial	San Diego Gas&Electric Co, c/o Office Services EB 5	Public Facility
64613056	Planned District	N/A	Industrial	Pico Biomass LLC, c/o James F Mosier	Vacant/Undeveloped
64613059	Planned District	N/A	Industrial	Larkspur Energy LLC	Manufacturing/Industrial
64613101	Planned District	N/A	Industrial	Pinos Produce Inc	Vacant/Undeveloped
64613103 thru 64613106	Planned District	N/A	Industrial	P G Films LLC	Manufacturing/Industrial
64613108	Planned District	N/A	Industrial	Pinos Produce Inc	Manufacturing/Industrial
64613109 thru 64613112	Planned District	N/A	Industrial	LBA Realty Fund III-Company I LLC, Attn: Hilary Raymond	Manufacturing/Industrial
64613116	Planned District	N/A	Industrial	Otay Ridge LLC	Manufacturing/Industrial
64614218	Planned District	N/A	Industrial	Majestic Otay Partners LLC	Manufacturing/Industrial
64624030	East Otay Mesa SP	*Technology Business Park*	Specific Plan	Sunroad Otay Partners LP, c/o Aaron Feldman	Vacant/Undeveloped
64624081	East Otay Mesa SP	*Light Industrial*	Specific Plan	Otay Mesa Crossing LLC, c/o Regency Realty Group Inc	Vacant/Undeveloped
64807023	East Otay Mesa SP	*Light Industrial*	Specific Plan	Millican, Patricia G	Vacant/Undeveloped
64807025	East Otay Mesa SP	*Mixed Industrial*	Specific Plan	Millican, Patricia G	Vacant/Undeveloped
64807024	East Otay Mesa SP	*Light Industrial*	Specific Plan	United States Of America	Vacant/Undeveloped
64807026	East Otay Mesa SP	*Mixed Industrial*	Specific Plan	United States Of America	Vacant/Undeveloped
64807029, 64807030	East Otay Mesa SP	*Light Industrial*	Specific Plan	RLR Investments LLC, Attn: Corporate Legal	Vacant/Undeveloped

**Land use designations have been identified on the official Land Use Map adopted with the Specific Plan document. See Section 5.9.1.3 for details regarding Specific Plan relationship to Zoning Code and related regulations.
Source: County of San Diego, Department of Planning and Land Use, December 8, 2010

5.9.1.3 General Plan and Zoning Designation

General Plan Designation – Specific Plan

The County of San Diego General Plan includes the Otay Subregional Plan, which was adopted as part of its Land Use Element in April 1994. The General Plan and Subregional Plan identify the land use designation of the project site and surrounding area as Specific Plan (Figure 5.9-3, City General Plan Land Use Designations).

The Specific Plan designation is intended for areas designated on the map of any subregional or community plan of the County General Plan where the Board of Supervisors has determined that more detailed planning is required prior to development. The PPEC project is located within an adopted Specific Plan, known as the East Otay Mesa Business Park Specific Plan, which is further discussed below under the Zoning Designation section.

Project Site Zoning Designation – East Otay Mesa Business Park Specific Plan, Heavy Industrial

Zoning for the project site is Specific Plan (S88), which is intended to accommodate Specific Plan areas as provided in the County General Plan. The Specific Plan zoning designation allows for an unlimited variety of land uses, as further established through an adopted Specific Plan document. As further established in Chapter 2888(c) of the County's Zoning Ordinance (Appendix M-3), all uses established pursuant to an applicable Specific Plan shall be subject to all of the conditions and restrictions set forth in the Specific Plan, and said Specific Plan conditions and restrictions concerning uses shall prevail over the Zoning Ordinance regulations to the extent of any conflict between them.

The East Otay Mesa Business Park Specific Plan was originally adopted by the County in 1994, and subsequently amended in September 2010 (Appendix M-2). The document includes a land use plan for the area, identifying land use designations within the boundaries of the Specific Plan area (Figure 5.9.4, Specific Plan Land Use). The PPEC site falls within the 'Heavy Industrial' land use designation of the Specific Plan. The Heavy Industrial zone allows for the development of manufacturing operations and most uses allowed in the Technology Business Park and Light Industrial land use designations of the Specific Plan, but also allows for more intense industrial uses such as recycling plants, salvage yards, and outdoor storage.

The San Diego County Zoning Code classifies uses into certain use types. A power plant is considered a Major Impact Services and Utilities Use (San Diego County Alphabetical List of Individual Uses prepared pursuant to Zoning Ordinance, § 1220) and is classified as a Civic Use type (San Diego County Zoning Ordinance, § 1350). Major Impact Services and Utilities uses are permitted in the heavy industrial land use designation of the Specific Plan upon issuance of a Major Use Permit from the County. (East Otay Mesa Business Park Specific Plan, Table 3.1-1.) The PPEC, therefore, is consistent with the existing land use designation and zoning classification for the site.

Specific Plan Regulatory Provisions: The Specific Plan document includes a chapter which sets forth the policies, regulatory procedures and standards for implementing the East Otay Mesa Specific Plan. This includes land use regulations and developments standards, such as building setbacks and height restrictions, required parking standards, and landscaping requirements. Regulatory provisions also include applicable development review and approval procedures for projects proposed within the limits of the Specific Plan.

Zoning Ordinance

Development standards and regulations not expressly identified in the East Otay Mesa Business Park Specific Plan are subject to the County of San Diego Zoning Ordinance. All uses in the Specific Plan area shall comply with applicable portions of Section 6300 et seq. of the County Zoning Ordinance: Performance Standards. Regarding noise measurements, uses in the Heavy and Mixed Industrial areas shall comply with Section 6310.e.

5.9.1.4 Multiple Species Conservation Program (MSCP)

The project site is within the County of San Diego MSCP South County Subarea Plan, which is a comprehensive, long-term habitat conservation plan that addresses the needs of multiple species and the preservation of natural vegetation communities in San Diego County. The MSCP addresses the potential impacts of urban growth, loss of natural habitat, and species endangerment, and creates a plan to mitigate for the potential loss of Covered Species and their habitat due to the direct, indirect, and cumulative impacts of future development of public and private lands within the MSCP area. The MSCP is a subregional plan under the California Natural Community Conservation Planning (NCCP) Act of 1991. The MSCP is implemented through the Subarea Plan.

The South County MSCP Subarea Plan (October 1997) was prepared for an area encompassing 12 jurisdictions and 582,000 acres. The PPEC site is located in a Minor Amendment area of the Subarea Plan. Further discussion of the Minor Amendment process is provided in Section 5.6 Biological Resources.

5.9.1.5 Worker Parking and Equipment Laydown Locations

A 6.00-acre temporary laydown area located immediately south of the project site has been identified to provide a material and equipment staging area, vehicle parking, office trailers, and small fabrication areas to accommodate project construction. This site is also zoned for Heavy Industrial uses in the East Otay Mesa Business Park Specific Plan. Temporary construction support, including the uses identified, is permitted under Section 6102(d) and 6110 of the General Regulations section of the San Diego County Zoning Ordinance. The area will be restored or improved upon completion of construction of the PPEC project, and therefore is consistent with the land use regulations of the County of San Diego.

5.9.1.6 Summary of Recent General Plan Amendments and Zone Changes

The County of San Diego is currently in the process of approving a comprehensive revision of its General Plan, anticipated for adoption in February 2011. Prior to this, the County's General Plan was last comprehensively updated in 1979. The Otay Subregional Plan of the County General Plan, which was adopted as part of its Land Use Element in April 1994, provides the framework for development in the project area.

According to the County of San Diego DPLU, the Otay Subregional Planning Area experienced significant growth between the years 1990-2000. As further indicated in the Otay Subregional Plan, development in the area was anticipated to increase significantly due to the following reasons:

- A second international border crossing, the State Correctional Facility and the increased industrial development immediately across the Mexican Border have increased development pressures on the subregion in general and on Otay Mesa in particular; and

- Otay Mesa contains large, level, undeveloped and relatively inexpensive parcels of land, and is located near a large labor pool, moderately priced housing and a general aviation airport - which makes it highly suitable for large scale industrial development.

Both the General Plan land use designation and Zoning designation of the project site and surrounding area within one mile of the site and one-quarter mile of the project linear facilities is Specific Plan. There have been no General Plan Amendments approved within the past two years for the area and the Specific Plan land use and zoning designation has been the same since its original adoption in 1994.

The East Otay Mesa Business Park Specific Plan has not changed significantly in recent years and only one Specific Plan Amendment (SPA) application has been approved for the area in the last two years. SPA 01-001, was approved on September 15, 2010. No major revisions were made to the land use or circulation plans with the 2010 amendment and its primary purpose was to simplify and clarify permitting and development requirements. The project site's heavy industrial land use designation set forth in the East Otay Mesa Business Park Specific Plan has not changed.

5.9.1.7 Summary of Recent Discretionary Reviews

There have been a number of discretionary projects within the Otay Subregional Plan area that have been submitted for review and approval to the County of San Diego in recent years. The majority of these projects include industrial-related uses or land subdivisions, however commercial uses are also included. A list of projects are provided in Table 5.9-2, Recent Discretionary Applications – East Otay Mesa.

TABLE 5.9-2
RECENT DISCRETIONARY APPLICATIONS – EAST OTAY MESA

Project Name (APN)	County Project Number	Project Description
	ONGOING	
California Crossings APN: 646-240-48	P06-102 TPM 21046 (06-0073729)	**Retail Commercial Center**: 325,502 SF of retail space anchored by a Target Store.
COPART County Sales Yard Time Extension APN: 648-070-13.	P 88-020W1 (06-0058981) (06-0058981)	**Auto Auction Use Permit:** Major Use Permit Modification to allow for a 5 year time extension to an existing MUP that allows for storage of 8,000 vehicles, a 42,000 sf butler type building, weekly auctions, 40 employees, 562 parking spaces.
Hawano Subdivision APN: 648-070-17.	3992 10-006 Major Preapplication Meeting	**Industrial (or Technology Park) Subdivision:** Tentative Map for 22 lots an 80-acre parcel. The project site is located in the southeastern portion of the East Otay Mesa Specific Plan in an area that is designated as Light Industrial. The project is located south of Airway Road north of Via de Amistad, and west of Alta Road.
Insurance Auto Auctions	P00-012TE (08-0097555)	**Auto Auction Use Permit**: Major Use Permit Time Extension for Insurance Auto Auctions (IAA) to extend the expiration period of the use permit for 5 years. The permit is for a temporary use for an auto processing and auto auction facility.
International Industrial Park APN: 648-040-20,25 and 646-080-17	TM 5549 (07-0074561)	**Technology/Business Park**: Tentative Map to subdivide vacant land into 10 parcels for technology/business park use.
OMC Properties 4-Lot Split APN: 648-040-35.	TPM 21140 (08-0102894)	**Subdivision**: Minor subdivision to divide the subject property into three lots. The site is currently vacant.
Otay Business Park APN: 648-070-21.	TM 5505 (06-0064186)	**Industrial Subdivision:** TM will subdivide an undeveloped 161.6 gross acre parcel into 59 industrial lots. No specific uses are identified.

Project Name (APN)	County Project	Project Description
Otay Crossings Commerce Park APN: 648-070-03, 648-080-27	TM 5405 SPA 04-006 ER 93-19-006Q (05-0060344)	**Industrial Subdivision**: Includes Specific Plan Amendment. The TM will subdivide the parcel into 56 industrial lots. The future right-of-way for SR-11 traverses the site, as well as the future U.S Port–of-Entry is located on the southern boundary of the site.
Otay Hills Mining APN: 648-050-13,14,15,16,17, 648-080-13,14&25, 648-040-34	P 04-004 RP 04-001	**Aggregate Excavation**: MUP and Reclamation Plan for excavation of construction.
Robago Subdivision APN: 646-080-11 & 12	(10-0123562) Major Preapplication Meeting	**Industrial Subdivision:** The project is a proposed subdivision of 71.1 acres to create 19 lots for business park development in the East Otay Mesa Specific Plan area.
Rowland Vehicle Transfer Facility APN 648-080-11 & 12	3301 03-001-02 (10-0127820)	**Vehicle Transfer Facility - Interim Use:** Major Use Permit Modification of P 03-001 to expand the usable area of the project site from approximately 29 to 31 acres with additional grading and fill. In addition, this extension request will trigger the requirement to construct the half-width road Improvements for Enrico Fermi Drive and Lone Star Roads. The Modification will also extend the Interim Use of P 03-001 that is due to expire June 24, 2010. There is no change of use of the property from that previously approved.
RTX Truck Parking and Storage APN: 648-070-23	S08-022 (previously S07-002) (08-0099087)	**Truck Storage**: Site plan review for a storage lot for tractor-trailers and containers for a trucking firm.
Salvage Yards/ National Enterprises Recycling	3992 10-003 (Preapplication)	**Automotive and Green Waste Recycling Center**: Modification to original project to accommodate a portion of property for CCA and include CCA's previous site.
Sunroad / Otay Tech Center APN: 646-080-08, -30, -31; 646-240-30	SPA 07-003 TM 5538 (07-0079920)	**Business Park / Interim Uses**: TM for a 58-lot major subdivision of 218.1 acres and SPA to increase and move commercial overlay. The eastern portion of the property includes a previously approved subdivision of 250 acres into 56 industrial lots and one 51.5 acre open space lot (TM5139RPL6R2). Applications submitted in April '09 for interim uses and a change in project description for the SPA/TM.
Sunroad Interim Uses APN: 646-080-08, -30, -31; 646-240-30		**Vehicle Storage, Construction Sales and Services, and Wholesale Nursery.** New applications submitted in April '09 for interim uses at same location as permanent uses.
Sunroad Centre I	P09-009	**Vehicle Storage and Construction Sales and Services**
Harvest Ranch Nursery	P09-005	**Wholesale Nursery**
	APPROVED PROJECTS	
CCA San Diego Correctional Facility APN: 648-040-34	P06-074W1 09-0112114	**Detention Facility**: Modified MUP for a secure detention facility to be constructed in two phases. Original project is proposed to be relocated to the southeasterly portion of the previously approved MUP 98-001.
South County Commerce Center REVISED APN: 646-130-39,40,41,&42	TM 5394R ER 93-19-006EE (08-0091020)	**Industrial Subdivision**: Revised TM for an approximately 80-acre parcel to make this map consistent with the changes made in the County initiated Specific Plan Amendment in 2007.
Saeed Revised Map REVISED APN: 646-130-26	TM 5304R (07-0090054)	**Business Park**. Revision of previously approved TM for Airway Business Center to make this map consistent with Specific Plan Amendment, SPA 06-003, and GP Circulation Element Amendment (GPA 06-013).
CCA San Diego Correctional Facility APN: 648-040-11	SPA 06-005 P 06-074 ER 93-19-006X (06-0065889)	**Detention Facility**: SP Amendment and MUP. The MUP proposes a secure detention facility to be constructed in two phases on a 32-acre portion of an approximately 40-acre site.
FEDEX Site Plan	S08-018	**Fedex Facility**: Fedex facility on the western most lot of the Saeed TM.

Project Name (APN)	County Project	Project Description
Piper Otay Park APN: 646-240-74	TM 5527 (06-0073639)	**Industrial Subdivision**: TM will subdivide an undeveloped 24.84 gross acre parcel into 13 industrial lots ranging from 1.03 acres to 2.61 acres.
Salvage Yards/ National Enterprises Recycling APN: 648-040-15,17,23,27,28,31,34	P 98-001 ER 93-19-006F (05-0053690)	**Automotive and Green Waste Recycling Center**: The project will develop areas for automobile storage, scrap and recycling operations, and wood and green material recycling.
Travel Plaza APN: 648-070-09	P 98-024W1 TPM 20414 ER 93-19-006N (04-15749) Associated: L14632	**Truck Storage and Truck Stop:** MUP Modification for site located on northeast corner of Enrico Fermi Drive and Airway Road in SubArea for truck storage facility and truck stop.
Vulcan APN: 648-040-36	S 07-038 (07-0084498)	**Concrete & Asphalt Batch Plant**: The project is a Site Plan to construct and operate concrete and asphalt batch plants.

5.9.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential effects of site preparation, construction, and operation on existing land uses and land use resources of the project area. Potential environmental consequences were analyzed for the study area within one mile of the proposed project site and within one quarter mile of project linear facilities (Figure 5.9-3, City General Plan Land Use Designation and Figure 5.9-5, Properties Within One-Mile of Project Site and Quarter-Mile of Project Linears and FMMP Data). Potential land use impacts relate to both the construction and operation of PPEC and any ancillary facilities.

There are no existing sensitive land uses (schools, churches, day care facilities) within a one mile radius of the project site. The proposed electrical generating facility is consistent with the industrial nature of the Specific Plan and consistent with the heavy industrial land use designation. In addition to complying with the General Plan, Specific Plan, and Zoning designations, the placement of the power plant in proximity to existing and planned industrial uses, State prison, and County detention center is compatible with the surrounding land use character consisting primarily of industrial uses. As such, PPEC will not have any significant adverse impacts on land use. The project will not result in any physical division of communities. Established residential communities further away from the project site will not be significantly affected. All other proposed County of San Diego land use plans and policies will not be significantly altered by the operation of the proposed project. Potential impacts related to the County of San Diego MSCP South County Subarea Plan are further addressed in Section 5.6 Biological Resources.

5.9.2.1 Abandonment/Closure

Planned permanent closure impacts will be incorporated into the facility closure plan and evaluated at the end of the generating station's operating life.

5.9.3 CUMULATIVE IMPACTS

The purpose of this section is to identify past, present, and reasonably foreseeable actions in the PPEC project area that could affect the same resources as those of the project and provide the following analysis:

- Determine if the impacts of PPEC and the other actions would overlap in time or geographic extent.
- Determine if the impacts of the proposed project would interact with, or intensify, the impacts of the other actions.
- Identify any potentially significant cumulative impacts.

The assessment of cumulative impacts for this project includes a review of other projects where an application has been filed with San Diego County, and the Cities of San Diego and Chula Vista, as well as projects anticipated by the CEC. Section 5.18 presents a list of these potential projects that could result in cumulative impacts with the proposed project

This project area and the surrounding area have had a small number of development projects in the past 18 months, though several potential projects may be considered in the foreseeable future. Because the PPEC is consistent with existing land use policies and regulations and compatible with adjacent uses, PPEC will not contribute to cumulative land use impacts.

5.9.4 MITIGATION MEASURES AND CONDITIONS OF CERTIFICATION

The project will have less than significant impact on land use and will not conflict with existing land use activities in the area. Conditions of certification are not required as PPEC has no significant impacts and conforms to all LORS.

5.9.5 LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

LORS related to land use and their applicability to the project are summarized in Table 5.9-3, LORS and Compliance for Land Use. PPEC will be constructed and operated in compliance with all applicable land use LORS, as discussed below.

5.9.5.1 Federal

There are no federal LORS related to the land use associated with PPEC.

5.9.5.2 State

California Public Resources Code *25523 (a); 20 CCR **1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Appendix B, Part (I) (3) and (4) These codes require that the applicant evaluate the compatibility of the proposed project with relevant land use plans. This requirement is met via Section 5.9.5.3, below.

Administering agencies: The administering agency for the above is the CEC.

California State Planning Law, Government Code Section 65300 through 65302. This code requires each planning agency to prepare and the legislative body of each county and city to adopt a comprehensive General Plan for the physical development of the county. The General Plan shall address seven mandatory elements including a land use element. Conformance is discussed in Section 5.9.5.3.

Administering agencies: The administering agency for these state requirements is the County of San Diego.

California Department of Conservation Farmland Mapping and Monitoring Program (Assembly Bill 966 (Lehman), Chapter 13, Statutes of 1982. The CDOC administers the Farmland Mapping and Monitoring Program (FMMP), which was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). FMMP has the purpose to provide data for use in planning the present and future of California's agricultural land resources, and applies the NRCS soil classifications to identify agricultural lands and designations. The CDOC has a minimum mapping unit of ten acres, with smaller than ten-acre parcels being absorbed into the surrounding classifications.

The list below provides a comprehensive description of all the categories mapped by the CDOC:

- **Prime Farmland.** Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date to qualify as "Prime Farmland."

- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

- **Unique Farmland.** Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date. Unique Farmland also excludes abandoned orchards.

- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

- **Urban and Built-up Land.** Land occupied by structures with a building density of at least 1

unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- **Other Land.** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

5.9.5.3 Local

The County of San Diego General Plan, adopted in 1979, reflects the values and contains the goals of the community with respect to development. The General Plan is general in nature and provides a vision of the future. The General Plan contains an evaluation of existing conditions and provides long-term goals and policies to guide growth and development for the next 20 to 30 years. The General Plan is implemented by the County through its zoning, subdivision ordinances, specific plans, growth management policies, planned development districts, development agreements, development review, code enforcement, land use database, capital improvement programs, environmental review procedures, building and housing codes, and redevelopment plans.

The project site is governed by the generally applicable goals, objectives and policies in the General Plan, as well as those that apply specifically to the Otay Subregional Plan and the East Otay Mesa Business Park Specific Plan. The proposed PPEC project is compatible with these plans, as further identified below.

San Diego County General Plan/Otay Subregional Plan Goals and Policies

GOALS

The Subregional Plan goals form the basic framework upon which the subsequent and more specific policies have been developed.

A. LAND USE GOAL: Provide a land use pattern sensitive to the opportunities and the constraints of the subregion.

   1) the planned second international border crossing, the State Correctional Facility and the increased industrial development immediately cross the Mexican Border have increased development pressures on the subregion in general and on Otay Mesa in particular, and

   2) Otay Mesa contains large, level, undeveloped and relatively inexpensive parcels of land, and is located near a large labor pool, moderately priced housing and a general aviation airport - which makes it highly suitable for large scale industrial development, and

3) the anticipated development of Otay Mesa represents potentially significant economic benefits to the subregion, and

4) the subregion contains much valuable agricultural land, which, although adversely affected by high water and labor costs, should be encouraged during the extended build out period of Otay Mesa.

IT IS THE GOAL OF THE COUNTY OF SAN DIEGO TO WORK WITH THE PRIVATE SECTOR IN CAPITALIZING ON THE UNIQUE DEVELOPMENT OPPORTUNITIES EXISTING NEAR THE MEXICAN BORDER WHILE CONCURRENTLY ENCOURAGING INTERIM AGRICULTURAL PRODUCTION AS MUCH AS ECONOMICALLY FEASIBLE.

B. PUBLIC SERVICES AND FACILITIES GOAL: Provide adequate and equitably financed public services and facilities.

1) most of the subregion is presently undeveloped with only very limited services and facilities, and

2) the orderly and cost effective development of the Otay Mesa requires that public services and facilities be provided in a planned manner involving cooperation and coordination on the part of all affected agencies with the private sector, and

3) local government cannot be expected to have the fiscal resources required to finance most needed services - property owners and developers will therefore be expected to bear these costs, and

4) the economic feasibility of the Otay Mesa is largely dependent upon maintaining land costs which will attract developers and investors in competition with other industrial areas along the International Border with Mexico.

IT IS THE GOAL OF THE COUNTY OF SAN DIEGO THAT PUBLIC SERVICES AND FACILITIES BE PROVIDED IN A PLANNED, ORDERLY FASHION AND THAT THEY WILL BE PHASED IN RESPONSE TO EVOLVING AND CHANGING MARKET DEMANDS AS WELL AS THE SERVICE CAPACITIES OF PROVIDER AGENCIES - AND FINANCED THROUGH THE EQUITABLE PARTICIPATION OF ALL AFFECTED PROPERTY OWNERS AND DEVELOPERS.

C. CIRCULATION GOAL: Provide a circulation network capable of handling subregional traffic.

1) transportation facilities have an important effect on community character in terms of design, location and environmental impacts, and

2) the Otay Mesa area in particular, will at ultimate build out generate substantial traffic volumes, and

3) the second international border crossing will also impact the local and regional road and highway network, and

4) the industrial character of expected development of the Otay Mesa will require rail freight access at some time in the future, and

5) there is an increasing need for public and non-motorized modes of travel,

IT IS THE GOAL OF THE COUNTY OF SAN DIEGO TO PLAN FOR THE ORDERLY DEVELOPMENT OF AN ULTIMATE HIGHWAY, STREET AND RAIL TRANSPORTATION NETWORK ADEQUATE TO HANDLE SUBREGIONAL TRAFFIC AT ACCEPTABLE SERVICE LEVELS AND CAPABLE OF ACCOMMODATING AUTOMOBILE AND TRUCK AS WELL AS PUBLIC AND NON-MOTORIZED MODES OF TRAVEL WITH THE SUBREGION.

D. CONSERVATION GOAL: Protect environmental resources.

1) the subregion contains vernal pools, endangered plants and wildlife habitats which are not suitable for urbanization, and

2) Resource Conservation Areas have been identified to help protect valuable resources throughout the area,

IT IS THE GOAL OF THE COUNTY OF SAN DIEGO TO PROTECT THE ENVIRONMENTAL RESOURCES DESIGNATED AS "RESOURCE CONSERVATION AREAS" ON THE CONSERVATION ELEMENT.

POLICIES

A. LAND USE:

1) ADOPT GENERAL PLAN CATEGORIES

i. the Otay Subregional Plan must conform to the County General Plan, and

ii. the General Plan contains a full description of the land use designations which will be used to implement each of the County's Community and Subregional Plans,

THE LAND USE CATEGORIES AND DESIGNATIONS CONTAINED IN THE COUNTY GENERAL PLAN LAND USE ELEMENT ARE HEREBY ADOPTED BY REFERENCE AND WILL BE USED TO IMPLEMENT THIS SUBREGIONAL PLAN.

2) TREAT THE OTAY MESA AS A SINGLE PLANNING AND DEVELOPMENT UNIT

i. the Otay Mesa represents an unusual opportunity to plan a major regional and international industrial center in a comprehensive manner,

ii. and the cost-effective development of the Otay Mesa requires that land use and facility programming and financing be done in a comprehensive manner,

THE COUNTY WILL WORK WITH ALL AFFECTED PARTIES IN BOTH THE PUBLIC AND PRIVATE SECTORS TO MONITOR THE DEVELOPMENT OF THE OTAY MESA ON A CONTINUING BASIS AND TO MAKE SUCH CHANGES IN POLICIES, PLANS, AND REGULATIONS AS ARE NECESSARY TO MAINTAIN ITS DEVELOPMENT FEASIBILITY AND MARKET COMPETITIVENESS.

3) DEVELOP INDUSTRIAL DESIGN CRITERIA

   i. the area proposed for industrial development is located near the international border, and

   ii. maintaining a certain quality and cohesiveness of development will make the area more attractive and marketable, and

   iii. efforts will be made to achieve acceptable design standards without unreasonable cost,

   ALL PROPOSED INDUSTRIAL DEVELOPMENT SHOULD COMPLY WITH THE DESIGN CRITERIA TO BE CONTAINED IN THE PROPOSED M56, MIXED INDUSTRIAL USE REGULATIONS.

4) DISCOURAGE POLLUTING INDUSTRIES

   i. keeping the industry along the border pollution and nuisance free will make the area more attractive and marketable, and

   ii. consideration should be given to residential areas immediately across the border,

   THE COUNTY WILL DISCOURAGE INDUSTRIES THAT DISPLAY POLLUTION OR OTHER NUISANCE CHARACTERISTICS FROM LOCATING NEAR THE MEXICAN BORDER.

5) PHASE DEVELOPMENT ACCORDING TO AVAILABLE PUBLIC SERVICES AND FACILITIES

   i. development coordinated with the planned expansion of public services and facilities is not economical, and

   ii. adequate services and facilities will not become available throughout the entire plan area for a considerable period of time, and

   iii. premature development regardless of plan designation, is not only uneconomical, but may also disrupt carefully prepared capital improvement plans,

   THE COUNTY WILL SUPPORT WELL COORDINATED DEVELOPMENT, IN ACCORDANCE WITH AN ADOPTED FACILITIES FINANCING PLAN.

6) SPECIFIC PLAN AREAS: East Otay Mesa Specific Plan Area

   Description

   i. The East Otay Mesa Specific Plan Area (SPA) encompasses an area of approximately 3,374 acres extending generally from the Otay River Valley southerly to the international border. The area is bordered on the west by the City of San Diego and on the east by the San Ysidro Mountains. The focus of this Specific Plan is industrial development. The purpose of the Specific Plan is to establish a planning framework for a comprehensive approach to the development of the East Otay Mesa area. Development of this area shall be in accordance with all County goals, objectives and policies.

   ii. A majority of the SPA area is comprised of the generally level terrain of Otay Mesa. This mesa is one of a series of marine wave-cut terraces, typical of the San

Diego region. Two major canyons, O'Neal and Johnson, have been deeply cut into the northern most edge of the mesa and drain into the Otay River located within the Otay Valley. The Otay Valley, comprising the northerly portion of the area, contains at its center the relatively flat Otay River floodplain. The topography to the east of the mesa is characterized by low, gently rolling hills which gradually evolve into the deep slopes of the San Ysidro Mountains. Most of the land is either vacant or under cultivation.

B. PUBLIC SERVICES AND FACILITIES

1) FORMULATE PUBLIC FACILITIES PROGRAM AND FINANCING PLAN

i. a full range of facilities and services will be required for the orderly and cost-effective development of the Otay Mesa, and

ii. the equitable financing of such facilities and services will directly influence the development feasibility and marketability of Otay Mesa, and

iii. there is a need to determine which agencies will be responsible for providing various facilities and services during the stages of development of the Otay Mesa, and

iv. the private sector will have primary responsibility for financing needed facilities and services, and

v. appropriate studies should be undertaken to determine service and facilities requirements and costs, alternative methods of financing, and the most efficient manner in which affected agencies can provide such services and facilities,

THE COUNTY WILL ENCOURAGE AND SUPPORT PUBLIC SERVICE AND FACILITY PLANNING AND PROGRAMMING FOR THE OTAY MESA AND WILL WORK WITH ALL AFFECTED PROPERTY OWNERS AND DEVELOPERS TO ASSURE EQUITABLE FINANCING OF SUCH SERVICES AND FACILITIES.

2) RESOLVE WATER DEMAND AND SUPPLY

i. there may be a reduction in the supply of Colorado River water sometime between 1985 and 1990, and

ii. high water costs have acted as a deterrent to future agricultural use, and

iii. high water costs may also affect proposed industrial development on Otay Mesa, and

iv. reclaimed water may supplement future supplies, and

v. services are generally most efficient when provided by one single water agency,

THE COUNTY WILL ENCOURAGE AND SUPPORT STUDIES TO DETERMINE ULTIMATE WATER NEED, THE MOST LOGICAL SERVICE PROVIDER, COOPERATION BETWEEN AGENCIES AND THE USE OF RECLAIMED WATER.

C. CIRCULATION

1) DESIGN LOCAL ROADS WITH THE NATURAL LANDSCAPE

i. The design and construction of roads have an important visual effect on the surrounding landscape and may cause significant environmental impacts in areas of rugged terrain and/or sensitive soils

THE COUNTY WILL REQUIRE THAT LOCAL ROADS BE DESIGNED WITH EMPHASIS ON SCENIC BEAUTY BY FOLLOWING NATURAL CONTOURS AND AVOIDING INAPPROPRIATE GRADING TO THE EXTENT POSSIBLE.

2) PROVIDE BICYCLE AND PEDESTRIAN NETWORK

i. Non-motorized travel is an integral part of the Subregional Transportation System

THE COUNTY WILL PROMOTE A BICYCLE NETWORK THAT SERVES THE SUBREGION FOR SAFE CYCLING AND ALSO CONFORMS TO THE OVERALL REGIONAL NETWORK. PUBLIC PEDESTRIAN TRAILS SYSTEMS SHALL BE ENCOURAGED THROUGHOUT THE SUBREGION.

D. CONSERVATION

1) PROTECT RESOURCE CONSERVATION AREAS

i. the U.S. Fish and Wildlife Service, the Army Corps of Engineers, and the California Department of fish and Game have identified vernal pools as critically sensitive habitats on Otay Mesa, and

ii. there are additional areas within the Subregion that contain endangered plants and Golden Eagle habitats,

THE COUNTY WILL PROTECT THE SENSITIVE BIOLOGICAL RESOURCES WITHIN THE RESOURCE CONSERVATION AREAS ADOPTED IN THE CONSERVATION ELEMENT (SEE APPENDIX A).

2) DEVELOP ADEQUATE PRESERVATION METHODS

i. the County already has adopted a plan to protect the high priority vernal pools on Otay Mesa by "V" (Vernal Pool) and "P" (Planned Development) special area designation, and

ii. similar special area designations will be applied to the other RCAs which will require CEQA review and Major Use Permits,

THE COUNTY WILL CAREFULLY REVIEW ANY PROPOSED DEVELOPMENT IN THE RCAs THROUGH THE ENVIRONMENTAL REVIEW PROCESS AND MAJOR USE PERMIT PROCESS REQUIRED BY THE "V" AND "P" SPECIAL AREA DESIGNATIONS.

The PPEC project is consistent with applicable Otay Subregional Plan goals and policies.

East Otay Mesa Specific Plan

The Specific Plan is intended to promote coordinated development of individual parcels consistent with policies designed to address land use, conservation and open space, circulation, urban design, and public facilities as well as site planning and design guidelines. The Specific Plan includes regulations governing use, intensity and bulk; site access; parking; grading; building location and orientation; usable open space; service areas; fencing, walls and hedges; lighting; landscaping; and architectural standards.

The PPEC project is consistent with applicable Specific Plan development standards and regulations.

County of San Diego Zoning Ordinance

This document includes the regulatory and penal ordinances, as well as the administrative ordinances of the County of San Diego, applicable to the project that are not expressly identified in the East Otay Mesa Business Park Specific Plan. A list of applicable County of San Diego Zoning Ordinance sections is included in Table 5.9-3, LORS and Compliance for Land Use. As provided in this table, the PPEC Project is consistent with the Zoning Code.

The PPEC project is consistent with applicable Zoning Ordinance requirements.

TABLE 5.9-3
LORS AND COMPLIANCE FOR LAND USE

Conformance (Section)	LORS	Jurisdiction	Applicability/Compliance
Federal			
No federal LORS have been identified			
State			
5.9.5.2	California Public Resources Code *25523 (a); 20 CCR **1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Appendix B, Part (I) (3) and (4)	CEC	Evaluate compatibility of the proposed project with relevant land use plans. This AFC includes such evaluation.
5.9.5.2	California State Planning Law, Government Code Section 65300 through 65302	County of San Diego Department of Planning and Land Use	Requires each city and county to adopt a comprehensive, general plan for the physical development of the county or city. Identify required contents of General Plan. San Diego County has adopted a General Plan. No project action is required.
5.9.1.2	California Department of Conservation (CDOC) Farmland Mapping and Monitoring Program (Assembly Bill 966 (Lehman), Chapter 13, Statutes of 1982	CDOC	Evaluate impacts to Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as defined by the CDOC. The project would result in no impacts to Prime Farmland, Farmland of Statewide Importance, and Unique Farmland.
Local			
5.9.1.3, 5.9.5.3	County of San Diego General Plan and Otay Subregional Plan,	County of San Diego Department of Planning and Land Use	Comply with all applicable land use provisions of the General Plan and Otay Subregional Plan. The PPEC project is consistent with land use provisions of the General Plan and Subregional Plan.

Conformance (Section)	LORS	Jurisdiction	Applicability/Compliance
5.9.5.3	County of San Diego General Plan and Otay Subregional Plan	County of San Diego Department of Planning and Land Use	Comply with applicable General Plan goals and policies. The PPEC project is consistent with the Subregional Plan.
5.9.1.3	County of San Diego Zoning Ordinance and East Otay Mesa Specific Plan	County of San Diego Department of Planning and Land Use	Comply with applicable Specific Plan development standards and requirements, and all applicable County Zoning Ordinance requirements. The PPEC project will comply will all applicable County ordinances and development standards in the Specific Plan
5.9.1.3	County of San Diego East Otay Mesa Specific Plan	County of San Diego Department of Planning and Land Use	Obtain required discretionary approvals (Major Use Permit). This requirement is not applicable given CEC jurisdiction
5.9.1.3	County of San Diego Noise Ordinance (Section 36.404)	County of San Diego Department of Planning and Land Use	Regulates construction-related noise to reduce impacts on adjacent uses in accordance with the County's Noise Ordinance. The project incorporates construction noise regulations to reduce noise impacts.
5.9.1.4	County of San Diego South County Subarea Plan – Multiple Species Conservation Program	County of San Diego Department of Planning and Land Use	Provides a comprehensive, long-term habitat conservation plan developed to address the needs of multiple species and the preservation of natural vegetation communities in southwestern San Diego County. The project is consistent with the MSCP.

Source: County of San Diego General Plan (1979), Otay Subregional Plan (1994), Zoning Ordinance (1978), East Otay Mesa Specific Plan (2010), and South County Subarea Plan – Multiple Species Conservation Program (1997)

5.9.5.4 Involved Agencies and Agency Contacts

Agency contacts for agencies with jurisdiction to issue applicable permits and/or enforce LORS related Land Use regulations are provided in Table 5.9-4, Agency Contacts. A complete list of applicable County of San Diego Ordinances is included in Table 5.9-3, LORS and Compliance for Land Use.

TABLE 5.9-4
AGENCY CONTACTS

Agency	Contact	Title	Telephone
County of San Diego, Department of Planning and Land Use 5201 Ruffin Road, Suite D San Diego, CA 92123-4310	Rosemary Rowan*	Planning Manager	619-694-2976 rosemary.rowan@sdcounty.ca.gov
County of San Diego, Department of Planning and Land Use 5201 Ruffin Road, Suite D San Diego, CA 92123-4310	Daniella Rosenberg	Environmental Planner III	(858) 694-3829 daniella.rosenberg@sdcounty.ca.gov
County of San Diego, Department of Planning and Land Use 5201 Ruffin Road, Suite D San Diego, CA 92123-4310	Leanne Carmichael	Regional Planner	(858) 694-3739 leann.charmichael@sdcounty.ca.gov

Agency	Contact	Title	Telephone
County of San Diego, Department of Public Works 5201 Ruffin Road, Suite D San Diego, CA 92123-4310	Ed Sinsay	Civil Engineer	(858) 694-2486 Edwin.sinsay@sdcounty.ca.gov
County of San Diego, Department of Public Works 5201 Ruffin Road, Suite D San Diego, CA 92123-4310	Rene Vidales	Civil Engineer	(858) 694-3246 Rene.vidales@sdcounty.ca.gov

*County Official to serve as contact for CEC Staff.

5.9.5.5 County of San Diego Permits and Approvals Required

The CEC will consider consistency of the project with applicable County permit requirements.

Table 5.9-5, Permits and Approvals, lists the permits and approvals that may be required, but for the exclusive authority of the CEC to site this project.

TABLE 5.9-5
PERMITS AND APPROVALS

Issuing Agency	Section	Permit or Approval	Type
County of San Diego	Specific Plan Table 3.1-1	Major Use Permit	Discretionary
County of San Diego	Chapter 2, Division 7, Title 8 of the San Diego County Code	Grading Permits	Discretionary
County of San Diego	Title 9 of the San Diego County Code	Building, and Construction Permits	Non-Discretionary
County of San Diego	Chapter 6, Division 1 Title 7 of the San Diego County Code	Encroachment Permit	Non-Discretionary
County of San Diego	Chapter 6, Division 1 Title 7 of the San Diego County Code	Excavation Permit	Non-Discretionary
County of San Diego	Sec 72.75. County Code of Regulatory Ordinances	Traffic Control Plan	Non-Discretionary

5.9.6 REFERENCES

California Energy Commission. 2000a. Improvements to the Energy Commission's Energy Facility Licensing Process. March.

2000b. Energy Facility Licensing Process: Developer's Guide of Practices and Procedures. Staff Report/Draft. December 7.

California Department of Conservation. 2010. San Diego County Important Farmland 2008.

County of San Diego. 2010. Code of Administrative Ordinances.

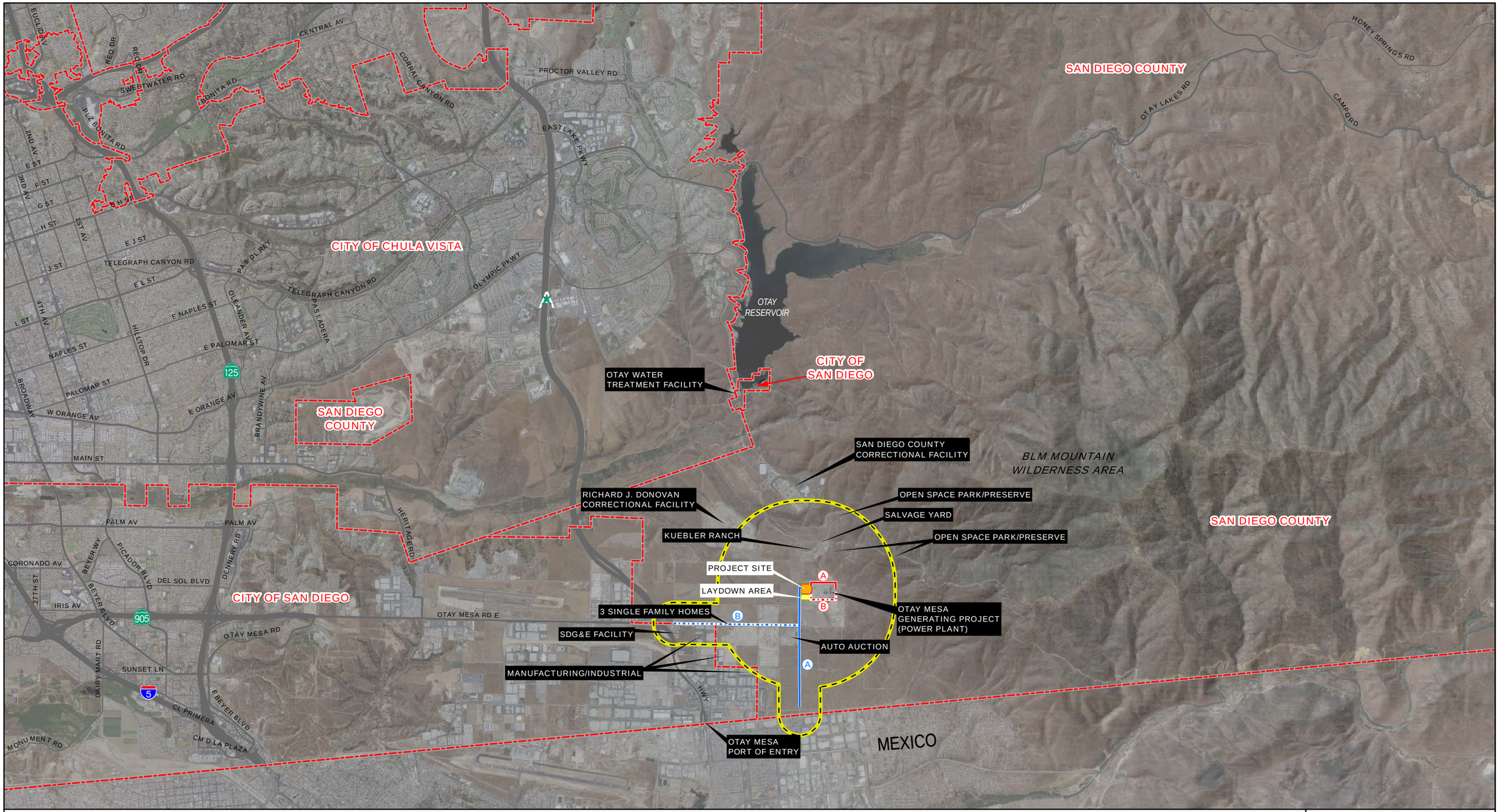
County of San Diego. 2010. Code of Regulatory Ordinances.

County of San Diego. 1979 (as updated). General Plan.

County of San Diego. 1994. Otay Subregional Plan.

County of San Diego. 2010. East Otay Mesa Business Park Specific Plan.

County of San Diego. 1978 (as updated). Zoning Ordinance.



Legend

- Jurisdictional Boundary
- One-Mile Project Site Radius and Quarter-Mile Linears Radius
- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line

N

0 3,000 6,000 Feet

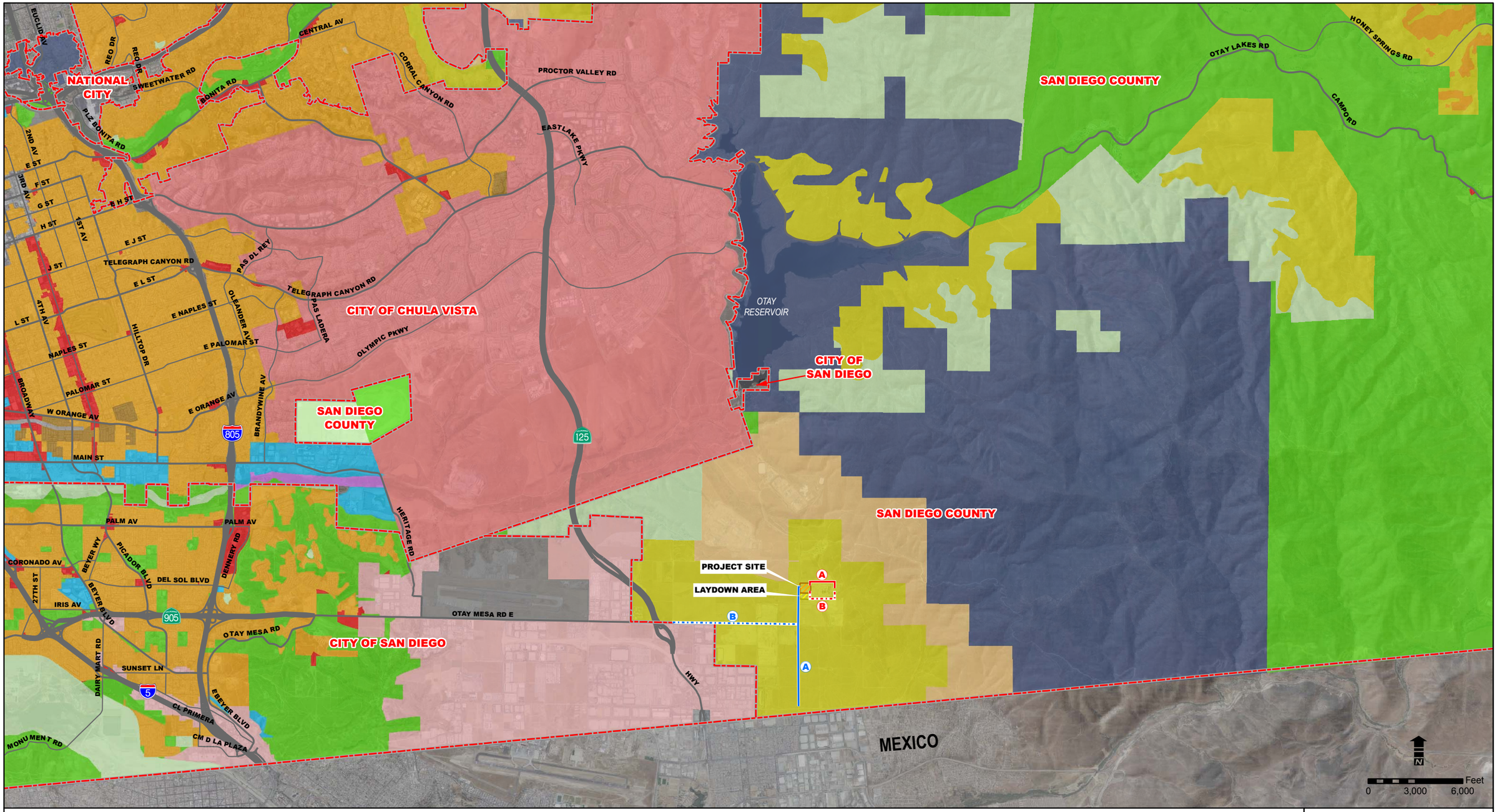
FIGURE 5.9-1
JURSIDICTIONAL BOUNDARIES AND EXISTING LAND USES SURROUNDING SITE

PIO PICO ENERGY CENTER

PROJECT NO.: 29874839
DATE: DECEMBER 2010

URS

Source: DigitalGlobe, 2009



Legend

- Jurisdictional Boundary
- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line

Zoning

- Agriculture
- Commercial
- Floodway
- Holding Area
- Industrial
- Limited Control
- Mobile Home Park
- Open Space
- Planned Community
- Planned District
- Residential
- Specific Plan
- Transportation and Utility
- Unclassified

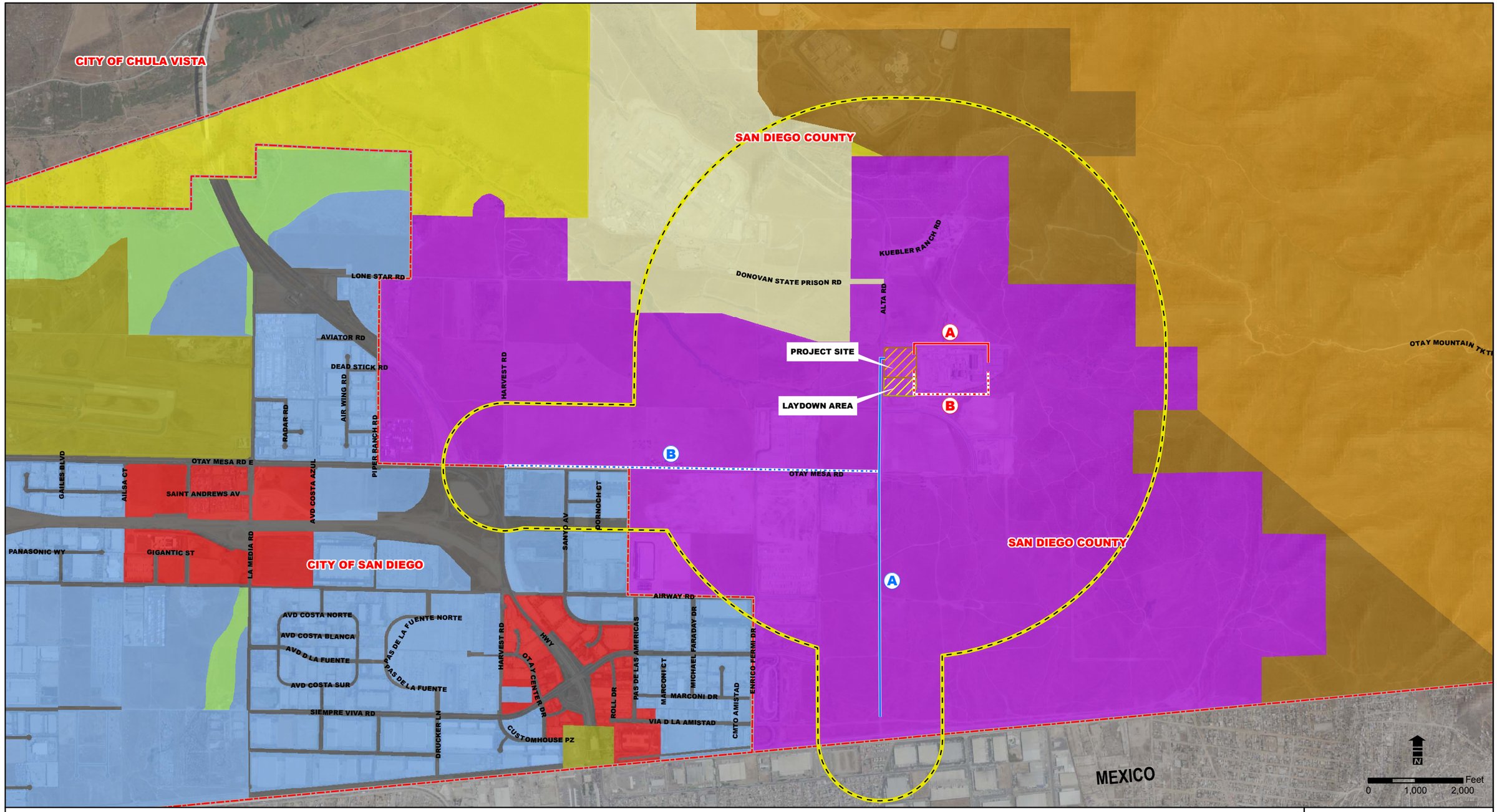
FIGURE 5.9-2
CITY AND COUNTY ZONING DESIGNATIONS

PIO PICO ENERGY CENTER

PROJECT NO.: 29874839
DATE: DECEMBER 2010

URS

Source: SanGIS (City of San Diego and County of San Diego, 2008). City of Chula Vista, 2004.



Legend

- Jurisdictional Boundary
- One-Mile Project Site Radius and Quarter-Mile Linears Radius
- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- Roads / Freeways / Transportation
- Industrial Employment
- Commercial Employment, Retail, & Services
- Park, Open Space, & Recreation
- Institutional & Public and Semi-Public Facilities
- Impact Sensitive 1 DU/4,8,20 Acres
- Public/Semi-Public Lands
- Multiple Rural Use 1 DU/4,8,20 Acres
- Estate Residential 1 DU/2,4 Acres
- Specific Plan Area

FIGURE 5.9-3
EXISTING LAND USE SURROUNDING PROJECT SITE

PIO PICO ENERGY CENTER

PROJECT NO.: 29874839
DATE: DECEMBER 2010

URS

Source: City of San Diego General Plan Land Use (2008) and General Plan for the County of San Diego (1995).

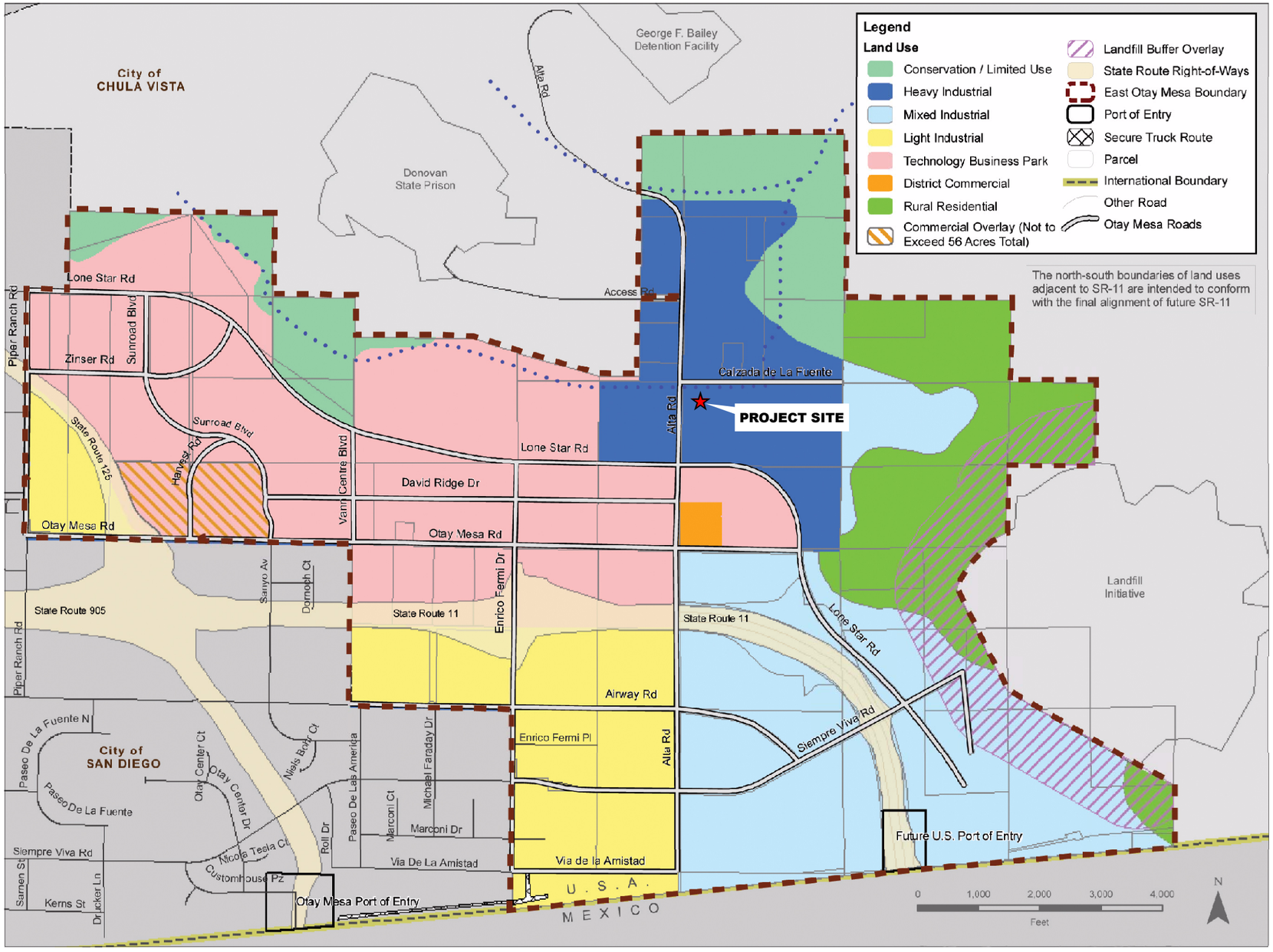
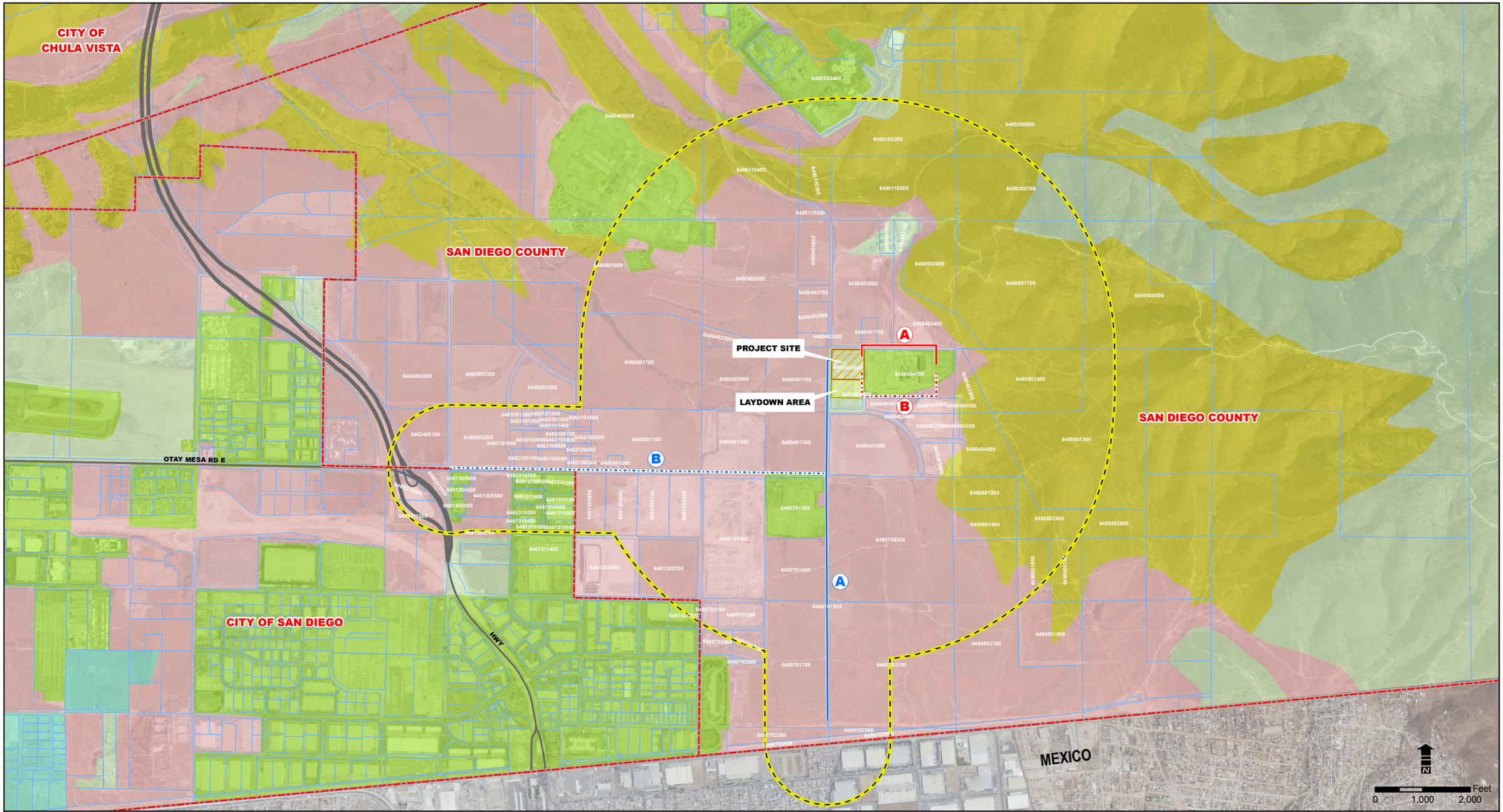


FIGURE 5.9-4
SPECIFIC PLAN LAND USE

PIO PICO ENERGY CENTER

PROJECT NO.: 29874839
DATE: DECEMBER 2010

URS



Legend

- Jurisdictional Boundary
- One-Mile Project Site Radius and Quarter-Mile Linears Radius
- Project Site
- Laydown Area
- Parcel Boundary
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line

CDOC FMMP Farmland Classifications

- Farmland of Statewide Importance
- Farmland of Local Importance
- Grazing Lands
- Other Land
- Urban and Built-Up Land

FIGURE 5.9-5
PROPERTIES WITHIN ONE-MILE OF PROJECT SITE AND QUARTER-MILE OF PROJECT LINEARS, AND FMMP DATA

PIO PICO ENERGY CENTER

PROJECT NO.: 29874839
DATE: DECEMBER 2010

URS

Source: Department of Conservation, Farmland Mapping & Monitoring Program, 2008.

Adequacy Issue: Adequate _____ Inadequate _____ **DATA ADEQUACY WORKSHEET** Revision No.: _____ Date: _____

Technical Area: **LAND USE** Project: Pio Pico Energy Center Technical Staff: _____
Project Manager: _____ Docket: _____ Technical Senior: _____

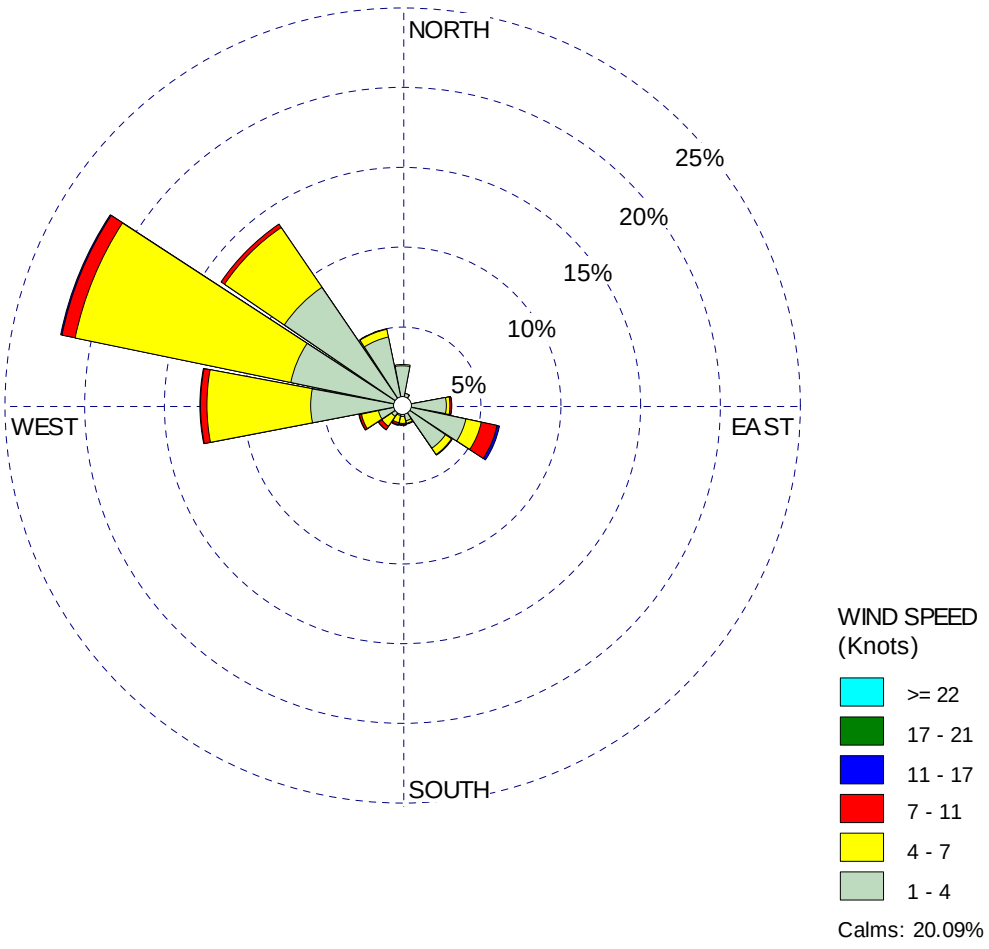
SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Section 5.9.1, Section 5.9.2, Section 5.9.3, and Section 5.9.4		
Appendix B (g) (3) (A)	A discussion of existing land uses and current zoning at the site, land uses and land use patterns within one mile of the proposed site and within one--quarter mile of any project related linear facilities. Include:	Section 5.9.1 and Table 5.9-1		
Appendix B (g) (3) (A) (i)	An identification of residential, commercial, industrial, recreational, scenic, agricultural, natural resource protection, natural resource extraction, educational, religious, cultural, and historic areas, and any other area of unique land uses;	Section 5.9.1.2 and Table 5.9-1		
Appendix B (g) (3) (A) (ii)	A discussion of any recent or proposed zone changes and/or general plan amendments; noticed by an elected or appointed board, commission, or similar entity at the state or local level;	Section 5.9.1.3, Section 5.9.1.5, and Section 5.9.1.6		
Appendix B (g) (3) (A) (iii)	Identification of all discretionary reviews by public agencies initiated or completed within 18 months prior to filing the application for those changes or developments identified in subsection (g)(3)(A)(ii); and	Section 5.9.1.7 and Table 5.9-2		
Appendix B (g) (3) (A) (iv)	Legible maps of the areas identified in subsection (g)(3)(A) potentially affected by the project, on which existing land uses, jurisdictional boundaries, general plan designations, specific plan designations, and zoning have been clearly delineated.	Figure 5.9-1, Figure 5.9-2, Figure 5.9-3, Figure 5.9-4, and Figure 5.9-5		

Appendix B (g) (3) (B)	A discussion of the compatibility of the proposed project with present and expected land uses, and conformity with any long-range land use plans adopted by any federal, state, regional, or local planning agencies. The discussion shall identify the need, if any, for land use decisions by another public agency or as part of the commission's decision that would be necessary to make the project conform to adopted federal, state, regional, or local coastal use plans, or zoning ordinances plans, land. Examples of land use decisions include: general plan amendments, zoning changes, lot line adjustments, parcel mergers, subdivision maps, Agricultural Land Conservation Act contracts cancellation, and Airport Land Use Plan consistency determinations.	Section 5.9.1, Section 5.9.2, and Section 5.9.5		
Appendix B (g) (3) (C)	A discussion of the legal status of the parcel(s) on which the project is proposed. If the proposed site consists of more than one legal, method and timetable for parcel describe the merging or otherwise combining those parcels so that the proposed project, excluding linears and temporary laydown or staging area, will be located on a single legal parcel. The merger need not occur prior to a decision on the Application but must be completed prior to the start of construction.	Section 5.9.1.2		
Appendix B (g) (3) (D)	A map at a scale of 1:24,000 and written description of agricultural land uses found within all areas affected by the proposed project. The description shall include:	Section 5.9.1.2 and Figure 5.9-5.		
Appendix B (g) (3) (D) (i)	Crop types, irrigation systems, and any special cultivation practices;	Section 5.9.1.2		
Appendix B (g) (3) (D) (ii)	Whether farmland affected by the project is prime, of statewide importance, or unique as defined by the California Department of Conservation; and	Section 5.9.1.2 and Figure 5.9-5.		

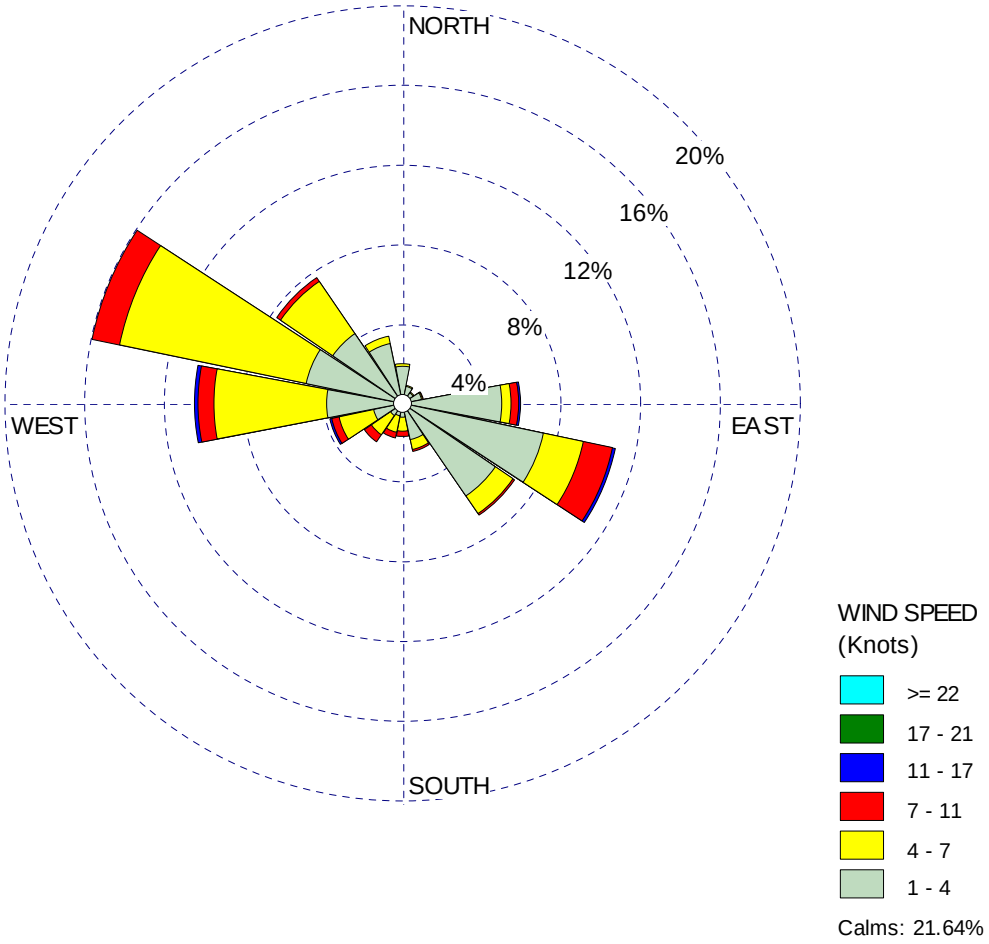
Appendix B (g) (3) (D) (iii)	Direct, direct and cumulative effects on agricultural land uses. If the proposed site or related facilities are subject to an Agricultural Land Conservation contract provide a written, copy and a discussion of the status of the expiration or canceling of such contract.	Section 5.9.1.2		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 5.9.5 Table 5.9-3, Table 5.9-4, Table 5.9-5		
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Section 5.9.5.4 and Section 5.9.5.5 Table 5.9-3, Table 5.9-4, and Table 5.9-5		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Table 5.9-4		
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 5.9.5.5		

APPENDIX G-1

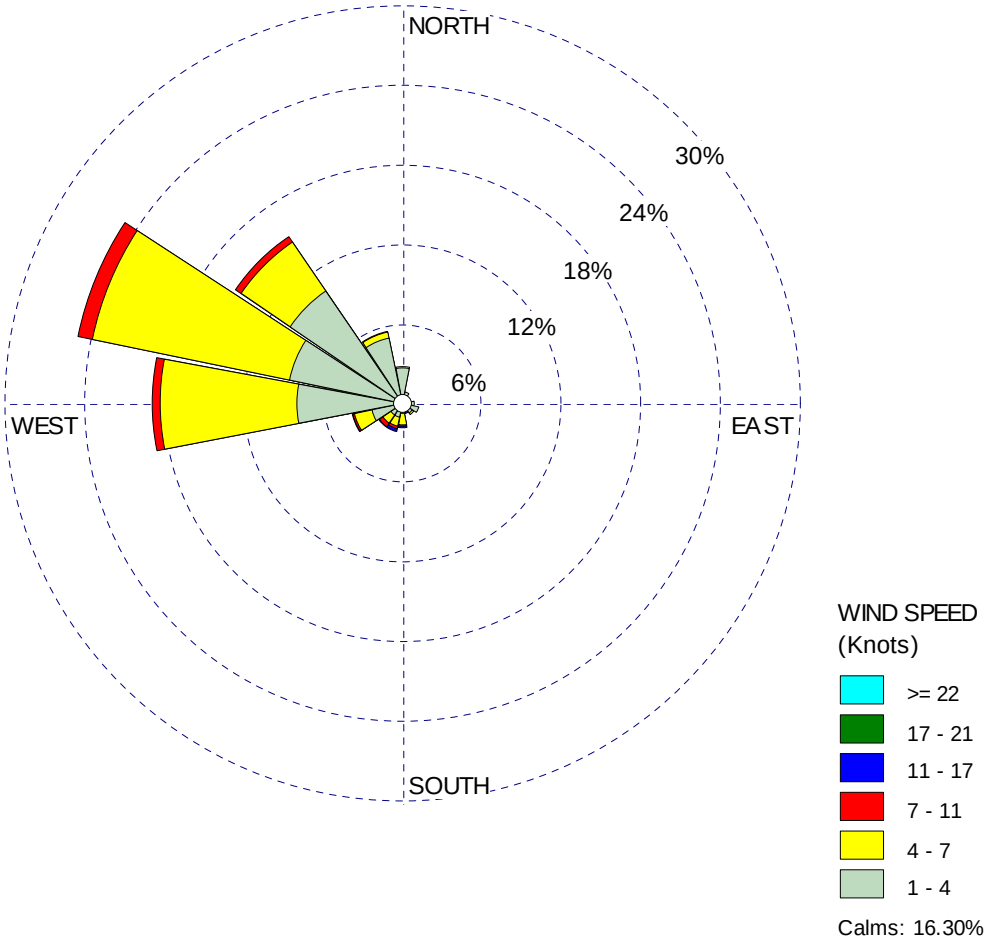
Wind Roses and Wind Frequency Distributions



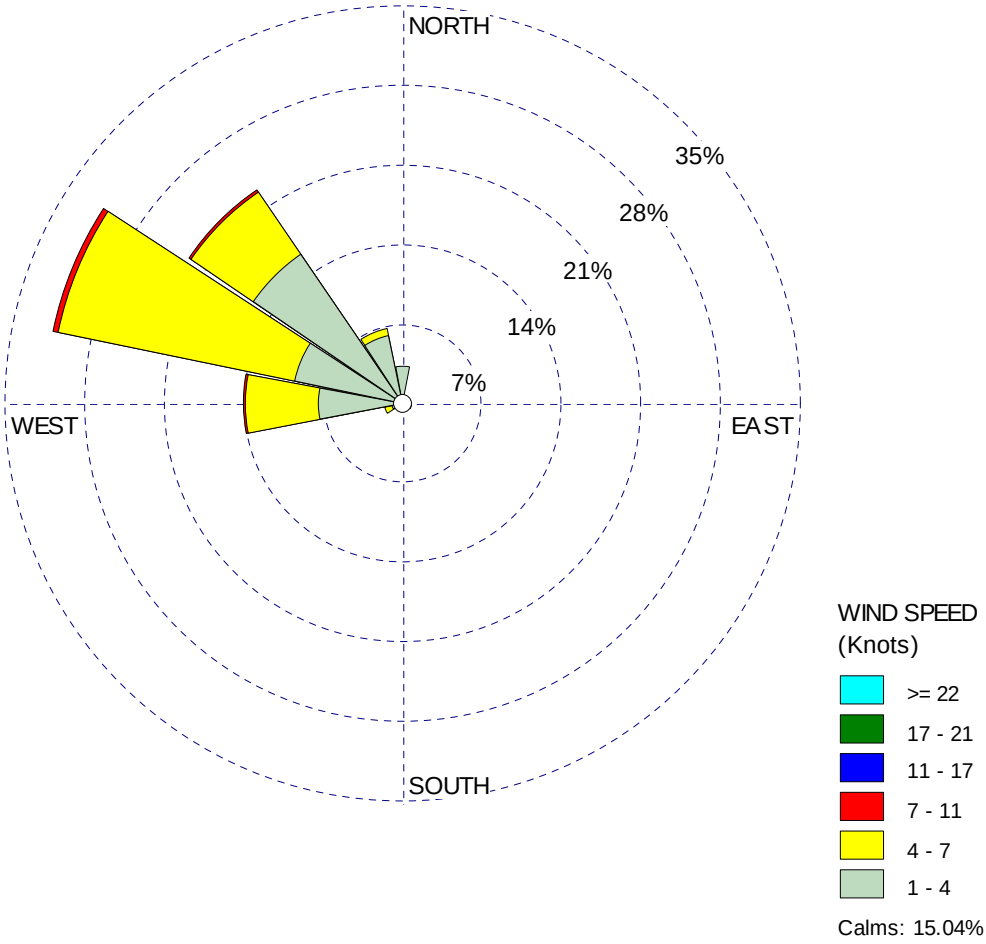
Otay Mesa - 2006



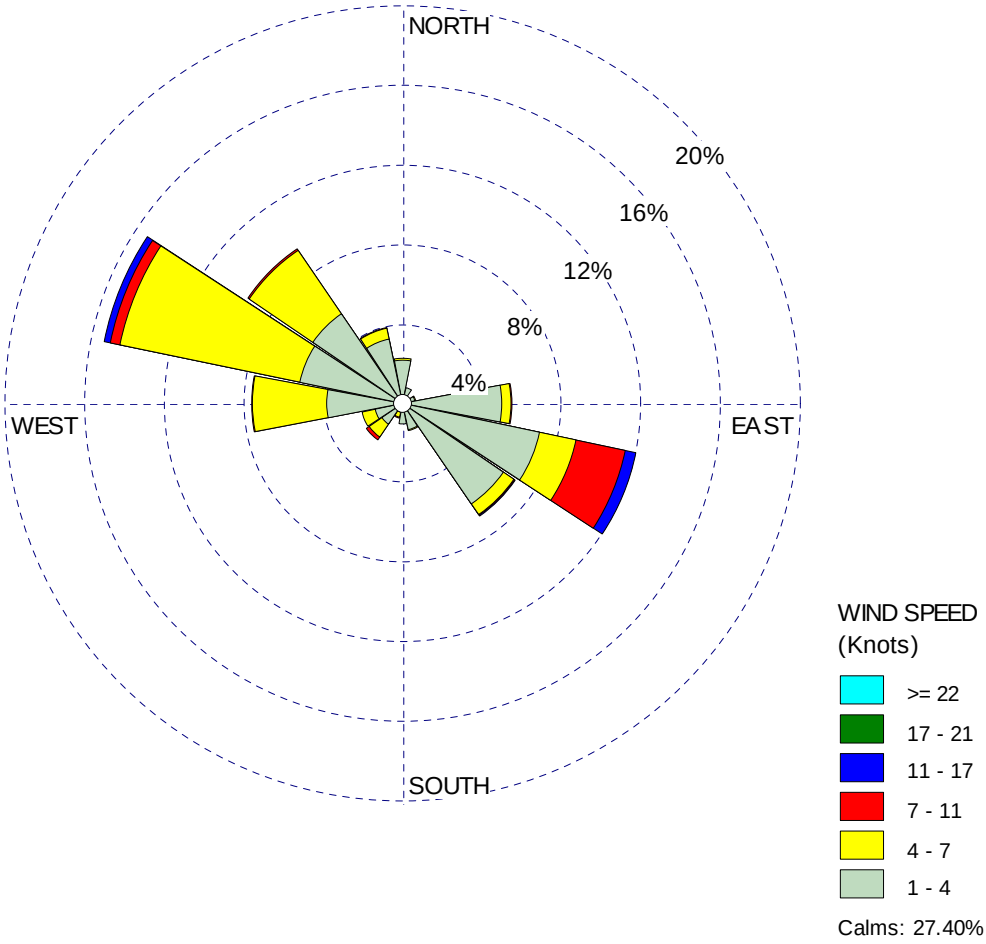
Otay Mesa – First Quarter 2006



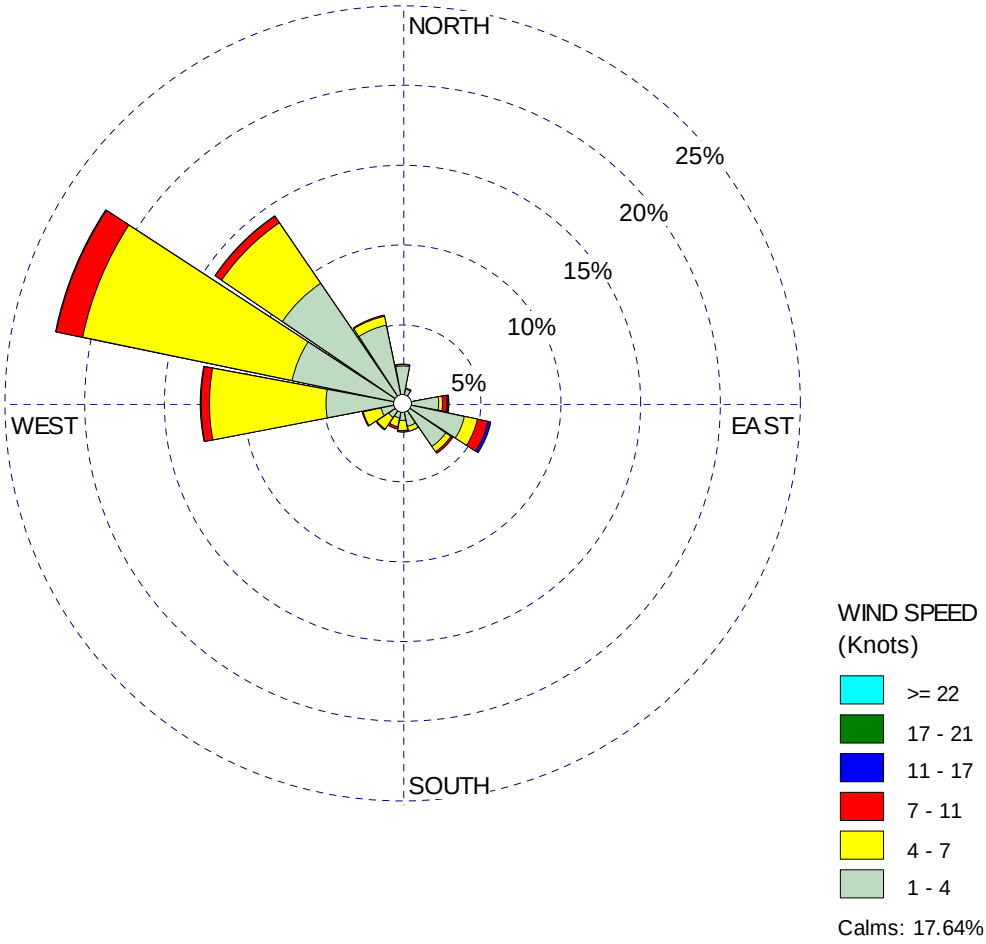
Otay Mesa – Second Quarter 2006



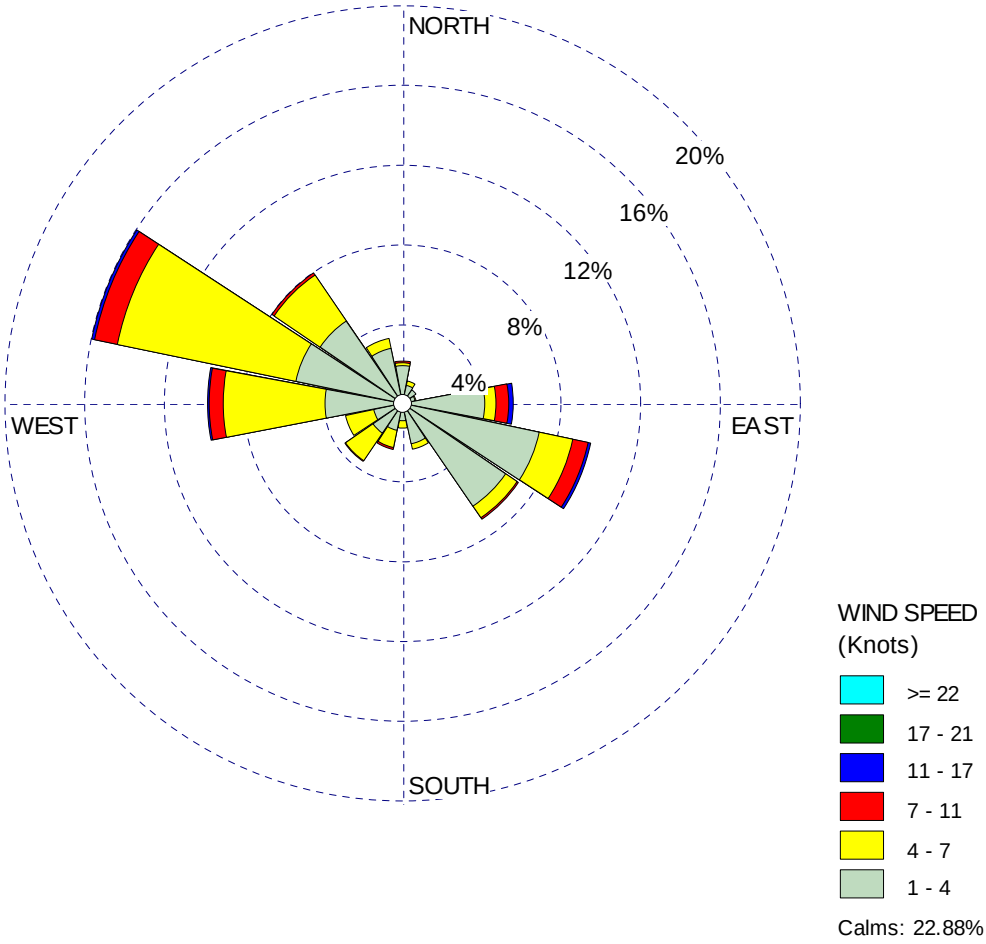
Otay Mesa – Third Quarter 2006



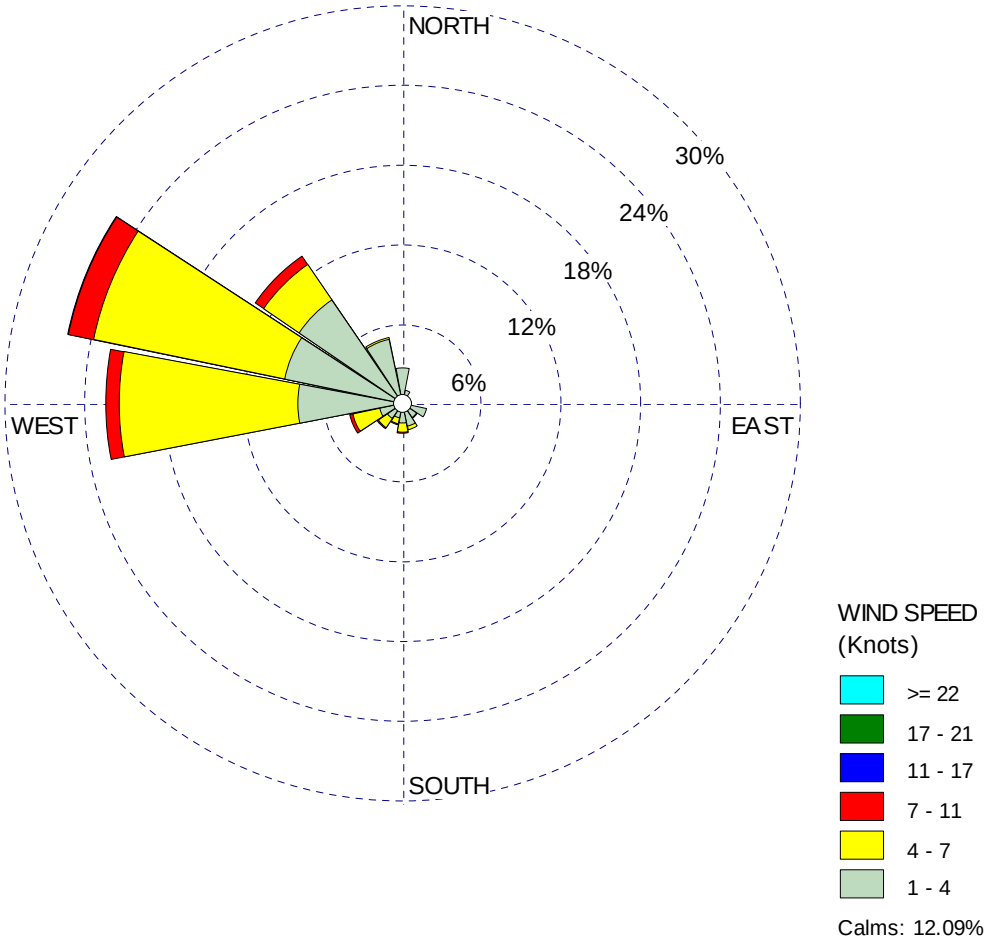
Otay Mesa – Fourth Quarter 2006



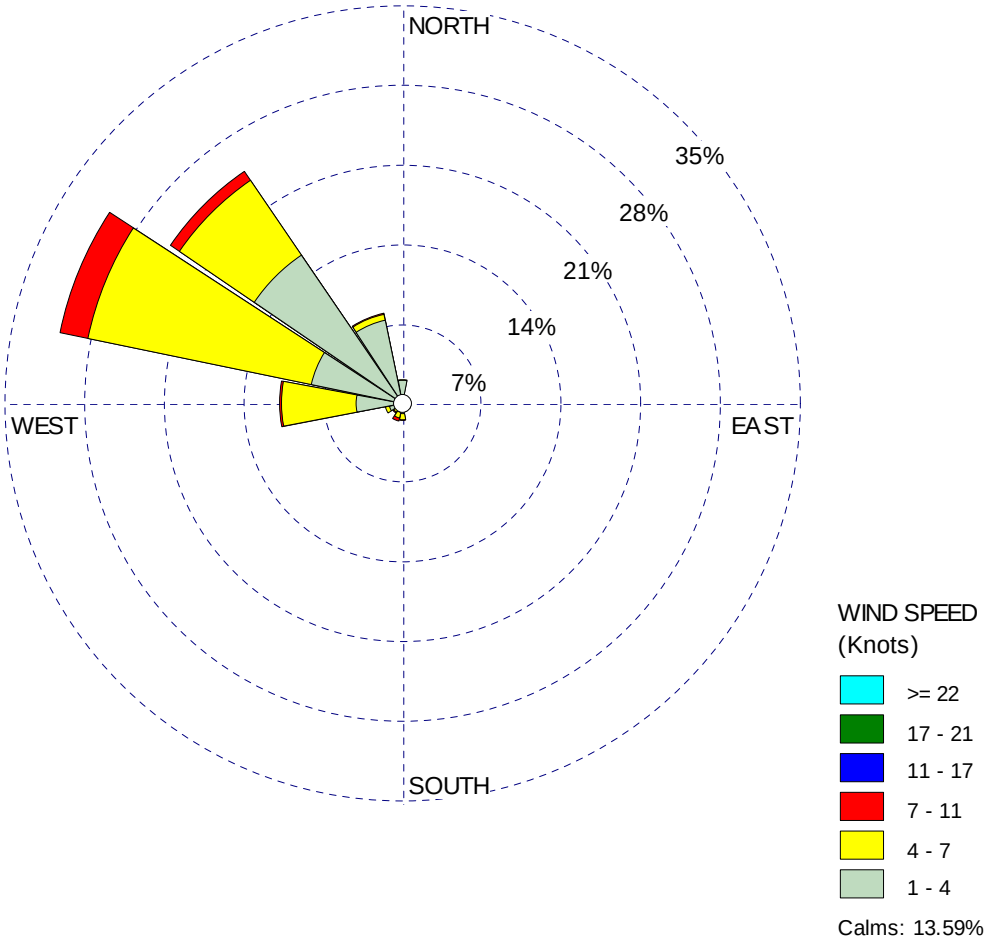
Otay Mesa – 2007



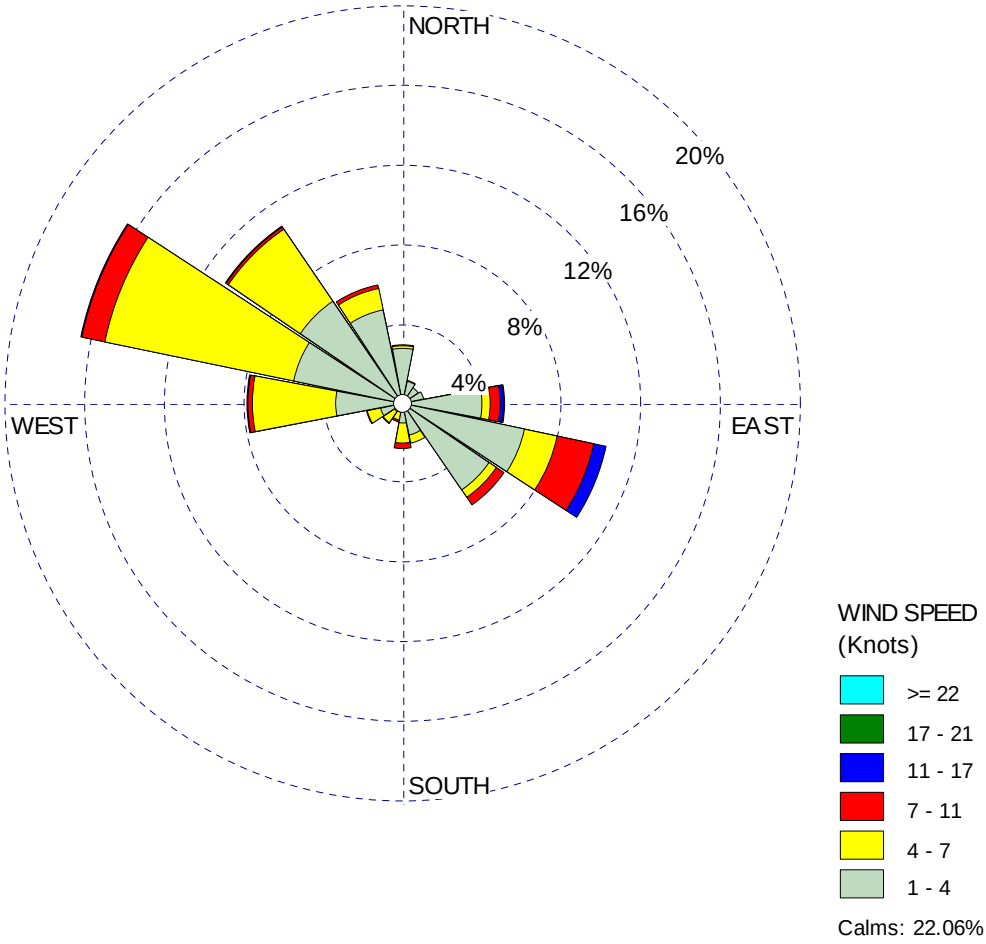
Otay Mesa – First Quarter 2007



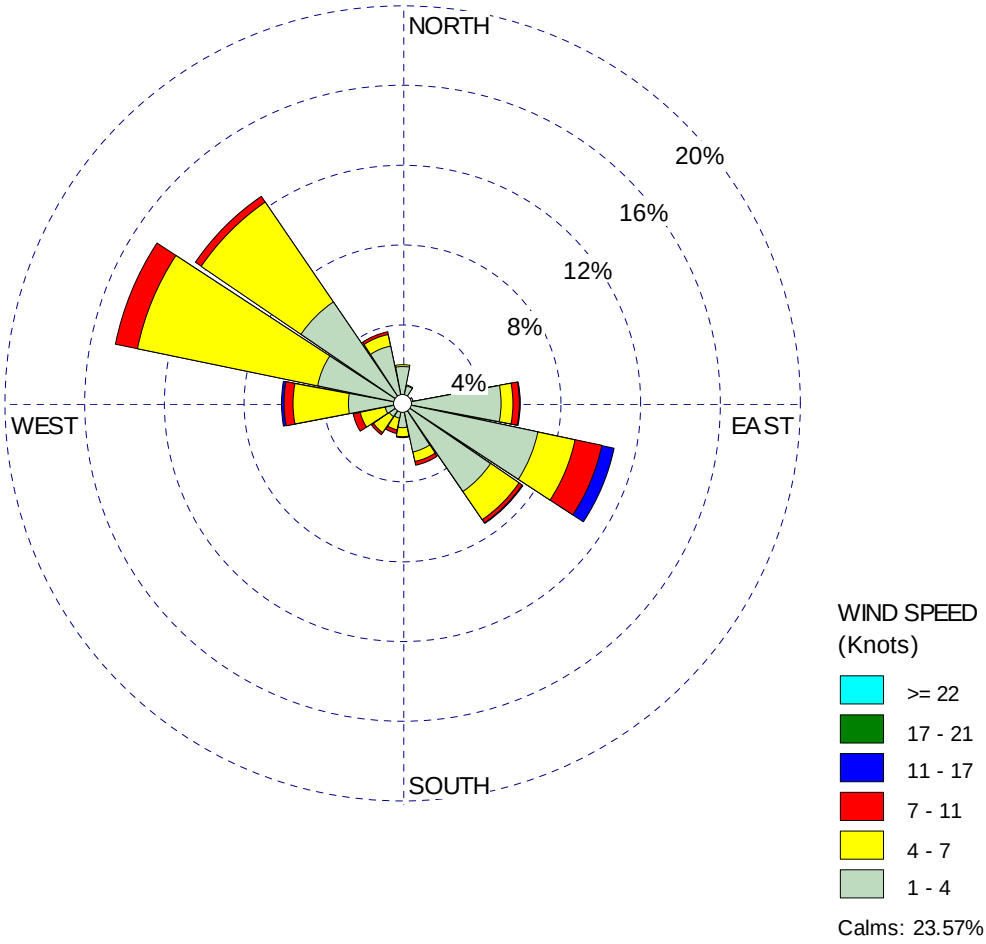
Otay Mesa – Second Quarter 2007



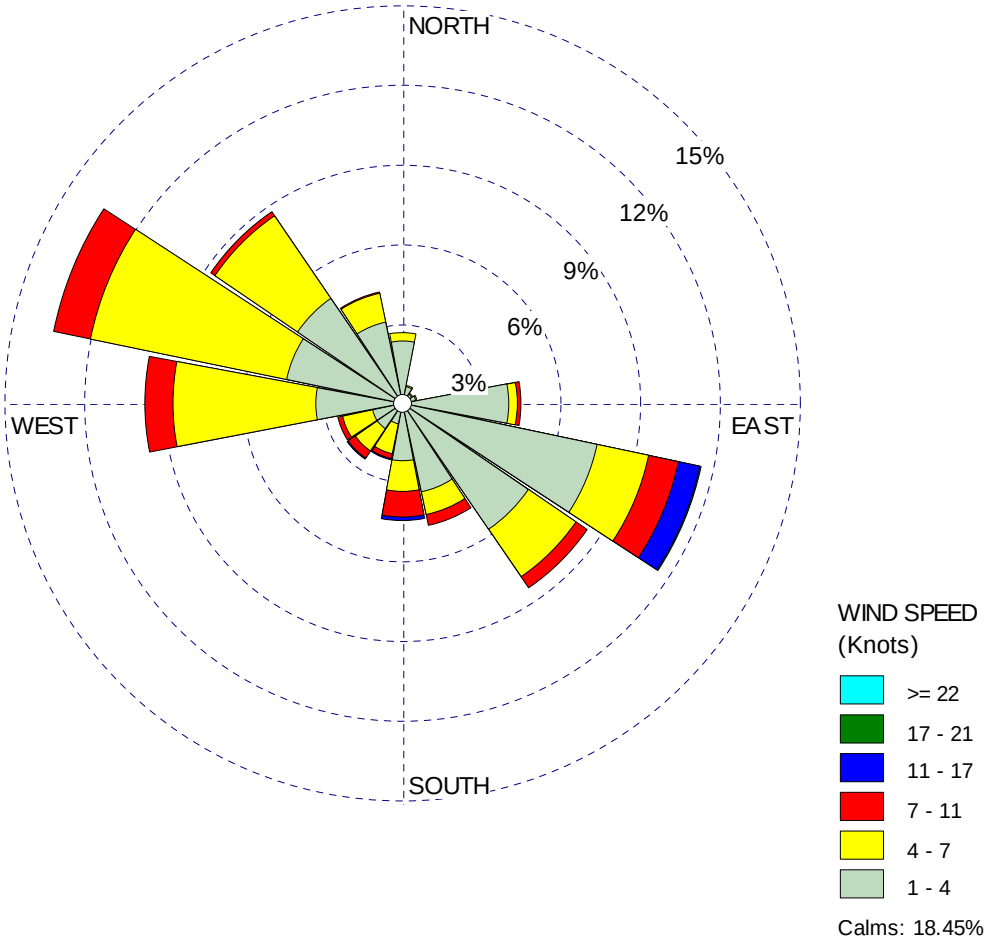
Otay Mesa – Third Quarter 2007



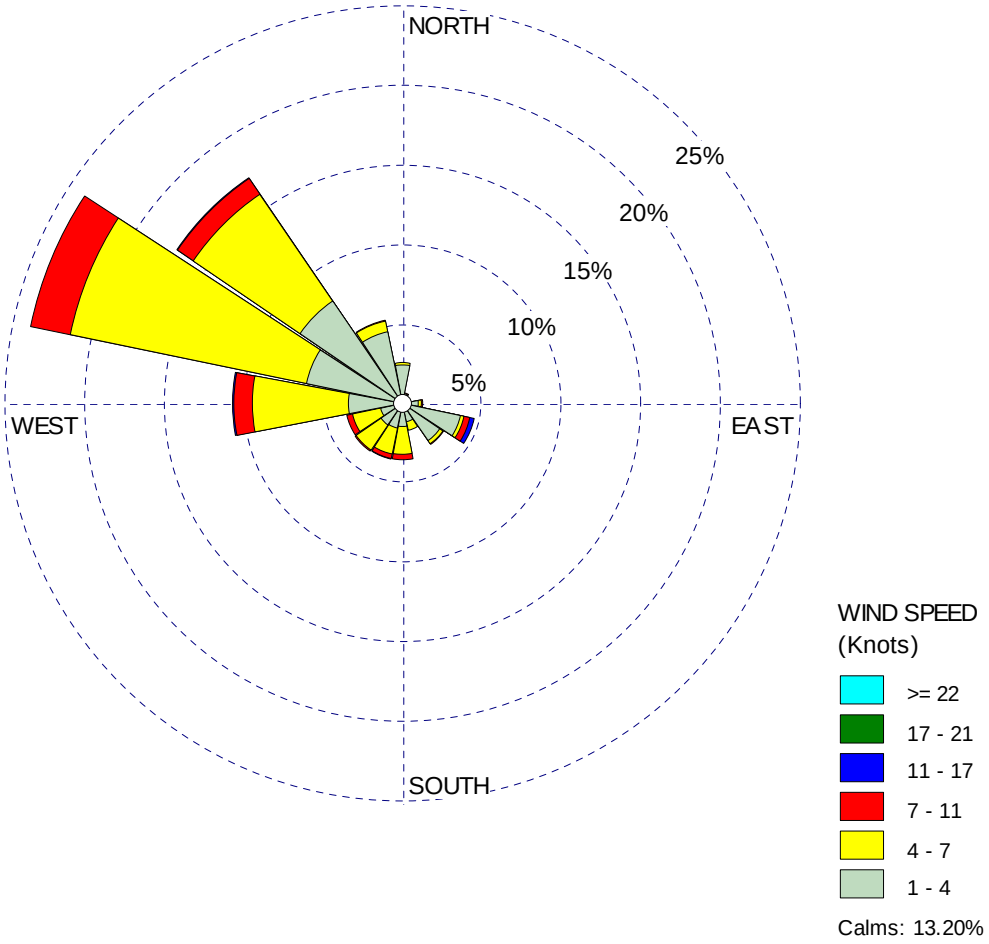
Otay Mesa – Fourth Quarter 2007



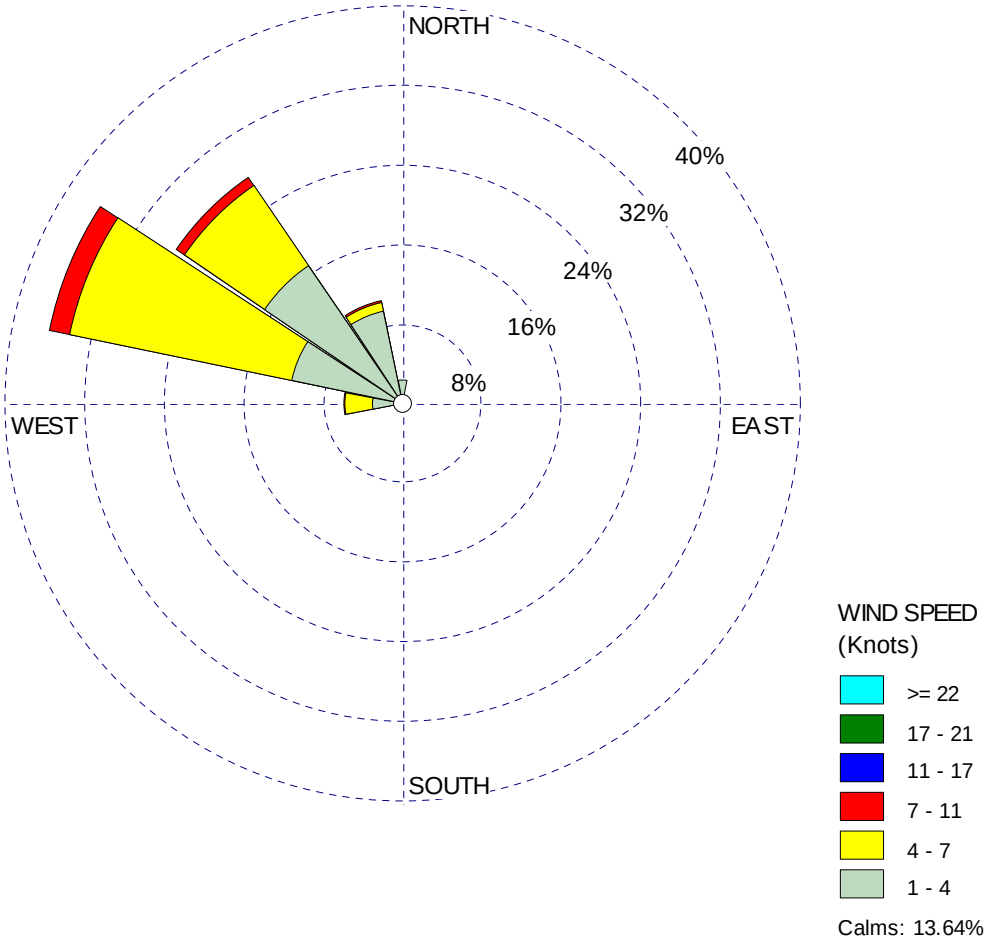
Otay Mesa – 2008



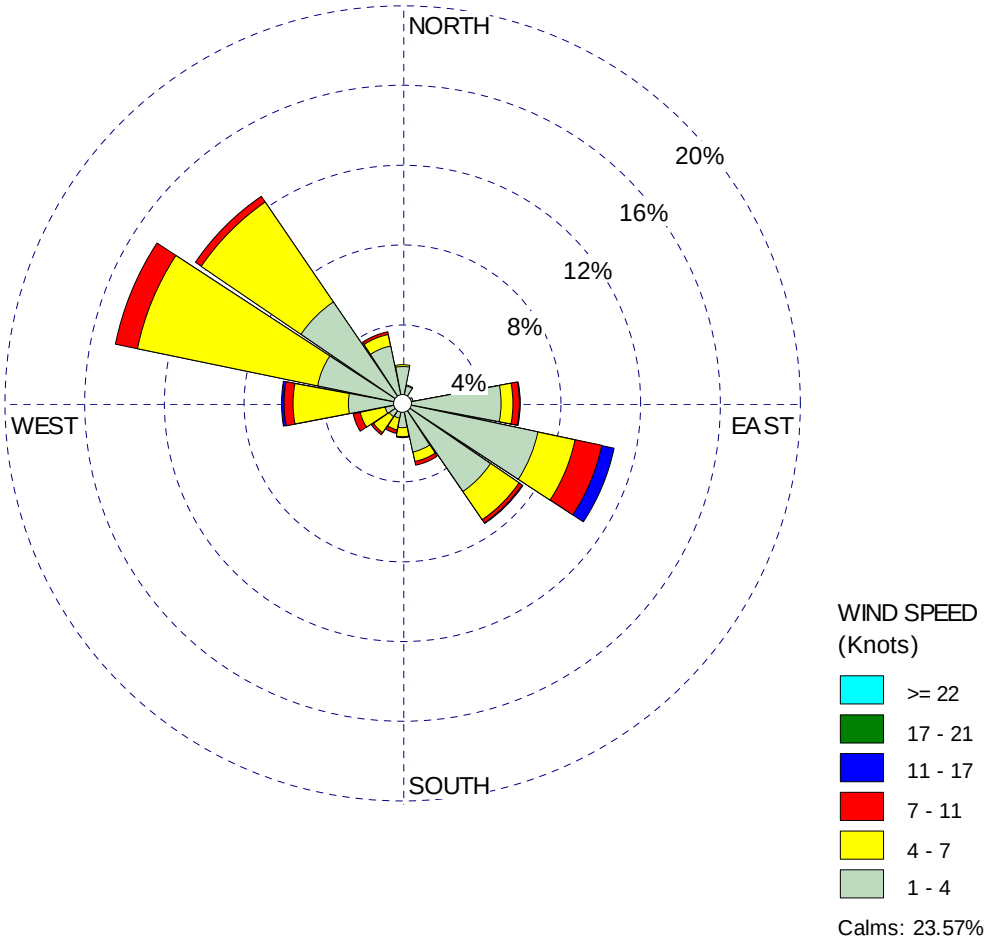
Otay Mesa – First Quarter 2008



Otay Mesa – Second Quarter 2008



Otay Mesa – Third Quarter 2008



Otay Mesa – Fourth Quarter 2008

PIO PICO ENERGY CENTER
METEOROLOGICAL DATA:
2006, 2007, AND 2008
WIND FREQUENCY DISTRIBUTIONS

2006

WIND SPEEDS AT 10 METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	146	78	7	0	0	0	0	0	231
NNE	54	20	1	0	0	0	0	0	75
NE	29	11	1	0	0	0	0	0	41
ENE	35	10	2	1	0	0	0	0	48
E	199	46	8	12	8	3	0	0	276
ESE	208	153	40	48	71	22	7	0	549
SE	124	166	29	13	2	0	1	0	335
SSE	42	50	11	3	3	0	1	1	111
S	25	41	31	7	7	2	1	1	115
SSW	28	34	32	8	10	2	2	2	118
SW	34	45	38	30	18	1	1	0	167
WSW	61	80	63	33	8	5	1	0	251
W	124	384	372	196	33	5	1	0	1115
WNW	200	430	658	547	75	0	5	2	1917
NW	260	529	251	145	22	1	0	0	1208
NNW	200	188	35	9	2	0	0	0	434
Sub-Total:	1769	2265	1579	1052	259	41	20	6	6991
Calms									1758
Missing/Incomplete									11
Total									8760

Average Wind Speed: 1.59m/s

2006 First Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	19	22	3	0	0	0	0	0	44
NNE	13	7	1	0	0	0	0	0	21
NE	12	3	1	0	0	0	0	0	16
ENE	17	5	1	1	0	0	0	0	24
E	85	23	5	5	7	3	0	0	128
ESE	79	77	24	23	23	8	1	0	235
SE	50	72	17	7	1	0	0	0	147
SSE	19	22	8	3	2	0	0	0	54
S	7	9	11	4	6	0	0	0	37
SSW	6	9	14	4	6	0	0	0	39
SW	6	11	11	15	7	1	0	0	51
WSW	17	16	22	16	5	5	0	0	81
W	19	64	79	42	17	3	1	0	225
WNW	31	76	106	99	30	0	0	0	342
NW	24	68	45	23	4	1	0	0	165
NNW	35	32	8	0	0	0	0	0	75
Sub-Total:	439	516	356	242	108	21	2	0	1684
Calms									465
Missing/Incomplete									11
Total									2160

Average Wind Speed: 1.61m/s

2006 Second Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	41	19	2	0	0	0	0	0	62
NNE	15	6	0	0	0	0	0	0	21
NE	6	2	0	0	0	0	0	0	8
ENE	4	2	0	0	0	0	0	0	6
E	20	1	0	0	0	0	0	0	21
ESE	21	8	0	0	0	0	0	0	29
SE	7	14	3	0	0	0	0	0	24
SSE	6	8	2	0	1	0	1	1	19
S	7	11	16	3	1	2	1	1	42
SSW	12	13	13	2	3	2	2	2	49
SW	11	14	11	7	5	0	1	0	49
WSW	21	32	20	9	3	0	1	0	86
W	47	128	144	80	11	2	0	0	412
WNW	59	132	190	140	24	0	0	0	545
NW	70	155	56	41	11	0	0	0	333
NNW	53	58	7	3	1	0	0	0	122
Sub-Total:	400	603	464	285	60	6	6	4	1828
Calms									356
Missing/Incomplete									0
Total									2184

Average Wind Speed: 1.70m/s

2006 Third Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	49	25	0	0	0	0	0	0	74
NNE	9	5	0	0	0	0	0	0	14
NE	8	3	0	0	0	0	0	0	11
ENE	2	0	0	0	0	0	0	0	2
E	5	0	0	0	0	0	0	0	5
ESE	13	7	0	0	0	0	0	0	20
SE	6	5	1	0	0	0	0	0	12
SSE	3	3	0	0	0	0	0	0	6
S	6	2	4	0	0	0	0	0	12
SSW	7	4	1	0	0	0	0	0	12
SW	6	2	5	2	2	0	0	0	17
WSW	14	9	8	6	0	0	0	0	37
W	40	125	86	55	4	0	0	0	310
WNW	71	144	224	243	10	0	0	0	692
NW	129	222	89	57	5	0	0	0	502
NNW	71	65	11	3	0	0	0	0	150
Sub-Total:	439	621	429	366	21	0	0	0	1876
Calms									332
Missing/Incomplete									0
Total									2208

Average Wind Speed: 1.67m/s

2006 Fourth Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	37	12	2	0	0	0	0	0	51
NNE	17	2	0	0	0	0	0	0	19
NE	3	3	0	0	0	0	0	0	6
ENE	12	3	1	0	0	0	0	0	16
E	89	22	3	7	1	0	0	0	122
ESE	95	61	16	25	48	14	6	0	265
SE	61	75	8	6	1	0	1	0	152
SSE	14	17	1	0	0	0	0	0	32
S	5	19	0	0	0	0	0	0	24
SSW	3	8	4	2	1	0	0	0	18
SW	11	18	11	6	4	0	0	0	50
WSW	9	23	13	2	0	0	0	0	47
W	18	67	63	19	1	0	0	0	168
WNW	39	78	138	65	11	0	5	2	338
NW	37	84	61	24	2	0	0	0	208
NNW	41	33	9	3	1	0	0	0	87
Sub-Total:	491	525	330	159	70	14	12	2	1603
Calms									605
Missing/Incomplete									0
Total									2208

Average Wind Speed: 1.37m/s

2007

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	121	90	5	2	3	0	0	0	221
NNE	58	28	4	2	0	0	0	0	92
NE	35	16	0	0	0	0	0	0	51
ENE	36	11	1	0	0	0	0	0	48
E	141	63	10	11	21	8	4	2	260
ESE	199	153	44	30	44	19	6	6	501
SE	125	168	28	5	10	2	0	0	338
SSE	64	70	19	9	1	0	0	0	163
S	44	55	39	18	8	1	0	0	165
SSW	40	48	31	18	11	1	0	0	149
SW	38	61	56	21	6	0	0	0	182
WSW	53	74	71	28	6	0	0	0	232
W	117	308	365	274	42	5	1	1	1113
WNW	203	421	554	617	139	12	2	0	1948
NW	292	511	245	156	44	1	0	0	1249
NNW	217	227	43	7	5	1	0	0	500
Sub-Total:	1783	2304	1515	1198	340	50	13	9	7212
Calms									1545
Missing/Incomplete									3
Total									8760

Average Wind Speed: 1.67m/s

2007 First Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	25	17	1	2	2	0	0	0	47
NNE	14	7	3	2	0	0	0	0	26
NE	14	5	0	0	0	0	0	0	19
ENE	9	6	1	0	0	0	0	0	16
E	67	23	5	7	11	5	3	0	121
ESE	96	56	20	17	15	2	3	0	209
SE	53	83	12	3	2	0	0	0	153
SSE	23	23	2	4	0	0	0	0	52
S	8	12	6	2	0	0	0	0	28
SSW	13	18	10	9	2	0	0	0	52
SW	15	25	28	8	1	0	0	0	77
WSW	16	17	22	9	0	0	0	0	64
W	22	63	72	38	13	2	1	1	212
WNW	42	77	114	83	25	1	2	0	344
NW	50	59	43	17	3	0	0	0	172
NNW	29	33	9	2	0	0	0	0	73
Sub-Total:	496	524	348	203	74	10	9	1	1665
Calms									494
Missing/Incomplete									1
Total									2160

Average Wind Speed: 1.48m/s

2007 Second Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	39	21	0	0	0	0	0	0	60
NNE	20	4	0	0	0	0	0	0	24
NE	6	1	0	0	0	0	0	0	7
ENE	6	0	0	0	0	0	0	0	6
E	13	3	0	0	0	0	0	0	16
ESE	29	13	0	0	0	0	0	0	42
SE	11	19	0	1	0	0	0	0	31
SSE	16	24	6	0	0	0	0	0	46
S	11	23	12	3	2	0	0	0	51
SSW	6	20	5	5	2	0	0	0	38
SW	10	22	13	5	2	0	0	0	52
WSW	8	32	31	14	5	0	0	0	90
W	42	131	154	139	21	1	0	0	488
WNW	65	134	132	188	35	8	0	0	562
NW	84	123	40	30	17	0	0	0	294
NNW	65	44	2	1	0	0	0	0	112
Sub-Total:	431	614	395	386	84	9	0	0	1919
Calms									264
Missing/Incomplete									1
Total									2184

Average Wind Speed: 1.82m/s

2007 Third Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	29	18	1	0	0	0	0	0	48
NNE	11	4	0	0	0	0	0	0	15
NE	2	1	0	0	0	0	0	0	3
ENE	1	0	0	0	0	0	0	0	1
E	9	0	0	0	0	0	0	0	9
ESE	16	3	0	0	0	0	0	0	19
SE	6	4	7	0	0	0	0	0	17
SSE	2	9	6	1	1	0	0	0	19
S	9	13	11	1	1	0	0	0	35
SSW	13	7	10	1	5	1	0	0	37
SW	7	8	2	6	2	0	0	0	25
WSW	12	16	6	2	0	0	0	0	36
W	30	62	78	66	4	0	0	0	240
WNW	57	125	186	255	54	1	0	0	678
NW	113	236	98	77	21	0	0	0	545
NNW	83	83	10	2	2	0	0	0	180
Sub-Total:	400	589	415	411	90	2	0	0	1907
Calms									300
Missing/Incomplete									1
Total									2208

Average Wind Speed: 1.82m/s

2007 Fourth Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	28	34	3	0	1	0	0	0	66
NNE	13	13	1	0	0	0	0	0	27
NE	13	9	0	0	0	0	0	0	22
ENE	20	5	0	0	0	0	0	0	25
E	52	37	5	4	10	3	1	2	114
ESE	58	81	24	13	29	17	3	6	231
SE	55	62	9	1	8	2	0	0	137
SSE	23	14	5	4	0	0	0	0	46
S	16	7	10	12	5	1	0	0	51
SSW	8	3	6	3	2	0	0	0	22
SW	6	6	13	2	1	0	0	0	28
WSW	17	9	12	3	1	0	0	0	42
W	23	52	61	31	4	2	0	0	173
WNW	39	85	122	91	25	2	0	0	364
NW	45	93	64	32	3	1	0	0	238
NNW	40	67	22	2	3	1	0	0	135
Sub-Total:	456	577	357	198	92	29	4	8	1721
Calms									487
Missing/Incomplete									0
Total									2208

Average Wind Speed: 1.57m/s

2008

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	114	88	9	3	0	0	0	0	214
NNE	48	23	2	0	1	0	0	0	74
NE	29	8	0	1	1	1	0	0	40
ENE	29	5	1	0	0	0	0	0	35
E	159	68	16	8	10	2	1	0	264
ESE	216	190	52	38	52	27	13	10	598
SE	152	161	63	27	16	0	1	0	420
SSE	50	109	32	10	12	1	0	0	214
S	39	77	51	22	26	4	2	0	221
SSW	25	51	48	26	12	4	0	0	166
SW	28	63	49	35	11	1	1	0	188
WSW	46	46	50	44	16	2	0	0	204
W	93	184	216	159	52	7	1	0	712
WNW	180	402	570	626	154	3	0	0	1935
NW	262	521	316	289	59	2	0	0	1449
NNW	212	234	54	18	8	1	0	0	527
Sub-Total:	1682	2230	1529	1306	430	55	19	10	7261
Calms									1511
Missing/Incomplete									12
Total									8784

Average Wind Speed: 1.75m/s

2008 First Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	23	29	5	2	0	0	0	0	59
NNE	9	6	1	0	0	0	0	0	16
NE	9	1	0	1	0	0	0	0	11
ENE	11	1	1	0	0	0	0	0	13
E	59	29	6	1	3	0	0	0	98
ESE	74	90	23	20	22	7	5	10	251
SE	57	69	30	17	11	0	0	0	184
SSE	20	55	11	8	8	1	0	0	103
S	20	28	12	13	18	4	2	0	97
SSW	5	13	13	12	3	2	0	0	48
SW	9	17	15	7	6	1	1	0	56
WSW	12	14	14	11	4	0	0	0	55
W	21	51	66	51	21	2	0	0	212
WNW	31	67	88	76	31	0	0	0	293
NW	27	78	46	36	4	0	0	0	191
NNW	34	35	19	5	1	0	0	0	94
Sub-Total:	421	583	350	260	132	17	8	10	1781
Calms									403
Missing/Incomplete									0
Total									2184

Average Wind Speed: 1.73m/s

2008 Second Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	35	19	3	0	0	0	0	0	57
NNE	9	6	0	0	1	0	0	0	16
NE	8	2	0	0	1	1	0	0	12
ENE	6	2	0	0	0	0	0	0	8
E	17	6	4	0	2	0	0	0	29
ESE	56	26	3	2	5	5	4	0	101
SE	29	34	5	0	1	0	0	0	69
SSE	9	18	11	1	0	0	0	0	39
S	8	25	31	7	7	0	0	0	78
SSW	12	24	27	9	6	1	0	0	79
SW	8	29	21	20	2	0	0	0	80
WSW	15	17	25	16	4	2	0	0	79
W	23	52	72	64	20	2	0	0	233
WNW	48	87	143	185	53	2	0	0	518
NW	53	117	81	95	25	2	0	0	373
NNW	41	60	10	5	1	0	0	0	117
Sub-Total:	377	524	436	404	128	15	4	0	1888
Calms									287
Missing/Incomplete									9
Total									2184

Average Wind Speed: 1.93m/s

2008 Third Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	39	15	0	0	0	0	0	0	54
NNE	19	1	0	0	0	0	0	0	20
NE	7	1	0	0	0	0	0	0	8
ENE	1	0	0	0	0	0	0	0	1
E	6	0	0	0	0	0	0	0	6
ESE	2	4	0	0	0	0	0	0	6
SE	4	1	0	0	0	0	0	0	5
SSE	0	1	0	0	0	0	0	0	1
S	4	3	0	0	0	0	0	0	7
SSW	3	1	0	0	0	0	0	0	4
SW	9	0	0	0	0	0	0	0	9
WSW	9	4	0	0	0	0	0	0	13
W	29	40	40	21	2	0	0	0	132
WNW	74	178	224	277	46	0	0	0	799
NW	144	227	104	110	22	0	0	0	607
NNW	110	100	16	4	4	0	0	0	234
Sub-Total:	460	576	384	412	74	0	0	0	1906
Calms									301
Missing/Incomplete									1
Total									2208

Average Wind Speed: 1.77m/s

2008 Fourth Quarter

WIND SPEEDS AT 10METERS HEIGHT (m/s)

SECTOR	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	>=7	Total
N	17	25	1	1	0	0	0	0	44
NNE	11	10	1	0	0	0	0	0	22
NE	5	4	0	0	0	0	0	0	9
ENE	11	2	0	0	0	0	0	0	13
E	77	33	6	7	5	2	1	0	131
ESE	84	70	26	16	25	15	4	0	240
SE	62	57	28	10	4	0	1	0	162
SSE	21	35	10	1	4	0	0	0	71
S	7	21	8	2	1	0	0	0	39
SSW	5	13	8	5	3	1	0	0	35
SW	2	17	13	8	3	0	0	0	43
WSW	10	11	11	17	8	0	0	0	57
W	20	41	38	23	9	3	1	0	135
WNW	27	70	115	88	24	1	0	0	325
NW	38	99	85	48	8	0	0	0	278
NNW	27	39	9	4	2	1	0	0	82
Sub-Total:	424	547	359	230	96	23	7	0	1686
Calms									520
Missing/Incomplete									2
Total									2208

Average Wind Speed: 1.56m/s

APPENDIX G-2

Construction Emissions and Impact Analysis

APPENDIX G-2

Construction Emissions and Impact Analysis

Emissions during the construction phase of the project have been estimated, and include an assessment of emissions from vehicle and equipment exhaust and the fugitive dust generated from material handling. A dispersion modeling analysis was conducted based on these emissions. The results of the analysis indicate that construction activities are not expected to cause or contribute to exceedances of state or federal standards for criteria pollutants. The best available emission control techniques will be used to minimize emissions during construction. The project construction impacts are not unusual in comparison to most construction sites; construction sites that use good dust suppression techniques and low-emitting vehicles typically do not cause violations of air quality standards.

The primary emission sources during construction will include exhaust from heavy construction equipment and vehicles, and fugitive dust generated in areas disturbed by grading, excavating, and erection of facility structures. The projected construction schedule has a duration of 16 months, during which different areas within the proposed site and a nearby temporary laydown area will be disturbed. Estimated land disturbance for major construction activities is summarized in Section 3.0, Facility Description.

Construction equipment and vehicle exhaust emissions were estimated using equipment lists and construction scheduling information provided by the project design engineering firm. The California Air Resource Board (CARB) OFFROAD2007 model and EMFAC2007 model were used to generate equipment-specific emission factors for all criteria pollutants for diesel-fueled construction equipment, and for on-road vehicles, respectively. Assumptions used in calculating project construction emissions included a 16-month construction period; 5 construction days per week; and a single-shift, 8-hour workday. The list of fueled equipment needed during each month of the construction effort (see Table G-2.16) served as the basis for estimating pollutant emissions throughout the term of construction, and helped to identify the periods of expected maximum short-term emissions.

Combustion emissions during construction will result from:

- Exhaust from the diesel construction equipment used for site preparation, grading, excavation, trenching, and construction of onsite structures;
- Exhaust from water trucks used to control construction dust emissions;
- Exhaust from portable welding machines;
- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the construction site;
- Exhaust from diesel trucks used to deliver concrete, fuel, and construction supplies to the construction site including the heavy hauling of major components using truck and/or rail; and
- Exhaust from vehicles used by workers to commute to the construction site.

Fugitive dust emissions resulting from on-site soil disturbances were estimated using USEPA AP-42 emission factors activities including bulldozing and dirt-pushing, travel on paved and unpaved roads, material handling, and wind erosion to storage of aggregate materials. A combined dust control efficiency of 92 percent was assumed to be achieved for traveling on unpaved surfaces at the project site and temporary construction area activities by the mitigation measures of frequent watering and limiting speeds to 15 miles per hour.

Fugitive dust emissions from the construction of the project will result from:

- Dust entrained during site preparation and grading/excavation at the construction site;
- Dust entrained during onsite travel on paved and unpaved surfaces;
- Dust entrained during aggregate and soil loading and unloading operations; and
- Wind erosion of areas disturbed during construction activities.

To determine the potential worst-case daily construction impacts, exhaust and dust emission rates have been evaluated for each source of emissions. Maximum short-term impacts are calculated based on the equipment mix expected during the second month of the construction schedule. Annual emissions are based on the equipment mix during the peak 12-month period out of the overall construction period.

Available Mitigation Measures

The following typical mitigation measures are proposed to control exhaust emissions from the diesel heavy equipment and potential emissions of fugitive dust during construction of the project.

- Unpaved roads and disturbed areas in the project construction site will be watered as frequently as necessary to prevent fugitive dust plumes. The frequency of watering can be reduced or eliminated during periods of precipitation.
- The vehicle speed limit will be 15 miles per hour within the construction site.
- The construction site entrances shall be posted with visible speed limit signs.
- Construction equipment vehicle tires will be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.
- Gravel ramps of at least 20 feet in length will be provided at the tire washing/cleaning station.
- Unpaved exits from the construction site will be graveled or treated to prevent track-out to public roadways.
- Construction vehicles will enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the Compliance Project Manager.
- Construction areas adjacent to any paved roadway will be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.

- Paved roads within the construction site will be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.
- At least the first 500 feet of any public roadway exiting from the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on public roadways.
- Soil storage piles and disturbed areas that remain inactive for longer than 10 days will be covered or treated with appropriate dust suppressant compounds.
- Vehicles used to transport solid bulk material on public roadways and having the potential to cause visible emissions will be provided with a cover, or the materials will be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.
- Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) will be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

An on-site Air Quality Construction Mitigation Manager will be responsible for directing and documenting compliance with construction-related mitigation conditions.

Estimates of Emissions with Mitigation Measures - Onsite Construction

Tables G-2.1 and G-2.2 show the estimated maximum daily and annual heavy equipment exhaust and fugitive dust emissions with recommended mitigation measures for onsite construction activities. Detailed emission calculations are included as Tables G-2.7 through G-2.16.

Analysis of Ambient Impacts from Onsite Construction

Ambient air quality impacts from emissions during the construction of the project were estimated using an air quality dispersion modeling analysis, in accordance with the procedures described in the modeling protocol (See Appendix G-8). The modeling analysis considers the construction site location, the surrounding topography, and the sources of emissions during construction, including vehicle and equipment exhaust emissions and fugitive dust.

Existing Ambient Levels

As with the modeling analysis of project operating impacts (Section 5.2), ambient monitoring data collected from monitoring stations in the project area were used to establish the ambient background levels for the construction impact modeling analysis. Table G-2.3 shows the maximum background concentrations of NOx, SO_2, CO, and PM_{10} recorded for 2006 through 2008.

Dispersion Model

The EPA guideline model AERMOD was used to estimate ambient impacts from construction activities.

Worst-case modeling was conducted for short-term averaging times using all combustion emissions from all construction equipment from Month 8 and dust emissions from activities in Month 2 (see Table G-2.4). Annual emissions were modeled for Months 2-13 of the construction schedule (See Table G-2.5). These periods were selected because they have a higher level of construction activity and exhaust and dust emissions than any other over the full 16 months of construction.

The emission sources for the construction site were grouped into three categories: exhaust emissions, construction dust emissions, and windblown dust emissions. The exhaust and construction dust emissions were modeled as three volume sources with a vertical dimension of 6 meters. Among the three volume sources, one was used to represent the construction dust and combustion exhaust sources from the facility site, while two were used to represent construction dust and combustion exhaust sources from the laydown area. Based on the width of the construction area, the horizontal dimension for the volume source at the facility site was set to 177.2 meters, with sigma-y = 18.6 meters; the horizontal dimension for each of the two volume sources at the laydown area were set to 102.7 meters, with sigma-y = 23.9 meters. The fugitive dust emissions from disturbed areas were represented for modeling purposes as area sources. To assess impacts from fugitive dust, the facility site and the laydown area were modeled as two separate area sources covering a combined disturbed area of 14.4 acres. The effective plume height for these two area sources was set at 0.5 meters in the modeling analysis.

The PVMRM option of AERMOD was used to account for the role of ambient ozone levels on the atmospheric conversion rate of NOx emissions (initially mostly in the form of nitric oxide) to NO_2 (the pollutant addressed by ambient standards). The record of hourly ozone measurements at the SDAPCD Chula Vista monitoring station during the same three years of the meteorological input data set were used to support the PVMRM calculations.

As with the refined modeling discussed in Section 5.2, the construction impact modeling was performed using the 2006 through 2008 Chula Vista monitoring station meteorological data set.

Modeling Results

The modeling analysis results are shown in Table G-2.3. Also included in the table are the maximum background levels that have occurred in the last 3 years and the resulting total ambient impacts. Construction impacts alone for all modeled pollutants are expected to be below the most stringent state and national standards.

Table G-2.3 shows that construction emissions will not cause new exceedances of any state or federal air quality standards. The table shows that the sum of the highest construction impact and the highest measured ambient background concentration exceed the federal 1-hour NO_2 standard. However, the federal NO_2 standard applies to a 3-year average of the 98th percentile 1-hour daily maximum values, not to individual maximum modeled values. As discussed above, the PPEC construction phase impacts would occur over a proposed schedule lasting about 16 months; peak emissions are expected to occur

over about a 6 month period. Construction impacts would be close to zero during the other two years of a compliance assessment with the new federal one-hour NO_2 and SO_2 standards. Because the federal one-hour NO_2 standard requires averaging the concentrations over three years, the NO_2 impacts during the single year of construction would not be likely to cause a new violation of the federal one-hour NO_2 standard. The table also shows that worst-case background concentrations of PM_{10} and $PM_{2.5}$ are already above the state standards, although they are below the federal standards. The project's modeled annual PM_{10} and $PM_{2.5}$ impacts are small relative to the background; the annual $PM_{2.5}$ impact is below the federal threshold for significance.

Table G-2.1
Maximum Daily Emissions During Construction, Pounds Per Day
Month 8 (combustion)
Month 2 (dust)

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	40.7	24.3	4.1	0.0	1.6	1.6
Fugitive Dust	--	--	--	--	19.7	2.9
Offsite						
Worker Travel, Truck Deliveries	11.2	63.8	6.3	0.1	0.1	0.1
Total Emissions						
Total	51.9	88.1	10.4	0.1	21.4	4.6

Table G-2.2
Peak Annual Emissions During Project Construction, Tons Per Year

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	4.7	2.3	0.4	0.0	0.2	0.2
Fugitive Dust	--	--	--	--	2.5	0.6
Offsite						
Worker Travel, Truck Deliveries	0.8	2.6	0.3	0.0	0.0	0.0
Total Emissions						
Total	5.5	4.9	0.7	0.0	0.5	1.9

Table G-2.3

Modeled Maximum Impacts During Construction

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu g/m^3$)	Maximum Background Concentration ($\mu g/m^3$)	Total Concentration[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hr	79	154	233[2]	188	339
	Annual	6	32	38	100	57
SO_2	1-hr	0	45	45	196	655
	3-hr	0	34	34	1300	--
	24-hr	0	10	10	--	105
	Annual	0	8	8	80	--
CO	1-hr	63	4	67	40,000	23,000
	8-hr	34	2	36	10,000	20.000
PM_{10}	24-hr	21	57	78	150	50
	Annual	2.7	26.7	29.4	--	20
$PM_{2.5}$	24-hr	4.6	45.7	50.3	35	--
	Annual	0,2	12.5	12.7	15.0	12

Notes:

1. The federal 1-hour NO_2, 24-hour $PM_{2.5}$, and 1-hr SO_2 standards are based on 3-year averages of 98th percentile values, not on maximum values.

2. Construction is expected to last only 16 months; construction impacts would be much lower during the second year and zero during the third year. Because the federal one-hour NO_2 standard requires averaging the concentrations over three years, the NO_2 impacts during the single year of construction would not be likely to cause a new violation of the federal one-hour NO_2 standard.

Table G-2.4

Daily Construction Emissions (peak month) (lbs/day)

Month 8 (combustion)
Month 2 (fugitive dust)

	NOx	CO	VOC	SOx	PM2.5	PM10
Onsite						
Construction Equipment	40.7	24.3	4.1	0.0	1.6	1.6
Fugitive Dust					2.9	19.7
Subtotal =	40.7	24.3	4.1	0.0	4.6	21.3
Offsite						
Worker Travel (combustion)	6.1	61.2	5.8	0.1	0.1	0.1
Truck Deliveries (combustion)	5.1	2.5	0.4	0.0	0.0	0.0
Dust from travel on dirt roads					0.0	0.0
Subtotal =	11.2	63.8	6.3	0.1	0.1	0.1
Total =	51.9	88.1	10.4	0.1	4.6	21.4

Table G-2.5

Annual Construction Emissions (peak 12-month period)

(tons/yr)

Months 1-12 (combustion)
Months 2-13 (fugitive dust)

	NOx	CO	VOC	SOx	PM2.5	PM10
Onsite						
Construction Equipment (combustion)	4.7	2.3	0.4	0.0	0.2	0.2
Fugitive Dust					0.3	1.6
Subtotal =	4.7	2.3	0.4	0.0	0.5	1.8
Offsite						
Worker Travel	0.2	2.4	0.2	0.0	0.0	0.0
Truck Deliveries	0.5	0.3	0.0	0.0	0.0	0.0
Dust from travel on dirt roads					0.0	0.0
Subtotal =	0.8	2.6	0.3	0.0	0.0	0.0
Total =	5.5	4.9	0.7	0.0	0.5	1.9

Table G-2.6
Greenhouse Gas Emissions Calculations: Project Construction

Unit	Fuel	Fuel Use, gal/yr	Maximum Emissions, metric tonnes/yr				
			CO2	CH4	N2O	SF6	TOTAL
Offroad Fuel Use	Diesel	7,661	78	3.19E-03	6.38E-04	0.00	
Worker Travel	Gasoline	34,864	307	1.30E-02	2.60E-03	0.00	
Truck Deliveries	Diesel	8,020	81	3.34E-03	6.68E-04	0.00	
Total	--	50,545	466	1.95E-02	3.91E-03	0	
CO2eq			466	0	1	0	467

Natural Gas GHG Emission Rates (Note 1)

	Emission Factors, kg/gal			
	CO2 (2)	CH4	N2O	SF6
Diesel	10.140	4.17E-04	8.33E-05	n/a
Gasoline	8.800	3.73E-04	7.45E-05	
Global Warming	1	21	310	23,900

g/MMBTU		MMBtu/gal
CH4 (3)	N2O (3)	
3.00E+00	6.00E-01	1.39E-01
3.00E+00	6.00E-01	1.24E-01

Notes: 1. Calculation methods and emission factors from ARB, "Regulation for the Mandatory Reporting of Greenhouse Gas Emissions," December 2007
2. Appendix A, Table 3.
3. Appendix A, Table 6.
4. Appendix A, Table 2.

Table G-2.7
Delivery Truck Daily Emissions (Peak Month)

Number of Deliveries Per Day(1)	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Day	Emission Factors (lbs/vmt)(1)					Daily Emissions (lbs/day)				
			NOx	CO	POC	SOx	PM10	NOx	CO	POC	SOx	PM10
3.18	50	159.09	0.0320	0.0160	0.0028	0.0000	0.0014	5.10	2.54	0.45	0.01	0.22
Idle exhaust (2)												0.01336

Notes:
(1) See notes for combustion emissions.
(2) 20 trucks per day times 1 hr idle time per visit times 0.0042 lb/hr.

Table G-2.8
Delivery Truck Annual Emissions

Number of Deliveries Per Year	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	Emission Factors (lbs/vmt)(1)					Annual Emissions (tons/yr)				
			NOx	CO	POC	SOx	PM10	NOx	CO	POC	SOx	PM10
652	50	32600.00	0.0320	0.0160	0.0028	0.0000	0.0014	0.52	0.26	0.05	0.00	0.02
Idle exhaust (2,3)												0.00137

Notes:
(1) See notes for combustion emissions.
(2) Annual average number of trucks per year times 1 hr idle time per visit times 0.0042 lb/hr
(3) Based on 1.91 g/hr idle emission rate for the composite HDD truck fleet in 2001 from EPA's PART5 model.

Table G-2.9
Worker Travel Daily Emissions (Peak Month)

Number of Workers Per Day(1)	Average Vehicle Occupancy (person/veh.)	Number of Round Trips Per Day	Average Round Trip Haul Distance (Miles)	Vehicle Miles Traveled Per Day (Miles)	Emission Factors (lbs/vmt)(1)					Daily Emissions (lbs/day)				
					NOx	CO	POC	SOx	PM10	NOx	CO	POC	SOx	PM10
284	1.5	189	40	7,573	0.0008	0.0081	0.0008	0.0000	0.0001	6.12	61.24	5.85	0.07	0.68

Notes:
(1) See notes for combustion emissions.

Table G-2.10
Worker Travel Annual Emissions

Average Number of Workers Per Day	Average Vehicle Occupancy (person/veh.)	Number of Round Trips Per Day	Average Round Trip Haul Distance (Miles)	Days per Year	Vehicle Miles Traveled Per Year	Emission Factors (lbs/vmt)(1)					Annual Emissions (tons/yr)				
						NOx	CO	POC	SOx	PM10	NOx	CO	POC	SOx	PM10
184	2	123	40	120	589,067	0.0008	0.0081	0.0008	0.0000	0.0001	0.24	2.38	0.23	0.00	0.03

Table G-2.11

Onsite Combustion Emissions

		Adjusted factors lbs/1000 gallon (4)					Total Daily Fuel Use(5) (Gals/day)	Daily Emissic Lbs/day					Total Ar Fuel Us (Gals/yr)	Annual Emissio Lbs/yr				
Equipment	Tier	NOx	CO	VOC	SOx	PM10		NOx	CO	VOC	SOx	PM10		NOx	CO	VOC	SOx	PM10
Hydro Crane 35-50 Ton RT	2	170.60	31.88	13.16	0.21	1.95	12.30	2.10	0.39	0.16	0.00	0.02	2,165	369.38	69.03	28.49	0.45	4.22
RT 760 - 60 ton Crane	2	184.89	35.93	7.12	0.21	1.95	30.76	5.69	1.11	0.22	0.01	0.06	6,090	1125.92	218.82	43.35	1.27	11.88
Hydro Crane 75-80 Ton RT	2	184.89	35.93	7.12	0.21	1.95	0.00	0.00	0.00	0.00	0.00	0.00	1,353	250.20	48.63	9.63	0.28	2.64
2250 Manitow oc 300 Ton (track mounted crane)	2	184.89	35.93	7.12	0.21	1.95	25.83	4.78	0.93	0.18	0.01	0.05	3,410	630.52	122.54	24.27	0.71	6.65
40' - 60' Manlift	2	168.09	197.65	27.34	0.21	11.71	41.50	6.98	8.20	1.13	0.01	0.49	4,565	767.29	902.25	124.80	0.95	53.45
90' Manlift	2	168.09	197.65	27.34	0.21	11.71	27.67	4.65	5.47	0.76	0.01	0.32	2,739	460.38	541.35	74.88	0.57	32.07
Forklift	2	169.60	137.47	14.65	0.21	7.55	9.75	1.65	1.34	0.14	0.00	0.07	1,931	327.43	265.41	28.27	0.40	14.58
Diesel Welder 400 Amp	2	160.21	125.59	17.47	0.21	8.79	6.90	1.10	0.87	0.12	0.00	0.06	1,315	210.63	165.11	22.97	0.27	11.55
185 CFM Compressor	2	170.61	89.05	11.12	0.21	12.17	10.81	1.84	0.96	0.12	0.00	0.13	2,734	466.47	243.48	30.41	0.57	33.28
Light Tow er 5 KW	2	160.21	125.59	17.47	0.21	8.79	9.58	1.53	1.20	0.17	0.00	0.08	2,388	382.55	299.87	41.71	0.50	20.99
Water Truck 4000 Gal	Onroad	173.70	86.54	15.22	0.21	7.61	7.83	1.36	0.68	0.12	0.00	0.06	2,066	358.83	178.77	31.44	0.43	15.72
Track 330 Excavator	2	164.48	56.00	15.00	0.21	5.69	0.00	0.00	0.00	0.00	0.00	0.00	2,478	407.56	138.75	37.18	0.51	14.09
RT Hoe 710 (Backhoe)	2	163.01	80.51	28.01	0.21	9.15	11.85	1.93	0.95	0.33	0.00	0.11	3,910	637.35	314.78	109.51	0.81	35.79
Roller	2	164.48	56.00	15.00	0.21	5.69	12.61	2.07	0.71	0.19	0.00	0.07	3,051	501.84	170.85	45.78	0.63	17.35
950/960 Loader	2	160.47	48.29	13.68	0.21	3.17	31.43	5.04	1.52	0.43	0.01	0.10	10,371	1664.26	500.89	141.87	2.16	32.91
Cat D6 Dozer	2	164.48	56.00	15.00	0.21	5.69	0.00	0.00	0.00	0.00	0.00	0.00	2,240	368.38	125.41	33.61	0.47	12.74
Dump Truck	Onroad	173.70	86.54	15.22	0.21	7.61	0.00	0.00	0.00	0.00	0.00	0.00	475	82.53	41.12	7.23	0.10	3.62
Grader	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	1,479	237.38	71.44	20.24	0.31	4.69
Fusion Machine	2	160.21	125.59	17.47	0.21	8.79	0.00	0.00	0.00	0.00	0.00	0.00	1,264	202.53	158.76	22.08	0.26	11.11
Asphalt Paver	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Paving Equipment	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00

(1) - Steady State Emission Factors from Table A4 of EPA July 2010 NR-009d Publication.

(2) - In use adjustment factors per Table A5 EPA July 2010 NR-009d Publication.

(3) - PM10 and SO2 adjustments due to Equation 3 and Equation 5 on pages 6 and 23, Respectively of EPA Report No. NR-009d

(4) - Calculation uses adjusted BSFC and assumed 7.1 lbs/gallon. The onroad emission factors are not adjusted.

(5) - Daily fuel use based on peak combustion month equipment schedule.

(6) - Annual fuel use based on average level during peak 12-month period.

Table G-2.12

Daily Fugitive Dust Emissions (peak month)	Month 2								
Equipment	Number of Units	Daily Process Rate Per Unit	Total Process Rate	Units	PM2.5 Emission Factor(1) (lbs/unit)	PM10 Emission Factor(1) (lbs/unit)	Control Factor(1) (%)	PM2.5 Emissions (lbs/day)	PM10 Emissions (lbs/day)
Hydro Crane 35-50 Ton RT	0	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
RT 760 - 60 ton Crane	1	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
Hydro Crane 75-80 Ton RT	0	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
2250 Manitowoc 300 Ton (track mounted crane)	0	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
40' - 60' Manlift	0	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
90' Manlift	0	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
Forklift	1	7.2	7.2	vmt	1.71E-01	1.71E+00	92%	0.10	1.05
Diesel Welder 400 Amp	2	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
185 CFM Compressor	2	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
Light Tower 5 KW	3	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
Water Truck 4000 Gal	1	15.0	15.0	vmt	2.84E-01	2.84E+00	92%	0.36	3.62
Track 330 Excavator	1	434.7	434.7	tons	1.14E-05	3.63E-05	0%	0.00	0.02
RT Hoe 710 (Backhoe)	2	466.2	932.4	tons	5.30E-05	1.51E-03	0%	0.05	1.41
Roller	1	13.8	13.8	vmt	1.93E-02	2.75E-01	0%	0.27	3.80
950/960 Loader	2	4.3	8.6	vmt	1.93E-02	2.75E-01	0%	0.17	2.37
Cat D6 Dozer	1	5.2	5.2	hrs	2.31E-01	4.19E-01	0%	1.20	2.18
Dump Truck	1	13.8	13.8	vmt	1.43E-01	1.43E+00	92%	0.17	1.68
Grader	1	4.6	4.6	vmt	1.93E-02	2.75E-01	0%	0.09	1.27
Fusion Machine	3	0.0	0.0	none	0.00E+00	0.00E+00	0%	0.00	0.00
Asphalt Paver	0	14.1	0.0	vmt	1.93E-02	2.75E-01	0%	0.00	0.00
Paving Equipment	0	14.1	0.0	vmt	1.93E-02	2.75E-01	0%	0.00	0.00
0	0	0.0	0.0	0.0	0.00E+00	0.00E+00	0%	0.00	0.00
Windblown Dust (active construction area)	N/A	435600	435600	sq.ft.	6.73E-06	1.68E-05	92%	0.25	0.62
Windblown Dust (laydown area)	N/A	261360	261360	sq.ft.	6.73E-06	1.68E-05	92%	0.15	0.37
Worker Gravel Road Travel (onsite)	189.333	0.1	18.9333	vmt	7.71E-02	7.71E-01	92%	0.12	1.24
Delivery Truck Gravel Road Travel (onsite)	3.18182	0.1	0.31818	vmt	2.31E-01	2.31E+00	92%	0.01	0.06
Total onsite=								2.94	19.67

(1) Dust control efficiency for unpaved road travel and active excavation area is based on "Control of Open Fugitive Dust Sources", U.S. EPA, 9/88.

Table G-2.13

Annual Fugitive Dust Emissions

Activity	Average Daily PM2.5 Emissions(1) (lbs/day)	Average Daily PM10 Emissions(1) (lbs/day)	Days per Year	Annual PM2.5 Emissions (tons/yr)	Annual PM10 Emissions (tons/yr)
Construction Activities	1.94	13.72	240	0.23	1.65E+00
Windblown Dust	0.40	1.00	365	0.07	1.82E-01
Total =				0.31	1.83E+00

Notes:

(1) Based on average of daily emissions during peak 12-month construction period.

Table G-2.14

Construction Equipment Daily Fuel Use (peak period)

Month 8

Equipment	Number of Units	Hrs/Day Per Unit	Gals/Hr Per Unit	Total Fuel Use (Gals/day)
Hydro Crane 35-50 Ton RT	1	3.4	3.6	12.3
RT 760 - 60 ton Crane	2	3.4	4.5	30.8
Hydro Crane 75-80 Ton RT	0	3.4	4.5	0.0
2250 Manitowoc 300 Ton (track mounted crane)	1	3.4	7.6	25.8
40' - 60' Manlift	9	4	1.2	41.5
90' Manlift	6	4	1.2	27.7
Forklift	2	2.4	2.0	9.8
Diesel Welder 400 Amp	3	3.6	0.6	6.9
185 CFM Compressor	2	3.8	1.4	10.8
Light Tower 5 KW	3	5	0.6	9.6
Water Truck 4000 Gal	1	5	1.6	7.8
Track 330 Excavator	0	4.6	4.9	0.0
RT Hoe 710 (Backhoe)	1	3.7	3.2	11.8
Roller	1	4.6	2.7	12.6
950/960 Loader	1	4.3	7.3	31.4
Cat D6 Dozer	0	5.2	6.5	0.0
Dump Truck	0	4.6	1.6	0.0
Grader	0	4.6	3.7	0.0
Fusion Machine	0	5	0.6	0.0
Asphalt Paver	0	4.7	2.2	0.0
Paving Equipment	0	4.7	2.2	0.0

Total = 238.8

Table G-2.15

Construction Equipment Annual Fuel Use (Peak 12-month construction period)

Equipment	Average number of units per day: Total Construction Period	Average number of units per day: Peak Construction Year	Average Operating Hrs/Day Per Unit	Gals/Hr Per Unit	Average Operating Days per Year	12-Month Average Total Fuel Use (Gals/yr)	Peak 12-Month Average Total Fuel Use (Gals/yr)
Hydro Crane 35-50 Ton RT	0.22	0.67	3.40	3.6	264	722	2,165
RT 760 - 60 ton Crane	0.50	1.50	3.40	4.5	264	2,030	6,090
Hydro Crane 75-80 Ton RT	0.22	0.33	3.40	4.5	264	902	1,353
2250 Manitowoc 300 Ton (track mounted crane)	0.17	0.50	3.40	7.6	264	1,137	3,410
40' - 60' Manlift	1.25	3.75	4.00	1.2	264	1,522	4,565
90' Manlift	0.75	2.25	4.00	1.2	264	913	2,739
Forklift	0.61	1.50	2.40	2.0	264	787	1,931
Diesel Welder 400 Amp	0.89	2.17	3.60	0.6	264	539	1,315
185 CFM Compressor	0.67	1.92	3.80	1.4	264	951	2,734
Light Tower 5 KW	1.06	2.83	5.00	0.6	264	890	2,388
Water Truck 4000 Gal	0.44	1.00	5.00	1.6	264	918	2,066
Track 330 Excavator	0.14	0.42	4.60	4.9	264	826	2,478
RT Hoe 710 (Backhoe)	0.42	1.25	3.70	3.2	264	1,303	3,910
Roller	0.39	0.92	4.60	2.7	264	1,294	3,051
950/960 Loader	0.47	1.25	4.30	7.3	264	3,918	10,371
Cat D6 Dozer	0.08	0.25	5.20	6.5	264	747	2,240
Dump Truck	0.08	0.25	4.60	1.6	264	158	475
Grader	0.17	0.33	4.60	3.7	264	740	1,479
Fusion Machine	0.50	1.50	5.00	0.6	264	421	1,264
Asphalt Paver	0.03	0.00	4.70	2.2	264	76	0
Paving Equipment	0.03	0.00	4.70	2.2	264	76	0
Total =						20,869	54,760

Table G-2.16
Equipment Schedule

Duration of Construction Period:	16	Months	Avg const. day/year			264											
Month		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Construction Workers		50	90	118	164	181	216	242	284	283	236	188	124	83	54	32	29
Major Construction Equipment	HP																
Hydro Crane 35-50 Ton RT	200					1	1	1	1	1	1	1	1				
RT 760 - 60 ton Crane	250		1	1	1	2	2	2	2	2	2	2	1				
Hydro Crane 75-80 Ton RT	250									1	1	1	1	1	1	1	1
2250 Manitowoc 300 Ton (track mounted crane)	420					1	1	1	1	1	1						
40' - 60' Manlift	85					3	5	8	9	8	6	4	2				
90' Manlift	85					2	3	4	6	4	4	2	2				
Forklift	100	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1
Diesel Welder 400 Amp	22		2	2	2	2	2	2	3	3	3	3	2	2	2	1	1
185 CFM Compressor	49	2	2	2	2	2	2	2	2	2	2	2	1	1			
Light Tower 5 KW	22	2	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1
Water Truck 4000 Gal	225	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Track 330 Excavator	268	1	1	1	1	1											
RT Hoe 710 (Backhoe)	150		2	2	2	2	1	1	1	1	1	1	1				
Roller	100		1	1	1	1	1	1	1	1	1	1	1	1	1		1
950/960 Loader	280		2	2	2	2	1	1	1	1	1	1	1	1	1		
Cat D6 Dozer	250	1	1	1													
Dump Truck	250	1	1	1													
Grader	200	1	1	1									1	1	1		
Fusion Machine	22	3	3	3	3	3	3										
Asphalt Paver	120																1
Paving Equipment	120																1
Pickup trucks		27	28	28	39	39	42	37	37	36	36	31	30	24	18	17	
Concrete Deliveries			6	6	6	6	6	3	1	1	1						
Light/Medium Deliveries		3	3	6	12	15	21	21	21	21	21	21	21	21	15	15	
HD Truck Delivery						1	1	1	1	1							

Note:

1. Construction schedule is provided by the applicant.
- Total month construction 16 months
- Days per week 5 days
- Days per month 22 days

- Hours per day 8 hours

2. Construction phases are provided by the applicant and listed as follows:

- Clearing and grubbing month 1
- Underground water line relocation month 2
- Access road widening work month 1-2
- Site grading month 2-3
- Underground gas and waste water linear month 2-3
- Relocation of the reclaimed/recycled water line month 2-3
- Facilities building month 4-15
- Lateral construction month 10-11
- Solar field month 15-16
- Asphalt paving month 16

3. Deliveries trip per day, distance, and origins are based on the information provided by the applicant and assumptions.

4. Worker passenger vehicles will park in the laydown area so there's no on-site travelling.

5. It is assumed the numbers of worker passenger vehicles are the numbers of workers divided by 1.5

Table G-2.17
Onsite Equipment Combustion Emission Factors

	Offroad Combustion Factors																					
					Base Factors g/bhp, if Tier 1 >50 hp (1)					Adjustment (2)						Adjustment (3)	Adjusted Factors (g/bhp)					
Dust Process Units per Hour per unit	Road dust suppression Abatement Factor	HP Cat.	Tier	BSFC lb/hp	NOx	CO	VOC	SOx	PM10	Adj. Type	NOx	CO	VOC	SOx	PM10	PM10 Fuel S	BSFC	NOx	CO	VOC	SOx	PM10
0	0.000	175-300	2	0.367	4	0.7475	0.3085	0.00499	0.1316	None	1	1	1	1	1	-0.08585669	0.367	4	0.7475	0.3085	0.00487	0.04574
0	0.000	300-600	2	0.367	4.3351	0.8425	0.1669	0.00499	0.1316	None	1	1	1	1	1	-0.08585669	0.367	4.3351	0.8425	0.1669	0.00488	0.04574
0	0.000	300-600	2	0.367	4.3351	0.8425	0.1669	0.00499	0.1316	None	1	1	1	1	1	-0.08585669	0.367	4.3351	0.8425	0.1669	0.00488	0.04574
0	0.000	300-600	2	0.367	4.3351	0.8425	0.1669	0.00499	0.1316	None	1	1	1	1	1	-0.08585669	0.367	4.3351	0.8425	0.1669	0.00488	0.04574
0	0.000	50-100	2	0.408	4.7	2.3655	0.3672	0.00555	0.24	LoLF	1.1	2.57	2.29	1.18	1.97	-0.112629	0.48144	5.17	6.07934	0.84089	0.00638	0.36017
0	0.000	50-100	2	0.408	4.7	2.3655	0.3672	0.00555	0.24	LoLF	1.1	2.57	2.29	1.18	1.97	-0.112629	0.48144	5.17	6.07934	0.84089	0.00638	0.36017
3	0.915	50-100	2	0.408	4.7	2.3655	0.3672	0.00555	0.24	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.09640279	0.41208	4.465	3.61922	0.38556	0.00547	0.1988
0	0.000	16-25	2	0.408	4.4399	2.161	0.438	0.00555	0.2665	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.09640279	0.41208	4.21791	3.30633	0.4599	0.00547	0.23139
0	0.000	26-50	2	0.408	4.728	1.5323	0.2789	0.00555	0.3389	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.09640279	0.41208	4.4916	2.34442	0.29285	0.00547	0.32044
0	0.000	16-25	2	0.408	4.4399	2.161	0.438	0.00555	0.2665	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.09640279	0.41208	4.21791	3.30633	0.4599	0.00547	0.23139
3	0.915	Onroad	Onroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94.5	0.000	100-175	2	0.367	4.1	0.8667	0.3384	0.00499	0.18	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.08671526	0.37067	3.895	1.32605	0.35532	0.00492	0.13468
126	0.000	100-175	2	0.367	4.1	0.8667	0.3384	0.00499	0.18	LoLF	1.1	2.57	2.29	1.18	1.97	-0.10131089	0.43306	4.51	2.22742	0.77494	0.00574	0.25329
3	0.000	100-175	2	0.367	4.1	0.8667	0.3384	0.00499	0.18	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.08671526	0.37067	3.895	1.32605	0.35532	0.00492	0.13468
1	0.000	175-300	2	0.367	4	0.7475	0.3085	0.00499	0.1316	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.08671526	0.37067	3.8	1.14368	0.32393	0.00492	0.07515
1	0.000	100-175	2	0.367	4.1	0.8667	0.3384	0.00499	0.18	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.08671526	0.37067	3.895	1.32605	0.35532	0.00492	0.13468
3	0.915	Onroad	Onroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.000	175-300	2	0.367	4	0.7475	0.3085	0.00499	0.1316	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.08671526	0.37067	3.8	1.14368	0.32393	0.00492	0.07515
0	0.000	16-25	2	0.408	4.4399	2.161	0.438	0.00555	0.2665	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.09640279	0.41208	4.21791	3.30633	0.4599	0.00547	0.23139
3	0.000	175-300	2	0.367	4	0.7475	0.3085	0.00499	0.1316	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.08671526	0.37067	3.8	1.14368	0.32393	0.00492	0.07515
3	0.000	175-300	2	0.367	4	0.7475	0.3085	0.00499	0.1316	Hi LF	0.95	1.53	1.05	1.01	1.23	-0.08671526	0.37067	3.8	1.14368	0.32393	0.00492	0.07515

(1) - Steady State Emission Factors from Table A4 of EPA July 2010 NR-009d Publication.

(2) - In use adjustment factors per Table A5 EPA July 2010 NR-009d Publication.

(3) - PM10 and SO2 adjustments due to Equation 3 and Equation 5 on pages 6 and 23, Respectively of EPA Report No. NR-009d

(4) - PM2.5 = PM10 * 0.97 per page 25 of EPA Report No. NR-009d

Table G-2.18
Adjusted Emission Factors

								Total Daily	Daily					Total Annual	Annual				
	Adjusted factors lbs/1000 gallon (4)							Fuel Use(5) (Gals/day)	Emissions	Lbs/day				Fuel Use(6) (Gals/yr)	Emissions	Lbs/yr			
Equipment	Tier	NOx	CO	VOC	SOx	PM10			NOx	CO	VOC	SOx	PM10		NOx	CO	VOC	SOx	PM10
Hydro Crane 35-50 Ton RT	2	170.60	31.88	13.16	0.21	1.95		12.30	2.10	0.39	0.16	0.00	0.02	2,165	369.38	69.03	28.49	0.45	4.22
RT 760 - 60 ton Crane	2	184.89	35.93	7.12	0.21	1.95		30.76	5.69	1.11	0.22	0.01	0.06	6,090	1125.92	218.82	43.35	1.27	11.88
Hydro Crane 75-80 Ton RT	2	184.89	35.93	7.12	0.21	1.95		0.00	0.00	0.00	0.00	0.00	0.00	1,353	250.20	48.63	9.63	0.28	2.64
2250 Manitowoc 300 Ton (track mounted crane)	2	184.89	35.93	7.12	0.21	1.95		25.83	4.78	0.93	0.18	0.01	0.05	3,410	630.52	122.54	24.27	0.71	6.65
40' - 60' Manlift	2	168.09	197.65	27.34	0.21	11.71		41.50	6.98	8.20	1.13	0.01	0.49	4,565	767.29	902.25	124.80	0.95	53.45
90' Manlift	2	168.09	197.65	27.34	0.21	11.71		27.67	4.65	5.47	0.76	0.01	0.32	2,739	460.38	541.35	74.88	0.57	32.07
Forklift	2	169.60	137.47	14.65	0.21	7.55		9.75	1.65	1.34	0.14	0.00	0.07	1,931	327.43	265.41	28.27	0.40	14.58
Diesel Welder 400 Amp	2	160.21	125.59	17.47	0.21	8.79		6.90	1.10	0.87	0.12	0.00	0.06	1,315	210.63	165.11	22.97	0.27	11.55
185 CFM Compressor	2	170.61	89.05	11.12	0.21	12.17		10.81	1.84	0.96	0.12	0.00	0.13	2,734	466.47	243.48	30.41	0.57	33.28
Light Tower 5 KW	2	160.21	125.59	17.47	0.21	8.79		9.58	1.53	1.20	0.17	0.00	0.08	2,388	382.55	299.87	41.71	0.50	20.99
Water Truck 4000 Gal	Onroad	173.70	86.54	15.22	0.21	7.61		7.83	1.36	0.68	0.12	0.00	0.06	2,066	358.83	178.77	31.44	0.43	15.72
Track 330 Excavator	2	164.48	56.00	15.00	0.21	5.69		0.00	0.00	0.00	0.00	0.00	0.00	2,478	407.56	138.75	37.18	0.51	14.09
RT Hoe 710 (Backhoe)	2	163.01	80.51	28.01	0.21	9.15		11.85	1.93	0.95	0.33	0.00	0.11	3,910	637.35	314.78	109.51	0.81	35.79
Roller	2	164.48	56.00	15.00	0.21	5.69		12.61	2.07	0.71	0.19	0.00	0.07	3,051	501.84	170.85	45.78	0.63	17.35
950/960 Loader	2	160.47	48.29	13.68	0.21	3.17		31.43	5.04	1.52	0.43	0.01	0.10	10,371	1664.26	500.89	141.87	2.16	32.91
Cat D6 Dozer	2	164.48	56.00	15.00	0.21	5.69		0.00	0.00	0.00	0.00	0.00	0.00	2,240	368.38	125.41	33.61	0.47	12.74
Dump Truck	Onroad	173.70	86.54	15.22	0.21	7.61		0.00	0.00	0.00	0.00	0.00	0.00	475	82.53	41.12	7.23	0.10	3.62
Grader	2	160.47	48.29	13.68	0.21	3.17		0.00	0.00	0.00	0.00	0.00	0.00	1,479	237.38	71.44	20.24	0.31	4.69
Fusion Machine	2	160.21	125.59	17.47	0.21	8.79		0.00	0.00	0.00	0.00	0.00	0.00	1,264	202.53	158.76	22.08	0.26	11.11
Asphalt Paver	2	160.47	48.29	13.68	0.21	3.17		0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Paving Equipment	2	160.47	48.29	13.68	0.21	3.17		0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00

(1) - Steady State Emission Factors from Table A4 of EPA July 2010 NR-009d Publication.

(2) - In use adjustment factors per Table A5 EPA July 2010 NR-009d Publication.

(3) - PM10 and SO2 adjustments due to Equation 3 and Equation 5 on pages 6 and 23, Respectively of EPA Report No. NR-009d

(4) - Calculation uses adjusted BSFC and assumed 7.1 lbs/gallon. The onroad emission factors are not adjusted.

(5) - Daily fuel use based on peak combustion month equipment schedule.

(6) - Annual fuel use based on average level during peak 12-month period.

Table G-2.19
Combustion Emission Ranking

Combustion Emission Ranking Equipment	Hrs/Day Per Unit (1)	Gals/Hr Per Unit	Month															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hydro Crane 35-50 Ton RT	3.4	3.6	0	0	0	0	12	12	12	**12**	12	12	12	12	0	0	0	0
RT 760 - 60 ton Crane	3.4	12.9	0	44	44	44	88	88	88	**88**	88	88	88	44	0	0	0	0
Hydro Crane 75-80 Ton RT	3.4	12.9	0	0	0	0	0	0	0	**0**	44	44	44	44	44	44	44	44
2250 Manitowoc 300 Ton (track mounted crane)	3.4	21.7	0	0	0	0	74	74	74	**74**	74	74	0	0	0	0	0	0
40' - 60' Manlift	4	5.8	0	0	0	0	69	115	184	**207**	184	138	92	46	0	0	0	0
90' Manlift	4	5.8	0	0	0	0	46	69	92	**138**	92	92	46	46	0	0	0	0
Forklift	2.4	5.8	14	14	14	14	28	28	28	**28**	28	28	14	14	14	14	14	14
Diesel Welder 400 Amp	3.6	1.3	0	9	9	9	9	9	9	**14**	14	14	14	9	9	9	5	5
185 CFM Compressor	3.8	2.8	22	22	22	22	22	22	22	**22**	22	22	22	11	11	0	0	0
Light Tower 5 KW	5	1.3	13	19	19	19	19	19	19	**19**	19	19	19	13	6	6	6	6
Water Truck 4000 Gal	5	3.1	16	16	16	16	16	16	16	**16**	16	16	16	16	16	16	16	16
Track 330 Excavator	4.6	14.0	64	64	64	64	64	0	0	**0**	0	0	0	0	0	0	0	0
RT Hoe 710 (Backhoe)	3.7	9.1	0	68	68	68	68	34	34	**34**	34	34	34	34	0	0	0	0
Roller	4.6	7.8	0	36	36	36	36	36	36	**36**	36	36	36	36	36	36	0	36
950/960 Loader	4.3	14.6	0	126	126	126	126	63	63	**63**	63	63	63	63	63	63	0	0
Cat D6 Dozer	5.2	13.1	68	68	68	0	0	0	0	**0**	0	0	0	0	0	0	0	0
Dump Truck	4.6	3.1	14	14	14	0	0	0	0	**0**	0	0	0	0	0	0	0	0
Grader	4.6	10.4	48	48	48	0	0	0	0	**0**	0	0	0	48	48	48	0	0
Fusion Machine	5	1.3	19	19	19	19	19	19	0	**0**	0	0	0	0	0	0	0	0
Asphalt Paver	4.7	6.3	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	29
Paving Equipment	4.7	6.3	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	29
		Total =	278	567	567	436	696	604	677	**751**	725	679	499	436	247	236	84	179
		12-month Total =												6914	6883	6552	6070	5813

Table G-2.20
Vehicle Emission Factors

	Emission Factors (1)					
	NOx	CO	VOC	SOx	PM10	
Truck Hauling (lbs/vmt)	0.03205	0.01597	0.00281	0.00004	0.00140	
Truck Hauling (lbs/1000 gals)	173.70	86.54	15.22	0.21	7.61	
Notes:						
(1) From EMFAC 2007 V.2.3, heavy-heavy duty Diesel trucks, fleet average for calendar year 2011, Fresno County.						
	Emission Factors					
	NOx	CO	POC	SOx	PM10	
Light Duty Trucks/Cars (lbs/vmt)(1)	0.00081	0.00809	0.00077	0.00001	0.00009	
Light Duty Trucks (lbs/1000 gals)(2)	18.19	157.61	14.43	0.18	1.92	
Medium Duty Trucks (lbs/1000 gals)(3)	17.57	136.64	11.07	0.18	1.51	

Notes:

(1) From EMFAC 2007 V.2.3, average of light duty automobiles and light duty trucks, fleet average for calendar year 2011.

(2) From EMFAC 2007 V.2.3, light duty trucks (gasoline and Diesel), fleet average for calendar year 2011.

(3) From EMFAC EMFAC 2007 V.2.3, medium duty trucks (gasoline and Diesel), fleet average for calendar year 2011.

Gasoline Equipment Factors - Small Engines					
			(gm/bhp-hr)		
	NOx	CO	POC	SO2	PM10
Small Equipment(1) (g/bhp-hr)	0.0066	0.082	0.0010	0.00059	0.00072
Small Equipment(1) (lb/1000 gal)	116.78	1459.70	17.75	10.49	12.80

Notes:

(1) NOx, CO and VOC factors reflect Tier 1 Emissions Standards for Large SI Engines, effective starting in 2004.
SO2 and PM10 factors from AP-42 Table 3.3-1.

Table G-2.21: EmFac Emissions Inventory (tons per day)

Title : 2011 Annual San Diego County
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/11/24 16:25:30
Scen Year: 2011 -- All model years in the range 1967 to 2011 selected
Season : Annual
Area : San Diego County
I/M Stat : Enhanced Interim (2005)
Emissions: Tons Per Day

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCAT	LDT1-CAT	LDT1-DSL	LDT1-TOT	LDT2-NCAT	LDT2-CAT	LDT2-DSL	LDT2-TOT	MDV-NCAT	MDV-CAT	MDV-DSL	MDV-TOT	HDT1-NCA	HDT1-CA	HDT1-DSL	HDT1-TO	HDT2-NCA	HDT2-CAT	HDT2-DSL	HDT2-TOT	MHDT-NCA	MHDT-CAT
Vehicles	10799	1177670	3662	1192130	3846	190927	9152	203925	2601	548192	1010	551803	1629	212372	851	214852	154	30957	9336	40447	58	5695	5846	11599	365	3421
VMT/1000	177	42986	88	43251	75	7416	299	7790	51	21118	30	21199	38	8725	31	8794	4	1397	444	1844	1	243	243	487	3	171
Trips	42501	7404550	19802	7466860	15257	1200740	55985	1271980	10405	3448290	5887	3464580	6912	1341740	5280	1353930	5089	1023640	117438	1146170	1922	188320	73536	263779	16650	156243
Reactive Organic Gas Emissions																										
Run Exh	1.23	3.2	0.01	4.44	0.54	0.43	0.02	1	0.36	1.63	0	2	0.36	0.89	0	1.25	0.03	0.62	0.1	0.74	0.01	0.09	0.08	0.17	0.02	0.1
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04	0	0.04	0	0.01	0	0.01	0	0.01
Start Ex	0.24	3.89	0	4.14	0.09	0.52	0	0.6	0.06	1.98	0	2.04	0.05	0.99	0	1.04	0.03	0.61	0	0.65	0.01	0.11	0	0.13	0.16	0.22
Total Ex	1.47	7.09	0.01	8.58	0.63	0.95	0.02	1.6	0.42	3.62	0	4.04	0.41	1.89	0	2.3	0.06	1.27	0.1	1.43	0.02	0.21	0.08	0.3	0.19	0.33
Diurnal	0.07	0.83	0	0.9	0.02	0.12	0	0.14	0.02	0.38	0	0.4	0	0.13	0	0.13	0	0	0	0	0	0	0	0	0	0
Hot Soak	0.15	1.36	0	1.51	0.05	0.21	0	0.26	0.04	0.63	0	0.67	0.01	0.21	0	0.22	0	0.05	0	0.06	0	0.01	0	0.01	0.01	0.01
Running	0.84	3.58	0	4.42	0.19	0.9	0	1.09	0.12	3.04	0	3.15	0.02	0.97	0	0.99	0.02	0.71	0	0.73	0.01	0.14	0	0.15	0.08	0.1
Resting	0.06	0.63	0	0.69	0.02	0.1	0	0.12	0.01	0.3	0	0.31	0	0.11	0	0.11	0	0	0	0	0	0	0	0	0	0
Total	2.58	13.5	0.01	16.09	0.91	2.28	0.02	3.21	0.6	7.97	0	8.58	0.44	3.3	0	3.75	0.09	2.04	0.1	2.23	0.03	0.36	0.08	0.47	0.27	0.43
Carbon Monoxide Emissions																										
Run Exh	15.61	100.66	0.07	116.35	6.64	19.44	0.19	26.27	4.44	64.39	0.02	68.85	5.92	28.7	0.02	34.63	0.55	6.92	0.55	8.01	0.18	1	0.35	1.53	0.5	1.67
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.26	0.01	0.27	0	0.05	0.01	0.05	0	0.04
Start Ex	1.42	45.58	0	47	0.52	7.37	0	7.89	0.35	25.37	0	25.72	0.44	11.2	0	11.64	0.23	7.58	0	7.81	0.09	1.28	0	1.36	1.1	3.78
Total Ex	17.03	146.24	0.07	163.35	7.16	26.81	0.19	34.16	4.78	89.76	0.02	94.57	6.36	39.9	0.02	46.27	0.77	14.76	0.56	16.09	0.27	2.33	0.35	2.95	1.61	5.5
Oxides of Nitrogen Emissions																										
Run Exh	0.86	10.22	0.15	11.23	0.36	1.76	0.51	2.64	0.24	8.89	0.05	9.19	0.3	4.45	0.05	4.8	0.01	0.92	1.93	2.86	0	0.16	1.31	1.47	0.01	0.45
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03	0.03	0	0	0.02	0.02	0	0
Start Ex	0.07	3.01	0	3.07	0.02	0.48	0	0.5	0.02	2.51	0	2.53	0.02	1.13	0	1.15	0	1.99	0	1.99	0	0.37	0	0.37	0.02	0.49
Total Ex	0.93	13.23	0.15	14.31	0.39	2.24	0.51	3.14	0.26	11.41	0.05	11.72	0.31	5.58	0.05	5.95	0.01	2.9	1.96	4.87	0	0.52	1.32	1.85	0.03	0.94
Carbon Dioxide Emissions (000)																										
Run Exh	0.1	18.19	0.03	18.33	0.04	3.91	0.11	4.07	0.03	11.17	0.01	11.21	0.03	6.31	0.01	6.35	0	1.49	0.25	1.75	0	0.26	0.14	0.4	0	0.13
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0	0	0	0	0
Start Ex	0.01	0.59	0	0.6	0	0.12	0	0.12	0	0.34	0	0.34	0	0.18	0	0.18	0	0.05	0	0.05	0	0.01	0	0.01	0	0.01
Total Ex	0.11	18.78	0.03	18.93	0.05	4.03	0.11	4.19	0.03	11.51	0.01	11.56	0.03	6.5	0.01	6.54	0.01	1.55	0.26	1.81	0	0.27	0.14	0.41	0.01	0.14
PM10 Emissions																										
Run Exh	0.01	0.59	0.01	0.61	0	0.11	0.01	0.13	0	0.7	0	0.71	0	0.28	0	0.29	0	0.02	0.02	0.05	0	0	0.02	0.02	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.06	0	0.06	0	0.01	0	0.01	0	0.06	0	0.06	0	0.02	0	0.02	0	0	0	0	0	0	0	0	0	0
Total Ex	0.01	0.65	0.01	0.67	0	0.12	0.01	0.14	0	0.77	0	0.77	0	0.31	0	0.31	0	0.03	0.02	0.05	0	0	0.02	0.02	0	0
TireWear	0	0.38	0	0.38	0	0.07	0	0.07	0	0.19	0	0.19	0	0.08	0	0.08	0	0.02	0.01	0.02	0	0	0	0.01	0	0
BrakeWr	0	0.59	0	0.6	0	0.1	0	0.11	0	0.29	0	0.29	0	0.12	0	0.12	0	0.02	0.01	0.03	0	0	0	0.01	0	0
Total	0.01	1.62	0.01	1.65	0	0.29	0.02	0.32	0	1.24	0	1.25	0	0.51	0	0.51	0	0.06	0.04	0.1	0	0.01	0.02	0.04	0	0.01
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.18	0	0.18	0	0.04	0	0.04	0	0.11	0	0.11	0	0.06	0	0.06	0	0.02	0	0.02	0	0	0	0	0	0
Fuel Consumption (000 gallons)																										
Gasoline	14.63	1948.96	0	1963.59	6.11	417.64	0	423.75	4.15	1194.35	0	1198.5	4.16	672.06	0	676.22	0.67	161.1	0	161.77	0.23	27.98	0	28.21	0.96	15.05
Diesel	0	0	3.12	3.12	0	0	10.27	10.27	0	0	1.04	1.04	0	0	1.05	1.05	0	0	23.03	23.03	0	0	12.87	12.87	0	0

Table G-2.21 Cont.

MHDT-DSL	MHDT-TOT	IHDT-NCA	IHDT-CAT	IHDT-DSL	HHDT-TOT	OBUS-NCA	OBUS-CAT	OBUS-DSL	OBUS-TOT	SBUS-NCA	SBUS-CAT	SBUS-DSL	SBUS-TOT	UB-NCAT	UB-CAT	UB-DSL	UB-TOT	MH-NCAT	MH-CAT	MH-DSL	MH-TOT	MCY-NCAT	MCY-CAT	MCY-DSL	MCY-TOT	ALL-TOT
15142	18928	39	525	8344	8908	27	814	864	1704	64	240	1798	2102	8	157	714	880	891	24873	3044	28808	54097	30036	0	84132	2360220
1003	1177	1	51	1516	1567	0	42	55	97	3	11	85	100	1	22	101	124	9	330	41	380	467	330	0	797	87607
424576	597468	1787	23990	42223	68000	1232	37162	24219	62614	256	960	7193	8408	33	628	2857	3518	89	2488	304	2882	108182	60065	0	168247	1.6E+07
0.25	0.37	0.01	0.18	1.65	1.84	0	0.03	0.01	0.04	0.02	0.02	0.03	0.08	0.01	0.02	0.09	0.12	0.06	0.13	0	0.19	2.19	0.79	0	2.98	15.22
0.01	0.01	0	0	0.19	0.19	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.26
0	0.39	0.03	0.11	0	0.15	0.01	0.05	0	0.07	0	0	0	0.01	0	0	0	0	0	0	0	0	0.28	0.14	0	0.42	9.62
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
0.25	0.77	0.04	0.29	1.84	2.17	0.01	0.08	0.01	0.11	0.03	0.03	0.04	0.09	0.01	0.03	0.09	0.12	0.06	0.13	0	0.2	2.47	0.93	0	3.4	25.11
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.02	0.13	0	0.16	1.74
0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0.05	0	0.07	2.82
0	0.17	0.01	0.02	0	0.03	0.01	0.01	0	0.02	0	0	0	0.01	0	0	0	0	0	0.01	0	0.01	0.14	0.19	0	0.33	11.1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0.08	0	0.1	1.34
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
0.25	0.96	0.05	0.31	1.84	2.2	0.02	0.1	0.01	0.13	0.03	0.03	0.04	0.1	0.01	0.03	0.09	0.13	0.06	0.15	0	0.21	2.68	1.38	0	4.06	42.11
2.37	4.54	0.32	2.48	6.8	9.61	0.04	0.48	0.12	0.64	0.53	0.28	0.29	1.1	0.22	0.21	0.4	0.83	1.4	3.64	0.05	5.08	30.16	5.42	0	35.58	313.04
0.04	0.09	0	0	0.74	0.74	0	0.01	0	0.01	0.01	0.02	0.03	0.05	0	0	0	0	0	0	0	0	0	0	0	0	1.22
0	4.89	0.55	1.61	0	2.17	0.08	0.92	0	1.01	0.02	0.06	0	0.08	0	0.03	0	0.03	0.01	0.04	0	0.05	0.93	0.85	0	1.78	111.42
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
2.41	9.52	0.87	4.1	7.54	12.51	0.12	1.42	0.13	1.66	0.56	0.35	0.32	1.23	0.23	0.23	0.4	0.86	1.41	3.68	0.05	5.13	31.09	6.27	0	37.36	425.68
8.48	8.94	0.01	0.66	22.48	23.15	0	0.15	0.42	0.57	0.01	0.04	1.05	1.11	0	0.06	2	2.06	0.03	0.49	0.36	0.88	0.68	0.39	0	1.06	69.95
0.12	0.12	0	0	1.73	1.73	0	0	0.01	0.01	0	0	0.08	0.08	0	0	0	0	0	0	0	0	0	0	0	0	1.99
0	0.51	0.01	0.21	0	0.22	0	0.13	0	0.13	0	0	0	0	0	0	0	0	0	0	0	0	0.04	0.02	0	0.06	10.55
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
8.61	9.57	0.02	0.88	24.21	25.11	0	0.28	0.43	0.71	0.01	0.05	1.13	1.19	0	0.07	2	2.07	0.03	0.49	0.36	0.88	0.72	0.4	0	1.12	82.49
1.66	1.8	0	0.03	3.06	3.09	0	0.03	0.09	0.12	0	0.01	0.14	0.15	0	0.02	0.3	0.32	0.01	0.25	0.07	0.32	0.06	0.07	0	0.13	48.05
0.01	0.01	0	0	0.1	0.1	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.13
0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0.01	1.33
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
1.67	1.81	0	0.03	3.16	3.2	0	0.03	0.09	0.13	0	0.01	0.15	0.16	0	0.02	0.3	0.32	0.01	0.25	0.07	0.32	0.07	0.07	0	0.14	49.51
0.29	0.29	0	0	0.96	0.96	0	0	0.02	0.02	0	0	0.04	0.04	0	0	0.03	0.04	0	0	0.01	0.01	0.03	0	0	0.03	3.19
0	0	0	0	0.03	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
0.29	0.29	0	0	0.99	0.99	0	0	0.02	0.02	0	0	0.04	0.04	0	0	0.03	0.04	0	0	0.01	0.01	0.03	0	0	0.03	3.39
0.01	0.02	0	0	0.06	0.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0.83
0.01	0.02	0	0	0.05	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0.01	1.23
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
0.32	0.33	0	0	1.09	1.1	0	0	0.02	0.02	0	0	0.05	0.05	0	0	0.04	0.04	0	0.01	0.01	0.02	0.04	0	0	0.04	5.46
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0.02	0	0	0.03	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.48
0	16.01	0.23	4.18	0	4.41	0.07	3.69	0	3.76	0.38	1.1	0	1.48	0.14	1.92	0	2.05	0.95	26.14	0	27.09	12.65	8.65	0	21.3	4528.15
150.31	150.31	0	0	284.71	284.71	0	0	8.24	8.24	0	0	13.14	13.14	0	0	26.8	26.8	0	0	6.11	6.11	0	0	0	0	540.69

Table G-2.22
Dust Emission Ranking

Dust Emission Ranking Equipment	Hrs/Day Per Unit (1)	PM10 lbs/hr Per Unit	Month															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hydro Crane 35-50 Ton RT	3.4	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RT 760 - 60 ton Crane	3.4	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Crane 75-80 Ton RT	3.4	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2250 Manitowoc 300 Ton (track mounted crane)	3.4	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40' - 60' Manlift	4	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90' Manlift	4	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	2.4	0.4	1.05	1.05	1.05	1.05	2.09	2.09	2.09	2.09	2.09	2.09	1.05	1.05	1.05	1.05	1.05	1.05
Diesel Welder 400 Amp	3.6	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185 CFM Compressor	3.8	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Tower 5 KW	5	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck 4000 Gal	5	0.7	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62
Track 330 Excavator	4.6	0.0	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RT Hoe 710 (Backhoe)	3.7	0.2	0.00	1.41	1.41	1.41	1.41	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.00	0.00	0.00	0.00
Roller	4.6	0.8	0.00	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	0.00	3.80
950/960 Loader	4.3	0.3	0.00	2.37	2.37	2.37	2.37	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	0.00	0.00
Cat D6 Dozer	5.2	0.4	2.18	2.18	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck	4.6	0.4	1.68	1.68	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	4.6	0.3	1.27	1.27	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	1.27	1.27	0.00	0.00
Fusion Machine	5	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Paver	4.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88
Paving Equipment	4.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88
Total			9.8	17.4	17.4	12.3	13.3	11.4	11.4	11.4	11.4	11.4	10.3	11.6	10.9	10.9	4.7	16.2
			56%	100%	100%	71%	77%	66%	66%	66%	66%	66%	60%	12 67%	13 63%	12 63%	11 27%	11 93%

APPENDIX G-3

Emissions and Operating Parameters

Table G-3.1

Pio Pico Energy Center

Emissions and Operating Parameters for Gas Turbine

Case	1) Hot Peak	2) Avg Peak	3) Cold Peak	4) Hot Low	5) Avg Low	6) Cold Low
CTG Gross Power, MW	100	100	100	100	100	100
Ambient Temp, F	110	63	30	122	63	30
Turbine Load, %	100%	100%	100%	50%	50%	50%
CTG Heat Input, MMBTU/Hr (HHV)	852	903	890	653	546	542
Stack Flow, lb/hr	1,598,692	1,691,263	1,730,193	1,312,293	1,158,831	1,168,649
Stack Flow, acfm	877,825	913,717	909,632	733,309	646,428	645,580
Stack Flw, dscfm	320,354	340,311	349,912	263,898	236,320	238,986
Stack Temp, F	802	785	754	825	831	820
Stack Exhaust, vol %						
O2 (dry)	13.07%	13.08%	13.40%	13.60%	14.10%	14.22%
CO2 (dry)	4.50%	4.49%	4.31%	4.20%	3.92%	3.85%
H2O	11.43%	10.86%	10.23%	11.06%	9.22%	8.85%
Emissions						
NOx, ppmvd @ 15% O2	2.5	2.5	2.5	2.5	2.5	2.5
NOx, lb/hr	7.72	8.18	8.07	5.92	4.94	4.92
NOx, lb/MMBtu	0.0091	0.0091	0.0091	0.0091	0.0091	0.0091
SO2, ppmvd @ 15% O2	0.4	0.4	0.4	0.4	0.4	0.4
SO2, lb/hr short-term)	1.79	1.90	1.87	1.38	1.15	1.14
SO2, lb/MMBtu (short-term)	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
SO2, lb/hr (long-term)	0.60	0.63	0.62	0.46	0.38	0.38
SO2, lb/MMBtu (long-term)	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
CO, ppmvd @ 15% O2	4.0	4.0	4.0	4.0	4.0	4.0
CO, lb/hr	7.52	7.97	7.86	5.77	4.82	4.79
CO, lb/MMBtu	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088
VOC, ppmvd @ 15% O2	2.0	2.0	2.0	2.0	2.0	2.0
VOC, lb/hr	2.15	2.28	2.25	1.65	1.38	1.37
VOC, lb/MMBtu	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
PM10, gr/dscf	0.0020	0.0019	0.0018	0.0024	0.0027	0.0027
PM10, lb/hr	5.50	5.50	5.50	5.50	5.50	5.50
PM10, lb/MMBtu	0.0065	0.0061	0.0062	0.0084	0.0101	0.0101
NH3, ppmvd @ 15% O2	5.0	5.0	5.0	5.0	5.0	5.0
NH3, lb/hr	5.71	6.05	5.96	4.38	3.66	3.63

Table G-3.2
Calculation of Wet SAC Emissions
Pio Pico Energy Center

Typical Worst-Case Design Parameters		
	Per Cell	Total
Water Flow Rate, 10E6 lbm/hr	0.980	11.755
Water Flow Rate, gal/min	1960.000	23520.000
Drift Rate, %	0.001	0.001
Drift, lbm water/hr	9.796	117.553
PM10 Emissions based on TDS Level		
TDS level, ppm	5600.000	5600.000
PM, lb/hr	0.055	0.658
PM, lb/day	1.317	15.799
PM, tpy	0.119	1.428
PM10, lb/hr	0.055	0.658
PM10, lb/day	1.317	15.799
PM10, tpy	0.119	1.428
PM2.5, lb/hr	0.055	0.658
PM2.5, lb/day	1.317	15.799
PM2.5, tpy	0.119	1.428
PM2.5, g/s	6.912E-03	8.295E-02
Based on 4337	hrs/yr	

Table G-3.3
Pio Pico Energy Center
Detailed Calculations for Maximum Hourly, Daily, and Annual Criteria Pollutant Emissions

Daily Emission Scenario		NOx	SOx	CO	VOC	PM10
Equipment	hrs/day	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Gas Turbine, baseload (each)	16	8.18	1.90	7.97	2.28	5.5
Gas Turbine, shutdowns	4	12.68	1.90	53.51	5.81	5.5
Gas Turbine, startups	4	26.63	1.90	21.84	6.53	5.5

Annual Emission Scenario		NOx	SOx	CO	VOC	PM10
Equipment	hrs/yr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Gas Turbine, baseload (each)	3335	8.18	0.63	7.97	2.28	5.5
Gas Turbine, shutdowns	500	12.68	0.63	53.51	5.81	5.5
Gas Turbine, startups	500	26.63	0.63	21.84	6.53	5.5

NOTE: Annual SO2 emissions based on 0.25 gr/100 scf

	NOx			SOx			CO			VOC			PM10		
	Max	Max	Total	Max	Max	Total	Max	Max	Total	Max	Max	Total	Max	Max	Total
Equipment	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy
Gas Turbine 1	26.6	288.1	23.5	1.9	45.6	1.4	53.5	428.9	32.1	6.5	85.9	6.9	5.5	132.0	11.92
Gas Turbine 2	26.6	288.1	23.5	1.9	45.6	1.4	53.5	428.9	32.1	6.5	85.9	6.9	5.5	132.0	11.92
Gas Turbine 3	26.6	288.1	23.5	1.9	45.6	1.4	53.5	428.9	32.1	6.5	85.9	6.9	5.5	132.0	11.92
Cooling Tower	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1
Total	79.9	864.3	70.4	5.7	136.8	4.1	160.5	1286.6	96.4	19.6	257.7	20.7	16.5	396.8	35.8
	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy	lb/hr	lb/day	tpy

Table G-3.4
Startup Emissions
Pio Pico Energy Center
Maximum Hour Emissions

	0-30 minutes	31-60 minutes	lb/hr
NOx, lbs	22.54	4.09	26.63
CO, lbs	17.86	3.98	21.84
VOC, lbs	4.67	1.14	5.81

Table G-3.5
Shutdown Emissions
Pio Pico Energy Center
Maximum Hour Emissions

	10-49 minutes	50-60 minutes	lb/hr
NOx, lbs	6.68	6.00	12.68
CO, lbs	6.51	47.00	53.51
VOC, lbs	1.86	4.67	6.53

Table G-3.6
Commissioning Emissions--Maximum Hour Emissions
Pio Pico Energy Center

	NOx	**CO**	**SO2**	**PM10**
lb/hr	50	75	0.63	5.5
g/s	6.30	9.45	0.08	0.69

Table G-3.7
Greenhouse Gas Emissions Calculations: Project Operation

Unit	Rated Capacity, MW	Operating Hours per year	Maximum Fuel Use, MMBtu/yr	Estimated Gross Annual MWh	Maximum Emissions, metric tonnes/yr				Estimated Emissions, metric tonnes/MWh		
					CO2	CH4	N2O	SF6	CO2	CH4	N2O
Turbine 1	100.0	4337	3,914,556	433,700	206,963	3.52	0.39	0.00	0.477	8.12E-06	9.03E-07
Turbine 2	100.0	4335	3,914,556	433,700	206,963	3.52	0.39	0.00	0.477	8.12E-06	9.03E-07
Turbine 3	100.0	4335	3,914,556	433,700	206,963	3.52	0.39	0.00	0.477	8.12E-06	9.03E-07
Total	--	--	11,743,669	1,301,100	620,888	11	1	0	0.477	8.12E-06	9.03E-07
CO2eq					620,888	222	364	0			
							TOTAL	621,474			

Natural Gas GHG Emission Rates (Note 1)

	Emission Factors, kg/MMBtu			
	CO2 (2)	CH4 (3)	N2O (3)	SF6
Natural Gas	52.870	9.00E-04	1.00E-04	n/a
Global Warming Potential (4)	1	21	310	23,900

Notes:
1. Calculation methods and emission factors from ARB, "Regulation for the Mandatory Reporting of Greenhouse Gas
2. Appendix A, Table 4; heat content 1000 to 1025 Btu/scf.
3. Appendix A, Table 6.
4. Appendix A, Table 2.

APPENDIX G-4

Modeling Analysis

Dispersion modeling was conducted following the modeling protocol presented in Appendix G-8. The analysis followed the protocol with the following exceptions:

- Under guidance from the District, the analysis was based on the three year period 2006-2008 (instead of the five year period 2004-2008). A supplemental PSD analysis will be submitted to EPA that covers the full five-year period.
- Under guidance from the District, in-stack NO/NOx ratios of 0.13 (normal operations) and 0.24 (Commissioning, startup, and other situations where SCR is not fully operational) were used instead of 0.10, as proposed in the protocol. The District's recommendation for normal operations is based on source tests of four natural-gas-fired LM6000PC SPRINT turbines equipped with water injection, SCR, and oxidation catalysts. These appear to be the closest analogue to the LMS100 proposed for Pio Pico (i.e., aeroderivative, simple cycle, diffusion flame combustors, same NOx controls, oxidation catalysts, and interstage cooling—albeit with water injection for the SPRINTs). The value is an average over the four turbines (rounded up) of the average NO_2/NOx ratio for each turbine. The average NO_2/NOx ratios for the four turbines were 0.0393 (2 tests), 0.0603 (2 tests), 0.185 (1 test), and 0.205 (1 test), respectively.

  For situations when the SCR is not operating, the ratio is based on source tests of 11 natural-gas-fired GE Frame 5 turbines. These turbines all have water injection but no other NOx controls and no oxidation catalyst. The NO_2/NOx ratio for these turbines ranges from about 0.18 to 0.285 (averaged over 7-10 source tests of each turbine).

Electronic modeling and meteorological data files are provided on a separate CD.

Table G-4.1

Screening Modeling Inputs

Pio Pico Energy Center

Operating Mode	Ambient Temp deg F	Stack height feet	Stack Diam feet	Stack flow wacfm	Stack Vel ft/sec	Stack Temp deg F	Stack Height meters	Stack Diam Meters	Stack flow m3/sec	Stack Vel m/sec	Stack Temp deg K
Startup/shutdown	30	100	14.5	733,309	74.01	825	30.48	4.4196	346.13	22.56	713.8
Hot Peak	110	100	14.5	877,825	88.60	802	30.48	4.4196	414.34	27.01	700.9
Avg Peak	63	100	14.5	913,717	92.22	785	30.48	4.4196	431.28	28.11	691.2
Cold Peak	30	100	14.5	909,632	91.81	754	30.48	4.4196	429.36	27.98	674.0
Hot Low	122	100	14.5	733,309	74.01	825	30.48	4.4196	346.13	22.56	713.8
Avg Low	63	100	14.5	646,428	65.24	831	30.48	4.4196	305.12	19.89	717.2
Cold Low	30	100	14.5	645,580	65.16	820	30.48	4.4196	304.72	19.86	711.2

Operating Mode	NOx lb/hr	CO lb/hr	SOx lb/hr	PM10 lb/hr	NOx g/sec	CO g/sec	SOx g/sec	PM10 g/sec
Startup/Shutdown	26.63	53.51			3.36	6.74		
Hot Peak	7.72	7.52	1.79	5.50	0.97	0.95	0.23	0.69
Avg Peak	8.18	7.97	1.90	5.50	1.03	1.00	0.24	0.69
Cold Peak	8.07	7.86	1.87	5.50	1.02	0.99	0.24	0.69
Hot Low	5.92	5.77	1.38	5.50	0.75	0.73	0.17	0.69
Avg Low	4.94	4.82	1.15	5.50	0.62	0.61	0.14	0.69
Cold Low	4.92	4.79	1.14	5.50	0.62	0.60	0.14	0.69

Table G-4.2

Startup Modeling Inputs

Pio Pico Energy Center

Case	Amb Temp	Stack height	Stack Diam	Stack flow	Stack Vel	Stack Temp	Stack Height	Stack Diam	Stack flow	Stack Vel	Stack Temp
	deg F	feet	feet	wacfm	ft/sec	deg F	meters	meters	m3/sec	m/sec	deg K
Hot Low	122	100	14.5	733,309	74.01	825.1	30.48	4.42	346.13	22.56	713.8

Table G-4.3

Commissioning Modeling Inputs

Pio Pico Energy Center

Case	Amb Temp	Stack height	Stack Diam	Stack flow	Stack Vel	Stack Temp	Stack Height	Stack Diam	Stack flow	Stack Vel	Stack Temp
	deg F	feet	feet	wacfm	ft/sec	deg F	meters	meters	m3/sec	m/sec	deg K
Cold Low	30	100	14.5	645,580	65.16	820	30.48	4.42	304.72	19.86	711.2

Table G-4.4
Screening Modeling Results
Pio Pico Energy Center

Operating Mode/Year	Conc. (ug/m3) NO2 1-hr	Conc. (ug/m3) CO 1-hr	Conc. (ug/m3) SO2 1-hr	Conc. (ug/m3) SO2 3-hr	Conc. (ug/m3) CO 8-hr	Conc. (ug/m3) PM10 24-hr	Conc. (ug/m3) SO2 24-hr	Conc. (ug/m3) NO2 Annual	Conc. (ug/m3) PM10 Annual	Conc. (ug/m3) SO2 Annual
2008 Met Data										
Startup/shutdown	100.3	201.6	0.0	0.0	38.9	0.0	0.0	N/A	N/A	N/A
Hot Peak	25.7	25.0	6.0	2.3	4.8	1.3	0.4	0.25	0.18	0.06
Avg Peak	26.5	25.8	6.2	2.4	5.0	1.3	0.5	0.26	0.18	0.06
Cold Peak	**26.6**	**25.9**	**6.2**	2.4	5.0	1.3	0.5	0.26	0.18	0.06
Hot Low	22.3	21.7	5.2	2.0	4.2	1.5	0.4	0.23	0.22	0.05
Avg Low	20.4	19.9	4.7	1.8	3.9	1.7	0.4	0.22	0.25	0.05
Cold Low	20.4	19.9	4.7	1.8	3.9	1.7	0.4	0.22	0.25	0.05
2007 Met Data										
Startup/shutdown	89.0	178.7	0.0	0.0	36.3	0.0	0.0	N/A	N/A	N/A
Hot Peak	22.7	22.1	5.3	2.1	4.7	1.3	0.4	0.26	0.18	0.06
Avg Peak	23.4	22.8	5.4	2.2	4.9	1.3	0.5	0.27	0.18	0.06
Cold Peak	23.5	22.9	5.5	2.2	4.9	1.3	0.5	0.27	0.18	0.06
Hot Low	19.8	19.3	4.6	1.8	3.9	1.5	0.4	0.22	0.20	0.05
Avg Low	18.1	17.6	4.2	1.7	3.6	1.6	0.3	0.20	0.23	0.05
Cold Low	18.1	17.6	4.2	1.7	3.5	1.6	0.3	0.20	0.23	0.05
2006 Met Data										
Startup/shutdown	95.6	192.0	0.0	0.0	47.4	0.0	0.0	N/A	N/A	N/A
Hot Peak	24.8	24.1	5.8	3.1	5.9	1.9	0.6	0.29	0.21	0.07
Avg Peak	25.8	25.1	6.0	3.2	6.1	1.9	0.6	0.30	0.20	0.07
Cold Peak	25.8	25.1	6.0	**3.2**	**6.2**	1.9	**0.6**	**0.30**	0.21	**0.07**
Hot Low	21.2	20.7	4.9	2.7	5.1	2.3	0.6	0.25	0.23	0.06
Avg Low	20.3	19.8	4.7	2.4	4.7	2.6	0.5	0.23	0.26	0.05
Cold Low	20.3	19.8	4.7	2.4	4.7	**2.6**	0.5	0.23	**0.26**	0.05

Table G-4.5
Fumigation Modeling
Pio Pico Energy Center

Emission Rates **Operating Mode**	**NOx lb/hr**	**CO lb/hr**	**SOx lb/hr**	**PM10 lb/hr**		**NOx g/sec**	**CO g/sec**	**SOx g/sec**	**PM10 g/sec**
Startup/Shutdown	26.63	53.51				3.36	6.74		
Hot Peak	7.72	7.52	1.79	5.50		0.97	0.95	0.23	0.69
Avg Peak	8.18	7.97	1.90	5.50		1.03	1.00	0.24	0.69
Cold Peak	8.07	7.86	1.87	5.50		1.02	0.99	0.24	0.69
Hot Low	5.92	5.77	1.38	5.50		0.75	0.73	0.17	0.69
Avg Low	4.94	4.82	1.15	5.50		0.62	0.61	0.14	0.69
Cold Low	4.92	4.79	1.14	5.50		0.62	0.60	0.14	0.69

SCREEN3 Results SimpleTerrain		Unit Impacts	Distance to Max (m)
Startup/shutdown		0.5907	1197
Hot Peak		0.5867	1198
Avg Peak		0.5703	1206
Cold Peak		0.5582	1214
Hot Low		0.6321	1234
Avg Low		0.6572	1220
Cold Low		0.6359	1232

Inversion Breakup Results		Unit Impacts	Distance to Max (m)
Startup/shutdown		0.8536	21294
Hot Peak		0.7362	23738
Avg Peak		0.7313	23856
Cold Peak		0.7532	23343
Hot Low		0.8247	21840
Avg Low		0.9149	20236
Cold Low		0.9341	19931

Appropriate 1-hr unit impacts to use for longer averaging periods - Inversion Breakup Fumigation

		1-hr unit	3-hr unit	8-hr unit	24-hr unit
Startup/shutdown		0.8536	0.6499	0.4480	0.2429
Hot Peak		0.7362	0.5953	0.4303	0.2384
Avg Peak		0.7313	0.5857	0.4203	0.2321
Cold Peak		0.7532	0.5901	0.4163	0.2282
Hot Low		0.8247	0.6556	0.4677	0.2577
Avg Low		0.9149	0.7074	0.4939	0.2693
Cold Low		0.9341	0.7065	0.4843	0.2618

Inversion Fumigation impacts		NOx 1 hour	CO 1hour	SO2 1 hour	SO2 3 hour	CO 8 hour	SO2 24 hour	PM 24 hour
Startup/shutdown		2.86	5.75	0.00	0.00	3.02	0.00	0.00
Hot Peak		0.72	0.70	0.17	0.13	0.41	0.05	0.17
Avg Peak		0.75	0.73	0.18	0.14	0.42	0.06	0.16
Cold Peak		0.77	0.75	0.18	0.14	0.41	0.05	0.16
Hot Low		0.62	0.60	0.14	0.11	0.34	0.04	0.18
Avg Low		0.57	0.56	0.13	0.10	0.30	0.04	0.19
Cold Low		0.58	0.56	0.13	0.10	0.29	0.04	0.18

Figure G-4.1
Layout of the Modeling Receptor Grids

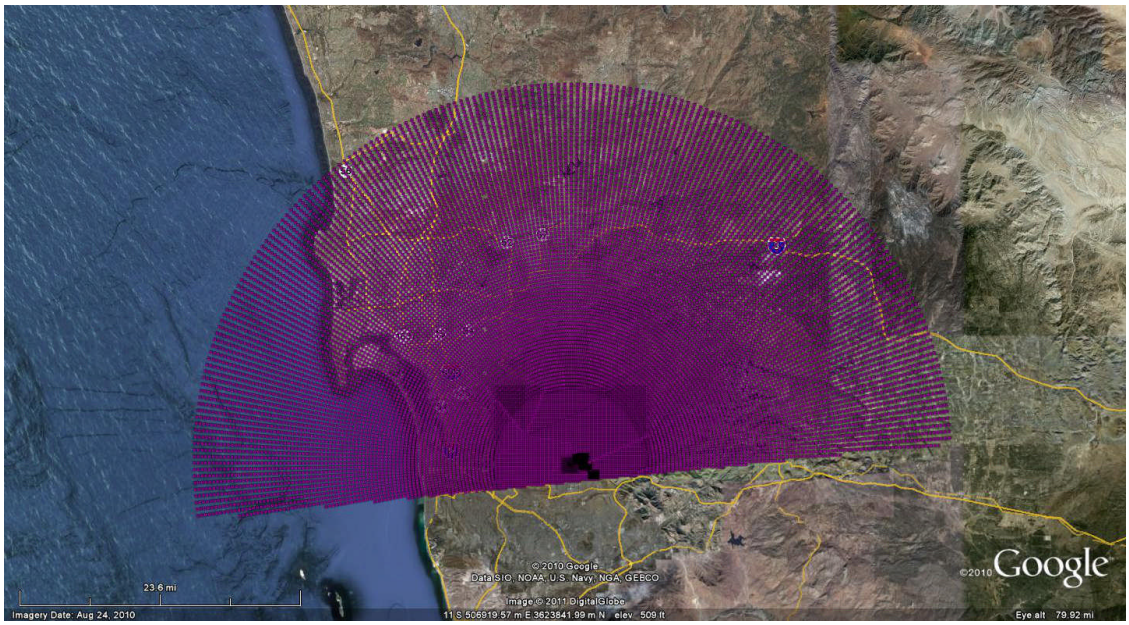
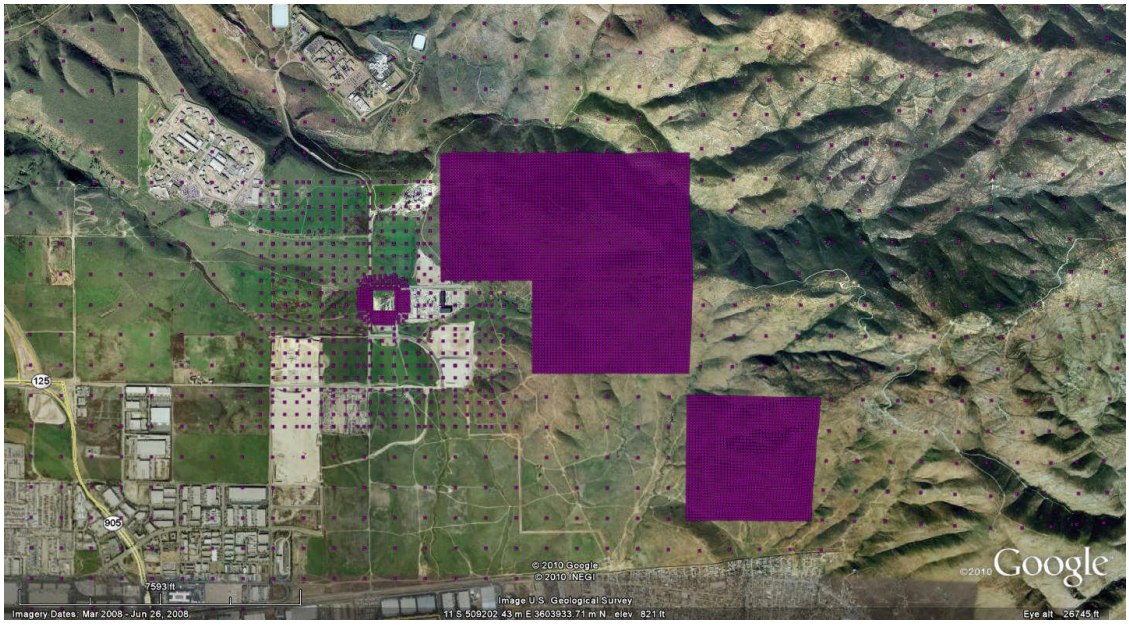


Figure G-4.2
Layout of the Modeling Receptor Grids – Detail



APPENDIX G-5

Evaluation of Best Available Control Technology (BACT)

EVALUATION OF BEST AVAILABLE CONTROL TECHNOLOGY

PPEC is required to use best available control technology (BACT) on the combustion turbine generators (CTGs) and the cooling system for regulated pollutants, in accordance with the requirements of District rules and the federal Prevention of Significant Deterioration (PSD) regulations. For sources subject to PSD, BACT is defined in 40 CFR 52.21(j) as:

> "an emissions limitation…based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant…"

The regulated pollutants for which the federal PSD BACT requirement is applicable are nitrogen oxides (NOx), fine particulate matter ($PM_{2.5}$), particulate matter with nominal aerodynamic diameter less than or equal to 10 microns (PM_{10}), and greenhouse gases (GHG).

BACT is defined in San Diego Air Pollution Control District (SDAPCD or District) Regulation 2, Rule 20.1 as:

> *The lowest emitting of any of the following:*
>
> *(A) the most stringent emission limitation, or the most effective emission control device or control technique, which has been proven in field application and which is cost-effective for such class or category of emission unit, unless the applicant demonstrates to the satisfaction of the Air Pollution Control Officer that such limitation, device or control technique is not technologically feasible, or*
>
> *(B) any emission control device, emission limitation or control technique which has been demonstrated but not necessarily proven in field application and which is cost-effective for such class or category of emission unit, as determined by the Air Pollution Control Officer, unless the applicant demonstrates to the satisfaction of the Air Pollution Control Officer that such limitation, device or control technique is not technologically feasible, or*
>
> *(C) any control equipment, process modifications, changes in raw material including alternate fuels, and substitution of equipment or processes with any equipment or processes, or any combination of these, determined by the Air Pollution Control Officer on a case-by-case basis to be technologically feasible and cost-effective, including transfers of technology from another category of source, or*
>
> *(D) the most stringent emission limitation, or the most effective emission control device or control technique, contained in any State Implementation Plan (SIP) approved by the federal EPA for such emission unit category, unless the applicant demonstrates to the satisfaction of the Air Pollution Control Officer that such limitation or technique has not been proven in field application, that it is not*

technologically feasible or that it is not cost-effective for such class or category of emission unit.

The District NSR rules require BACT for NOx, SO_2, VOC and PM_{10}. The BACT analyses required under both programs are presented here. The emission rates and control technologies determined to be BACT for this project are discussed in detail in the following sections. For the CTGs, separate determinations are provided for normal operation and startup/shutdown operation.

Steps in a Top-Down BACT Analysis

Step 1 – Identify All Possible Control Technologies

The first step in a top-down analysis is to identify, for the emissions unit and pollutant in question, all available control options. Available control options are those air pollution control technologies or techniques, including alternate basic equipment or processes, with a practical potential for application to the emissions unit in question. The control alternatives should include not only existing controls for the source category in question, but also, through technology transfer, controls applied to similar source categories and gas streams.

BACT must be at least as stringent as what has been achieved in practice (AIP) for a category or class of source. Additionally, USEPA guidelines require that a technology that is determined to be AIP for one category of source be considered for transfer to other source categories. There are two types of potentially transferable control technologies: (1) exhaust stream controls, and (2) process controls and modifications. For the first type, technology transfer must be considered between source categories that produce similar exhaust streams. For the second type, technology transfer must be considered between source categories with similar processes.

Candidate control options that do not meet basic project requirements (i.e., alternative basic designs that "redefine the source") are eliminated at this step.

Step 2 – Eliminate Technologically Infeasible Options

To be considered, the candidate control option must be technologically feasible for the application being reviewed.

Step 3 – Rank Remaining Control Options by Control Effectiveness

All feasible options are ranked in the order of decreasing control effectiveness for the pollutant under consideration. In some cases, a given control technology may be listed more than once, representing different levels of control (e.g., the use of SCR for control of NOx may be evaluated at 2 and 2.5 parts per million by volume, dry [ppmvd]). Any control option less stringent than what has been already achieved in practice for the category of source under review must also be eliminated at this step.

Step 4 – Evaluate Most Effective Control Technology Considering Environmental, Energy, and Cost Impacts

To be required as BACT, the candidate control option must be cost effective, considering energy, environmental, economic, and other costs. The most stringent control technology for

control of one pollutant may have other undesirable environmental or economic impacts. The purpose of Step 4 is to either validate the suitability of the top control option or provide a clear justification as to why that option should not be selected as BACT.

Once all of the candidate control technologies have been ranked, and other impacts have been evaluated, the most stringent candidate control technology is deemed to be BACT, unless the other impacts are unacceptable.

Step 5 – Determine BACT/Present Conclusions

BACT is determined to be the most effective control technology subject to evaluation, and not rejected as infeasible or having unacceptable energy, environmental, or cost impacts.

BACT for the CTGs: Normal Operations

NOx Emissions

Step 1 – Identify All Possible Control Technologies

The emissions unit for which BACT is being considered is a nominal 100 MW gas turbine operating in simple cycle.

Potential control technologies were identified by searching the following sources for determinations pertaining to combustion gas turbines:

- South Coast Air Quality Management District (SCAQMD) BACT Guidelines;
- San Joaquin Valley Air Pollution Control District (SJVAPCD) BACT Clearinghouse;
- Bay Area Air Quality Management District (BAAQMD) BACT Guidelines;
- USEPA Reasonably Available Control Technology (RACT)/BACT/ Lowest Achievable Emission Rate (LAER) Clearinghouse;
- Other districts' and states' BACT Guidelines; and
- BACT/LAER requirements in New Source Review permits issued by District[1] or other air pollution control agency.

The following technologies for control of NOx have been identified:

- A Selective Catalytic Reduction (SCR) system capable of continuously complying with a limit of 2.5 ppmvd @15% oxygen (O_2) (1-hour average).
- An EMx (formerly SCONOx) system capable of continuously complying with a limit of 2.5 ppmvd @15% O_2 (1-hour average).
- Alternative Basic Equipment:
    - Renewable Energy Source (e.g. Solar, Wind, etc.)

It should be noted that the use of renewable energy in lieu of a simple-cycle gas turbine would "redefine the source." Renewable energy facilities require significantly more land to

[1] Any Air Quality Management District or Air Pollution Control District in California.

construct, and need to be located in areas with very specific characteristics. Wind and solar facilities have power generation profiles that cannot match demand; conventional power plants are needed in order to follow demand. The capital costs for wind or solar facilities are substantially higher than for a comparable conventional facility, making financing of such a project significantly different. Finally, one of the fundamental objectives of the proposed PPEC project is to provide firming capacity for renewable energy facilities, making the use of renewable energy for the project fundamentally incompatible with the project objective. Nevertheless, these technologies are feasible, and the technical feasibility of renewable energy sources for this specific application will be considered in Step 2.

Step 2 – Eliminate Technologically Infeasible Options

Exhaust Stream Controls

The most recent NOx BACT listings for aeroderivative simple-cycle combustion turbines in this size range are summarized in Table G-5.1. The most stringent NOx limit in these recent BACT determinations is a 2.5 ppm[2] limit averaged over a 1-hour averaging period, excluding startups and shutdowns. This level is achieved using water injection combustors and SCR.

SCONOx is a NOx reduction system produced by Goal Line Environmental Technologies. It is now distributed by EmeraChem as EMx. This system uses a single catalyst to oxidize both NO and CO, a second catalyst system to absorb NO_2, and then a regeneration system to convert the NO_2 to N_2 and water vapor. The EMx system does not use ammonia as a reagent. The EMx process has been demonstrated in practice on much smaller gas turbines, including Redding Electric Utility's (REU) Units 5 and 6, a 43-MW Alstom GTX100 and 45 MW Siemens SGT 800 combined-cycle gas turbines, respectively. While the technology has never been demonstrated on a gas turbine the size of the LMS100 or on a simple-cycle gas turbine, the technology is considered by the manufacturer to be scalable.

The SCR system uses ammonia injection to reduce NOx emissions. SCR systems have been widely used in simple-cycle gas turbine applications of all sizes. The SCR process involves the injection of ammonia into the flue gas stream via an ammonia injection grid upstream of a reducing catalyst. The ammonia reacts with the NOx in the exhaust stream to form N_2 and water vapor. The catalyst does not require regeneration, but must be replaced periodically; typical SCR catalyst lifetimes are in excess of three years.

Either SCR or EMx technology, in combination with water injection, is capable of achieving a NOx emission level of 2.5 ppmvd @ 15% O_2. Neither has been demonstrated to consistently achieve lower emission levels in water-injected simple cycle turbines in peaking service.

[2] All turbine/HRSG exhaust emissions concentrations shown are by volume, dry corrected to 15% O_2.

TABLE G-5.1
Recent NOx BACT Determinations for Simple-Cycle Combustion Turbines[1]

Facility	District	NOx Limit[2]	Averaging Prd	Control Method Used	Date Permit Issued	Source
TID Almond 2 Power Plant	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	2/16/2010	FDOC
Miramar Energy Facility II	SDCAPCD	2.5 ppmvd	3 hrs	water injection and SCR	11/4/08	ATC
Starwood Midway Firebaugh/Panoche	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	9/5/07 (FDOC)	CEC Siting Div website
EIF Panoche	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	7/13/07 (FDOC)	CEC Siting Div website
San Francisco Electric Reliability Project	BAAQMD	2.5 ppmvd	1 hr	water injection and SCR	2/8/06 (FDOC)	CEC Siting Div website
EI Colton	SCAQMD	3.5 ppmvd	3 hrs	water injection and SCR	1/10/03	SCAQMD website
MID Ripon	SJVAPCD	2.5 ppmvd	3 hrs	water injection and SCR	2004	ATC

Note:
1. All projects listed here utilize GE LM6000-model units except Starwood Midway, which utilizes P&W FT8-3 SwiftPacs and EIF Panoche, which uses GE LMS 100 CTGs.
2. All concentrations expressed as parts per million by volume dry, corrected to 15% O_2.

Alternative Basic Technology

Solar Thermal

Solar thermal facilities collect solar radiation, then heat a working fluid (water or a hydrocarbon liquid) to create steam to power a steam turbine generator. All solar thermal facilities require considerable land for the collection field and are best located in areas of high solar incident energy per unit area. In addition, power is only generated while the sun shines, so the units do not supply power at night or on cloudy days. The PPEC parcel is not sufficiently large to be feasible for a commercial solar power plant. Furthermore, a solar power plant would not meet the project's objective of providing firming capability for intermittent renewable resources such as solar and wind energy projects. For these reasons, a solar thermal power plant is rejected as BACT for this application.

Wind

Wind power facilities use a wind-driven rotor to turn a generator to generate electricity. Only limited sites in California have an adequate wind resource to allow for the economic construction and operation of large-scale wind generators. Most of these sites have already been developed or are remote from electric load centers and have little or no transmission access. Even in prime locations the wind does not blow continuously, so power is not always available. Due to the lack of availability of good sites, limited dependability, and relatively high cost, this technology is not feasible for this project. Furthermore, a wind power plant would not meet the project's objective of providing firming capability for intermittent renewable resources such as solar and wind energy projects. For these reasons, a wind power plant is rejected as BACT for this application.

Other alternatives

A number of other alternative generating systems are described in the Alternatives Analysis Section (Section 4.0) of the Application for Certification. These additional analyses failed to identify an alternative generating technology that was technically feasible for this site and that would meet the project's objectives.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Both SCR and EMx technologies, each in combination with water injection, are capable of achieving a NOx emission level of 2.5 ppmvd @ 15% O_2. They are therefore ranked together in terms of control effectiveness.

Step 4 – Evaluate the Most Effective Control Technology Considering Environmental, Energy, and Cost Impacts

The use of SCR will result in ammonia emissions due to an allowable ammonia slip limit of 5 ppmvd @ 15% O_2. A health risk screening analysis of the proposed project using air dispersion modeling showed the acute health hazard index and a chronic health hazard index each to be much less than 1, based on an ammonia slip limit of 5 ppmv @ 15% O_2. In accordance with the District's Toxics program and currently accepted practice, a hazard index below 1.0 is not considered significant. Therefore, the toxic impact of the ammonia slip resulting from the use of SCR is deemed to be not significant, and is not a sufficient reason to eliminate SCR as a control alternative.

Further, in its evaluation of BACT for the Carlsbad Energy Center Project, the SCAPCD determined that:

> "Whatever the relative merits of ammonia emissions from the EMx™ (SCONOX) system relative to conventional SCR, the EMx™ system, which requires a large number of louvers that open and close in a synchronized manner, has not been demonstrated or achieved in practice for large turbines and is therefore not BACT or LAER for control of NOx for the CECP."[3]

---

[3] San Diego APCD, "Responses To PDOC Comments, Carlsbad Energy Center Project," November 19, 2009; Simpson Comment 18, p. 55.

The same concern applies to PPEC.

A second potential environmental impact that may result from the use of SCR involves the storage and transport of aqueous or anhydrous ammonia.[4] Although ammonia is toxic if swallowed or inhaled and can irritate or burn the skin, eyes, nose, or throat, it is a commonly used material that is typically handled safely and without incident. The project operator will be required to develop and maintain a Risk Management Plan (RMP) and to implement a Risk Management Program to prevent accidental releases of ammonia. The RMP provides information on the hazards of the substance handled at the facility and the programs in place to prevent and respond to accidental releases. The accident prevention and emergency response requirements reflect existing safety regulations and proven industry safety codes and standards. Thus, the potential environmental impact due to aqueous ammonia use at the Project is minimal and does not justify the elimination of SCR as a control alternative.

Regeneration of the EMx catalyst is accomplished by passing hydrogen gas over an isolated catalyst module. The hydrogen gas is generated by reforming steam, so steam would be required and there is no steam source in the project design. This would require the installation of an auxiliary boiler, and would result in a new source of emissions as well as additional consumption of natural gas.

"Achieved in Practice" Criteria

While there are no formal "achieved in practice" criteria in the SDAPCD, the SCAQMD has established formal criteria for determining when emission control technologies should be considered achieved in practice (AIP) for the purposes of BACT determinations. The criteria include the elements outlined below.

- Commercial Availability: At least one vendor must offer this equipment for regular or full-scale operation in the United States. A performance warranty or guarantee must be available with the purchase of the control technology, as well as parts and service.
- Reliability: All control technologies must have been installed and operated reliably for at least six months. If the operator did not require the basic equipment to operate daily, then the equipment must have at least 183 cumulative days of operation. During this period, the basic equipment must have operated (1) at a minimum of 50% design capacity; or (2) in a manner that is typical of the equipment in order to provide an expectation of continued reliability of the control technology.
- Effectiveness: The control technology must be verified to perform effectively over the range of operation expected for that type of equipment. If the control technology will be allowed to operate at lesser effectiveness during certain modes of operation, then those modes of operation must be identified. The verification shall be based on a performance test or tests, when possible, or other performance data.

Each of these criteria is discussed separately below for SCR and for EMx.

[4] The Project proposes to use the less concentrated, safer aqueous form of ammonia.

SCR Technology – SCR has been achieved in practice at numerous combustion turbine installations throughout the world. There are numerous aeroderivative simple-cycle gas turbine projects that limit NOx emissions to 2.5 ppm, as shown in the table above. An evaluation of the proposed AIP criteria as applied to the achievement of 2.5 ppm, and to extremely low NOx levels (below 2.5 ppm) using SCR technology, is summarized below.

- Commercial Availability: Turbine-out NOx from water-injected, aeroderivative gas turbines is generally 25 ppm. Achieving a controlled NOx limit below 2.5 ppm would require SCR technology to achieve reductions greater than 90 percent. Further, because of the relatively high temperature of exhaust from simple-cycle turbines compared with combined-cycle units, there is a more limited selection of SCR technology available. Consequently, it is not clear that this criterion is satisfied for limits below 2.5 ppm for water-injected, aeroderivative gas turbines. As shown in the table above, this criterion is satisfied for water-injected aeroderivative gas turbines at a 2.5 ppm permit level.

- Reliability: SCR technology has been shown to be capable of achieving NOx levels consistent with a 2.5 ppm permit limit during extended, routine operations at several commercial power plants. There are no reported adverse effects of operation of the SCR system at these levels on overall plant operation or reliability. There has been no demonstration of operation at levels below 2.5 ppm during extended, routine operation of water-injected, simple-cycle aeroderivative gas turbines; consequently, this criterion is not satisfied for NOx limits below 2.5 ppm.

- Effectiveness: SCR technology has been demonstrated to achieve NOx levels of 2.5 ppm with water-injected aeroderivative turbines, but not at lower limits for this generating technology. Short-term excursions have resulted in NOx concentrations above the permitted level of 2.5 ppm; however, these excursions have not been associated with diminished effectiveness of the SCR system. Rather, these excursions have been associated with SCR inlet NOx levels in excess of those for which the SCR system was designed. Consequently, this criterion is satisfied at a NOx limit of 2.5 ppm, but not at lower NOx limits.

- Conclusion: SCR technology capable of achieving NOx levels of 2.5 ppm is considered to be achieved in practice. The permit limits for the proposed project CTGs include a NOx limit of 2.5 ppm. This proposed limit is consistent with the available data. The AIP criteria are not met for SCR on water-injected, simple-cycle aeroderivative gas turbines at NOx limits lower than 2.5 ppm.

EMx Technology – EMx has been demonstrated in service in five applications: the Sunlaw Federal cogeneration plant, the Wyeth BioPharma cogeneration facility, the Montefiore Medical Center cogeneration facility, the University of California San Diego facility, and the City of Redding Power Plant. The combustion turbines at these facilities are much smaller than for the proposed project turbine, and none of the existing installations are simple cycle turbines. The largest installation of the EMx system is at the Redding Power Plant. The Redding Power Plant includes two combined-cycle combustion turbines, a 43 MW Alstom GTX100 with a permitted NOx emission rate of 2.5 ppm and the new 45 MW Siemens SGT 800 with a permitted NOx emission rate of 2.0 ppmvd.

A review of NOx continuous emissions monitoring (CEM) data obtained from the EPA's Acid Rain program website[5] indicates a mean NOx level for the Redding Unit 5 of less than 1.0 ppm during the period from 2002 to 2007. After the first year of operation, Unit 5 has experienced only a few hours of non-compliance per year (fewer than 0.1% of the annual operating hours exceed that plant's NOx permit limit of 2.5 ppm). The experience at the City of Redding Plant indicates the ability of the EMx system to control NOx emissions to levels of 2.5 ppm. These data do not indicate the ability to consistently achieve NOx levels below 2.0 ppm, notwithstanding the lower annual average emission rate. This is due to the cyclical nature of EMx NOx levels in between plant shutdowns and scheduled catalyst cleanings. Redding Unit 6 started up on October 2011; there is not sufficient operating data available to draw conclusions regarding its performance.

Based on this information, the following paragraphs evaluate the proposed AIP criteria as applied to the achievement of low NOx levels (2.5 ppm) using EMx technology.

- Commercial availability: While a proposal has not been sought, presumably EmeraChem Power would offer standard commercial guarantees for the proposed project. Consequently, this criterion is expected to be satisfied.

- Reliability: As discussed above, based on a review of the CEM data for Redding Unit 5 the EMx system complied with the 2.5 ppm NOx permit limit but with a few hours each year of excess emissions (approximately 3% of annual operating hours following the first year, and approximately 2% following the second year, dropping to approximately 0.1% after 4 years). This level of performance was also associated with some significant operating and reliability issues. According to a June 23, 2005 letter from the Shasta County Air Quality Management District,[6] repairs to the EMx system began shortly after initial startup and have continued during several years of operation. Redesign of the EMx system was required due to a problem with the reformer reactor combustion production unit that led to sulfur poisoning of the catalyst, despite the sole use of low-sulfur, pipeline quality natural gas as the turbine fuel. In addition, the EMx system catalyst washings had to occur at a frequency several times higher than anticipated during the first three years of operation, which resulted in substantial downtime of the combustion turbine. Since the REU installation is the most representative of all of the EMx-equipped combustion turbine facilities for comparison to the proposed Project, the problems encountered at REU bring into question the reliability of the EMx system for the proposed project.

- Effectiveness: The EMx system at REU Unit 5 has recently been able to demonstrate compliance with a NOx level of 2.0 ppm, and the new REU Unit 6 has been permitted with a 2.0 ppm NOx limit. However, there is not sufficient operating experience with REU Unit 6 to conclude that 2.0 ppm is reliably achieved in practice for EMx, and there are no EMx-equipped facilities on simple-cycle facilities in peaking service. Consequently, due to the

[5] Available at http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=prepackaged.results

[6] Letter dated June 23, 2005, from Shasta County Air Quality Management District to the Redding Electric Utility regarding Unit 5 demonstration of compliance with its NOx permit limit.

lack of actual performance data, there is some question regarding the effectiveness of the EMx systems on simple-cycle, peaking combustion turbine projects.

- Conclusion: EMx systems are capable of achieving NOx levels of 2.5 ppm and less. However, the operating history at the Redding Power Plant does not support a conclusion that this technology is achieved in practice for simple-cycle, peaking turbines, based on SCAQMD guidelines.

Summary of Achieved in Practice Evaluation

SCR's capability to consistently achieve 2.5 ppmvd NOx (1-hour average) in large turbines has been demonstrated by numerous installations. EMx's ability to consistently achieve 2.5 ppmvd in large turbines has not been demonstrated, nor has the technology been demonstrated in simple-cycle, peaking service. An emission level of 2.5 ppm NOx has therefore been achieved in practice, and any BACT determination must be at least as stringent as that.

Technologically Feasible/Cost Effective Criterion

No candidate technology with lower emission levels than those achieved in practice has been identified.

Determine BACT/Present Conclusions

BACT must be at least as stringent as the most stringent level achieved in practice, federal NSPS, or district prohibitory rule. Based upon the results of this analysis, the NOx BACT determination of 2.5 ppmvd @ 15% O_2 on a 1-hour average basis made for recently permitted simple cycle turbine projects in SDAPCD and elsewhere reflects the most stringent NOx emission limit that has been achieved in practice. No more stringent level has been suggested as being technologically feasible. Therefore, BACT for NOx for this application is any technology capable of achieving 2.5 ppmvd @ 15% O_2 on a 1-hour average basis.

Both SCR and EMx are expected to achieve the proposed BACT NO_x emission limit of 2.5 ppmvd @ 15% O_2 averaged over one hour. However, the use of EMx would require a source of supplemental steam, and this is considered a potentially significant energy, economic, and environmental impact. In addition, concerns remain regarding the long-term effectiveness of EMx as a control technology because the technology has not been demonstrated on the turbine used in this project, in a simple cycle peaking application. For this reason, SCR has been selected as the NOx control technology to be used for the Project.

The Project facility will be designed to meet a NOx level of 2.5 ppmvd @ 15% O_2 on a 1-hour average basis using SCR.

Control of Sulfur Oxides

Step 1 -- Identify All Possible Control Technologies

Natural gas fired combustion turbines have inherently low SOx emissions due to the small amount of sulfur present in the fuel. With typical pipeline quality natural gas sulfur contents well below 1 grain/100 scf, the SOx emissions for natural gas fired combustion turbines are orders of magnitude less than oil-fired turbines. Firing by natural gas and the resulting control of SOx

emissions have been used by numerous combustion turbines throughout the world. Due to the prevalence of the use of natural gas to control SOx emissions from combustion turbines, only an abbreviated discussion of post-combustion controls will be addressed in this section.

Post-combustion SOx control systems include dry and wet scrubber systems. These types of systems are typically installed on high SOx emitting sources such as coal-fired power plants. Post-combustion control systems for combustion turbines also include ESx catalyst systems. These systems trap the sulfur in the exhaust stream on an ESx catalyst. During a regeneration process, the sulfur is removed from the ESx catalyst and is either reintroduced back into the exhaust stream or sent to a sulfur scrubbing system. If the sulfur removed from the ESx catalyst is reintroduced back into the exhaust stream, there is no SOx control associated with the system.

Step 2 -- Eliminate Technically Infeasible Options

All of the control options discussed above are technically feasible.

Step 3 -- Rank Remaining Control Technologies by Control Effectiveness

The typical SOx control level for a well-designed wet or dry scrubber installed on a coal fired boiler ranges from approximately 70% to 90%,[7] with some installations achieving even higher control levels. According to EmeraChem literature,[8] the ESx system is capable of removing approximately 95% of the SOx emissions from the exhaust stream of natural gas fired combustion turbines. With the sulfur scrubber option, during the regeneration cycle of the ESx system the sulfur captured on the ESx catalyst is sent to a sulfur scrubbing unit. A high efficiency sulfur scrubbing unit would achieve a control level similar to that of the wet/dry scrubbers discussed above.

Step 4 -- Evaluate Most Effective Controls and Document Results

The use of low sulfur content pipeline natural gas has been achieved in practice at numerous combustion turbine installations throughout the world, and the use of this fuel minimizes SOx emissions. While it would be technically feasible to install some type of post-combustion control such as a dry/wet scrubber system or an ESx catalyst with a sulfur scrubber on a natural gas fired turbine, due to the inherently low SOx emissions associated with the use of natural gas, these systems are not cost effective and regulatory agencies do not require them. Consequently, no further discussion of post-combustion SOx control is necessary.

The SOx control method for the proposed PPEC is the use of pipeline-quality natural gas. Consequently, the proposed project is consistent with BACT requirements.

---

[7] Air Pollution Control Manual, Air and Waste Management Association, Second Edition, page 206.

[8] High Performance EMx Emissions Control Technology for Fine Particles, NOx, CO, and VOCs from Combustion Turbines and Stationary IC Engines, by Steven DeCicco and Thomas Girdlestone, EmeraChem Power, June 2008, page 19.

VOC Emissions

Step 1 – Identify All Possible Control Technologies

Most VOCs emitted from natural gas-fired turbines are the result of incomplete combustion of fuel. Therefore, most of the VOCs are methane and ethane, which are not effectively controlled by an oxidation catalyst. However, oxidation catalyst technology designed to control CO can also provide some degree of control of VOC emissions, especially the more complex and toxic compounds formed in the combustion process. Therefore, use of an oxidation catalyst is generally considered BACT for VOC.

Alternative Basic Equipment, including renewable energy sources such as solar and wind, has also been identified as a technology for the control of VOC emissions.

Step 2 – Eliminate Technologically Infeasible Options

The only technology under consideration is use of an oxidation catalyst in combination with combustion controls. This combination of technologies has been demonstrated to be feasible in many applications. No other technologies have been identified which are capable of achieving the same level of control. As a result, the goal of the rest of this analysis is to determine the appropriate emission limit that constitutes BACT for this application.

The CARB's BACT guidance document for electric generating units rated at greater than 50 MW[9] indicates that BACT for the control of VOC emissions for combined-cycle and cogeneration power plants is 2 ppmvd @ 15% O_2.

The BAAQMD's BACT guidelines specify that, for natural gas-fired simple-cycle combustion gas turbines larger than 40 MW, a VOC limit of 2 ppmvd @ 15% O_2 has been "achieved in practice."

The SJVAPCD's BACT guidelines contain a determination for gas turbines rated at larger than 50 MW with uniform load and without heat recovery. The SJVAPCD concluded that a VOC exhaust concentration of 2.0 ppmvd @ 15% O_2 constituted BACT that had been achieved in practice, while 0.6 to 1.3 ppmvd @ 15% O_2 is considered technologically feasible.

Published prohibitory rules from the BAAQMD, SMAQMD, SDCAPCD, SJVAPCD, and SCAQMD were reviewed to identify the VOC standards that govern existing natural gas-fired simple cycle combustion gas turbines. None of the prohibitory rules for combustion gas turbines specify an emission limit for VOC. The applicable NSPS (40 CFR 60 Subpart KKKK) does not include a VOC limit.

This "top-down" VOC BACT analysis will consider the following VOC emission limitations:

- 0.6 ppmvd @ 15% O_2
- 1.3 ppmvd @ 15% O_2
- 2 ppmvd @ 15% O_2

[9] CARB, "Guidance for Power Plant Siting and Best Available Control Technology," September 1999.

Alternative basic equipment, including renewable energy sources such as solar and wind, was already discussed above (Step 2 for NOx BACT on the CTGs). For the same reasons, solar, wind and other renewable energy sources are rejected as VOC BACT for this application.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The control technologies under consideration are ranked as follows:

- Oxidation catalyst unit capable of achieving 0.6 ppmvd @ 15% O_2
- Oxidation catalyst unit capable of achieving 1.3 ppmvd @ 15% O_2
- Oxidation catalyst unit capable of achieving 2 ppmvd @ 15% O_2

Step 4 – Evaluate the Most Effective Control Technology Considering Environmental, Energy, and Cost Impacts

This step evaluates any source-specific environmental, energy, or economic impacts which demonstrate that the top alternative listed in the previous step is inappropriate as BACT.

"Achieved in Practice" Criterion

As discussed above, the SJVAPCD BACT guideline for large gas turbines without heat recovery suggests that VOC emission rates of between 0.6 and 1.3 ppm may be technologically feasible, based on two recently-permitted projects. The Sunrise Power Company project used a 165 MW GE Frame 7FA gas turbine with dry low NOx (DLN) combustors for NOx control. The Tracy Peaker project used an 84 MW GE Frame 7EA gas turbine, also with a DLN combustor. Both the 7EA and the 7FA are industrial turbines.

Unlike these two projects used to establish SJVAPCD Guideline 3.4.7, the PPEC gas turbines are aeroderivative turbines, not industrial turbines, and utilize water injection and not dry low NOx combustors for NOx control. The characteristics of aeroderivative turbines make them particularly well-suited for applications where high simple cycle efficiency and quick responsiveness matters, such as use for peaking generation to support power grids and applications needing multiple start/stop cycles. Water injection reduces NOx emissions by absorbing some of the heat generated during combustion, reducing peak flame temperature and thereby reducing thermal NOx formation. Water injection has operating advantages versus DLN in that it allows for a greater turn-down ratio. However, a side effect of the reduction in peak flame temperature is a slight reduction in combustion efficiency and corresponding increases in VOC and CO emissions. This means that turbine-out VOC emissions from water-injected gas turbines are higher than corresponding emissions from turbines equipped with DLN combustors. Numerous projects have been permitted with and have demonstrated continuous compliance with a 2 ppmc VOC limit, so 2 ppmc is considered achieved in practice for this generating technology.

Technologically Feasible/Cost Effective Criterion

As discussed above, a VOC limit of 2 ppmc has been achieved in practice for the CTGs being considered for the Project. Lower VOC limits that may be technologically feasible for this class and category of source have not been identified. The 0.6 and 1.3 ppm limits identified in the

SJVAPCD guideline were associated with projects utilizing industrial turbines with DLN combustors, which are not proposed for this project.

The applicant has proposed to meet a 2 ppmc limit on a 3-hour average basis. This level meets BACT.

Determine BACT/Present Conclusions

BACT must be at least as stringent as the most stringent achieved in practice, required in a federal NSPS or district prohibitory rule, or considered technologically feasible. Based upon the results of this analysis, the VOC emission limits of 2.0 ppmvd @ 15% O_2 are considered to be BACT for the proposed project.

PM/PM_{10}/$PM_{2.5}$ Emissions

Step 1 – Identify All Possible Control Technologies

Alternative Basic Equipment, including renewable energy sources such as solar and wind, has also been identified as a technology for the control of PM/PM_{10}/$PM_{2.5}$ emissions. Such alternative basic equipment was already discussed above (Step 2 for NOx BACT on the CTGs/HRSGs). For the same reasons, solar, wind and other renewable energy sources are rejected as PM_{10}/$PM_{2.5}$ BACT for this application.

Achievable Controlled Levels and Available Control Options

PM emissions from natural gas-fired turbines primarily result from carryover of noncombustible trace constituents in the fuel. PM emissions are minimized by using clean burning pipeline quality natural gas with low sulfur content.

The CARB BACT Clearinghouse, as well as the BAAQMD and SJVAPCD BACT guidelines, identify the use of natural gas as the primary fuel as "achieved in practice" for the control of PM_{10} for combustion gas turbines.

The CARB's BACT guidance document for stationary gas turbines used for power plant configurations[10] indicates that BACT for the control of PM emissions is an emission limit corresponding to natural gas with fuel sulfur content of no more than 1 grain/100 standard cubic foot.

Title 40 CFR Part 60 Subpart KKKK contains the applicable NSPS for combustion gas turbines. Subpart KKKK does not regulate PM_{10} emissions.

Published prohibitory rules from the SCAQMD, SJVAPCD, SMAQMD, and SDCAPCD were reviewed to identify the PM_{10} standards that govern natural gas-fired combustion gas turbines. These prohibitory rules do not regulate PM_{10} emissions.

Step 2 – Eliminate Technologically Infeasible Options

As discussed above, solar, wind and other renewable energy alternatives are not considered technologically feasible for this application.

---

[10] Ibid, Table I-2.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

No control technology other than use of clean natural gas fuel has been identified for this application.

Step 4 – Evaluate the Most Effective Control Technology Considering Environmental, Energy, and Cost Impacts

Based upon the results of this analysis, the use of natural gas as the primary fuel source constitutes BACT for PM_{10} emissions from combustion gas turbines. Through the use of natural gas, the turbine is expected to be able to meet the proposed emission limit of 5.5 lbs/hr.

Recent BACT determinations for criteria pollutants from similar gas turbine projects are summarized in Tables G-5.2 through G-5.5 below.

Greenhouse Gases (GHG)

Step 1 -- Identify All Possible Control Technologies

EPA has indicated in its guidance on BACT for GHGs[11] that the following types of controls must be considered in determining BACT for GHGs:

- Inherently lower-emitting processes/practices/designs;
- Add-on controls; and
- Combinations of inherently lower emitting processes/practices/designs and add-on controls.[12]

EPA further acknowledges that the requirement to consider inherently lower-emitting processes/practices/designs does not require a fundamental redesign of the nature of the source. This suggests that lower-emitting process/practices/designs that do not achieve the goals, objectives or purposes of the project may be considered technologically infeasible as BACT for a project.

The following control technologies were identified as potentially "available" for PPEC.

- Renewable energy technology (solar or wind)
- Alternative generating technologies
- Alternative fuels
- Energy efficiency
- Carbon capture and storage.

Step 2 -- Eliminate Technologically Infeasible Options

EPA considers a technology to be technically feasible if has been demonstrated in practice on a similar facility, or is available and applicable to the source type under review. EPA considers a technology to be "available" where it can be obtained through commercial channels or is

---

[11] EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases*, November 2010, p. 33

[12] Ibid. at p.27.

TABLE G-5.2

Simple Cycle Gas Turbine BACT Determinations (EPA RBLC Clearinghouse}

Facility/Location	Date Permit Issued	Equipment/Rating	NOx Limit/Control Technology	CO Limit/Control Technology	VOC Limit/Control Technology
Shady Hills Generating Station Pasco Co., FL	January 2010	GE Frame 7FA 2 turbines, 340 MW total	9.0 ppm Dry low-Nox burners and water injection	6.5 ppm (3 hour)	No BACT determination
Rawhide Energy Station Larimer Co., CA	June 2009	GE Frame 7FA 1 turbine, 150 MW total	9.0 ppm Dry low-Nox burners	No BACT determination	No BACT determination
TEC/Polk Power Energy Station Polk Co., FL	October 2007	Unspecified 2 turbines, 330 MW total	9.0 ppm Dry low-Nox burners	No BACT determination	No BACT determination

TABLE G-5.3

Summary of BACT Determinations (CARB BACT Clearinghouse)

Facility/District	Permit No./Date	Equipment/Rating	NOx Limit/ Control Technology	CO Limit/Control Technology	VOC Limit/Control Technology
CalPeak Power El Cajon San Diego Co., CA	June 2001	Pratt & Whitney FT-8 DLN Twin Pac 2 turbines 49.5 MW total	3.5 ppm SCR	50 ppm Oxidation catalyst	2.0 ppm Oxidation catalyst
Indigo Energy Facility Los Angeles Co., CA	July 2001	LM6000 (Enhanced Sprint) 1 turbine, 45 MW total	5.0 ppm SCR	6.0 ppm Oxidation catalyst	2.0 ppm Oxidation catalyst
El Colton, LLC San Bernardino Co., CA	January 2003	LM6000 (Enhanced Sprint) 1 turbine, 48.7 MW total	3.5 ppm SCR	6.0 ppm Oxidation catalyst	2.0 ppm Oxidation catalyst
Lambie Energy Center Solano Co., CA	December 2002	GE LM6000 Sprint PC 1 turbine, 49.9 MW total	2.5 ppm SCR	6.0 ppm Oxidation catalyst	2.0 ppm Oxidation catalyst
Los Angeles Dept. of Water and Power Los Angeles Co., CA	May 2001	GE LM6000 1 turbine, 47.4 MW total	5.0 ppm SCR	6.0 ppm Oxidation catalyst	2.0 ppm Oxidation catalyst

TABLE G-5.4

Summary of BACT Determinations (CEC Decisions)

Facility/District	Decision Date	Equipment/Rating	NOx Limit/ Control Technology	CO Limit/Control Technology	VOC Limit/Control Technology
TID Almond 2 Power Plant Ceres, CA	December 2010	GE LM6000 Sprint PG 3 turbines, 174 MW	2.5 ppm Ultra-low NOx burners, water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Canyon Power Plant Orange Co., CA	March 2010	GE LM6000 Sprint PC 4 turbines, 200 MW total	2.5 ppm Ultra-low NOx burners, water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Starwood Power-Midway Fresno Co., CA	January 2008	Pratt & Whitney FT8-3 SwiftPac 2 turbines, 120 MW total	2.5 ppm Water injection and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Panoche Energy Project Fresno Co., CA	December 2007	GE LMS100 4 turbines, 400 MW total	2.5 ppm Water injection and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
San Francisco Electric Reliability Project Power Plant San Francisco Co., CA	October 2006	GE LM6000 Sprint PC 3 turbines, 145 MW total	2.5 ppm Water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Niland Power Plant Imperial County, CA	October 2006	GM LM6000 Sprint PC 2 turbines, 93 MW total	2.5 ppm Dry low-NOx burners and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst

TABLE G-5.5

CARB BACT Guidance For Power Plants

Pollutant	BACT
Nitrogen Oxides	2.5 ppmv @ 15% O_2 (1-hour average) 2.0 ppmv @ 15% O_2 (3-hour average)
Sulfur Dioxide	Fuel sulfur limit of 1.0 grains/100 scf
Carbon Monoxide	Nonattainment areas: 6 ppmv @ 15% O_2 (3-hour average) Attainment areas: District discretion
VOC	2 ppmv @ 15% O_2 (3-hour average)
NH_3	5 ppmv @ 15% O_2 (3-hour average)
PM_{10}	Fuel sulfur limit of 1.0 grains/100 scf

otherwise available within the common meaning of the term (e.g., it has been demonstrated in practice on a comparable, but not necessarily similar, facility). A technology is applicable if it may reasonably be expected to be successfully applied to the source type under review.

Renewable Energy Technology

One of the fundamental objectives of the proposed PPEC project is to provide firming capacity for renewable energy facilities, making the use of renewable energy for the project fundamentally incompatible with the project objective. As discussed in Section 3.1:

> The Pio Pico Energy Center (PPEC)…is a simple-cycle electrical generating facility that is contracted under a 20-year power purchase agreement (PPA) with San Diego Gas & Electric (SDG&E) in response to their 2009 Request for Offers (RFO). The RFO was a broad solicitation for power generation that included peaking facilities, like PPEC, as well as demand-side management and generation from renewable energy resources.
>
> PPEC is designed to directly satisfy the San Diego area peaking and load-shaping generation current and long-term requirements. Key among these requirements is supporting wind and solar generation, whose overall output varies…

As discussed in Section 5.2.5.3 of the AFC, natural gas-fired power plants cannot simply be replaced with renewable energy resources without endangering the reliability of the electric system:

> The Energy Commission's 'Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California' found that as California's integrated electricity system evolves to meet GHG emissions reduction targets, the operational characteristics associated with increasing

> renewable generation will increase the need for flexible generation to maintain grid reliability. The report asserts that natural gas-fired power plants are generally well-suited for this role and that ***California cannot simply replace all natural gas fired power plants with renewable energy without endangering the safety and reliability of the electric system***.[13] [emphasis added]

Because this proposed project is responding directly to a utility Request for Offers, the design of the project as a fully dispatchable, peaking project intended to support the intermittent generation from renewable energy sources is fundamental to the project objective, so renewable energy technology is not a technologically feasible alternative to the proposed combustion technology.

Nuclear Generating Technology

Although nuclear generation has essentially no greenhouse gas emissions, this technology is not considered technologically feasible for this application. To be responsive to the requirements of the RFO, the project must (1) be online by 2014, and (2) be a peaking technology, able to start up and shut down quickly and often. Because of the extensive licensing requirements for nuclear generating technology, it would not be possible to license and construct a nuclear power plant in time to meet the 2014 online date. In addition, nuclear generating units are not fast-start units. For both of these reasons, nuclear generating technology would not meet the fundamental objectives of the proposed project.

Alternative Fossil Fuel Generating Technologies

Alternative fossil fuel generating technologies such as reciprocating internal combustion engines, boilers and combined-cycle combustion turbines may be considered as potentially technologically feasible alternatives to the proposed use of simple-cycle combustion turbine technology. Reciprocating engine technology is generally well-suited to peaking applications such as that proposed project, so can be considered technologically feasible for this application. However, boilers have very high thermal inertia, so are not quick-starting or fast ramping. Boiler technology is generally used for baseload power and not for peaking power applications. Because boiler technology cannot meet the objectives of the project, it is not considered a technologically feasible alternative. Combined-cycle gas turbines are now available with fast startup capability that makes them more compatible with the dispatch and ramping requirements of peaking projects that are intended to back up renewables. Therefore, combined cycle gas turbine technology is potentially technologically feasible for the proposed project.

Alternative Fuels

Biomass fuel can only be used with boiler technology and must be gasified for use in turbines. As discussed previously, boiler technology is not considered a technologically feasible alternative. Although gaseous biofuel could potentially be used as an alternative to natural gas for this project from a technological perspective, SDG&E has specified

---

[13] California Energy Commission, "2009 Integrated Energy Policy Report," CEC-100-2009-003-CMF, December 5, 2007.

natural gas as the fuel source in its RFO. Requiring the use of a different fuel would not be compatible with the purpose of the project, which is to respond to the RFO. Therefore, there are no alternative fuels that are considered technologically feasible without redefining the project.

Energy Efficiency

There are two potential applications of energy efficiency as potential BACT for the proposed project: (1) demand-side management (DSM) and similar electric load reduction programs to minimize or eliminate the need for the proposed project altogether; and (2) utilizing the most efficient generating technology that meets the objectives of the project. As discussed above, the project is being proposed to meet a request from the utility for peaking facilities; DSM programs are a separate component of the utility's system management effort and therefore DSM is not an alternative to this project. Utilization of the most efficient generating technology that meets the objects of the project is technologically feasible.

Carbon Capture and Storage (CCS)

CCS technology may be considered to be "available," in the sense that commercial facilities have been built on a scale comparable to PPEC (e.g., a natural gas processing operation.[14] in Wyoming captures 3.6 million tonnes per year of CO_2, compared to the 0.6 million tonnes per year that would be emitted from PPEC.)

However, the technology cannot yet be considered "applicable." The Interagency Task Force on Carbon Capture and Storage (ITF) found that

> "it is unclear how transferable the experience with natural gas processing is to separation of power plant flue gases, given the significant differences in the chemical make-up of the two gas steams. In addition, integration of these technologies with the power cycle at generating plants present significant cost and operating issues that will need to be addressed."[15]

CCS has not yet reached the licensing and commercial sales stage of development. It is an emerging technology that has had limited successful applications on an industrial scale, and no successful applications on a comparably-sized natural gas power plant. There are no CCS systems commercially available for natural gas power plants in the United States. The Department of Energy expects commercial deployment in 2025.[16] Because the proposed project must go online by 2014, CCS does not appear to be commercially available for this application.

Step 3. Rank remaining control technologies.

Absent post-combustion removal or sequestration, CO_2 and other GHG emissions are a direct function of the amount of natural gas fuel burned. GHG emissions will be

---

[14] Interagency Task Force on Carbon Capture and Storage, *Report of the Interagency Task Force on Carbon Capture and Storage*, August 2010. p. 28.

[15] Id.

[16] 73 FR 44370

minimized by minimizing heat rate and maximizing generating efficiency. The remaining technologies are ranked by their overall heat rate for consideration as BACT for this project, as shown in Table G-5.6.

TABLE G-5.6
Ranking of Potential Generating Technologies/Controls by Heat Rate

Technology	Heat Rate Range (HHV basis)	Technologically Feasible for This Project?
Renewable energy sources	n/a	No
Nuclear generation	n/a	No
Biomass and other biofuels	n/a	No
Demand-side management	n/a	No
CCS	n/a	Maybe
Combined-cycle gas turbines	~7000 to 8000 Btu/kWh[1,2,3]	Yes
Reciprocating IC engines	~7500 Btu/kWh[4]	Yes
Simple-cycle gas turbines	~9400 to 10,000 Btu/kWh[1,2,3]	Yes
Boilers	>10,000 Btu/kWh[1,2,3]	No

Sources:
1. CEC FSA, Avenal Project. http://www.energy.ca.gov/sitingcases/avenal/index.html
2. CEC FSA, TIC Almond 2 Power Plant Project.
http://www.energy.ca.gov/sitingcases/almond/index.html
3. CEC FSA, Carlsbad Energy Center Project.
http://www.energy.ca.gov/sitingcases/carlsbad/index.html
4. Wärtsilä, specifications for 1V34SG and 20V34SG gas engines. www.wartsila.com

CO_2 is not the byproduct of incomplete combustion or contaminants in the fuel supply. It is an essential product of the combustion of natural gas. Therefore, the only way to reduce the amount of CO_2 generated is to minimize the amount of fuel combustion required to produce the desired amount of electricity. This is achieved by operating the unit efficiently and conducting regular maintenance to ensure continued good combustion. Good combustion practices are a well-established and widely used technique to minimize emissions from combustion sources. Good combustion operation and maintenance will maintain the thermal efficiency of the selected generating technology and therefore must also be considered a component of BACT to minimize GHG emissions.

Step 4 – Evaluate the Most Effective Control Technology Considering Environmental, Energy, and Cost Impacts

Combined-cycle gas turbines

Combined-cycle gas turbines are inherently more efficient than simple cycle gas turbines because they extract and use exhaust heat that would otherwise be wasted. However, combined cycle gas turbines require heat recovery steam generators and steam turbines, which greatly increase the cost of a generating facility on a dollar per megawatt basis. When a facility is built to operate as a base load plant with a high capacity factor, the

additional cost incurred can be reasonable. However, the proposed project will operate as a peaking plant with an expected capacity factor of approximately 50%. Therefore, the additional cost imposed for a combined cycle plant could not be recovered and would make the project cost uncompetitive. In addition, conventional combined cycle power plants have greater thermal inertia because of the additional equipment downstream of the gas turbine, so generally take longer to start up than simple cycle gas turbines. Although gas turbine vendors have developed fast-start gas turbine technology that allows some new combined cycle units to come online in less than 30 minutes, only simple-cycle turbines are proven to provide the multiple fast startups required as an objective of the project.

Further, the fast-start combined-cycle technology is available only on industrial turbines that are much larger than the 100 MW increment identified for the PPEC: the 300 MW Siemens SCC6-5000F and GE 7FA Rapid Response CTGs. A larger-capacity turbine would be operated at less than optimum (full) output more frequently than a smaller-capacity turbine, and since gas turbine efficiency drops rapidly at less than full load, this mode of operate would likely reduce the overall efficiency of the combined-cycle units to below that of the proposed simple-cycle gas turbines.

Once-through steam generators (OTSG) can be used in place of conventional heat recovery steam generators in a combined-cycle plant to reduce startup time and increase overall plant efficiency. However, in a recent evaluation of this technology as an alternative to simple-cycle turbine technology, the CEC staff determined that under some operating scenarios, emissions of some pollutants would be higher with an OTSG-equipped project than without. Further, even with the faster startups possible with OTSG technology, it still takes some time for the steam side to warm up and be available to produce power. This means that during the period when the steam side is warming up, there is no difference between a simple cycle plant and a once-through combined cycle plant.[17] Therefore, for peaking/firming plants that will undergo multiple startups, most of the time the steam side would not be used so would have no actual beneficial impact on project efficiency. For these reasons, and because inclusion of OTSGs in the project design would greatly increase project cost for essentially no benefit, the use of combined cycle technology with OTSG is not considered BACT for the project.

Reciprocating IC engines

Reciprocating IC engines are fast-starting, but the largest natural gas-fired IC engine currently available is the approximately 9 MW Wärtsilä 20V34SG.[18] The 300 MW size of the proposed project would require over 30 of these engines, which would result in a far more complex and expensive plant and control system. Further, BACT for NOx from engines of this type was recently determined to be 5 ppm, so NOx emissions from a comparable reciprocating engine plant would be approximately twice the NOx emissions from the proposed simple-cycle gas turbine project. Therefore, reciprocating IC engine technology is not considered BACT for the project.

---

[17] CEC, "Final Staff Assessment for the Canyon Power Plant: Alternatives," September 2009.

[18] http://powerservices.lakho.com/2009/05/19/largest-natural-gas-reciprocating-engine-plant/

Carbon Capture and Storage

CCS technology applicable to natural gas-fired projects refers to post-combustion capture. EPA's Interagency Task Force on Carbon Capture and Storage[19] found:

> "Post-combustion CO_2 capture … is challenging for the following reasons:
>
> - A high volume of gas must be treated because the CO_2 is dilute (13 to 15 percent by volume in coal-fired systems, three to four percent in natural-gas-fired systems);
> - The flue gas is at low pressure (near atmosphere);
> - trace impurities (particulate matter [PM], sulfur oxides [SO_x], nitrogen oxides [NO_x], etc.) can degrade the CO_2 capture materials; and
> - Compressing captured CO_2 from near atmospheric pressure to pipeline pressure (about 2,000 pounds per square inch absolute) requires a large auxiliary power load…
>
> …Installing current amine post-combustion CO_2 capture technology on new conventional subcritical, supercritical, and ultra-supercritical coal-fired power plants would increase the COE by about 80 percent. Further, the large quantity of energy required to regenerate the amine solvent and compress the CO_2 to pipeline conditions would result in about a 30 percent energy penalty." (pp.29-30)

The International Energy Agency estimates that "CCS can reduce CO_2 emissions from power plants … by more than 85%, and power plant efficiency by about 8-12 percentage points."[20] Although this energy penalty is for coal-fired plants and is not directly applicable to natural gas firing, it is expected to be reasonably representative of the energy penalty for a natural gas-fired system because the lower content of CO_2 in gas turbine exhaust would not necessarily result in an efficiency savings (separation is still required, and there is no data to suggest that the differences in CO_2 concentrations between coal exhaust and gas turbine exhaust would result in lower separation costs). Assuming a minimum 8% energy penalty for CCS, the project would have to generate 8% more electricity to provide energy for CCS without reducing the electricity supply provided by the facility. Criteria pollutant and GHG emissions would also be 8% higher. In view the energy and emissions penalties, the cost and the lack of commercial availability, CCS is not considered BACT for the proposed project.

As shown in Table G-5.2 above, simple cycle gas turbines typically have heat rates that range between 9000 and 10,000 Btu/kWh. PPEC proposes to use a newer, more energy efficient simple cycle turbine technology, the LMS100, which incorporates intercooling to promote enhanced energy efficiency. The heat rate of the LMS100 is approximately 8,694 Btu/kWh (HHV), well below the range of heat rates shown above for typical simple-cycle gas turbines. The use of this highly-efficient simple cycle gas turbine

---

[19] EPA, "Report of the Interagency Task Force on Carbon Capture and Storage," 2010. http://www.epa.gov/climatechange/downloads/CCS-Task-Force-Report-2010.pdf

[20] IEA Energy Technology Essentials, December 2006. http://www.iea.org/techno/essentials.htm

technology, combined with good combustion operation and maintenance to maintain optimum efficiency, is determined to be BACT for GHG.

BACT for the CTGs: Startup/Shutdown

Startup and shutdown periods are a normal part of the operation of simple-cycle power plants such as PPEC. BACT must also be applied during the startup and shutdown periods of gas turbine operation. The BACT limits discussed in the previous section apply to steady-state operation, when the turbines have reached stable operations and the emission control systems are fully operational.

NOx Emissions

Step 1 – Identify All Possible Control Technologies

The following technologies for control of NOx during startups and shutdowns have been identified:

- A Selective Catalytic Reduction (SCR) system capable of continuously complying with a limit of 2.5 ppmvd @15% O_2 (1-hour average)
- An EMx system capable of continuously complying with a limit of 2.5 ppmvd @15% O_2 (1-hour average)
- Fast-start technologies (i.e., Rapid Response)
- General Electric OpFlex Startup NOx
- Operating practices to minimize the duration of startup and shutdown

Step 2 – Eliminate Technologically Infeasible Options

During gas turbine startup, there are equipment and process requirements that must be met in sequential order to protect the equipment. In the case of combined cycle turbine projects, many of these require holding the gas turbine at low loads, where operation is inefficient and emissions are relatively high, to allow the HRSG and steam turbine to warm up, and establish steam turbine seals and condenser vacuum. In the case of combustion turbines with dry low NOx combustors, at low turbine loads, the combustors are not yet operating in lean pre-mix mode so turbine NOx emission rates are also high during startup. For these reasons, the specification of combined cycle technology as BACT for other pollutants (e.g., GHGs) would be inconsistent with a determination of BACT for startups and shutdowns.

For all turbine technologies, incomplete combustion at low loads results in higher CO and VOC emission rates. Further, the post-combustion controls that are used to achieve additional emissions reductions (SCR and oxidation catalyst) require that specific exhaust temperature ranges be reached to be fully effective. The use of SCR to control NOx is not technically feasible when the surface of the SCR catalyst is below the manufacturer's recommended operating range. When catalyst surface temperatures are low, ammonia will not react completely with the NOx, resulting in excess NOx emissions or excess ammonia slip or both. The oxidation catalyst is not effective at controlling CO emissions when exhaust temperature is below the optimal temperature range. Therefore, exhaust

gas controls used to achieve BACT for normal operations are not feasible control techniques during startups and shutdowns.

GE's OpFlex Startup NOx is not available for or applicable to simple-cycle gas turbines.

This "top-down" BACT analysis will consider the following NOx emission limitations:

- Operating practices to minimize emissions during startup and shutdown
- Design features to minimize the duration of startup and shutdown

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Operating Practices to Minimize Emissions during Startup and Shutdown

There are basic principles of operation, or Best Management Practices, that minimize emissions during startups and shutdowns. These Best Management Practices are as follows:

- During a startup, bring the gas turbine to the minimum load necessary to achieve compliance with the applicable NOx and CO emission limits as quickly as possible, consistent with the equipment manufacturers' recommendations and safe operating practices;
- During a startup, initiate ammonia injection to the SCR system as soon as the SCR catalyst temperature and ammonia vaporization system have reached their minimum operating temperatures;
- During a shutdown, once the turbine reaches a load that is below the minimum load necessary to maintain compliance with the applicable NOx and CO emission limits, reduce the gas turbine load to zero as quickly as possible, consistent with the equipment manufacturers' recommendations and safe operating practices; and
- During a shutdown, maintain ammonia injection to the SCR system as long as the SCR catalyst temperature and ammonia vaporization system remain above their minimum operating temperatures.

A key underlying consideration of these Best Management Practices is the overall safety of the plant staff by promoting operation within the limitations of the equipment and systems, and allowing for operator judgment and response times to respond to alarms and trips during the startup sequence.

Design Features to Minimize the Duration of Startup and Shutdown

An additional technique to reduce startup emissions is to minimize the amount of time the gas turbine spends in startup. The use of simple-cycle gas turbine technology inherently minimizes this time, in that simple-cycle gas turbines generally start up and shut down much more quickly than combined-cycle turbines.

Step 4 – Evaluate the Most Effective Control Technology Considering Environmental, Energy, and Cost Impacts

Utilizing best operating practices to minimize emissions during startups and shutdowns has no adverse environmental or energy impacts, nor does it require additional capital expenditure.

The approach of reducing startup/shutdown duration has no adverse environmental or energy impacts, and the use of simple-cycle generating technology minimizes startup/shutdown duration.

Step 5 - Determine BACT/Present Conclusions

BACT for NOx during startups/shutdowns is the use of operating systems/practices that reduce the duration of startups and shutdowns to the greatest extent feasible, and the use of operational techniques to initiate ammonia injection as soon as possible during a startup. Therefore, BACT is determined to be the use of simple-cycle gas turbine technology and the application of operating systems/practices that minimize startup and shutdown durations, in combination with the use of operational techniques to initiate ammonia injection as soon as possible during a startup.

VOC Emissions

The VOC control technologies under consideration for startups and shutdowns are ranked as follows:

- Oxidation catalyst unit capable of achieving 2 ppmvd @ 15% O2
- Fast-start technologies (e.g., Rapid Response)
- Operating practices to minimize the duration of startup and shutdown

Step 1 – Identify All Possible Control Technologies

The analysis for VOC is identical to the analysis for NOx.

Step 2 – Eliminate Technologically Infeasible Options

The analysis for VOC is identical to the analysis for NOx.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The analysis for VOC is identical to the analysis for NOx.

Step 4 – Evaluate the Most Effective Control Technology Considering Environmental, Energy, and Cost Impacts

The analysis for VOC is identical to the analysis for NOx.

Step 5 – Determine BACT/Present Conclusions

BACT for VOC during startups/shutdowns is the use of simple cycle gas turbine technology and operating practices that reduce the duration of startups and shutdowns to the greatest extent feasible.

PM/PM_{10}/$PM_{2.5}$ Emissions

Because PM and PM_{10} emissions result from the characteristics of the fuel burned and do not rely on any emissions control system, the BACT determinations for SO_2 and PM_{10} emissions during normal operations are applicable during startup and shutdown as well.

SOx Emissions

Because SO_2 emissions result from the characteristics of the fuel burned and do not rely on any emissions control system, the BACT determinations for SO_2 (and PM_{10}) emissions during normal operations are applicable during startup and shutdown as well.

Proposed BACT determinations for the PPEC simple-cycle gas turbines are summarized in Table G-5.7.

TABLE G-5.7
Proposed BACT Determinations for PPEC Simple-Cycle Gas Turbines

Pollutant	Proposed BACT Determination
Nitrogen Oxides	Water injection and SCR system, 2.5 ppmc[a], 1-hour average, with excursions under specific conditions; no CCS
Sulfur Dioxide	Natural gas fuel (sulfur content not to exceed 0.75 grain/100 scf short-term average, 0.25 grains/100 scf long-term average)
Carbon Monoxide	Good combustion practices and oxidation catalyst, 4.0 ppmc, 1-hour average
VOC	Good combustion practices, 2.0 ppmc, 1-hour average
PM_{10}	Natural gas fuel, 5.5 PM_{10} lbs/hr
$PM_{2.5}$	Natural gas fuel, 5.5 $PM_{2.5}$ lbs/hr
Startup/Shutdown	Best operating practices to minimize startup/shutdown times and emissions
GHGs	LMS 100 simple-cycle gas turbine technology, good combustion practices

Note:

a. ppmc: parts per million by volume, corrected to 15% O_2

BACT for the Cooling System

Step 1 – Identify All Possible Control Technologies

Available control options are those air pollution control technologies or techniques, including alternate basic equipment or processes, with a practical potential for application to the emissions unit in question. The control alternatives should include not only existing controls for the source category in question, but also, through technology transfer, controls applied to similar source categories and gas streams.

The emissions source for which BACT is being considered is the partial dry-cooling system (PDCS), which is a closed-loop two-stage cooling system. In this system, the heat will be rejected using ambient air in a dry cooling system, followed by a closed-loop evaporative fluid cooler for additional cooling. This will reduce plant water consumption in two ways. First, the dry-cooling section will reduce the amount of heat that must be rejected in the closed-loop evaporative fluid cooler, which results in a corresponding reduction in the total amount of water evaporated during the cooling process. Second, the closed-loop evaporative fluid cooler will allow the contaminants in the evaporative cooling water to be concentrated to a much greater extent than in a traditional open-loop cooling system because that water does not pass through the combustion turbine equipment.

The dry cooling portion of the cooling system has no air emissions. The evaporative fluid cooler portion of the cooling system will be a 7000 gallon per minute (gpm) fluid cooler. The fluid cooler uses mechanical, induced-draft technology in a closed circuit. In the fluid cooler, the process fluid to be cooled is pumped through coils and cooling water passes over the coils, cooling the process fluid by evaporation. Particulate emissions result from the wet cooling portion of the system.

Potential control technologies applicable to particulate emissions from the evaporative (wet) cooling portion of the cooling system were identified by searching the following sources for entries pertaining to cooling towers:

- SCAQMD BACT Guidelines;
- SJVAPCD BACT Clearinghouse;
- BAAQMD BACT Guidelines;
- USEPA RACT/BACT/LAER Clearinghouse;
- Other districts' and states' BACT Guidelines; and
- BACT/LAER requirements in New Source Review permits issued by AQMD or other agencies.

BACT determinations from the SCAQMD, SJVAPCD, BAAQMD, and USEPA are summarized in Table G-5.8.

TABLE G-5.8
Summary of PM_{10} BACT Clearinghouse Guidelines

Permitting Agency	Guideline	Operation	PM_{10} BACT for Cooling Towers
SCAQMD	None	N/A	N/A
SJVAPCD	8.3.10	Induced Draft Evaporative Cooling Tower	Cellular Type Drift Eliminator
BAAQMD	None	N/A	N/A

USEPA	RBLC Listings	≤10,000 gpm Cooling Towers	Drift Eliminators 0.001% Drift Rate

Cooling devices of the size range used in simple-cycle power plants are generally not subject to local district BACT requirements because their emission rates are usually below district BACT thresholds. Table G-5.9 summarizes information on evaporative coolers of the type proposed for use at PPEC that have recently been approved by the California Energy Commission (CEC) through the Application for Certification (AFC) process; these controlled emission rates were approved by the indicated permitting authority. Recent BACT determinations for similarly sized cooling towers from the EPA RBLC listings are summarized in Table G-5.10.

TABLE G-5.9
PM_{10} Emission Rates for Small Cooling Towers in CEC Proceedings

Permitting Agency	Project	Permit Required?	Permit Date	Circulating Water Flow Rate	Drift Rate Limit
SCAQMD	Canyon Power Plant	yes	2010	7,740 gpm	0.001%
BAAQMD	SF Electric Reliability Project	no (exempt)	2006	3,912 gpm	0.001%
SJVAPCD	MID Ripon	no (exempt)	2004	3,218 gpm	0.001%

TABLE G-5.10
PM_{10} BACT Determinations for Small Cooling Towers From RBLC Database

Project	Permit # (Date)	Circulating Water Flow Rate	Drift Rate Limit
MGM Mirage	NV-0050 (Nov. 2009)	10,890 gpm	0.001%
Harrah's Operating Company	NV-0049 (Aug. 2009)	7,200 gpm	0.005%
Crescent City Power	LA-0192 (June 2005)	35,000 gpm	0.005%

BACT must be at least as stringent as what has been achieved in practice (AIP) for a category or class of source. Additionally, USEPA guidelines require that technology that is determined to be AIP for one category of source be considered for transfer to other source categories. There are two types of potentially transferable control technologies: (1) exhaust stream controls, and (2) process controls and modifications. For the first type,

technology transfer must be considered between source categories that produce similar exhaust streams. For the second type, technology transfer must be considered between source categories with similar processes. In order to be considered, the candidate control technology must be technologically feasible for the application being reviewed. In order to be required as BACT, the candidate technology must be cost effective, considering energy, environmental, economic, and other costs.

Three possible alternate basic technologies were identified from background technical materials prepared during the rulemaking of USEPA's National Pollutant Discharge Elimination System (NPDES): "Regulations Addressing Cooling Water Intake Structures for New Facilities" (Federal Register 66:24, December 18, 2001). The NPDES regulation establishes national technology-based performance requirements applicable to the location, design, construction, and capacity of cooling water intake structures at new facilities using once-through cooling. During the rulemaking process, USEPA also evaluated alternatives to once-through cooling, including recirculating wet cooling systems, dry cooling systems, and hybrid cooling systems.

Recirculating Wet Cooling Tower with High Efficiency Drift Eliminator

In conventional open-cycle recirculating wet cooling towers, cooling water that has been used to cool the condensers is pumped to the top of a recirculating cooling tower; as the heated water falls, it cools through an evaporative process and warm, moist air rises out of the tower, often creating a vapor plume. Approximately 80% of the heat transfer (cooling) occurs due to evaporation, and 20% of the heat transfer occurs due to convection. Therefore, wet cooling towers are more effective in areas of low relative humidity.

Evaporative Coolers

Evaporative fluid coolers isolate process fluid from cooling water and operate as a closed-loop system.

Dry Cooling Tower

Dry cooling systems (towers) use either a natural or a mechanical air draft to transfer heat from the condenser tubes to air. Their effectiveness is independent of relative humidity and purely a function of the ambient (dry-bulb) temperature. Therefore, dry cooling towers are more effective in areas of low ambient temperature.

Hybrid Cooling Tower (Plume-Abated Wet Cooling)

There are two types of hybrid wet-dry cooling towers. One type is essentially a wet cooling tower with an additional dry section installed on top that reduces visible plumes by heating the wet air from the wet section. This is done to reduce or eliminate the visible condensation plume.

Hybrid Cooling Tower (Spray-Enhanced Dry Cooling)

The second type of hybrid system is essentially a dry cooling tower that enhances heat transfer in the condenser tubes by spraying water on the outside of the tubes.

Once-Through Cooling

Once-through cooling systems eliminate the cooling tower entirely by drawing cooling water from a water source (such as a river or the ocean), using the water to cool the condensers, and then discharging the heated water, usually back to the original water source.

Step 2 – Eliminate Technologically Infeasible Options

The next step in the top-down BACT procedure is to eliminate technologically infeasible options.

Recirculating Wet Cooling Tower

Recirculating wet cooling towers are generally used for large, combined cycle projects because of the much larger volume of cooling water that must be cooled and condensed. However, this technology is available for smaller applications and is technologically feasible for the proposed project.

Evaporative Cooling

An evaporative fluid cooler with drift eliminator has been proposed as part of the cooling system for this project. However, the capacity of this evaporative fluid cooler is reduced by including a dry cooling section in the cooling system design for the project.

Dry Cooling

USEPA has adopted standards for new facilities that draw cooling water from waters of the U.S. The regulation established the best technology available for minimizing adverse environmental impacts associated with the use of cooling water intake structures.

As part of the rulemaking process, USEPA considered the technical issues, cost, and environmental impacts associated with replacing once-through cooling with recirculating cooling towers and dry cooling. USEPA rejected dry cooling as the best replacement technology due to all three of these factors. For the purposes of this BACT analysis, the technical issues are evaluated in this step.

The main technical issue associated with dry cooling towers for this application is the limited availability to provide adequate cooling under high-temperature conditions. The plant will use a PDCS in a closed-loop configuration that utilizes dry cooling but also requires additional cooling capacity. For the purposes of this analysis, dry cooling was eliminated as a potential BACT option for the second stage of the cooling system because enhanced cooling is required for the plant beyond what is already being provided by the dry cooling system.

Hybrid Cooling (Plume-Abated Wet Cooling Tower)

Hybrid wet-dry (plume abated) cooling towers employ both a wet section and dry section and reduce or eliminate the visible plumes associated with wet cooling towers. In general, a hybrid cooling tower is used only where a visible plume presents a threat to public safety by its interference with major infrastructure, such as airports, or in some cases if the plume will block prominent landscape features or scenic coastal areas.

Hybrid cooling towers offer only insignificant changes in PM, PM10, and PM2.5 emissions compared to wet cooling towers. After the warm, moist air passes through the drift eliminators of the wet section, it is mixed with warm dry air that passed through the dry section. This step speeds the evaporation that would normally occur after the plume was released. While most remaining liquid drift may be eliminated within the dry section of the cooling tower via evaporation, the particulate nuclei are not reduced or eliminated by any physical process and are exhausted through the top of the cooling tower.

Even though this option does not decrease PM emissions from the cooling tower, it also has not been deemed technologically infeasible as appropriate BACT for the PPEC cooling tower. Thus, the environmental and economic impacts of this option are discussed in the following steps.

Hybrid Cooling Tower (Spray-Enhanced Dry Cooling)

A spray-enhanced hybrid cooling tower works essentially as a dry cooling tower that enhances heat transfer in the condenser tubes by spraying water on the outside of the tubes. The addition of the evaporating water spray can help alleviate the technical issues associated with dry cooling. Increased cooling may allow for fewer, more efficient dry cooling cells to be installed, thus shrinking the plant footprint required for the cooling tower. However, it is not clear that this technology would provide adequate additional cooling that would eliminate the need for the evaporative fluid cooler. Therefore, this technology is not considered technologically feasible for the proposed project.

Once-Through Cooling

Once-through cooling involves the water withdrawn from rivers, streams, lakes, reservoirs, estuaries, oceans, or other waters. In general, once-through cooling is only technologically feasible when a large surface water body exists in immediate proximity to the power plant. Since this situation does not exist for the PPEC project, once through cooling has been deemed a technologically infeasible BACT option and will not be further evaluated.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Aside from the proposed BACT technology of the partial dry cooling system, a wet cooling tower with high-efficiency drift eliminators, the remaining technologies are (1) a wet cooling tower and (2) a plume-abated wet cooling tower.

Recirculating Wet Cooling Tower

A recirculating wet cooling tower would have higher water requirements and would require additional water treatment than the proposed partial dry system that utilizes an evaporative fluid cooler. The increase in water use would, by itself, be a negative environmental impact. While the evaporative fluid cooler portion of the cooling system could be replaced by a recirculating wet cooling tower, additional water treatment would

still be required. For this reason, wet cooling tower technology is not considered to be BACT for the proposed project.

Hybrid Cooling (Plume-Abated Wet Cooling)

A plume-abated wet cooling tower is no more effective in eliminating drift and particulate matter compared to a wet cooling tower, but carries some of the energy penalties associated with dry cooling. For this reason, a plume-abated cooling tower is ranked lower than an evaporative fluid cooler for PM10 BACT purposes. Since this technology is less effective than the proposed technology, it is eliminated from consideration and no further analysis is necessary.

The remaining technologies were ranked according to PM_{10} reductions, as shown in Table G-5.11.

TABLE G-5.11
Environmental, Energy and Cost Impacts of Cooling System Alternatives

Equipment	Environmental	Energy	Cost
Partial Dry Cooling System (PDCS) with Evaporative Fluid Cooling	Minimizes water use; minimizes water treatment requirements	Higher energy consumption than wet cooling alone	Higher cost than wet cooling alone

* Not including any drift losses from spray enhancement (see discussion above).

Step 4 – Evaluation of Environmental, Energy, and Cost Impacts

This step evaluates any source-specific environmental, energy, or economic impacts that demonstrate that the top alternative shown in Table G.5-11 is inappropriate as BACT. Only the proposed partial dry cooling system technology is considered a technologically feasible and environmentally beneficial option. The remaining issue is the drift rate limit that should be applied to the evaporative fluid cooling portion of the PDCS. Drift rates for similar projects, shown in Tables G.5-9 and G.5-10, range from 0.001% to 0.005%; no installations have been identified with drift rates below the proposed 0.001% level.

Step 5 – Select BACT

Based upon the above information, BACT is use of a PDCS with evaporative fluid cooler and high-efficiency drift eliminator with a drift rate of 0.001% or less. The proposed cooling tower complies with this BACT level.

APPENDIX G-6

Cumulative Impacts Analysis

Search for Nearby Sources

Two types of cumulative air quality impact analyses are often conducted in association with power plant projects. The first type is a CEQA cumulative impacts analysis: an analysis of potential cumulative air quality impacts that may result from the project and other reasonably foreseeable projects. Such an analysis is generally required only when project impacts are significant.

The second type of cumulative impact analysis is part of the PSD review process, and is designed to ensure that industrial facilities which have the potential to cause locally elevated concentrations of air contaminants are adequately considered when determining the project's potential to cause or contribute to a violation of a federal air quality standard. The PSD air quality impact analysis process, as administered by EPA Region 9, is now an iterative process, requiring a series of submittals and approvals. The first step in the process is the submittal, review, and approval of the modeling protocol. The modeling protocol was provided to EPA for review in November, 2010. The next step in the process will be identification of the nearby sources that will be explicitly modeled for the compliance demonstration. The final submittal will be the compliance demonstration itself.

Because EPA's PSD process is now an iterative one, it will require supplemental submittals on a different schedule than the CEC/District permitting process.

CEQA Cumulative Analysis

CEC requirements specify that an analysis is required to determine the cumulative impacts of the project and other projects within a 6-mile radius that have received construction permits, but are not yet operational, or that are in the permitting process, or can be expected to do so in the near future. The District provided a list of projects that meet these criteria (see Table G-6.1). The District has indicated that all of these projects will have emissions of less than 5 TPY of any pollutant. Based on consultation with the District, and consistent with past practice, none of these sources were evaluated by cumulative modeling.

Table G-6.1

Permit Applications in San Diego Since January 1, 2004

App No.	Equip Descr	Issue Date	Company	Address		City
976949	VAPOR DEGREASER	28-Apr-04	TOP BRASS CO	2731	VIA ORANGE WY #112	SPRING VALLEY
978687	EMERGENCY GENERATOR MODEL #50075 S/N 263377	06-Jan-04	SUNRISE DEVELOPEMENT INC	3302	BONITA RD	BONITA
978744	MARINE COATING ON SHIPS & SUBMARINES GRACO MODEL 243283 BG, BRUSH & ROLLER	19-May-04	Q E D SYSTEMS INC	1330	30TH ST #D	SAN DIEGO
978829	INSTALLATION OF NEW ODOR CONTROL SYSTEM TO AN EXISTING SEWER PUMP STATION	30-Mar-04	SD CITY DEPT OF METRO WASTEWATER	1800	BOUNDRY AV	SAN DIEGO
978838	INTERNAL COMBUSTION ENGINE MODEL 200I W/CATALYST SYSTEM	25-Feb-04	VERALLIANCE PROPERTIES INC	2300	BOSWELL RD	CHULA VISTA
978839	INTERNAL COMBUSTION ENGINE W/CATALYST SYSTEM MODEL 2001	25-Feb-04	VERALLIANCE PROPERTIES INC	2300	BOSWELL RD	CHULA VISTA
978902	EMERGENCY GENERATOR FORD MODEL ESG-642	09-Mar-04	TARGET STORE T1815	910	EASTLAKE PY	CHULA VISTA
979038	CONCRETE BLOCK MANUFACTURING PLANT	28-Feb-05	RCP BLOCK & BRICK INC	2480	BRITANNIA BL	SAN DIEGO
979101	3 GASOLINE & 2 DIESEL TANKS, 6 NEW SINGLE-HOSE MPD DISPENSERS W/ BLENDERS	23-Jun-04	LA CIMA OIL INC	8289	OTAY MESA RD	SAN DIEGO
979299	SOIL REMEDIATION	17-Feb-04	ATC ASSOCIATES INC	505	3RD AV	CHULA VISTA
979471	WOOD PARTS/PRODUCTS APPLICATION STATION	28-Sep-04	SD FURNITURE	3137	BEYER BL #C	SAN DIEGO
979477	TWO (2) BLEEKER BROS. MODEL F-12-7-10,10'L X 12'W X 6'10"H, PAINT SPRAY BOOTH	30-Jan-07	WOOD CRAFT CO	1520	CORPORATE CENTER DR	SAN DIEGO
980002	CONCRETE BATCH PLANT, DRY, TRANSIT MIXED	30-Sep-05	ROBERTSONS	7961	AIRWAY RD	SAN DIEGO
980013	MOBILE FUEL BARGE; CAPACITY OF 9,800 GAL OF DIESEL & 800 GAL OF GAS	06-May-04	MARINE GROUP LLC THE	997	G ST	CHULA VISTA
980026	GASOLINE SITE	15-Jun-05	EASTLAKE PETROLEUM LP	950	EASTLAKE PY	CHULA VISTA
980106	REPLACE EXISTING USTS RE-PIPE NEW PHASE 2 EVR PHASE 1 NEW DISPENSERS AND UNDER DISPENSER CONTAINMENT	12-Apr-04	GASCO SELF SERVE	899	3RD ST	CHULA VISTA
980156	INTERNAL COMBUSTION ENGINE - DETROIT DIESEL, MODEL #12V2000-R1237K36, S/N#0760606, 1120 HP	04-Mar-05	CHULA VISTA CITY OF POLICE STATION	315	4TH AV	CHULA VISTA
980216	IC ENGINE MODEL BF4M1013EC	28-Apr-04	PROFIL RESEARCH	855	THIRD AV	CHULA VISTA
980246	HEALEY ORVR PHASE 11 VAPOR RECOVERY SYSTEM 8 NOZZLES 3 GRADES	17-Jan-05	USA GASOLINE PROFIT CENTER #68121	1382	PALOMAR ST E	CHULA VISTA
980851	AUTOMOTIVE APPLICATION STATION	03-Mar-05	SUPERIOR AUTO BODY	363	E ST	CHULA VISTA
981018	BALANCE PHASE I & II VAPOR RECOVERY	29-Aug-05	CHEVRON #301124	2115	OLYMPIC PY	CHULA VISTA
981076	WOOD PARTS/PRODUCTS APPLICATION STATION	11-Mar-05	IEER MANUFACTURING	2311	BOSWELL RD #1	CHULA VISTA
981189	GASOLINE SERVICE SITE	16-Dec-05	IUST 4 FUN LLC	2535	OTAY CENTER DR	SAN DIEGO
981204	SOLVENT CLEANING PROCESS LINE: SOLVENT CLEANING <5 SQ FT FOLLOWED BY DRYING OPERATION	14-Jul-04	PARKER HANNIFIN INC	7664	PANASONIC WY	SAN DIEGO
981205	SOLVENT CLEANING PROCESS LINE: SOLVENT CLEANING >5 SQ FT FOLLOWED BY DRYING OPERATION	14-Jul-04	PARKER HANNIFIN INC	7664	PANASONIC WY	SAN DIEGO
981206	SOLVENT APPLICATION OPER: DETACHMENT OF RUBBER SEALERS FROM METAL PARTS	04-Apr-05	PARKER HANNIFIN INC	7664	PANASONIC WY	SAN DIEGO
981207	SOLVENT APPLICATION OPER: DETACHMENT OF RUBBER SEALERS FROM METAL PARTS	04-Apr-05	PARKER HANNIFIN INC	7664	PANASONIC WY	SAN DIEGO
981208	SOLVENT APPLICATION OPER: DETACHMENT OF RUBBER SEALERS FROM METAL PARTS	04-Apr-05	PARKER HANNIFIN INC	7664	PANASONIC WY	SAN DIEGO
981324	APPLICATION STATION HVLP SPRAY GUN ACCUSPRAY SERIES 10	12-Oct-04	OTAY MESA SALES	1596	RADAR RD	SAN DIEGO
981326	DEGREASER MODEL PL36-A SN ICR90-B4	15-Jul-04	CROWER CAMS & EQUIPMENT	5180	BUSINESS CENTER CT	SAN DIEGO
981327	DEGREASER MODEL PL36-A SN ICGF7	15-Jul-04	CROWER CAMS & EQUIPMENT	5180	BUSINESS CENTER CT	SAN DIEGO

Table G-6.1 (cont'd)

Permit Applications in San Diego Since January 1, 2004

App No.	Equip Descr	Issue Date	Company	Address		City
981328	DEGREASER MODEL PL36-A SN ICGF7	15-Jul-04	CROWER CAMS & EQUIPMENT	5180	BUSINESS CENTER CT	SAN DIEGO
981329	DEGREASER MODEL PL36-A SN IATT7	15-Jul-04	CROWER CAMS & EQUIPMENT	5180	BUSINESS CENTER CT	SAN DIEGO
981330	DEGREASER MODEL PL36A SN ICR90-B4	15-Jul-04	CROWER CAMS & EQUIPMENT	5180	BUSINESS CENTER CT	SAN DIEGO
981475	GASOLINE SERVICE SITE	28-Sep-06	ATTISHA ARCO	765	E ST	CHULA VISTA
981531	RECYCLE CRUSHING PLANT MODEL 62040 SN 1181	19-Aug-05	RCP BLOCK & BRICK INC	2480	BRITANNIA BL	SAN DIEGO
981540	IC ENGINE MODEL 6081AF001 SN RC6081A154970	27-Dec-05	REYNOLDS COMMUNITIES	4655	DEL SOL BL	SAN DIEGO
981556	AUTOMOTIVE APPLICATION STATION	01-Nov-04	US BORDER PATROL	7682	POGO ROW	SAN DIEGO
981629	CONCRETE BATCH PLANT PO 980222 FROM PORTABLE TO STATIONARY	19-Aug-05	SUPERIOR READY MIX CONCRETE LP	6935	CACTUS CT	SAN DIEGO
981661	MARINE COATING OPERATION	19-Oct-06	PACIFIC YACHT REFITTERS INC	997	G ST	CHULA VISTA
981766	IC ENGINE MODEL 6068TF250	27-Mar-06	THE HOME DEPOT	725	PLAZA CT	CHULA VISTA
981873	GASOLINE SERVICE SITE	17-Nov-05	CHULA VISTA CITY OF FIRE STATION #7	1640	SANTA VENETIA ST	CHULA VISTA
981912	CENTRAL MIXED CONCRETE BATCH PLANT AND SILOS; REX MODEL 120DRP528	23-Nov-05	ASSOCIATED READY MIXED CONRETE INC	1696	CACTUS RD	SAN DIEGO
982042	SAND AND AGGREGATE BAGGING UNIT	10-May-05	RCP BLOCK & BRICK INC	2480	BRITANNIA BL	SAN DIEGO
982263	CUMMINS DIESEL ENGINE MODEL DGDA 170 HP RATING CARB CERT# U-R-002-0223	10-Mar-06	CITY OF CHULA VISTA PUBLIC WORKS	800	AGUA VISTA DR	CHULA VISTA
982471	500 GAL AST	01-Sep-05	BONITA GOLF CLUB	5540	SWEETWATER RD	BONITA
983125	SMALL COLD SOLVENT DIP TANKS/REMOTE RESERVOIR CLEANERS	21-Jun-05	US BORDER PATROL IMMIGRATION & NATURALIZATION SVCS	7685	POGO ROW	SAN DIEGO
983376	IC ENGINE, CATERPILLAR, S/N GZS00307, MODEL 3516B, DIESEL, 2847 HP	10-Mar-06	OTAY WATER DISTRICT	1230	EASTLAKE PY	CHULA VISTA
983720	TARPAULIN FUMIGATION USING METHYL BROMIDE	14-Apr-06	HARBOR PEST CONTROL	8515	AVENIDA DE LA FUENTE	SAN DIEGO
983937	PORTABLE ASBESTOS MASTIC REMOVAL APPLICATION STATION	29-Dec-05	CLANCY CONTRACTING SERVICES	825	HOLLISTER ST #M	SAN DIEGO
984040	I/C ENGINE - CATERPILLAR MODEL C-18 DITA; S/N WJH00262, 630 HP, DIESEL.	15-Jun-07	OTAY WATER DISTRICT	1502	WUESTE RD	CHULA VISTA
984092	MARINE COATING APPLICATION	03-May-07	Q E D SYSTEMS INC	1330	30TH ST #D	SAN DIEGO
984176	GASOLINE DISPENSING FACILITY	09-Sep-08	PILOT TRAVEL CENTERS LLC	1497	PIPER RANCH RD	SAN DIEGO
984293	SELF SERVE. GASOLINE DISPENSING FACILITY. 10,000 GALLON AST. AVIATION FUEL ONLY	02-Apr-07	FIRST FLIGHT CORP	6810	CURRAN ST	SAN DIEGO
984435	IC ENGINE GENERAL MODEL 0046267; S/N 4356149, 80HP, NATURAL GAS.	25-Aug-06	CUSTOMS AND BORDER PROTECTION (CBP)		ARNIE'S POINT	CHULA VISTA
985041	SPRAY BOOTH M&W MODEL MWTR431616.	10-Jul-07	WORK TRUCKS UNLIMITED	2500	SWEETWATER SPRINGS BL	SPRING VALLEY
985175	OLYMPIAN DIESEL ENGINE MODEL D60P2 S/N GABL001576 HP RATING 98.4	27-Jun-07	MISSION IMPRINTABLES	6060	BUSINESS CENTER CT #200	SAN DIEGO
985439	LINDUS MODEL PM60 DRY CLEANING MACHINE	09-Jul-07	SATURN CLEANERS	555	SATURN BL #E	SAN DIEGO
985469	ABRASIVE BLASTING POT/MACHINE MODEL 1-9 DEZ S/N 27040070 HP 9.39	16-Jun-08	CLANCY CONTRACTING SERVICES	825	HOLLISTER ST #M	SAN DIEGO
985516	IC ENGINE CLARKE/JOHN DEERE MODEL JU4H-UF40, S/N PE4045T652489, 94HP DIESEL	18-Feb-08	PRUDENTIAL INSURANCE CO OF AMERICA THE	1440	INNOVATIVE DR	SAN DIEGO
985975	SOIL VAPOR EXTRACTION EQUIP. SOIL-THERM MODEL 2002-LR-EN	09-Apr-08	AMI ADINI & ASSOCIATES INC	77	BROADWAY (PORTABLE)	CHULA VISTA
986927	JOHN DEERE DIESEL ENGINE MODEL 6068HF285K S/N PE6068L039363 HP RATING 197	02-Jun-09	INNOVATIVE COLD STORAGE II	7350	BRITANNIA CT	SAN DIEGO
987439	MARINE COATING OPERATION	17-Mar-09	VT MILCOM	2232	VERUS ST	SAN DIEGO
987548	REPLACEMENT EMERGENCY STANDBY DIESEL 30K W ENGINE FOR PO #983068	19-Mar-09	FEDERAL AVIATION ADMINISTRATION		PGY BLDG	CHULA VISTA

APPENDIX G-7

Compliance Demonstration
Federal NO_2 and $PM_{2.5}$ Standards

The worst-case modeling analysis, in which maximum project impacts were added to maximum measured background concentrations, demonstrated compliance with all ambient air quality standards except for the federal 1-hour NO_2 standard and the federal 24-hour $PM_{2.5}$ standard (see Appendix G-2). A more refined analysis that more closely matches the actual ambient concentrations with the modeled project impact under the same meteorological conditions has been performed as a more realistic assessment of expected impacts of the proposed project.

The methodology for performing this analysis is described in detail in the modeling protocol (Appendix G-8), and will be summarized here. It should be noted that this analysis, although more refined than the screening analysis, is still conservative, for reasons that will be discussed below.

The stack parameters used for this analysis are shown in Table G-7.1.

Compliance with the Federal 1-hour NO_2 Standard

Form of the Standard

The federal 1-hour NO_2 standard is met if the 3-year average of the 98th percentile highest daily 1-hour average NO_2 concentration, including background, does not exceed 100 ppb. At standard temperature and pressure, this limit is equivalent to 188 $\mu g/m^3$. The standard is converted to $\mu g/m^3$ for the analysis because the modeling results are in those units.

The procedure for determining compliance is to determine the highest 1-hour NO_2 concentration, including background, for each calendar day in the year at every receptor. These concentrations are rank-ordered, highest to lowest, and the 98th percentile value (8th highest concentration for a reasonably complete data set) is selected to represent that year. These values are then averaged over the three years included in the analysis. The resulting average must be less than or equal to 188 $\mu g/m^3$.

Compliance Demonstration Procedure

The output from the dispersion model provides the worst case project impact at all of the receptors in the impact area (the area where the maximum project impact exceeds the Significant Impact Level [SIL])[21] for each hour of the year (see Figures G-7.1 and G-7.2). Receptors outside the impact area are excluded from the analysis because the project impact cannot, by definition, cause or contribute significantly to a violation of the standard if the project impact, by itself, does not exceed the SIL.

Use of the worst-case modeled impact is the first conservative assumption in this analysis. It is conservative because it assumes that the project will be operating under its worst case conditions (i.e., all three turbines in simultaneous startup, for NO_2) every single hour of the year. Although this is clearly unrealistic, it is not possible to further refine the assumptions; it is **possible**, although extremely **unlikely**, that such operation will line up with each of the 8 highest impact hours during the year.

---

[21] It should be noted that USEPA has not adopted a SIL for the 1-hour NO_2 standard. Following EPA guidance, the interim SIL value of 4 ppb (7.5 $\mu g/m^3$) has been used for this analysis.

The ambient background NO_2 concentration for each hour is then added to the modeled impact at each receptor. EPA has requested that the actual concentrations corresponding to the meteorological conditions not be used for this analysis. Instead, another conservative adjustment has been made to the results: for each calendar month, a composite daily background profile has been used. The composite daily background profile for a given calendar month is comprised of the highest ambient monitor NO_2 reading from the month for each clock GMT hour.

Once the modeled impact for each hour has been added to the corresponding ambient background concentration, the highest combined impact for each calendar day is determined. Daily maxima are rank ordered; because the data set is complete, the 8th highest result is averaged with those from the other years in the analysis to determine compliance.

Compliance Demonstration Results

The results of the compliance demonstration are shown in Table G-7.2. The project's impact of 156 $\mu g/m^3$ is below the standard of 188 $\mu g/m^3$.

Compliance with the Federal 24-hour $PM_{2.5}$ Standard

Form of the Standard

The federal 24-hour $PM_{2.5}$ standard is met if the 3-year average of the 98th percentile daily 24-hour average $PM_{2.5}$ concentration, including background, does not exceed 35 $\mu g/m^3$.

The procedure for determining compliance is to determine the 24-hour $PM_{2.5}$ concentration, including background, for each calendar day in the year at every receptor. These concentrations are rank-ordered, highest to lowest, and the 98th percentile value (8th highest concentration for a reasonably complete data set) is selected to represent that year. These values are then averaged over the three years included in the analysis. The resulting average must be less than or equal to 35 $\mu g/m^3$.

Compliance Demonstration Procedure

The output from the dispersion model provides the worst case project impact at all of the receptors in the impact area (the area where the maximum project impact exceeds the Significant Impact Level [SIL]) for each hour of the year. Receptors outside the impact area are excluded from the analysis because the project impact cannot, by definition, cause or contribute significantly to a violation of the standard if the project impact alone does not exceed the SIL. The ambient background concentration for each day is then added to the modeled impact at each receptor.

Once the modeled impact for each day has been added to the corresponding ambient background concentration, daily impacts are rank ordered; because the data set is complete, the 8th highest result is averaged with those from the other years in the analysis to determine compliance.

Compliance Demonstration Results

The results of the compliance demonstration are shown in Table G-7.2. The project's impact of 25.8 $\mu g/m^3$ is below the standard of 35 $\mu g/m^3$.

Table G-7.1

Emission Rates and Stack Parameters for Refined Modeling

Case/Year	Stack Height meters	Stack Diam meters	Stack flow m3/sec	Stack Vel m/sec	Stack Temp deg K	Emission Rates, lb/hr NOx	Emission Rates, lb/hr PM10	Emission Rates, g/s NOx	Emission Rates, g/s PM_{10}
Averaging Period: One hour Startup NOx									
Hot Low	30.48	4.42	346.13	22.56	713.8	26.63	n/a	3.36	n/a
Averaging Period: 24-hour PM2.5									
Cold Low	30.48	4.42	414.34	27.01	700.9	n/a	5.50	n/a	0.69

Table G-7.2

Results of Compliance Demonstration

Pollutant	Averaging Time	Maximum Predicted Impact (operating mode) ($\mu g/m^3$)	Maximum Background Concentration ($\mu g/m^3$)	3 year Average of 98th Percentile of Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hr	79 (startup)	154	156	188	339
$PM_{2.5}$	24-hr	2.6 (normal)	45.7	25.8	35	

Figure G-7.1

Areas Where Maximum 1-Hour Average NO_2 Impacts During Startup Exceed the Significant Impact Level

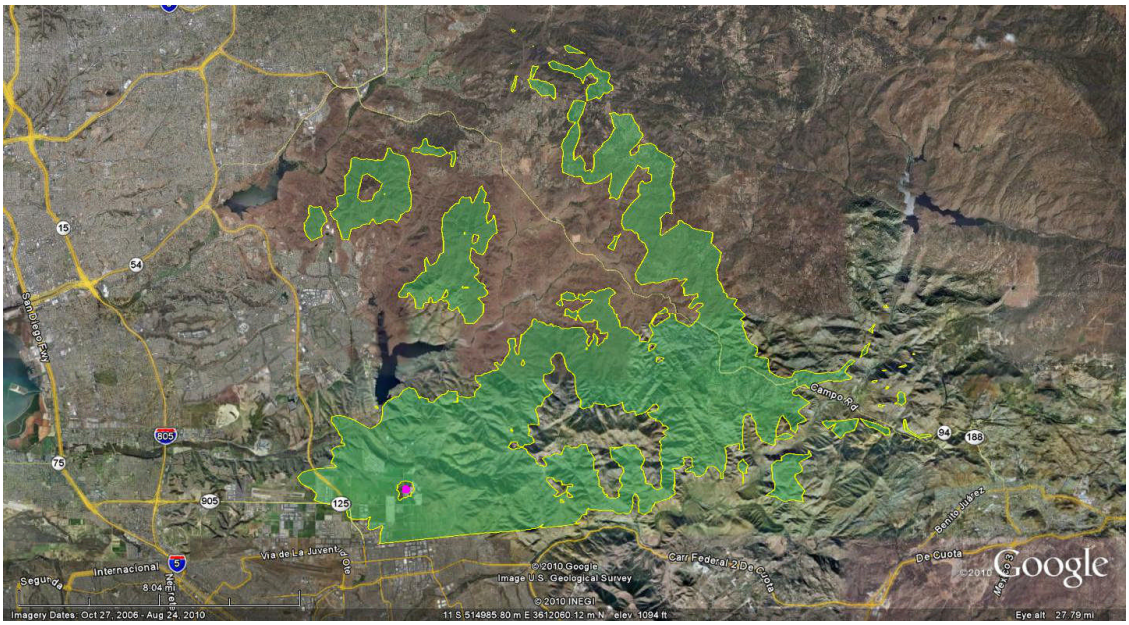
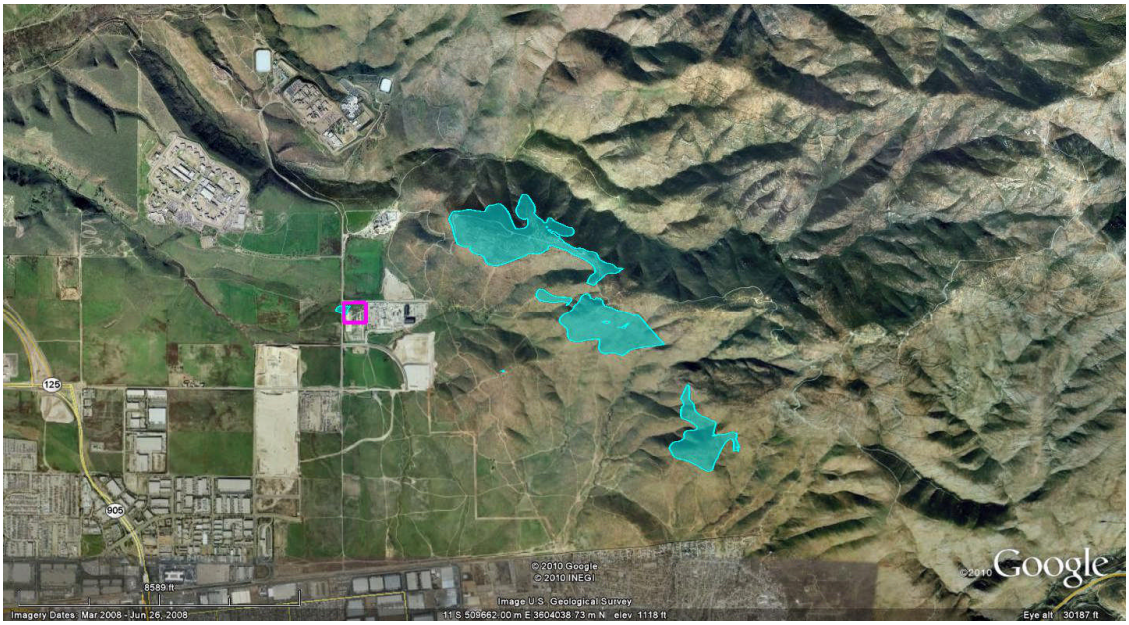


Figure G-7.2

Areas Where Maximum 24-Hour Average $PM_{2.5}$ Impacts Exceed the Significant Impact Level



APPENDIX G-8

Modeling Protocol

sierra research

Air Dispersion Modeling and Health Risk Assessment Protocol Pio Pico Energy Center San Diego County, California

Submitted to:

San Diego County Air Pollution Control District
California Energy Commission
US Environmental Protection Agency

prepared for:

Apex Power Group

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

Air Dispersion Modeling
And Health Risk Assessment
Protocol

Pio Pico Energy Center
San Diego County, California

November 2010

Prepared by

Sierra Research
1801 J Street
Sacramento, CA 95811
(916) 444-6666

Air Dispersion Modeling and Health Risk Assessment Protocol
Pio Pico Energy Center

Table of Contents

Section Page

1. Background 1
2. Project Location 3
3. Project Emission Sources 3
4. Existing Emission Sources 3
5. Nearby Emission Sources 3
6. Site Representation – Meteorological Data 5
7. Site Representation – Surface Data 6
8. Existing Ambient Air Quality Data 6
9. Air Quality Dispersion Models 7
10. Good Engineering Practice (GEP) Stack Height and Downwash 9
11. Receptor Selection 9
12. Modeling Scenarios 10
13. Class I Area Impact Methodology (PSD Application Only) 15
14. Rule 1200 Analysis 16
15. Final Modeling Submittal 18

Appendix A – Information on CTDMPLUS Model

Pio Pico Energy Center
Modeling Protocol
November 2010

1. Background

On behalf of Apex Power Group (Apex), Sierra Research is submitting this modeling protocol to the San Diego County Air Pollution Control District (SDAPCD or District), California Energy Commission (CEC), and the United States Environmental Protection Agency (EPA) for approval of the air dispersion and health risk assessment modeling proposed to be conducted in support of the Pio Pico Energy Center (PPEC) Project (Project) Application for a Determination of Compliance (DOC) from the District, the Application for Certification (AFC) from the CEC, and the Application for a Prevention of Significant Deterioration (PSD) Permit from EPA. The District will be providing a meteorological data set appropriate for use with AERMOD[1] (current version 09292), the primary air dispersion model to be used on this project. The data set combines surface meteorological data (e.g., wind speed and direction, temperature) from the District's Otay Mesa/Paseo International monitoring station and upper air data from the Marine Corps Air Station Miramar (MCAS Miramar). This protocol follows modeling guidance provided by the EPA in its "*Guideline on Air Quality Models*"[2] (including supplements).

The proposed project will consist of the construction and operation of three LMS100 combustion gas turbines in simple-cycle mode. The new emitting units will be installed on a 9.9 acre parcel in the southeast quadrant of the intersection of Alta Road and Calzada De La Fuente Road, adjacent to the existing Otay Mesa Generating Project. The new turbines will use partial air cooling and will have a total nominal net generating capacity of 300 MW. PPEC will be a new major source under District New Source Review regulations[3] because it will have a potential to emit more than 50 TPY of NOx; it will also be a new major stationary source under the federal Prevention of Significant Deterioration (PSD) program[4] because it will have a potential to emit more than 100,000 TPY of Greenhouse Gases (GHGs) and construction will commence after July 1, 2011. PPEC is not a PSD stationary source under District regulations.[5]

The proposed data sources, models, and modeling assumptions are identical for all three analyses (APCD, CEC, and EPA) except where specifically noted.

---

[1] AERMOD stands for American Meteorological Society/Environmental Protection Agency Regulatory Model, and was developed by the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC).

[2] USEPA, *Guideline on Air Quality Models (Revised).* U.S. EPA-45/2-78-027R,1986

[3] SDAPCD Rule 20.1(c)(35).

[4] 40 CFR 52.21(b)(49)(v)(b).

[5] SDAPCD Rule 20.1(c)(58).

Net increases in emissions of NOx and PM_{10} are expected to exceed the District's thresholds for preparation of an Air Quality Impact Analysis (AQIA).[6] Under District rules, an AQIA must be prepared that demonstrates that emissions from the project will not cause or contribute to a violation of an ambient air quality standard.

Net increases in emissions of NOx, PM_{10}, $PM_{2.5}$, and GHGs are expected to exceed the significant increase thresholds for federal PSD requirements.[7] Under federal rules, an Air Quality Impact Analysis (AQIA) must be performed to demonstrate that emissions from the project will not cause or contribute to a violation of an ambient air quality standard.

Dispersion modeling will be performed to demonstrate compliance with ambient air quality standards. Because there are no ambient air quality standards for GHGs, no modeling will be performed for that pollutant. This document describes the procedures that will be used to conduct that modeling.

Impacts from operation of the facility will be compared to the following thresholds:

Air Quality Criteria	NO_2	PM_{10}	$PM_{2.5}$	CO	SO_2
PSD Significant Impact Levels[a]	√	√	√		
SDAPCD Significant Impact Levels	√	√	√		
PSD Monitoring Exemption Levels[a,b]	√	√	√		
Ambient Air Quality Standards (AAQS)[b]	√	√	√	√	√
Class I and Class II Visibility[b]	√	√			√
Impacts to Soils and Vegetation[b]	√	√			√
Class I Area Acid Deposition[b]	√	√			√

Notes:
a. PSD significant impact and monitoring exemption levels apply only to pollutants subject to an AQIA analysis under PSD
b. Pursuant to EPA's "PSD and Title V Permitting Guidance for Greenhouse Gases" (Nov. 2010; p. 48), these analyses will not be conducted for GHGs.

Comparison of project impacts with the standards will be conducted using a tiered approach, on a pollutant-by-pollutant basis (see Section 12). If compliance for a particular pollutant can be demonstrated using a simple conservative screening approach, no further analysis will be performed for that pollutant.

[6] SDAPCD Rule 20.3(d)(2)(ii)
[7] 40 CFR 52.21.

2. Project Location

The proposed gas turbine units will be constructed on a 9.9-acre parcel in the southeast quadrant of the intersection of Alta Road and Calzada De La Fuente Road, adjacent to the existing Otay Mesa Generating Project. The location of the site is approximately the following:

- Latitude: 32° 34' 22" N
- Longitude: 116° 55' 02" W

or, in Universal Transverse Mercator (UTM) coordinates,

- Northing: 3,603.9 kilometers (km) and
- Easting: 507.7 kilometers (North American Datum [NAD] 27, Zone 11).

The nominal site elevation is 196 meters (645 feet) above mean sea level.

3. Project Emission Sources

The Project includes three combustion gas turbines in simple-cycle mode. The turbines will be fired with natural gas only, and will utilize advanced combustion design and emission controls to limit emissions of nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC). Emissions of particulate matter with nominal aerodynamic diameter less than or equal to 10 and 2.5 microns (PM_{10} and $PM_{2.5}$), and sulfur oxides (SOx) will be kept to a minimum through the exclusive use of natural gas as the fuel.

The project also includes a small partial dry cooling tower, which is a source of particulate emissions from evaporation of aerosol drift. For the purposes of the AQIA, all particulate from the cooling tower will be assumed to be $PM_{2.5}$.

There will not be a combustion engine-driven emergency generator or fire pump.

4. Existing Emission Sources

This is a new facility. There are no existing emission sources at this site.

5. Nearby Emission Sources

For purposes of the District and CEC applications, the air quality impact analysis and/or cumulative impact analysis requires consideration of the project emissions, nearby sources that might affect concentrations in the area impacted by the project (the "impact area"), and regional background concentrations.

For such analyses, to determine whether any new sources have been approved but are not reflected in the ambient monitoring data, the District will be requested to list all projects within 6 miles of the project site which have received construction permits but are not yet operating, or are in the permitting process. Sources with permitted emissions of less than 5 tons per year will be excluded. Sources on this list will be included in the District and CEC cumulative impacts analysis. This analysis will also include other sources, specifically identified by the District and CEC, for inclusion in this analysis. At the present time, the District has identified the Otay Mesa Generating Plant, located immediately adjacent to the proposed Project site, for inclusion in this analysis. The applicant will consult with the District and CEC staffs regarding the inclusion of other potential sources in the analysis.

For purposes of the PSD permit application, an alternative screening procedure will be used to determine whether any existing sources should be explicitly modeled because they could potentially have significant impacts at the time and place that the project has significant impacts, but are not adequately represented by the ambient monitoring data.

As described in Section 12 below, the PSD AQIA will be conducted in accordance with a two-step process. Step 1 of that process involves an analysis of the impacts of the project alone. Step 2 includes background concentrations and impacts from other sources, in addition to the project. The following steps will be followed for each pollutant subject to a Step 2 analysis in the PSD application:

1. *A list of all stationary sources within the District and within 50 km of the significant impact area (but no greater than 100 km from the project site), with actual emissions above 5 tpy for any pollutant subject to PSD review, during the most recent year for which emission inventory data are available, will be obtained from the District.*
2. *Projects with recently issued permits (i.e., after January 1, 2005) or recently submitted applications and a potential to emit above 5 TPY for any pollutant subject to PSD review, within the search area described above, will be added to the list (because their emissions are not reflected in ambient monitoring data).*
3. *If the pollutant is subject to a Step 2 analysis only for a 1-hour average standard, sources that are downwind[8] of the Project's impact area will be screened out because they cannot affect the concentration at the same time and place as the Project.*
4. *In consultation with EPA, additional sources may be eliminated from the AQIA because size and location make it unlikely that they will affect the concentration gradient in the impact area at the same time that the Project's impacts occur. NOTE: this process may result in different lists for District/CEC and PSD modeling.*

EPA has considered and accepted several methods for screening sources for inclusion in an AQIA inventory. These are summarized in the meeting notes for an EPA/State/Local PSD Workshop held in New Orleans in May 2005. As discussed in the workshop notes:

[8] Preliminary modeling indicates that all of the impact areas are in the same compass quarter. Any offsite source that is on the other side of the impact areas from the project cannot possibly be modeled to affect the impact area at the same time as the project; the impact area will be affected by one or the other, but not both, at times that the project's impact is significant.

"The concept of 'significant concentration gradient' is used to catch all instances not represented by "regional" monitored concentrations, added to the combined sources' impacts to determine total impacts, which could interact with the proposed source's impacts. However, without some practical limitations, such gradients can occur anywhere in the "vicinity" of the sources defined by the SIA and could lead to a large and, at times, unnecessary resource expenditures. Thus, in order to balance the need for identifying all sources which meet the criteria in the Guideline and also to achieve a workable inventory of sources, various permitting agencies have developed and used objective tools to assist in the determination of an emission inventory. A 1992 EPA/States modelers' workgroup considered some of these approaches and concluded that all such tools should be used by the reviewing authority on a case by case basis to compliment [sic] their professional judgment in developing an inventory of nearby sources."[9]

Impacts from facilities identified by this screening process will be included in any compliance demonstration beyond Step 1. Emissions of relevant pollutants from each included facility will be modeled at the facility's potential to emit.

6. Site Representation – Meteorological Data

The District is expected to provide a meteorological dataset already processed by AERMET to generate AERMOD-compatible meteorological data for air dispersion modeling. The surface meteorological data were recorded at the District's Otay Mesa-Paseo International monitoring station (see Figure 1), and the upper air data were recorded at the MCAS Miramar (No. 03190).

EPA defines the term "on-site data" to mean data that would be representative of atmospheric dispersion conditions at the source and at locations where the source may have a significant impact on air quality. The meteorological data requirement originates in the Clean Air Act at Section 165(e)(1), which requires an analysis "of the ambient air quality at the proposed site and in areas which may be affected by emissions from such facility for each pollutant subject to regulation under [the Act] which will be emitted from such facility."

This requirement and EPA's guidance on the use of on-site monitoring data are also outlined in the *On-Site Meteorological Program Guidance for Regulatory Modeling Applications.*[10] The representativeness of the data depends on (a) the proximity of the meteorological monitoring site to the area under consideration, (b) the complexity of the topography of the area, (c) the exposure of the meteorological sensors, and (d) the period of time during which the data are collected. The District has determined, and the applicant concurs, that the District's Otay Mesa meteorological data are representative of conditions at the project site.

Representativeness has also been defined in the "*Workshop on the Representativeness of Meteorological Observations*" (Nappo et. al., 1982) as "the extent to which a set of measurements taken in a space-time domain reflects the actual conditions in the same or different space-time domain taken on a scale appropriate for a specific application."

---

[9] PSD Modeling Workgroup. EPA/State/Local Workshop. New Orleans, May 17, 2005.
[10] EPA, *Supplement A to the Guideline on Air Quality Models (Revised)*, 1987.

Representativeness is best evaluated when sites are climatologically similar, as are the project site and the Otay Mesa-Paseo International meteorological monitoring station. Representativeness has additionally been defined in the PSD Monitoring Guideline[11] as data that characterize the air quality for the general area in which the proposed project would be constructed and operated. As can be seen in Figure 1, the Otay Mesa-Paseo International meteorological monitoring station is in close proximity to the proposed project site (distance between the two locations is approximately 1.2 miles with no significant intervening terrain features), and the same large-scale topographic features located to the east and north that influence the meteorological data monitoring station also influence the proposed project site in the same manner.

Upper air meteorological data are taken from soundings obtained at the Marine Corps Air Station at Miramar, California, located approximately 24 miles northwest of the Project. No other upper air meteorological monitoring stations are located in the San Diego Air Basin. The next closest upper air station in California is located at Oakland International Airport.

7. Site Representation – Surface Data

The surface characteristics input to AERMET should be based on the topographic conditions in the vicinity of the meteorological tower used to provide meteorological data.[12,13] The District has selected values for the surface characteristics of albedo, Bowen Ratio and surface roughness appropriate to the area around the Otay Mesa-Paseo International meteorological monitoring station following EPA guidance.

8. Existing Ambient Air Quality Data

Background ambient air quality data for the project area from the monitoring site most representative of the conditions that exist at the proposed project site will be used to represent regional background concentrations. The District has determined that the Chula Vista monitoring station provides the most representative ambient air quality background data for PM_{10}, $PM_{2.5}$, NO_2, SO_2, O_3, and CO. Although the monitoring site at Otay Mesa-Paseo International is closer to the project site than the Chula Vista station, the Otay Mesa station is strongly impacted by traffic coming across the border from Mexico, and is therefore not representative of regional background concentrations.

> "Several thousand border-crossing trucks passing near the monitor each day heavily impact PM measurements at this location. To better gauge ambient PM10 concentrations throughout the Otay Mesa area as a whole, a second monitor was recently established in Otay Mesa, two miles north of the existing monitor. The additional monitor is not unduly influenced by specific local PM sources."[14]

---

[11] USEPA, *Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)*, 1987.
[12] Appendix W to Part 51—Guideline on air Quality Models, §8.3.c
[13] USEPA. *AERMOD Implementation Guide,* March 19, 2009.
[14] SDAPCD, *Measures to Reduce Particulate Matter in San Diego County,* December 2005, p. 3-6

Comparison of highest 24-hour PM_{10} data collected at the two monitors[15] show that maximum PM_{10} concentrations at the border station are about twice as high as maximum concentrations at the alternate site. The border trucks impact all combustion pollutant measurements at the Otay Mesa monitor, not just PM_{10}.

In contrast, the Chula Vista station is not impacted by nearby sources, and is only 8 miles from the project site. The 5-year period 2004-2008 is the most recent 5-year period for which all required data is available. Modeled concentrations for the Project and any qualifying nearby sources will be added to these representative background concentrations to determine compliance with the CAAQS and NAAQS.

Processed data files will be obtained from the District. Data for periods of time with invalid data will have been replaced by the District using data substitution procedures consistent with EPA guidance. Data substitution will ensure that there will be no gaps in the data. This will prevent exclusion of modeled high impact hours because of missing monitoring data.

9. Air Quality Dispersion Models

Overview

The following EPA air dispersion models are proposed for use to quantify pollutant impacts on the surrounding environment:

- American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) model, also known as AERMOD (Version 09292);
- Building Profile Input Program – Plume Rise Model Enhancements (BPIP-PRIME, current version 04274); and
- SCREEN3 (Version 96043).

The three primary models listed above, and how they will be used, are discussed in detail below. The three additional models listed below are not expected to be used, but they are shown in the event that specialized, more refined modeling is necessary for the project. Further information on the use of CTDMPLUS is provided in Appendix A.

- Complex Terrain SCREEN (CTSCREEN, Version 94111)
- Complex Terrain Dispersion Model (CTDMPLUS, Version 93228)
- Visibility Screening Model (VISCREEN (Version 88341)

[15] CARB ADAM database, accessed November 28, 2010. Because the Otay Mesa-Richard Correctional Facility monitor only collects PM_{10} data, and does not include data from 2004, data from this monitor will not be used for this AQIA.

Simple, Complex, and Intermediate Terrain Impacts

For modeling project emissions in simple, complex, and intermediate terrain, the EPA-recommended guideline model AERMOD will be used with the AERMET-processed hourly meteorological data furnished by the District. The AERMOD model requires hourly meteorological data consisting of wind vector and speed (with reference height), temperature (with reference height), Monin-Obukhov length, surface roughness length, heights of the mechanically and convectively generated boundary layers, surface friction velocity, convective velocity scale, and vertical potential temperature gradient in the 500-meter layer above the planetary boundary layer. The model assumes that there is no variability in meteorological parameters over a one-hour time period, hence the term "steady-state." The AERMOD model allows input of multiple sources and source groupings, eliminating the need for multiple model runs. Complex phenomena such as building-induced plume downwash are treated in this model.

Standard AERMOD control parameters will be used (stack tip downwash, non-screening mode, non-flat terrain, sequential meteorological data check employed). Stack-tip downwash, which adjusts the effective stack height downward following the methods of Briggs[16] for cases where the stack exit velocity is less than 1.5 times the wind speed at stack top, will be selected per EPA guidance. The rural default option will be used by not invoking the URBANOPT option.[17] The use of the rural default in modeling for this project is consistent with District policy and guidance[18] for past modeling using ISCST3.

Ambient Ratio Method and Ozone Limiting Method

Annual NO_2 concentrations will be calculated using the Ambient Ratio Method (ARM), adopted in Supplement C to the Guideline on Air Quality Models.[19] The Guideline allows a nationwide default of 75% for the conversion of nitric oxide (NO) to NO_2 on an annual basis and the calculation of NO_2/NOx ratios.

If NO_2 concentrations need to be examined in more detail, the Plume Volume Molar Ratio Method (PVMRM) adaptation of the Ozone Limiting Method[20] will be used. AERMOD PVMRM will be used to calculate the NO_2 concentration based on the PVMRM method and hourly ozone data. Contemporaneous hourly ozone data collected at the Chula Vista monitoring station, in a data file provided by the District, will be used in conjunction with PVMRM to calculate hourly NO_2 concentrations from hourly NOx concentrations. Ozone background data from the Otay Mesa-Paseo International monitoring station is not appropriate for use, even though the station is closer, for several reasons. First, the data set does not meet EPA completeness criteria. Second, the site is

---

[16] Briggs, G.A., *Discussion on Chimney Plumes in Neutral and Stable Surroundings*. Atmos. Environ. 6:507-510, 1972

[17] The rural vs. urban option in AERMOD is primarily designed to set the fraction of incident heat flux that is transferred into the atmosphere. This fraction becomes important in urban areas having an appreciable "urban heat island" effect due to a large presence of land covered by concrete, asphalt, and buildings. This situation does not exist for the proposed project site.

[18] SDAPCD. *Use of Rural vs Urban Modeling Coefficients,* Memorandum from Richard J. Smith, Deputy Director, to Judith M. Lake, Chief, Monitoring and Technical Services, October 29, 1996.

[19] USEPA, *Supplement C to the Guideline on Air Quality Models (revised)*, 1995.

[20] Cole, H.S. and J.E. Summerhays, *A review of techniques available for estimating short term NO2 concentrations*. Journal of the Air Pollution Control Association 29(8) 790-888, 1979.

heavily impacted by local traffic emissions, and is therefore not representative of regional concentrations. Third, because the Otay Mesa station is heavily impacted by traffic emissions, the measured ozone levels may be depressed because of scavenging by automobile NO emissions. If depressed ozone levels are used in the PVMRM model, the predicted NOx levels will be lower.

The Chula Vista station, located only 8 miles from the project site, suffers from none of these deficiencies. The collected data meet EPA completeness criteria, the project is not heavily impacted by local sources, and is therefore reasonably representative of regional background concentrations. There are no intervening topographic features, so pollution transport conditions should be similar for both stations.

PVMRM involves an initial comparison of the estimated maximum NOx concentration and the ambient O_3 concentration left in the plume after reaction of NO with O_3 to determine which is the limiting factor in NO_2 formation. If the remaining O_3 concentration is greater than the maximum NOx concentration, total conversion is assumed. If the NOx concentration is greater than the remaining O_3 concentration, the formation of NO_2 is limited by the remaining ambient O_3 concentration. In this case, the NO_2 concentration is set equal to the O_3 concentration plus a correction factor that accounts for in-stack and near-stack thermal conversion.

Fumigation

The SCREEN3 model will be used to evaluate inversion breakup fumigation impacts for short-term averaging periods (24 hours or less), as appropriate. The methodology in EPA, 1992 (Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised) will be followed for these analyses. Combined impacts for all sources under fumigation conditions will be evaluated, based on EPA and any applicable SDAPCD modeling guidelines.

10. Good Engineering Practice (GEP) Stack Height and Downwash

AERMOD can account for building downwash effects on dispersing plumes. Stack locations and heights and building locations and dimensions will be input to BPIP-PRIME. The first part of BPIP-PRIME determines and reports on whether a stack is being subjected to wake effects from a structure or structures. The second part calculates direction-specific building dimensions for each structure that are used by AERMOD to evaluate wake effects. The BPIP-PRIME output is formatted for use in AERMOD input files.

11. Receptor Selection

Receptor and source base elevations will be determined from USGS National Elevation Dataset (NED) data in the GeoTIFF format at a horizontal resolution of 1 arc-second (approximately 30 meters). All coordinates will be referenced to UTM North American Datum 1983 (NAD83), Zone 11. The AERMOD receptor elevations will be interpolated among the DEM nodes according to standard AERMAP procedure. For determining concentrations in elevated terrain,

the AERMAP terrain preprocessor receptor-output (ROU) file option will be chosen; hills will not be imported into AERMOD for CTDM-like processing.

Cartesian coordinate receptor grids will be used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts, and to identify maximum impact locations. A 250-meter resolution coarse receptor grid will be developed and will extend outwards at least 10 km (or more as necessary to calculate the significant impact area).

For the full impact analyses, a nested grid will be developed to fully represent the maximum impact area(s). This grid will have 25-meter resolution along the facility fence-line in a single tier of receptors composed of four segments extending out to 100 meters from the fenceline, 100-meter resolution from 100 meters to 1,000 meters from the fenceline, and 250-meter spacing out to at least 10 km from the most distant source modeled, not to exceed 50 km from the project site. Additional refined receptor grids with 25-meter resolution will be placed around the maximum first-high or maximum second-high coarse grid impacts and extended out 1,000 meters in all directions. Concentrations within the facility fenceline will not be calculated. To simplify post-processing requirements, receptor locations at which the NO_2, $PM_{2.5}$, and PM_{10} significant impact levels are not exceeded will not be included in PSD analyses for these pollutants.

The Regions to be imported in Geographical Coordinates for the USGS National Elevation Dataset (NED) data are bounded as follows:

South West corner: Lat: 32.38, Lon: -117.82;
North East corner: Lat: 33.1, Lon: -116.26.

The analysis will be limited to impacts in the United States.

12. Modeling Scenarios

Pollutant emissions to the atmosphere from the proposed project will be dominated by the products of combustion of natural gas in the combustion turbines. Emission rates will be included in the Applications for the project and will be based on vendor data and additional conservative assumptions of equipment performance. Turbine emissions and stack parameters, such as flow rate and exit temperature, depend on ambient temperature and operating load. To calculate the maximum air quality impacts, a screening analysis will be performed to determine which combination of operating load and atmospheric temperature produces the maximum ground-level concentration (i.e., impact) for each combination of pollutant and averaging time used in an ambient air quality standard. Emissions from the partial dry-cooling tower will be modeled using the assumption that 100% of the particulate is $PM_{2.5}$.

In the modeling analysis, maximum impacts will be predicted for startup, base load (100%), and reduced load (50%) conditions. In addition, extreme hot, annual average, and extreme cold ambient temperatures will be evaluated for each load condition. Each of these conditions has unique performance characteristics that affect plume dispersion and thus predicted impacts. This

analysis is most relevant to analyses for short-term impacts (24 hours or less). Annual average impacts will be modeled using annual average turbine performance. The results of this screening analysis will be used to select the maximum-impact operational scenarios for each pollutant and averaging period for the complete modeling analyses.

Details of Operating Scenarios

Maximum emissions during normal operation would occur during periods of maximum fuel consumption, which would occur at peak load. Besides normal operation, two other modes of operation would occur: commissioning (one initial period), and startup/shutdown. In addition to the impacts associated with normal operation, the modeling analysis for the project will examine the short-term impacts associated with commissioning and gas turbine startup/shutdown activities. The following table gives more detail on all three operating modes.

Operating Modes of the Combustion Gas Turbines	
Mode	Description
Commissioning	The process of tuning each of the turbines. The facility will follow a systematic approach to optimize performance of the turbines and the associated control equipment. Emissions are expected to be greater during commissioning than during normal operation for NOx, CO, and VOC. This one-time mode affects only the initial year of operation. The analysis of impacts during commissioning periods will not be part of the PSD analysis.
Start-up/Shutdown	Startup NOx emissions are higher because the SCR has not reached optimal temperature to begin the chemical reactions needed to convert NOx to elemental nitrogen and water. Shutdown occurs at the initiation of the turbine shutdown sequence and ends with the cessation of turbine firing. Typically, the shutdown process will emit less than the start-up process but may emit slightly greater than during normal operation because ammonia injection into the SCR reactor ceases during part of this operation.
Normal Operation	Normal operation begins after the turbines and the control equipment are working optimally, at their designated levels. Emissions may vary between the extreme hot, annual average, and extreme cold ambient conditions.

The modeling with AERMOD-PVMRM will include the assumption of an initial 10% nitrogen dioxide (NO_2) to NOx ratio in the exhaust exiting the stack during normal operating conditions, and a 6% initial NO_2 to NOx ratio for startup and commissioning operations, based on guidance developed by the San Joaquin Valley APCD.[21]

[21] SJVAPCD, *Assessment of Non-Regulatory Options in AERMOD Specifically OLM and PVMRM, Appendix C* (2010), Table 1

Ambient Air Quality Impact Analyses (AQIA)

The purpose of the ambient air quality impact analysis is to demonstrate compliance with applicable ambient air quality standards. Both USEPA and the District have regulations that prohibit construction of a project that will cause or contribute to violations of applicable standards.

If, for a given pollutant and averaging time, the project's impact is below significance thresholds, the project's impact is deemed to be *de minimis*, and no further analysis is required. If the project's impact is above the significance threshold, the project has the potential to cause or contribute to a violation of the ambient air quality standard at the times and locations where the threshold is exceeded. In that case, the analysis must consider the contribution of other sources to the ambient concentration. If the analysis indicates that there will be a violation of an ambient air quality standard, and the project's impact *at the time and place of the violation* is significant, then the project may not be approved unless the project's impact is reduced.

The Project requires approval from many agencies. An air quality impact analysis is required for Certification by the CEC, issuance of a Determination of Compliance by the District, and issuance of a PSD permit by USEPA. Each agency has its own criteria for preparation of the air quality impact analysis. The criteria used by the CEC and the District are similar enough that the same analysis will satisfy both. The same analysis will also meet EPA criteria for evaluating all standards except for the new federal 1-hour NO_2 standard.

EPA has not yet described, with any specificity, its criteria for evaluating compliance with the new federal 1-hour NO_2 standard; as a result, this protocol contains special procedures that will be utilized only for the PSD demonstration of compliance with the federal 1-hour NO_2 standard. These special procedures affect the Tier 4 analysis for NO_2 impacts and identification of nearby sources, and are identified below.

Step 1: Project Impact

The first step in the compliance demonstration is to determine, for each pollutant and averaging period, whether the proposed new equipment for the project has the potential to cause a significant ambient impact at any location, under any operating or meteorological conditions. As indicated in the NSR Workshop Manual,[22] "[i]f the significant net emissions increase from a proposed source would not result in a significant ambient impact anywhere, the application is usually not required to go beyond a preliminary analysis in order to make the necessary showing of compliance for a particular pollutant." The significance levels for air quality impacts are shown in the following table. If the maximum modeled impact for any pollutant and averaging period is below the appropriate significance level, no further analysis is necessary.

[22] USEPA, *New Source Review Workshop Manual (draft)*, October 1990. p. C.51.

Significance Levels for Air Quality Impacts in Class II Areas (µg/m^3)					
	Averaging Period				
Pollutant	Annual	24-hour	8-hour	3-hour	1-hour
SO_2	1	5	--	25	--
PM_{10}	1	5	--	--	--
$PM_{2.5}$	0.3	1.2	--	--	--
NOx	1	--	--	--	No SIL[23]
CO	--	--	500	--	2000

No further analysis is necessary for any location where the modeled impacts from the project alone are below the PSD significance thresholds shown in the table above.

> *The primary purpose of the SILs is to identify a level of ambient impact that is sufficiently low relative to the NAAQS or increments that such impact can be considered trivial or de minimis. Hence, the EPA considers a source whose individual impact falls below a SIL to have a de minimis impact on air quality concentrations that already exist. Accordingly, a source that demonstrates that the projected ambient impact of its proposed emissions increase does not exceed the SIL for that pollutant at a location where a NAAQS or increment violation occurs is not considered to cause or contribute to that violation. In the same way, a source with a proposed emissions increase of a particular pollutant that will have a significant impact at some locations is not required to model at distances beyond the point where the impact of its proposed emissions is below the SILs for that pollutant. When a proposed source's impact by itself is not considered to be "significant," EPA has long maintained that any further effort on the part of the applicant to complete a cumulative source impact analysis involving other source impacts would only yield information of trivial or no value with respect to the required evaluation of the proposed source or modification.*[24]

Step 2: Project Plus Background

Pollutants/averaging periods that are not screened out in Step 1 will be subject to full air quality impact analysis. In this step, the ambient impacts of the project are modeled and added to background concentrations. The results are compared to the relevant state and federal ambient standards.

The second step of the compliance demonstration is required to show that the proposed new project, in conjunction with existing sources, will not cause or contribute to a violation of any ambient air quality standard. As discussed in more detail in Section 8 of this protocol, the impacts of most existing sources are represented by the existing ambient air quality data collected at Chula Vista. In accordance with Section 8.2.1 of Appendix W to 40 CFR Part 51,

[23] EPA has not yet defined significance levels for one-hour NO_2 impacts. However, EPA has suggested that, until one has been promulgated, a value of 4 ppb (7.5 µg/m^3) may be used. That value will be used in this analysis wherever a SIL would be used for NO_2.

[24] 75 FR 64891

Background concentrations are an essential part of the total air quality concentration to be considered in determining source impacts. Background air quality includes pollutant concentrations due to: (1) Natural sources; (2) nearby sources other than the one(s) currently under consideration; and (3) unidentified sources. Typically, air quality data should be used to establish background concentrations in the vicinity of the source(s) under consideration.

The impact of natural sources and unidentified sources will be represented by ambient air quality monitoring data collected at the Chula Vista monitoring station. In this protocol, these impacts are characterized as part of the "regional background."

Nearby sources are those non-project sources that have the potential to create a significant concentration gradient in the project's impact area. Nearby sources will be identified by the processes described in Section 5 (separately for the District/CEC analysis and for the PSD analysis). The impact of nearby sources will be modeled using each source's potential to emit, as determined by the District.

The impact of the proposed new equipment will be modeled using the maximum allowable emission limits as proposed in the application and the design capacities of the turbines, assuming continuous operation, in accordance with the guidance in Table 8-2 of Appendix W.

If a Step 2 analysis is required, the maximum predicted concentration from all sources in the five-year modeling period is added to the representative background concentration for a comparison with the NAAQS. In accordance with EPA guidelines,[25] the highest second-highest modeled concentrations will be used to demonstrate compliance with the short-term federal standards (except for the statistically-based federal 1-hour NO_2 and SO_2, and 24-hour $PM_{2.5}$, standards) and the highest modeled concentration will be used to demonstrate compliance with the federal annual and all state standards. If the predicted total ground-level concentration is below the state or federal ambient air quality standard for each pollutant and averaging period, no further analysis is required for that pollutant and averaging period.

For the 1-hour average federal NO_2 standard for the District and CEC analyses, the comparison of impacts with the new federal 1-hour standard will be done in accordance with the four-tier process developed by the San Joaquin Valley Air Pollution Control District (SJVAPCD).[26] The tiered screening approach was developed to allow demonstration of compliance using the lowest amount of resources necessary. Each tier is a progressively more sophisticated and comprehensive analysis that reduces the level of conservatism without reducing the level of assurance of compliance.

[25] 40 CFR part 51, Appendix W, Sections 11.2.3.2 and 11.2.3.3

[26] "This modeling protocol is meant to define the stepwise approach necessary to satisfy the requirements in General Guidance for Implementing the 1-Hour NO_2 National Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim NO_2 Significant Impact Level1 and the Applicability of Appendix W Modeling Guidance for 1-Hour NO_2 National Ambient Air Quality Standard. Nothing in this protocol should be taken as overriding guidance contained in those two memoranda, or Appendix W of Part 51 of Title 40 of the Code of Federal Regulations (40 CFR 51, Appendix W)."

Tier 1 Analysis – In Tier 1, the maximum predicted 1-hour concentration from all sources in the five-year modeling period is added to the representative background concentration for a comparison with the 1-hour NAAQS. If compliance is demonstrated using Tier 1 values, no further analysis is required.

Tier 2 Analysis – Tier 2 is the same as Tier 1, except that the 8th highest maximum predicted 1-hour concentration (in the five-year modeling period) is used.

Tier 3 Analysis – Tier 3 is the same as Tier 1, except that the 98th percentile predicted 1-hour concentration is used.

Tier 4 Analysis – The predicted concentrations from the model will be paired in time with the monitored hourly NO_2 concentrations. The 3-year average of the annual 98th percentile daily 1-hour maximum is used for comparison with the NAAQS. This approach follows the form of the standard, and is equivalent to siting an ambient monitoring site at each receptor, and demonstrating compliance at all of them.

> *For purposes of the PSD application, two synthetic background NO_2 data sets will be created using the following procedure. For the first data set, for each month in each year of the five year data period, the maximum hourly concentration will be determined for each clock hour period (i.e., 1 am, 2 am, 3 am, etc.). In this manner, 24 hourly NO_2 values will be determined for each month. These values will be used for each day of the month. For the second data set, for each year in the five year data period, the 98th percentile hourly concentration will be determined for each clock hour period. In this manner, 24 hourly NO_2 values will be determined for each year. These values will be used for each day of the year. For each of these two data sets, the predicted concentrations from the model will be paired in time with the concentrations from the synthetic data sets. The 3-year average of the annual 98th percentile daily 1-hour maximum is used for comparison with the NAAQS.*

For SO_2, the same four-tier process described above for the District/CEC analysis will be used, except that the 99th percentile value will be used in Tiers 2, 3 and 4. For $PM_{2.5}$, the comparison of impacts with the new federal 24-hour standard will be done in accordance with the same four-tier process described above for the District/CEC analysis, except that 24-hour averaging times will be used instead of 1-hour averaging times.

13. Class I Area Impact Methodology (PSD Application Only)

Class I areas are areas of special national or regional natural, scenic, recreational, or historic value for which the PSD regulations provide special protection. If a proposed major source or major modification may affect a Class I area, the federal PSD regulations require the reviewing authority to provide written notification of any such proposed source to the Federal Land Managers (FLM) (and the USDI and USDA officials delegated permit review responsibility). The meaning of the term "may affect" is interpreted by EPA policy to include all major sources or major modifications which propose to locate within 100 kilometers (km) of a Class I area.

There is one Class I area within 100 km of the project site. The nearest Class I areas are:

- Agua Tibia Wilderness 91 km
- San Jacinto Wilderness 122 km

EPA's policy requires, at a minimum, an Air Quality Related Values (AQRV) impact analysis of any PSD source the emissions from which increase pollutant concentration by more than 1 $\mu g/m^3$ (24-hour average) in a Class I area. This value is the annual-average significant impact level for SO_2, PM_{10}, and NO_2. Applying this rationale, the annual average SIL for $PM_{2.5}$ of 0.3 μg/m3 will be used for that pollutant to determine whether an AQRV impact analysis will be required. This analysis is based on the impacts of the proposed project.

If impacts from the proposed project are determined to be in excess of these levels, and if, after consultation with the FLMs, a determination is made that additional analysis is needed, impacts will be quantified using the CALPUFF Modeling System operated in a screening mode. The modeling will follow guidance provided by the FLMs' AQRV Workgroup (FLAG) Phase I report[27] and the Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report.[28] A separate protocol will be submitted if this analysis is performed.

PSD Increments in the Class I Area

If an analysis of Class I area impacts is required, maximum 3-hour, 24-hour and annual SO_2 emission rates, maximum 24-hour and annual PM_{10} emission rates, maximum 24-hour $PM_{2.5}$ emission rates, and maximum hourly and annual NOx emission rates will be used for modeling potential increment consumption in the Class I area.

14. Rule 1200 Analysis

District Rule 1200 analysis requires a health risk assessment (HRA) performed according to the California Air Toxics Hot Spots guidelines[29] and SDAPCD supplemental guidelines[30] for Health Risk Assessments (HRAs). The HRA modeling will be prepared using the ARB's Hotspots Analysis and Reporting Program (HARP) computer program (Version 1.4b, August 2010). The HARP model will be used to assess cancer risk as well as non-cancer chronic and acute health hazards. The HRA will include the four following pathways: inhalation, dermal absorption, soil ingestion, and mother's milk ingestion.

---

[27] USDA Forest Service Air Quality Program, National Park Service Air Resource Division, US Fish and Wildlife Service - Air Quality Branch, *Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report*. December 2000.

[28] IWAQM, *Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts*, EPA-454/R-98-019, December 1998.

[29] Office of Environmental Health Hazard Analysis, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

[30] SDAPCD, *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs)*, Version 1.0, March 1, 2005.

Because the HARP model incorporates the ISCST3 model no longer approved by EPA, a special methodology will be employed to be consistent with using AERMOD for the air dispersion modeling and retain the health values and risk computations provided by HARP Version 1.4b. The OEHHA/ARB-approved methodology used to prepare the HRA has been described by the ARB[31] and is summarized below. Its use has also been approved by both the CEC and the District on previous power plant projects.[32]

Modeling Inputs

The risk assessment module of the HARP model will be run using unit ground-level impacts to obtain derived cancer risks for each toxic air contaminant (TAC). As requested by the District, only the cancer risks obtained for the derived (adjusted) method and derived (OEHHA) method for worker exposure will be used in the analysis. The HARP model output is cancer risk by TAC and pathway for each type of analysis, based on an exposure of 1.0 $\mu g/m^3$. Individual cancer risks are expressed in units of risk per $\mu g/m^3$ of exposure. To calculate the weighted risk for each source, the annual average emission rate in grams per second for each TAC will be multiplied by the individual cancer risk for that TAC in units of $(\mu g/m^3)^{-1}$. The resulting weighted cancer risks for each TAC will then be summed for the source. The same approach will be used to determine the non-cancer acute and chronic health hazards associated with the Project.

Health risk from exposure to a carcinogenic TAC is the product of the exposure concentration multiplied by a factor representing the risk per unit concentration (i.e., unit risk) for the TAC. In the case of cancer risk, the risk per unit concentration depends on breathing rate, the cancer potency factor of the TAC, dimensional factors, and other terms involving non-inhalation pathways, when relevant. In the case of chronic and acute non-cancer impacts, the unit impact or health hazard per unit concentration is normally calculated as 1 divided by the Reference Exposure Level (REL, expressed as a concentration in $\mu g/m^3$) for the TAC.

Exposure concentration is calculated as the product of the actual emission rate (in grams per second) of the TAC times the concentration per unit of emission (i.e., an emission rate of 1 g/s), which is the output from the AERMOD air dispersion modeling calculation. This exposure concentration is the "Unit Concentration."

The way that HARP usually works is for the program to automatically pass the "Unit Concentration" for a given source and receptor into its risk module, where it is multiplied by the actual emission rate (in g/s) for each TAC and the "Unit Risk" for the TAC to produce the calculated risk for the TAC. This is done for all the TACs emitted by a source and the summed cancer risk, or non-cancer health impact for common toxic endpoints in the case of chronic and acute risk, is the total risk or non-cancer health impact at that receptor from that source. The total cancer risk or non-cancer health impact at a receptor is the sum of the risks or health impacts from all of the sources.

---

[31] ARB. *Part B of Topic 8 of the HARP How-To Guides: How to Perform Health Analyses Using a Ground Level Concentration*.

[32] This approach is also used because the HARP On-ramp does not address new 8-hour average RELs.

Because HARP is not designed to pass AERMOD "Unit Concentration" outputs to its Risk Module, an alternative procedure can be used. The calculation of cancer risk or non-cancer health impact does not require the variables to be multiplied in any particular order. Therefore, the final result will be the same if, for a given source, the "Unit Risk" for a TAC is multiplied by the actual emissions (g/s) for the TAC, and these products are added together to give a "Source Strength" for the source. The "Source Strength" is then used as the source emission rate in AERMOD.

This special methodology thus uses HARP to calculate the "Unit Risks" for all carcinogenic TACs and unit chronic and acute health impacts for all non-carcinogenic TACs, including all required exposure pathways and toxic end points as well as receptor types, including residents and workers. The unit risk or unit health impact for each TAC from a source is multiplied by the emission rate of that TAC from the source. These products are summed for all the TACs emitted by the source. This is done for each source. Finally, the resulting "Source Strengths" for each source are used as emission rates in an AERMOD calculation. The resulting risks are reported in the AERMOD output.

The HRA analysis is not a part of the PSD application.

Construction Impact Analysis

Emissions due to the construction of the project will be estimated, including an assessment of emissions from vehicle and equipment exhaust and the fugitive dust generated from material handling. Construction emissions from the project will then be modeled for potential air quality impacts, using the AERMOD Gaussian air dispersion model. Combustion Diesel PM_{10} emission impacts from delivery trucks and other construction equipment will be evaluated to demonstrate that the cancer risk from construction activities will be below ten in one million at all receptors. This analysis is not a part of the PSD application.

15. Final Modeling Submittal

The final modeling analyses will include the following materials:

- Turbine load, heat input, and stack exhaust O_2 content, pollution emission rates, temperature and velocity, and SCR temperature;

- Summaries of maximum modeled impacts for each air quality scenario showing meteorological conditions and receptor location and elevation;

- All modeling inputs and outputs (including BPIP-PRIME and meteorological files) in electronic format, together with a description of all filenames;

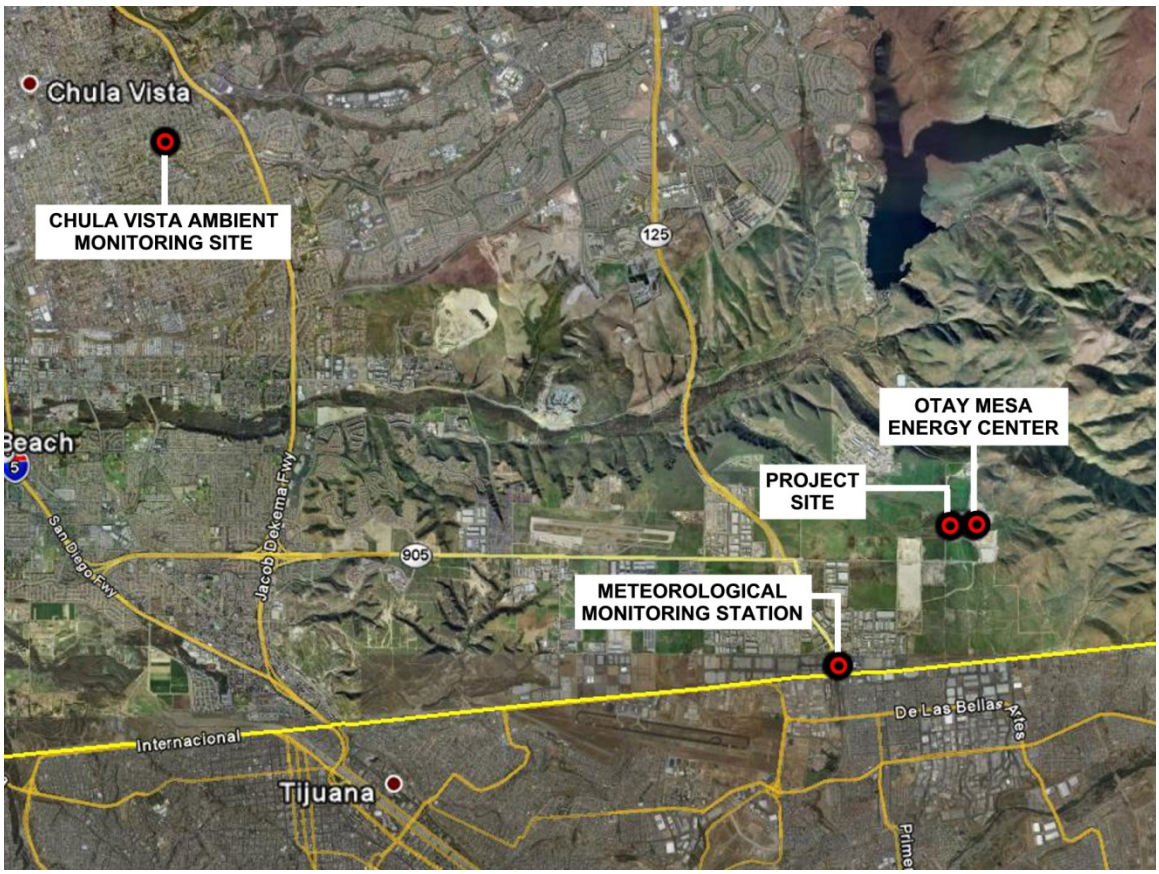
- Plot plan showing emission points, nearby buildings (including dimensions), cross-section lines, property lines, fencelines, roads, and UTM coordinates;

- A table showing building heights used in the modeling analysis; and

- Concentration isopleths maps for each criteria pollutant and averaging time combination.

The HRA results will include AERMOD output plot files, spreadsheets that relate the computed risks with UTM coordinates, and textual discussion that explains the methodology to the lay public.

Figure 1
Locations of Project and Surface Meteorological Monitoring Station
Pio Pico Energy Center Project



Appendix A

Information on CTDMPLUS Model

The CTDMPLUS and CTSCREEN Models

Complex terrain impacts may need to be modeled with more accuracy than that provided by AERMOD. The use of more refined modeling techniques is specifically addressed in EPA's Appendix W[1] modeling guidance, as follows:

> *Since AERMOD treats dispersion in complex terrain, we have merged sections 4 and 5 of appendix W, as proposed in the April 2000 NPR [Notice of Proposed Rulemaking]. And while AERMOD produces acceptable regulatory design concentrations in complex terrain, it does not replace CTDMPLUS for detailed or receptor-oriented complex terrain analysis, as we have made clear in Guideline section 4.2.2. CTDMPLUS remains available for use in complex terrain. [p. 68225]*
>
> *4.2.2 Refined Analytical Techniques*
>
> *d. If the modeling application involves a well defined hill or ridge and a detailed dispersion analysis of the spatial pattern of plume impacts is of interest, CTDMPLUS, listed in Appendix A, is available. CTDMPLUS provides greater resolution of concentrations about the contour of the hill feature than does AERMOD through a different plume-terrain interaction algorithm. [p. 68233]*

CTSCREEN is the same basic model as CTDMPLUS, except that meteorological data are handled internally in a simplified manner. As discussed in the CTSCREEN users guide[2],

> *Since [CTDMPLUS] accounts for the three-dimensional nature of plume and terrain interaction, it requires detailed terrain and meteorological data that are representative of the modeling domain. Although the terrain data may be readily obtained from topographic maps and digitized for use in the CTDMPLUS, the required meteorological data may not be as readily available.*
>
> *Since the meteorological input requirements of the CTDMPLUS can limit its application, the EPA's Complex-Terrain-Modeling, Technology-Transfer Workgroup developed a methodology to use the advanced techniques of CTDMPLUS in situations where on-site meteorological measurements are limited or unavailable. This approach uses*

[1] 40 CFR 51 Subpart W, as amended November 9, 2005 at 70 FR 68218, "Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions."

[2] USEPA, EPA-600/8-90-087, "User's Guide to CTDMPLUS: Volume 2. The Screening Mode (CTSCREEN)," October 1990.

CTDMPLUS in a "screening" mode--actual source and terrain characteristics are modeled with an extensive array of predetermined meteorological conditions. This CTDMPLUS screening mode (CTSCREEN) serves several purposes in regulatory applications. When meteorological data are unavailable, CTSCREEN can be used to obtain conservative (safely above those of refined models), yet realistic, impact estimates for particular sources.

Therefore, the use of the CTSCREEN version of CTDMPLUS is consistent with EPA guidance.

Meteorological Data for CTDMPLUS

The discussion in Section 6 of the text focused on meteorological data needed to run AERMOD. As discussed in a later section, an additional model, Complex Terrain Dispersion Model PLUS (CTDMPLUS), may be used in lieu of the model Complex Terrain Screening Model (CTSCREEN) for receptors in the terrain above stack-top height. CTDMPLUS is an EPA-approved air dispersion model, and is fully supported with user guidance documentation.[3]

CTDMPLUS requires an extensive suite of meteorological data composed of not only wind speed, direction, and temperature, but also horizontal and vertical wind direction standard deviations (sigma theta and sigma phi, respectively), and vertical wind speed standard deviation (sigma w). The AERMOD-compatible meteorological data set provided by the District, derived from measurements taken at the Chula Vista monitoring station, does not include these non-standard measurements.

It is possible to develop conservative values for the standard deviation parameters sigma theta, sigma phi, and sigma w that are consistent with the available meteorological data, and use them to prepare a meteorological data set that is usable in CTDMPLUS and yields conservative (i.e., high) ground-level concentrations.

If modeling with CTDMPLUS is required, the District will be requested to develop ISCST3-compatible meteorological data sets for the baseline period. The ISCST3 meteorological data set would be used to create the CTDMPLUS-compatible meteorological data set. Because all three of these Gaussian dispersion models—ISCST3, AERMOD, and CTDMPLUS—require upper air data as well as surface data, the upper air data from the MCAS Miramar would be used as discussed earlier.

The following meteorological parameters are needed for CTDMPLUS and would be taken directly from the AERMET files:

- Observed mixing height, provided as the height of the convective or planetary boundary layer (PBL);

[3] USEPA. Technology Transfer Network, Support Center for Regulatory Atmospheric Modeling, *http://www.epa.gov/scram001/dispersion_prefrec.htm#ctdmplus*

- Calculated mixing height, provided as the height of the mechanical, or surface, boundary layer (SBL);
- Friction velocity (USTAR);
- Monin-Obukhov length (L); and
- Roughness length (Z_O).

The remaining standard deviations (sigma values) are not available from AERMOD and must be obtained from ISCST3-compatible files that would be developed from the meteorological data.

Stability classes determined by MPRM4 or PCRAMMET[5] from the measured meteorological data would be used to select the most conservative values from the following ranges recommended in EPA's Meteorological Monitoring Guidance document:[6]

Stability Category	Sigma Phi (σ_Φ)/ Regulatory Range (degrees)	Sigma Theta (σ_θ)/ Regulatory Range (degrees)
A	11.5	22.5
B	10.0 – 11.5	17.5 – 22.5
C	7.8 – 10.0	12.5 – 17.5
D	5.0 – 7.8	7.5 – 12.5
E	2.4 – 5.0	3.8 – 7.5
F	< 2.4	< 3.8

The most conservative values (that is, the values that produce the highest modeled impacts) for sigma theta and sigma phi within each range would be determined by conducting a sensitivity analysis for all combinations of stack conditions to be modeled using CTDMPLUS and receptor locations for which CTDMPLUS would be used (that is, receptors above stack height). The sensitivity analysis would use the upper and lower values of each range for each stability category. For example, for stability category D, four combinations would be evaluated as follows:

[4] The Meteorological Processor for Regulatory Models
[5] EPA meteorological preprocessor
[6] Tables 6-8a and 6-9a in Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-005, US EPA Office of Air and Radiation, Office of Air Quality Planning and Standards, February 2000.

σ_Φ	σ_θ
5.0	7.5
5.0	12.5
7.8	7.5
7.8	12.5

For stability category A, maximum values for σ_Φ and σ_θ of 15.0 and 27.0, respectively, would be evaluated. For stability category F, minimum values for σ_Φ and σ_θ of 1.0 and 2.0, respectively, would be evaluated.

Sigma-w would be estimated by multiplying sigma-phi (after conversion from degrees to radians) by the horizontal wind speed.

APPENDIX J-1
BIOLOGICAL TECHNICAL REPORT

BIOLOGICAL TECHNICAL REPORT
PIO PICO ENERGY CENTER
SAN DIEGO COUNTY, CALIFORNIA

December 2010

Prepared for:
Pio Pico Energy Center, LLC

Prepared by:
URS

Table of Contents

Section		Page
1.0	Introduction	1
2.0	Methods	4
3.0	Results	6
4.0	Conclusions	18
5.0	References	19

LIST OF FIGURES

Figure 1. Regional Location
Figure 2. Site Vicinity
Figure 3. Vegetation Communities

LIST OF TABLES

Table 1. Vegetation Communities Observed Within the Study Area
Table 2. Special-Status Plant Species Potential for Occurrence within the Study Area
Table 3. Special-Status Wildlife Species Potential for Occurrence within the Study Area

LIST OF ATTACHMENTS

Attachment A. Photograph Log
Attachment B. Plant Species Observed within the Study Area
Attachment C. Wildlife Species Observed within the Study Area

1.0 Introduction

This report documents the findings of an evaluation of biological resources[1] conducted by URS Corporation (URS) for the proposed Pio Pico Energy Center project (hereafter referred to as the project). For the purposes of this report, the "study area" includes the project's proposed ground disturbance footprint (project footprint) and a 500-ft buffer, to the maximum extent practical[2] (Figures 1 and 2).

The project is located within a predominately anthropogenically-disturbed area (e.g., adjacent power plant) in an unincorporated area of San Diego County, California. The project occurs at an approximate elevation of 635 feet above mean sea level (msl). The project also occurs within the California, San Bernardino Merdian, Section 30, Township 18 South, and Range 1 East of the Otay Mesa United States Geological Survey (USGS) 7.5-Minute Topographic Quadrangle Map (USGS, 1975). The majority of the study area is currently disturbed and/or bifurcated with existing dirt roads and bare ground of open graded fields and is absent of native habitat. Land use in the surrounding vicinity of the study area includes ruderal, non-native grasslands, developed areas, commercial, and public infrastructure. The intended use of this document is to disclose and evaluate habitat conditions and determine the potential for occurrence of common and special-status species[3], their habitats[4], and special aquatic resource areas[5] within study area limits.

1 For the purposes of this analysis, "biological resources" refers to the plants, wildlife, and habitats that occur, or have the potential to occur, within the Project's study area.

2 Where 100% pedestrian coverage of the study area was not possible due to limited access (e.g., fenced areas where access to private property or other physical barriers [vegetative cover, health and safety concerns, etc.]), field observations were made from the nearest appropriate vantage points via public right-of-ways with binoculars and/or via aerial photographic interpretation.

3 For the purposes of this analysis, "special-status species" refers to any species that has been afforded special protection by federal, state, or local resource agencies (e.g., U.S. Fish and Wildlife Service, California Department of Fish and Game) or resource conservation organizations (e.g., California Native Plant Society). The term "special-status species" excludes those avian species solely identified under Section 10 of the Migratory Bird Treaty Act (MBTA) for federal protection. Nonetheless, MBTA Section 10 protected species are afforded avoidance and minimization measures per state and federal requirements.

4 A "habitat" is defined as the place, or type of locale where a plant or animal naturally or normally lives and grows.

5 For the purposes of this analysis, "special aquatic resource areas" are defined as potential: United States Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); Regional Water Quality Control Board (RWQCB) legal authority in accordance with Section 401 of the CWA and as defined within Section 13050(e) (et seq.) of the California Water Code (CWC) via the Porter-Cologne Water Quality Control Act (Porter-Cologne); and California Department of Fish and Game (CDFG) jurisdiction pursuant to Section 1600 (et seq.) of the California Fish and Game Code (CFG Code).

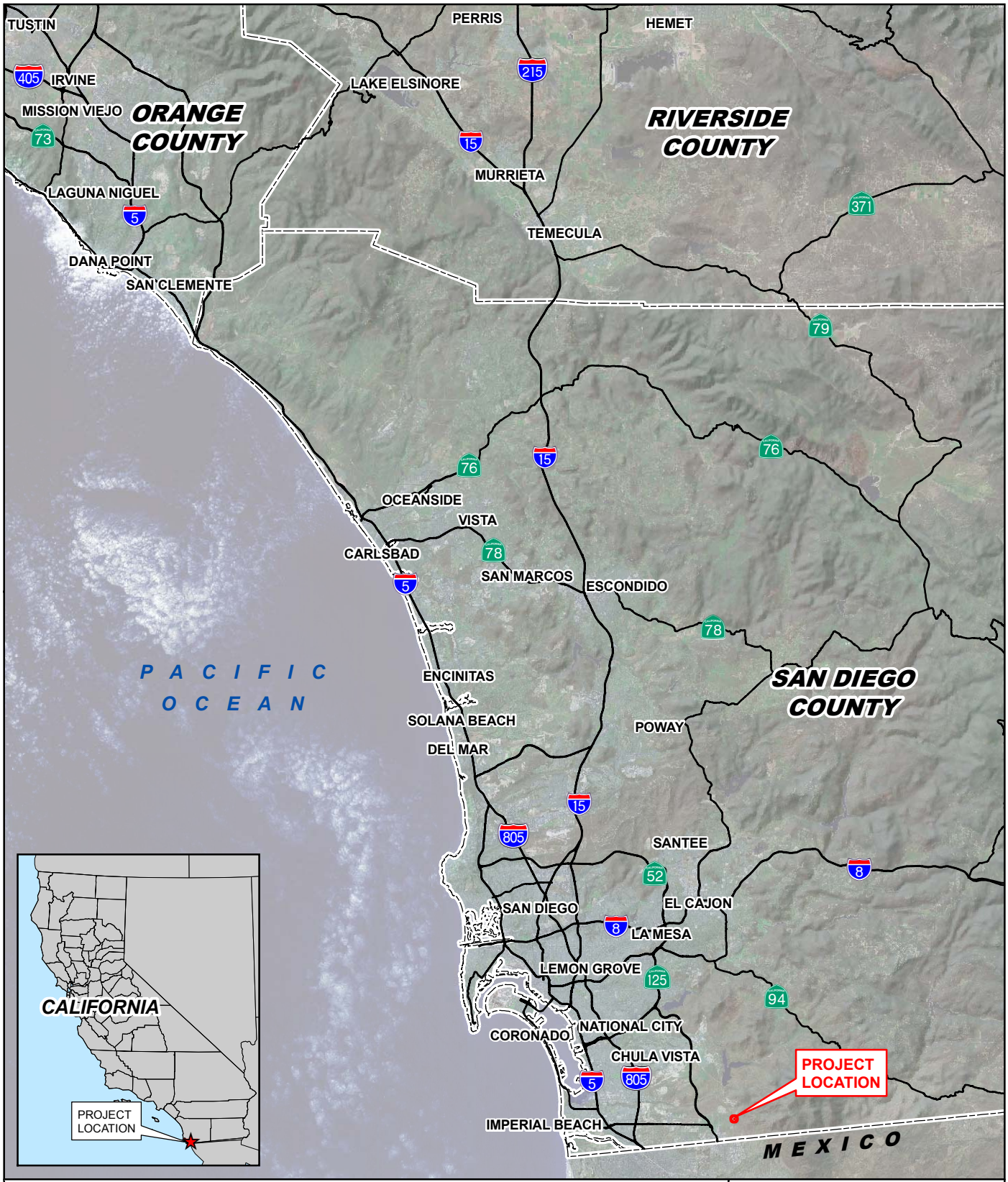


FIGURE 1
REGIONAL LOCATION

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827

DATE: DECEMBER 2010

URS

Legend

Project Site

N

0 2,000 4,000 Feet

FIGURE 2
SITE VICINITY

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

2.0 Methods

Prior to beginning field surveys, URS consulted resource specialists and reviewed available information from resource management plans and relevant documents to determine the locations and types of biological resources that have the potential to exist within and adjacent to the project study area; resources were evaluated within one mile and ten miles of the project pursuant to California Energy Commission's (CEC) evaluation guidelines. The materials reviewed included, but were not limited to, the following:

- County of San Diego, Biological Mitigation Ordinance (1996)
- County of San Diego in Conjunction with the United States Fish and Wildlife Service (USFWS). Multiple Species Conservation Program
- USFWS Critical Habitat Mapper and File Data (USFWS, 2010a and 2010b)
- USFWS Carlsbad Field Office Species List for San Diego County
- The California Natural Diversity Database (CDFG, 2010)
- California Native Plant Society Electronic Inventory (CNPS, 2010)
- Aerial Photographs (Digital Globe, 2009)

Wildlife corridors were also evaluated within the study area. This evaluation included a literature review to identify any previously recognized regional[6] and/or local[7] wildlife corridors or linkages (Ogden Environmental, 1993). To evaluate the arrangement of open space for its usefulness as a wildlife corridor, a group of focal target species was selected as well. The focal species included the larger mammal species: mule deer (*Odocoileus hemionus*), mountain lion (*Felis concolor*), bobcat (*Felis rufus*), coyote (*Canus latrans*), and kit fox (*Vulpes macrotis*). Detection of sign and/or visual observation of these species were documented during the various field efforts. These data will be analyzed to determine areas of high wildlife use.

Pedestrian-based field surveys were performed as well to assess general and dominant vegetation community types, community sizes, habitat types, and species present within communities. Community type descriptions were based on observed dominant vegetation composition based on the criteria and definitions of widely accepted vegetation classification systems (Holland, 1986; Sawyer, Keeler-Wolf and Evens, 2009). Plants were identified to the lowest taxonomic level sufficient to determine whether the plant species observed were non-native, native, or special-status. Plants of uncertain identity were subsequently identified from taxonomic keys (Hickman, 1993). Scientific and common species names were recorded according to Hickman (1993). The presence of a wildlife species was based on direct observation, and wildlife sign (e.g., tracks, burrows, nests, scat, or vocalization). Field data compiled for wildlife species included scientific

[6]Regional corridors link two or more large areas of natural open space and serve to maintain demographic and genetic exchange between wildlife populations residing within these geographically distinct areas (Beier and Loe, 1992).

[7]Local corridors give resident animals access to essential resources (e.g., water, food, cover, or den sites) within a large habitat patch and may also function as secondary connections to the regional corridor system (Beier and Loe, 1992).

name, common name, and evidence of sign when no direct observations were made. Wildlife of uncertain identity were documented and subsequently identified from specialized field guides and related literature (Burt and Grossenheider, 1980; Halfpenny, 2000; Sibley, 2000; Elbroch, 2003; and Stebbins, 2003).

The study area was also assessed for its potential to support special-status species based on habitat suitability comparisons with reported occupied habitats. The following definitions were utilized to determine the need for subsequent surveys and to assess project-related effects to special-status species:

Absent [A] - Species distribution is restricted by substantive habitat requirements, which do not occur within the project footprint, and no further survey or study is necessary to determine likely presence or absence of this species.

Low [L] - Species distribution is restricted by substantive habitat requirements, which are negligible within the project footprint, and no further survey or study is obligatory to determine likely presence or absence of this species.

Habitat Present [HP] - Species distribution is restricted by substantive habitat requirements, which occur within the project footprint, and further survey or study may be necessary to determine likely presence or absence of species.

Present [P] - Species or species sign were observed to be present in the project footprint.

Additionally, suspected special aquatic resource areas were examined and evaluated within the study area using the general methodology set forth in:

- The U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory 1987);
- The USACE's Interim Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region Direction on Delineating Arid Streams (Wakeley et al., 2006);
- The USACE's and Environmental Protection Agency's June 2007 issued Clean Water Act (CWA) Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States Guidance Document (USACE, 2007); and
- Those analysis tools detailed in A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607 (ESD, 1994).

Detailed field survey methods are provided in the Preliminary Jurisdictional Delineation Report which presents our best effort at estimating jurisdictional boundaries using the most up-to-date regulations, written policies, and guidance from the USACE, Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG). Nonetheless, only the USACE, RWQCB, and CDFG can make a final determination of jurisdictional boundaries for this project.

3.0 Results

URS biologists Carol Thompson and Dennis Miller conducted surveys of the study area in November 2010. Ms. Thompson's professional experience includes nearly a decade performing habitat assessments, biological resource surveys, and special-status species monitoring across California. Ms. Thompson has a broad range of plant and wildlife taxonomy and data collection skills. She is also recognized as an authority in the identification and natural history of the Stephen's kangaroo rat, vernal pool branchiopods, California gnatcatcher, and least Bell's Vireo. Accordingly, Ms. Thompson holds USFWS 10(a)(1)(A) permits to survey and monitor for those species and routinely supports URS infrastructure, power, and transportation projects throughout Central and Southern California.

Mr. Miller has an extensive background in field research and ecological studies. As a biologist Mr. Miller has participated in projects which include vegetation mapping, biological monitoring, small mammal trapping, vernal pool branchiopod surveys, and protocol USFWS special status species surveys for avian and botanical surveys. He has prepared numerous biological reports, assessments, to demonstrate compliance with the Federal Energy Regulatory Commission (FERC), Federal Railroad Administration (FRA), Federal Highway Administration (FHWA), California Energy Commission (CEC), California Department of Transportation (Caltrans), California Coastal Commission (CCC), state and federal Endangered Species Acts. Mr. Miller has participated in consultation with regulating agencies including California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS).

Weather conditions during the surveys included clear skies, temperatures ranging from 65–75 degrees Fahrenheit (°F), and winds from 0 to 2 miles per hour (mph).

Vegetation communities / land cover types

Five vegetation communities/land cover types were observed within the study area which includes: Non-Native Grassland, Mule Fat/Tamarisk Scrub, Riparian, Disturbed/Developed (Table 1 and Figure 3). Vegetation community types are described below. Representative photos of the study area are provided in Attachment A, Photograph Log.

Table 1. Vegetation Communities Observed Within the Study Area

VEGETATION COMMUNITY TYPE	ACRES
Non-Native Grassland	280.1
Mule fat/Tamarisk Scrub	0.54
Riparian	4.0
Disturbed/Developed	200.0

Non-Native Grassland

Non-Native Grassland generally occurs on fine-textured loam or clay soils that are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. This habitat is a disturbance-related community most often found in old fields or openings in native scrub habitats and is characterized by a dominant cover (greater than 50% cover) of annual grasses and occasionally native and nonnative annual forbs (Holland, 1986). Non-native grasses have replaced native grassland and coastal sage scrub at many localities throughout Southern California.

Mule Fat / Tamarisk Scrub

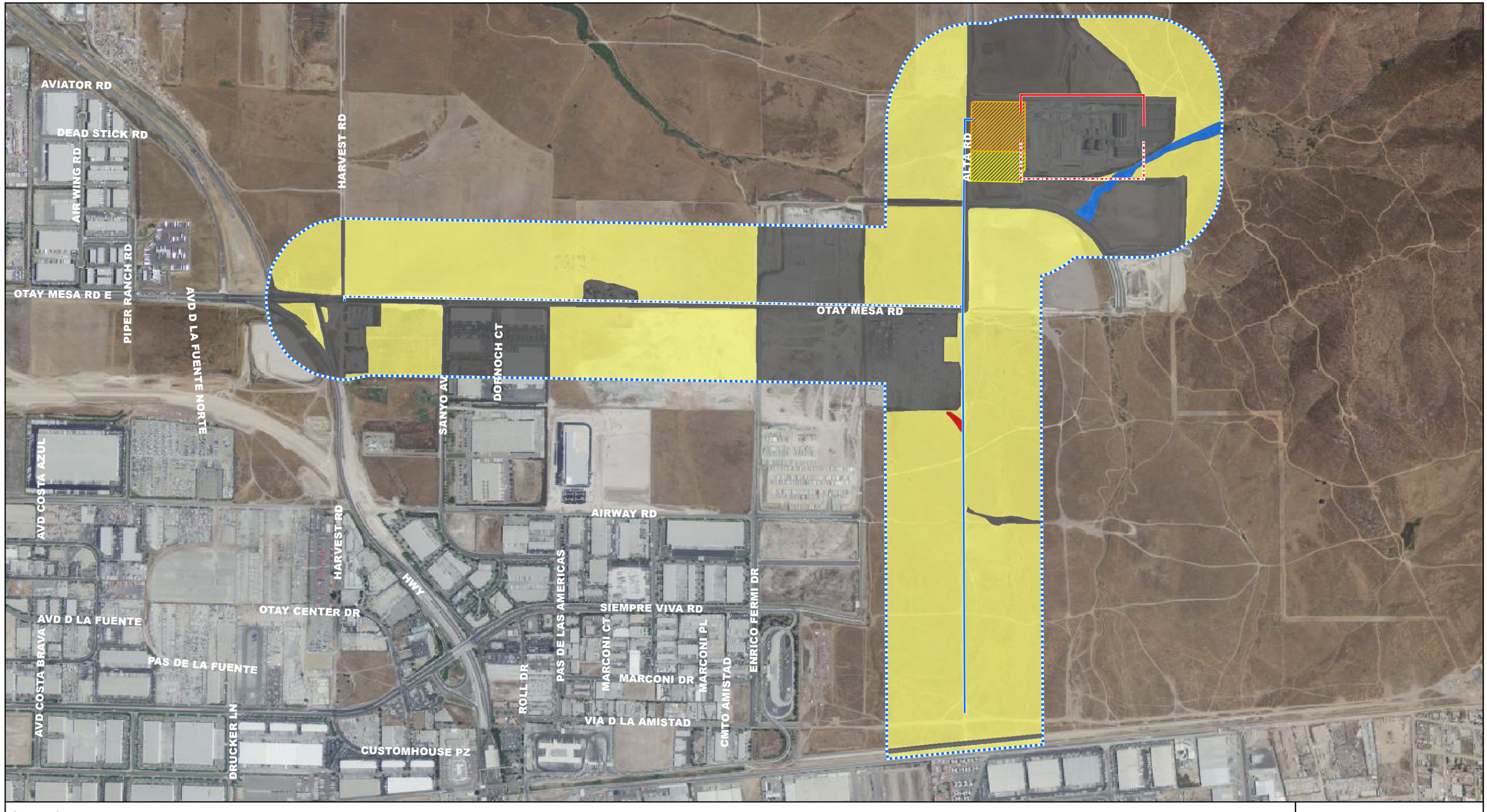
Mule Fat/Tamarisk Scrub is a depauperate, tall, riparian scrub strongly dominated by mule fat (*Baccharis salicifolia*) and salt cedar (*Tamarix ramosissima*). This early seral community is maintained by frequent ephemeral flooding. Absent frequent flooding, most stands would succeed to cottonwood or sycamore dominated riparian forests or woodlands.

Riparian

Dominant riparian species within the study area include southern cattail (*Typha domingensis*), tall umbrella sedge (*Cyperus eragrostis*), and arroyo willow (*Salix lasiolepis*). This vegetation is present for most, or all, of the growing season in most years and is dominated by perennial species.

Disturbed / Developed

Disturbed vegetation has developed within portions of the study area having varying levels of anthropogenic disturbance. Disturbed areas are dominated by broad-leaf herbaceous species such as mustards (*Brassica* spp.; *Hirshfeldia incana*), horseweed (*Conyza canadensis*), and thistles (*Centaurea* spp., *Silybum* spp., *Carduus* spp.) and often have a subdominant cover (less than 50% cover) of annual non-native grasses. Developed lands within the study area include a power plant, roadways, parking lots, vacant lots, and other private/public infrastructure with ornamental plantings. Species composition in developed communities within the study area varied and dominated by non-native cultivar species. Disturbed and developed vegetation communities are found throughout the study area.



Legend

- Biological Study Area
- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- Developed/Disturbed
- Mulefat Scrub
- Riparian
- Non-Native Grassland

N

0 600 1,200 Feet

FIGURE 3
VEGETATION COMMUNITIES

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Special-Status Plants

Thirty nine (39) special status plant species are reported to occur within the USGS Otay Mesa 7.5-minute Quadrangle Map that includes the project footprint (Table 2). Eight of the listed plants are considered endangered or threatened plant species. All 39 listed species were determined to have an "Absent" or "Low" potential for occurrence within the project disturbance footprint, and no further survey or study is necessary to determine presence or absence of these species. All plant species observed during the surveys are listed in Attachment B.

Table 2. Special-Status Plant Species Potential for Occurrence within the Project Footprint

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Acanthomintha ilicifolia San Diego thorn-mint	Annual herb. Found in chaparral, coastal scrub, valley and foothill grassland, and vernal pools/clay soils. Occurs from 33 to 3,150 ft. in elevation.	Apr-Jun	Fed: THR CA: END CNPS: List 1B.1 Local: NE	Low
Adolphia californica California adolphia	Deciduous shrub. Found in chaparral, coastal shrub, and valley and foothill grassland/clay soils. Occurs from 150 to 2,400 ft. in elevation.	Dec-May	Fed: NONE CA: NONE CNPS: List 2.1	Low
Ambrosia chenopodiifolia San Diego bur-sage	Shrub. Found in coastal scrub. Occurs from 180 to 540 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 2.1	Absent
Ambrosia monogyra Singlewhorl burrobush	Shrub. Found in chaparral and Sonoran desert scrub/sandy soils. Occurs from 33 to 1,640 ft. in elevation.	Aug-Nov	Fed: NONE CA: NONE CNPS: List 2.2	Absent
Atriplex coulteri Coulter's saltbush	Perennial herb. Found in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland/alkaline or clay soils. Occurs from 10 to 1,500 ft. in elevation.	Mar-Oct	Fed: NONE CA: NONE CNPS: List 1B.2	Low
Atriplex pacifica South Coast saltscale	Annual herb. Found in coastal bluff scrub, coastal dunes, coastal scrub, and playas. Occurs from 0 to 460 ft. in elevation.	Mar-Oct	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Bergerocactus emoryi Golden-spined cereus	Stem succulent. Found in closed-cone coniferous forest, chaparral, and coastal scrub/sandy soils. Occurs from 10 to 1,300 ft. in elevation.	May-Jun	Fed: NONE CA: NONE CNPS: List 2.2	Absent

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Brodiaea orcuttii Orcutt's brodiaea	Bulbiferous herb. Found in closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools/mesic and clay soils, sometimes serpentine. Occurs from 100 to 5,500 ft. in elevation.	May-Jul	Fed: NONE CA: NONE CNPS: List 1B.1 Local: NE	Low
California macrophylla Round-leaved filaree	Annual herb. Found in cismontane woodland and valley and foothill grasslands/clay soils. Occurs from 50 to 4,000 ft. in elevation.	Mar-May	Fed: NONE CA: NONE CNPS: List 1B.1	Low
Calochortus dunnii Dunn's mariposa-lily	Bulbiferous herb. Found in closed-cone coniferous forest, chaparral, and valley and foothill grassland/ gabbroic or metavolcanic, rocky soils. Occurs from 1,250 to 6,000 ft. in elevation.	Apr-Jun	Fed: NONE CA: RARE CNPS: List 1B.2 Local: NE	Absent
Camissonia lewisii Lewis' evening primrose	Annual herb. Found in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland/sandy or clay soils. Occurs from 0 to 980 ft. in elevation.	Mar-May	Fed: NONE CA: NONE CNPS: List 3	Low
Ceanothus cyaneus Lakeside ceanothus	Evergreen shrub. Found in closed-cone coniferous forest and chaparral. Occurs from 770 to 2,480 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 1B.2 Local: NE	Absent
Ceanothus otayensis Otay Mountain ceanothus	Evergreen shrub. Found in chaparral/metavolcanic or gabbroic rock. Occurs from 1,968 to 3,600 ft. in elevation.	Jan-Apr	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Comarostaphylis diversifolia* ssp. *diversifolia Summer holly	Evergreen shrub. Found in chaparral and cismontane woodland. Occurs from 100 to 1,800 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Cordylanthus orcuttianus Orcutt's bird's-beak	Annual herb; hemiparasitic. Found in coastal scrub. Occurs from 33 to 1,150 ft. in elevation.	Apr-Jul	Fed: NONE CA: NONE CNPS: List 2.1	Absent
Cylindropuntia californica* var. *californica Snake cholla	Perennial succulent. Found in chaparral and coastal scrub. Occurs from 100 to 165 ft. in elevation.	April - May	Fed: NONE CA: NONE CNPS: List 1B.1	Low
Deinandra conjugens Otay tarplant	Annual herb. Found in coastal scrub, and valley and foothill grassland/clay soils. Occurs from 246 to 985 ft. in elevation.	May-Jun	Fed: THR CA: END CNPS: List 1B.1 Local: NE	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Dudleya variegata Variegated dudleya	Perennial herb. Found in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools/clay soils. Occurs from 10 to 1,900 ft. in elevation.	Apr-Jun	Fed: NONE CA: NONE CNPS: List 1B.2 Local: NE	Low
Eryngium aristulatm* var. *parishii San Diego button-celery	Annual/perennial herb. Found in coastal scrub, valley and foothill grassland, and vernal pools/mesic soil. Occurs from 66 to 2,035 ft. in elevation.	Apr-Jun	Fed: END CA: END CNPS: List 1B.1	Low
Ferocactus viridescens San Diego barrel cactus	Stem succulent. Found in chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Occurs from 10 to 1,500 ft. in elevation.	May-Jun	Fed: NONE CA: NONE CNPS: List 2.1	Low
Fremontodendron mexicanum Mexican flannelbush	Evergreen shrub. Found in closed-cone coniferous forest, chaparral, and cismontane woodland/ gabbroic, metavolcanic, or serpentinite. Occurs from 32 to 2,350 ft. in elevation.	Mar-Jun	Fed: END CA: RARE CNPS: List 1B.1	Absent
Harpagonella palmeri Palmer's grapplinghook	Annual herb. Found in chaparral, coastal scrub, and valley and foothill grassland/clay. Occurs from 66 to 3,130 ft. in elevation.	Mar-May	Fed: NONE CA: NONE CNPS: List 4.2	Low
Hesperocyparis forbesii Tecate cypress	Evergreen tree. Found in closed-cone coniferous forest and chaparral/clay soils, gabbroic or metavolcanic rock. Occurs from 836 to 4,900 ft. in elevation.	N/A	Fed: NONE CA: NONE CNPS: List 1B.1	Absent
Iva hayesiana San Diego marsh-elder	Perennial herb. Found in marshes and swamps and playas. Occurs from 33 to 1640 ft. in elevation.	Apr-Oct	Fed: NONE CA: NONE CNPS: List 2.2	Low
Lepechinia ganderi Gander's pitcher sage	Shrub. Found in closed-cone coniferous forest, chaparral, coastal scrub, and valley and foothill grassland/gabbroic or metavolcanic rock. Occurs from 1,000 to 3,300 ft. in elevation.	Jun-Jul	Fed: NONE CA: NONE CNPS: List 1B.3 Local: NE	Absent
Lepidium virginicum* var. *robinsonii Robinson's pepper-grass	Annual herb. Found in chaparral and coastal scrub. Occurs from 3 to 2,900 ft. in elevation.	Jan-Jul	Fed: NONE CA: NONE CNPS: List 1B.2	Absent
Monardella stoneana Jennifer's monardella	Perennial herb. Found in closed-cone coniferous forest, chaparral, coastal scrub, and riparian scrub/usually rocky intermittent streambeds. Occurs from 33 to 2,600 ft. in elevation.	Jun-Sept	Fed: NONE CA: NONE CNPS: List 1B.2	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	BLOOMING PERIOD	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Monardella viminea Willowy monardella	Perennial herb. Found in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland/alluvial ephemeral washes. Occurs from 165 to 740 ft. in elevation.	Jun-Aug	Fed: END CA: END CNPS: List 1B.1 Local: NE	Absent
Muilla clevelandii San Diego goldenstar	Perennial bulbiferous herb. Chaparral, coastal scrub, valley and foothill grassland, and vernal pools/clay. Occurs from 64 to 1,525 ft. in elevation.	Apr-May	Fed: NONE CA: NONE CNPS: List 1B.1	Low
Myosurus minimus* ssp. *apus Little mousetail	Annual herb. Found in valley and foothill grassland and vernal pools/alkaline soils. Occurs from 66 to 2,100 ft. in elevation.	Mar-Jun	Fed: NONE CA: NONE CNPS: List 3.1	Low
Nama stenocarpum Mud nama	Annual/perennial herb. Found in marshes and swamps (lake margins, riverbanks). Occurs from 16 to 1,650 ft. in elevation.	Jan-Jul	Fed: NONE CA: NONE CNPS: List 2.2	Absent
Navarretia fossalis Spreading navarretia	Annual herb. Found in chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, and vernal pools. Occurs from 100 to 4265 ft. in elevation.	Apr-Jun	Fed: THR CA: NONE CNPS: List 1B.1	Low
Orcuttia californica California Orcutt grass	Annual herb. Found in vernal pools. Occurs from 50 to 2,165 ft. in elevation.	Apr-Aug	Fed: END CA: END CNPS: List 1B.1	Low
Pogogyne nudiuscula Otay Mesa mint	Annual herb. Found in vernal pools. Occurs from 295 to 820 ft. in elevation.	May-Jul	Fed: END CA: END CNPS: List 1B.1	Low
Quercus dumosa Nutall's scrub oak	Evergreen shrub. Found in closed-cone coniferous forest, chaparral, and coastal scrub/sandy, clay loam soils. Occurs from 50 to 1,312 ft. in elevation.	Feb-Apr	Fed: NONE CA: NONE CNPS: List 1B.1	Absent
Salvia munzii Munz's sage	Evergreen shrub. Found in chaparral and coastal scrub. Occurs from 390 to 3,500 ft. in elevation.	Feb-Apr	Fed: NONE CA: NONE CNPS: List 2.2	Absent
Stemodia durantifolia Purple stemodia	Perennial herb. Found in Sonoran desert scrub (often mesic, sandy soils). Occurs from 590 to 984 ft in elevation.	Jan-Dec	Fed: NONE CA: NONE CNPS: List 2.1	Absent
Streptanthus bernardinus Laguna Mountains jewel-flower	Perennial herb. Found in chaparral and lower montane coniferous forest. Occurs from 2,200 to 8,200 ft. in elevation.	May-Aug	Fed: NONE CA: NONE CNPS: List 4.3	Absent
Tetracoccus dioicus Parry's tetracoccus	Deciduous herb. Found in chaparral and coastal scrub. Occurs from 540 to 3,280 ft. in elevation.	Apr-May	Fed: NONE CA: NONE CNPS: List 1B.2	Absent

Status Codes:
Federal designations: (Federal Endangered Species Act, USFWS):
END: Federal-listed, endangered.
THR: Federal-listed, threatened.
NONE: Not listed.

State designations: (California Endangered Species Act, CDFG)
END: State-listed, endangered.
THR: State-listed, threatened.
RARE: State-listed as rare
NONE: Not listed.

California Native Plant Society (CNPS) designations:
List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened, or endangered in California but more common elsewhere in their range.
List 3: Plants about which we need more information; a review list.
List 4: Plants of limited distribution; a watch list.

Threat Codes:
.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Fairly endangered in California (20-80% occurrences threatened)
.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Local Designation: City of Chula Vista MSCP Subarea Plan
NE: Narrowly Endemic

Special-Status Wildlife

Twenty-five (25) special status wildlife species are reported to occur within the USGS Otay Mesa Quadrangle Map that includes the project footprint (Table 3). Twenty-three of these special-status wildlife species had an "Absent" or "Low" potential of occurrence within the project study area and therefore no further survey or study is necessary to determine presence or absence of these species. The remaining two special-status wildlife were determined to have a moderate potential for occurrence, and further evaluation would be necessary to assess project-related effects to these species. All wildlife species observed during the surveys are listed in Attachment C.

The two species with a moderate potential for occurrence within the study area include:

- San Diego fairy shrimp (*Branchinecta sandiegonensis)*
- Burrowing owl (*Athene cunicularia*)

Table 3. Special-Status Wildlife Species Potential for Occurrence within the Project Footprint

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
INVERTEBRATES			
Branchinecta sandiegonensis San Diego fairy shrimp	Occurs in tectonic swales/earth slump basins in grassland and coastal sage scrub habitats. Inhabits seasonally astatic pools filled by winter/spring rains and hatches in warm water later in the season. Endemic to Orange and San Diego counties.	Fed: FE CA: NONE	Moderate
Callophrys thornei Thorne's hairstreak	Generally associated with chaparral or closed-coned coniferous habitats.	Fed: NONE CA: NONE*	Absent
Euphydryas editha quino Quino checkerspot butterfly	Occurs in open coastal sage scrub, chaparral and grassland habitats. Populations are limited to Riverside and San Diego counties.	Fed: FE CA: NONE	Absent
Streptocephalus woottoni Riverside fairy shrimp	Occurs in tectonic swales/earth slump basins in grassland and coastal sage scrub habitats. Inhabits seasonally astatic pools filled by winter/spring rains and hatches in warm water later in the season. Endemic to west Riverside, Orange, and San Diego counties.	Fed: FE CA: NONE	Absent
REPTILES AND AMPHIBIANS			
Aspidoscelis hyperythra Orange-throated whiptail	Frequents coastal chaparral, thornscrub, and streamside growth. Occurs in washes, streams, terraces, and other sandy areas, often where there are rocks and patches of brush and rocky hillsides.	Fed: NONE CA: SSC	Low
Aspidoscelis tigris stejnegeri Coastal whiptail	Inhabits grasslands, coastal sage scrub, chaparral, and woodlands that support adequate prey species.	Fed: NONE CA: NONE *	Low
Phrynosoma coronatum blainvillii San Diego coast horned lizard	Found in a wide variety of habitats, including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest. Key habitat elements are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	Fed: NONE CA: SSC	Low
Salvadora hexalepis virgultea Coast patch-nosed snake	Found in semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	Fed: NONE CA: SSC	Absent

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Spea hammondii Western spadefoot	Occurs primarily in grasslands; occasional populations occur in valley-foothill hardwood woodlands. Ranges throughout the Central Valley and adjacent foothills; usually common where it occurs. In the Coast Ranges, it is found from Point Conception, Santa Barbara county, south to the Mexican border. Found from near sea level to 4470 ft in elevation.	Fed: NONE CA: SSC	Low
Thamnophis hammondii Two-striped garter snake	Generally found around pools, creeks, cattle tanks, and other water sources; often in rocky areas, oak woodland, chaparral, brushland, and coniferous forest.	Fed: NONE CA: SSC	Absent
BIRDS			
Athene cunicularia Burrowing Owl	Found in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester that is dependent upon burrowing mammals, most notably the California ground squirrel.	Fed: NONE CA: SSC	Moderate
Campylorhynchus brunneicapillus sandiegensis Coastal Cactus Wren	Found in coastal sage scrub habitat. Nests almost exclusively in prickly pear (*Opuntia littoralis*) and coastal cholla (*O. prolifera*).	Fed: NONE CA: SSC	Absent
Eremophila alpestris actia California Horned Lark	Occurs in open terrain, which is often sparsely vegetated.	Fed: NONE CA: NONE *	Low
Icteria virens Yellow-breasted Chat	Inhabits dense thickets, brush, and secondary growth. Nests in dense shrubs.	Fed: NONE CA: SSC	Absent
Polioptila californica californica Coastal California Gnatcatcher	Local, uncommon, obligate resident of arid coastal sage scrub vegetation on mesas, hillsides and in washes. Nests almost exclusively in California sagebrush.	Fed: FT CA: SSC	Absent
Vireo belli pusillus Least Bell's Vireo	Resides in low riparian areas close to the water or dry riverbeds. Nests are usually constructed in bushes or within the branches of mesquite (*Prosopis* spp.), willows, and mule fat. Found below 2000 ft in elevation.	Fed: FE CA: SE	Absent
MAMMALS			
Chaetodipus fallax fallax Northwestern San Diego pocket mouse	Found in sparse, low desert shrub lands up to dense, high coastal sage-scrub vegetation.	Fed: NONE CA: SSC	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Eumops perotis californicus Western mastiff bat	Forages in dry desert washes, floodplains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas. Roosts in colonies under exfoliating rock slabs (e.g., granite, sandstone, or columnar basalt) and in similar crevices in large boulders and buildings; generally high above ground.	Fed: NONE CA: SSC	Absent
Lasiurus blossevillii Western red bat	Occurs in riparian areas. Roosts alone, generally in the foliage of trees and shrubs.	Fed: NONE CA: SSC	Absent
Lepus californicus bennettii San Diego black-tailed jackrabbit	Occurs in coastal sage scrub and grassland habitats.	Fed: NONE CA: SSC	Low
Myotis ciliolabrum Western small-footed myotis	Occurs in rocky areas in coniferous forest, desert, chaparral, and riparian zones. Roosts alone or in small groups in cliff and rock crevices, buildings, concrete overpasses, caves, and mines.	Fed: NONE CA: NONE *	Absent
Myotis yumanensis Yuma myotis	Low-flying bat. Occurs in a wide variety of upland and lowland habitats, including riparian, arid scrublands and deserts, and forests. Often associated with permanent water sources, typically rivers and streams. Roosts in bridges, buildings, cliff crevices, caves, mines, and trees.	Fed: NONE CA: NONE *	Absent
Neotoma lepida intermedia San Diego desert woodrat	Typically found in the coastal scrub of southern California from San Diego County to San Luis Obispo County. Prefer moderate to dense vegetation canopies. They are particularly abundant in rock outcrops and rocky cliffs and slopes.	Fed: NONE CA: SSC	Absent
Nyctinomops femorosaccus Pocketed free-tailed bat	Found near large, open water sources in a variety of habitats, including desert shrub and pine-oak forest. Roosts in colonies in crevices of rugged cliffs, high rocky outcrops, slopes, and buildings.	Fed: NONE CA: SSC	Absent
Taxidea taxus American badger	Uncommon, permanent resident found throughout most of the state. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Extirpated from many areas in Southern California.	Fed: NONE CA: SSC	Low

SCIENTIFIC AND COMMON NAME	HABITAT AND DISTRIBUTION	STATUS DESIGNATION	POTENTIAL FOR OCCURRENCE
Status Codes **FEDERAL** Federal Endangered Species Act FE Federal Endangered FT Federal Threatened CH Critical Habitat **STATE** California Endangered Species Act SE State Endangered ST State Threatened FP Fully Protected CDFG Code SSC California Species of Special Concern * Other			

Special Aquatic Resource Areas

This document presents our best effort at estimating the extent of special aquatic resource areas within the study area[8]; nonetheless, only the USACE, CDFG, and RWQCB can make a final determination of the boundaries of their jurisdictions. Several small ephemeral washes and drainages were identified during the surveys. Consequently, completion of a jurisdictional wetlands and waters determination on those lands likely subject to USACE, RWQCB, and CDFG jurisdiction is warranted to determine project implementation level affects to these and other features observed within the study area.

[8] Formal wetlands and waters delineation was not performed by URS.

4.0 Conclusions

The majority of the study area has been previously disturbed and the region includes developed areas containing commercial and public infrastructure. The project footprint lacks suitable habitat that would typically support the majority of special-status species. However, the literature review and field survey data suggests that there is potential for two special-status species to utilize the project footprint. These two species include the burrowing owl and San Diego fairy shrimp. Consequently, further survey or study may be necessary to determine likely presence or absence of these species. The following measures are also recommended as a means of avoiding and minimizing adverse impacts to biological resources that have the potential to occur within the project footprint:

- In order to comply with the MBTA and relevant sections of the California Fish and Game Code, any vegetation clearing should take place outside of the typical avian nesting season (15 February to 31 August) to the maximum extent practical. If this is not possible, prior to ground-disturbing activities, a qualified biologist should conduct a pre-construction nesting-bird survey prior to project initiation. If active nests are observed, a minimum buffer zone from occupied nests is recommended to the maximum extent practicable. Once nesting has ended, the buffer may be removed.
- Limits of grading and construction activities within the project footprint should be clearly delineated with temporary staking, flagging, or similar materials.
- The project footprint should be minimized to the maximum extent feasible and access to it should be via pre-existing/maintained access routes to the greatest extent possible.
- To avoid attracting predators and nuisance species, the project footprint shall be clear of debris, where possible. All food-related trash items should be enclosed in sealed containers and regularly removed from the project footprint.

Several potential special aquatic resource areas were identified within the study area. Consequently, completion of a jurisdictional determination on those lands likely subject to CWA, RWQCB, and CDFG jurisdiction is warranted to determine project implementation level affects to these features as well. With the execution of the avoidance and minimizations measures recommended above, the project is not expected to adversely impact common or special-status species.

The services performed by URS and documented in this report have been conducted in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representations to Pio Pico Energy Center, LLC (PPEC LLC), either expressed or implied, and no warranty or guarantee is included or intended in this report. Opinions relating to presence, absence, or potential for occurrence of biological resources are based on limited data and actual conditions may vary from those encountered at the times and locations where the data were obtained despite due professional care. The services provided have been performed in accordance with a scope of work negotiated between PPEC LLC and URS. Any reliance on this report by any other party shall be at such party's sole risk unless that party has written authorization from URS to use this work product. The purpose of this restriction is to attempt to protect the interests of parties for whom the work product may be appropriately directed.

5.0 References

Burt, W.H. and R. P. Grossenheider. 1980. A Field Guide to Mammals: North America; North of Mexico. New York, NY: Houghton Mifflin Company.

CDFG (California Department of Fish and Game). 2010. RareFind California Department of Fish and Game Natural Diversity Database (CNDDB) La Habra USGS 7.5-Minute Quadrangle. Sacramento, CA: California Department of Fish and Game, Biogeographic Data Branch.

CNPS (California Native Plant Society). 2010. CNPS Electronic Inventory of Rare and Endangered Plants: CNPS.

County of San Diego, Board of Supervisors. 1996. Biological Mitigation Ordinance.

County of San Diego in conjunction with the United States Fish and Wildlife Service, California Department of Fish and Game. October 22, 1997. County of San Diego Multiple Species Conservation Program

Digital Globe. 2008. Aerial Photography: Digital Globe.

Elbroch, M. 2003. Mammal Tracks & Sign, A Guide to North American Species. Mechanicsburg, PA: Stackpole Books.

Halfpenny, J.C. 2000. Scats and Tracks of the Desert Southwest, A Field Guide to the Signs of 70 Wildlife Species. Helena, MT: Falcon Publishing, Inc.

Hickman, J.C. (ed) 1993. The Jepson Manual: Higher Plants of California. Berkeley: University of California Press.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California (California Department of Fish and Game The Resources Agency, ed), p. 156. Sacramento, CA.

Sawyer and Keeler-Wolf and Evens. 2009. *A Manual of California Vegetation*. Sacramento, CA: California Native Plant Society.

Sibley, D.A. 2000. National Audubon Society. The Sibley Guide To Birds. New York, NY: Alfred A. Knopf, Inc.

Stebbins, R.C. 2003. A Field Guide To Western Reptiles and Amphibians. New York, NY: Houghton Mifflin.

USGS (United States Geological Service). 1975 7.5-Minute Quadrangle Map La Habra, California.

USFWS (United States Fish and Wildlife Service). 2010a. Critical Habitat Portal. USFWS

USFWS (United States Fish and Wildlife Service). 2010b. San Diego Fish and Wildlife Office Endangered and Threatened Species List. In: U.S. Department of the Interior, editor. Carlsbad, CA: USFWS.

ATTACHMENT A. PHOTOGRAPH LOG

	Photograph: 1 **Direction: West**
	Photograph: 2 **Direction: East**

	Photograph: 3 **Direction: North**
	Photograph: 4 **Direction: South**

ATTACHMENT B. PLANT SPECIES OBSERVED WITHIN THE PROJECT STUDY AREA

SCIENTIFIC NAME	COMMON NAME
FLOWERING PLANTS	
MONOCOTS	
Arecaceae	**Palm Family**
Washingtonia sp.	Fan palm
Cyperaceae	**Sedge Family**
Cyperus eragrostis	Tall umbrella-sedge
Poaceae	**Grass Family**
Avena barbata *	Slender wild oat
Avena fatua *	Wild oat
Bromus diandrus * †	Ripgut brome
Bromus hordeaceus *	Soft chess
*Bromus japonicus**	Japanese broom
Bromus madritensis *	Foxtail chess
Bromus sp.* †	Brome grass
Cynodon dactylon *	Bermuda grass
Elymus condensatus	Giant wildrye
Lolium multiflorum *	Italian wild rye
Piptatherum miliaceum	Smilo grass
Polypogon monspeliensis *	Annual beard grass
Typhaceae	**Cattail Family**
Typha domingensis	Southern cattail
DICOTS	
Aizoaceae	**Fig-Marigold Family**
Carpobrotus edulis	Iceplant
Anacardiaceae	**Sumac Family**
Rhus ovata	Sugar bush
Schinus molle *	Pepper tree
Apiaceae	**Carrot Family**
Foeniculum vulgare * †	Sweet fennel
Apocynaceae	**Dogbane Family**
Nerium oleander	Oleander
Asteraceae	**Aster Family**
Ambrosia psilostachya	Ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	Mugwort
Baccharis pilularis	Coyote brush
Baccharis salicifolia	Mule fat
Conyza canadensis †	Common horseweed
Encilia californica	California encilia
Heterotheca grandiflora †	Telegraph weed
Isocoma menziesii var. *menziesii* †	Goldenbush
Iva hayesiana **	San Diego marsh elder

SCIENTIFIC NAME	COMMON NAME
Lactuca serriola * †	Prickly lettuce
Picris echioides * †	Bristly ox-tongue
Sonchus asper *	Prickly sow thistle
Sonchus oleraceus *	Sow thistle
Stephanomeria exigua	Wreath-plant
Brassicaceae	**Mustard Family**
Brassica nigra * †	Black mustard
Hirschfeldia incana * †	Shortpod mustard
Cactaceae	**Cactus Family**
Cylindropuntia sp.	Cholla
Opuntia littoralis	Coastal prickly pear
Chenopodiaceae	**Goosefoot Family**
Atriplex semibaccata * †	Australian saltbush
Salsola tragus * †	Russian thistle
Convolvulaceae	**Morning Glory Family**
*Convolvulus arvensis** †	Bindweed
Euphorbiaceae	**Spurge Family**
Chamaesyce polycarpa	Small seeded spurge
Eremocarpus setigerus	Doveweed
Ricinus communis *	Castor bean
Fabaceae	**Pea Family**
Melilotus alba * †	White sweetclover
Trifolium repens * †	White clover
Geraniaceae	**Geranium Family**
*Erodium botrys** †	Longbeak stork's bill
Erodium cicutarium * †	Redstem stork's bill
Lamiaceae	**Mint Family**
Marrubium vulgare *	Common horehound
Malvaceae	**Mallow Family**
*Malva parviflora** †	Cheeseweed
Myrtaceae	**Myrtle Family**
Eucalyptus sp. * †	Eucalyptus tree
Onagraceae	**Evening Primrose Family**
Oenothera elata	Hooker's evening primrose
Polygonaceae	**Buckwheat Family**
*Rumex crispus**	Curly dock
Primulaceae	**Primrose Family**
*Anagallis arvensis**	Scarlet pimpernel
Rosaceae	**Rose Family**
Heteromeles arbutifolia †	Toyon
Salicaceae	**Willow Family**
Salix exigua	Sandbar willow
Salix lasiolepis	Arroyo willow

SCIENTIFIC NAME	COMMON NAME
Solanaceae	**Nightshade Family**
Nicotiana glauca * †	Tree tobacco
Tamaricaceae	**Tamarisk Family**
Tamarix ramosissima	Mediterranean tamarisk
Urticaceae	**Nettle Family**
Urtica dioica	Stinging nettle
Verbenaceae	**Verbena Family**
Lantana sp.*	Lantana

*indicates non-native species, ** listed species, † on project foot print as well as study area.

ATTACHMENT C. WILDLIFE SPECIES OBSERVED WITHIN THE STUDY AREA

SCIENTIFIC NAME	COMMON NAME
REPTILES	
PHRYNOSOMATIDAE	**SPINY LIZARDS**
Sceloperous occidentalis	Western fence lizard
BIRDS	
ACCIPITRIDAE	**HAWKS, KITES, AND EAGLES**
Buteo jamaicensis	Red-tailed Hawk
ARDEIDAE	**HERONS AND EGRETS**
Ardea alba	Great Egret
COLUMBIDAE	**PIGEONS AND DOVES**
Zenaida mcroura	Mourning Dove
FALCONIDAE	**FALCONS**
Falco sparverius	American Kestrel
ICTERIDAE	**NEW WORLD BLACKBIRDS AND ORIOLES**
Sturnella neglecta	Western Meadowlark
POLIOPTILIDAE	**GNATCATCHERS**
Polioptila caerulea	Blue gray Gnatcatcher
STRIGIDAE	**TYPICAL OWLS**
Athene cunicularia	Burrowing Owl
TROCHILIDAE	**HUMMINGBIRDS**
Calypte anna	Anna's Hummingbird
TYRANNIDAE	**TYRANT FLYCATCHERS**
Sayornis nigricans	Black Phoebe
Tyrannus vociferans	Cassin's Kingbird
TYTONIDAE	**BARN OWLS**
Tyto alba	Barn Owl
MIMIDAE	**MOCKINGBIRDS AND THRASHERS**
Mimus polyglottos	Northern Mockingbird
CORVIDAE	**JAYS AND CROWS**
Corvus brachyrhynchos	American Crow
Corvus corax	Common Raven
EMBERIZIDAE	**AMERICAN SPARROWS**
Zonotrichia leucophrys	White-crowned Sparrow
FRINGILLIDAE	**FINCHES**
Carpodacus mexicanus	House Finch
MAMMALS	
CANIDAE	**FOXES, DOGS, WOLVES, AND COYOTES**
Canis familiaris	Domestic Dog (sign)
Canis latrans	Coyote (sign)
LEPORIDAE	**RABBITS AND HARES**
Sylvilagus sp.	cottontail (sign)
SCIURIDAE	**SQUIRRELS**
Otospermophilus beecheyi	California ground squirrel (sign)

APPENDIX J-2
JURISDICTIONAL DETERMINATION

PRELIMINARY JURISDICTIONAL DETERMINATION REPORT

PIO PICO ENERGY CENTER PROJECT

SAN DIEGO COUNTY, CALIFORNIA

Prepared for

Pio Pico Energy Center, LLC.

December 2010

URS

2020 East First Street, Suite 400
Santa Ana, California 92705

TABLE OF CONTENTS

SECTION PAGE

Table of Contents i
List of Tables iii
List of Figures iii
List of Attachments iii
List of Abbreviated Terms iv

1.0 INTRODUCTION 1-1
1.1 Summary of USACE Jurisdiction Pursuant to Section 404 of the CWA 1-4
1.2 Summary of RWQCB Jurisdiction Pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act 1-4
1.3 Summary of CDFG Jurisdiction Pursuant to Section 1600 (et seq.) of the CFG Code 1-4
1.4 Required Permits 1-5

2.0 DESCRIPTION OF PROJECT AND LAND USE WITHIN THE PROJECT VICINITY 2-1
2.1 Project Description 2-1
2.2 Location and Land Use 2-1

3.0 REGULATORY OVERVIEW 2-1
3.1 Review of USACE Jurisdiction Pursuant to Section 404 of the Clean Water Act 2-1
3.1.1 Waters of the United States 2-1
3.1.2 USACE Terminology 2-2
3.1.3 Review of RWQCB Jurisdiction Pursuant to Section 401 of the Clean Water Act and Porter-Cologne 2-3
3.1.4 Review of CDFG Jurisdiction Pursuant to Section 1600 (et seq.) of the California Fish and Game Code 2-3

4.0 METHODS 4-1
4.1 Literature Review 4-1
4.2 Procedures and Field Data Collection Techniques 4-1
4.2.1 Clean Water Act Procedures and Data Collection Methods 4-1
4.2.2 CDFG Procedures and Data Collection Methods 4-4
4.3 Jurisdictional Impact Analysis 4-4

5.0 RESULTS 5-1
5.1 Vegetation Communities/Land Cover Types 5-1
5.1.1 Non-Native Grassland 5-1
5.1.2 Mule Fat/Tamarisk Scrub 5-1
5.1.3 Emergent Wetlands 5-1
5.1.4 Disturbed/Developed 5-3
5.2 Soils 5-3
5.2.1 Huerhuero Loam Series 5-3
5.2.2 Diablo Clay Series 5-3
5.2.3 Stockpen Series 5-4
5.3 Hydrology 5-6
5.4 Determination of USACE Jurisdiction Subject to Section 404 of the CWA 5-10
5.4.1 Feature 1 5-10
5.4.2 Feature 2 5-12
5.4.3 Feature 3 5-14
5.4.4 Feature 4 5-15

5.4.5 Feature 5 5-17
5.4.6 Feature 6 5-18
5.5 Determination of RWQCB Jurisdiction Subject to Section 401 of the CWA and Porter-Cologne 5-20
5.6 Determination of CDFG Jurisdiction Subject to Section 1600 (et seq.) of the CFG Code 5-20
6.0 RECOMMENDATIONS 5-1
7.0 LITERATURE CITED 7-1

LIST OF TABLES

Table 1. Summary of Wetland Indicator Status 4-2
Table 2. Total CWA Jurisdiction and Temporary Impacts/Permanent Losses 5-10
Table 3. Total CDFG Jurisdiction and Temporary Impacts/Permanent Losses 5-20

LIST OF FIGURES

Figure 1 - Regional Location 1-2
Figure 2 - Project Location 1-3
Figure 3 - CWA and CDFG Jurisdictional Determination 5-2
Figure 4 - Soils 5-5
Figure 5 - Regional Watershed Map 5-7
Figure 6 - FEMA 100-Year Flood Zone 5-8
Figure 7 - National Wetlands Inventory 5-9

LIST OF ATTACHMENTS

Attachment A USACE Wetland Determination Data Forms
Attachment B Photograph Log

LIST OF ABBREVIATED TERMS

CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CFG Code	California Fish and Game Code
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWC	California Water Code
EPA	U.S. Environmental Protection Agency
FAC	Faculative
FACU	Faculative Upland
FACW	Faculative Wetland
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
GPS	Global Positioning System
IWMC	California Interagency Watershed Mapping Committee
kV	kilovolt
LSAA	Lake and Streambed Alteration Agreement
msl	mean sea level
MW	megawatt
NI	No Indicator
NRCS	Natural Resources Conservation Service
OBL	Obligate Wetland
OHWM	Ordinary High Water Mark
PPEC	Pio Pico Energy Center
Project	Pio Pico Energy Center Project
Project footprint	Area of temporary and/or permanent impact
Porter-Cologne	Porter-Cologne Water Quality Control Act
Rapanos Decision	John A. Rapanos v. United States; and June Carabell v. United States Army Corps of Engineers
RHA	Rivers and Harbor Act of 1899
RPW	Relatively Permanent Water
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas and Electric
Study Area	Proposed disturbance footprint, 500-foot buffer, and surrounding watersheds
SWANCC	Solid Waste Agency of Northern Cook County vs. USACE
SWRCB	State Water Regional Control Board
TNW	Traditional Navigable Water
UPL	Obligate Upland
URS	URS Corporation
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
WDR	Waste Discharge Report
WoUS	Waters of the United States
WoS	Waters of the State
WQC	Water Quality Certification Program

1.0 INTRODUCTION

This Preliminary Jurisdictional Determination Report summarizes the findings of: (1) U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); (2) Regional Water Quality Control Board (RWQCB) legal authority in accordance with Section 401 of the CWA and as defined within Section 13050(e) (et seq.) of the California Water Code (CWC) via the Porter-Cologne Water Quality Control Act (Porter-Cologne); and (3) California Department of Fish and Game (CDFG) jurisdiction pursuant to Section 1600 (et seq.) of the California Fish and Game Code (CFG Code) for the Pio Pico Energy Center project (hereafter referred to as the "project"). The project is located within the Otay Mesa United States Geographical Survey (USGS) 7.5-Minute Series Topographic Quadrangle Map (USGS, 1975) (Figures 1 and 2). It is located approximately three miles southeast of Chula Vista, 18 miles southeast of the City of San Diego and approximately 1.5 miles north of the U.S.–Mexico border.

The intended use of this report is to disclose and evaluate any special aquatic resource areas[1] within the project's "study area." For the purposes of this document, the "study area" is defined project's proposed disturbance footprint (project footprint), an approximate 500-foot buffer[2], and the surrounding localized watersheds. This document presents URS Corporation's (URS) best effort at estimating special aquatic resource area boundaries using the most up-to-date regulations, written policies, and guidance from the USACE, RWQCB, and CDFG. Nonetheless, only the USACE, RWQCB, and CDFG can make a final determination of special aquatic resource area boundaries and jurisdiction.

[1] For the purposes of this document, special aquatic resource areas are being defined as the potential limits of: USACE jurisdiction pursuant to Section 404 of the CWA; the RWQCB legal authority in accordance with Section 401 of the CWA and Porter-Cologne; and CDFG's jurisdiction pursuant to Section 1600 (et seq.) of the California Fish and Game (CFG) Code.

[2] Where 100% pedestrian coverage of the study area was not possible due to limited access (e.g., fenced areas where access to private property or other physical barriers [vegetative cover, health and safety concerns, etc.]), field observations were made from the nearest appropriate vantage points via public right-of-ways with binoculars and/or via aerial photographic interpretation.

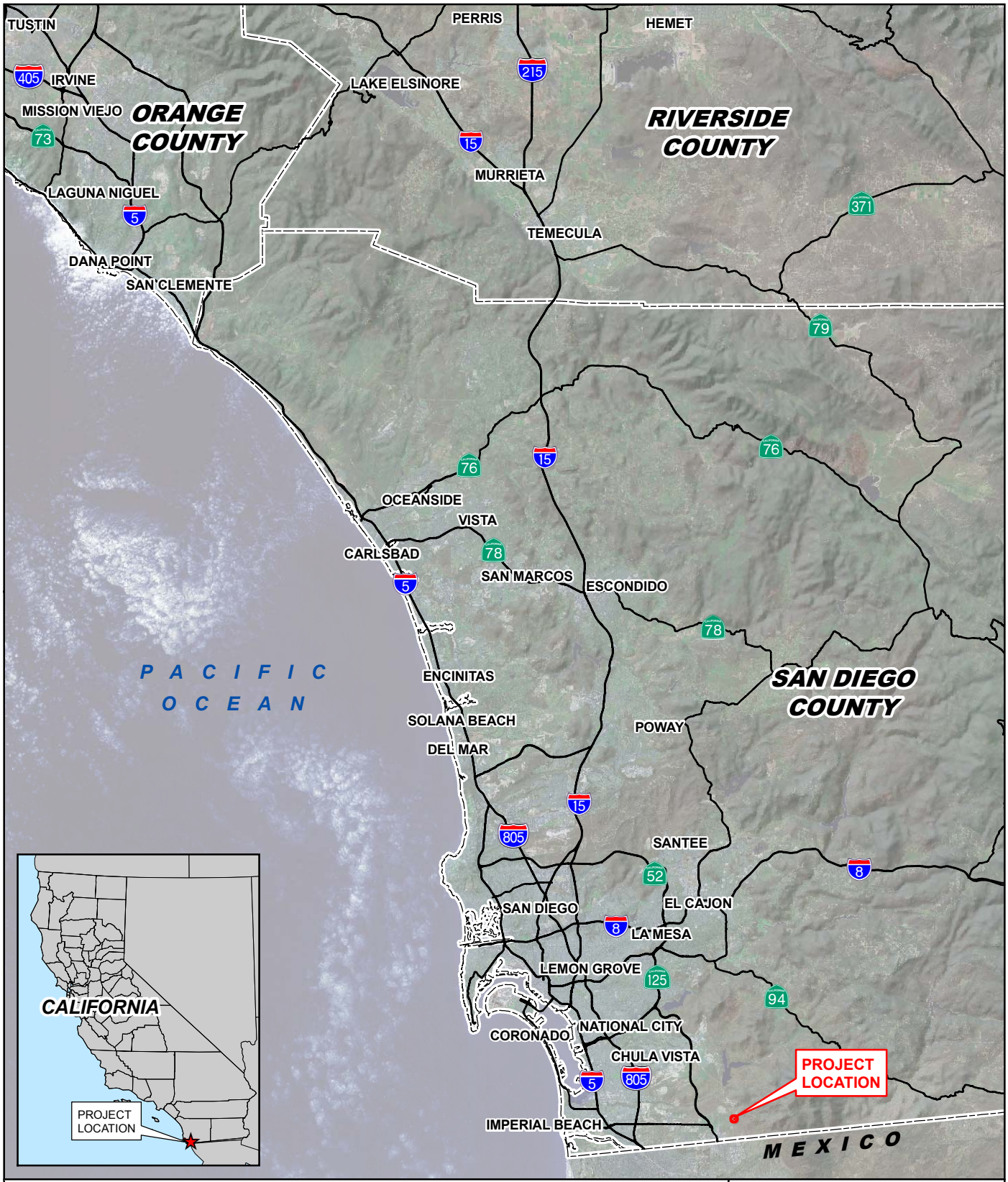


FIGURE 1
REGIONAL LOCATION

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827

DATE: DECEMBER 2010

URS

Legend

Project Location

N

0 2,000 4,000 Feet

FIGURE 2
PROJECT LOCATION

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

1.1 SUMMARY OF USACE JURISDICTION PURSUANT TO SECTION 404 OF THE CWA

The USACE regulates discharge of fills to Waters of the United States (WoUS[3]) through Section 404 of the CWA. The study area contains six unnamed, potential WoUS drainage features. Each drainage feature is a non-Relatively Permanent Water (RPW) tributary to, and having a significant nexus with, a Traditional Navigable Water (TNW) and within the jurisdiction of Section 404 of the CWA. A total of 3.8 acres of CWA Section 404 jurisdiction occurs within the study area, consisting of 3.7 acres of non-wetland WoUS and 0.1 acres of WoUS with USACE-defined wetlands. Temporary impacts to CWA Section 404 jurisdiction within the project footprint include 0.1 acres of non-wetland WoUS. No permanent impacts to CWA Section 404 jurisdiction are expected with the project.

1.2 SUMMARY OF RWQCB JURISDICTION PURSUANT TO SECTION 401 OF THE CWA AND THE PORTER-COLOGNE WATER QUALITY CONTROL ACT

The RWQCB regulates fills to Waters of the State (WoS) through the CWA Section 401 Water Quality Certification (WQC) Program and Porter-Cologne. Pursuant to CWA Section 401, the RWQCB's legal authority within the project's study area is equal to CWA Section 404 jurisdiction. Because the six drainage features within the study area are potentially subject to CWA Section 404 jurisdiction (and subsequently CWA Section 401 jurisdiction), there is no additional RWQCB jurisdiction subject to Porter-Cologne. A total of 3.8 acres of CWA Section 401 jurisdiction occur within the study area, consisting of 3.7 acres of non-wetland WoS and 0.1 acres of WoS with included wetlands. Temporary impacts to CWA Section 401 jurisdiction within the project footprint include 0.1 acres of non-wetland WoS. No permanent impacts to CWA Section 401 jurisdiction are expected with the project.

1.3 SUMMARY OF CDFG JURISDICTION PURSUANT TO SECTION 1600 (ET SEQ.) OF THE CFG CODE

Pursuant to Section 1600 (et seq.) of the CFG Code, the CDFG regulates diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. Six features within the study area contain a bed, bank, and channel and function as drainages that provide functions and values for wildlife and are therefore subject to CFG Code Section 1600 (et seq.) jurisdiction. These features are all unnamed drainages consisting of 5.8 acres of non-riparian bed, bank, and channel, and 0.3 acres of associated riparian vegetation. Temporary impacts to CFG Code Section 1600 (et seq.) jurisdiction include 0.1 acres of non-riparian bed, bank, and channel. No permanent impacts to CFG Code Section 1600 (et seq.) jurisdiction are expected as a result of the project.

[3] The term WoUS is defined as follows (33 CFR 328.3): (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as WoUS; (5) Tributaries of WoUS identified above; (6) The territorial seas; and (7) Wetlands adjacent to waters (other than waters that are themselves wetlands).

1.4 REQUIRED PERMITS

project implementation will likely require a CWA Section 404 permit, a 401 WQC, and a CDFG Lake and Streambed Alteration Agreement (LSAA) Notification for any temporary impacts to drainage features within the project footprint. Permitting recommendations are provided in Section 6.0.

2.0 DESCRIPTION OF PROJECT AND LAND USE WITHIN THE PROJECT VICINITY

2.1 PROJECT DESCRIPTION

Pio Pico Energy Center (PPEC) is a proposed 300 megawatt (MW) simple-cycle electrical generating facility located in an industrial area of San Diego County, adjacent to the existing Otay Mesa Generating Project. PPEC will supply fast response power to help San Diego Gas & Electric (SDG&E) meet cyclic demand and further utilize renewable resources. The project will be constructed on disturbed land and prepared land, and will include a 230 kilovolt (kV) transmission line, a natural gas supply pipeline, and short connections into adjacent streets for potable and recycled water supply, and sewer and stormwater discharge.

The project site is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection. The proposed project site comprises the entire parcel with Assessor's Parcel Number (APN) 648-040-45, and the laydown area consists of 6.00 acres of an adjacent parcel to the south (APN 648-040-46).

2.2 LOCATION AND LAND USE

The project is located within Sections 25, 30, 31, and 36; Township 18 South; Range 1 East of the Otay Mesa USGS 7.5-Minute Topographic Quadrangle Map (USGS, 1975). The Universal Transverse Mercator (UTM) coordinates at the approximate center of the study area are 507694 meters east and 3603988 meters north. The project occurs at an approximate elevation of 635 feet above mean sea level (msl) and is mainly composed of undeveloped annual grasslands, cleared/disturbed lots, dirt roads, and paved roadways (i.e., Otay Mesa Road, Calzada de la Fuente, Paseo de la Fuente, and Alta Road). Much of the study area has been disturbed from development, vegetation clearing, and from off-road-vehicle activities associated with the U.S. Border Patrol.

3.0 REGULATORY OVERVIEW

3.1 REVIEW OF USACE JURISDICTION PURSUANT TO SECTION 404 OF THE CLEAN WATER ACT

3.1.1 Waters of the United States

The USACE regulates the discharge of dredged and/or fill material into WoUS pursuant to Section 404 of the CWA. The USACE has authority to permit the discharge of dredged or fill material in WoUS under Section 404 of the CWA and to permit work and the placement of structures in navigable WoUS under the Rivers and Harbors Act of 1899 (RHA).

Ordinary High Water Mark

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, including intermittent streams, extend to the ordinary high water mark (OHWM). The OHWM is defined as "that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328.3[e]). In 2005, the USACE issued Regulatory Guidance Letter 05-05, which added the following additional indicators of an OHWM: wracking; vegetation matted down, bent, or absent; sediment sorting; leaf litter disturbed or washed away; scour; deposition; multiple observed flow events; bed and banks; water staining; and changes in plant communities (USACE, 2005).

USACE-Defined Wetlands

Wetlands are defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a dominance of vegetation typically adapted for life in saturated soil conditions." The methods set forth in the USACE Wetland Manual generally require that in order to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimal hydric characteristics (EL, 1987; USACE, 2008b). Although the manual provides great detail in methods and allows for varying atypical or problematic conditions, a wetland should normally meet each of the following three criteria:

1. More than 50% of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National List of Plant Species that Occur in Wetlands [Reed, 1988]);

2. Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions). Such soils, known as "hydric soils," have characteristics that indicate they were developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season; and

3. Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5% of the growing season during a normal rainfall year (Note: for most of low-lying southern California, 5% of the growing season is equivalent to 18 days).

3.1.2 USACE Terminology

The following definitions are from the Rapanos Guidance Memoranda (USACE, 2007a and 2008a):

"Adjacent," as defined in USACE and Environmental Protection Agency (EPA) regulations, means "bordering, contiguous, or neighboring." Wetlands separated from other WoUS by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands.' Wetlands that are not separated from a tributary by upland features, such as a berm or dike, are considered "abutting."

A "tributary," as defined in the Rapanos guidance memoranda, means a natural, man-altered, or man-made water body that carries flow directly or indirectly into traditional navigable waters. For purposes of determining "significant nexus" with a traditional navigable water, a "tributary" is the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point where the tributary enters a higher order stream).

A water body is considered to have a "significant nexus" with a TNW if its flow characteristics and functions, in combination with the ecologic and hydrologic functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream TNW. A "TNW" includes all of the "navigable waters of the United States," defined in 33 C.F.R. § 329 and by numerous decisions of the federal courts, plus all other waters that are navigable-in-fact.

In the context of CWA jurisdiction post-Rapanos, a water body is "relatively permanent" if its flow is year-round or is continuous at least "seasonally," (e.g., typically three months). Wetlands adjacent to a "relatively permanent" tributary are also jurisdictional if those wetlands directly abut such a tributary (USACE, 2008a).

The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water (USACE, 2008a):

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary

In general, the USACE does not assert jurisdiction over the following features (USACE 2008a):

- *Ditches*. "Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water (greater than three months) generally are not jurisdictional under the CWA, because they are not tributaries or they do not have a significant nexus to TNWs."

- *Swales*. "Swales are generally shallow features in the landscape that may convey water across upland areas during and following storm events. Swales usually occur on relatively flat slopes and typically have grass or other low-lying vegetation throughout the swale. Swales are generally not waters of the U.S. because they are not tributaries or they do not have a significant nexus to TNWs."

3.1.3 Review of RWQCB Jurisdiction Pursuant to Section 401 of the Clean Water Act and Porter-Cologne

The RWQCB regulates fills to WoUS under the Section 401 WQC, which in most instances, mirrors CWA Section 404 jurisdiction. In the absence of CWA Section 404 jurisdiction over isolated waters or WoS, RWQCB jurisdiction over WoS is extended through Porter-Cologne. WoS are defined in Section 13050(e) of the CWC and include any surface water or groundwater, including saline waters, within the boundaries of the State. Porter-Cologne provides a comprehensive framework to protect water quality in California. It requires that any entity who plans to discharge waste where it might adversely affect WoS must first notify the RWQCB, which may impose requirements to protect water quality.

The Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC) decision created “gaps” relating to isolated waters that are no longer subject to the CWA. In response, the State Water Regional Control Board (SWRCB) issued a 2004 Memorandum (SWRCB, 2004), stating that RWQCBs should consider setting a higher regulatory priority on discharges to “isolated waters” than to similar discharges to federally-protected waters of similar value. The 2004 Memorandum further stated that “dredging, filling, or excavation” of “isolated” waters constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a Waste Discharge Report (WDR) to the RWQCB and comply with other requirements of Porter-Cologne. Among the procedures recommended in the Memorandum was that the RWQCB refer to the same regulatory considerations generally applied to the issuance of Section 401 permits when issuing a WDR (SWRCB, 2004).

According to the SWRCB, the SWANCC decision did not affect the authority of the state to regulate discharges to isolated, non-navigable waters of the state, and had no impact upon the RWQCBs’ authority to act under state law (SWRCB, 2001). Simply because RWQCBs often opted to regulate discharges in the past through Section 401 in lieu of, or in addition to, issuing WDRs does not preclude RWQCBs from issuing WDRs in the absence of Section 401 certification (SWRCB, 2001). The State’s position is that these general WDRs will continue to apply to certain discharges to non-federal waters.

3.1.4 Review of CDFG Jurisdiction Pursuant to Section 1600 (et seq.) of the California Fish and Game Code

Pursuant to Division 2, Chapter 6, Sections 1600-1603 et seq., the CDFG regulates any proposed activity that may substantially modify, divert, obstruct, or any activity that causes changes to the flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. According to the 14 CCR 1.72, a "stream" (including creeks and rivers) is defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFG's definition of "lake" includes "natural lakes or man-made reservoirs." CDFG jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. For clarification, the CDFG Legal Advisor has prepared the following opinion (ESD-CDFG, 1994):

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated (by CDFG) as natural waterways.

- Artificial waterways without the attributes of natural waterways should generally not be subject to CFG Code provisions.

4.0 METHODS

4.1 LITERATURE REVIEW

Prior to conducting fieldwork, the following literature was reviewed to determine watershed characteristics and the locations/types of aquatic resources that may be present within the study area limits, as follows:

- Otay Mesa 7.5 minute USGS topographic map (USGS, 1975);
- 2008 color aerial photographs (Digital Globe, 2009);
- Google Earth version 5.1.3533.1731 (Nov 9, 2009);
- Soil Survey for San Diego Area, California (USDA-NRCS ,1973);
- Natural Resource Conservation Service (NRCS) Soil Survey Geographic Database (USDA-NRCS, 2007);
- California Interagency Watershed Mapping Committee (IWMC) 2004;
- Federal Emergency Management Agency (FEMA) 2000; and
- National Wetlands Inventory (USFWS, 2010).

4.2 PROCEDURES AND FIELD DATA COLLECTION TECHNIQUES

4.2.1 Clean Water Act Procedures and Data Collection Methods

A routine study area field determination was conducted by URS biologists Greg Hoisington and Dennis Miller for USACE-defined WoUS and wetlands using the methods set forth in the USACE Wetland Delineation Manual (EL, 1987) and the Arid West Regional Supplement (USACE, 2008b). Mr. Hoisington is an Ecologist and Permitting Specialists (e.g., Clean Water Act [CWA] Section 404 and 401, California Fish and Game Code [CFGC] Sections 1600, 2800, 3500 et. seq., California Coastal Commission [CCC], Migratory Bird Treat Act [MBTA], and federal and state Endangered Species Acts [ESA]). Mr. Hoisington has over 8 years of professional experience in natural resource permitting; construction monitoring; Global Positioning System (GPS) data collection; and special status species surveys for avian and botanical surveys. Mr. Hoisington predominantly develops permit applications, conducts wetland delineations and/or participates in consultation with regulating agencies including California Department of Fish and Game (CDFG), U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Coastal Commission (CCC). Mr. Miller has an extensive background in field research and ecological studies. As a biologist Mr. Miller has participated in projects which include vegetation mapping, biological monitoring, small mammal trapping, vernal pool branchiopod surveys, and protocol USFWS special status species surveys for avian and botanical surveys. He has prepared numerous biological reports, assessments, to demonstrate compliance with the Federal Energy Regulatory Commission (FERC), Federal Railroad Administration (FRA), Federal Highway Administration (FHWA), California Energy Commission (CEC), California Department of Transportation (Caltrans), California Coastal Commission (CCC), state and federal Endangered Species Acts. Mr. Miller has participated in consultation with regulating agencies including California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS).

The study area was surveyed on December 6, 2010, in order to determine the presence/absence and boundaries of potential special aquatic resources (i.e., WoS, WoUS, and wetlands) that were identified in the literature review as well as through field observations. Areas that were determined to have an OHWM, or pond or flow for greater than

5% of the growing season (i.e., approximately 12-18 days), were further analyzed for hydrophytic vegetation, hydric soils, and hydrology as described below.

Total CWA jurisdictional limits were delineated for WoS, WoUS, and wetlands based on the presence of a well-defined OHWM and/or wetland boundaries for each feature. Identification and location of the OHWM followed guidance provided in Lichvar and Wakely (2004), Lichvar et al. (2006), and Lichvar and McColley (2008). The OHWM of USACE-defined WoUS and wetlands were delineated in the field with a sub-meter Trimble GeoXH Global Positioning System (GPS) receiver, where accessible, or delineated on high-resolution aerial photographs and subsequently digitized with Geographic Information Systems (GIS) where no access was possible (i.e., private property). The linear length, width, and area of each feature were calculated with GIS in order to determine total CWA jurisdiction within the study area.

Vegetation

Vegetation within potential special aquatic features was recorded on Wetland Determination Data Forms (Arid West Region, Version 2.0), which are provided in Attachment A. Plant species were determined based on the *Jepson Manual, Higher Plants of California* (Hickman, 1993) and Holland (1986), and the wetland indicator status of plant species was based on the *National List of Plant Species that Occur in Wetlands, California Region 0* (Reed, 1988). Vegetation was categorized based on their probability to occur in wetlands or uplands according to the wetland indicator status listed in Table 1 (EL, 1987; Reed, 1988).

Table 1. Summary of Wetland Indicator Status

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (>99% probability).
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67 to 99%).
Facultative (FAC)	Equally likely to occur in wetlands/non-wetlands (estimated probability 34 to 66%).
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67 to 99%).
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%).
No Indicator (NI)	Wetland indicator status not assigned. Species is assumed to be upland.

The wetland vegetation criterion was considered to be met if the Dominance Test using the 50/20 rule was satisfied (e.g., any species, or group of species, that contributed to a cumulative total of 50% of the total dominant coverage plus any other species individually comprising at least 20% coverage) (USACE, 2008b).

Soils

Soil texture, matrix, redoximorphic features[4] (e.g., mottles) and the presence of subsoil layers impervious to water infiltration were documented from soil pits. Soils were examined for positive hydric soil indicators such as low chroma, mottles (e.g., iron or manganese concretions), histic epipedons, organic layers, gleization, sulfidic odor, or other primary hydic soil indicators listed on the Arid West Wetland Determination Data Form. Soil color and characteristics were determined from moist soil peds using Munsell Soil Color Charts (Munsell Color, 2000). Soils were evaluated by digging pits to a depth of approximately 16 inches, where possible. GPS position data was collected at each soil pit and included

[4] Redoximorphic features are considered spots or blotches of different colors or shades of color interspersed within the dominant color in a soil layer - usually resulting from the presence of periodic reducing soil conditions.

on project figures. Paired upland and wetland soil pits were evaluated in order to determine and delineate an abrupt wetland/upland boundary. Hydric soil assessments were predominately based upon the guidance provided in the Arid West Regional Supplement (USACE, 2008b), the Pocket Guide to Hydric Soil Field Indicators (WTI, 2010), and the Field Indicators of Hydric Soils (USDA-NRCS, 2010). Supplemental soil information for the regional area was also evaluated within the Soil Survey for the San Diego Area (USDA-NRCS, 1973). Specific pit depths, soil color/texture, and other soil data obtained at each soil sample location are provided in Attachment A.

Hydrology

Areas supporting a prevalence of hydrophytic vegetation and hydric soils were further evaluated for wetland hydrology. Hydrological information was determined through field observation, as well as analysis of recent precipitation data in the vicinity of the study area in order to determine the presence/absence of primary and/or secondary hydrological indicators (i.e., surface water, saturation, sediment debris or drift deposits, watermarks, soil cracks, oxidized root channels, biotic or salt crusts, or other hydrological indicators [Lichvar and Wakely, 2004; Lichvar et al., 2006; Lichvar and McColley, 2008; USACE, 2008b; NWS, 2010]).

All suspected jurisdictional features observed in the field were classified as having hydrology that was either a RPW (i.e., flowing for greater than three months per year), or a non-RPW (i.e., seasonal, flowing less than or equal to three months). Field observations of hydrology and recent precipitation data (NWS, 2010) were analyzed to evaluate whether a feature was classified as a RPW or non-RPW (see Sections 5.3 and 5.4 below).

Interstate or Foreign Commerce Connection

Areas that were identified as special aquatic resources were further evaluated to determine if they had an Interstate or Foreign Commerce Connection. Areas that met the USACE's three technical criteria for wetlands and that have an Interstate or Foreign Commerce Connection were determined to be WoUS subject to USACE jurisdiction (USACE, 2008b). Areas that were not vegetated, but contained an OHWM and hydrological connection to a TNW were also considered to be subject to USACE jurisdiction due to their Interstate Commerce Connection.

Currently, the following are assumed to have an Interstate or Foreign Commerce Connection (33 C.F.R. section 328.3 et seq.):

- Navigable waters;
- Wetlands adjacent to navigable waters;
- Non-navigable tributaries of navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

Significant Nexus with a Traditional Navigable Water

A water body is considered to have a "significant nexus" with a TNW if its flow characteristics and functions, in combination with the ecologic and hydrologic functions performed by all wetlands adjacent to such a tributary, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a downstream TNW. A "TNW" includes all of the "navigable waters of the United States," defined in 33 C.F.R. § 329 and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact. A significant nexus analysis was performed for any non-RPW, and its adjacent wetlands, that was tributary to a TNW. The significant nexus analysis included the following:

- Identification of the entire relevant reach of the tributary and an assessment of the flow characteristics and functions of the tributary in combination with the functions performed by any adjacent wetlands. This assessment was intended to determine whether the tributary and any adjacent wetlands had more than an insubstantial or speculative effect on the chemical, physical, or biological integrity of the receiving TNW.
- A consideration of hydrologic factors including the volume, duration, and frequency of flow, as well as a consideration of the physical characteristics of the tributary (e.g., channel morphology, dimensions, floodplain position and area, OHWM, channel substrate, etc.); the proximity to the TNW; the size of the watershed; and average annual rainfall;
- A consideration of the ecological factors including the ability of the tributary and any adjacent wetlands to carry pollutants and flood waters to traditional navigable waters; the ability of the tributary and any adjacent wetlands to provide aquatic habitat that supports biota of a traditional navigable water; the ability for adjacent wetlands to trap and filter pollutants or store flood waters; and the ability to maintain water quality.

The localized watershed associated with any non-RPW requiring a significant nexus analysis was estimated by utilizing field observations of natural and artificial topography and landbreaks (i.e., roadways, developments, and infrastructure), as well as GIS topographic analysis. Relevant reach lengths, stream order, and total distance of each feature were determined with GIS.

4.2.2 CDFG Procedures and Data Collection Methods

Suspected CDFG jurisdictional areas were assessed in the field for the presence of streambeds containing a defined bed and bank and any associated riparian vegetation. Streambeds and suspected riparian habitats were evaluated using the CFG Code Section 1600 (et seq.) and guidance described in *A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607* (ESD-CDFG, 1994). The surface area of the bed and banks for each feature was determined in the field with a sub-meter Trimble GeoXH GPS receiver, or by utilizing high resolution aerial maps and GIS analysis where access was limited. If adjacent bank, floodplain, and/or terrace areas were vegetated with riparian species, then the feature plus any associated riparian vegetation was mapped and included as part of CDFG jurisdiction. Riparian vegetation mapping extended to the outer drip line of the vegetation associated with the bed, bank and channel of any feature. Vegetation within and adjacent to features containing a defined bed, bank or channel were recorded based on Hickman (1993).

4.3 JURISDICTIONAL IMPACT ANALYSIS

project figures depict current land use conditions (i.e., existing dirt roads, and associated public/private infrastructure) including existing special aquatic resource areas within study area boundaries. To determine impact acreages within jurisdictional lands, calculations of the quantity of permanent and temporary impacts were generated by superimposing the cut and fill limits from final project engineering plans over aerial maps that detail the study area's special aquatic resource delineated limits. Any placement of permanent above-ground facilities, utilities, roadways, or other permanent cut and/or fill within special aquatic resource areas was considered a permanent loss. Temporary impacts include access areas, laydown yards, under-ground utilities, and any other lands that will have temporary vegetation and/or soil disturbance, but will be returned to pre-project conditions after construction.

- Total CWA jurisdiction was determined for wetlands, WoS, and non-wetland WoUS within the study area based on the surface area of each feature within the OHWM, or the lateral limits of any adjacent wetland. Total temporary impacts to wetlands, WoS, and non-wetland WoUS were then calculated by utilizing a ten-

foot buffer around permanent linear project facilities (e.g., linear gas lines, water lines, and transmission line towers) and a 50-foot buffer around the power plant site.

- Total CDFG jurisdiction was determined within the study area for each feature containing a defined bed, bank, and channel. The surface area of any feature within the study area was determined based on bank widths in order to subsequently assess project impacts within the jurisdiction of Section 1600 (et seq.) of the CFG Code. Total temporary impacts to riparian or non-riparian WoS were then calculated by utilizing a ten-foot buffer around permanent linear project facilities (e.g., linear gas lines, water lines, and transmission line towers) and a 50-foot buffer around the power plant site.

5.0 RESULTS

This section presents the results of the delineation of USACE jurisdiction pursuant to Section 404 of the CWA; RWQCB legal authority in accordance with Section 401 of the CWA and Porter-Cologne; and CDFG jurisdiction pursuant to Section 1600 (et seq.) of the CFG Code. Six unnamed features were observed and delineated within the study area (Figure 3). Wetland Determination Data Forms are included in Attachment A and representative photographs are included in Attachment B.

5.1 VEGETATION COMMUNITIES/LAND COVER TYPES

Four vegetation community/land cover types were observed within the study area and are discussed below (Holland, 1986):

- Non-Native Grassland;
- Mule Fat/Tamarisk Scrub;
- Emergent Wetland; and
- Disturbed/Developed.

5.1.1 Non-Native Grassland

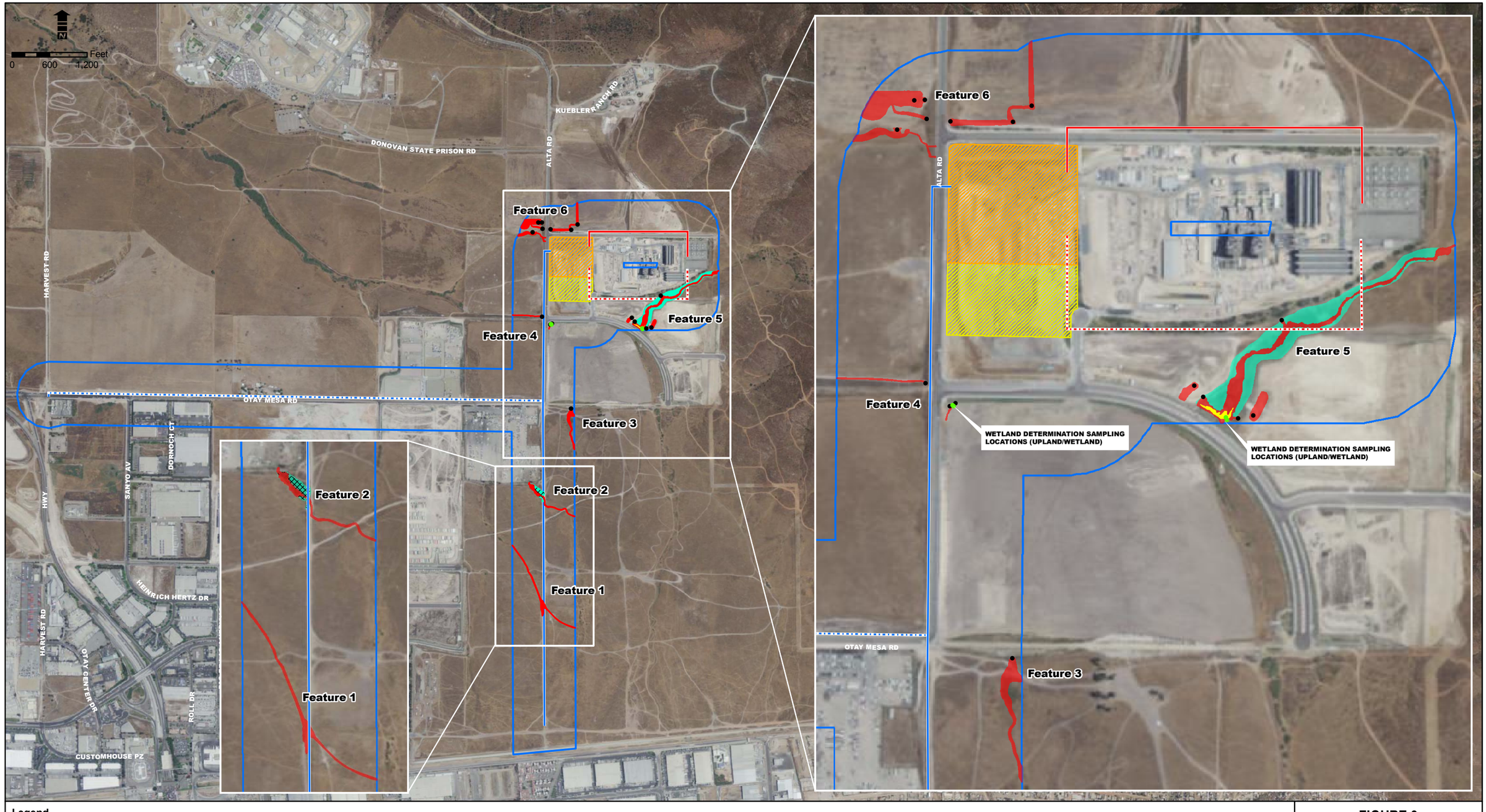
Non-native grassland habitat within the study area generally occurs on fine-textured loam or clay soils that are moist during the winter rainy season and very dry during the summer and fall. This habitat is a disturbance-related community most often found in open, disturbed or undeveloped fields and is characterized by a dominant cover (greater than 50% cover) of annual grasses and occasionally native and nonnative annual forbs. Typical dominant species include wild oats (*Avena barbata*; NI), ripgut brome (*Bromus diandrus*; NI), and red brome (*Bromus madritensis;* NI).

5.1.2 Mule Fat/Tamarisk Scrub

Mule fat/tamarisk scrub habitat within the study area consists of areas dominated by depauperate, tall, riparian scrub species including mule fat (*Baccharis salicifolia*; FACW) and salt cedar (*Tamarix ramosissima*; FACW). This early seral community is maintained by frequent ephemeral flooding. Mule fat/tamarisk scrub is limited to drainages within the northeast and central portion of the study area.

5.1.3 Emergent Wetlands

Emergent wetlands are characterized by herbaceous annual and perennial freshwater hydrophytes. Dominant species within the study area include southern cattail (*Typha domingensis*; OBL), tall umbrella sedge (*Cyperus eragrostis*; FACW), and arroyo willow (*Salix lasiolepis*; FACW). This vegetation is present for most, or all, of the growing season in most years and is dominated by perennial species.



Legend

- Study Area
- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- Culvert
- Wetland Determination Sampling Location
- CDFG 1600 (et seq.) Jurisdictional Limits
- Clean Water Act (Section 404 and 401) Non-Wetland Jurisdictional Limits
- CDFG 1600 (et seq.) Riparian Jurisdictional Limits
- Clean Water Act (Section 404 and 401) Wetland Jurisdictional Limits

FIGURE 3
CWA AND CDFG JURISDICTIONAL DETERMINATION

PIO PICO ENERGY CENTER

PROJECT NO.: 29874638
DATE: DECEMBER 2010

URS

Source: DigitalGlobe, 2009.

5.1.4 Disturbed/Developed

Disturbed vegetation has developed within portions of the study area having varying levels of anthropogenic disturbance. Disturbed areas are dominated by broad-leaf herbaceous species such as mustards (*Brassica* spp.; [NI], *Hirshfeldia incana*; [NI]), horseweed (*Conyza canadensis*; [NI]), and thistles (*Centaurea* spp., *Silybum* spp.; [NI], *Carduus* spp.; [NI]) and often have a subdominant cover (less than 50% cover) of annual non-native grasses. Developed lands within the study area include roadways, parking lots, vacant lots, residences, and other private/public infrastructure with ornamental plantings. Species composition in developed communities within the study area varied and dominated by non-native cultivar species. Disturbed and developed vegetation communities are found throughout the study area.

5.2 SOILS

Four soil types occur within the study area, which are described below (USDA-NRCS, 1973) (Figure 4):

- Huerhuero loam, 9-15% slope, eroded (HrD);
- Diablo Clay, 2-9% Slope (DaC);
- Diablo Clay, 9-15% Slope (DaD); and
- Salinas Clay, 0-2% Slope (ScA).

5.2.1 Huerhuero Loam Series

The Huerhuero loam series consists of moderately well drained loams that have clay subsoil and slopes ranging from 2 to 30%. They are not characterized as hydric soils. These soils formed in a sandy marine environment. The upper part of the subsoil is brown, moderately alkaline clay, and extends to a depth of about 41 inches. The frost free season for this soil series varies from 300 to 350 days. The Huerhuero loam series contains the following soil type within the study area:

- **Huerhuero loam, 9 to 15% slope (HrD).** This soil series is similar to Huerhuero loam, 2 to 9% slope, except it is strongly sloping with moderate sheet erosion and has an effective rooting depth of 20 to 40 inches. It is moderately well drained and non-hydric with moderate erosion hazard. This soil map unit occurs in the eastern limits of the study area.

5.2.2 Diablo Clay Series

The Diablo Clay series consists of well drained, moderately-deep to deep clay derived from soft, calcareous sandstone and shale. These soils are not hydric and occur on uplands with slopes from 2 to 50%, and annual precipitation from 12 to 14 inches. Vegetation consists primarily of annual grasslands with scattered shrubs. The frost free season for this soil series varies from 300 to 340 days. The Diablo Clay soils consist of the following soil series:

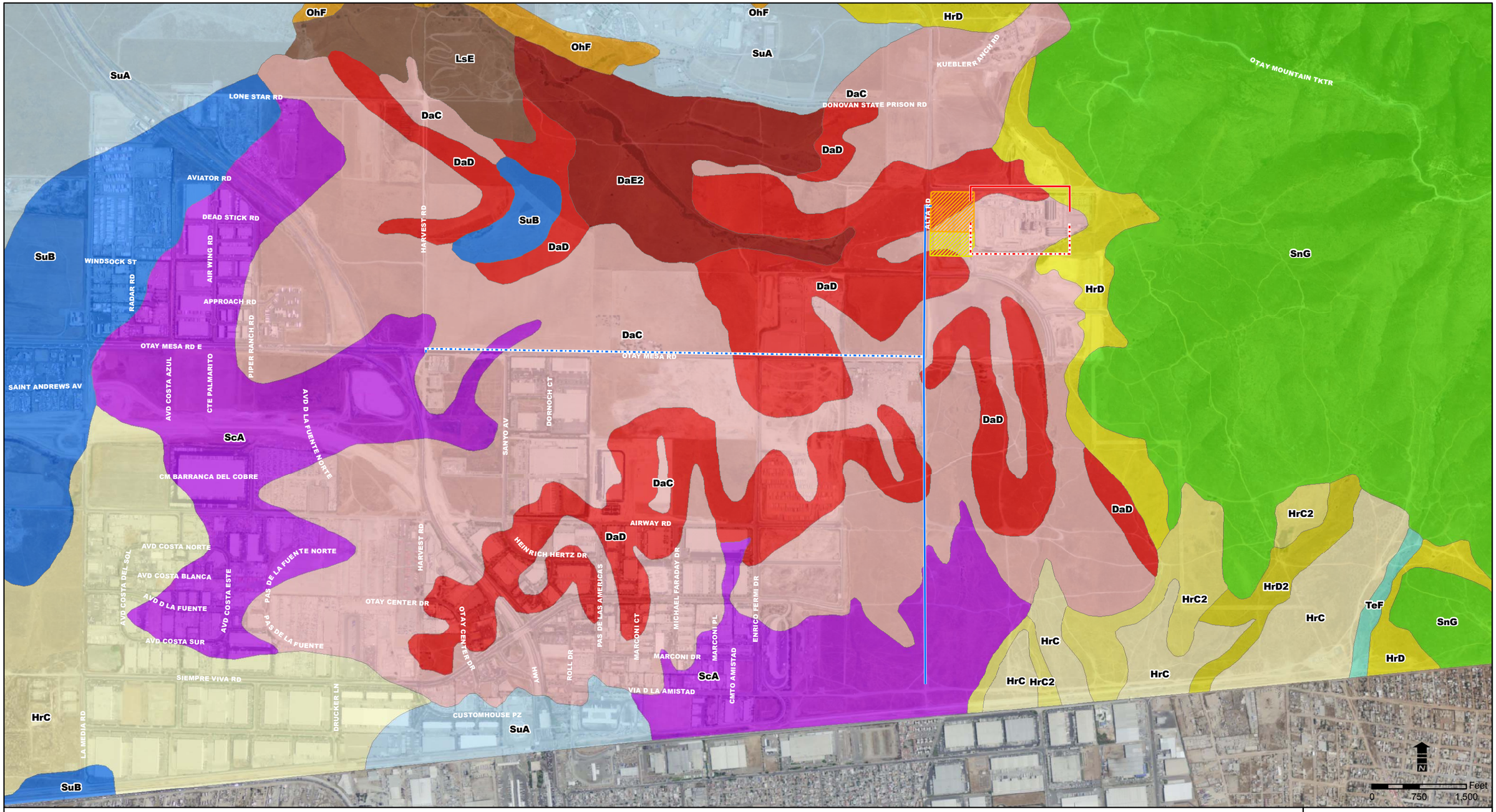
- **Diablo Clay, 2-9% Slope (DaC).** This soil series is gently to moderately sloping and is 34 to 40 inches deep over rock. Available water capacity is 5 to 6 inches with runoff that is slow to medium and the erosion hazard slight to moderate. This soil map unit occurs throughout the majority of the study area.

- **Diablo Clay, 9-15% Slope (DaD).** This soil series is strongly sloping and is 26 to 37 inches deep over rock. Available water capacity is 4 to 5.5 inches with runoff that is medium and the erosion hazard slight to moderate. This soil map unit occurs throughout the majority of the study area.

5.2.3 Stockpen Series

The Stockpen Series consists of moderately well drained, non-hydric, moderately deep gravelly clay loams. These soils are located on marine terraces and have slopes from 0 to 5%. Vegetation is primarily annual and perennial grasses and forbs. The frost free season for this soil series varies from 320 to 340 days. The Stockpen Series consists of the following soil series:

- **Salinas Clay, 0-2 Percent Slope (ScA).** This nearly level soil is on marine terraces with slopes that are dominantly 1%. Low, broad-based hummocks, locally referred to as mimamounds, occur in undisturbed areas. This soil map unit occurs solely within the southern limits of the study area.



Legend

- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- DaC, Diablo clay, 2 to 9 percent slopes
- DaD, Diablo clay, 9 to 15 percent slopes
- DaE2, Diablo clay, 15 to 30 percent slopes, eroded
- HrC, Huerhuero loam, 2 to 9 percent slopes
- HrC2, Huerhuero loam, 5 to 9 percent slopes, eroded
- HrD, Huerhuero loam, 9 to 15 percent slopes
- HrD2, Huerhuero loam, 9 to 15 percent slopes, eroded
- LsE, Linne clay loam, 9 to 30 percent slopes
- OhF, Olivenhain cobbly loam, 30 to 50 percent slopes
- ScA, Salinas clay, 0 to 2 percent slopes
- SnG, San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes
- SuA, Stockpen gravelly clay loam, 0 to 2 percent slopes
- SuB, Stockpen gravelly clay loam, 2 to 5 percent slopes
- TeF, Terrace escarpments

FIGURE 4
SOILS

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Source: Natural Resources Conservation Service (NRCS), CA638 Soil Survey (Pacific Southwest), 2007

5.3 HYDROLOGY

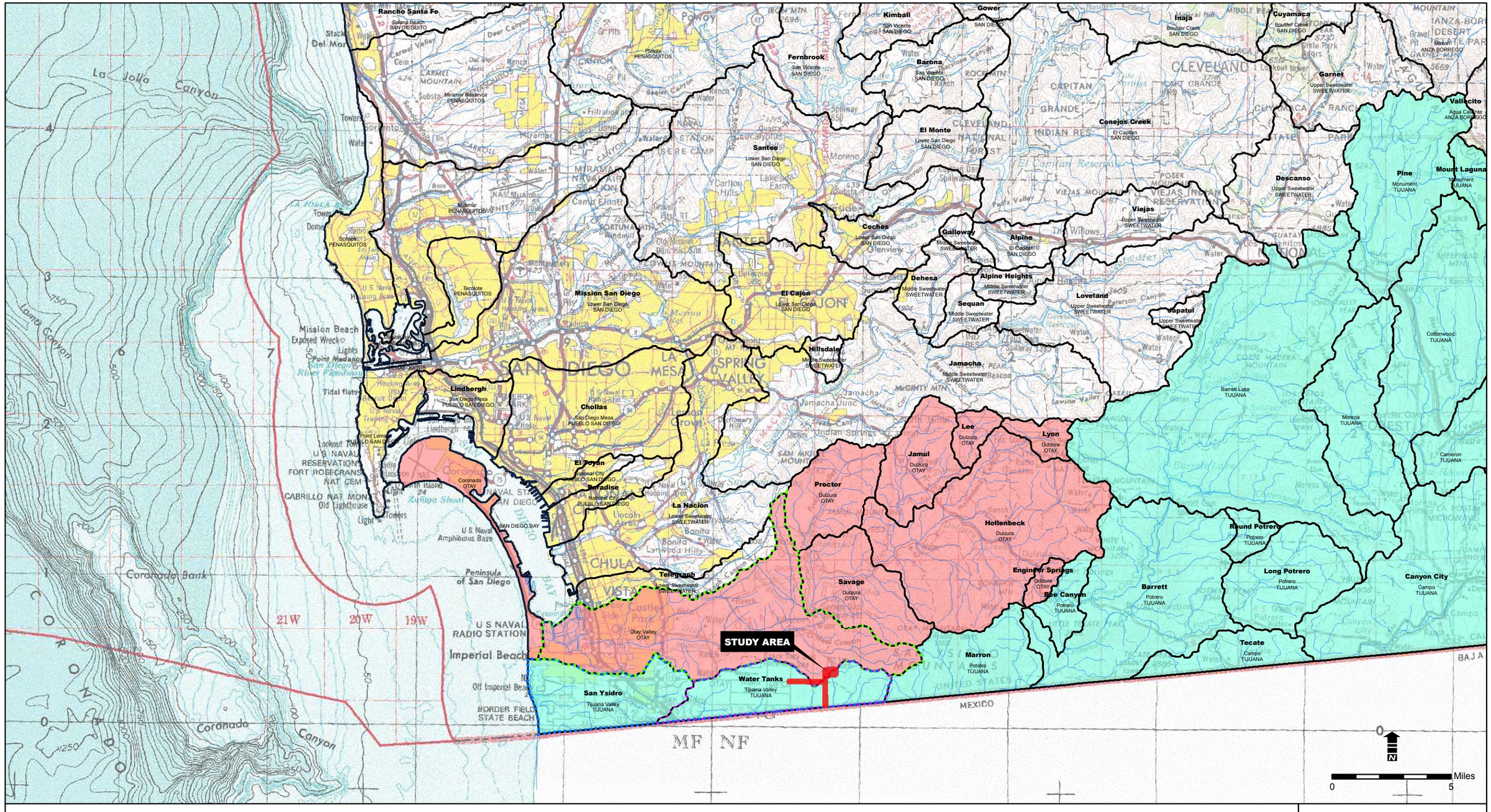
PPEC project site is at an elevation of approximately 635 feet above msl on a mesa sloping southwest from the western edge of the San Ysidro Mountains. The study area is located within two regional watersheds: the Otay Hydrologic Unit to the north and the Tijuana Hydrological Unit to the south. The boundary of these two regional watersheds generally passes through the center of the study area; therefore, the northern portion of the study area drains toward the Otay River, whereas the southern portion of the study area drains toward the Tijuana River (Figure 5). The northern watershed consists of the Otay Hydrologic Unit, which drains a 98,305-acre area and contains the smaller Otay Valley Hydrologic Area draining a 29,545-acre area (IWMC, 2004). Flows within the northem portion of the study area drain 3.0 miles though an unnamed blue line drainage referred to as Johnson Valley to the Otay River, which drains flows west 11.0 miles to San Diego Bay.

The southern watershed (Tijuana Hydrologic Unit) drains a total of approximately 298,960-acres within California. The Tijuana Hydrologic Unit is divided into the smaller Tijuana Valley Hydrologic Area, which drains a 19,748-acre area, and the smaller Water Tanks Hydrologic Subarea, which drains a 9,574-acre area. Flows within the southern portion of the study area drain south for approximately 1.6 miles through the Tijuana Valley Hydrologic Area south though Mexico to the Tijuana River. The Tijuana River then directs flows 8.9 miles northwest back into the U.S., and 5.3 miles west to the Pacific Ocean at Imperial Beach.

The FEMA has delineated inundation areas for 100-year and 500-year floods (FEMA, 2000), as delineated on Figure 6. Figure 6 illustrates the extent of FEMA's 100-year flood zone, which does not overlap the study area.

The regional climate within the vicinity of the study area consists of hot and dry summer months with relatively cool, wetter winters. Seasonal rainfall occurs predominantly in the winter and spring months (Nov-April) and was above average during the fall 2009 to summer 2010 period, but well below average for fall 2010 prior to the field delineation. Precipitation data for the Chula Vista, California region (Weather Station No. 041758, approximately 9.2 miles west of the study area) included the following (NWS, 2010):

- Average annual precipitation is 10.13 inches (data from 1914-2009);
- Seasonal precipitation during fall 2009 – summer 2010 measured 11.51 inches;
- Seasonal precipitation during fall 2010 prior field delineation measured 0.8 inches, which was less than half of average rainfall (1.7 inches) for the fall period (data from 1971-2000); and
- The last significant precipitation event (>0.1 inches) prior to field delineation was 0.42 inches on 21 November 2010 (16 days prior to field delineation).



Legend

- Study Area
- Hydrologic Sub-Area
- Water Tanks Hydrologic Sub-Area
- Tijuana Valley Hydrologic Area
- Otay Valley Hydrologic Area
- Tijuana Hydrologic Unit
- Otay Hydrologic Unit

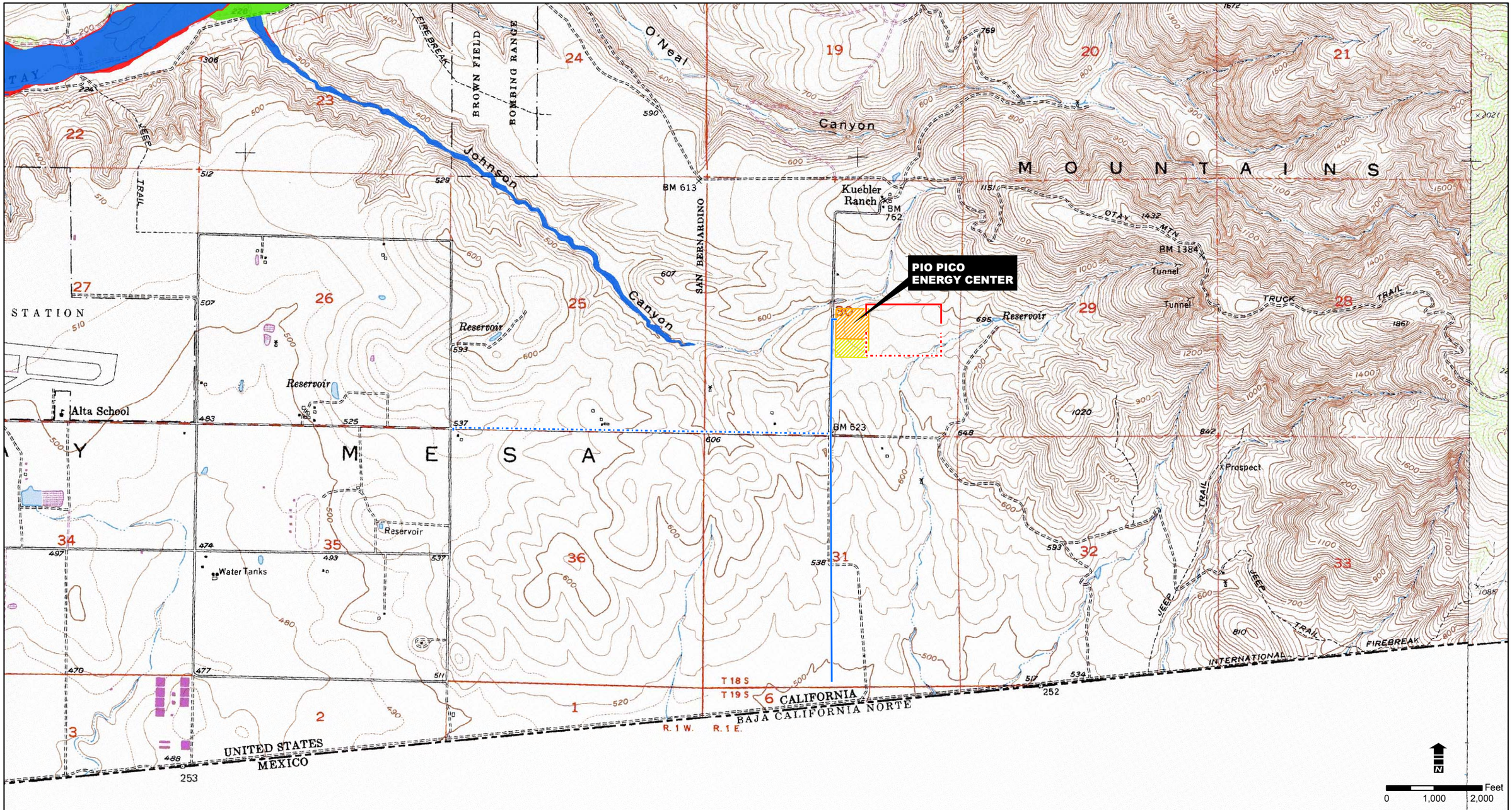
FIGURE 5
REGIONAL WATERSHEDS

PIO PICO
ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Source: California Interagency Watershed Mapping Committe (CALWATER 2.2.1), 2004. CalAtlas (USGS 1x2 Degree Series), 1999.



Legend

- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- Zone AE- Identifies area inundated by 100-year flooding, BFEs have been determined but are expressed in meters for some communities
- Zone A0- Identifies an alluvial fan inundated by 100-year flooding, average flood depths and velocities have been determined
- Zone X-This code identifies an area inundated by 500-year flooding

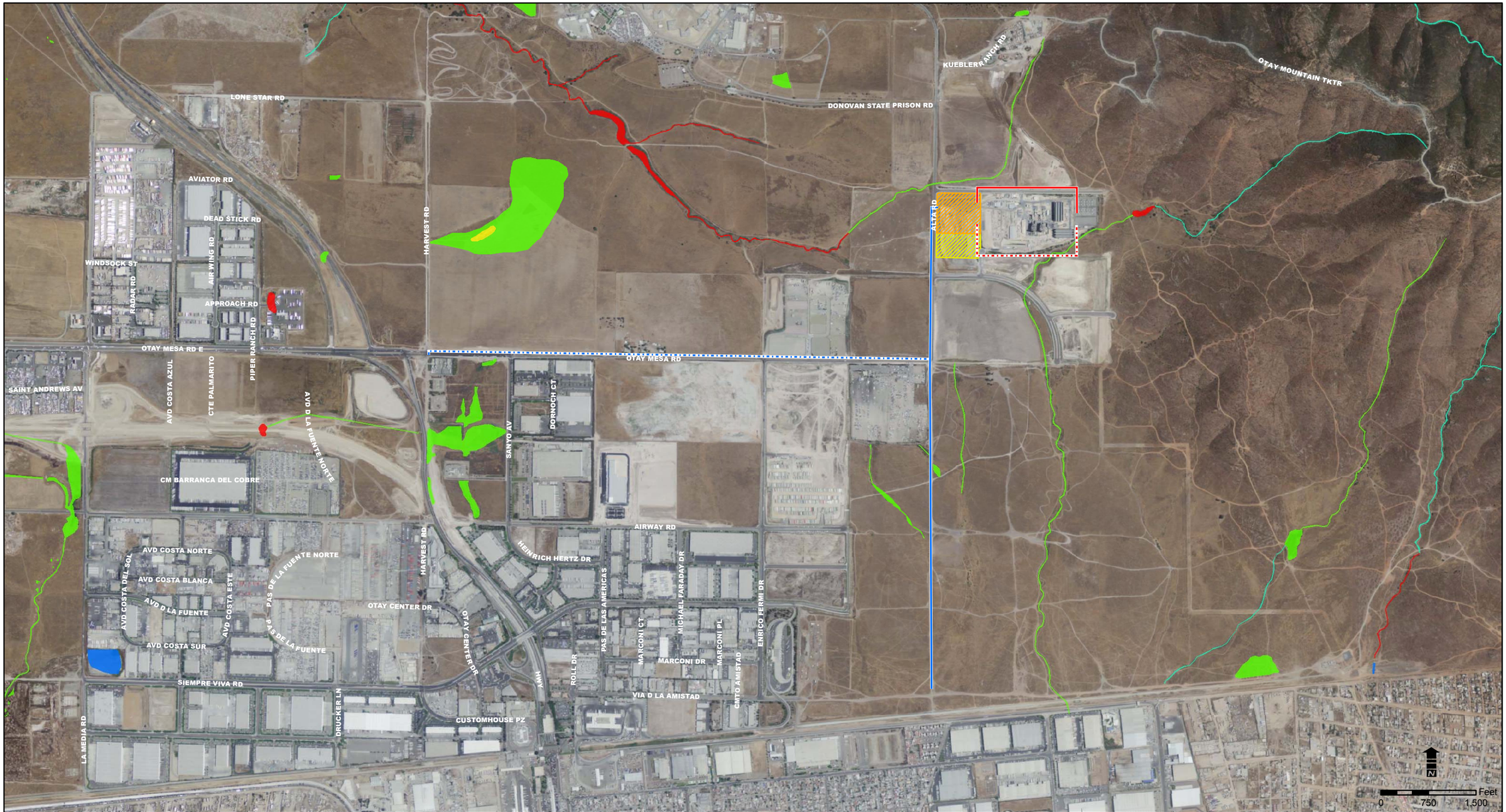
FIGURE 6
FEMA 100-YEAR FLOOD ZONES

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Source: SanGIS Flood Zones (FEMA 1997, Updated 2000). USGS 7.5' Topographic Quadrangles - (Otay Mesa, 1975 and Jamul Mountain, 1978)



Legend

- Project Site
- Laydown Area
- Route A 230 kV Transmission Line
- Route B 230 kV Transmission Line
- Route A Natural Gas Line
- Route B Natural Gas Line
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine
- Other

FIGURE 7
NATIONAL WETLAND INVENTORY

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827
DATE: DECEMBER 2010

URS

Source: USFWS, National Wetland Inventory, 2010. DigitalGlobe, 2009..

5.4 DETERMINATION OF USACE JURISDICTION SUBJECT TO SECTION 404 OF THE CWA

Six (6) drainage features were observed within the study area (Figure 3, Table 2). Each of these drainage features is classified as a non-RPW having a well-defined OHWM with flows that drain within a tributary system to a TNW. Each of these non-RPW drainage features were also determined to have a significant nexus with a TNW. They are described in detail in the following sections. Total jurisdiction and impacts within the project footprint are provided in Table 2.

No permanent losses of wetland, WoS, or non-wetland WoUS will occur as a result of the project. Placement of the power plant site avoids temporary and permanent impacts to all jurisdictional features. Linear facilities (i.e., gas pipelines) will be trenched within existing paved and/or dirt roads and will be installed below the bottom contours of features that bisect these roads (i.e., Features 1 and 2). The bottom contours of these features will be restored to original conditions and the linear facilities will be permanently located below the feature. Therefore, only temporary impacts to Features 1 and 2 will occur as a result of linear construction. Transmission line towers will be positioned outside of any CWA jurisdictional feature and transmission line installation will avoid impacts to jurisdictional features. As a result, no temporary impacts or permanent losses will occur from transmission line construction.

Table 2. Total CWA Jurisdiction and Temporary Impacts/Permanent Losses

Feature number	Total Non-wetland WoUS jurisdiction (acres)	Total WoUS with included wetlands (acres)	Temporary impacts to non-wetland WoUS jurisdiction (acres)	Temporary impacts to wetland WoUS jurisdiction (acres)	Permanent losses to non-wetland WoUS jurisdiction (acres)	Permanent losses to wetland WoUS jurisdiction (acres)
Feature 1	0.58	0.00	0.05	0.00	0.00	0.00
Feature 2	0.35	0.00	0.02	0.00	0.00	0.00
Feature 3	0.40	0.00	0.00	0.00	0.00	0.00
Feature 4	0.04	0.01	0.00	0.00	0.00	0.00
Feature 5	0.98	0.09	0.00	0.00	0.00	0.00
Feature 6	1.35	0.00	0.00	0.00	0.00	0.00
Total	**3.7**	**0.1**	**0.1***	**0.0**	**0.0**	**0.0**

* Impacts are derived from preliminary engineering design and are subject to change.

5.4.1 Feature 1

Feature 1 drains ephemeral storm water flows from undeveloped open grasslands, cleared and developed lots, and a portion of the eastern terminus of Otay Mesa Road (Figure 3). It directs flows southeast for approximately 1,730 feet within the study area before passing outside of the study area. Within the study area, the upslope portion of Feature 1 is vegetated with upland non-native grassland that becomes an unvegetated pool within a topographic depression as it crosses Alta Road. Alta Road is an unpaved dirt road and had approximately two inches of standing water present within the pool during the survey (Attachment B, photo 1). Flows spill over from the pool and flow southeast entering Feature 2 beyond the study area. Feature 1 contains an OHWM consisting of primary hydrologic indicators including mud cracks, shelving, and debris deposits. The OHWM generally becomes less conspicuous as it courses down slope and disperses as sheet flow through a vegetated swale into Feature 2.

Feature 1 is vegetated with upland non-native grassland vegetation throughout its length adjacent to Alta Road. Dominant species include non-native grasses including wild oats (*Avena barbata*; NI), ripgut brome (*Bromus diandrus*; NI), and red brome (*Bromus madritensis;* NI). Feature 1 is unvegetated within the earthen pool where is crosses Alta Road.

Although no soil profile analysis was performed within this feature due to a lack of hydrophytic vegetation, USGS soil data indicate that soils within this feature consist of the Diablo Clay series, which is classified as a non-hydric soil (USDA-NRCS, 1973) (Figure 4).

In summary, Feature 1 within the study area does not meet the hydrophytic vegetation or hydric soil criteria of a USACE-defined wetland; nonetheless, portions of Feature 1 west of Alta Road are classified as a freshwater emergent wetland by the NWI (Figure 7) (USFWS, 2010). It does, however, contain primary hydrological indicators including an OHWM and is classified as a non-RPW within a tributary system that drains to a TNW. Accordingly, a significant nexus analysis for Feature 1 is presented below.

Feature 1 Significant Nexus Analysis

Physical attributes. Feature 1 is a first-order ephemeral drainage with a total relevant reach length of approximately 3,054 feet, 1,730 feet of which occur within the study area (Figure 3). It has been modified from natural conditions due to upslope development along Otay Mesa Road, as well as from the development of Alta Road and activities associated with the U.S.-Mexico border. Feature 1 is tributary of Feature 3, which flows for 5,483 feet before passing through a culvert into Mexico. Flows appear to then be directed south approximately 1.6 miles to the Tijuana River, which flows west/northwest for 8.9 miles before passing back across the U.S.-Mexico border. Once past the U.S.-Mexico border, flows are directed northwest for 5.3 miles before emptying into the Pacific Ocean, the nearest TNW.

Feature 1 drains a localized, upstream watershed size of approximately 79 acres. The watershed for Feature 1 consists of undeveloped open grasslands, cleared and developed lots, and a portion of the eastern terminus of Otay Mesa Road. Flows within Feature 1 consist of surface storm water runoff draining from undeveloped areas, cleared lots, and roadways.

Because of its relatively long relative reach, its large localized watershed drainage area, and moderate annual precipitation within the region (see Section 5.3), storm water flows entering Feature 1 are considered to be moderate volume, but short duration and low frequency. Flows are seasonal, generally occurring between October and May. However, because of land modification that has resulted in vegetation removal and/or ground disturbance, runoff is rapid. Underlying clay soils within Feature 1 contain a low water capacity and the majority of flows within the localized watershed are rapidly channeled to downstream tributaries and ultimately the Pacific Ocean.

Chemical attributes. Chemical pollutants within Feature 1 likely consist of roadway pollutants (i.e., oil, grease, fluids, etc.), as well as trash, debris, and sediment that may be present as a result of surface water runoff from paved and cleared surfaces associated with upslope development. These chemical pollutants are transferred to the Pacific Ocean as a result of the hydrological connectivity of Feature 1 to the Pacific Ocean. Therefore, the contribution of chemical pollutants from Feature 1 to the receiving water body is considered to have more than a speculative or insubstantial effect on the chemical integrity of the receiving TNW.

Biological attributes. The capacity of Feature 1 to contribute to downstream biological ecosystems is considered to be insignificant due to its upland non-native grassland vegetation and lack of native habitat. Feature 1 does not contain hydrophytic species or wetlands that could positively contribute to downstream ecosystems. In addition, because the majority of Feature 1 is vegetated with non-native grassland, there are negligible functions and values for wildlife resources. As a result, Feature 1 likely does not provide a significant ecological benefit and/or effect on the downstream TNW.

In summary, it is reasonable to conclude that Feature 1 has a significant nexus with the downstream receiving waters because it likely substantially impacts the physical and chemical integrity of the receiving waters. As a result, Feature 1 is considered to be subject to CWA Section 404 jurisdiction. Total jurisdiction of Feature 1 within the study area, as well as temporary and permanent impacts to Feature 1 is provided in Table 2.

5.4.2 Feature 2

Feature 2 drains ephemeral storm water flows from lands consisting of a developed lot, undeveloped open grasslands, and a portion of the eastern terminus of Otay Mesa Road (Figure 3) (Attachment B, photos 2 and 3). It directs flows southeast for approximately 985 feet within the study area. The upslope portion of Feature 2 originates as a deeply-incised erosion feature formed as a result of concentrated storm water flows draining from the boundary of a developed lot. Flows are channeled across Alta Road and then southeast beyond of the study area. Feature 2 contains an OHWM consisting of primary hydrologic indicators including shelving, sediment deposits, and debris deposits. Although no standing water was present during the survey, evidence of recent flows was apparent as was saturated soils in many parts of the feature.

Feature 2 is vegetated with mule fat/tamarisk scrub hydrophytic vegetation within the upslope portion of the feature west of Alta Road (Attachment A, data form 1). Dominant species include mule fat (*Baccharis salicifolia*; FACW), salt cedar (*Tamarix ramosissima*; FAC), Bermuda grass (*Cynodon dactlyon*; FAC), and hairy chess (*Bromus japonicus*; NI). Downslope of Alta Road, Feature 2 is dominated by non-native grassland species such as wild oats (*Avena barbata*; NI), ripgut brome (*Bromus diandrus*; NI), and red brome (*Bromus madritensis;* NI).

A soil pit examined within Feature 2 did not exhibit characteristics indicative of periodic or prolonged inundation (Attachment A, data form 1). Chroma ranged from 10 YR 3/3 within 0-2 inches and 10 YR 4/3 from 2-16 inches. No redoximorphic concentrations or depletions were present and very little organic material was present. Soil texture consisted of sandy clay throughout the soil profile, which inhibits or prevents surface water percolation; however, it does not appear that flows are present within Feature 1 for a sufficiently long duration to form hydric soils. USGS soil data indicate that soils within this feature consist of the Diablo Clay series, which is not classified as a hydric soil (USDA-NRCS, 1973) (Figure 4).

In summary, Feature 2 within the study area does not meet the hydric soil criteria of a USACE-defined wetland; nonetheless, portions of Feature 2 are classified as a freshwater emergent wetland by the NWI (Figure 7) (USFWS, 2010). It does, however, contain primary hydrological indicators including an OHWM and a dominance of hydrophytic vegetation. It is classified as a non-RPW that is part of a tributary system draining to a TNW. Therefore, a significant nexus analysis for Feature 2 is presented below.

Feature 2 Significant Nexus Analysis

Physical attributes. Feature 2 is a first order ephemeral drainage with a total relevant reach length of approximately 985 feet, all of which occurs within the study area (Figure 3). It has been modified from natural conditions due to upslope development along Otay Mesa Road, as well as from the development of Alta Road and development/activities associated with the U.S.-Mexico Border. Feature 2 is tributary Feature 3, which flows for 5,483 feet before passing through a culvert into Mexico. Flows appear to then be directed south approximately 1.6 miles to the Tijuana River, which flows west/northwest for 8.9 miles before passing back across the U.S.-Mexico border. Once past the U.S.-Mexico border, flows are directed northwest for 5.3 miles before emptying into the Pacific Ocean, the nearest TNW.

Feature 2 drains a localized, upstream watershed of approximately 40 acres. The watershed for Feature 2 consists of undeveloped open grasslands, cleared and developed lots, and a portion of the eastern terminus of Otay Mesa Road. Flows within Feature 2 consist of surface storm water runoff from undeveloped areas as well as cleared lots and roadways.

Because of its relatively long relative reach, its moderately-sized localized watershed drainage area, and annual precipitation within the region (see Section 5.3), storm water flows entering Feature 2 are considered to be moderate volume, but short duration and low frequency. Flows are seasonal, generally occurring between October and May. However, because of land modification that has resulted in vegetation removal and/or ground disturbance, runoff is rapid. In addition, underlying clay soils within Feature 2 contain a relatively low water capacity and the majority of flows within the localized watershed are rapidly channeled to downstream tributaries and ultimately the Pacific Ocean.

Chemical attributes. Chemical pollutants within Feature 2 likely consist of roadway pollutants (i.e., oil, grease, fluids, etc.), as well trash, debris, and sediment that may be present as a result of surface water runoff from paved and cleared surfaces associated with upslope development. These chemical pollutants are transferred to the Pacific Ocean as a result of the hydrological connectivity of Feature 2 to the Pacific Ocean. Therefore, the contribution of chemical pollutants from Feature 2 to the receiving water body is considered to have more than a speculative or insubstantial effect on the chemical integrity of the receiving TNW.

Biological attributes. The capacity of Feature 2 to contribute to downstream biological ecosystems is considered to be significant due to its hydrophytic vegetation dominated by both invasive tamarisk and native mule fat. Feature 2 likely contributes in a negative manner to downstream ecosystems by functioning as a tamarisk seed propagation source, and it also likely functions positively as a seed source for native mule fat and as a filter for some pollutants originating from the upslope developments. Feature 2 also contains functions and values for wildlife resources within its hydrophytic vegetation community. As a result, Feature 2 likely provides a significant ecological benefit to the downstream TNW.

In summary, it is reasonable to conclude that Feature 2 has a significant nexus with the downstream receiving waters because it likely substantially impacts the physical, chemical, and biological integrity of the receiving waters. As a result, Feature 2 is considered to be subject to CWA Section 404 jurisdiction. Total jurisdiction of Feature 2 within the study area, as well as temporary and permanent impacts to Feature 2 are provided in Table 2.

5.4.3 Feature 3

Feature 3 drains ephemeral storm water flows from lands consisting of undeveloped, non-native grasslands and a portion of Alta Road (Figure 3) (Attachment B, photo 4). It directs flows south for approximately 5,483 feet within the study area. The upslope portion of Feature 3 originates where flows are channeled from an undeveloped open field through a culvert down slope to a topographic depression where pooling occurs within a dirt access road. Approximately six inches of standing water was present within the pool during the survey. Flows exit the pooled area and drain south through a small drainage before converging within Feature 2. Feature 3 contains an OHWM consisting of primary hydrologic indicators including water marks, sediment deposits, and debris deposits.

Feature 3 is vegetated with a dominance of upland, non-native grassland vegetation throughout its length, with the exception of the ponded area and dirt access roads, which are both unvegetated. Dominant species include wild oats (*Avena barbata*; NI), ripgut brome (*Bromus diandrus*; NI), and red brome (*Bromus madritensis;* NI). Several individual salt cedar (*Tamarix ramosissima*; FAC) are also present within this feature.

Although no soil profile analysis was performed within this feature due to its location on private lands, USGS soil data indicate that soils within this feature consist of the Diablo Clay series, which is not classified as a hydric soil (USDA-NRCS, 1973) (Figure 4).

In summary, Feature 3 within the study area does not meet the hydrophytic vegetation or hydric soil criteria of a USACE-defined wetland; nonetheless, portions of Feature 3 within the study area are classified as a freshwater emergent wetland by the NWI (Figure 7) (USFWS, 2010). It does, however, contain primary hydrological indicators including an OHWM and is classified as a non-RPW that is part of a tributary system draining to a TNW. Therefore, a significant nexus analysis for Feature 3 is presented below.

Feature 3 Significant Nexus Analysis

Physical attributes. Feature 3 is a first order ephemeral drainage with a total relevant reach of approximately 5,483 feet, 634 feet of which occur within the study area (Figure 3). It has been modified from natural conditions due to upslope development along Alta Road. Feature 3 flows for 5,483 feet before passing through a culvert into Mexico. Flows appear to then be directed south approximately 1.6 miles to the Tijuana River, which flows west/northwest for 8.9 miles before passing back across the U.S.-Mexico border. Once past the U.S.-Mexico border, flows are directed northwest for 5.3 miles before emptying into the Pacific Ocean, the nearest TNW.

Feature 3 drains a localized, upstream watershed size of approximately 133 acres. The watershed for Feature 3 consists of undeveloped open grasslands and a cleared lot. Flows within Feature 3 consist of surface storm water runoff from undeveloped areas as well as cleared lots and Alta Road.

Because of its relatively long relative reach, its large localized watershed drainage area, and annual precipitation within the region (see Section 5.3), storm water flows entering Feature 3 are considered to be moderate volume, but short duration and low frequency. Flows are seasonal, generally occurring between October and May. However, because of land modification that has resulted in vegetation removal and/or ground disturbance, runoff is rapid. In addition, underlying clay soils within Feature 3 contain a water capacity that is relatively low and the majority of flows within the localized watershed are rapidly channeled to downstream tributaries and ultimately the Pacific Ocean.

Chemical attributes. Chemical pollutants within Feature 3 likely consist of roadway pollutants (i.e., oil, grease, fluids, etc.), as well debris and sediment that may be present as a result of surface water runoff from paved and cleared surfaces associated with upslope development. These chemical pollutants are transferred to the Pacific Ocean as a result of the hydrological connectivity of Feature 3 to the Pacific Ocean. Therefore, the contribution of chemical pollutants from Feature 3 to the receiving water body is considered to have more than a speculative or insubstantial effect on the chemical integrity of the receiving TNW.

Biological attributes. The capacity of Feature 3 to contribute to downstream biological ecosystems is considered to be insignificant due to its upland vegetation and lack of native habitat. Feature 3 does not contain significant hydrophytic species or wetlands that could positively contribute to downstream ecosystems. Furthermore, because the majority of Feature 3 is vegetated with non-native grassland, there are negligible functions and values for wildlife resources. As a result, Feature 3 likely does not provide a significant biological or ecological benefit to the downstream TNW.

In summary, it is reasonable to conclude that Feature 3 has a significant nexus with the downstream receiving waters because it likely substantially impacts the physical and chemical integrity of the receiving waters. As a result, Feature 3 is considered to be subject to CWA Section 404 jurisdiction. Total jurisdiction of Feature 3 within the study area, as well as temporary and permanent impacts to Feature 3 are provided in Table 2.

5.4.4 Feature 4

Feature 4 drains ephemeral storm water flows from undeveloped open grasslands, roadways, as well as from excess landscape irrigation runoff along Paseo de la Fuente (Figure 3) (Attachment B, photos 5 and 6). The upslope portion of Feature 4 originates as a topographic depression southeast of the intersection of Paseo de la Fuente and Alta Road where It directs flows northwest through a culvert under Alta Road before reappearing and draining into a concrete-lined flood control channel that directs flows west out of the study area. Feature 4 contains an OHWM consisting of primary hydrologic indicators including shelving, sediment and debris deposits, as well as watermarks on culverts. Standing water was present during the survey within the topographic depression southeast of the intersection of Paseo de la Fuente and Alta Road, which appeared to be the result of excess landscape irrigation runoff.

Feature 4 is vegetated with upland non-native grassland, with the exception of the southeast intersection of Paseo de la Fuente and Alta Road, where emergent wetland vegetation is present (Attachment A, data forms 2 and 3). Dominant species within this location include southern cattail (*Typha domingensis*; OBL), arroyo willow (*Salix lasiolepis*; FACW), rabbitfoot grass (*Polypogon monospeliensis*; FACW), and tall umbrella sedge (*Cyperus eragrostis*; FACW).

A soil pit examined within Feature 4 exhibited characteristics indicative of prolonged inundation: chroma of 10 YR 2/2 from 0-14 inches. Although no redoximorphic concentrations or depletions were present and very little accumulated organic material was present, soils contained hydrogen sulfide odor, which is a hydric soil indicator. Soil texture consisted of sandy clay throughout the soil profile, which inhibits or prevents surface water percolation. Nonetheless, USGS soil data indicate that soils within this feature consist of the Diablo Clay series, which is not classified as a hydric soil (USDA-NRCS, 1973) (Figure 4). Localized hydric soil inclusions appear to be the result of recent construction and associated landscape irrigation along Paseo de la Fuente.

In summary, portions of Feature 4 within the study meet the criteria of a USACE-defined wetland. Feature 4 is not classified as a wetland by the NWI (USFWS, 2010). Feature 4 also contains primary hydrological indicators including an OHWM. It is classified as a non-RPW that is part of a tributary system draining to a TNW. Therefore, a significant nexus analysis for Feature 4 is presented below.

Feature 4 Significant Nexus Analysis

Physical attributes. Feature 4 is a first order ephemeral drainage with a total relevant reach length of approximately 1,940 feet, 777 feet of which occur within the study area (Figure 3). Flows are directed west beyond the study area where they are channeled through a concrete-lined flood-control channel before converging with an unnamed blue line drainage that passes through Johnson Canyon into the Otay River. The Otay River directs flows to the west for 11.0 miles before emptying into San Diego Bay, the nearest TNW.

Feature 4 drains a localized, upstream watershed size of approximately 28 acres. The watershed for Feature 4 consists of undeveloped open grasslands and portions of Alta Road and Paseo de la Fuente. Flows within Feature 4 consist of surface storm water runoff, with portions of the feature consisting of saturated soils from landscape runoff.

Because of its relatively long relative reach, its localized watershed drainage area, and annual precipitation within the region (see Section 5.3), storm water flows entering Feature 4 are considered to be moderate volume, but short duration and low frequency. Flows are seasonal, generally occurring between October and May. However, because of land modification that has resulted in vegetation removal and/or ground disturbance, runoff is rapid. In addition, underlying clay soils within Feature 4 contain a water capacity that is relatively low and the majority of flows within the localized watershed are rapidly channeled to downstream tributaries and ultimately the Pacific Ocean.

Chemical attributes. Chemical pollutants within Feature 4 likely consist of roadway pollutants (i.e., oil, grease, fluids, etc.), as well trash, debris, and sediment that may be present as a result of surface water runoff from paved and cleared surfaces associated with upslope development. These chemical pollutants are transferred to the Pacific Ocean as a result of the hydrological connectivity of Feature 4 to the Pacific Ocean. Therefore, the contribution of chemical pollutants from Feature 4 to the receiving water body is considered to have more than a speculative or insubstantial effect on the chemical integrity of the receiving TNW.

Biological attributes. The capacity of Feature 4 to contribute to downstream biological ecosystems is considered to be negligible due to its upland-dominated vegetation. A portion of Feature 4 does contain a small wetland, although the size of the wetland and quantity of vegetation present is considered negligible compared to the vast downstream wetlands within the Otay River. This wetland is also the result of artificial hydrology from landscape irrigation. This wetland is not likely to function as a significant pollution filter or to have more than a negligible source population of wetland species. Therefore, Feature 4 likely does not provide a significant biological or ecological benefit to the downstream TNW.

In summary, it is reasonable to conclude that Feature 4 has a significant nexus with the downstream receiving waters because it likely substantially impacts the physical and chemical integrity of the receiving waters. As a result, Feature 4 is considered to be subject to CWA Section 404 jurisdiction. Total jurisdiction of Feature 4 within the study area, as well as temporary and permanent impacts to Feature 4 are provided in Table 2.

5.4.5 Feature 5

Feature 5 is a modified blueline drainage that drains ephemeral storm water flows from undeveloped portions of the western San Ysidro Mountains, open grasslands, as well as storm water and landscape irrigation runoff from the existing power plant and Paseo de la Fuente (Figure 3) (Attachment B, photos 7 and 8). The upslope portion of Feature 5 originates within undeveloped portions of the San Ysidro Mountains and then enters the northeastern study area, where it has been channelized within a constructed earthen channel upslope of Paseo de la Fuente. Portions of the channel banks within this area have been armored with rock riprap. Two small detention basins are also associated with this portion of Feature 5, each of which has been constructed to collect storm water runoff from cleared, earthen lots. Flows from these detention basins are directed into the main channel of Feature 5, where all flows pass through a culvert infall under Paseo de la Fuente and exit the study area to the south. Feature 5 contains an OHWM consisting of primary hydrologic indicators including shelving, sediment deposits, debris deposits, and watermarks. Several inches of standing water was present during the survey just north of the culvert passing under Paseo de la Fuente.

Throughout much of the upslope portion of the study area, Feature 5 is vegetated with non-native grassland with sporadic upland shrubs. As the feature approaches Paseo de la Fuente, hydrophytic shrubs become more dense within the low flow portion of the channel. Just upslope of Paseo de la Fuente, vegetation becomes dominated by hydrophytes, particularly within close proximity to the culvert infall (Attachment A, data forms 4 and 5). Dominant species in the vicinity of the culvert infall include southern cattail (*Typha domingensis*; OBL), curley dock (*Rumex crispus*; FACW), as well as a few scattered willows (*Salix lasiolepis* [FACW] and *S. exigua* [FACW]) and mule fat (*Baccharis salicifolia*; FACW). Large portions of the low flow channel within Feature 5 have been cleared of tamarisk (*Tamarix ramosissima*; FACW), as evidenced by remaining above-ground trunks that have been sheared. In addition, much of the bank has been planted with ornamental landscape species as a result of development.

A soil pit examined within Feature 5 exhibited characteristics indicative of prolonged inundation: chroma of 10 YR 4/2 from 0-16 inches. Although no redoximorphic concentrations or depletions were present and very little accumulated organic material was present, soils contained hydrogen sulfide odor, which is a hydric soil indicator. Soil texture consisted of sandy clay throughout the soil profile, which inhibits or prevents surface water percolation. Nonetheless, soil types within Feature 5 consist of the Diablo Clay and Huerhuero loam series, neither of which is considered a hydric soil (USDA-NRCS, 1973) (Figure 4).

In summary, portions of Feature 5 near the culvert infall at Paseo de la Fuente meet the criteria of a USACE-defined wetland. Feature 5 is also classified as a freshwater emergent wetland by the NWI (USFWS, 2010). Feature 5 also contains primary hydrological indicators including a well-defined OHWM throughout its length within the study area. It is classified as a non-RPW that is part of a tributary system draining to a TNW. Therefore, a significant nexus analysis for Feature 5 is presented below.

Feature 5 Significant Nexus Analysis

Physical attributes. Feature 5 is a first order ephemeral drainage with a total relevant reach length of approximately 13,950 feet, 1,850 feet of which occur within the study area (Figure 3). It is identified as a blue-line drainage on the Otay Mesa Topographic Quadrangle Map (USGS, 1975). Flows are directed south beyond the study area where they drain 6,462 feet before passing through a culvert into Mexico. Flows appear to then be directed south approximately 1.6 miles through industrial portions of Mexico to the Tijuana River, which then flows west for 8.9 miles

west/northwest before passing back into the U.S. Once past the U.S.-Mexico border, flows are directed northwest for 5.3 miles before emptying into the Pacific Ocean, the nearest TNW.

Feature 5 drains a localized, upstream watershed size of approximately 737 acres. The watershed for Feature 5 consists of undeveloped open grasslands, cleared and developed lots, roadways, a power plant, and undeveloped rugged terrain within the western San Ysidro Mountains. Flows within Feature 5 consist of surface storm water runoff originating within the San Ysidro Mountains, as well as flows originating from excess landscape irrigation on adjacent developments.

Because of its relatively long relative reach, its large localized watershed drainage area, and annual precipitation within the region (see Section 5.3), storm water flows entering Feature 5 are considered to be moderate volume, but short duration and low frequency. Flows are seasonal, generally occurring between October and May. However, because of land modification that has resulted in vegetation removal and/or ground disturbance, runoff is rapid. In addition, underlying clay soils within Feature 5 contain a water capacity that is relatively low and the majority of flows within the localized watershed are rapidly channeled to downstream tributaries and ultimately the Pacific Ocean.

Chemical attributes. Chemical pollutants within Feature 5 likely consist of roadway pollutants (i.e., oil, grease, fluids, etc.), that may be present as a result of surface water runoff from paved and cleared surfaces associated with upslope development, in addition to debris and sediment. These chemical pollutants are transferred to the Pacific Ocean as a result of the hydrological connectivity of Feature 5 to the Pacific Ocean. Therefore, the contribution of chemical pollutants from Feature 5 to the receiving water body is considered to have more than a speculative or insubstantial effect on the chemical integrity of the receiving TNW.

Biological attributes. The capacity of Feature 5 to contribute to downstream biological ecosystems is considered to be significant due to its wetland characteristics and hydrophytic vegetation, dominated in part by invasive tamarisk. Feature 5 likely negatively contributes to downstream ecosystems by functioning as a tamarisk seed propagation source. Feature 5 also contains functions and values for wildlife resources within its hydrophytic vegetation community. As a result, Feature 5 likely has more than a speculative or insubstantial effect on the downstream TNW.

In summary, it is reasonable to conclude that Feature 5 has a significant nexus with the downstream receiving waters because it likely substantially impacts the physical, chemical, and biological integrity of the receiving waters. As a result, Feature 5 is considered to be subject to CWA Section 404 jurisdiction. Total jurisdiction of Feature 5 within the study area, as well as temporary and permanent impacts to Feature 5 are provided in Table 2.

5.4.6 Feature 6

Feature 6 is a modified blueline drainage that drains ephemeral storm water flows from undeveloped portions of the western San Ysidro Mountains, open grasslands, unvegetated developed lots, as well as storm water flows from Alta Road (Figure 3) (Attachment B, photos 9 and 10). The upslope portion of Feature 6 originates within undeveloped portions of the San Ysidro Mountains where flows enter the northern study through a recently-constructed flood-control channel. Feature 6 then drains under Alta Road into a large detention basin where flows are directed west beyond the study area. Once beyond the study area, flows are directed though an unmodified natural blueline drainage that drains through Johnson Valley and into the Otay River. Feature 6 contains an OHWM consisting of primary hydrologic indicators including watermarks, sediment deposits, and debris deposits. It is unvegetated

throughout its entirety within the study area. Soil types within Feature 6 are identified as Diablo Clay series, which is not classified as a hydric soil (USDA-NRCS, 1973) (Figure 4).

In summary, Feature 6 within the study area does not meet the criteria of a USACE-defined wetland. Nonetheless, it is classified as a freshwater emergent wetland by the NWI (USFWS, 2010). However, Feature 6 does contain primary hydrological indicators including a well-defined OHWM and is classified as a non-RPW that is part of a tributary system draining to a TNW. Therefore, a significant nexus analysis for Feature 6 is presented below.

Feature 6 Significant Nexus Analysis

Physical attributes. Feature 6 is a first order ephemeral drainage with a total relevant reach length of approximately 18,846 feet, 1,770 feet of which occur within the study area (Figure 3). It is identified as a blueline drainage on the Otay Mesa Topographic Quadrangle Map (USGS, 1975). Surface storm water runoff is directed through a constructed, earthen and rock riprap flood-control channel and detention basin before draining south/southwest west beyond the study area. Once beyond the study area, flows are directed for 2.9 miles though a natural blue line drainage that drains through Johnson Valley and into the Otay River. The Otay River directs flows to the west for 11.0 miles before emptying into San Diego Bay, the nearest TNW.

Feature 6 drains a localized, upstream watershed size of approximately 1,267 acres. The watershed for Feature 6 consists of undeveloped mountainous terrain within the western San Ysidro Mountains, undeveloped open grasslands, cleared/developed lots, roadways, and a power plant.

Because of its relatively long reach, its large localized watershed drainage area, and annual precipitation within the region (see Section 5.3), storm water flows entering Feature 6 are considered to be high volume, but short duration and low frequency. Flows are seasonal, generally occurring between October and May. However, because of land modification that has resulted in vegetation removal and/or ground disturbance, runoff is rapid. In addition, underlying clay soils within Feature 6 contain a water capacity that is relatively low and the majority of flows within the localized watershed are rapidly channeled to downstream tributaries and ultimately the Pacific Ocean.

Chemical attributes. Chemical pollutants within Feature 6 likely consist of roadway pollutants (i.e., oil, grease, fluids, etc.), as well as debris and sediment that may be present as a result of surface water runoff from paved and cleared surfaces associated with upslope development. These chemical pollutants are transferred to the Pacific Ocean as a result of the hydrological connectivity of Feature 6 to the Pacific Ocean. Therefore, the contribution of chemical pollutants from Feature 6 to the receiving water body is considered to have more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of the receiving TNW.

Biological attributes. The capacity of Feature 6 to contribute to downstream biological ecosystems is considered to be significant due to its unmodified channel characteristics down slope of the study area, which contain substantial stands of invasive tamarisk. Feature 6 likely negatively contributes to downstream ecosystems by functioning as a tamarisk seed propagation source. Feature 6 also contains functions and values for wildlife resources within its hydrophytic vegetation community. As a result, Feature 6 likely has more than a speculative or insubstantial effect on the downstream TNW.

In summary, it is reasonable to conclude that Feature 6 has a significant nexus with the downstream receiving waters because it likely substantially impacts the physical, chemical, and biological integrity of the receiving waters. As a

result, Feature 6 is considered to be subject to CWA Section 404 jurisdiction. Total jurisdiction of Feature 6 within the study area, as well as temporary and permanent impacts to Feature 6 are provided in Table 2.

5.5 DETERMINATION OF RWQCB JURISDICTION SUBJECT TO SECTION 401 OF THE CWA AND PORTER-COLOGNE

RWQCB jurisdiction subject to Section 401 of the CWA applies to any feature that may involve a discharge of waste into WoUS subject to USACE jurisdiction pursuant to Section 404 of the CWA. Accordingly, all of the six unnamed features subject to CWA Section 404 jurisdiction are also subject to CWA Section 401 Water Quality Certification Program (Figure 3). There are no features within the study area subject solely to Porter-Cologne. Total RWQCB jurisdiction subject to CWA Section 401, and impacts to this jurisdiction, is provided in Table 2.

5.6 DETERMINATION OF CDFG JURISDICTION SUBJECT TO SECTION 1600 (ET SEQ.) OF THE CFG CODE

Six unnamed drainage features within the study area contain a well-defined bed, bank, and channel draining ephemeral flows (Figure 3; Attachment B, photos 1-9). Each of the drainage features are either modified natural drainages or artificial drainages that have acquired the attributes of natural stream courses. Each has functions and values to fish and wildlife resources. Detailed descriptions of each of these drainage features are provided in Section 5.4. Because each of the six drainage features within the study area possesses a defined bed, bank, and channel supporting habitat for wildlife and other biological resources, they are subject to CDFG jurisdiction pursuant to Section 1600 (et seq.) of the CFG Code. Total CDFG jurisdiction and impacts within the project footprint are provided in Table 3.

No permanent losses of riparian or non-riparian WoS will occur as a result of the project. Placement of the power plant site avoids temporary and permanent impacts to all jurisdictional features. Linear facilities (i.e., gas pipelines) will be trenched within existing paved and/or dirt roads and will be installed below the bottom contours of features that bisect these roads (i.e., Features 1 and 2). The bottom contours of these features will be restored to original conditions and the linear facilities will be permanently located below the feature. Therefore, only temporary impacts to Features 1 and 2 will occur as a result of linear construction. Transmission line towers will be positioned outside of any CDFG jurisdictional feature and transmission line installation will avoid impacts to jurisdictional features. As a result, no temporary impacts or permanent losses will occur from transmission line construction.

Table 3. Total CDFG Jurisdiction and Temporary Impacts/Permanent Losses

Feature number	Non-riparian CDFG jurisdiction (acres)	Riparian CDFG jurisdiction (acres)	Temporary impacts to non-riparian CDFG jurisdiction (acres)	Temporary impacts to riparian CDFG jurisdiction (acres)	Permanent losses to non-riparian CDFG jurisdiction (acres)	Permanent losses to riparian CDFG jurisdiction (acres)
Feature 1	0.58	0.00	0.05	0.00	0.00	0.00
Feature 2	0.35	0.31	0.02	0.00	0.00	0.00
Feature 3	0.40	0.00	0.00	0.00	0.00	0.00
Feature 4	0.05	0.00	0.00	0.00	0.00	0.00
Feature 5	3.06	0.00	0.00	0.00	0.00	0.00
Feature 6	1.35	0.00	0.00	0.00	0.00	0.00
Total	**5.8**	**0.3**	**0.1**	**0.0**	**0.0**	**0.0**

* Impacts are derived from preliminary engineering design and are subject to change.

6.0 RECOMMENDATIONS

The following compliance implementation guidance is provided as a means of avoiding and minimizing adverse impacts to special aquatic resource areas that occur or have the potential to occur within the project footprint.

1. Prior to undertaking ground-disturbing activities within or immediately adjacent to any aquatic resource areas, Pio Pico Energy Center, LLC should consult with all appropriate responsible resource agencies (e.g., CDFG, USACE, and RWQCB) to verify delineation results and complete all obligatory discretionary permits/authorizations.

2. Develop an informal plan to offset or compensate for impacts to special aquatic resource areas to ensure rapid and favorable action during the discretionary permitting process.

7.0 LITERATURE CITED

California Interagency Watershed Mapping Committee (IWMC). 2004. USGS 100K Quad Sheet. CalWater The Data- CalWater Version 2.2.1. <URL: http://www.ca.nrcs.usda.gov/features/calwater/#Data>

DigitalGlobe. 2009. Digital Aerial Photography Software. 2009. <URL: http://www.digitalglobe.com/ >

Environmental Laboratory (EL). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

Environmental Services Division, CDFG (ESD-CDFG). 1994. A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607, California Fish and Game Code. Sacramento, California. January.

Federal Emergency Management Agency (FEMA). 2000. Q3 Flood data 100-Year flood plain map.

Hickman, J.C. (editor) 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California (California Department of Fish and Game. The Resources Agency. Sacramento, CA.

Lichvar, R.W. and J.S. Wakely. (Eds.). 2004. Review of ordinary high water mark indicators for delineating arid streams in the southwestern United States. ERDC/CRREL TR-04-1. U.S. Army Engineer Research and Development Center (ERDC), Cold Regions Research and Engineering Laboratory (CRREL), Hanover, NH. 127p. <URL: http://www.crrel.usace.army.mil/techpub/CRREL_Reports/reports/ERDC-TR-04-1.pdf

Lichvar, R.W., D.C. Finnegan, M.P. Ericsson, and W. Ochs. 2006. Distribution of Ordinary High Water Mark (OHWM) Indicators and Their Reliability in Identifying the Limits of "Waters of the United States" in Arid Southwestern Channels. ERDC/CRREL Technical Report 06-5. 21p. <URL: http://www.crrel.usace.army.mil/techpub/CRREL_Reports/reports/TR06-5.pdf >

Lichvar, R.W. and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TR-08-12. U.S. Army Engineer Research and Development Center (ERDC), Cold Regions Research and Engineering Laboratory (CRREL), Hanover, NH. 72p. <URL: www.crrel.usace.army.mil/library/.../ERDC-CRREL-TR-08-12.pdf

Munsell Color. 2000. Munsell Soil Color Charts. Gretag Macbeth: New Windsor, New York.

National Weather Service (NWS). 2010. Historical Weather Data. <URL http://www.weather.gov/climate/xmacis.php?wfo=sgx >.

Reed, P.B. 1988. National List of Plant Species that Occur in Wetlands: California (Region 0). US Fish and Wildlife Service Biology Report 88(26.10). 135p.

State Water Resources Control Board (SWRCB). 2001. Effect of *SWANCC V. United States* on the 401 Certification Program. Memorandum January 25, 2001.

State Water Resources Control Board (SWRCB). 2004. Guidance for Regulation of Discharges to "Isolated Waters". Memorandum June 25, 2004.

U.S. Army Corps of Engineers (USACE). 2005. Regulatory Guidance Letter 05-05. Ordinary High Water Mark Identification. 7 December, 2005. 4p.

U.S. Army Corps of Engineers (USACE). 2007a. U.S. Army Corps of Engineers Jurisdictional Determination (JD) Form Instructional Guidebook. 60p. + Appendices A – H.
<URL: http://www.usace.army.mil/cw/cecwo/reg/cwa_guide/jd_guidebook_051207final.pdf

U.S. Army Corps of Engineers (USACE). 2007b. U.S. Army Corps of Engineers Questions and Answers for *Rapanos* and *Carabell* Decision. 21p.
<URL: http://www.usace.army.mil/cw/cecwo/reg/cwa_guide/rapanos_qa_06-05-07.pdf

U.S. Army Corps of Engineers and U.S. Environmental Protection Agency (USACE). 2008a. Memorandum Re: CWA Jurisdiction Following U.S. Supreme Court discussion in *Rapanos v. United States*. 12p.

U.S. Army Corps of Engineers (USACE). 2008b. Interim regional supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). J. S. Wakeley, R.W. Lichvar, and C. V. Noble (Eds.). ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center. <URL: http://www.usace.army.mil/CECW/Documents/cecwo/reg/trel08-28.pdf>

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 1973. Soil Survey of the San Diego Area, California.

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 2007. Soil Survey Geographic (SSURGO) Database. California 638 Soil survey. <URL: http://SoilDataMart.nrcs.usda.gov >

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. G.W. Hurt and L.M. Vasilas (eds.). USDA,NRCS, in cooperation with the National Technical Committee for Hydric Soils. 47p.
<URL: ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v6_0.pdf >

U.S. Department of the Interior, U.S. Fish and Wildlife Service (USFWS). 2010. National Wetlands Inventory-Wetlands and Deepwater Habitats of the Conterminous United States. Vector digital data: CONUS_wet_poly. Division of Habitat and Resource Conservation, Washington, D.C.
<URL: http://wetlandsfws.er.usgs.gov/NWI/download.html >

U.S. Geographic Survey (USGS). 1975. 7.5 minute quadrangle map of Otay Mesa, California.

Wetland Training Institute, Inc. (WTI). 2010. Pocket Guide to Hydric Soil Field Indicators. Based on: Field Indicators of Hydric Soils in the United States v. 7.0.

ATTACHMENT A

USACE Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Pio Pico Energy Center, Otay Mesa | City/County: Chula Vista/San Diego | Sampling Date: 6 Dec 2010

Applicant/Owner: Pio Pico Energy Center, LLC | State: CA | Sampling Point: 1 (Feature 2)

Investigator(s): G. Hoisington | Section, Township, Range: Section 30, T 18 S, R 1 W

Landform (hillslope, terrace, etc.): mesa | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): C | Lat: 507587 m E | Long: 3602873 m N | Datum: UTM 11 S

Soil Map Unit Name: Diablo Clay | NWI classification: Non-wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Feature does not have hydric soil indicators, but does have meet criteria for hydrophytic vegetation and hydrology.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 ft diameter)			
1. *Baccharis salicifolia*	5	yes	FAC
2.			
3.			
4.			
5.			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size: 10 ft diameter)			
1. *Cynodon dactylon*	80	yes	FAC
2. *Bromus japonicus*	15	no	NI
3. *Lactuca serriola*	4	no	FAC
4.			
5.			
6.			
7.			
8.			
50% = 49, 20% = 20	99	= Total Cover	
Woody Vine Stratum (Plot size: 10 ft diameter)			
1. *n/a*			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 1	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: .

Project Site: Pio Pico

SOIL

Sampling Point: 1 (Feature 2)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/3	100	--	--	--	--	sandy clay	
2-5	10YR 4/3	100	--	--	--	--	sandy clay	
5-16	10 YR 4/3	100	--	--	--	--	sandy clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☒ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Pio Pico Energy Center, Otay Mesa | City/County: Chula Vista/San Diego | Sampling Date: 6 Dec 2010

Applicant/Owner: Pio Pico Energy Center, LLC | State: CA | Sampling Point: 2 (Feature 4)

Investigator(s): G. Hoisington | Section, Township, Range: Section 30, T 18 S, R 1 W

Landform (hillslope, terrace, etc.): mesa | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): C | Lat: 507612 m E | Long: 3603716 m N | Datum: UTM 11 S

Soil Map Unit Name: Diablo Clay | NWI classification: Non-wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Paired wetland point with Sample point 3**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 ft diameter)			
1. *Salix lasiolepis*	5	yes	OBL
2.			
3.			
4.			
5.			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size: 10 ft diameter)			
1. *Typha domingensis*	25	yes	OBL
2. *Polypogon monospeliensis*	20	yes	FACW
3. *Cyperus eragrostis*	20	yes	FAC
4. *Conyzia canadensis*	5	no	NI
5. *Lactuca serriola*	5	no	FAC
6. *Lolium multiflorum*	5	no	FACW
7.			
8.			
50% = 40, 20% = 16	80	= Total Cover	
Woody Vine Stratum (Plot size: 10 ft diameter)			
1. *n/a*			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 20	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: .

Project Site: Pio Pico, Otay Mesa

SOIL Sampling Point: 2 (Feature 4)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 2/2	100	--	--	--	--	sandy clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Hydric soils appear to be in early stage of development due to recent construction of the surrounding roads and associated landscape vegetation and irrigation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	6
Water Table Present?	Yes	☐	No	☐	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☐	Depth (inches):	_____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Pio Pico Energy Center, Otay Mesa | City/County: Chula Vista/San Diego | Sampling Date: 6 Dec 2010
Applicant/Owner: Pio Pico Energy Center, LLC | State: CA | Sampling Point: 3 (Feature 4)
Investigator(s): G. Hoisington | Section, Township, Range: Section 30, T 18 S, R 1 W
Landform (hillslope, terrace, etc.): mesa | Local relief (concave, convex, none): concave | Slope (%): 1-2
Subregion (LRR): C | Lat: 507612 m E | Long: 3603718 m N | Datum: UTM 11 S
Soil Map Unit Name: Diablo Clay | NWI classification: Non-wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: **Paired upland point with Sample point 3**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 ft diameter)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10 ft diameter)			
1. *Malva parvifolia*	5	no	NI
2. *Trifolium repens*	10	no	FACU
3. *Salsola tragus*	20	yes	NI
4. *Conyzia canadensis*	15	yes	FAC
5. *Gnaphalium canescens*	15	yes	NI
6. *Baccharis salicifolia*	5	no	FACW
7.			
8.			
50% = 35, 20% = 14	70	= Total Cover	
Woody Vine Stratum (Plot size: 10 ft diameter)			
1. *n/a*			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 30	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	0	x1 =	0
FACW species	1	x2 =	2
FAC species	1	x3 =	3
FACU species	1	x4 =	4
UPL species	3	x5 =	15
Column Totals:	6 (A)		24 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: .

Project Site: Pio Pico, Otay Mesa

SOIL Sampling Point: 3 (Feature 4 up)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/3	100	--	--	--	--	sandy clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No hydric soil indictors present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☐	No	☒	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	_____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland hydrology present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Pio Pico Energy Center, Otay Mesa | City/County: Chula Vista/San Diego | Sampling Date: 6 Dec 2010

Applicant/Owner: Pio Pico Energy Center, LLC | State: CA | Sampling Point: 4 (Feature 5)

Investigator(s): G. Hoisington | Section, Township, Range: Section 30, T 18 S, R 1 W

Landform (hillslope, terrace, etc.): mesa | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): C | Lat: 508063 m E | Long: 3603695 m N | Datum: UTM 11 S

Soil Map Unit Name: Diablo Clay, Huerhuero loam | NWI classification: Non-wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Paired wetland point with Sample point 3**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 ft diameter)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10 ft diameter)			
1. *Typha domingensis*	80	yes	OBL
2. *Rumex crispuss*	10	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 10 ft diameter)			
1. *n/a*			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 30	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: .

Project Site: Pio Pico, Otay Mesa

SOIL Sampling Point: 4 (Feature 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/2	100	--	--	--	--	sandy clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	2
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Pio Pico Energy Center, Otay Mesa | City/County: Chula Vista/San Diego | Sampling Date: 6 Dec 2010

Applicant/Owner: Pio Pico Energy Center, LLC | State: CA | Sampling Point: 5 (Feature 5)

Investigator(s): G. Hoisington | Section, Township, Range: Section 30, T 18 S, R 1 W

Landform (hillslope, terrace, etc.): mesa | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): C | Lat: 508065 m E | Long: 3603691 m N | Datum: UTM 11 S

Soil Map Unit Name: Diablo Clay, Huerhuero loam | NWI classification: Non-wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: **Paired uptland point with Sample point 4**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 ft diameter)			
1. *Artemesia californica*	5	yes	NI
2. *Sonchus oleraceus*	10	yes	NI
3. *Isocoma menzesii*	3	no	NI
4. *Cortaderia selloana*	2	no	NI
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 10 ft diameter)			
1. *Trifolium repens*	60	yes	FACU
2. *Picris ecinoides*	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50% = 35, 20% = 14	70	= Total Cover	
Woody Vine Stratum (Plot size: 10 ft diameter)			
1. *n/a*			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 30	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	1	x3 =	3
FACU species	1	x4 =	4
UPL species	4	x5 =	20
Column Totals:	6 (A)		27 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: .

Project Site: Pio Pico, Otay Mesa

SOIL Sampling Point: 5 (Feature 5 up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 4/4	100	--	--	--	--	sandy clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☐	No	☒	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	_____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

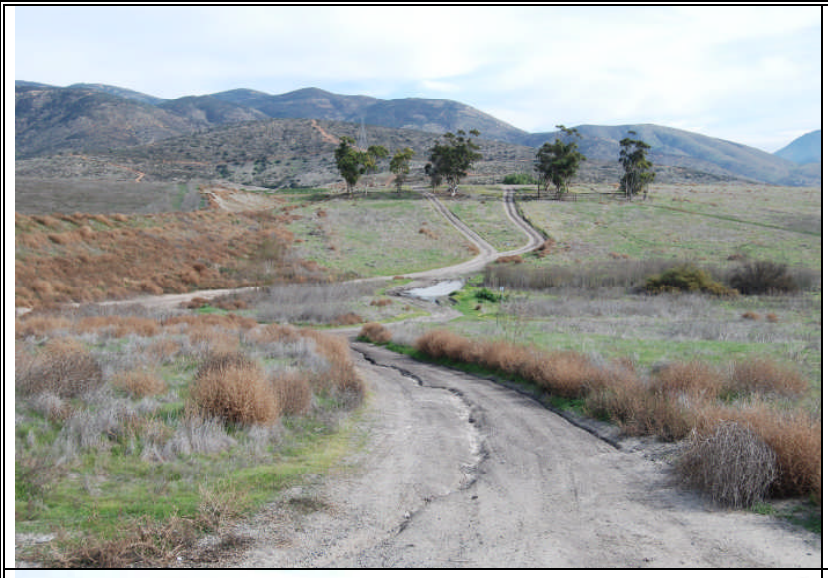
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

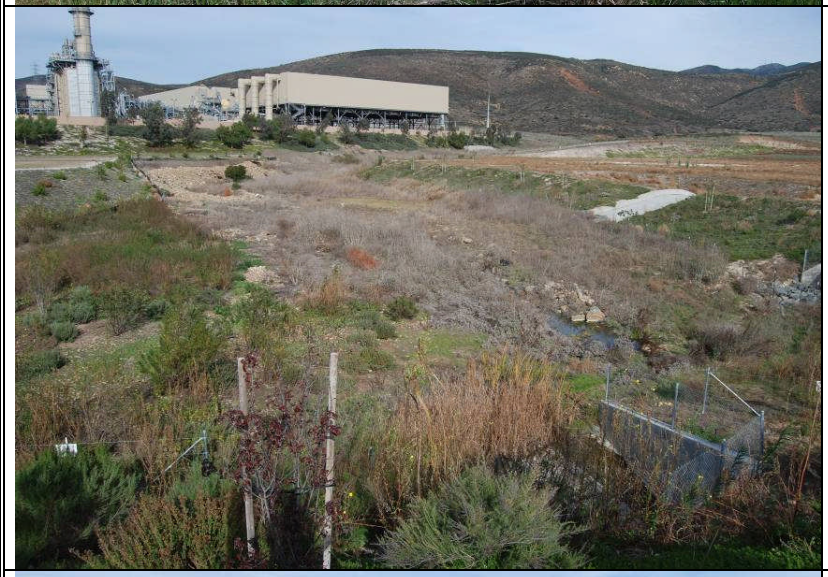
Remarks:

ATTACHMENT B

Photograph Log

	Feature ID: Feature 1 (photo 1) **Photo Date:** 6 December 2010 **Direction:** South **Comment:** Unvegetated portion of Feature 1 as it crosses Alta Road.
	Feature ID: Feature 2 (photo 2) **Photo Date:** 6 December 2010 **Direction:** Southeast **Comment:** Upslope origin of Feature 2 facing towards Alta Road.
	Feature ID: Feature 2 (photo 3) **Photo Date:** 6 December 2010 **Direction:** South **Comment:** Feature 2 as it crosses Alta Road.

	**Feature ID:** Feature 3 (photo 4) **Photo Date:** 6 December 2010 **Direction:** East **Comment:** Feature 3 from Alta Road.
	Feature ID: Feature 4 (photo 5) **Photo Date:** 6 December 2010 **Direction:** Southeast **Comment:** Feature 4 wetland at the southeast corner of the intersection of Alta Road and Paseo De La Fuente Road.
	Feature ID: Feature 4 (photo 6) **Photo Date:** 6 December 2010 **Direction:** West **Comment:** Feature 4 flood-control channel west of Alta Road.

	Feature ID: Feature 5 (photo 7) **Photo Date:** 6 December 2010 **Direction:** Northeast **Comment:** Feature 5 facing upslope from the edge of the study area.
	**Feature ID:** Feature 5 (photo 8) **Photo Date:** 6 December 2010 **Direction:** Northeast **Comment:** Feature 5 facing upslope from Paseo De La Fuente Road.
	Feature ID: Feature 6 (photo 9) **Photo Date:** 6 December 2010 **Direction:** East **Comment:** Feature 6 facing upslope (east) from Alta Road.

Feature ID: Feature 6 (photo 10)

Photo Date: 6 December 2010

Direction: West

Comment: Feature 6 facing downslope (west) from Alta Road.

APPENDIX J-3
CNDDB

Adolphia californica

California adolphia

Element Code: PDRHA01010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPARRAL, COASTAL SAGE SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: FROM SANDY/GRAVELLY TO CLAY SOILS WITHIN GRASSLAND, COASTAL SAGE SCRUB, OR CHAPARRAL; VARIOUS EXPOSURES. 15-300M.

Occurrence No. 1 **Map Index:** 17691 **EO Index:** 14268

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1992-09-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58486º / -116.96113º
UTM: Zone-11 N3605266 E503648
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 6.4 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** SW
Meridian: S
Elevation: 400 ft

Location: OTAY RIVER VALLEY, NEAR MOUTH OF JOHNSON CYN. 0.35-0.5 MI N OF LA MEDIA RD AT POINT WHERE IT HEADS E AT 90 DEGREE ANGLE.
Location Detail:

Ecological: NORTH-FACING SLOPES. MAP BY SCHEID (1989) SHOWS PLANTS OCCURRING NEAR ERYNGIUM ARISTULATUM PARISHII.

Threat: DEVELOPMENT PLANNED FOR THIS AREA.

General: MAPS ARE ONLY SOURCES OF INFORMATION FOR THIS SITE.

Owner/Manager: UNKNOWN

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Aimophila ruficeps canescens

southern California rufous-crowned sparrow

Element Code: ABPBX91091

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T2T4
State: S2S3

Other Lists

CDFG Status:

Habitat Associations

General: RESIDENT IN SOUTHERN CALIFORNIA COASTAL SAGE SCRUB AND SPARSE MIXED CHAPARRAL.
Micro: FREQUENTS RELATIVELY STEEP, OFTEN ROCKY HILLSIDES WITH GRASS & FORB PATCHES.

Occurrence No. 50 **Map Index:** 49572 **EO Index:** 49572

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61677º / -116.94248º
UTM: Zone-11 N3608805 E505396
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 12 **Qtr:** XX
Meridian: S
Elevation: 380 ft

Location: JUST WEST OF SALT CREEK, SE OF CHULA VISTA.

Location Detail: ~ 300 FEET EAST OF UNIMPROVED ROAD, APPROXIMATELY 1.95 MILES SOUTH OF OTAY LAKES ROAD

Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.

Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.

General: UNKNOWN NUMBER OBSERVED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Aimophila ruficeps canescens

southern California rufous-crowned sparrow **Element Code:** ABPBX91091

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T2T4	**CDFG Status:**
State: None	**State:** S2S3	

Habitat Associations

General: RESIDENT IN SOUTHERN CALIFORNIA COASTAL SAGE SCRUB AND SPARSE MIXED CHAPARRAL.

Micro: FREQUENTS RELATIVELY STEEP, OFTEN ROCKY HILLSIDES WITH GRASS & FORB PATCHES.

Occurrence No. 78 **Map Index:** 51264 **EO Index:** 51264

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-04-XX
Site: 2002-04-XX

Record Last Updated: 2003-05-13

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61307º / -116.99430º
UTM: Zone-11 N3608393 E500534
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: 09 **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: SOUTH OF POGGI CANYON, EXTENDING SOUTH ALONG WEST SIDE OF WOLF CANYON; EAST OF CHULA VISTA
Location Detail:

Ecological: HABITAT ON PROJECT SITE CONSISTS PRIMARILY OF ANNUAL GRASSLANDS AND AGRICULTURAL FIELDS, BUT SIGNIFICANT PORTIONS DO SUPPORT COASTAL SAGE SCRUB. SMALL PORTIONS OF PROPERTY CONTAIN NATIVE GRASSLAND AND MARITIME SUCCULENT SCRUB.

Threat: THREAT CONSISTS OF DEVELOPMENT

General: UNKNOWN NUMBER DETECTED BETWEEN 29 MAR AND 19 APR 2002 DURING CALIFORNIA GNATCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

DUD02U0004 DUDEK & ASSOCIATES, INC. CALIFORNIA GNATCATCHER SURVEY FOR THE OTAY RANCH VILLAGE 2 PROJECT, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2002-05-30.

Aimophila ruficeps canescens

southern California rufous-crowned sparrow **Element Code:** ABPBX91091

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T2T4
State: S2S3

Other Lists

CDFG Status:

Habitat Associations

General: RESIDENT IN SOUTHERN CALIFORNIA COASTAL SAGE SCRUB AND SPARSE MIXED CHAPARRAL.
Micro: FREQUENTS RELATIVELY STEEP, OFTEN ROCKY HILLSIDES WITH GRASS & FORB PATCHES.

Occurrence No. 162 **Map Index:** 55967 **EO Index:** 55983

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2002-01-25
Site: 2002-01-25

Record Last Updated: 2004-07-01

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57412º / -116.90897º
UTM: Zone-11 N3604079 E508543
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/10 mile

Township: 18S
Range: 01E
Section: 29 **Qtr:** W
Meridian: S
Elevation: 700 ft

Location: SOUTH OF O'NEAL CANYON AND 0.6 MILES SE OF KUEBLER RANCH, EASTERN EDGE OF OTAY MESA.
Location Detail: NW 1/4 OF SW 1/4 SECTION 29
Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSLAND. SURROUNDING LAND: HISTORIC AGRICULTURAL LAND, OPEN SPACE, OTAY MESA GENERATING PLANT. DISTURBANCE: OFF-HIGHWAY VEHICLES.
Threat:
General: 1 ADULT OBSERVED ON 25 JAN 2002.
Owner/Manager: UNKNOWN

Sources

EDW02F0005 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR AIMOPHILA RUFICEPS CANESCENS. 2002-01-25.

Aimophila ruficeps canescens

southern California rufous-crowned sparrow **Element Code:** ABPBX91091

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T2T4
State: S2S3

Other Lists

CDFG Status:

Habitat Associations

General: RESIDENT IN SOUTHERN CALIFORNIA COASTAL SAGE SCRUB AND SPARSE MIXED CHAPARRAL.
Micro: FREQUENTS RELATIVELY STEEP, OFTEN ROCKY HILLSIDES WITH GRASS & FORB PATCHES.

Occurrence No. 165 **Map Index:** 56369 **EO Index:** 56385

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 200X-XX-XX
Site: 200X-XX-XX

Record Last Updated: 2004-08-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56410º / -116.90648º
UTM: Zone-11 N3602968 E508778
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/10 mile

Township: 18S
Range: 01E
Section: 32 **Qtr:** NW
Meridian: S
Elevation: 640 ft

Location: HILLSIDE BETWEEN 2 UNNAMED TRIBUTARIES, 1.3 MILES SSE OF KUEBLER RANCH, OTAY MESA.
Location Detail:
Ecological:
Threat:
General: UNKNOWN NUMBER OBSERVED DURING EITHER 2000 OR 2001.
Owner/Manager: UNKNOWN

Sources

HEL01M0001 HELIX ENVIRONMENTAL PLANNING, INC. MAP OF SR-11 POTENTIAL JURISDICTIONAL AREAS & SENSITIVE SPECIES. LOCATIONS FOR FAIRY SHRIMP & OTHER TRACKED SPECIES ON MAP. 2001-05-09.

Ambrosia chenopodiifolia

San Diego bur-sage

Element Code: PDAST0C080

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.1

Other Lists

CNPS List: 2.1

Habitat Associations

General: COASTAL SCRUB, MOSTLY ASSOCIATED WITH MARITIME SUCCULENT SCRUB.
Micro: SLOPES OF CANYONS IN OPEN SUCCULENT SCRUB USUALLY WITH LITTLE HERBACEOUS COVER. 55-150M.

Occurrence No. 6 **Map Index:** 17737 **EO Index:** 10174

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-12-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58317º / -116.95031º
UTM: Zone-11 N3605080 E504663
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 23 **Qtr:** SE
Meridian: S
Elevation: 450 ft

Location: JOHNSON CANYON, S SIDE OF THE OTAY RIVER VALLEY.
Location Detail:
Ecological: UPPER SLOPE OF ONE OF THE FINGERS OF JOHNSON CANYON.
Threat: DEVELOPMENT.
General: ONE POPULATION SEEN IN 1990.
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ambrosia monogyra

singlewhorl burrobrush

Element Code: PDAST50010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S2.2

Other Lists

CNPS List: 2.2

Habitat Associations

General: CHAPARRAL, SONORAN DESERT SCRUB.
Micro: SANDY SOILS. 10-500M.

Occurrence No. 5 **Map Index:** 69202 **EO Index:** 69980

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2005-04-06
Site: 2005-04-06

Record Last Updated: 2007-06-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59941º / -116.93643º
UTM: Zone-11 N3606880 E505964
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: 13 **Qtr:** XX
Meridian: S
Elevation: 280 ft

Location: OTAY RIVER, EAST OF THE JUNCTION WITH O'NEAL CANYON, SAN YSIDRO MOUNTAINS.

Location Detail: EXACT LOCATION UNKNOWN; MAPPED BY CNDDB ALONG THE OTAY RIVER EAST OF O'NEAL CANYON.

Ecological: COASTAL SAGE SCRUB AND RIPARIAN SCRUB/WOODLAND. AMONG POOLS OF MOSQUITO FERN.

Threat:

General: COLLECTED HERE BY ELVIN IN 2005. PLANTS OCCASIONAL ON RIVER EDGE AND ON BENCHES; PLANTS TO 1.8M TALL AND 2 METERS WIDE. 35-40 PLANTS OBSERVED BY SILVERMAN AT UNKNOWN DATE. 1935 COLLECTION BY HOWE FROM OTAY VALLEY ATTRIBUTED TO THIS SITE.

Owner/Manager: UNKNOWN

Sources

ELV05S0005 ELVIN, M. ELVIN #4178 UCR #154863. 2005-04-06.

HOW35S0005 HOWE, D. HOWE #303 SD #113174. 1935-10-27.

SIL06U0001 SILVERMAN, D. EMAIL TO K. LAZAR REGARDING AMBROSIA MONOGYRA AS A NEW ADDITION. 2006-12-15.

Aspidoscelis hyperythra

orangethroat whiptail

Element Code: ARACJ02060

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: INHABITS LOW-ELEVATION COASTAL SCRUB, CHAPARRAL, AND VALLEY-FOOTHILL HARDWOOD HABITATS.

Micro: PREFERS WASHES & OTHER SANDY AREAS WITH PATCHES OF BRUSH & ROCKS. PERENNIAL PLANTS NECESSARY FOR ITS MAJOR FOOD-TERMITES

Occurrence No. 200 **Map Index:** 21656 **EO Index:** 9210

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 1992-09-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62054º / -116.93836º
UTM: Zone-11 N3609223 E505782
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY RANCH, BETWEEN SALT CREEK AND LOWER OTAY RESERVOIR.
Location Detail:
Ecological: NEARLY PRISTINE DIEGAN COASTAL SAGE SCRUB.
Threat: PROPOSED DEVELOPMENT INCLUDING A UNIVERSITY AND A MAJOR ROAD ACROSS SALT CREEK.
General: DATE OF OBSERVATION UNKNOWN; TAKEN FROM ASI RESOURCE MAPS, 1988.
Owner/Manager: PVT-OTAY RANCH

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Aspidoscelis hyperythra

orangethroat whiptail

Element Code: ARACJ02060

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: INHABITS LOW-ELEVATION COASTAL SCRUB, CHAPARRAL, AND VALLEY-FOOTHILL HARDWOOD HABITATS.

Micro: PREFERS WASHES & OTHER SANDY AREAS WITH PATCHES OF BRUSH & ROCKS. PERENNIAL PLANTS NECESSARY FOR ITS MAJOR FOOD-TERMITES

Occurrence No. 202 **Map Index:** 21651 **EO Index:** 8486

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 1992-09-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60136º / -116.99189º
UTM: Zone-11 N3607095 E500761
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: WOLF CANYON, NORTH OF OTAY VALLEY AND WEST OF LOWER OTAY RESERVOIR, OTAY RANCH.

Location Detail:

Ecological: COASTAL SAGE SCRUB WITH DENSE PATCHES OF CHOLLA ON SOUTH-FACING SLOPES. HABITAT SERIOUSLY DEGRADED BY ORV USE AND GRAZING.

Threat: DEVELOPMENT, ORV'S AND GRAZING.

General: OBSERVATION DATE UNKNOWN; TAKEN FROM THE 1988 ASI RESOURCE MAPS. CALIFORNIA GNATCATCHERS AND CACTUS WRENS ALSO FOUND HERE.

Owner/Manager: PVT-OTAY RANCH

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Aspidoscelis tigris stejnegeri

coastal whiptail

Element Code: ARACJ02143

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3T4
State: S2S3

Other Lists

CDFG Status:

Habitat Associations

General: FOUND IN DESERTS & SEMIARID AREAS WITH SPARSE VEGETATION AND OPEN AREAS. ALSO FOUND IN WOODLAND & RIPARIAN AREAS.

Micro: GROUND MAY BE FIRM SOIL, SANDY, OR ROCKY.

Occurrence No. 77 **Map Index:** 56372 **EO Index:** 56388

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 200X-XX-XX
Site: 200X-XX-XX

Record Last Updated: 2004-08-16

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55401º / -116.90581º
UTM: Zone-11 N3601850 E508842
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 32 **Qtr:** SW
Meridian: S
Elevation: 500 ft

Location: 2 MILES SSE OF KUEBLER RANCH, JUST WEST OF UNNAMED TRIBUTARY, OTAY MESA.
Location Detail:
Ecological:
Threat:
General: UNKNOWN NUMBER OBSERVED DURING EITHER 2000 OR 2001.
Owner/Manager: UNKNOWN

Sources

HEL01M0001 HELIX ENVIRONMENTAL PLANNING, INC. MAP OF SR-11 POTENTIAL JURISDICTIONAL AREAS & SENSITIVE SPECIES. LOCATIONS FOR FAIRY SHRIMP & OTHER TRACKED SPECIES ON MAP. 2001-05-09.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 297 **Map Index:** 40046 **EO Index:** 35048

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1993-07-26
Site: 1993-07-26

Record Last Updated: 1998-10-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55094º / -116.93799º
UTM: Zone-11 N3601507 E505822
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 20.5 acres

Township: 19S
Range: 01W
Section: 01 **Qtr:** NW
Meridian: S
Elevation: 510 ft

Location: ALONG THE MEXICAN BORDER, ON OTAY MESA, 4 MILES SOUTH OF LOWER OTAY RESERVOIR

Location Detail: TWO BURROWS, ONE LOCATED 50 FEET FROM THE BORDER FENCE AND 200 YARDS EAST OF THE OTAY CROSSING ON A SOUTH-FACING EMBANKMENT, AND THE SECOND LOCATED 250-300 YARDS EAST UNDER A SMALL CEMENT SLAB, NEAR SOME BUILDINGS.

Ecological: HABITAT CONSISTS OF A WEEDY VACANT LOT, WITH MANY GROUND-DWELLING SQUIRRELS, COTTONTAILS, AND JACKRABBITS ON-SITE.

Threat: THREATENED BY EXTENSION OF THE OTAY MESA BORDER CROSSING FACILITY. CALTRANS MAY PROVIDE ARTIFICIAL BURROWS NEARBY.

General: TWO BURROWS, CONTAINING AT LEAST 8 BIRDS TOTAL, OBSERVED ON 26 JUL 1993.

Owner/Manager: CALTRANS

Sources

HOW93F0009 HOWE, M. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 1993-07-26.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 508 **Map Index:** 49053 **EO Index:** 49053

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-08-02
Site: 2002-08-02

Record Last Updated: 2002-10-16

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55295º / -116.91498º
UTM: Zone-11 N3601732 E507982
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 14.4 acres

Township: 18S
Range: 01E
Section: 31 **Qtr:** SE
Meridian: S
Elevation: 500 ft

Location: ~1 MILE SOUTH OF THE INTERSECTION OF OTAY MOUNTAIN ROAD AND ALTA ROAD, JUST NORTH OF THE MEXICAN BORDER
Location Detail:

Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSLAND AND DISTURBED COASTAL SAGE SCRUB; SURROUNDED BY HISTORICAL AGRICULTURAL LAND, OPEN SPACE, AND OTAY MESA GENERATING PLANT.

Threat: THREATENED BY ORV ACTIVITY.

General: 3 ADULTS AND 2 JUVENILES OBSERVED AT THE BURROW ON 2 AUG 2002.

Owner/Manager: UNKNOWN

Sources

EDW02F0001 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2002-08-02.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 509 **Map Index:** 49057 **EO Index:** 49057

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-03-10
Site: 2004-03-10

Record Last Updated: 2004-05-17

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55345º / -116.90800º
UTM: Zone-11 N3601788 E508637
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 15.8 acres

Township: 18S
Range: 01E
Section: 32 **Qtr:** SW
Meridian: S
Elevation: 480 ft

Location: ~1.2 MILES SSE OF THE INTERSECTION OF OTAY MOUNTAIN ROAD AND ALTA ROAD, JUST NORTH OF THE MEXICAN BORDER

Location Detail: OWLS AND THEIR BURROWS ARE LOCATED ADJACENT TO ACCESS ROAD, WITHIN 500' OF THE MEXICAN BORDER.

Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSLAND AND DISTURBED COASTAL SAGE SCRUB; SURROUNDED BY HISTORICAL AGRICULTURAL LAND, OPEN SPACE, AND OTAY MESA GENERATING PLANT.

Threat: THREATENED BY HEAVY ORV ACTIVITY.

General: 2 ADULTS AND 1 JUVENILE OBSERVED AT THE BURROW ON 2 AUG 2002. 2 ADULTS OBSERVED AT BURROWS ON 10 MAR 2004.

Owner/Manager: UNKNOWN

Sources

EDW02F0002 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2002-08-02.

REY04F0001 REYNOLDS, K. (ESSEX ENVIRONMENTAL). FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2004-03-10.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 510 **Map Index:** 49058 **EO Index:** 49058

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-08-02
Site: 2002-08-02

Record Last Updated: 2002-10-16

Quad Summary: Otay Mesa (3211658/010C)
County Summary: Mexico, San Diego

Lat/Long: 32.55479º / -116.89293º
UTM: Zone-11 N3601937 E510052
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 32 **Qtr:** SE
Meridian: S
Elevation: 600 ft

Location: ~1.8 MILES SE OF THE INTERSECTION OF OTAY MOUNTAIN ROAD AND ALTA ROAD, JUST NORTH OF THE MEXICAN BORDER
Location Detail:

Ecological: HABITAT CONSISTS OF DISTURBED DIEGAN COASTAL SAGE SCRUB; SURROUNDED BY HISTORICAL AGRICULTURAL LAND, OPEN SPACE, AND OTAY MESA GENERATING PLANT.

Threat: THREATENED BY ORV ACTIVITY.

General: 4 ADULTS OBSERVED AT THE BURROW ON 2 AUG 2002.

Owner/Manager: UNKNOWN

Sources

EDW02F0003 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2002-08-02.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 767 **Map Index:** 63779 **EO Index:** 63874

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2005-04-15
Site: 2005-04-15

Record Last Updated: 2006-01-26

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56750º / -116.98722º
UTM: Zone-11 N3603342 E501199
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 33 **Qtr:** NE
Meridian: S
Elevation: 510 ft

Location: 0.1 MILE SE OF THE INTERSECTION OF OTAY MESA ROAD AND CACTUS ROAD, OTAY MESA, IN SAN DIEGO

Location Detail: VEGETATED AREAS IN THE VICINITY OF THIS BURROW SITE HAVE BEEN HEAVILY DISTURBED IN THE PAST, AND NO LONGER SUPPORT NATIVE HABITATS.

Ecological: BURROW IS LOCATED WITHIN FILL & DEBRIS PILE; SURROUNDING AREA CONSISTS OF DISTURBED UPLAND WITH FEW NATIVE PLANT SPECIES. ABANDONED AGRICULTURAL AREAS OCCUR EAST OF THE SITE; DEVELOPED AREAS OCCUR TO THE NORTH, WEST, & SOUTH OF THE SITE.

Threat: THREATENED BY PROPOSED DEVELOPMENT.

General: 2 ADULT AND 2 JUVENILES OBSERVED AT THE BURROW SITE ON 15 APR 2005.

Owner/Manager: UNKNOWN

Sources

ALF05F0002 ALFARO, E. (TIERRA ENVIRONMENTAL SERVICES). FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2005-04-15.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 958 **Map Index:** 69429 **EO Index:** 70205

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2003-05-01
Site: 2003-05-01

Record Last Updated: 2007-07-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59945º / -116.97222º
UTM: Zone-11 N3606883 E502606
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 15 **Qtr:** SW
Meridian: S
Elevation: 426 ft

Location: CORONADO WYE, 0.6 MILE ENE OF ROCK MOUNTAIN, OTAY MESA.

Location Detail:

Ecological: BURROW SITE FOUND IN A STEEP, CUT BANK ALONG A DIRT ROAD; SURROUNDED BY HIGHLY-DISTURBED NON-NATIVE GRASSLAND THAT IS PERIODICALLY DISCED. DOMINANT PLANTS INCLUDE LOIUM MULTIFLORUM, BROMUS SPP, SALSOLA TRAGUS, AND HIRSCHFELDIA INCANA.

Threat: THREATENED BY DESTRUCTION OF THE ROAD CUT THAT CURRENTLY SUPPORTS SEVERAL BURROWS AND DEVELOPMENT.

General: 1 OWL AND SEVERAL BURROWS OBSERVED OM 1 MAY 2003. PESTICIDE SPRAYING AND DISKING ALSO OCCUR HERE.

Owner/Manager: PVT

Sources

ROC03F0003 ROCKS, J. (ROCKS BIOLOGICAL CONSULTING). FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2003-05-01.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 959 **Map Index:** 69431 **EO Index:** 70207

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-06-11
Site: 2003-06-11

Record Last Updated: 2007-07-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59277º / -116.96611º
UTM: Zone-11 N3606144 E503180
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 22 **Qtr:** NE
Meridian: S
Elevation: 216 ft

Location: 0.4 MILE WEST OF THE JOHNSON CANYON CREEK CONFLUENCE, 0.6 MILE SE OF CORONADO WYE, OTAY VALLEY.

Location Detail: BURROW PRESUMED TO BE FOUND IN THE SOFT SOILS ALONG THE RIVER BANKS OF A TERRACE OF THE OTAY RIVER VALLEY.

Ecological: HABITAT CONSISTS OF A MIX OF RIPARIAN AND COASTAL SAGE SCRUB SPECIES: ERIOGONUM FASCICULATUM, BACCHARIS PILULARIS, BACCHARIS SALICIFOLIA, AND SALIX SPP, AS WELL AS NON-NATIVES, SUCH AS BROMUS SP, SALSOLA TRAGUS, AND HIRSCHFELDIA INCANA.

Threat: THREATENED BY DISTURBANCE AND URBANIZATION ON OTAY MESA TO THE IMMEDIATE SOUTH. ALSO, DISKING AND CLEARING.

General: 1 ADULT OWL OBSERVED ON 11 JUN 2003.

Owner/Manager: PVT

Sources

ROC03F0004 ROCKS, J. (ROCKS BIOLOGICAL CONSULTING). FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2003-06-11.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1108 **Map Index:** 71469 **EO Index:** 72367

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2006-08-14
Site: 2006-08-14

Record Last Updated: 2008-06-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56707º / -116.94678º
UTM: Zone-11 N3603296 E504994
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 35 **Qtr:** XX
Meridian: S
Elevation: 540 ft

Location: JUST SW OF THE INTERSECTION OF OTAY MESA RD & HARVEST RD, OTAY MESA.

Location Detail: MAPPED ACCORDING TO LOCATION PROVIDED ON MAP.

Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSES.

Threat: THREATENED BY DEVELOPMENT.

General: SD-BUO-015. 1 ADULT OBSERVED AT A BURROW. BURROW IN PATH OF HWY 125 DETOUR ROUTE. WILL BE DESTROYED.

Owner/Manager: UNKNOWN

Sources

THO06F0018 THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-08-14.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1109 **Map Index:** 71471 **EO Index:** 72369

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen

Element: 2006-08-14
Site: 2006-08-14

Record Last Updated: 2008-06-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56927º / -116.94930º
UTM: Zone-11 N3603539 E504758
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 26 **Qtr:** XX
Meridian: S
Elevation: 540 ft

Location: JUST NW OF THE INTERSECTION OF OTAY MESA RD & HARVEST RD, OTAY MESA.

Location Detail: MAPPED ACCORDING TO LOCATION PROVIDED ON MAP.

Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSES.

Threat: THREATENED BY DEVELOPMENT.

General: SD-BUO-016. 2 ADULTS AND 4 UN-HATCHED EGGS WERE OBSERVED AT A BURROW. BURROW WAS IN PATH OF HWY 125 EXTENSION. BURROW HAS BEEN DESTROYED, TERRITORY EXTRIPATED.

Owner/Manager: UNKNOWN

Sources

THO06F0034 THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-08-14.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1110 **Map Index:** 71472 **EO Index:** 72370

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen
Element: 2006-06-23
Site: 2006-06-23

Record Last Updated: 2008-06-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56529º / -116.92290º
UTM: Zone-11 N3603099 E507237
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 31 **Qtr:** XX
Meridian: S
Elevation: 620 ft

Location: JUST SE OF THE INTERSECTION OF OTAY MESA RD & ENRICO FERMI DR, OTAY MESA.

Location Detail: MAPPED ACCORDING TO LOCATIONS PROVIDED ON MAP.

Ecological: HABITAT CONSISTED OF NON-NATIVE GRASSLAND WITH ABUNDANT GROUND SQUIRREL BURROWS.

Threat: THREATENED BY DEVELOPMENT.

General: SD-BUO-002-006 & 013. 12 ADULTS AND 2 FLEDGLINGS WERE OBSERVED AT 6 BURROW SITES ON 31 MAR, 3 APR AND 23 JUN 2006. TERRITORIES EXTRIPATED, GRADED FOR DEVELOPMENT.

Owner/Manager: UNKNOWN

Sources

THO06F0020	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-XX-XX.
THO06F0027	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-04-03.
THO06F0028	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-04-03.
THO06F0029	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-04-03.
THO06F0030	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-03-31.
THO06F0031	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-03-31.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1111 **Map Index:** 71473 **EO Index:** 72372

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen

Element: 2006-03-23
Site: 2006-03-23

Record Last Updated: 2008-06-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56066º / -116.92745º
UTM: Zone-11 N3602586 E506810
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 31 **Qtr:** XX
Meridian: S
Elevation: 580 ft

Location: JUST NNEOF THE INTERSECTION OF AIRWAY RD & ENRICO FERMI DR, OTAY MESA.

Location Detail: MAPPED ACCORDING TO LOCATION PROVIDED ON MAP.

Ecological: FREQUENTLY DISKED NON-NATIVE GRASSES WITH ABUNDANT GROUND SUIRREL HOLES AVAILABLE. INDUSTRIAL TO THE SOUTH & WEST, MOSTLY OPEN GRASSLANDS TO THE NORTH & NORTHEAST.

Threat: THREATENED BY DISCING.

General: SD-BUO-001. 2 ADULTS OBSERVED AT BURROW SITE ON 23 MAR 2006. TERRITORY EXTRIPATED, MUCH OF THE PROPERTY HAS BEEN GRADED.

Owner/Manager: UNKNOWN

Sources

THO06F0032 THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-03-23.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1112 **Map Index:** 71474 **EO Index:** 72373

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2006-06-XX
Site: 2006-06-XX

Record Last Updated: 2008-06-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56022º / -116.91755º
UTM: Zone-11 N3602538 E507739
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 31 **Qtr:** XX
Meridian: S
Elevation: 540 ft

Location: 0.50 MI SSEOF THE INTERSECTION OF OTAY MESA RD & ALTA RD, OTAY MESA.

Location Detail: MAPPED ACCORDING TO LOCATION PROVIDED ON MAP.

Ecological: HABITAT CONSITS OF NON-NATIVE GRASSES. MILITARY PARACHUTE LANDING SITE AND RECREATIONAL MODEL AIRPLANE FIELD.

Threat:

General: SD-BUO-007. 2 ADULTS & 3 FLEDGLINGS OBSERVED AT BURROW SITE IN JUN 2006.

Owner/Manager: UNKNOWN

Sources

THO06F0026 THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-06-XX.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1113 **Map Index:** 71475 **EO Index:** 72374

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2009-08-07
Site: 2009-08-07

Record Last Updated: 2010-08-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56514º / -116.91949º
UTM: Zone-11 N3603083 E507556
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 31 **Qtr:** NW
Meridian: S
Elevation: 620 ft

Location: JUST SW OF THE INTERSECTION OF OTAY MESA RD & ALTA RD, OTAY MESA.

Location Detail: SITE ID: SD-BUO-008-012. MAPPED TO LOCATIONS MARKED ON MAP.

Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSES. BURROWS ON MANUFACTURED SLOPE. SLOPE COMPOSED OF CARPOBROTUS AND SEVERAL LARGE SHRUBS. SOME BURROWS IN THE VICINITY WERE CAVED-IN IN 2009. WHITE-TAILED KITE & LOGGERHEAD SHRIKE OBSERVED IN VIC.

Threat: THREATENED BY DEVELOPMENT.

General: 8 ADULT & 5 FLEDGLINGS OBSERVED AT 4 BURROWS IN MAY & JUN 2006; 1 ADULT FOUND DEAD IN RECENTLY ACTIVE BURROW ENTRANCE, MAY. 2 ADULTS OBS ON SLOPE JUST W OF ROAD ON 7 AUG 2009, 1 FLUSHED & ACTIVELY SCOLDED FROM SNAG; SEVERAL BURROWS VISIBLE.

Owner/Manager: UNKNOWN

Sources

CLA09F0014	CLARK, K. (CLARK BIOLOGICAL SERVICES). FIELD SURVEY FORM FOR ATHENE CUNICULARIA. 2009-08-07.
THO06F0021	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-05-11.
THO06F0022	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-06-XX.
THO06F0023	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-05-XX.
THO06F0024	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-06-XX.
THO06F0025	THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-05-XX.

Athene cunicularia

burrowing owl **Element Code:** ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1114 **Map Index:** 71476 **EO Index:** 72375

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen

Element: 2006-XX-XX
Site: 2006-XX-XX

Record Last Updated: 2008-06-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55499º / -116.93664º
UTM: Zone-11 N3601957 E505947
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 36 **Qtr:** XX
Meridian: S
Elevation: 540 ft

Location: JUST NW OF THE INTERSECTION OF PASEO DE LAS AMERICAS & MARCONI DR, OTAY MESA.

Location Detail: MAPPED ACCORDING TO LOCATION PROVIDED ON MAP.

Ecological:

Threat:

General: SD-BUO-014. 2 ADULTS OBSERVED AT BURROW IN 2006. TERRITORY WIL BE DESTROYED THIS WINTER, IT WILL BE EXTIRPATED.

Owner/Manager: PVT

Sources

THO06F0019 THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-XX-XX.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1115 **Map Index:** 71477 **EO Index:** 72376

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2006-06-XX
Site: 2006-06-XX

Record Last Updated: 2008-06-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57144º / -116.96284º
UTM: Zone-11 N3603779 E503487
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 27 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: W SIDE OF LA MEDIA RD, ~0.25 MI N OF OTAY MESA RD, OTAY MESA.

Location Detail: MAPPED ACCORDING TO LOCATION PROVIDED ON MAP.

Ecological:

Threat: THREATENED BY EXTENTION OF LA MEDIA RD AND WIDENING.

General: SD-BUO-017. 2 ADULTS & 3 FLEDGLINGS OBSERVED AT BURROW IN JUN 2006. ALL 5 BIRDS ABANDONED THE BURROW COMPLEX IN JUNE, MOVED 150 YARDS SOUTH ONTO AIRPORT PROPERTY.

Owner/Manager: UNKNOWN

Sources

THO06F0033 THOMAS, S. FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE). 2006-06-XX.

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 1279 **Map Index:** 79577 **EO Index:** 80561

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2009-08-07
Site: 2009-08-07

Record Last Updated: 2010-08-09

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57697º / -116.96022º
UTM: Zone-11 N3604392 E503732
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 26 **Qtr:** NW
Meridian: S
Elevation: 520 ft

Location: JUST SE THE JCT OF LA MEDIA RD & LONESTAR RD, NE THE BROWN FIELD NAVAL AIR STATION, OTAY MESA.

Location Detail: IN EMPTY LOT AT EDGE OF PARKING LOT FOR TOLL ROAD OFFICE. MAPPED TO PROVIDED UTM COORDINATES.

Ecological: HABITAT CONSISTS OF BARE LOT. SURROUNDING AREA IS COMPRISED OF PARKING LOTS. "PROBABLY FORAGES JUST TO WEST AT BROWN FIELD AIRPORT."

Threat: SURROUNDED BY URBAN LAND USES. LIKELY TO BE DEVELOPED EVENTUALLY.

General: 7 AUG 2009: 1 AD & 3 JUV SEEN ALONG CONCRETE CULVERT AT BASE OF SHORT SLOPE NEXT TO PARKING LOT FOR SOUTH BAY EXPRESSWAY. 3 JUV AT BURROW AT BOTTOM OF SLOPE HALFWAY DOWN CULVERT. AD FLUSHED FROM PERCH NEAR UPSTREAM DRAIN PIPE.

Owner/Manager: UNKNOWN

Sources

CLA09F0013 CLARK, K. (CLARK BIOLOGICAL SERVICES). FIELD SURVEY FORM FOR ATHENE CUNICULARIA. 2009-08-07.

Atriplex coulteri

Coulter's saltbush

Element Code: PDCHE040E0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.2
State: None	**State:** S2.2	

Habitat Associations

General: COASTAL BLUFF SCRUB, COASTAL DUNES, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OCEAN BLUFFS, RIDGETOPS, AS WELL AS ALKALINE LOW PLACES. 10-440M.

Occurrence No. 37 **Map Index:** 73582 **EO Index:** 74567

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1935-06-12
Site: 1935-06-12

Record Last Updated: 2009-02-13

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.56679º / -117.01260º
UTM: Zone-11 N3603263 E498817
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 4/5 mile

Township: 18S
Range: 01W
Section: 32 **Qtr:** XX
Meridian: S
Elevation:

Location: TWO MILES EAST OF SAN YSIDRO ON OTAY MESA.
Location Detail:
Ecological:
Threat:
General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1935 COLLECTION BY GANDER.
Owner/Manager: UNKNOWN

Sources

GAN35S0034 GANDER, F. GANDER #21919 SD #11545. 1935-06-12.

Atriplex pacifica

South Coast saltscale

Element Code: PDCHE041C0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3G4
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: COASTAL SCRUB, COASTAL BLUFF SCRUB, PLAYAS, CHENOPOD SCRUB.
Micro: ALKALI SOILS. 1-500M.

Occurrence No. 16 **Map Index:** 35051 **EO Index:** 261

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1903-04-XX
Site: 1903-04-XX

Record Last Updated: 2003-12-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60540º / -116.94529º
UTM: Zone-11 N3607544 E505133
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 280 ft

Location: NORTH OF OTAY MESA, IN SALT CREEK NEAR AQUEDUCT CROSSING.

Location Detail: EXACT LOCATION UNKNOWN, MAPPED AT JUNCTION OF SALT CREEK & AQUEDUCT ON EDGE OF SECTIONS 13 & 14.

Ecological:

Threat:

General: REPORTED IN C. REISER'S 1994 "RARE PLANTS OF SAN DIEGO COUNTY." 1903 COLLECTION BY HALL (#3904 UC) "NEAR SAN DIEGO, OTAY MESA" ATTRIBUTED TO THIS SITE.

Owner/Manager: UNKNOWN

Sources

HAL03S0008 HALL, H. HALL #3904 UC #56220. 1903-04-XX.

REI94U0002 REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 1994-05-XX.

Atriplex pacifica

South Coast saltscale

Element Code: PDCHE041C0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3G4
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: COASTAL SCRUB, COASTAL BLUFF SCRUB, PLAYAS, CHENOPOD SCRUB.
Micro: ALKALI SOILS. 1-500M.

Occurrence No. 37 **Map Index:** 53572 **EO Index:** 53572

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 2003-12-15

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58710º / -116.98066º
UTM: Zone-11 N3605515 E501814
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 2/5 mile

Township: 18S
Range: 01W
Section: 21 **Qtr:** XX
Meridian: S
Elevation:

Location: SOUTH OF ROCK MOUNTAIN, OTAY VALLEY.
Location Detail: EXACT LOCATION UNKNOWN MAPPED SOUTH OF ROCK MOUNTAIN.
Ecological:
Threat: PLANTS LOCATED ALONG DIRT ROADS SOUTH OF MOUNTAIN.
General: NEEDS FIELDWORK. ONLY SOURCE OF INFORMATION IS CITATION IN CRAIG REISER'S RARE PLANTS OF SAN DIEGO COUNTY.
Owner/Manager: UNKNOWN

Sources

REI01B0001 REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 2001-07-XX.

Bergerocactus emoryi

golden-spined cereus

Element Code: PDCAC11010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2G3
State: S2.1

Other Lists

CNPS List: 2.2

Habitat Associations

General: COASTAL SCRUB, SOMETIMES CHAPARRAL MARGINS.
Micro: LIMITED TO THE COASTAL BELT. USUALLY ON CLAY SOILS. 3-395M.

Occurrence No. 2 **Map Index:** 04444 **EO Index:** 21432

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1984-10-01
Site: 1984-10-01

Record Last Updated: 1996-11-15

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.57560º / -116.99919º
UTM: Zone-11 N3604239 E500075
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 29 **Qtr:** SE
Meridian: S
Elevation: 450 ft

Location: NE EDGE OF OTAY MESA; E OF DENNERY CYN; ABOUT 0.1 MI W OF CHESTER GRADE (OTAY VALLEY RD)
Location Detail: ABOUT 1.4 MI S OF SHARP SOUTHWARD BEND IN OTAY VALLEY ROAD.
Ecological: ON STONY SOIL IN SAGE SCRUB; NEAR MIDDLE OF STEEP SLOPE.
Threat: POTENTIAL DISTURBANCE FROM ADJACENT DEVELOPED LAND.
General: LESS THAN 10 PLANTS SEEN.
Owner/Manager: PVT

Sources

SCH84F0035 SCHEIDT, V.N. FIELD SURVEY FORM FOR BERGEROCACTUS EMORYI, WITH MAP ON BACK. 1984-10-01.

Bergerocactus emoryi

golden-spined cereus

Element Code: PDCAC11010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2G3
State: S2.1

Other Lists

CNPS List: 2.2

Habitat Associations

General: COASTAL SCRUB, SOMETIMES CHAPARRAL MARGINS.
Micro: LIMITED TO THE COASTAL BELT. USUALLY ON CLAY SOILS. 3-395M.

Occurrence No. 5 **Map Index:** 04437 **EO Index:** 21429

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1982-XX-XX
Site: 1982-XX-XX

Record Last Updated: 1993-12-23

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.57724º / -117.00122º
UTM: Zone-11 N3604421 E499885
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 29 **Qtr:** NE
Meridian: S
Elevation: 500 ft

Location: NE EDGE OF OTAY MESA, APPROX 0.2 MI N OF CHESTER GRADE (OTAY VALLEY RD).
Location Detail: APPROX 1.3 MI SOUTH OF SHARP SOUTHWARD BEND IN OTAY VALLEY ROAD.
Ecological: IN MARITIME SAGE SCRUB. GROWS ON SLOPES, BLUFFS, AND CLIFFS IN THE REGION.
Threat:
General:
Owner/Manager: PVT

Sources

OBE82F0003 OBERBAUER, T.A. FIELD SURVEY FORMS FOR BERGEROCACTUS EMORYI. 1982-XX-XX.

Bergerocactus emoryi

golden-spined cereus

Element Code: PDCAC11010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2G3
State: S2.1

Other Lists

CNPS List: 2.2

Habitat Associations

General: COASTAL SCRUB, SOMETIMES CHAPARRAL MARGINS.
Micro: LIMITED TO THE COASTAL BELT. USUALLY ON CLAY SOILS. 3-395M.

Occurrence No. 16 **Map Index:** 04434 **EO Index:** 21419

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 1993-12-23

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.58110º / -117.00180º
UTM: Zone-11 N3604849 E499831
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 29 **Qtr:** NE
Meridian: S
Elevation: 350 ft

Location: ON SLOPE BENEATH NE EDGE OF OTAY MESA, APPROX 0.1 MI W OF CHESTER GRADE (OTAY VALLEY RD).
Location Detail: APPROX 0.9 MI SOUTH OF SHARP SOUTHWARD BEND IN OTAY VALLEY ROAD.
Ecological:
Threat:
General: MAP IS ONLY SOURCE OF INFORMATION.
Owner/Manager: PVT

Sources

CNPNDM0052 CALIFORNIA NATIVE PLANT SOCIETY. MAP FOR BERGEROCACTUS EMORYI & AMBROSIA CHENOPODIIFOLIA. XXXX-XX-XX.

Bergerocactus emoryi

golden-spined cereus

Element Code: PDCAC11010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2G3
State: S2.1

Other Lists

CNPS List: 2.2

Habitat Associations

General: COASTAL SCRUB, SOMETIMES CHAPARRAL MARGINS.
Micro: LIMITED TO THE COASTAL BELT. USUALLY ON CLAY SOILS. 3-395M.

Occurrence No. 30 **Map Index:** 61539 **EO Index:** 61575

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 2005-06-08

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58468º / -116.91915º
UTM: Zone-11 N3605249 E507587
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 19 **Qtr:** S
Meridian: S
Elevation:

Location: O'NEIL (O'NEAL) CANYON, WHERE THE CANYON NARROWS; SOUTHEAST OF OTAY VALLEY.
Location Detail:
Ecological:
Threat:
General: 2001 REISER REPORT IS THE ONLY SOURCE OF INFORMATION FOR THIS SITE. NEEDS FIELDWORK.
Owner/Manager: UNKNOWN

Sources

REI01B0001 REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 2001-07-XX.

Branchinecta sandiegonensis

San Diego fairy shrimp

Element Code: ICBRA03060

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO SAN DIEGO AND ORANGE COUNTY MESAS.
Micro: VERNAL POOLS.

Occurrence No. 6 **Map Index:** 04565 **EO Index:** 10188

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1998-XX-XX
Site: 1998-XX-XX

Record Last Updated: 2004-10-25

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58250º / -116.96121º
UTM: Zone-11 N3605005 E503640
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 158.4 acres

Township: 18S
Range: 01W
Section: 22 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY MESA, NORTHEAST OF BROWN FIELD.

Location Detail: VERNAL POOLS

Ecological: POOLS HAVE MODERATE RANGE OF SIZE AND DEPTH, MANY CONTAIN LARGE COBBLES. SURROUNDING AREA IS A MATRIX OF GRASSLAND OR COASTAL SAGE SCRUB. MANY RARE PLANTS IN THE AREA. SHRIMP FOUND FROM FEB TO JUNE.

Threat: GRAZING DISTURBANCE TO AREA. SR-125 ALIGNMENT GOES RIGHT THROUGH THIS AREA.

General: FAIRY SHRIMP OBS./COLL. 19 JUN 1990. FOUND IN 38 VERNAL POOLS DURING AN 11 MAR TO 21 APR 1998 SURVEY FOR QUINO CHECKERSPOT BUTTERFLY. ALSO REPORTED BY C. ROGERS FROM OTAY MESA ON 21 JAN 1996 (NO #S GIVEN) AND CULTURED FROM SOIL BY HIM.

Owner/Manager: USFWS-SAN DIEGO NWR

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

DOD98R0001 DODERO, M. ET AL. (RECON ENVIRONMENTAL, INC.). STATE ROUTE 125 SOUTH 1998 QUINO CHECKERSPOT HABITAT ANALYSIS AND SURVEY RESULTS. 1998-07-08.

ROG04U0002 ROGERS, D.C. EMAIL WITH LOCALITY RECORDS FOR LEPIDURUS PACKARDI, BRANCHINECTA CONSERVATIO, B. LONGIANTENNA, B. LYNCHI, B. MESOVALLENSIS, B. SANDIEGONENSIS AND STREPTOCEPHALUS WOOTTONI. 2004-10-08.

SIM90R0001 SIMOVICH, M.A. & M. FUGATE. "FAIRY SHRIMP OF THE VERNAL POOLS OF SAN DIEGO", UC SAN DIEGO, DEPT OF BIOLOGY. 1990-XX-XX.

Branchinecta sandiegonensis

San Diego fairy shrimp

Element Code: ICBRA03060

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO SAN DIEGO AND ORANGE COUNTY MESAS.
Micro: VERNAL POOLS.

Occurrence No. 7 **Map Index:** 04624 **EO Index:** 10186

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1991-10-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59264º / -116.93993º
UTM: Zone-11 N3606130 E505636
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 24 **Qtr:** NW
Meridian: S
Elevation: 500 ft

Location: OTAY MESA SOUTH OF OTAY VALLEY
Location Detail: VERNAL POOLS
Ecological: POOLS HAVE MODERATE RANGE OF SIZE AND DEPTH. MANY HAVE LARGE COBBLES. MUCH OF MOUNDED TOPOGRAPHY INTACT. SURROUNDING VEG IS PRIMARILY GRASSLAND WITH SOME SHRUBS. SHRIMP FOUND FROM FEB TO JUNE.
Threat: GRAZING DISTRUBANCE
General:
Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

SIM90R0001 SIMOVICH, M.A. & M. FUGATE. "FAIRY SHRIMP OF THE VERNAL POOLS OF SAN DIEGO", UC SAN DIEGO, DEPT OF BIOLOGY. 1990-XX-XX.

Branchinecta sandiegonensis

San Diego fairy shrimp

Element Code: ICBRA03060

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO SAN DIEGO AND ORANGE COUNTY MESAS.
Micro: VERNAL POOLS.

Occurrence No. 39 **Map Index:** 49344 **EO Index:** 49344

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2000-03-08
Site: 2000-03-08

Record Last Updated: 2002-11-12

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.54514º / -117.00025º
UTM: Zone-11 N3600863 E499976
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 19S
Range: 01W
Section: 05 **Qtr:** XX
Meridian: S
Elevation: 480 ft

Location: 3 MILES SE OF SAN DIEGO; SOUTH OF WRUCK CANYON & JUST NORTH OF THE CALIFORNIA/MEXICO BORDER.

Location Detail: DEPRESSION NORTH OF PATROL ROAD ON ARNIE'S POINT.

Ecological: HABITAT CONSISTS OF A DEPRESSION SURROUNDIED BY NON-NATIVE SPECIES SUCH AS ITALIAN RYEGRASS, SMOOTH BROME, FOXTAIL CHESS, WILD OATS, GOOSEFOOT AND RUSSIAN THISTLE. OTHER SPECIES INCLUDE BLACK MUSTARD, YELLOW STAR THISTLE, AND FILAREE.

Threat: THREATS CONSIST OF HEAVY TRAFFIC BY BORDER PATROL & PERSONAL OFFROAD VEHICLES.

General: UNKNOWN NUMBER OF INDIVIDUALS OBSERVED.

Owner/Manager: UNKNOWN

Sources

RAD00R0001 RADTKEY, J. (RECON ENVIRONMENTAL, INC.). POST-SURVEY NOTIFICATION - FOCUSED WET SEASON SURVEY RESULTS FOR LISTED ENDANGERED FAIRY SHRIMP SPECIES ALONG INS BORDER FENCE, SAN DIEGO COUNTY. 2000-08-09.

Branchinecta sandiegonensis

San Diego fairy shrimp

Element Code: ICBRA03060

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO SAN DIEGO AND ORANGE COUNTY MESAS.
Micro: VERNAL POOLS.

Occurrence No. 51 **Map Index:** 56360 **EO Index:** 56376

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-04-19
Site: 2001-04-19

Record Last Updated: 2004-08-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55472º / -116.91508º
UTM: Zone-11 N3601928 E507972
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 31 **Qtr:** SE
Meridian: S
Elevation: 500 ft

Location: 1.7 - 2 MILES DIRECTLY SOUTH OF KUEBLER RANCH AND NORTH OF THE CALIFORNIA/MEXICO BORDER, OTAY MESA.

Location Detail: BASIN NUMBERS 60, 82, 84 AND 140.

Ecological:

Threat:

General: SAN DIEGO FAIRY SHRIMP OBSERVED ON 19 JAN, 15 MAR AND 19 APR DURING THE 2000/2001 WET SEASON SAMPLING.

Owner/Manager: UNKNOWN

Sources

HEL01M0001 HELIX ENVIRONMENTAL PLANNING, INC. MAP OF SR-11 POTENTIAL JURISDICTIONAL AREAS & SENSITIVE SPECIES. LOCATIONS FOR FAIRY SHRIMP & OTHER TRACKED SPECIES ON MAP. 2001-05-09.

Branchinecta sandiegonensis

San Diego fairy shrimp

Element Code: ICBRA03060

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO SAN DIEGO AND ORANGE COUNTY MESAS.
Micro: VERNAL POOLS.

Occurrence No. 52 **Map Index:** 56361 **EO Index:** 56377

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-01-19
Site: 2001-01-19

Record Last Updated: 2004-08-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55305º / -116.90872º
UTM: Zone-11 N3601743 E508569
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 32 **Qtr:** SW
Meridian: S
Elevation: 490 ft

Location: LOCATED BETWEEN 2 UNNAMED TRIBUTARIES, 2 MILES SSE OF KUEBLER RANCH, OTAY MESA.

Location Detail: BASIN 87.

Ecological:

Threat:

General: SAN DIEGO FAIRY SHRIMP OBSERVED ON 19 JAN DURING THE 2000/2001 WET SEASON. THIS SPECIES WAS ALSO DETECTED HERE DURING DRY SEASON SAMPLING.

Owner/Manager: UNKNOWN

Sources

HEL01M0001 HELIX ENVIRONMENTAL PLANNING, INC. MAP OF SR-11 POTENTIAL JURISDICTIONAL AREAS & SENSITIVE SPECIES. LOCATIONS FOR FAIRY SHRIMP & OTHER TRACKED SPECIES ON MAP. 2001-05-09.

Branchinecta sandiegonensis

San Diego fairy shrimp

Element Code: ICBRA03060

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO SAN DIEGO AND ORANGE COUNTY MESAS.
Micro: VERNAL POOLS.

Occurrence No. 57 **Map Index:** 57661 **EO Index:** 57677

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 2004-10-25

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57806º / -116.91894º
UTM: Zone-11 N3604515 E507607
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/10 mile

Township: 18S
Range: 01E
Section: 30 **Qtr:** XX
Meridian: S
Elevation: 650 ft

Location: OTAY MESA, OTAY RANCH, NEAR PRISON.
Location Detail: DONOVAN PRISON IS THE ONLY PRISON IN OTAY MESA AREA.
Ecological:
Threat:
General: COLLECTED BY D. BELK, IN COLLECTION OF C. ROGERS, NO DATE OR NUMBER OF SPECIMENS GIVEN.
Owner/Manager: UNKNOWN

Sources

ROG04U0002 ROGERS, D.C. EMAIL WITH LOCALITY RECORDS FOR LEPIDURUS PACKARDI, BRANCHINECTA CONSERVATIO, B. LONGIANTENNA, B. LYNCHI, B. MESOVALLENSIS, B. SANDIEGONENSIS AND STREPTOCEPHALUS WOOTTONI. 2004-10-08.

Branchinecta sandiegonensis

San Diego fairy shrimp

Element Code: ICBRA03060

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO SAN DIEGO AND ORANGE COUNTY MESAS.
Micro: VERNAL POOLS.

Occurrence No. 59 **Map Index:** 57816 **EO Index:** 57832

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-02-07
Site: 2001-02-07

Record Last Updated: 2004-11-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55940º / -116.90107º
UTM: Zone-11 N3602448 E509286
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 32 **Qtr:** XX
Meridian: S
Elevation: 550 ft

Location: OTAY MESA. ABOUT 1.7 MILES SOUTHEAST OF KUEBLER RANCH. JUST NORTH OF THE MEXICAN BORDER.

Location Detail: FAIRY SHIRMP OBSERVED IN ROAD-RUT POOL #5.

Ecological: AREA HAS MIMA MOUND NATURAL VERNAL POOL COMPLEXES; THE FEW REMAINING NATURALLY-OCCURRING POOLS HAVE BEEN DISTURBED BY AGRICULTURAL ACTIVITIES.

Threat: DEVELOPMENT

General: 4 INDIVIDUALS OBSERVED. MAY ALSO OCCUR IN POOL #68, WHICH FLOWS INTO POOL #5 DURING PERIODS OF HEAVY INUNDATION.

Owner/Manager: UNKNOWN

Sources

GRI01U0002 GRIFFIN, D.J. (EDAW, INC.). RESULTS OF FOCUSED FAIRY SHRIMP WET SEASON SURVEYS FOR THE EAST OTAY MESA SPECIFIC PLAN AREA AMENDMENT IN THE COUNTY OF SAN DIEGO. 2001-09-19.

Brodiaea orcuttii

Orcutt's brodiaea

Element Code: PMLIL0C0B0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND, CLOSED-CONE CONIFEROUS FOREST, CISMONTANE WOODLAND, CHAPARRAL, MEADOWS.

Micro: MESIC, CLAY HABITATS; SOMETIMES SERPENTINE; USU IN VERNAL POOLS AND SMALL DRAINAGES. 30-1615M.

Occurrence No. 99 **Map Index:** 28309 **EO Index:** 29505

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 2008-08-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61959º / -116.91339º
UTM: Zone-11 N3609119 E508125
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 07 **Qtr:** NE
Meridian: S
Elevation: 500 ft

Location: ALONG TRIBUTARY TO BUSCHALAUGH COVE, LOWER OTAY RESERVOIR.

Location Detail: JUST UPSTREAM FROM THE EAST END OF THE COVE. SE 1/4 OF NE 1/4 OF SECTION 7.

Ecological:

Threat:

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1990 MAP BY ZIPPIN AND LAWHEAD FOR THE OTAY RANCH PROPERTY.

Owner/Manager: CITY OF SAN DIEGO

Sources

OBE78S0007 OBERBAUER, T. OBERBAUER SN SD #99553. 1978-05-28.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Brodiaea orcuttii

Orcutt's brodiaea

Element Code: PMLIL0C0B0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND, CLOSED-CONE CONIFEROUS FOREST, CISMONTANE WOODLAND, CHAPARRAL, MEADOWS.

Micro: MESIC, CLAY HABITATS; SOMETIMES SERPENTINE; USU IN VERNAL POOLS AND SMALL DRAINAGES. 30-1615M.

Occurrence No. 100 **Map Index:** 28308 **EO Index:** 29504

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1996-09-19

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58978º / -116.94278º
UTM: Zone-11 N3605812 E505369
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 24 **Qtr:** NW
Meridian: S
Elevation: 520 ft

Location: EDGE OF MESA BETWEEN O'NEAL CANYON AND JOHNSON CANYON, OTAY MESA.

Location Detail: SITE OVERLOOKS OTAY VALLEY AND IS ABOUT 0.5 MILE WEST OF O'NEAL CANYON ALONG WEST SIDE OF SMALL UNNAMED CANYON.

Ecological:

Threat:

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1990 MAP BY ZIPPEN AND LAWHEAD FOR OTAY RANCH PROPERTY.

Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Brodiaea orcuttii

Orcutt's brodiaea

Element Code: PMLIL0C0B0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND, CLOSED-CONE CONIFEROUS FOREST, CISMONTANE WOODLAND, CHAPARRAL, MEADOWS.

Micro: MESIC, CLAY HABITATS; SOMETIMES SERPENTINE; USU IN VERNAL POOLS AND SMALL DRAINAGES. 30-1615M.

Occurrence No. 101 **Map Index:** 28307 **EO Index:** 29503

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1996-09-19

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58609º / -116.95884º
UTM: Zone-11 N3605403 E503862
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 9.5 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** SW
Meridian: S
Elevation: 500 ft

Location: ABOUT 0.25 MILE WEST OF JOHNSON CANYON ALONG EDGE OF OTAY MESA ABOVE OTAY VALLEY.

Location Detail: TWO COLONIES MAPPED NEAR MESA RIM.

Ecological:

Threat:

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1990 MAP BY ZIPPEN AND LAWHEAD PREPARED FOR OTAY RANCH PROPERTY.

Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Brodiaea orcuttii

Orcutt's brodiaea

Element Code: PMLIL0C0B0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G1	**CNPS List:** 1B.1
State: None	**State:** S1	

Habitat Associations

General: VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND, CLOSED-CONE CONIFEROUS FOREST, CISMONTANE WOODLAND, CHAPARRAL, MEADOWS.

Micro: MESIC, CLAY HABITATS; SOMETIMES SERPENTINE; USU IN VERNAL POOLS AND SMALL DRAINAGES. 30-1615M.

Occurrence No. 102 **Map Index:** 28310 **EO Index:** 29506

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-07-20
Site: 2001-07-20

Record Last Updated: 2008-07-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61475º / -116.90583º
UTM: Zone-11 N3608583 E508834
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 5.0 acres

Township: 18S
Range: 01E
Section: 08 **Qtr:** SW
Meridian: S
Elevation: 550 ft

Location: ALONG TRIBUTARY TO LOWER OTAY RESERVOIR, ABOUT 0.8 MILE SOUTHEAST OF THE EAST END OF BUSCHALAUGH COVE.

Location Detail: MAPPED AS FIVE SMALL POLYGONS IN APPROXIMATE MIDDLE OF SW1/4 SEC 8..

Ecological: ALONG NARROW, ROCKY FLOWING STREAM COURSE ON GRAVELLY SOIL IN MULEFAT-POVERTY WEED SCRUB. ASSOCIATED WITH BACCHARIS SALICIFOLIA, JUNCUS ACUTUS, MONARDELLA LINOIDES, AND IVA HAYESIANA.

Threat:

General: LESS THAN 5 PLANTS OBSERVED IN 1989. APPROXIMATELY 162 PLANTS OBSERVED IN 2001, BUT IT WAS ALSO NOTED AT THAT TIME THAT THE POPULATION EXTENDED FURTHER TO THE NORTH OUTSIDE OF THE SURVEY AREA.

Owner/Manager: SDG COUNTY

Sources

MSC04D0001 MULTIPLE SPECIES CONSERVATION PROGRAM - SAN DIEGO. BASELINE DIGITAL DATA FOR PLANT SPECIES COVERED UNDER THE SAN DIEGO MSCP FROM 2001 THROUGH 2002. 2004-XX-XX.

ROB01D0001 ROBERTS, F. DIGITAL DATA FOR MULTIPLE SPECIES COVERED UNDER THE SAN DIEGO COUNTY MSCP FROM 2001 THROUGH 2002. 2001-XX-XX.

ROB01S0008 ROBERTS, F. ROBERTS #5499 SD #164585. 2001-07-20.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Brodiaea orcuttii

Orcutt's brodiaea

Element Code: PMLIL0C0B0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND, CLOSED-CONE CONIFEROUS FOREST, CISMONTANE WOODLAND, CHAPARRAL, MEADOWS.

Micro: MESIC, CLAY HABITATS; SOMETIMES SERPENTINE; USU IN VERNAL POOLS AND SMALL DRAINAGES. 30-1615M.

Occurrence No. 103 **Map Index:** 28311 **EO Index:** 29507

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-XX-XX
Site: 1989-XX-XX

Record Last Updated: 1996-10-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60891º / -116.90041º
UTM: Zone-11 N3607936 E509343
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 17 **Qtr:** NE
Meridian: S
Elevation: 800 ft

Location: ALONG TRIBUTARY TO LOWER OTAY RESERVOIR, ABOUT 1.1 MILES SOUTHEAST OF THE EAST END OF BUSHCALOUGH COVE.

Location Detail: NW 1/4 OF THE NE 1/4 OF SECTION 17.

Ecological:

Threat:

General: FEWER THAN 5 PLANTS REPORTED BY SCHEID ET AL. IN 1989.

Owner/Manager: PVT

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

California macrophylla

round-leaved filaree

Element Code: PDGER01070

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: CLAY SOILS. 15-1200M.

Occurrence No. 69 **Map Index:** 21654 **EO Index:** 45925

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen

Element: 1992-06-01
Site: 1992-06-01

Record Last Updated: 2001-09-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59423º / -116.97024º
UTM: Zone-11 N3606305 E502792
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: NORTHERN FLANKS OF OTAY VALLEY, 1/2 MILE EAST OF ROCK MOUNTAIN QUARRY.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB EAST OF ROCK MOUNTAIN, ALONG THE SLOPES NORTH OF OTAY VALLEY.

Ecological: ON CLAY LENS OF FLAT MESA ABOVE VALLEY FLOOR ON NORTH SIDE. FRIABLE CLAY.

Threat:

General: FEW PLANTS SEEN IN 1992. ACCORDING TO REISER THIS SITE WAS HEAVILY DISKED A DECADE AFTER THE FIRST OBSERVATION AND PLANT MAY NO LONGER BE EXTANT.

Owner/Manager: PVT-OTAY RANCH

Sources

REI01B0001 REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 2001-07-XX.

REI92S0001 REISER, C. REISER SN SD #134448. 1992-06-01.

REI94B0001 REISER, C. CRAIG REISER'S RARE PLANTS OF SAN DIEGO COUNTY. 1994-XX-XX.

Callophrys thornei

Thorne's hairstreak

Element Code: IILEPE2150

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ASSOCIATED WITH THE ENDEMIC TECATE CYPRESS (CUPRESSUS FORBESII).
Micro: ONLY KNOWN FROM VICINITY OF OTAY MOUNTAIN.

* SENSITIVE *

Occurrence No. 2 **Map Index:** 56247 **EO Index:** 56263

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2005-02-02
Site: 2005-02-02

Record Last Updated: 2005-12-05

Quad Summary: Otay Mesa (3211658/010C), Otay Mountain (3211657/010D)
County Summary: San Diego

* SENSITIVE *

Lat/Long:
UTM:
Mapping Precision:
Symbol Type:
Radius:

Township:
Range:
Section:
Meridian:
Elevation:

Qtr:

Location: *SENSITIVE* Location information suppressed.

Location Detail: Please contact the California Natural Diversity Database, California Department of Fish and Game, for more information:
(916) 324-3812.

Ecological: HABITAT CONSISTS OF RECOVERING (FROM 1996 OTAY MOUNTAIN FIRES) CHAPARRAL AND TECATE CYPRESS FOREST; TECATE CYPRESS RANGE IN HEIGHT FROM 2-5 METERS.

Threat: THREATENED BY THE FREQUENCY OF FIRES.

General:

Owner/Manager:

Sources

HOG04U0002 HOGAN, D. EMERGENCY PETITION TO LIST THE THORNE'S HAIRSTREAK BUTTERFLY AS ENDANGERED UNDER THE ENDANGERED SPECIES ACT. 2004-XX-XX.

KLE04F0001 KLEIN, M.W. FIELD SURVEY FORM FOR CALLOPHRYS (=MITOURA) THORNEI. 2004-03-09.

KLE04F0002 KLEIN, M.W. FIELD SURVEY FORM FOR CALLOPHRYS (=MITOURA) THORNEI. 2004-03-09.

KLE04F0005 KLEIN, M.W. FIELD SURVEY FORM FOR CALLOPHRYS (=MITOURA) THORNEI. 2004-03-13.

KLE05F0008 KLEIN, M.W. FIELD SURVEY FORM FOR CALLOPHRYS (=MITOURA) THORNEI. 2005-02-05.

Callophrys thornei

Thorne's hairstreak

Element Code: IILEPE2150

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ASSOCIATED WITH THE ENDEMIC TECATE CYPRESS (CUPRESSUS FORBESII).
Micro: ONLY KNOWN FROM VICINITY OF OTAY MOUNTAIN.

Occurrence No. 6 **Map Index:** 63311 **EO Index:** 63403

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2005-06-XX
Site: 2005-06-XX

Record Last Updated: 2005-12-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57769º / -116.89652º
UTM: Zone-11 N3604475 E509712
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 29 **Qtr:** NE
Meridian: S
Elevation: 1,200 ft

Location: 1.15 MILES EAST OF KUELER RANCH, SAN YSIDRO MOUNTAINS.

Location Detail: WITHIN THE PREVIOUS ENVIRONMENTAL TRUST LANDS AND OUTSIDE THE BLM WILDERNESS AREA.

Ecological: RECOVERING CHAPARRAL, TECATE CYPRESS ADJACENT TO OTAY MOUNTAIN TRUCK TRAIL. THE AREA IS RECOVERING FROM THE 1996 OTAY MOUNTAIN FIRES.

Threat: SEVERE FIRE RISK.

General: 10 INDIVIDUALS (7 MALES & 3 FEMALES). FIRST OBSERVED 03 JUN 2004, MONITORED INTO MAY AND EARLY JUNE OF 2005.

Owner/Manager: BLM

Sources

KLE05F0009 KLEIN, M.W. FIELD SURVEY FORM FOR CALLOPHRYS (=MITOURA) THORNEI. 2005-06-03.

Calochortus dunnii

Dunn's mariposa-lily

Element Code: PMLIL0D0C0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.2
State: Rare	**State:** S2.1	

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.

Micro: ON GABBRO OR METAVOLCANIC SOILS; ALSO KNOWN FROM SANDSTONE; OFTEN ASSOC WITH CHAPARRAL. 375-1830M.

Occurrence No. 31 **Map Index:** 72253 **EO Index:** 73203

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2005-05-03
Site: 2005-05-03

Record Last Updated: 2008-09-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58041º / -116.90084º
UTM: Zone-11 N3604777 E509306
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 29 **Qtr:** NE
Meridian: S
Elevation: 1,350 ft

Location: JUST NORTH OF OTAY MOUNTAIN ROAD, 0.9 AIR MILES EAST OF KUEBLER RANCH, ON RIDGETOP SOUTH OF O'NEAL CANYON.

Location Detail: IN THE NW 1/4 OF THE NE 1/4 OF SECTION 29.

Ecological: CHAPARRAL WITH CEANOTHUS OTAYENSIS AND CALLITROPSIS FORBESII.

Threat:

General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2005 COLLECTION BY ELVIN.

Owner/Manager: PVT-ENVIRONMENTAL TRUST

Sources

ELV05S0011 ELVIN, M. ELVIN #4249 UCR #161545, SD #174866. 2005-05-03.

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

Element Code: ABPBG02095

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3Q
State: S3

Other Lists

CDFG Status: SC

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SAGE SCRUB.
Micro: WRENS REQUIRE TALL OPUNTIA CACTUS FOR NESTING AND ROOSTING.

Occurrence No. 52 **Map Index:** 21655 **EO Index:** 9249

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-03

Quad Summary: Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B)
County Summary: San Diego

Lat/Long: 32.61810º / -116.94421º
UTM: Zone-11 N3608952 E505234
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: SALT CREEK CANYON SW OF LOWER OTAY RESERVOIR, RANCHO OTAY.

Location Detail: VERY HIGH DENSITY OF CACTUS WRENS IN SALT CREEK CANYON.

Ecological: SALT CREEK CANYON IS RELATIVELY UNDISTURBED COASTAL SAGE SCRUB AND MARITIME SUCCULENT SCRUB. THIS IS SOME OF THE BEST CACTUS WREN AND GNATCATCHER HABITAT REMAINING IN SAN DIEGO COUNTY. ORANGE-THROATED WHIPTAILS ALSO FOUND.

Threat: THREATENED BY PROPOSED DEVELOPMENT, SEWER ALIGNMENT.

General: 2 SURVEYS OF SALT & WOLF CR CYNS COMBINED IN 1986-87; 1987 SURVEY FOUND 27 CACTUS WRENS, 1986 SURVEY FOUND 37 CACTUS WRENS (FIDE NANCY GILBERT, USFWS). 1989 SURVEY OF SALT CYN FOUND 13 WRENS & 3 NESTS. 3 OBSERVED 2 MAY-25 JUN 2001.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

REA90R0001 REA, A.M. & K.L. WEAVER. THE TAXONOMY, DISTRIBUTION, AND STATUS OF COASTAL CALIFORNIA CACTUS WRENS. WESTERN BIRDS, VOL. 21(3): PP. 81-126. 1990-XX-XX.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

Element Code: ABPBG02095

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3Q
State: S3

Other Lists

CDFG Status: SC

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SAGE SCRUB.
Micro: WRENS REQUIRE TALL OPUNTIA CACTUS FOR NESTING AND ROOSTING.

Occurrence No. 53 **Map Index:** 17586 **EO Index:** 11682

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-07-17
Site: 1990-07-17

Record Last Updated: 1991-09-26

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58222º / -116.94388º
UTM: Zone-11 N3604974 E505267
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 18S
Range: 01W
Section: 25 **Qtr:** NW
Meridian: S
Elevation: 350 ft

Location: JOHNSON CANYON, SOUTH OF OTAY RIVER, RANCHO OTAY.
Location Detail:
Ecological:
Threat: THREATENED BY PROPOSED DEVELOPMENT.
General: TWO CACTUS WRENS OBSERVED IN 1986-87 ACCORDING TO NANCY GILBERT (USFWS); 16 CACTUS WRENS OBSERVED PAM BEARE, ET AL, (CALTRANS) 0N 16-17 JULY 1990.
Owner/Manager: UNKNOWN

Sources

REA90R0001 REA, A.M. & K.L. WEAVER. THE TAXONOMY, DISTRIBUTION, AND STATUS OF COASTAL CALIFORNIA CACTUS WRENS. WESTERN BIRDS, VOL. 21(3): PP. 81-126. 1990-XX-XX.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

Element Code: ABPBG02095

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T3Q	**CDFG Status:** SC
State: None	**State:** S3	

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SAGE SCRUB.

Micro: WRENS REQUIRE TALL OPUNTIA CACTUS FOR NESTING AND ROOSTING.

Occurrence No. 54 **Map Index:** 21262 **EO Index:** 7867

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2000-11-29
Site: 2000-11-29

Record Last Updated: 2002-12-12

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)

County Summary: San Diego

Lat/Long: 32.61982º / -116.99966º
UTM: Zone-11 N3609141 E500032
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: POGGI CANYON WEST OF LOWER OTAY RESERVOIR, RANCHO OTAY.

Location Detail:

Ecological: DENSE CHOLLA PATCHES IN THE COASTAL SAGE SCRUB ON THE SOUTH-FACING SLOPES SUPPORT CACTUS WRENS AND GNATCATCHERS. THE HABITAT HAS BEEN DEGRADED BY ORV'S AND GRAZING.

Threat: THREATENED BY PROPOSED DEVELOPMENT AS WELL AS CONTINUED ORV USE AND GRAZING.

General: 12 CACTUS WRENS OBSERVED DURING 1986-88, ACCORDING TO NANCY GILBERT (USFWS). 11 CACTUS WRENS SEEN IN 1989 SURVEY. UNKNOWN NUMBER OBS DURING CAGN SURVEY, 14-29 NOV 2000. CALIFORNIA GNATCATCHERS AND A BADGER ALSO FOUND HERE.

Owner/Manager: PVT

Sources

DUD01U0001 PRIEST, J. (DUDEK & ASSOCIATES). CALIFORNIA GNATCATCHER SURVEY FOR THE OTAY RANCH VILLAGE ONE WEST, SOUTH PLANNING AREA OF OTAY RANCH, CITY OF CHULA VISTA, SAN DIEGO, CALIFORNIA. 2001-01-31.

REA90R0001 REA, A.M. & K.L. WEAVER. THE TAXONOMY, DISTRIBUTION, AND STATUS OF COASTAL CALIFORNIA CACTUS WRENS. WESTERN BIRDS, VOL. 21(3): PP. 81-126. 1990-XX-XX.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

Element Code: ABPBG02095

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3Q
State: S3

Other Lists

CDFG Status: SC

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SAGE SCRUB.
Micro: WRENS REQUIRE TALL OPUNTIA CACTUS FOR NESTING AND ROOSTING.

Occurrence No. 56 **Map Index:** 17588 **EO Index:** 11687

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1985-XX-XX
Site: 1985-XX-XX

Record Last Updated: 1991-09-30

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55683º / -117.00347º
UTM: Zone-11 N3602159 E499674
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 3/5 mile

Township: 18S
Range: 01W
Section: 32 **Qtr:** SW
Meridian: S
Elevation: 400 ft

Location: SPRING CANYON, SW OF THE INTERSECTION OF OTAY MESA ROAD AND CACTUS ROAD.
Location Detail:
Ecological:
Threat: THREATENED BY PROPOSED DEVELOPMENT.
General: TWO CACTUS WRENS, INCLUDING ONE TERRITORIAL MALE, OBSERVED BY HAROLD WIER PRIOR TO 1986.
Owner/Manager: UNKNOWN

Sources

REA90R0001 REA, A.M. & K.L. WEAVER. THE TAXONOMY, DISTRIBUTION, AND STATUS OF COASTAL CALIFORNIA CACTUS WRENS. WESTERN BIRDS, VOL. 21(3): PP. 81-126. 1990-XX-XX.

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

Element Code: ABPBG02095

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3Q
State: S3

Other Lists

CDFG Status: SC

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SAGE SCRUB.
Micro: WRENS REQUIRE TALL OPUNTIA CACTUS FOR NESTING AND ROOSTING.

Occurrence No. 118 **Map Index:** 04446 **EO Index:** 9873
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-09-10

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60243º / -116.99093º
UTM: Zone-11 N3607213 E500851
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: WOLF CANYON, NORTH OF OTAY VALLEY AND WEST OF LOWER OTAY RESERVOIR, OTAY RANCH.
Location Detail:
Ecological: COASTAL SAGE SCRUB AND MARITIME SUCCULENT SCRUB SERIOUSLY DEGRADED BY ORV USE AND GRAZING.
Threat: DEVELOPMENT, ORV'S AND GRAZING.
General: GNATCATCHERS AND ORANGE-THROATED WHIPTAILS ALSO KNOWN FROM HERE.
Owner/Manager: PVT-OTAY RANCH

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

Element Code: ABPBG02095

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3Q
State: S3

Other Lists

CDFG Status: SC

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SAGE SCRUB.
Micro: WRENS REQUIRE TALL OPUNTIA CACTUS FOR NESTING AND ROOSTING.

Occurrence No. 119 **Map Index:** 21654 **EO Index:** 16568

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-11-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59423º / -116.97024º
UTM: Zone-11 N3606305 E502792
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: UNNAMED CANYONS NORTH OF OTAY VALLEY AND SOUTHWEST OF LOWER OTAY RESERVOIR, OTAY RANCH.
Location Detail:

Ecological: STEEP COASTAL SAGE SCRUB AND MARITIME SUCCULENT SCRUB.
Threat: THREATENED BY DEVELOPMENT.
General: 2 CACTUS WRENS OBSERVED IN THIS SURVEY AND 4 OBSERVATIONS KNOWN FROM PREVIOUS STUDIES. GNATCATCHERS ALSO KNOWN FROM THIS SITE.
Owner/Manager: PVT-OTAY RANCH

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Ceanothus cyaneus

Lakeside ceanothus

Element Code: PDRHA04070

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.
Micro: 100-1515M.

Occurrence No. 18 **Map Index:** 04742 **EO Index:** 18697

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1984-04-19
Site: 1984-04-19

Record Last Updated: 1995-11-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57871º / -116.90599º
UTM: Zone-11 N3604588 E508823
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 18S
Range: 01E
Section: 29 **Qtr:** NW
Meridian: S
Elevation:

Location: EAST OF OTAY MESA (MAPPED EAST OF KUEBLER RANCH); OTAY MOUNTAIN RESEARCH NATURAL AREA.
Location Detail:
Ecological: OTHER PLANTS IN THIS VICINITY (QUARTER SECTION) ARE STIPA DIEGOENSIS, LEPECHINIA GANDERI, FEROCACTUS VIRIDESCENS, CHAMAEBATIA AUSTRALIS AND CUPRESSUS GUADALUPENSIS FORBESII.
Threat:
General:
Owner/Manager: UNKNOWN

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Ceanothus cyaneus

Lakeside ceanothus

Element Code: PDRHA04070

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.
Micro: 100-1515M.

Occurrence No. 19 **Map Index:** 16000 **EO Index:** 18699

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1984-04-19
Site: 1984-04-19

Record Last Updated: 1995-11-13

Quad Summary: Otay Mountain (3211657/010D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57428º / -116.88802º
UTM: Zone-11 N3604098 E510510
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 18S
Range: 01E
Section: 28 **Qtr:** W
Meridian: S
Elevation:

Location: OTAY MOUNTAIN TRUCK TRAIL, EAST OF OTAY MESA, OTAY MOUNTAIN RESEARCH NATURAL AREA.
Location Detail:
Ecological: MOST OF SOUTH SLOPE HAS BEEN BURNED. OTHER PLANTS IN THIS VICINITY (QUARTER SECTION) ARE CHAMAEBATIA AUSTRALIS, CUPRESSUS GUADALUPENSIS FORBESII, FEROCACTUS VIRIDESCENS, LEPECHINIA GANDERI, STIPA DIEGOENSIS.
Threat:
General: WITHIN THE OTAY MOUNTAIN RESEARCH NATURAL AREA.
Owner/Manager: BLM

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Chaetodipus fallax fallax

northwestern San Diego pocket mouse

Element Code: AMAFD05031

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3
State: S2S3

Other Lists

CDFG Status: SC

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL, GRASSLANDS, SAGEBRUSH, ETC. IN WESTERN SAN DIEGO CO.
Micro: SANDY, HERBACEOUS AREAS, USUALLY IN ASSOCIATION WITH ROCKS OR COARSE GRAVEL.

Occurrence No. 40 **Map Index:** 50457 **EO Index:** 57537

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1993-04-23
Site: 1993-04-23

Record Last Updated: 2004-10-20

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.57597º / -117.00543º
UTM: Zone-11 N3604280 E499490
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: 29 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: CALIFORNIA TERRACES, SAN DIEGO
Location Detail:
Ecological:
Threat:
General: 3 FEMALES CAPTURED/RELEASED 14 APR 1993, 2 MALES CAPTURED/RELEASED 15 APR 1993, 1 FEMALE CAPTURED/RELEASED 16 APR 1993, 1 MALE CAPTURED/RELEASED 23 APR 1993.
Owner/Manager: UNKNOWN

Sources

NEW93U0001 NEWMAN, J.M. SCIENTIFIC COLLECTING PERMIT REPORT FOR SMALL MAMMAL CAPTURES DURING 1993 IN SAN DIEGO COUNTY. 1993-06-11.

Comarostaphylis diversifolia ssp. diversifolia

summer holly

Element Code: PDERI0B011

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL.
Micro: OFTEN IN MIXED CHAPARRAL IN CALIFORNIA, SOMETIMES POST-BURN. 30-550M.

Occurrence No. 19 **Map Index:** 38001 **EO Index:** 33017

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2006-04-28
Site: 2006-04-28

Record Last Updated: 2009-12-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60670º / -116.90058º
UTM: Zone-11 N3607691 E509328
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 14.6 acres

Township: 18S
Range: 01E
Section: 17 **Qtr:** NE
Meridian: S
Elevation: 950 ft

Location: UNNAMED TRIBUTARY TO BUSCHALAUGH COVE OF LOWER OTAY RESERVOIR, ABOUT 1.5 MILE EAST OF SAVAGE DAM.

Location Detail: THREE COLONIES MAPPED; ONE ABOUT 250 METERS WSW OF 1107' HILLTOP, AND TWO ABOUT 500 METERS SSW OF 1107' HILLTOP. WITHIN THE W 1/2 OF THE NE 1/4 OF SECTION 17.

Ecological: CHAPARRAL.

Threat: DEVELOPMENT.

General: SEVERAL PLANTS OBSERVED IN 1990. 2006 SNAPP-COOK COLLECTION FROM "OTAY MOUNTAIN W SIDE...UPPER SW FORK OF CANYON THAT DRAINS INTO BUSCHALAUGH COVE OF LOWER OTAY RESERVOIR" ATTRIBUTED TO THIS OCCURRENCE.

Owner/Manager: PVT

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

SNA06S0002 SNAPP-COOK, J. ET AL. SNAPP-COOK #34 SD #191122. 2006-04-28.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Cordylanthus orcuttianus

Orcutt's bird's-beak

Element Code: PDSCR0J0G0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2?
State: S1.1

Other Lists

CNPS List: 2.1

Habitat Associations

General: COASTAL SCRUB.

Micro: FOUND IN COASTAL SCRUB ASSOCIATIONS ON SLOPES; ALSO REPORTED FROM INTERMITTENTLY MOIST SWALES, AND IN WASHES. 100-200M

Occurrence No. 1 **Map Index:** 04489 **EO Index:** 17525

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 1991-11-15

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55060º / -116.97696º
UTM: Zone-11 N3601468 E502163
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 19S
Range: 01W
Section: 03 **Qtr:** W
Meridian: S
Elevation: 465 ft

Location: APPROX 0.75 MI DUE E OF WRUCK CYN, ON OTAY MESA.
Location Detail: MAPPED AT CNPS MAP SITE 3A BASED ON BEAUCHAMP "OLD RECORD" INFORMATION.
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

Sources

BEANDU0003 BEAUCHAMP, R.M. CNPS HERBARIUM CARD. XXXX-XX-XX.

Cordylanthus orcuttianus

Orcutt's bird's-beak

Element Code: PDSCR0J0G0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2?
State: S1.1

Other Lists

CNPS List: 2.1

Habitat Associations

General: COASTAL SCRUB.

Micro: FOUND IN COASTAL SCRUB ASSOCIATIONS ON SLOPES; ALSO REPORTED FROM INTERMITTENTLY MOIST SWALES, AND IN WASHES. 100-200M

Occurrence No. 4 **Map Index:** 20068 **EO Index:** 12624

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-04-13

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62504º / -116.89595º
UTM: Zone-11 N3609724 E509760
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 4.4 acres

Township: 18S
Range: 01E
Section: 08 **Qtr:** NE
Meridian: S
Elevation: 660 ft

Location: S OF THE BORDERLAND AIR SPORTS CENTER, ABOUT 1.5 MI E OF LOWER OTAY RESERVOIR.
Location Detail:
Ecological: IN LARGE DRAINAGE.
Threat: DEVELOPMENT COULD THREATEN.
General: UNKNOWN HOW MANY PLANTS SEEN IN 1990; MAP IS MAIN INFO SOURCE.
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 5 **Map Index:** 04733 **EO Index:** 6477

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen

Element: 2001-06-05
Site: 2001-06-05

Record Last Updated: 2005-06-15

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56865º / -116.90888º
UTM: Zone-11 N3603473 E508553
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 11.0 acres

Township: 18S
Range: 01E
Section: 29 **Qtr:** SW
Meridian: S
Elevation: 640 ft

Location: E OF OTAY MESA, WESTERN EDGE OF SAN YSIDRO MTNS; ABOUT 0.8 MI SE OF KUEBLER RANCH AND ABOUT 5 MI ESE OF BROWN FIELD.

Location Detail: 2 CNDDB POLYGONS IN SECTION 29: (1) SW 1/4 OF SW 1/4, AND (2) JUST BELOW RESERVOIR, IN NW 1/4 OF SW 1/4.

Ecological: ON HUER-HUERO LOAM (HEAVY CLAY WITH SMALL STONES) IN HIGHLY DISTURBED NON-NATIVE GRASSLAND (MAY HAVE BEEN COASTAL SAGE SCRUB IN THE PAST). ASSOCIATED WITH BLOOMERIA CROCEA.

Threat: LITTERING, RECREATIONAL SHOOTING, INVASIVE EXOTICS, AND PROPOSED OHV PARK. DEVELOPMENT APPROVED FOR AREA IN 1994.

General: ONLY 3 PLANTS AT COLONY (1) SEEN IN 1987. UNKNOWN HOW MANY SEEN AT (1) IN 1992-INFO FROM 1993 RECOVERY WORKSHOP. 2 PLANTS SEEN AT COLONY (2) IN 2001. INCLUDES FORMER EO #31.

Owner/Manager: UNKNOWN

Sources

CLE87F0001	CLEMONS, D. FIELD SURVEY FORM FOR DEINANDRA CONJUGENS. 1987-05-24.
EDW01F0003	EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR DEINANDRA CONJUGENS. 2001-06-05.
MOR93U0001	MOREY, S. RECOVERY WORKSHOP SUMMARY. 1993-09-14.
WES85F0001	WESTEC SERVICES, INC. FIELD SURVEY FORM FOR WESTEC/EDAW EIR FOR OTAY MESA OHV PARK. 1985-XX-XX.
WIE85F0001	WIER, E. FIELD SURVEY FORM FOR DEINANDRA CONJUGENS, WITH MAP. 1985-04-26.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 7 **Map Index:** 04353 **EO Index:** 16975

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1994-09-26

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)

County Summary: San Diego

Lat/Long: 32.61776º / -117.01692º
UTM: Zone-11 N3608913 E498412
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 161.5 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: N OF POGGI CANYON, E OF CHULA VISTA, S OF CHULA VISTA COMMUNITY HOSPITAL.

Location Detail: S SIDE OF TELEGRAPH CANYON RD.

Ecological: MAP BY D. ZIPPIN SHOWS PLANTS OCCURRING WITH OR VERY NEAR POPULATIONS OF VIGUIERA LACINIATA.

Threat: NEARBY DEVELOPMENT.

General: ACC TO REISER (1991) MORE THAN 10,000 PLANTS OCCURRED IN POGGI CANYON RECENTLY (1990 OR 91?). 1936 WOLF COLLECTION "TELEGRAPH CANYON, 500 FT" ALSO ATTRIBUTED TO THIS SITE.

Owner/Manager: PVT

Sources

BEA87M0005	BEAUCHAMP, M. MAP: FOR DEINANDRA CONJUGENS. 1987-XX-XX.
REI91R0001	REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 1991-04-10.
WOL36S0001	WOLF, C. WOLF #7969 UC #718313. 1936-06-18.
ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.
ZIP90R0001	ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 11 **Map Index:** 04549 **EO Index:** 9419

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown

Dates Last Seen

Element: 198X-XX-XX
Site: 1993-XX-XX

Record Last Updated: 1995-10-03

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55437º / -116.96354º
UTM: Zone-11 N3601886 E503423
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 5.3 acres

Township: 18S
Range: 01W
Section: 34 **Qtr:** SE
Meridian: S
Elevation: 470 ft

Location: W OF JCT OF LA MEDIA & SIEMPRE VIVA RD, OTAY MESA.
Location Detail:
Ecological:
Threat: AREA HIGHLY DISTURBED.
General: NO PLANTS FOUND IN 1993.
Owner/Manager: PVT

Sources

BEA87M0002 BEAUCHAMP, M. MAP: FOR DEINANDRA CONJUGENS. 1987-XX-XX.

MOR93U0001 MOREY, S. RECOVERY WORKSHOP SUMMARY. 1993-09-14.

MOR94U0002 MOREY, S. RESULTS OF SEPTEMBER 23RD RECOVERY WORKSHOP. 1994-XX-XX.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G1	**CNPS List:** 1B.1
State: Endangered	**State:** S1.1	

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 12 **Map Index:** 17902 **EO Index:** 15639

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1994-09-26

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)

County Summary: San Diego

Lat/Long: 32.58477º / -116.98181º
UTM: Zone-11 N3605256 E501707
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 273.1 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: OTAY RANCH; EXTENDING FROM JUST E OF CHESTER GRADE EASTWARD TO SECTION LINE DIVIDING SECTION 22 FROM SECTION 23.

Location Detail: JUST SOUTH OF THE OTAY RIVER. EXTENDS SOUTH SLIGHTLY INTO SECTION 27.

Ecological: MAP SHOWS H. CONJUGENS OCCURRING WITH SEVERAL OTHER RARE PLANTS, INCLUDING VIGUIERA LACINIATA, FEROCACTUS VIRIDESCENS, AND DUDLEYA VARIEGATA

Threat: DEVELOPMENT IS ALWAYS A THREAT TO THIS AREA.

General:

Owner/Manager: PVT

Sources

CAS79F0001 CASS, T. FIELD SURVEY FORM FOR DEINANDRA CONJUGENS. 1979-10-10.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 13 **Map Index:** 17904 **EO Index:** 12181

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1994-09-27

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59943º / -116.99166º
UTM: Zone-11 N3606881 E500782
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 114.8 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: OTAY MESA; WOLF CANYON, FROM NEAR MOUTH OF DRAINAGE, NORTHWARD ALMOST TO AQUEDUCT.

Location Detail: N SIDE OF OTAY RIVER.

Ecological: DRAINAGES OF WOLF CANYON. MAP SHOWS H. CONJUGENS GROWING WITH OTHER RARE PLANTS, INCLUDING FEROCACTUS VIRIDESCENS AND VIGUIERA LACINIATA.

Threat: DEVELOPMENT IS A THREAT.

General:

Owner/Manager: SDG COUNTY, PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 14 **Map Index:** 17903 **EO Index:** 10049

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1995-10-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59979º / -116.98255º
UTM: Zone-11 N3606921 E501637
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 19.9 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY MESA; ROCK MOUNTAIN.
Location Detail: 2 SUBPOPULATIONS; 1 AT JUNCTION OF AQUEDUCT AND OTAY RIVER, OTHER UPSLOPE FROM THERE.
Ecological: N-FACING SLOPES. MAP SHOWS PLANTS OCCURRING WITH VIGUIERA LACINIATA.
Threat: DEVELOPMENT IS A THREAT.
General:
Owner/Manager: PVT-BALDWIN VISTA ASSOC

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 15 **Map Index:** 17901 **EO Index:** 10048

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-05
Site: 2001-06-05

Record Last Updated: 2005-06-15

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59829º / -116.93202º
UTM: Zone-11 N3606756 E506378
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 420 ft

Location: 0.7 MI S OF SOUTHERN END OF LOWER OTAY RESERVOIR, 0.25 MI W OF SAN BERNARDINO MERIDIAN.

Location Detail: S SIDE OF OTAY RIVER, BETWEEN RIVER AND THE GEORGE F. BAILEY DETENTION FACILITY.

Ecological: NON-NATIVE GRASSLAND AND DISTURBED DIEGAN COASTAL SAGE SCRUB. MAP SHOWS PLANTS OCCURRING WITH OR VERY NEAR STIPA DIEGOENSIS AND VIGUIERA LACINIATA.

Threat: OHV USE, AND DEVELOPMENT IS A THREAT.

General: 1 PLANT OBSERVED IN 2001. 1990 ZIPPIN MAP ALSO ATTRIBUTED TO THIS SITE.

Owner/Manager: PVT-BALDWIN CO

Sources

EDW01F0002 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR DEINANDRA CONJUGENS. 2001-06-05.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 30 **Map Index:** 26227 **EO Index:** 13453

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1991-06-05
Site: 1991-06-05

Record Last Updated: 1994-08-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55326º / -116.91603º
UTM: Zone-11 N3601766 E507883
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 31 **Qtr:** SE
Meridian: S
Elevation: 500 ft

Location: JUST N OF US-MEXICO BORDER, 1.9 MI DUE S OF KUEBLER RANCH.
Location Detail: 2800 FT E OF INTERSECTION ENRICO FERMI DRIVE AND MARCONI DRIVE.
Ecological: IN STIPA GRASSLAND.
Threat: PROPOSED INDUSTRIAL DEVELOPMENT.
General: PLANTS NOT COUNTED IN 1991, BUT COVER AN AREA ABOUT 0.66 ACRES IN SIZE.
Owner/Manager: UNKNOWN

Sources

OGD91F0003 OGDEN ENVIRONMENTAL. FIELD SURVEY FORM FOR DEINANDRA CONJUGENS (FROM BIOLOGICAL TECHNICAL REPORT FOR THE EAST OTAY MESA SPECIFIC AREA PLAN). 1991-06-05.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 36 **Map Index:** 61606 **EO Index:** 61642

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-05
Site: 2001-06-05

Record Last Updated: 2005-06-15

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56373º / -116.90943º
UTM: Zone-11 N3602927 E508501
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 3.2 acres

Township: 18S
Range: 01E
Section: 32 **Qtr:** NW
Meridian: S
Elevation: 580 ft

Location: APPROX 3000 FT SOUTHEAST OF THE INTERSECTION OF OTAY MOUNTAIN ROAD AND ALTA ROAD; 1.2 MI SSE OF KUEBLER RANCH.

Location Detail: SW 1/4 OF NW 1/4 OF SECTION 32, ON SOUTH SIDE OF ROAD.

Ecological: NON-NATIVE GRASSLAND.

Threat: OHV.

General: 7 PLANTS SEEN IN 2001.

Owner/Manager: UNKNOWN

Sources

EDW01F0005 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR DEINANDRA CONJUGENS. 2001-06-05.

Deinandra conjugens

Otay tarplant

Element Code: PDAST4R070

Status

Federal: Threatened
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: COASTAL PLAINS, MESAS, AND RIVER BOTTOMS; OFTEN IN OPEN, DISTURBED AREAS; CLAY SOILS. 25-300M.

Occurrence No. 37 **Map Index:** 61608 **EO Index:** 61644

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-05
Site: 2001-06-05

Record Last Updated: 2005-06-15

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58242º / -116.94222º
UTM: Zone-11 N3604997 E505422
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 24 **Qtr:** SW
Meridian: S
Elevation: 380 ft

Location: IN JOHNSON CANYON SOUTH OF RJ DONOVAN CORRECTIONAL FACILITY; 1.5 MI WEST OF KUEBLER RANCH.
Location Detail: SW 1/4 OF SW 1/4 OF SECTION 24.
Ecological: NON-NATIVE GRASSLAND.
Threat: OHV.
General: 2 PLANTS SEEN IN 2001.
Owner/Manager: UNKNOWN

Sources

EDW01F0006 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR DEINANDRA CONJUGENS. 2001-06-05.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 6 **Map Index:** 17688 **EO Index:** 10189

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1985-04-10
Site: 1985-04-10

Record Last Updated: 1991-10-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56587º / -116.90127º
UTM: Zone-11 N3603165 E509268
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 32 **Qtr:** NE
Meridian: S
Elevation: 730 ft

Location: W EDGE OF SAN YSIDRO MOUNTAINS, E OF OTAY MESA; ABOUT 5 MI E-SE OF BROWN FIELD.
Location Detail:
Ecological: ON SMALL ROCKY LEDGES IN SAN MIGUEL-EXCHEQUER ROCKY SILT LOAM. ASSOCIATED WITH SELAGINELLA CINERASCENS, FEROCACTUS VIRIDESCENS, VIGUIERA LACINIATA, AND CRASSULA ERECTA.
Threat: DEVELOPMENT PLANNED FOR THE AREA. ALSO, AREA HAS BEEN SUBJECTED TO FREQUENT FIRES, SO SHRUB GROWTH RATHER DEPAUPERATE.
General: ABOUT 1000 PLANTS SEEN IN 1985. ORV ACTIVITY COMMON IN THIS AREA.
Owner/Manager: UNKNOWN

Sources

WIE85F0007 WIER, E. FIELD SURVEY FORM FOR DUDLEYA VARIEGATA. 1985-04-10.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.2
State: None	**State:** S2.2	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.

Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 7 **Map Index:** 17686 **EO Index:** 7801

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1986-04-22
Site: 1986-04-22

Record Last Updated: 1995-10-03

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55227º / -116.97196º
UTM: Zone-11 N3601653 E502632
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 58.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** XX
Meridian: S
Elevation: 470 ft

Location: NEAR US-MEXICO BORDER, JUST W OF LA MEDIA RD, ABOUT 1.5 MI S OF BROWN FIELD NAVAL AIR STATION.

Location Detail: BEAUCHAMP VERNAL POOLS J19-21. BOTH SIDES OF SIEMPRE VIVA RD.

Ecological: IN 3 SEPARATE VERNAL POOLS. SEEN WITH OTHER RARE PLANTS: ERYNGIUM ARISULATUM PARISHII, POGOGYNE NUDIUSCULA, MYOSURUS MINIMUS VAR. APUS, FEROCACTUS VIRIDESCENS, MUILLA CLEVELANDII, AND MORE.

Threat: IN 1988 N. GILBERT (USFWS) REPORTED POOLS HAD BEEN DISKED RECENTLY. BAUDER SAYS THEY HAVE BEEN DISKED IN THE PAST.

General: ACCORDING TO REISER, THE SITE THAT WAS GRADED IN 1986 WAS A FOOTBALL-SIZED PLOT WITH SEVERAL THOUSAND PLANTS. POOLS OVERGROWN WITH LOLIUM. DEVELOPMENT ALSO A THREAT.

Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

REI89R0002 REISER, C. THE RARE PLANTS OF SAN DIEGO COUNTY. 1989-XX-XX.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 8 **Map Index:** 17684 **EO Index:** 10135

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1992-12-22

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58544º / -116.95681º
UTM: Zone-11 N3605331 E504053
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 578.4 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** SW
Meridian: S
Elevation: 520 ft

Location: N OF BROWN FIELD; EXTENDS FROM NEAR CHESTER GRADE (S OF BIRD RANCH) EASTWARD TO W 1/2 OF SECTION 24. S OTAY VALLEY.

Location Detail: ALSO IN SECTIONS 22, 24, 26, AND 27. SCATTERED SUBPOPULATIONS WITHIN BOUNDARY. BOTH SIDES OF JOHNSON CYN.

Ecological: IN OPEN GRASSY MESA W/POGOGYNE NUDIUSCULA, FEROCACTUS VIRIDESCENS, MUILLA CLEVELANDII, SALVIA MUNZII, ORCUTTIA CA., ERYNGIUM ARIST. PARISHII, ATRIPLEX SEMIBACCATA, AND ERIOGONUM FASCICULATUM. NEAR OCCURRENCE OF SD COAST HORNED LIZARD.

Threat: DEVELOPMENT PLANNED.

General:

Owner/Manager: PVT

Sources

ALL89F0001 ALLEN, B. FIELD SURVEY FORM FOR DUDLEYA VARIEGATA. 1989-05-06.

MOR69S0007 MORAN, R. & H. WILLIAM. MORAN #16038 RSA. 1969-06-06.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

SCO80U0001 SCOTT, T. CURRENT STATUS OF POGOGYNE NUDIUSCULA IN SAN DIEGO COUNTY & BAJA. 1980-01-29.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 9 **Map Index:** 17687 **EO Index:** 10192

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-12-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61157º / -116.94310º
UTM: Zone-11 N3608228 E505338
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.8 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 350 ft

Location: SALT CREEK, ABOUT 0.8 MI NW OF LOWER OTAY FILTRATION PLANT.
Location Detail: BOTH SIDES OF SALT CREEK.
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 10 **Map Index:** 17685 **EO Index:** 10191

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-12-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59750º / -116.98623º
UTM: Zone-11 N3606667 E501292
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 9.4 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 430 ft

Location: W SIDE OF ROCK MOUNTAIN, ABOUT 0.7 MI N OF OTAY RIVER.
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 11 **Map Index:** 17689 **EO Index:** 10193

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-12-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59407º / -116.99298º
UTM: Zone-11 N3606287 E500658
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 280 ft

Location: NEAR MOUTH OF WOLF CANYON, ABOUT 0.5 MI N OF OTAY RIVER.
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 12 **Map Index:** 17690 **EO Index:** 10194

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-12-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58658º / -116.99507º
UTM: Zone-11 N3605456 E500462
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 200 ft

Location: NEAR BIRD RANCH, S SIDE OF OTAY VALLEY.
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 54 **Map Index:** 21838 **EO Index:** 13952

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-XX
Site: 1989-06-XX

Record Last Updated: 1992-10-23

Quad Summary: Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B)
County Summary: San Diego

Lat/Long: 32.62258º / -116.88775º
UTM: Zone-11 N3609453 E510530
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 17.0 acres

Township: 18S
Range: 01E
Section: 09 **Qtr:** NW
Meridian: S
Elevation: 950 ft

Location: SAN YSIDRO MTS; ABOUT 1.5 MI ENE OF BUSCHALAUGH COVE; ON SLOPES OF PEAK AT 1079 FT ELEV.ON
Location Detail: TOPO AND SLIGHTLY NW OF PEAK.

Ecological: IN DRY ROCKY AREAS IN DIEGAN COASTAL SAGE SCRUB/MIXED CHAPARRAL. ASSOCIATED WITH OTHER SENSITIVE PLANT TAXA: SALVIA MUNZII, SELAGINELLA CINERASCENS, AND VIGUIERA LACINIATA.

Threat: DEVELOPMENT PROPOSED FOR THE AREA.

General:

Owner/Manager: PVT

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Dudleya variegata

variegated dudleya

Element Code: PDCRA040R0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ROCKY OR CLAY SOILS; SOMETIMES ASSOCIATED WITH VERNAL POOL MARGINS. 3-550M.

Occurrence No. 57 **Map Index:** 61651 **EO Index:** 61687

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1995-05-17
Site: 1995-05-17

Record Last Updated: 2005-06-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55204º / -116.99832º
UTM: Zone-11 N3601627 E500157
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/10 mile

Township: 19S
Range: 01W
Section: 05 **Qtr:** NE
Meridian: S
Elevation: 440 ft

Location: SOUTH EDGE OF OTAY MESA, ADJACENT TO NORTH EDGE OF WRUCK CANYON.

Location Detail: EDGES OF A FLAT MESA IN THE NE 1/4 OF NE 1/4 OF SECTION 5.

Ecological: SITE IN XERIC SOILS, DOMINATED BY DISTURBED MARITIME SUCCULENT SCRUB. IN ASSOCIATION WITH HEMIZONIA FASCICULATA AND SELAGINELLA CINERASCENS; ALSO FOUND WITH SIMMONDSIA CHINENSIS, AMBROSIA CHENOPODIFOLIA, RHUS INTEGRIFOLIA, ET AL.

Threat: VEHICULAR TRAFFIC (INCLUDING INS VEHICLES), GOAT GRAZING, AND AG USE TO THE NORTH.

General: SOME SURROUNDING LANDS PROPOSED FOR PRESERVATION BY MSCP.

Owner/Manager: PVT

Sources

RIG95F0003 RIGGAN, R. FIELD SURVEY FORM FOR DUDLEYA VARIEGATA. 1995-05-17.

Eremophila alpestris actia

California horned lark

Element Code: ABPAT02011

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3Q
State: S3

Other Lists

CDFG Status:

Habitat Associations

General: COASTAL REGIONS, CHIEFLY FROM SONOMA CO. TO SAN DIEGO CO. ALSO MAIN PART OF SAN JOAQUIN VALLEY & EAST TO FOOTHILLS.

Micro: SHORT-GRASS PRAIRIE, "BALD" HILLS, MOUNTAIN MEADOWS, OPEN COASTAL PLAINS, FALLOW GRAIN FIELDS, ALKALI FLATS.

Occurrence No. 68 **Map Index:** 56370 **EO Index:** 56386

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 200X-XX-XX
Site: 200X-XX-XX

Record Last Updated: 2004-08-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55702º / -116.90434º
UTM: Zone-11 N3602184 E508980
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 32 **Qtr:** SW
Meridian: S
Elevation: 540 ft

Location: 1.8 MILES SSE OF KUEBLER RANCH, JUST WEST OF UNNAMED TRIBUTARY, OTAY MESA.
Location Detail:
Ecological:
Threat:
General: UNKNOWN NUMBER OBSERVED DURING EITHER 2000 OR 2001.
Owner/Manager: UNKNOWN

Sources

HEL01M0001 HELIX ENVIRONMENTAL PLANNING, INC. MAP OF SR-11 POTENTIAL JURISDICTIONAL AREAS & SENSITIVE SPECIES. LOCATIONS FOR FAIRY SHRIMP & OTHER TRACKED SPECIES ON MAP. 2001-05-09.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 1 **Map Index:** 17686 **EO Index:** 7806

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1995-10-03

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55227º / -116.97196º
UTM: Zone-11 N3601653 E502632
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 58.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** XX
Meridian: S
Elevation: 470 ft

Location: OTAY MESA, APPROX 0.75 MI SSE OF ALTA SCHOOL, SE OF BROWN FIELD.

Location Detail: BEAUCHAMP POOLS J 19-21. BOTH SIDES OF SIEMPRE VIVA RD.

Ecological: VERNAL POOLS ON HUERHUERO/STOCKPEN SOILS IN SCRUB VEGETATION WITH ORCUTTIA CALIFORNICA, NAVARRETIA FOSSALIS, AND POGOGYNE NUDIUSCULA.

Threat: SOME POOLS DISKED, SOME NOT. GRAZING AND RELOCATION OF BORDER CROSSING ARE THREATS.

General: IN APPROXIMATELY 46 POOLS IN 1979 AT THIS OCCURRENCE. WATERSHED IS ABOUT 136 ACRES. ONLY ONE PLANT SEEN IN 1990 BY MISTRETTA, HABITAT CONSIDERED EXTANT.

Owner/Manager: PVT

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
MIS90U0014	MISTRETTA, O. SUMMARY OF ERYNGIUM ARISTULATUM VAR. PARISHII SEED COLLECTION ACTIVITIES. 1990-XX-XX.
MOR69S0014	MORAN, R. & H. WITHAM. MORAN #16042 UC #1359532. 1969-06-06.
MOR69S0015	MORAN, R. & H. WITHAM. MORAN #16043S UC #1368172. 1969-08-02.
VIL79R0002	VILLASENOR, R. (RECON ENVIRONMENTAL, INC.). REPORT ON VERNAL POOLS OF THE KEARNY MESA REGION, SAN DIEGO COUNTY. 1979-10-03.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 9 **Map Index:** 04611 **EO Index:** 14017

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-05-22
Site: 1990-05-22

Record Last Updated: 1996-01-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58968º / -116.94387º
UTM: Zone-11 N3605801 E505267
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 175.2 acres

Township: 18S
Range: 01W
Section: 24 **Qtr:** W
Meridian: S
Elevation: 450 ft

Location: OTAY MESA, PARTLY IN BROWN FIELD BOMBING RANGE, APPROX 2.1 MI NE OF ALTA SCHOOL.

Location Detail: WITHIN BEAUCHAMP POOLS J23-25.

Ecological: VERNAL POOLS ON HUERHUERO/STOCKPEN SOILS IN SCRUB VEGETATION. WITH POGOGYNE NUDIUSCULA. PLANTS ALSO IN BOMB CRATERS AND MOIST OPEN AREA.

Threat: POOLS UNDISTURBED. GRAZING, RELOCATION OF BORDER CROSSING ARE THREATS.

General: IN APPROXIMATELY 51 POOLS AT THIS SITE IN 1979. MISTRETTA DESCRIBED PLANTS AS SCATTERED AND INFREQUENT, HABITAT CONSIDERED EXTANT.

Owner/Manager: USFWS, SDG COUNTY

Sources

BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
COX84U0003	COX, R. UPDATED INFORMATION. 1984-03-16.
MIS90U0007	MISTRETTA, O. & P. FRITSCH. SENSITIVE SPECIES SEED COLLECTION FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1990-09-07.
MIS90U0014	MISTRETTA, O. SUMMARY OF ERYNGIUM ARISTULATUM VAR. PARISHII SEED COLLECTION ACTIVITIES. 1990-XX-XX.
SCH89R0001	SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.
VIL79R0002	VILLASENOR, R. (RECON ENVIRONMENTAL, INC.). REPORT ON VERNAL POOLS OF THE KEARNY MESA REGION, SAN DIEGO COUNTY. 1979-10-03.
WIE90R0002	WIER, H. (MICHAEL BRANDMAN ASSOCIATES). SENSITIVE PLANT SPECIES REPORT. OTAY RANCH-PROCTOR VALLEY/JAMUL MOUNTAINS AREA. 1990-08-24.
ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 10 **Map Index:** 23059 **EO Index:** 7775

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-09-07
Site: 1990-09-07

Record Last Updated: 1995-10-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59804º / -116.92887º
UTM: Zone-11 N3606729 E506674
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.6 acres

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 510 ft

Location: OTAY MESA, 1 KM (0.6 MI) SOUTH OF LOWER OTAY CAMPING AREA.

Location Detail: WITHIN THE SE 1/4 OF THE SE 1/4 OF SECTION 13. INCLUDES BEAUCHAMP POOLS J-26.

Ecological: VERNAL POOLS, SOME WITH POGOGYNE NUDIUSCULA. SOLID ADENOSTOMA ON MOUNDS BETWEEN POOLS.

Threat: VEHICLE TRACKS IN ERYNGIUM POOLS AND SOME MOUNDS REMOVED; OTHERWISE RELATIVELY UNDISTURBED.

General: ERYNGIUM IN 4 POOLS IN 1979. PLANT COMMON IN 3 OF THEM AND UNCOMMON IN THE FOURTH. APPROXIMATELY 30 POOLS AT THE SITE. 50-100 PLANTS SEEN IN 1990. HABITAT DESCRIBED AS EXTANT AND RELATIVELY UNDISTURBED.

Owner/Manager: PVT, SDG COUNTY

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

MIS90U0005 MISTRETTA, O. & P. FRITSCH. SENSITIVE SPECIES SEED COLLECTION FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1990-09-07.

MIS90U0014 MISTRETTA, O. SUMMARY OF ERYNGIUM ARISTULATUM VAR. PARISHII SEED COLLECTION ACTIVITIES. 1990-XX-XX.

VIL79R0002 VILLASENOR, R. (RECON ENVIRONMENTAL, INC.). REPORT ON VERNAL POOLS OF THE KEARNY MESA REGION, SAN DIEGO COUNTY. 1979-10-03.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status

Federal: Endangered
State: Endangered

NDDB Element Ranks

Global: G5T2
State: S2.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 11 **Map Index:** 04699 **EO Index:** 12355

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-07
Site: 1990-06-07

Record Last Updated: 1997-04-14

Quad Summary: Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B)
County Summary: San Diego

Lat/Long: 32.62269º / -116.91528º
UTM: Zone-11 N3609462 E507947
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 81.8 acres

Township: 18S
Range: 01E
Section: 07 **Qtr:** NW
Meridian: S
Elevation: 560 ft

Location: NORTH AND EAST OF BUSHALAUGH COVE, LOWER OTAY RESERVOIR.
Location Detail: INCLUDES BEAUCHAMP SITES K3, K4, K5.
Ecological: VERNAL POOLS ON HUERHUERO/OLIVENHAIN SOILS IN SCRUB VEGETATION.
Threat:
General: IN 15 POOLS IN 1979. WATERSHED 65 AC.
Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

VIL79R0002 VILLASENOR, R. (RECON ENVIRONMENTAL, INC.). REPORT ON VERNAL POOLS OF THE KEARNY MESA REGION, SAN DIEGO COUNTY. 1979-10-03.

WIE90R0001 WIER, H.A. REPORT ON THE HYDROLOGY AND FLORA OF THE OTAY RANCH VERNAL POOLS, 1990, SAN DIEGO COUNTY, CALIFORNIA (MICHAEL BRANDMAN AND ASSOCIATES). 1990-11-21.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 12 **Map Index:** 23060 **EO Index:** 7785

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-09-07
Site: 1990-09-07

Record Last Updated: 1993-04-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57560º / -116.93931º
UTM: Zone-11 N3604241 E505696
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 11.3 acres

Township: 18S
Range: 01W
Section: 25 **Qtr:** NW
Meridian: S
Elevation: 620 ft

Location: OTAY MESA, SOUTH OF JOHNSON CANYON, 0.7 KM (0.5 MI) SOUTH OF BROWN FIELD BOMBING RANGE.

Location Detail: INCLUDES BEAUCHAMP POOLS J-22. WITHIN THE SE 1/4 OF THE NW 1/4 OF SECTION 25.

Ecological: VERNAL POOLS WITH NAVARRETIA FOSSALIS.

Threat: MUCH OF VERNAL POOL HABITAT HAS BEEN FILLED IN.

General: SEEN IN 3 VERNAL POOLS IN 1979 AND IN 2 POOLS AT CREST OF HILL IN 1985. 20-40 PLANTS SEEN IN 1990. HABITAT CONSIDERED EXTANT BUT HIGHLY DEGRADED.

Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

MIS90U0004 MISTRETTA, O. & P. FRITSCH. SENSITIVE SPECIES SEED COLLECTION FORM AND MAP FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1990-09-07.

MIS90U0014 MISTRETTA, O. SUMMARY OF ERYNGIUM ARISTULATUM VAR. PARISHII SEED COLLECTION ACTIVITIES. 1990-XX-XX.

VIL79R0002 VILLASENOR, R. (RECON ENVIRONMENTAL, INC.). REPORT ON VERNAL POOLS OF THE KEARNY MESA REGION, SAN DIEGO COUNTY. 1979-10-03.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 13 **Map Index:** 04566 **EO Index:** 7774

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1993-06-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58355º / -116.96019º
UTM: Zone-11 N3605121 E503736
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 65.0 acres

Township: 18S
Range: 01W
Section: 22 **Qtr:** SW
Meridian: S
Elevation: 510 ft

Location: APPROX 1 MI NE OF ALTA SCHOOL, NE OF BROWN FIELD. OTAY MESA.INCL BEAUCHAMP J30.

Location Detail: SERIES OF POOLS MAPPED AS FOUR POLYGONS AT CNDDB.

Ecological: VERNAL POOLS ON HUERHUERO/STOCKPEN SOILS IN SCRUB VEGETATION. WITH POGOGYNE NUDIUSCULA.

Threat: POOLS PARTLY DISTURBED. GRAZING AND RELOCATION OF BORDER CROSSING ARE THREATS.

General: IN APPROXIMATELY 10 POOLS IN 1979. HABITAT CONSIDERED EXTANT BUT DISTURBED BY GRAZING. WATERSHED 65 ACRES.

Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

MIS90U0006 MISTRETTA, O. & P. FRITSCH. SENSITIVE SPECIES SEED COLLECTION FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1990-09-07.

MIS90U0014 MISTRETTA, O. SUMMARY OF ERYNGIUM ARISTULATUM VAR. PARISHII SEED COLLECTION ACTIVITIES. 1990-XX-XX.

VIL79R0002 VILLASENOR, R. (RECON ENVIRONMENTAL, INC.). REPORT ON VERNAL POOLS OF THE KEARNY MESA REGION, SAN DIEGO COUNTY. 1979-10-03.

WIE90R0001 WIER, H.A. REPORT ON THE HYDROLOGY AND FLORA OF THE OTAY RANCH VERNAL POOLS, 1990, SAN DIEGO COUNTY, CALIFORNIA (MICHAEL BRANDMAN AND ASSOCIATES). 1990-11-21.

WIE90R0002 WIER, H. (MICHAEL BRANDMAN ASSOCIATES). SENSITIVE PLANT SPECIES REPORT. OTAY RANCH-PROCTOR VALLEY/JAMUL MOUNTAINS AREA. 1990-08-24.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 61 **Map Index:** 04435 **EO Index:** 7788

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 2000-XX-XX
Site: 2000-XX-XX

Record Last Updated: 2004-03-01

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.54617º / -117.00270º
UTM: Zone-11 N3600977 E499746
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 5.3 acres

Township: 19S
Range: 01W
Section: 05 **Qtr:** SE
Meridian: S
Elevation: 460 ft

Location: OTAY MESA NEAR BORDER, 0.4 KM (0.25 MI) SOUTH OF WRUCK CYN.

Location Detail: INCLUDES BEAUCHAMP POOL J-15.

Ecological: VERNAL POOLS ASSOCIATED WITH SISYRINCHIUM BELLUM, LASTHENIA CALIFORNICA, LAMARKIA AUREA, ZIGADENUS FREMONTII, LINANTHUS DIANTHIFLORUS AND PLAGIOBOTHRYS ACANTHOCARPA. ON STOCKPEN SOIL.

Threat: MOTORCYCLE AND HEAVY BORDER TRAFFIC IN ADDITION TO TRASH AND EVIDENCE OF FIRES.

General: 3 POOLS IN 1979 AND 1990. 200 PLANTS SEEN IN 1990. UNKNOWN NUMBER OF PLANTS OBSERVED IN 2000. HABITAT DESCRIBED AS EXTANT BUT CONDITION IS POOR; SITE IS HEAVILY DISTURBED.

Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

MIS90U0012 MISTRETTA, O. & P. FRITSCH. SENSITIVE SPECIES SEED COLLECTION FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1990-09-07.

MIS90U0014 MISTRETTA, O. SUMMARY OF ERYNGIUM ARISTULATUM VAR. PARISHII SEED COLLECTION ACTIVITIES. 1990-XX-XX.

REC00R0004 RADTKEY, J. POST-SURVEY NOTIFICATION - FOCUSED WET SEASON SURVEY RESULTS FOR LISTED ENDANGERED FAIRY SHRIMP SPECIES ALONG INS BORDER FENCE, SAN DIEGO COUNTY (RECON NUMBER 3312B). 2000-08-09.

SHO82M0012 SHOWERS, M. MAP WITH SITES OF ERYNGIUM ARISTULATUM PARISHII COMPILED FROM BEAUCHAMP SITES. 1982-XX-XX.

VAN86F0001 VANDERWIER, J. FIELD SURVEY FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1986-02-14.

VAN86U0001 VANDERWIER, J. LETTER AND MAP FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1986-03-18.

VIL79R0002 VILLASENOR, R. (RECON ENVIRONMENTAL, INC.). REPORT ON VERNAL POOLS OF THE KEARNY MESA REGION, SAN DIEGO COUNTY. 1979-10-03.

Eryngium aristulatum var. parishii

San Diego button-celery

Element Code: PDAPI0Z042

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: SAN DIEGO MESA HARDPAN & CLAYPAN VERNAL POOLS & SOUTHERN INTERIOR BASALT FLOW VERNAL POOLS; USU SURR BY SCRUB. 15-620M.

Occurrence No. 89 **Map Index:** 23091 **EO Index:** 7786

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1995-05-17
Site: 1995-05-17

Record Last Updated: 1993-06-02

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55163º / -117.00275º
UTM: Zone-11 N3601582 E499742
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 11.8 acres

Township: 19S
Range: 01W
Section: 05 **Qtr:** NE
Meridian: S
Elevation: 350 ft

Location: SOUTH EDGE OF OTAY MESA, 0.3 KM (0.2 MI) NORTH OF WRUCK CANYON AND FROM SPRING CANYON EAST 0.5 KM (0.3 MI).

Location Detail: INCLUDES BEAUCHAMP POOLS J16-18. J16 POOLS MAPPED WITHIN THE NE 1/4 NE 1/4 SECTION 5; J-18 POOLS MAPPED WITHIN THE NW 1/4 NE 1/4 SECTION 5.

Ecological: GROWING IN VERNAL POOLS SURROUNDED BY DISTURBED MARITIME SUCCULENT SCRUB. ASSOCIATED WITH SIMMONDSIA CHINENSIS, AMBROSIA CHENOPODIIFOLIA, RHUS INTEGRIFOLIA, ERIOGONUM FASCICULATUM, ARTEMISIA CALIFORNICA,, AND NON-NATIVE GRASSES.

Threat: EVIDENCE OF ORV USE (AND OTHER VEHICLES INC. INS) APPARENT IN THE POOLS; GRAZING; PROPOSED FOR SALE AS MITIGATION LAND.

General: SPECIES FOUND IN 11 POOLS IN 1979 BY BEAUCHAMP. FOUND IN 2 POOLS IN 1990, APPROX 400 PLANTS SEEN. OBSERVED IN 4 POOLS IN EASTERN PART OF OCCURRENCE IN 1995: ERYNGIUM WAS ABUNDANT IN 3 OF THE 4 POOLS.

Owner/Manager: UNKNOWN

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

MIS90U0008 MISTRETTA, O. & P. FRITSCH. SENSITIVE SPECIES SEED COLLECTION FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1990-09-22.

MIS90U0014 MISTRETTA, O. SUMMARY OF ERYNGIUM ARISTULATUM VAR. PARISHII SEED COLLECTION ACTIVITIES. 1990-XX-XX.

RIG95F0002 RIGGAN, R.B. (R.B. RIGGAN & ASSOCIATES). FIELD SURVEY FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1995-05-17.

Eumops perotis californicus

western mastiff bat

Element Code: AMACD02011

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T4
State: S3?

Other Lists

CDFG Status: SC

Habitat Associations

General: MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL ETC

Micro: ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES & TUNNELS.

Occurrence No. 245 **Map Index:** 72072 **EO Index:** 72994

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-06-12
Site: 2003-06-12

Record Last Updated: 2008-09-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60386º / -116.92147º
UTM: Zone-11 N3607375 E507367
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 18 **Qtr:** XX
Meridian: S
Elevation: 380 ft

Location: DAM CANYON CAVES, 0.73 MI DOWN STREAM FROM SAVAGE DAM, OTAY VALLEY REGIONAL PARK.
Location Detail:
Ecological:
Threat:
General: BATS DETECTED AUDIBLY ON 12 JUN 2003 DURING A ROOST SURVEY.
Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

STO03R0001 STOKES, D. ET AL. (USGS-WERC). BAT INVENTORY OF THE SAN DIEGO COUNTY MULTIPLE SPECIES CONSERVATION PROGRAM AREA, 2003. 2003-XX-XX.

Eumops perotis californicus

western mastiff bat

Element Code: AMACD02011

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T4	**CDFG Status:** SC
State: None	**State:** S3?	

Habitat Associations

General: MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL ETC

Micro: ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES & TUNNELS.

Occurrence No. 294 **Map Index:** 73281 **EO Index:** 74234

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2003-07-15
Site: 2003-07-15

Record Last Updated: 2008-12-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60143º / -116.92964º
UTM: Zone-11 N3607105 E506602
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 264 ft

Location: ALONG OTAY RIVER AT THE MOUTH OF DAM CANYON, OTAY VALLEY REGIONAL PARK.
Location Detail:
Ecological:
Threat:
General: DETECTED WITH ANABAT DETECTOR ON 15 JUL 2003 DURING A ROOST SURVEY. LASIURUS BLOSSEVILLII, MYOTIS CILIOLABRUM, M. YUMANENSIS, NYCTINOMOPS FEMOROSACCUS, PIPISTRELLUS HESPERUS & TADARIDA BRASILIENSIS ALSO DETECTED HERE.
Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G5T1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 12 **Map Index:** 46740 **EO Index:** 46740

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-04-04
Site: 2001-04-04

Record Last Updated: 2001-12-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58129º / -116.95871º
UTM: Zone-11 N3604871 E503875
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 26 **Qtr:** SW
Meridian: S
Elevation: 520 ft

Location: 2.5 MILES SW OF THE LOWER OTAY RESERVOIR AND NE OF THE BROWNFILED NAVAL AUXILIARY AIR STATION.
Location Detail:

Ecological: HABITAT CONSISTS OF COASTAL SAGE SCRUB & ANNUAL GRASSLAND. FOOD PLANT (PLANTAGO ERECTA & CASTILLEJA EXSERTA) PRESENT WITHIN MITIGATION SITE. NECTAR PLANTS INCLUDE LASTHENIA CALIFORNICA, POPCORN FLOWER, COMMON FORGET-ME-NOT& BLUE DICKS.

Threat:

General: 4 APR 2001: 1 ADULT OBSERVED. OBSERVATION WITHIN A MITIGATION SITE FOR EUPHYDRIAS EDITHA QUINO AND VERNAL POOLS.

Owner/Manager: UNKNOWN

Sources

DUD01R0002 DUDEK & ASSOCIATES, INC. 45-DAY REPORT FOR THE STATE ROUTE 125 QUINO CHECKERSPOT BUTTERFLY AND VERNAL POOL MITIGATION SITE, QUINO CHECKERSPOT BUTTERFLY SURVEY, CITY OF SAN DIEGO, CALIFORNIA. 2001-06-15.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 23 **Map Index:** 46511 **EO Index:** 46511

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-04-04
Site: 2001-04-04

Record Last Updated: 2001-11-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60683º / -116.94292º
UTM: Zone-11 N3607703 E505356
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.1 acres

Township: 18S
Range: 01W
Section: 13 **Qtr:** XX
Meridian: S
Elevation: 350 ft

Location: 0.7 MILES WSW OF SOUTH END OF LOWER OTAY RESERVOIR, 0.25 MILES EAST OF SALT CREEK AND 450 FEET NORTH OF AQUEDUCT.
Location Detail:

Ecological: HABITAT CONSISTS OF SPARSE COASTAL SAGE SCRUB, VIGUIERA LACINIATA, GUTIERREZIA SPP, ERODIUM BOTRYS AND BROMUS MADRITENSIS, ERIOGONUM FASCICULATUM AND POPCORN FLOWER. NECTAR SPECIES INCLUDE: ERIOGONUM FASCICULATUM. PLANTAGO ERECTA SPARSE.

Threat: PROPOSED FOR DEVELOPMENT.

General: 26 FEB 1999: 1 INDIVIDUAL OBSERVED FLYING OVER HILLTOP AND SUNNING ON DIRT ROAD. 4 APR 2001: 1 INDIVIDUAL OBSERVED.

Owner/Manager: PVT

Sources

DUD01R0001 DUDEK & ASSOCIATES, INC. 2001 QUINO CHECKERSPOT BUTTERFLY SURVEY FOR SALT CREEK SEWER PROJECT, CITY OF CHULA VISTA, CALIFORNIA. 2001-05-30.

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

PRI00R0002 PRIEST, J. (DUDEK & ASSOCIATES). 1999 ANNUAL REPORT OF ACTIVITIES PERTAINING TO PERMIT # TE840619-1. EUPHYDRYAS EDITHA QUINO. 2000-01-28.

PRI99R0003 PRIEST, J. (DUDEK & ASSOCIATES). QUINO CHECKERSPOT BUTTERFLY SURVEY FOR THE OTAY RANCH UNIVERSITY SITE, CITY OF CHULA VISTA, CALIFORNIA. 1999-06-23.

SMI99U0004 SMITH, D. (DUDEK & ASSOCIATES). CORRESPONDENCE (WITH MAP) REGARDING EUPHYDRYAS EDITHA QUINO. 1999-02-26.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status		NDDB Element Ranks		Other Lists	
Federal:	Endangered	**Global:**	G5T1	**CDFG Status:**	
State:	None	**State:**	S1		

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 24 **Map Index:** 46492 **EO Index:** 46492

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-04-25
Site: 2001-04-25

Record Last Updated: 2002-10-16

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56915º / -116.90277º
UTM: Zone-11 N3603528 E509126
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 29 **Qtr:** XX
Meridian: S
Elevation:

Location: 7 MILES SE OF CHULA VISTA AND 2 MILES SE OF LOWER OTAY RESERVOIR; SE OF O'NEAL CANYON TO THE CA/MEXICO BORDER.

Location Detail: BUTTERFLIES PARTICULARLY ABUNDANT ON SEVERAL PROMINENT HILLTOPS, LESSER KNOLLS & RIDGELINES (GENERALLY MALES) WHILE MANY OTHER QCB FOUND IN AREAS WITH ABUNDANT PLANTAGO ERECTA &/OR NECTARING RESOURCES.

Ecological: PLANTAGO ERECTA, CASTILLEJA EXSERTA & CORDYLANTHUS RIGIDUS PRESENT. NECTAR SOURCES INCLUDE LASTHENIA CALIFORNICA, PLAGIOBOTHRYS SPP., CRYPTANTHA SP., AMSINCKIA MENZIESSII, LOTUS SCOPARIUS, LINANTHUS DIANTHIFLORUS & ERIOGONUM FASCICULATUM.

Threat: THREATENED BY DEVELOPMENT.

General: 26 FEB 1999: 1 LARVA. 3 MAR 1999: 2 LARVAE. 31 MAR 2001: 8 ADULTS. MAR 2001: 101 ADULTS. APR 2001: 37 ADULTS. 2001 FLIGHT SEASON: 7 ADULTS OBSERVED IN SE AREA.

Owner/Manager: PVT

Sources

BOU01R0001 BOUCHER, C. (RECON ENVIRONMENTAL, INC.). QUINO CHECKERSPOT BUTTERFLY FLIGHT SURVEY REPORT FOR THE AUXILIARY NATURAL GAS ROUTES OF THE OTAY MESA GENERATING PROJECT. 2001-06-07.

DRA01U0001 DRAKE, B. COLLECTION OF MEMOS (WITH MAPPED LOCATIONS FOR EUPHYDRYAS EDITHA QUINO) FOR THE TIME PERIOD OF 20 MAR 2001 THRU 16 APR 2001. 2001-XX-XX.

EDW01F0001 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR EUPHYDRYAS EDITHA QUINO. 2001-03-31.

ELV99U0005 ELVIN, M. MAP WITH LOCATION FOR EUPHYDRYAS EDITHA QUINO. 1999-02-26.

HEL01R0001 HELIX ENVIRONMENTAL PLANNING, INC. 2001 REPORT FOR PRESENCE SURVEYS FOR THE QUINO CHECKERSPOT BUTTERFLY (EUPHYDRYAS EDITHA QUINO). 2001-XX-XX.

HEL01R0005 HELIX ENVIRONMENTAL PLANNING, INC. 2001 QUINO CHECKERSPOT BUTTERFLY (EUPHYDRYAS EDITHA QUINO) SURVEY REPORT FOR THE EAST OTAY PROJECT POTENTIAL MITIGATION SITE. 2001-05-31.

KEA01U0001 KEA ENVIRONMENTAL, INC. COLLECTION OF MEMOS (WITH MAPPED LOCATIONS) FOR EUPHYDRYAS EDITHA QUINO. 2001-03-14.

MAR01U0002 MARQUEZ & ASSOCIATES. COLLECTION OF MEMOS (WITH MAPPED LOCATIONS) FOR EUPHYDRYAS EDITHA QUINO. 2001-XX-XX.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G5T1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Sources

OSB01R0001	OSBORNE, K. SITE ASSESSMENT AND FOCUSED ADULT SURVEY FOR THE QUINO CHECKERSPOT BUTTERFLY (EUPHYDRYAS EDITHA QUINO) IN THE EAST OTAY MESA SPECIFIC PLAN AREA, OTAY MESA, SAN DIEGO COUNTY. 2001-06-19.
OSB01U0001	OSBORNE, K. COLLECTION OF MEMOS (WITH MAPPED LOCATIONS) FOR EUPHYDRYAS EDITHA QUINO. 2001-03-XX.
POW01U0001	POWELL, D. COLLECTIONS OF MEMOS (WITH MAPPED LOCATIONS FOR EUPHYDRYAS EDITHA QUINO) FOR THE TIME PERIOD OF 21 MAR 2001 THRU 26 APR 2001. 2001-XX-XX.
PRA99U0003	PRATT & HEIN (UC, RIVERSIDE). MAP WITH LOCATION FOR EUPHYDRYAS EDITHA QUINO. 1999-03-03.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G5T1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 32 **Map Index:** 46540 **EO Index:** 46540

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1998-XX-XX
Site: 1998-XX-XX

Record Last Updated: 2001-11-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58359º / -116.96457º
UTM: Zone-11 N3605126 E503325
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.8 acres

Township: 18S
Range: 01W
Section: 22 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY MESA; 1.3 MILES SE OF ROCK MTN. ABOUT 1.1 MILES NORTH OF INTERSECTION OF OTAY MESA RD & LA MEDIA RD & 700 FT WEST.
Location Detail:

Ecological: HABITAT CONSISTS OF COASTAL SAGE SCRUB DOMINATED BY CALIFORNIA SAGEBRUSH, CALIFORNIA BUCKWHEAT, LEMONADEBERRY AND SAN DIEGO COUNTY VIGUIERA. DOT-SEED PLANTAIN, OWL'S CLOVER AND GOLDFIELDS ARE NUMEROUS.

Threat: PROPOSED ROUTE FOR STATE ROUTE 125.

General: 1997: 1 INDIVIDUAL OBSERVED. 1998: 1 INDIVIDUAL OBSERVED.

Owner/Manager: UNKNOWN

Sources

DOD98R0001 DODERO, M. ET AL. (RECON ENVIRONMENTAL, INC.). STATE ROUTE 125 SOUTH 1998 QUINO CHECKERSPOT HABITAT ANALYSIS AND SURVEY RESULTS. 1998-07-08.

JEF99R0001 JEFFERSON, M. (RECON ENVIRONMENTAL, INC.). QUINO CHECKERSPOT BUTTERFLY UPDATE FLIGHT SURVEY REPORT FOR STATE ROUTE 125 SOUTH (ALIGNMENT). 1999-07-28.

STE98M0001 STEPHENSON, B. (RECON ENVIRONMENTAL, INC.). FAX OF MAP FOR EUPHYDRYAS EDITHA QUINO. 1998-04-21.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 61 **Map Index:** 46545 **EO Index:** 46545

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-03-20
Site: 2001-03-20

Record Last Updated: 2001-11-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59620º / -116.95822º
UTM: Zone-11 N3606523 E503920
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 23 **Qtr:** XX
Meridian: S
Elevation: 240 ft

Location: OTAY VALLEY. 1.35 MILES EAST OF ROCK MOUNTAIN; 0.2 MILES NORTH OF OTAY RIVER ALONG NORTH SIDE OF UNIMPROVED ROAD.
Location Detail:

Ecological: HABITAT CONSISTS OF COSTAL SAGE, TAMARISK SCRUB AND ANNUAL GRASSLANDS. DWARF PLANTAIN PRESENT NORTH OF ROAD, SOUTH OF AGRICULTURAL TERRACES. NECTAR PLANTS INCLUDE: CALIFORNIA BUCKWHEAT, DEERWEED, COAST CHOLLA, BLUE DICKS AND LUPINE.

Threat: PROPOSED SEWER ALIGNMENT.

General: 20 MAR 2001: 1 INDIVIDUAL OBSERVED.

Owner/Manager: PVT-OTAY RANCH

Sources

DUD01R0001 DUDEK & ASSOCIATES, INC. 2001 QUINO CHECKERSPOT BUTTERFLY SURVEY FOR SALT CREEK SEWER PROJECT, CITY OF CHULA VISTA, CALIFORNIA. 2001-05-30.

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G5T1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 72 **Map Index:** 46549 **EO Index:** 46549

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-03-25
Site: 2001-03-25

Record Last Updated: 2001-11-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62312º / -116.89803º
UTM: Zone-11 N3609511 E509565
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 08 **Qtr:** NE
Meridian: S
Elevation: 680 ft

Location: SAN YSIDRO MOUNTAINS; 1 MILE EAST OF LOWER OTAY RESERVOIR AT BUSCHALAUGH COVE AND 0.75 MILES SOUTH OF OTAY LAKES ROAD.

Location Detail: OBSERVED IN A FIREBREAK ON A RIDGELINE.

Ecological:

Threat: PROPOSED DEVELOPMENT.

General: 3 MAR 2001: 15 INDIVIDUALS SEEN.

Owner/Manager: PVT

Sources

HEL01R0004 HELIX ENVIRONMENTAL PLANNING, INC. 2001 ANNUAL REPORT PRESENCE SURVEYS FOR THE QUINO CHECKERSPOT BUTTERFLY (EUPHYDRYAS EDITHA QUINO). 2001-06-06.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 73 **Map Index:** 46550 **EO Index:** 46550

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-04-16
Site: 2001-04-16

Record Last Updated: 2001-11-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61823º / -116.88781º
UTM: Zone-11 N3608970 E510525
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 12.8 acres

Township: 18S
Range: 01E
Section: 09 **Qtr:** SW
Meridian: S
Elevation: 900 ft

Location: SAN YSIDRO MTNS; 1.6 MI EAST OF LOWER OTAY RESERVOIR AT BUSCHALAUGH COVE & 1.2 -1.4 MI SOUTH OF LOWER OTAY LAKES RD.
Location Detail:

Ecological:

Threat: PROPOSED DEVELOPMENT.

General: 16 APR 2001: 3 INDIVIDUALS OBSERVED.

Owner/Manager: PVT

Sources

HEL01R0004 HELIX ENVIRONMENTAL PLANNING, INC. 2001 ANNUAL REPORT PRESENCE SURVEYS FOR THE QUINO CHECKERSPOT BUTTERFLY (EUPHYDRYAS EDITHA QUINO). 2001-06-06.

Euphydryas editha quino

quino checkerspot butterfly

Element Code: IILEPK405L

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G5T1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: SUNNY OPENINGS WITHIN CHAPARRAL & COASTAL SAGE SHRUBLANDS IN PARTS OF RIVERSIDE & SAN DIEGO COUNTIES.

Micro: HILLS & MESAS NEAR THE COAST. NEED HIGH DENSITIES OF FOOD PLANTS PLANTAGO ERECTA, P. INSULARIS, ORTHOCARPUS PURPURESCENS

Occurrence No. 75 **Map Index:** 46542 **EO Index:** 46542

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-04-13
Site: 2001-04-13

Record Last Updated: 2001-11-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57342º / -116.88158º
UTM: Zone-11 N3604004 E511115
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 28 **Qtr:** SE
Meridian: S
Elevation: 1,700 ft

Location: 3.6 MILES SE OF SOUTH EDGE LOWER OTAY LAKES RESERVOIR AND 1.2 TO 1.3 MILES NORTH OF USA/MEXICO BORDER.
Location Detail:

Ecological:
Threat:
General: 13 APR 2001: 2 OBSERVED. 12 MAR 1997: 6 MALES OBSERVED. MAY BE USED AS A MITIGATION SITE.
Owner/Manager: BLM

Sources

HEL01R0005 HELIX ENVIRONMENTAL PLANNING, INC. 2001 QUINO CHECKERSPOT BUTTERFLY (EUPHYDRYAS EDITHA QUINO) SURVEY REPORT FOR THE EAST OTAY PROJECT POTENTIAL MITIGATION SITE. 2001-05-31.

PRA00M0002 PRATT, G. (UC, RIVERSIDE). MAP WITH LOCATION OF EUPHYDRYAS EDITHA QUINO. 2000-12-20.

Ferocactus viridescens

San Diego barrel cactus **Element Code:** PDCAC08060

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CNPS List: 2.1

Habitat Associations
General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 52 **Map Index:** 04343 **EO Index:** 22368
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1998-05-14
Site: 1998-05-14
Record Last Updated: 2002-03-19

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56569º / -117.02381º
UTM: Zone-11 N3603141 E497764
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 1,035.1 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: RIM OF WESTERN OTAY MESA, ALSO 2 POPS APPROX 0.2 MI S OF SOUTH RIM (SEC 6 SE QUARTER).

Location Detail: MAPPED ALL AROUND EDGE OF MESA WHERE THE UNDERLYING CLAY PAN IS EXPOSED. PLANTS MAY ALSO BE FOUND TO THE NORTH OF THIS OCCURRENCE WITHIN THE HIDDEN TRAILS PROJECT AREA.

Ecological: PLANTS IN SOUTH RIM AREA ASSOCIATED WITH SIMMONDSIA CHINENSIS, ARTEMISIA CALIFORNICA, EUPHORBIA MISERA, SISYRINCHIUM BELLUM, DUDLEYA VARIEGATA.

Threat: LOTS OF FOOT AND VEHICULAR TRAFFIC; POTENTIAL DEVELOPMENT.

General: INCLUDES FORMER OCCURRENCES #9 AND 81. IN 1998 PLANTS FOUND DURING A SURVEY FOR QUINO CHECKERSPOT WITHIN HIDDEN TRAILS.

Owner/Manager: UNKNOWN

Sources

BRU98R0001	BRUYEA, G.P. (BRUYEA BIOLOGICAL CONSULTING). QUINO CHECKERSPOT HABITAT ASSESSMENT AND FOCUSED SURVEY REPORT. HIDDEN TRAIL PRECISE PLAN. (SELAGINELLA CINERASCENS, FEROCACTUS VIRIDESCENS, SDG FAIRY SHRIMP, OTHERS). 1998-05-14.
HOL85F0021	HOLLAND, R.F. FIELD SURVEY FORM FOR CENTRAL FOREDUNES (NC21220). 1985-03-17.
REV85U0001	REVEAL, J. NOTES FROM CONVERSATION BETWEEN J. REVEAL & RICK YORK (CNPS). 1985-03-06.
SCH84F0031	SCHEIDT, V. FIELD SURVEY FORM FOR FEROCACTUS VIRIDESCENS. 1984-10-01.
VAN86F0002	VANDERWIER, J. FIELD SURVEY FORM FOR FEROCACTUS VIRIDESCENS, WITH MAP. 1986-02-07.
WIG28S0001	WIGGINS, I. WIGGINS #3245 DS. 1928-06-16.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CNPS List: 2.1

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 60 **Map Index:** 58712 **EO Index:** 21363

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1984-04-19
Site: 1984-04-19

Record Last Updated: 2005-08-24

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57930º / -116.89765º
UTM: Zone-11 N3604655 E509605
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 29 **Qtr:** NW
Meridian: S
Elevation:

Location: OTAY MOUNTAIN TRUCK TRAIL, EAST OF OTAY MESA; OTAY MOUNTAIN RESEARCH NATURAL AREA.

Location Detail: LOCATION VAGUE, MAPPED AS BEST GUESS BY CNDDB ALONG TRUCK TRAIL EAST OF KUEBLER RANCH.

Ecological: OTHER PLANTS IN THIS VICINITY (QUARTER SECTION) ARE STIPA DIEGOENSIS, LEPECHINIA GANDERI, CUPRESSUS GUADALUPENSIS FORBESII, CEANOTHUS CYANEUS, CHAMAEBATIA AUSTRALIS.

Threat:

General: INCLUDES FORMER EO #61. NEEDS FIELDWORK.

Owner/Manager: BLM

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 62 **Map Index:** 04712 **EO Index:** 21362

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1984-04-19
Site: 1984-04-19

Record Last Updated: 1995-11-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59873º / -116.91467º
UTM: Zone-11 N3606806 E508006
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 18 **Qtr:** SE
Meridian: S
Elevation: 1,000 ft

Location: SOUTHEAST OF LOWER OTAY RESERVOIR, OTAY MOUNTAIN RESEARCH NATURAL AREA.
Location Detail:
Ecological: IN COASTAL SAGE SCRUB ASSOCIATED WITH STIPA DIEGOENSIS AND LEPECHINIA GANDERI.
Threat:
General:
Owner/Manager: BLM

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 70 **Map Index:** 04617 **EO Index:** 12157

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58798º / -116.94464º
UTM: Zone-11 N3605613 E505195
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 249.9 acres

Township: 18S
Range: 01W
Section: 24 **Qtr:** W
Meridian: S
Elevation: 400 ft

Location: OTAY MESA, NEAR BROWN FIELD BOMBING RANGE AND WESTWARD ON BOTH SIDES OF JOHNSON CANYON.

Location Detail: ALSO IN SECTION 23.

Ecological: COASTAL SAGE SCRUB AND GRASSLAND. ALSO IN MARITIME SUCCULENT SCRUB THROUGHOUT THE NON-AGRICULTURAL PORTIONS OF THE SITE ACC TO ZIPPIN (1990). PLANT ALSO AT MARGINS OF VERNAL POOLS. ASSOCIATED WITH VIGUIERA LACINIATA. IN AREA OF OVER 20 VPS.

Threat: DEVELOPMENT AND GRAZING COULD THREATEN.

General: MAPPED AS 5 SUBPOPULATIONS AS PER MAP BY ZIPPIN. ALSO ASSOCIATED WITH POGOGYNE NUDIUSCULA, ERYNGIUM ARISTULATUM PARISHII, AMD FRITILLARIA BIFLORA. OCCURRENCE INCLUDES J30 VERNAL POOL COMPLEX (FORMER OCC #71).

Owner/Manager: BLM, PVT

Sources

OBE84U0004	OBERBAUER, T. FIELD LIST OF PLANTS SEEN AT BROWN FIELD BOMBING RANGE. 1984-04-23.
SCO80U0001	SCOTT, T. CURRENT STATUS OF POGOGYNE NUDIUSCULA IN SAN DIEGO COUNTY & BAJA. 1980-01-29.
ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.
ZIP90R0001	ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 104 **Map Index:** 20542 **EO Index:** 9818

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58522º / -116.97497º
UTM: Zone-11 N3605306 E502349
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 6.4 acres

Township: 18S
Range: 01W
Section: 22 **Qtr:** NW
Meridian: S
Elevation: 300 ft

Location: OTAY MESA; JUST N OF BROWN FIELD NAVAL AUXILIARY AIR STATION, 0.4-0.6 MI W OF JEEP TRAIL.

Location Detail: S SIDE OTAY RIVER.

Ecological: N-FACING SLOPE WITH OTHER RARE PLANTS, INCLUDING DICHONDRA OCCIDENTALIS, HEMIZONIA CONJUGENS, AND HARPAGONELLA PALMERI PALMERI.

Threat: DEVELOPMENT COULD THREATEN.

General:

Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 105 **Map Index:** 20543 **EO Index:** 9812

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58153º / -116.98995º
UTM: Zone-11 N3604897 E500943
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 17.2 acres

Township: 18S
Range: 01W
Section: 28 **Qtr:** NW
Meridian: S
Elevation: 400 ft

Location: OTAY MESA; JUST N OF NW BOUNDARY OF BROWN FIELD NAVAL AUXILIARY AIR STATION, ABOUT 0.4 MI S OF BIRD RANCH.

Location Detail: S SIDE OF OTAY RIVER.

Ecological: MAP SHOWS PLANTS OCCURRING WITH OTHER RARE TAXA INCLUDING HEMIZONIA CONJUGENS AND VIGUIERA LACINIATA.

Threat: DEVELOPMENT COULD THREATEN.

General:

Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 106 **Map Index:** 20539 **EO Index:** 9815

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61269º / -116.97792º
UTM: Zone-11 N3608351 E502071
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 540 ft

Location: WOLF CANYON, 0.5 MI SE OF OTAY RANCH. OTAY MESA.
Location Detail:
Ecological: N-FACING SLOPE.
Threat: DEVELOPMENT COULD THREATEN.
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CNPS List: 2.1

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 107 **Map Index:** 20540 **EO Index:** 9814

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1996-04-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60776º / -116.94650º
UTM: Zone-11 N3607806 E505019
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 88.8 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: OTAY MESA; WEST OF LOWER OTAY RESERVOIR ALONG SALT CREEK SOUTHWARD FOR ABOUT 2.3 AIRMI.

Location Detail: ON N AND S SIDES OF AQUEDUCT, N OF OTAY RIVER.

Ecological: MAPPED AS 12 SUBPOPULATIONS. MAP BY ZIPPIN SHOWS PLANTS OCCURRING WITH SELAGINELLA CINERASCENS AND VIGUIERA LACINIATA.

Threat: DEVELOPMENT COULD THREATEN.

General:

Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 108 **Map Index:** 20541 **EO Index:** 9813

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59492º / -116.99217º
UTM: Zone-11 N3606381 E500734
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 101.9 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: ROCK MOUNTAIN & WOLF CANYON. OTAY MESA.

Location Detail:

Ecological: ON S AND E-FACING SLOPES OF ROCK MOUNTAIN, AND IN WOLF CANYON, FROM NEAR MOUTH NORTHWARD ABOUT 1 MI ALONG UNIMPROVED DIRT RD. MAP BY ZIPPIN SHOWS PLANTS OCCURRING WITH HEMIZONIA CONJUGENS, SELAGINELLA CINERASCENS, AND VIGUIERA LACINIATA.

Threat: DEVELOPMENT COULD THREATEN.

General: MAPPED AS 2 POLYGONS.

Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 109 **Map Index:** 17686 **EO Index:** 7805

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1986-04-22
Site: 1986-04-22

Record Last Updated: 1995-10-03

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55227º / -116.97196º
UTM: Zone-11 N3601653 E502632
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 58.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** XX
Meridian: S
Elevation: 470 ft

Location: NEAR US-MEXICO BORDER, JUST W OF LA MEDIA RD. ABOUT 1.5 MI S OF BROWN FIELD NAVAL AUXILIARY AIR STATION.

Location Detail: GROWING ADJACENT TO BEAUCHAMP VERNAL POOLS J19-21. BOTH SIDES OF SIEMPRE VIVA RD.

Ecological: NEAR 3 SEPARATE VERNAL POOLS. POOLS WITH SEVERAL OTHER RARE PLANTS: ERYNGIUM ARISTULATUM PARISHII, POGOGYNE NUDIUSCULA, MYOSURUS MINIMUS APUS, MUILLA CLEVELANDII, DUDLEYA VARIEGATA, NAVARRETIA FOSSALIS, AND MORE.

Threat: IN 1988 N. GILBERT REPORTED POOLS HAD BEEN DISKED RECENTLY. BAUDER SAYS POOLS DISKED IN THE PAST.

General: POOLS OVERGROWN WITH LOLIUM.

Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2

Other Lists

CNPS List: 2.1

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 112 **Map Index:** 20532 **EO Index:** 9837

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61933º / -116.90999º
UTM: Zone-11 N3609090 E508444
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 08 **Qtr:** NW
Meridian: S
Elevation: 600 ft

Location: E OF BUSCHALAUGH COVE, ABOUT 0.1 MI S OF FIREBREAK. SAN YSIDRO MTNS.

Location Detail:

Ecological: MAP SHOWS PLANTS OCCURRING WITH MONARDELLA LINOIDES VIMINEA AND NEAR SELAGINELLA CINERASCENS.

Threat: DEVELOPMENT COULD THREATEN.

General:

Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 113 **Map Index:** 20531 **EO Index:** 9835

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61297º / -116.90930º
UTM: Zone-11 N3608385 E508509
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 5.0 acres

Township: 18S
Range: 01E
Section: 08 **Qtr:** SW
Meridian: S
Elevation: 720 ft

Location: 1 MI E OF LOWER OTAY RESERVOIR, JUST W OF JEEP TRAIL. SAN YSIDRO MTNS.
Location Detail:
Ecological: NW-FACING SLOPE NEAR SELAGINELLA CINERASCENS.
Threat: DEVELOPMENT COULD THREATEN.
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 114 **Map Index:** 20530 **EO Index:** 9836

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60885º / -116.90223º
UTM: Zone-11 N3607929 E509173
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 17 **Qtr:** NW
Meridian: S
Elevation: 920 ft

Location: 1.4 MI E OF SALVAGE DAM OF LOWER OTAY RESERVOIR, SAN YSIDRO MTNS.
Location Detail:
Ecological: E-FACING SLOPE WITH VIGUIERA LACINIATA AND STIPA DIEGOENSIS.
Threat: DEVELOPMENT COULD THREATEN.
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 115 **Map Index:** 20529 **EO Index:** 9834

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60728º / -116.91881º
UTM: Zone-11 N3607754 E507618
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 17.0 acres

Township: 18S
Range: 01E
Section: 18 **Qtr:** N
Meridian: S
Elevation: 400 ft

Location: SE OF SALVAGE DAM OF LOWER OTAY RESERVOIR; 0.7 MI E OF LOWER OTAY FILTRATION PLANT.
Location Detail:
Ecological: ON SW AND W-FACING SLOPES WITH VIGUIERA LACINIATA AND SELAGINELLA CINERASCENS.
Threat: DEVELOPMENT COULD THREATEN.
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.
ZIP90R0001	ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Ferocactus viridescens

San Diego barrel cactus **Element Code:** PDCAC08060

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CNPS List: 2.1

Habitat Associations
General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 162 **Map Index:** 62422 **EO Index:** 62459
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-09-10
Site: 2002-09-10
Record Last Updated: 2005-08-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57654º / -116.91358º
UTM: Zone-11 N3604347 E508110
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 14.6 acres

Township: 18S
Range: 01E
Section: 30 **Qtr:** NE
Meridian: S
Elevation: 700 ft

Location: ABOUT 0.4 MI SOUTHEAST OF KUEBLER RANCH, EASTERN EDGE OF OTAY MESA.

Location Detail: MAIN GROUP OF PLANTS ON SLOPE NEAR PROPERTY BOUNDARY, NORTH OF POWER PLANT. IN THE SE 1/4 OF NE 1/4 OF SECTION 30.

Ecological: SPARSE COASTAL SAGE SCRUB WITH ARTEMISIA CALIFORNICA, VIGUIERA LACINIATA (ALSO RARE), ERIOGONUM FASCICULATAM, SELAGINELLA CINERESCENS, LESSINGIA FILAGINIFOLIA, & BROMUS SPP. & OTHER ANNUAL NON-NATIVE GRASSES.

Threat: SURROUNDED BY AGRICULTURE. TWO PLANTS WILL BE LOST TO DEVELOPMENT IN THE WESTERN PORTION.

General: 60 PLANTS OBSERVED IN 2002; 57 OF THESE CONCENTRATED IN THE EASTERNMOST PORTION OF THE SITE.

Owner/Manager: PVT-NATIONAL ENTERPRISES

Sources

MAC02F0004 MACGREGOR, C. (REC LTD.). FIELD SURVEY FORM FOR FEROCACTUS VIRIDESCENS. 2002-09-10.

Ferocactus viridescens

San Diego barrel cactus

Element Code: PDCAC08060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CNPS List:** 2.1
State: None	**State:** S2	

Habitat Associations

General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 163 **Map Index:** 62425 **EO Index:** 62462

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-01-25
Site: 2002-01-25

Record Last Updated: 2005-08-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55881º / -116.89744º
UTM: Zone-11 N3602383 E509627
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 32 **Qtr:** SE
Meridian: S
Elevation: 600 ft

Location: 0.3 MI NORTH OF THE MEXICAN BORDER, ABOUT 1.8 AIRMI SOUTHEAST OF KUEBLER RANCH; EASTERN EDGE OF OTAY MESA.

Location Detail: APPROX 7000 FT SOUTHEAST OF THE INTERSECTION OF OTAY MESA ROAD AND ALTA ROAD. EAST SIDE OF THE JEEP TRAIL, IN THE NE 1/4 OF NW 1/4 OF SE 1/4 OF SECTION 32.

Ecological: COASTAL SAGE SCRUB.

Threat: OHV USE.

General: 1 INDIVIDUAL OBSERVED IN 2002.

Owner/Manager: UNKNOWN

Sources

EDW02F0009 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR FEROCACTUS VIRIDESCENS. 2002-01-25.

Ferocactus viridescens

San Diego barrel cactus **Element Code:** PDCAC08060

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CNPS List: 2.1

Habitat Associations
General: CHAPPARAL, DIEGAN COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: OFTEN ON EXPOSED, LEVEL OR SOUTH-SLOPING AREAS; OFTEN IN COASTAL SCRUB NEAR CREST OF SLOPES. 3-485M.

Occurrence No. 164 **Map Index:** 62427 **EO Index:** 62464
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-01-25
Site: 2002-01-25
Record Last Updated: 2005-08-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56542º / -116.90742º
UTM: Zone-11 N3603114 E508690
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 34.8 acres

Township: 18S
Range: 01E
Section: 32 **Qtr:** NW
Meridian: S
Elevation: 600 ft

Location: 0.5 MI EAST OF INTERSECTION OF OTAY MESA ROAD AND ALTA ROAD (AT BM 623), EASTERN EDGE OF OTAY MESA.

Location Detail: 4 CNDDB POLYGONS JUST EAST OF THE EAST END OF OTAY MESA ROAD. ALONG THE ROAD IN THE SW 1/4 OF SW 1/4 OF SECTION 29, THE NW 1/4 OF SECTION 32, AND THE NE 1/4 OF NE 1/4 OF SECTION 31.

Ecological: COASTAL SAGE SCRUB AND NON-NATIVE GRASSLAND.

Threat: OHV USE.

General: 25 INDIVIDUALS OBSERVED IN 2002.

Owner/Manager: UNKNOWN

Sources

EDW02F0010 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR FEROCACTUS VIRIDESCENS. 2002-01-25.

EDW02F0011 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR FEROCACTUS VIRIDESCENS. 2002-01-25.

Fremontodendron mexicanum

Mexican flannelbush

Element Code: PDSTE03020

Status

Federal: Endangered
State: Rare

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL, CISMONTANE WOODLAND.

Micro: USUALLY SCATTERED ALONG THE BORDERS OF CREEKS OR IN DRY CANYONS; SOMETIMES ON GABBRO SOILS. 10-490M.

Occurrence No. 2 **Map Index:** 04818 **EO Index:** 20848

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1894-07-02
Site: 1894-07-02

Record Last Updated: 1989-08-11

Quad Summary: Otay Mountain (3211657/010D), Dulzura (3211667/010A), Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B)

County Summary: San Diego

Lat/Long: 32.63254º / -116.88429º
UTM: Zone-11 N3610557 E510853
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 18S
Range: 02E
Section: 04 **Qtr:** XX
Meridian: S
Elevation: 520 ft

Location: JAMUL VALLEY.
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

Sources

KEL83B0001 KELMAN, W.M. THE APPLICATION OF PRINCIPAL COMPONENT ANALYSIS TO TAXONOMIC PROBLEMS IN FREMONTODENDRON (THESIS - OHIO UNIVERSITY). 1983-06-XX.

MEA94S0001 MEARNS, E.A. & L. SCHOEMFELDT. MEARNS #3825 DS. 1894-07-02.

Fremontodendron mexicanum

Mexican flannelbush

Element Code: PDSTE03020

Status

Federal: Endangered
State: Rare

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL, CISMONTANE WOODLAND.

Micro: USUALLY SCATTERED ALONG THE BORDERS OF CREEKS OR IN DRY CANYONS; SOMETIMES ON GABBRO SOILS. 10-490M.

Occurrence No. 7 **Map Index:** 04841 **EO Index:** 20847

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 1989-08-11

Quad Summary: Otay Mountain (3211657/010D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59589º / -116.87808º
UTM: Zone-11 N3606495 E511440
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 21 **Qtr:** NE
Meridian: S
Elevation: 1,600 ft

Location: IN UNNAMED CYN ON W FLANK OF OTAY MTN, SAN YSIDRO MTNS.
Location Detail:
Ecological:
Threat:
General: NO INDICATION OF WHEN OR WHO SAW SPECIES AT THIS LOCATION.
Owner/Manager: UNKNOWN

Sources

EPP81U0003 ENDANGERED PLANT PROGRAM. STATUS REPORT. 1981-09-02.

Harpagonella palmeri

Palmer's grapplinghook

Element Code: PDBOR0H010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S3.2

Other Lists

CNPS List: 4.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: CLAY SOILS; OPEN GRASSY AREAS W/IN SHRUBLAND. 15-830M.

Occurrence No. 14 **Map Index:** 04595 **EO Index:** 9466

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1992-03-27

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58326º / -116.94474º
UTM: Zone-11 N3605090 E505186
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 23.5 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** SE
Meridian: S
Elevation: 350 ft

Location: JOHNSON CANYON, S SIDE OTAY VALLEY.
Location Detail: MAPPED IN SW1/4 SEC 24 AND SE1/4 SEC 23.
Ecological: CLAY SLOPES AND BURNS ON S-FACING SLOPES. MAP SHOWS PLANTS OCCURRING WITH VIGUIERA LACINIATA, DUDLEYA VARIEGATA, AND IVA HAYESIANA.
Threat: GENERAL DEVELOPMENT OF THE OTAY MESA AREA WILL THREATEN THIS POPULATION IN THE FUTURE.
General:
Owner/Manager: PVT

Sources

GRI85U0001 GRIGGS, T. NOTE REGARDING POPULATION OF HARPAGONELLA PALMERI. 1985-04-XX.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Harpagonella palmeri

Palmer's grapplinghook

Element Code: PDBOR0H010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S3.2

Other Lists

CNPS List: 4.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: CLAY SOILS; OPEN GRASSY AREAS W/IN SHRUBLAND. 15-830M.

Occurrence No. 24 **Map Index:** 20096 **EO Index:** 9909

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58449º / -116.97565º
UTM: Zone-11 N3605225 E502285
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 22 **Qtr:** SW
Meridian: S
Elevation: 320 ft

Location: JUST N OF BROWN FIELD NAVAL AUXILIARY AIR STATION, S OF OTAY RIVER, 0.5 MI W OF JEEP TRAIL.
Location Detail:
Ecological: CLAY SLOPES AND BURNS. MAP SHOWS PLANTS OCCURRING WITH HEMIZONIA CONJUGENS AND DUDLEYA VARIEGATA.
Threat: DEVELOPMENT.
General: UNKNOWN HOW MANY PLANTS SEEN BY ZIPPIN IN 1990.
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Hesperocyparis forbesii

Tecate cypress

Element Code: PGCUP040C0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.1
State: None	**State:** S1.1	

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.

Micro: PRIMARILY ON NORTH-FACING SLOPES; GROVES OFTEN ASSOCIATED WITH CHAPARRAL. 250-1500M.

Occurrence No. 8 **Map Index:** 05014 **EO Index:** 14429

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2007-05-20
Site: 2007-05-20

Record Last Updated: 2009-11-24

Quad Summary: Dulzura (3211667/010A), Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B), Otay Mountain (3211657/010D)

County Summary: San Diego

Lat/Long: 32.59456º / -116.84384º
UTM: Zone-11 N3606353 E514653
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 7,554.9 acres

Township: 18S
Range: 01E
Section: 23 **Qtr:** XX
Meridian: S
Elevation: 2,400 ft

Location: OTAY MOUNTAIN, FROM LOWER OTAY RESERVOIR E TO MINE CANYON AND N TO CEDAR CANYON, SAN YSIDRO MTNS.

Location Detail: MAPPED AS PER 1978 VEGETATION MAP BY T. OBERBAUER. MODIFICATIONS FROM MSCP WORK, 2004. LARGE POPULATION MAPPED OVER MUCH OF OTAY MOUNTAIN QUAD AND PORTIONS OF OTAY MESA, JAMUL MOUNTAINS, AND DULZURA QUADS TOO.

Ecological: CHAPARRAL WITH ADENOSTOMA FASCICULATA, CHAMAEBATIA AUSTRALIS, ARCTOSTAPHYLOS, CEANOTHUS, QUERCUS BERBERIDIFOLIA, PICKERINGIA MONTANUM, LATHYRUS VESTITUS ALFIELDII, CALOCHORTUS SPLENDENS, OROBANCHE BULBOSA, AND THE RARE LEPECHINIA GANDERI.

Threat: INAPPROPRIATE FIRE REGIME, GRAZING, ROADS IN AREA, DEVELOPMENT OF OTAY RANCH.

General: PARTS BURNED IN 1870'S, 1947, AND 1979. MOST TREES ABOUT 40 YEARS OLD (1984) AND PRODUCING CONES (1995). TYPE LOCALITY. ONLY PART OF OCCURRENCE NEAR OTAY MTN TRUCK TRAIL VISITED IN 1995 BY SKINNER. INCLUDES FORMER OCCURRENCES #9 AND #19.

Owner/Manager: BLM-ESCONDIDO RA, PVT

Sources

ABR13S0002	ABRAMS, L. ABRAMS SN SBBG #54715. 1913-07-15.
ABR13S0003	ABRAMS, L. ABRAMS #5007 RSA #31149. 1913-07-18.
BEA66S0001	BEAUCHAMP, M. BEAUCHAMP SN SD #79049 SDSU #01750, 01744, 01738, 01737. 1966-01-27.
DUN84R0001	DUNN, A. A PRELIMINARY REPORT ON THE ECOLOGY & MANAGEMENT OF THE TECATE CYPRESS IN SAN DIEGO CO. 1984-11-XX.
DUN85F0002	DUNN, A. FIELD SURVEY FORM FOR LEPECHINIA GANDERI & DENDROMECON HARFORDII VAR. HARFORDII & MIMULUS CLEVELANDII & CALLITROPSIS FORBESII. 1985-04-28.
EME81S0001	EMERY, D. EMERY SN UCR #25012. 1981-10-23.
EVE01F0002	EVENS, J. FIELD SURVEY FORM FOR CALLITROPSIS FORBESII. 2001-06-17.
FOR07S0001	FORBES, C. FORBES SN UC #145999, 146001, 146002, JEPS #19319. 1907-12-30.
FOR07S0002	FORBES, C. FORBES SN UC #146004, 130535, 130543, 130544, 130555, JEPS #46556, 19318. 1907-12-30.
FOR07S0003	FORBES, C. FORBES #5001 JEPS #46557. 1907-12-30.
FOR07S0004	FORBES, C. FORBES SN POM #11469, 990 RSA #25958, 28205 UC #130556 JEPS #19320. 1907-12-30.

Hesperocyparis forbesii

Tecate cypress

Element Code: PGCUP040C0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.1
State: None	**State:** S1.1	

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.

Micro: PRIMARILY ON NORTH-FACING SLOPES; GROVES OFTEN ASSOCIATED WITH CHAPARRAL. 250-1500M.

Sources

GAN35S0039	GANDER, F. GANDER #223 SD #11650. 1935-06-26.
GRI72R0001	GRIFFIN, J. & W. CRITCHFIELD. THE DISTRIBUTION OF FOREST TREES IN CALIFORNIA. USDA FOREST SERVICE RESEARCH PAPER PSW-82/1972. 1972-XX-XX.
KLE02F0003	KLEIN, M.W. FIELD SURVEY FORM FOR SOUTHERN INTERIOR CYPRESS FOREST & CALLOPHRYS THORNEI & CALLITROPSIS FORBESII. 2002-02-23.
KOB96U0001	KOBETICH, G. MEMO ON SURVEY RESULTS FOR OTAY MOUNTAIN BORDER ROADS AND HORSE TRAILS (WITH MAP). 1996-09-11.
MIC82S0009	MICHENER, D. & W. WISURA. MICHENER #4178 RSA #298684. 1982-08-24.
MOR61S0001	MORAN, R. MORAN #8401 SDNHM #50908 (CITED IN SPR77U0001). 1961-03-09.
MSC04D0001	MULTIPLE SPECIES CONSERVATION PROGRAM - SAN DIEGO. BASELINE DIGITAL DATA FOR PLANT SPECIES COVERED UNDER THE SAN DIEGO MSCP FROM 2001 THROUGH 2002. 2004-XX-XX.
OBE78M0001	OBERBAUER, T. COUNTY OF SAN DIEGO GENERALIZED VEGETATION MAP WITH FIELD-CHECKED BOUNDARIES OF TECATE CYPRESS (CALLITROPSIS FORBESII). 1978-06-XX.
REI94U0002	REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 1994-05-XX.
ROB01D0001	ROBERTS, F. DIGITAL DATA FOR MULTIPLE SPECIES COVERED UNDER THE SAN DIEGO COUNTY MSCP FROM 2001 THROUGH 2002. 2001-XX-XX.
ROB03F0005	ROBERTS, F. FIELD SURVEY FORM FOR SOUTHERN INTERIOR CYPRESS FOREST & CALLITROPSIS FORBESII. 2003-05-04.
ROB03S0003	ROBERTS, F. ROBERTS #5750 UCR #128386, IRVC #28465. 2003-05-03.
ROB96U0001	ROBERTS, JR., F.M. PHONE CONVERSATION WITH D. TIBOR REGARDING 2 PLANT TAXA. 1996-11-18.
ROB99U0002	ROBERTS, F. 6TH EDITION COMMENTS (INCLUDES INFORMATION FOR SEVERAL SPECIES). 1999-09-XX.
ROW84R0001	ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.
SAN00S0004	SANDERS, A. SANDERS #23620 UCR #112906. 2000-08-04.
SAN03S0004	SANDERS, A. SANDERS #26526 UCR #127995. 2003-05-04.
SAN82S0005	SANDERS, A. SANDERS #2423 UCR #28372. 1982-03-19.
SCH53S0001	SCHWENKMEYER, R. SCHWENKMEYER SN SDSU #01731. 1953-05-20.
SCH89R0001	SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.
SDC02R0001	COUNTY OF SAN DIEGO. SENSITIVE PLANT MONITORING: FINAL REPORT, APRIL 30, 2002. 2002-04-30.
SDG05D0001	SAN DIEGO COUNTY DEPARTMENT OF PLANNING AND LAND USE. SAN DIEGO COUNTY BIOLOGICAL OBSERVATION DATABASE RARE SPECIES RECORDS. 2005-XX-XX.
SIM03S0001	SIMPSON, M. SIMPSON #2422 SD #188600, SDSU #17224, UCR #188728. 2003-05-03.
SKI95F0012	SKINNER, M. FIELD SURVEY FORM FOR LEPECHINIA GANDERI & CALLITROPSIS FORBESII. 1995-04-10.
SNA06S0001	SNAPP-COOK, J. ET AL. SNAPP-COOK #36 SD #192086. 2006-04-28.
SNA07S0001	SNAPP-COOK, J. ET AL. SNAPP-COOK #102 SD #192087. 2007-05-20.

Hesperocyparis forbesii

Tecate cypress

Element Code: PGCUP040C0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.
Micro: PRIMARILY ON NORTH-FACING SLOPES; GROVES OFTEN ASSOCIATED WITH CHAPARRAL. 250-1500M.

Sources

SPR77U0001	SPROUL, F. SPECIES REPORT FOR CALLITROPSIS FORBESII. 1977-10-XX.
STA27S0005	STARK, B. STARK #310 RSA #989. 1927-11-01.
THO64S0035	THOMPSON, D. & E. FEARS. THOMPSON SN SDSU #00289. 1964-07-07.
USF34M0002	U.S. FOREST SERVICE. VEGETATION TYPES OF CALIFORNIA, SAN DIEGO COUNTY. WIESLANDER MAPS. 1934-XX-XX.
VOG77A0001	VOGL, R. ET AL. THE CLOSED CONE PINES & CYPRESSES IN TERRESTRIAL VEGETATION OF CALIFORNIA. M. BARBOUR & J. MAJOR, EDS. 1977-XX-XX.
WIS86F0003	WISURA, W. FIELD SURVEY FORM FOR FREMONTODENDRON MEXICANUM & CALLITROPSIS FORBESII. 1986-12-09.
WOL35S0017	WOLF, C. WOLF #6282 SD #40652 RSA #17655. 1935-01-16.
WOL35S0018	WOLF, C. WOLF #6285 UC #1090375 RSA #17658 SD #48381, 41197. 1935-01-17.
WOL35S0047	WOLF, C. WOLF #6283 RSA #17656 SD #40683. 1935-01-17.
WOL35S0048	WOLF, C. WOLF #6284 RSA #17657 SD #48380, #40649. 1935-01-17.
ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.
ZIP90R0001	ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Hesperocyparis forbesii

Tecate cypress

Element Code: PGCUP040C0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.
Micro: PRIMARILY ON NORTH-FACING SLOPES; GROVES OFTEN ASSOCIATED WITH CHAPARRAL. 250-1500M.

Occurrence No. 16 **Map Index:** 43239 **EO Index:** 43239

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-20
Site: 1990-06-20

Record Last Updated: 2000-07-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60012º / -116.93035º
UTM: Zone-11 N3606959 E506535
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 3.7 acres

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 400 ft

Location: S OF LOWER OTAY RESERVOIR NEAR THE HEAD OF OTAY VALLEY, ABOUT 0.5 MILE S OF LOWER OTAY CAMPING AREA, SAN YSIDRO MTNS.

Location Detail: MAPPED JUST SOUTH OF OTAY RIVER ALONG N-FACING SLOPES.

Ecological: CHAPARRAL AND COASTAL SAGE SCRUB.

Threat: WITHIN GENERAL AREA OF OTAY RANCH DEVELOPMENT, IMPROPER FIRE REGIME HAS ALTERED MOST POPULATIONS OF THIS SPECIES.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL PROVIDED BY D. ZIPPEN (1990).

Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Hesperocyparis forbesii

Tecate cypress

Element Code: PGCUP040C0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.1
State: None	**State:** S1.1	

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.

Micro: PRIMARILY ON NORTH-FACING SLOPES; GROVES OFTEN ASSOCIATED WITH CHAPARRAL. 250-1500M.

Occurrence No. 17 **Map Index:** 43240 **EO Index:** 43240

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-20
Site: 1990-06-20

Record Last Updated: 2000-07-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58454º / -116.94217º
UTM: Zone-11 N3605232 E505427
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 1.7 acres

Township: 18S
Range: 01W
Section: 24 **Qtr:** SW
Meridian: S
Elevation: 520 ft

Location: SOUTHWEST OF LOWER OTAY RESERVOIR, ABOVE JOHNSON CANYON ABOUT 1 MILE ESE OF CANYON MOUTH, OTAY MESA.

Location Detail: MAPPED ON UPPER SLOPES OF CANYON AT EDGE OF MESA, WITHIN THE SW 1/4 SW 1/4 SECTION 24.

Ecological: CHAPARRAL AND COASTAL SAGE SCRUB.

Threat: WITHIN GENERAL AREA OF OTAY RANCH DEVELOPMENT, IMPROPER FIRE REGIME HAS ALTERED MOST POPULATIONS OF THIS SPECIES.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL PROVIDED BY D. ZIPPEN (1990).

Owner/Manager: PVT

Sources

ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.
ZIP90R0001	ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Hesperocyparis forbesii

Tecate cypress

Element Code: PGCUP040C0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL.
Micro: PRIMARILY ON NORTH-FACING SLOPES; GROVES OFTEN ASSOCIATED WITH CHAPARRAL. 250-1500M.

Occurrence No. 18 **Map Index:** 43241 **EO Index:** 43241

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-20
Site: 1990-06-20

Record Last Updated: 2000-07-20

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59253º / -116.99488º
UTM: Zone-11 N3606116 E500480
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 1.5 acres

Township: 18S
Range: 01W
Section: 21 **Qtr:** NE
Meridian: S
Elevation: 200 ft

Location: NORTH SIDE OF OTAY VALLEY AT MOUTH OF WOLF CANYON, WEST OF LOWER OTAY RESERVOIR.
Location Detail: MAPPED ALONG ROAD ON WEST SIDE OF CANYON ABOUT 0.5 MILE NORTH OF BIRD RANCH.
Ecological: CHAPARRAL AND COASTAL SAGE SCRUB.
Threat: WITHIN GENERAL AREA OF OTAY RANCH DEVELOPMENT, IMPROPER FIRE REGIME HAS ALTERED MOST POPULATIONS OF THIS SPECIES
General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL PROVIDED BY D. ZIPPEN (1990).
Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Icteria virens

yellow-breasted chat

Element Code: ABPBX24010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S3

Other Lists

CDFG Status: SC

Habitat Associations

General: SUMMER RESIDENT; INHABITS RIPARIAN THICKETS OF WILLOW & OTHER BRUSHY TANGLES NEAR WATERCOURSES.

Micro: NESTS IN LOW, DENSE RIPARIAN, CONSISTING OF WILLOW, BLACKBERRY, WILD GRAPE; FORAGES AND NESTS WITHIN 10 FT OF GROUND.

Occurrence No. 80 **Map Index:** 49584 **EO Index:** 49584

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-06

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59586º / -116.95605º
UTM: Zone-11 N3606486 E504124
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 199.3 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** XX
Meridian: S
Elevation: 220 ft

Location: OTAY VALLEY, JUST SW OF LOWER OTAY RESERVOIR.

Location Detail: FROM ROCK MOUNTAIN TO THE EAST END OF OTAY VALLEY. SPECIES DETECTED AT 18 DIFFERENT LOCATIONS THROUGHOUT POLYGON.

Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.

Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.

General: SPECIES DETECTED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Icteria virens

yellow-breasted chat

Element Code: ABPBX24010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S3

Other Lists

CDFG Status: SC

Habitat Associations

General: SUMMER RESIDENT; INHABITS RIPARIAN THICKETS OF WILLOW & OTHER BRUSHY TANGLES NEAR WATERCOURSES.

Micro: NESTS IN LOW, DENSE RIPARIAN, CONSISTING OF WILLOW, BLACKBERRY, WILD GRAPE; FORAGES AND NESTS WITHIN 10 FT OF GROUND.

Occurrence No. 81 **Map Index:** 49586 **EO Index:** 49586

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58728º / -116.98270º
UTM: Zone-11 N3605534 E501623
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 21 **Qtr:** XX
Meridian: S
Elevation: 180 ft

Location: VICINITY OF RIVER BOTTOM RESERVOIR, OTAY VALLEY; SW OF LOWER OTAY RESERVOIR.

Location Detail:

Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.

Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.

General: 1 DETECTED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 1 **Map Index:** 36921 **EO Index:** 31918

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 2006-06-28

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61407º / -116.90563º
UTM: Zone-11 N3608508 E508853
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 52.8 acres

Township: 18S
Range: 01E
Section: 08 **Qtr:** SW
Meridian: S
Elevation: 600 ft

Location: EAST OF LOWER OTAY RESERVOIR, JUST EAST OF BUSCHALAUGH COVE.

Location Detail: 2 COLONIES MAPPED ALONG DRAINAGE THAT IS A TRIBUTARY TO THE EAST END OF BUSCHALAUGH

Ecological:

Threat: DEVELOPMENT.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL AND REPORT FROM "BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY: RARE PLANT SURVEY RESULTS, SPRING 1990" BY ZIPPEN (1990). INCLUDES FORMER OCCURRENCE #2.

Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3?	**CNPS List:** 2.2
State: None	**State:** S2.2?	

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.

Micro: RIVERWASHES. 10-500M.

Occurrence No. 3 **Map Index:** 36923 **EO Index:** 31920

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1997-09-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60723º / -116.92207º
UTM: Zone-11 N3607748 E507311
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 18 **Qtr:** NW
Meridian: S
Elevation: 350 ft

Location: SOUTHEAST OF LOWER OTAY RESERVOIR, ABOUT 0.3 MILE DOWNSTREAM OF SAVAGE DAM.

Location Detail: MAPPED ALONG OTAY RIVER.

Ecological:

Threat: DEVELOPMENT.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL AND REPORT FROM "BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY: RARE PLANT SURVEY RESULTS, SPRING 1990" BY ZIPPEN (1990).

Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 4 **Map Index:** 36924 **EO Index:** 31921

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 2006-06-28

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59695º / -116.95018º
UTM: Zone-11 N3606607 E504674
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 287.7 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: EASTERN OTAY VALLEY AND NORTHWESTERN JOHNSON CANYON.
Location Detail:
Ecological:
Threat: DEVELOPMENT.
General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS "BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY: RARE PLANT SURVEY RESULTS" BY ZIPPEN (1990). 1989 REPORT BY SCHEIDT ALSO USED FOR THIS SITE. INCLUDES FORMER OCCURRENCES #7 AND 8.
Owner/Manager: PVT

Sources

OBENDF0001 OBERBAUER, T. FIELD SURVEY FORM FOR IVA HAYESIANA. XXXX-XX-X .

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 5 **Map Index:** 36925 **EO Index:** 31922

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1997-09-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60808º / -116.93455º
UTM: Zone-11 N3607842 E506141
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 8.3 acres

Township: 18S
Range: 01W
Section: 13 **Qtr:** NW
Meridian: S
Elevation: 480 ft

Location: SOUTHWEST SIDE OF LOWER OTAY RESERVOIR, JUST WEST OF LOWER OTAY CAMPING AREA.

Location Detail: MAPPED ALONG DRAINAGE ABOVE OTAY VALLEY.

Ecological:

Threat: DEVELOPMENT.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL AND REPORT FROM "BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY: RARE PLANT SURVEY RESULTS, SPRING 1990" BY ZIPPEN (1990).

Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 6 **Map Index:** 36929 **EO Index:** 31926

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1997-09-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60831º / -116.94494º
UTM: Zone-11 N3607867 E505166
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 27.2 acres

Township: 18S
Range: 01W
Section: 14 **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: WEST OF LOWER OTAY RESERVOIR ALONG SALT CREEK, JUST ABOVE OTAY VALLEY.
Location Detail: MAPPED ABOVE AQUEDUCT.
Ecological:
Threat: DEVELOPMENT.
General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL AND REPORT FROM "BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY: RARE PLANT SURVEY RESULTS, SPRING 1990" BY ZIPPEN (1990). 1989 REPORT BY SCHEID ALSO HAS INFO ON THIS SITE.
Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3?	**CNPS List:** 2.2
State: None	**State:** S2.2?	

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.

Micro: RIVERWASHES. 10-500M.

Occurrence No. 9 **Map Index:** 36930 **EO Index:** 31927

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1997-09-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58633º / -116.97373º
UTM: Zone-11 N3605429 E502465
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 24.4 acres

Township: 18S
Range: 01W
Section: 22 **Qtr:** SW
Meridian: S
Elevation: 200 ft

Location: OTAY VALLEY AND NORTH-DRAINING SIDE CANYON, AOBUT 1 MILE WEST OF JOHNSON CANYON.

Location Detail: THIS SITE IS NORTH OF BROWN FIELD NAS.

Ecological:

Threat: DEVELOPMENT.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL AND REPORT FROM "BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY: RARE PLANT SURVEY RESULTS, SPRING 1990" BY ZIPPEN (1990). 1989 REPORT BY SCHEID ALSO HAS INFO ON THIS SITE.

Owner/Manager: PVT

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 10 **Map Index:** 36931 **EO Index:** 31928

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1997-09-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60113º / -116.98857º
UTM: Zone-11 N3607069 E501072
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 16 **Qtr:** SW
Meridian: S
Elevation: 200 ft

Location: DRAINAGE ON NORTH SIDE OF ROCK MOUNTAIN, TRIBUTARY TO WOLF CANYON.

Location Detail: MAPPED ABOUT 0.25 MILE UPSTREAM FROM WOLF CANYON AND 0.5 MILE NORTHWEST OF ROCK MOUNTAIN SUMMIT.

Ecological:

Threat: DEVELOPMENT.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL AND REPORT FROM "BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY: RARE PLANT SURVEY RESULTS, SPRING 1990" BY ZIPPEN (1990).

Owner/Manager: PVT

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 11 **Map Index:** 36934 **EO Index:** 31931

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 2005-08-02

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.59079º / -117.00446º
UTM: Zone-11 N3605924 E499580
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 196.3 acres

Township: 18S
Range: 01W
Section: 20 **Qtr:** XX
Meridian: S
Elevation: 160 ft

Location: OTAY RIVER VALLEY.

Location Detail: 3 CNDDB POLYGONS: (1) ALONG OTAY RIVER AT MOUTH OF WOLF CANYON, (2) ALONG OTAY VALLEY RD, 3.6 MI EAST OF 3RD AVE IN CHULA VISTA, AND (3) ALONG OTAY RIVER, ABOUT 0.5-1.5 MI EAST OF I-805.

Ecological: DISTURBED FLOODWAY WITH SCATTERED SALIX GOODDINGII, S. LASIOLEPIS, BACCHARIS GLUTINOSA, B. SARATHROIDES, JUNCUS ACUTUS, AND DISTICHLIS SPICATA.

Threat: DEVELOPMENT, ORV USE, PAST SAND AND GRAVEL MINING.

General: OVER 1000 PLANTS OBSERVED AT COLONY (3) IN 1984. UNKNOWN NUMBER OF PLANTS SEEN AT COLONIES (1) AND (2). INCLUDES FORMER EO #37. INFO FROM A VARIETY OF SOURCES.

Owner/Manager: PVT

Sources

GOE70S0001 GOEDEN, R. & D. RICKER. GOEDEN SN UCR #109676, RSA #643286. 1970-06-09.

ROB92R0002 ROBERTS, WALLACE & TODD. OTAY RIVER VALLEY RESOURCE ENHANCEMENT PLAN PREPARED FOR THE COASTAL CONSERVANCY AND THE CITY OF CHULA VISTA. 1992-09-23.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

WIE84F0016 WIER, E.N. FIELD SURVEY FORM FOR IVA HAYESIANA. 1984-07-12.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 59 **Map Index:** 62158 **EO Index:** 62194

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2002-01-25
Site: 2002-01-25

Record Last Updated: 2005-08-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57397º / -116.90867º
UTM: Zone-11 N3604063 E508572
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 11.6 acres

Township: 18S
Range: 01E
Section: 29 **Qtr:** SW
Meridian: S
Elevation: 690 ft

Location: EAST OF OTAY MESA, WESTERN EDGE OF SAN YSIDRO MTNS, ABOUT 0.6 MI SOUTHEAST OF KUEBLER RANCH.

Location Detail: APPROX 4000 FT NORTHEAST OF THE INTERSECTION OF OTAY MTN ROAD AND ALTA ROAD, ADJACENT TO THE OTAY MESA GENERATING PLANT. IN THE NW 1/4 OF SW 1/4 OF SECTION 29.

Ecological: NON-NATIVE GRASSLAND, DISTURBED DRAINAGE.

Threat: OHV USE.

General: 7 PLANTS OBSERVED IN 2002.

Owner/Manager: UNKNOWN

Sources

EDW02F0007 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR IVA HAYESIANA. 2002-01-25.

Iva hayesiana

San Diego marsh-elder

Element Code: PDAST580A0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3?
State: S2.2?

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS, PLAYAS.
Micro: RIVERWASHES. 10-500M.

Occurrence No. 60 **Map Index:** 62159 **EO Index:** 62195

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2002-01-25
Site: 2002-01-25

Record Last Updated: 2005-08-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: Mexico, San Diego

Lat/Long: 32.55622º / -116.89586º
UTM: Zone-11 N3602097 E509776
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 21.0 acres

Township: 18S
Range: 01E
Section: 32 **Qtr:** SE
Meridian: S
Elevation: 540 ft

Location: ABOUT 2 AIRMI SOUTHEAST OF KUEBLER RANCH, JUST NORTH OF MEXICAN BORDER; EAST SIDE OF OTAY MESA.

Location Detail: APPROX 8000 FT SOUTHEAST OF THE INTERSECTION OF OTAY MTN ROAD AND ALTA ROAD. EAST SIDE OF THE JEEP TRAIL, IN THE SE 1/4 OF SE 1/4 OF SECTION 32.

Ecological: FRESHWATER MARSH.

Threat: OHV USE.

General: 40 PLANTS OBSERVED IN 2002.

Owner/Manager: UNKNOWN

Sources

EDW02F0008 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR IVA HAYESIANA. 2002-01-25.

Lasiurus blossevillii

western red bat

Element Code: AMACC05060

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S3?

Other Lists

CDFG Status: SC

Habitat Associations

General: ROOSTS PRIMARILY IN TREES, 2-40 FT ABOVE GROUND, FROM SEA LEVEL UP THROUGH MIXED CONIFER FORESTS.

Micro: PREFERS HABITAT EDGES & MOSAICS WITH TREES THAT ARE PROTECTED FROM ABOVE & OPEN BELOW WITH OPEN AREAS FOR FORAGING.

Occurrence No. 117 **Map Index:** 73281 **EO Index:** 74235

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-07-15
Site: 2003-07-15

Record Last Updated: 2008-12-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60143º / -116.92964º
UTM: Zone-11 N3607105 E506602
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 264 ft

Location: ALONG OTAY RIVER AT THE MOUTH OF DAM CANYON, OTAY VALLEY REGIONAL PARK.
Location Detail:
Ecological:
Threat:
General: DETECTED WITH ANABAT DETECTOR ON 15 JUL 2003 DURING A ROOST SURVEY. EUMOPS PEROTIS, MYOTIS CILIOLABRUM, M. YUMANENSIS, NYCTINOMOPS FEMOROSACCUS, PIPISTRELLUS HESPERUS & TADARIDA BRASILIENSIS ALSO DETECTED HERE.
Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

Lepechinia ganderi

Gander's pitcher sage

Element Code: PDLAM0V040

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.3

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: USU. FOUND IN CHAP. OR COASTAL SCRUB; SOMETIMES IN TECATE CYPRESS WDLND. GABBRO OR METAVOLCANIC SUBSTRATE. 300-1000M.

Occurrence No. 1 **Map Index:** 04744 **EO Index:** 18107

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1984-04-16
Site: 1984-04-16

Record Last Updated: 1995-11-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57784º / -116.90601º
UTM: Zone-11 N3604491 E508821
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 29 **Qtr:** NW
Meridian: S
Elevation: 1,000 ft

Location: SAN YSIDRO MOUNTAINS, 0.5 MILES ESE OF KUEBLER RANCH.
Location Detail:
Ecological: CHAPARRAL WITH SOME ANNUAL GRASSLAND AND COASTAL SAGE SCRUB.
Threat:
General: WITHIN THE OTAY MOUNTAIN RESEARCH NATURAL AREA.
Owner/Manager: BLM

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Lepechinia ganderi

Gander's pitcher sage

Element Code: PDLAM0V040

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.3

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: USU. FOUND IN CHAP. OR COASTAL SCRUB; SOMETIMES IN TECATE CYPRESS WDLND. GABBRO OR METAVOLCANIC SUBSTRATE. 300-1000M.

Occurrence No. 2 **Map Index:** 04809 **EO Index:** 18104

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1984-04-16
Site: 1984-04-16

Record Last Updated: 1995-11-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57442º / -116.88802º
UTM: Zone-11 N3604114 E510510
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 28 **Qtr:** SW
Meridian: S
Elevation:

Location: OTAY MOUNTAIN TRUCK TRAIL, ABOUT 1.75 AIR MILES ESE OF KUEBLER RANCH, SAN YSIDRO MOUNTAINS.
Location Detail:
Ecological: MOSTLY CHAPARRAL WITH SOME ANNUAL GRASSLAND AND COASTAL SAGE SCRUB.
Threat:
General: WITHIN THE OTAY MOUNTAIN RESEARCH NATURAL AREA.
Owner/Manager: BLM

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Lepechinia ganderi

Gander's pitcher sage

Element Code: PDLAM0V040

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.3

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: USU. FOUND IN CHAP. OR COASTAL SCRUB; SOMETIMES IN TECATE CYPRESS WDLND. GABBRO OR METAVOLCANIC SUBSTRATE. 300-1000M.

Occurrence No. 3 **Map Index:** 04712 **EO Index:** 18103

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1984-04-16
Site: 1984-04-16

Record Last Updated: 1996-02-19

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59873º / -116.91467º
UTM: Zone-11 N3606806 E508006
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 18 **Qtr:** SE
Meridian: S
Elevation: 1,000 ft

Location: SAN YSIDRO MOUNTAINS, 1.25 MILES SOUTHEAST OF LOWER OTAY CAMPING AREA.

Location Detail:

Ecological: COASTAL SAGE SCRUB DOMINATED BY SAN DIEGO SUNFLOWER, CALIFORNIA SAGEBRUSH, CALIFORNIA BUCKWHEAT, PURPLE NEEDLEGRASS, LAUREL-LEAF SUMAC. ALSO SOME CHAPARRAL SPP, SUCH AS HOLL-LEAF CHERRY, COFFEE-BERRY, CHAMISE AND MISSION MANZANITA.

Threat:

General: WITHIN THE OTAY MOUNTAIN RESEARCH NATURAL AREA.

Owner/Manager: BLM

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Lepechinia ganderi

Gander's pitcher sage

Element Code: PDLAM0V040

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.3

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: USU. FOUND IN CHAP. OR COASTAL SCRUB; SOMETIMES IN TECATE CYPRESS WDLND. GABBRO OR METAVOLCANIC SUBSTRATE. 300-1000M.

Occurrence No. 15 **Map Index:** 61880 **EO Index:** 61916

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-05-04
Site: 2003-05-04

Record Last Updated: 2005-07-06

Quad Summary: Otay Mountain (3211657/010D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61035º / -116.87524º
UTM: Zone-11 N3608099 E511704
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 15 **Qtr:** NW
Meridian: S
Elevation: 1,542 ft

Location: HEAD OF CANYON 2 AIRMI NORTHWEST OF OTAY PEAK, ABOUT 0.4 MI WSW OF PEAK 2242.
Location Detail:
Ecological: S-FACING SLOPE WITH CLAY SOIL. BURNED CHAPARRAL WITH ADENOSTOMA FASCICULATUM, CEANOTHUS SPP., YUCCA WHIPPLEI, AND ROCK OUTCROPS.
Threat:
General: NEEDS FIELDWORK.
Owner/Manager: UNKNOWN

Sources

ROB03S0004 ROBERTS, F. ROBERTS #5800 UCR #128851. 2003-05-04.

Lepechinia ganderi

Gander's pitcher sage

Element Code: PDLAM0V040

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.2

Other Lists

CNPS List: 1B.3

Habitat Associations

General: CLOSED-CONE CONIFEROUS FOREST, CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND.

Micro: USU. FOUND IN CHAP. OR COASTAL SCRUB; SOMETIMES IN TECATE CYPRESS WDLND. GABBRO OR METAVOLCANIC SUBSTRATE. 300-1000M.

Occurrence No. 16 **Map Index:** 61882 **EO Index:** 61918

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-06-03
Site: 2003-06-03

Record Last Updated: 2005-07-06

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61612º / -116.89625º
UTM: Zone-11 N3608737 E509733
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 18S
Range: 01E
Section: 08 **Qtr:** XX
Meridian: S
Elevation: 945 ft

Location: OTAY MOUNTAIN ECOLOGICAL RESERVE (DFG), SOUTHEAST OF OTAY LAKE AND APPROX 1 MI SOUTH OF OTAY LAKES ROAD.
Location Detail:

Ecological: RIPARIAN ZONE WITH CUPRESSUS FORBESII, TAMARIX RAMOSISSIMA, SALIX SPP., MONARDELLA STONEANA, AND BRODIAEA ORCUTTII.

Threat:

General: NEED BETTER LOCATION DATA.

Owner/Manager: DFG-OTAY MOUNTAIN ER

Sources

REB03S0003 REBMAN, J. REBMAN #9194 UCR #144842. 2003-06-03.

Lepidium virginicum var. robinsonii

Robinson's pepper-grass

Element Code: PDBRA1M114

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T2?
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB.
Micro: DRY SOILS, SHRUBLAND. 1-945M.

Occurrence No. 32 **Map Index:** 51122 **EO Index:** 51122

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 2003-04-28

Quad Summary: Otay Mountain (3211657/010D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59482º / -116.86200º
UTM: Zone-11 N3606378 E512950
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 18S
Range: 01E
Section: 22 **Qtr:** XX
Meridian: S
Elevation:

Location: ON WESTERN FLANKS OF OTAY MOUNTAIN.

Location Detail: EXACT LOCATION UNKNOWN, MAPPED AS BEST GUESS BY CNDDB ON WEST SIDE OF OTAY MOUNTAIN SUMMIT.

Ecological:

Threat:

General: ONLY SOURCE OF INFORMATION IS SITE REFERENCE BY REISER. NEEDS FIELDWORK TO CONFIRM LOCATION, POPULATION & ECOLOGICAL INFORMATION.

Owner/Manager: UNKNOWN

Sources

REI01B0001 REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 2001-07-XX.

Lepidium virginicum var. robinsonii

Robinson's pepper-grass

Element Code: PDBRA1M114

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T2?
State: S2.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB.
Micro: DRY SOILS, SHRUBLAND. 1-945M.

Occurrence No. 34 **Map Index:** 39267 **EO Index:** 51124

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1981-04-12
Site: 1981-04-12

Record Last Updated: 2003-04-28

Quad Summary: Dulzura (3211667/010A), National City (3211761/011A), Otay Mountain (3211657/010D), Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)

County Summary: San Diego

Lat/Long: 32.62445º / -116.94709º
UTM: Zone-11 N3609656 E504963
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 5 mile

Township: 18S
Range: 01W
Section: 11 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY LAKE.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED IN THE VICINITY OF OTAY LAKES.

Ecological: ON RECENT BURN.

Threat:

General: ONLY SOURCES FOR THIS SITE ARE 1981 COLLECTION BY VAN DER WERFF & SITE MENTION BY REISER. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Sources

REI01B0001 REISER, C. RARE PLANTS OF SAN DIEGO COUNTY. 2001-07-XX.

VAN81S0001 VAN DER WERFF, H. VAN DER WERFF #4229 UCR #85324. 1981-04-12.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 20 **Map Index:** 49570 **EO Index:** 49570
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25
Record Last Updated: 2002-12-05

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62275º / -116.94588º
UTM: Zone-11 N3609467 E505077
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 11 **Qtr:** XX
Meridian: S
Elevation: 460 ft

Location: JUST WEST OF SALT CREEK, SE OF CHULA VISTA.
Location Detail: ~ 700 FEET WEST OF UNIMPROVED ROAD, APPROXIMATELY 1.55 MILES SOUTH OF OTAY LAKES ROAD
Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.
Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.
General: UNKNOWN NUMBER OBSERVED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.
Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 21 **Map Index:** 49571 **EO Index:** 49571
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25
Record Last Updated: 2002-12-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61556º / -116.94092º
UTM: Zone-11 N3608670 E505543
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 12 **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: EAST OF SALT CREEK AND WEST OF LOWER OTAY RESERVOIR, SE OF CHULA VISTA.
Location Detail: ~ 400 FEET EAST OF UNIMPROVED ROAD, APPROXIMATELY 2 MILES SOUTH OF OTAY LAKES ROAD
Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.
Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.
General: UNKNOWN NUMBER OBSERVED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.
Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 22 **Map Index:** 49579 **EO Index:** 49579
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25
Record Last Updated: 2002-12-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60244º / -116.94435º
UTM: Zone-11 N3607216 E505221
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 13 **Qtr:** XX
Meridian: S
Elevation: 260 ft

Location: ALONG SALT CREEK AT NE END OF OTAY VALLEY, SE OF CHULA VISTA
Location Detail:
Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.
Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.
General: UNKNOWN NUMBER OBSERVED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.
Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 23 **Map Index:** 49587 **EO Index:** 49587
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25
Record Last Updated: 2002-12-06

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59063º / -116.96932º
UTM: Zone-11 N3605906 E502878
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 22 **Qtr:** XX
Meridian: S
Elevation: 200 ft

Location: NEAR NORTH EDGE OF OTAY VALLEY, SW OF LOWER OTAY RESERVOIR.
Location Detail: 0.6 MILES EAST OF RIVER BOTTOM RESERVOIR
Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.
Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.
General: UNKNOWN NUMBER OBSERVED IN 2 AREAS, 2 MAY-25 JUN 2001, DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.
Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 24 **Map Index:** 49588 **EO Index:** 49588
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25
Record Last Updated: 2002-12-06

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59812º / -116.95186º
UTM: Zone-11 N3606737 E504517
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 14 **Qtr:** XX
Meridian: S
Elevation: 240 ft

Location: NEAR NORTH EDGE OF OTAY VALLEY, SW OF LOWER OTAY RESERVOIR.
Location Detail: JUST WEST OF WHERE SALT CREEK FLOWS INTO THE OTAY RIVER.
Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.
Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.
General: UNKNOWN NUMBER OBSERVED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.
Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 30 **Map Index:** 51264 **EO Index:** 51265
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-04-XX
Site: 2002-04-XX
Record Last Updated: 2003-05-13

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61307º / -116.99430º
UTM: Zone-11 N3608393 E500534
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: 09 **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: SOUTH OF POGGI CANYON, EXTENDING SOUTH ALONG WEST SIDE OF WOLF CANYON; EAST OF CHULA VISTA
Location Detail: OTAY RANCH VILLAGE 2
Ecological: HABITAT ON PROJECT SITE CONSISTS PRIMARILY OF ANNUAL GRASSLANDS AND AGRICULTURAL FIELDS, BUT SIGNIFICANT PORTIONS DO SUPPORT COASTAL SAGE SCRUB. SMALL PORTIONS OF PROPERTY CONTAIN NATIVE GRASSLANDS AND MARITIME SUCCULENT SCRUB.
Threat: THREAT CONSISTS OF DEVELOPMENT
General: UNKNOWN NUMBER DETECTED MAR-APR 2002 DURING CALIFORNIA GNATCATCHER SURVEYS.
Owner/Manager: PVT-OTAY RANCH

Sources

DUD02U0004 DUDEK & ASSOCIATES, INC. CALIFORNIA GNATCATCHER SURVEY FOR THE OTAY RANCH VILLAGE 2 PROJECT, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2002-05-30.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 40 **Map Index:** 54494 **EO Index:** 54494
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-09-10
Site: 2002-09-10
Record Last Updated: 2004-02-26

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57566º / -116.91544º
UTM: Zone-11 N3604250 E507935
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 30 **Qtr:** NE
Meridian: S
Elevation: 640 ft

Location: UPPER END OF JOHNSON CANYON, ON THE WEST SLOPE OF THE SAN YSIDRO MOUNTAINS
Location Detail:
Ecological: HABITAT CONSISTS OF AN AGRICULTURAL FIELD, WITH A FEW NATIVE PLANTS LEFT ALONG A VERY DISTURBED DRAINAGE; WEST-FACING, GENTLE SLOPE. OTHER RARE SPECIES INCLUDE FEROCACTUS VIRIDESCENS, VIGUIERA LACINIATA, LANIUS LUDOVICIANUS, CIRCUS CYANEUS.
Threat: THREATENED BY FUTURE DEVELOPMENT.
General: 1 ADULT OBSERVED ON 10 SEP 2002.
Owner/Manager: PVT

Sources

MAC02F0003 MACGREGOR, C. (REC LTD.). FIELD SURVEY FORM FOR LEPUS CALIFORNICUS BENNETTII. 2002-09-10.

Lepus californicus bennettii

San Diego black-tailed jackrabbit **Element Code:** AMAEB03051

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.
Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 56 **Map Index:** 57371 **EO Index:** 57387
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-04-04
Site: 2001-04-04
Record Last Updated: 2004-10-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58223º / -116.95439º
UTM: Zone-11 N3604975 E504280
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: 26 **Qtr:** XX
Meridian: S
Elevation: 520 ft

Location: 2.5 MILES SW OF THE LOWER OTAY RESERVOIR AND NE OF THE BROWNFILED NAVAL AUXILIARY AIR STATION.
Location Detail:

Ecological: HABITAT CONSISTS OF COASTAL SAGE SCRUB AND ANNUAL GRASSLAND.
Threat:
General: UNKNOWN NUMBER OF INDIVIDUALS OBSERVED WHILE SURVEYING WITHIN A MITIGATION SITE FOR EUPHYDRIAS EDITHA QUINO AND VERNAL POOLS.
Owner/Manager: UNKNOWN

Sources

DUD01R0002 DUDEK & ASSOCIATES, INC. 45-DAY REPORT FOR THE STATE ROUTE 125 QUINO CHECKERSPOT BUTTERFLY AND VERNAL POOL MITIGATION SITE, QUINO CHECKERSPOT BUTTERFLY SURVEY, CITY OF SAN DIEGO, CALIFORNIA. 2001-06-15.

Lepus californicus bennettii

San Diego black-tailed jackrabbit

Element Code: AMAEB03051

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T3?	**CDFG Status:** SC
State: None	**State:** S3?	

Habitat Associations

General: INTERMEDIATE CANOPY STAGES OF SHRUB HABITATS & OPEN SHRUB / HERBACEOUS & TREE / HERBACEOUS EDGES.

Micro: COASTAL SAGE SCRUB HABITATS IN SOUTHERN CALIFORNIA.

Occurrence No. 61 **Map Index:** 57786 **EO Index:** 57802

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-01-25
Site: 2002-01-25

Record Last Updated: 2004-10-29

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55835º / -116.89743º
UTM: Zone-11 N3602331 E509628
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/10 mile

Township: 18S
Range: 01E
Section: 32 **Qtr:** SE
Meridian: S
Elevation: 600 ft

Location: JUST WEST OF THE SAN YSIDRO MOUNTAINS, 0.3 MILE NORTH OF THE CALIFORNIA/MEXICO BORDER.

Location Detail: ABOUT 7000 FT SE OF INTERSECTION OF OTAY MOUNTAIN RD AND ALTA ROAD.

Ecological: HABITAT CONSISTS OF COASTAL SAGE SCRUB AND NON-NATIVE GRASSLAND. CURRENT/SURROUNDING LAND: HISTORIC AGRICULTURAL LAND, OPEN SPACE, OTAY MESA GENERATING PLANT.

Threat: THREAT INCLUDES OFF-HIGHWAY VEHICLES.

General: 1 ADULT OBSERVED ON 25 JAN 2002.

Owner/Manager: PVT

Sources

EDW02F0006 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR LEPUS CALIFORNICUS BENNETTII. 2002-01-25.

Maritime Succulent Scrub

Element Code: CTT32400CA

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S1.1

Other Lists

Habitat Associations

General:
Micro:

Occurrence No. 10 **Map Index:** 04350 **EO Index:** 13850

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1985-02-13
Site: 1985-02-13

Record Last Updated: 1998-07-13

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.57976º / -117.02236º
UTM: Zone-11 N3604701 E497901
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 1,643.1 acres

Township: 18S
Range: 01W
Section: 30 **Qtr:** XX
Meridian: S
Elevation:

Location: HILLS TO WEST OF OTAY MESA NEAR DENNERY, MOODY, SPRING, WRUCK & DILLON CANYONS.
Location Detail:
Ecological: 1983 OBERBAUER BOUNDARY MODIFIED BY HOLLAND, 1985, TO REFLECT HABITAT LOSSES DUE TO URBAN BLIGHT. MANY MARTIRIAN TAXA PRESENT, BUT SITE LESS DIVERSE THAN SPOONER'S MESA.
Threat: HEAVILY DISTURBED BY FIRE, GRAZING, & BORDER PATROL - ILLEGAL IMMIGRANT INTERACTION.
General:
Owner/Manager: PVT

Sources

BIT83U0004	BITTMAN, R. TNC ELEMENT PRESERVATION PLAN, TABLES, ETC. 1983-XX-XX.
COX84U0002	COX, R. TRIP MEMO. 1984-03-12.
HOL85F0008	HOLLAND, R.F. FIELD SURVEY FORM FOR DIEGAN COASTAL SAGE SCRUB (NC32500). 1985-02-13.
OBE83M0002	OBERBAUER, T. MAP SHOWING SITES OF DIEGAN SAGE SCRUB; FOR 1983 EPP PROJECT. 1983-XX-XX.
OBE83U0008	OBERBAUER, T. LOCATION INFO FOR SITES OF DIEGAN COASTAL SCRUB FROM PERSONAL PHONE COMMUNICATION WITH TOM OBERBAUER & R. BITTMAN. 1983-XX-XX.

Monardella stoneana

Jennifer's monardella

Element Code: PDLAM180Y0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL, CLOSED CONE CONIFEROUS FOREST, RIPARIAN SCRUB.
Micro: USUALLY FOUND IN ROCKY, INTERMITTENT STREAMBEDS. 10-660M.

Occurrence No. 2 **Map Index:** 60318 **EO Index:** 60354

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-05-04
Site: 2003-05-04

Record Last Updated: 2005-11-01

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60644º / -116.87906º
UTM: Zone-11 N3607664 E511347
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.3 acres

Township: 18S
Range: 01E
Section: 16 **Qtr:** NE
Meridian: S
Elevation: 1,265 ft

Location: NW SLOPE OF OTAY MOUNTAIN, ABOUT 2.2 MILES WNW OF OTAY MOUNTAIN SUMMIT, JUST S AND SW OF PEAK 1517.

Location Detail: 2 CNDDB POLYGONS IN SECTION 16: (1) SE 1/4 OF NE 1/4, AND (2) MAPPED FROM FROM LAT-LONG COORDINATES PROVIDED WITH COLLECTION (AT 1230 FEET FROM ELVIN #3054), IN THE SW 1/4 OF NE 1/4.

Ecological: STEEP-WALLED CANYON BOTTOM ALONG ROCKY STREAM ON LOAMY CLAY. 'WEAKLY RIPARIAN' AREA SURROUNDED BY CHAPARRAL AND CUPRESSUS FOREST, COASTAL SAGE SCRUB, AND "OTAY CHAPARRAL." FOUND WITH CYPERUS SPP., PRUNUS ILICIFOLIA, MIMULUS GUTTATUS ET AL.

Threat: MINIMAL DISTURBANCE, FIRE MAY BE A THREAT.

General: 5 PLANTS OBSERVED AT EASTERN POLY (1), AND PLANTS CONSIDERED "LOCALLY COMMON" IN WESTERN POLY (2) AS OF 2003.

Owner/Manager: UNKNOWN

Sources

ELV03S0001 ELVIN, M. & J. REBMAN. ELVIN #3054 UCR #129011. 2003-09-30.

ROB03F0006 ROBERTS, F. FIELD SURVEY FORM FOR MONARDELLA STONEANA. 2003-05-04.

ROB03S0002 ROBERTS, F. ET AL. ROBERTS #5819 UCR #128549. 2003-05-04.

Monardella stoneana

Jennifer's monardella

Element Code: PDLAM180Y0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL, CLOSED CONE CONIFEROUS FOREST, RIPARIAN SCRUB.
Micro: USUALLY FOUND IN ROCKY, INTERMITTENT STREAMBEDS. 10-660M.

Occurrence No. 3 **Map Index:** 60319 **EO Index:** 60355

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-06-03
Site: 2003-06-03

Record Last Updated: 2005-03-03

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60972º / -116.89167º
UTM: Zone-11 N3608027 E510163
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 16 **Qtr:** NW
Meridian: S
Elevation: 945 ft

Location: NW SLOPE OF OTAY MOUNTAIN, ABOUT 3.0 MILES WNW OF OTAY MOUNTAIN SUMMIT AND 2.0 MILES EAST OF SAVAGE DAM.

Location Detail: MAPPED FROM LAT-LONG PROVIDED WITH COLLECTION. MAPPED IN NW1/4 OF NW1/4 SEC 16.

Ecological: RIPARIAN ZONE WITH CUPRESSUS FORBESII, TAMARIX RAMOSISSIMA, SALIX, AND THE RARE PLANT BRODIAEA ORCUTTII. GRANITIC SUBSTRATE.

Threat:

General:

Owner/Manager: UNKNOWN

Sources

REB03S0001 REBMAN, J. ET AL. REBMAN #9152 UCR #145615. 2003-06-03.

Monardella stoneana

Jennifer's monardella

Element Code: PDLAM180Y0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G1	**CNPS List:** 1B.2
State: None	**State:** S1.2	

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL, CLOSED CONE CONIFEROUS FOREST, RIPARIAN SCRUB.

Micro: USUALLY FOUND IN ROCKY, INTERMITTENT STREAMBEDS. 10-660M.

Occurrence No. 4 **Map Index:** 60320 **EO Index:** 60356

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2005-XX-XX
Site: 2005-XX-XX

Record Last Updated: 2005-06-09

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61181º / -116.90298º
UTM: Zone-11 N3608258 E509101
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 11.5 acres

Township: 18S
Range: 01E
Section: 17 **Qtr:** N
Meridian: S
Elevation: 750 ft

Location: NORTHWEST SLOPE OF OTAY MOUNTAIN, ABOUT 1.3 MILES ENE OF SAVAGE DAM, SOUTHEAST OF BUSCHALAUGH COVE.

Location Detail: MAPPED ALONG UNNAMED CANYON DRAINING TO BUSCHALAUGH COVE ON OTAY LAKE FROM 500-1000 FEET. MAPPED IN SW1/4 SEC 8 AND N1/2 SEC 17.

Ecological: SANDY SOILS WITH COBBLES ON CANYON BOTTOM BELOW SOUTHERN INTERIOR CYPRESS FOREST. RARE PLANTS CUPRESSUS FORBESII AND BRODIAEA ORCUTTII OCCUR NEARBY.

Threat: POSSIBLY DAMAGED BY FIRE, AND GRAZING OCCURS.

General: 200 "CLUMPS" SEEN IN 1989, AND ESTIMATED AS 25 PLANTS AS OF 2005. COLLECTION FROM "MESIC CANYON SOUTH OF OTAY LAKE" (REISER SN) ALSO ATTRIBUTED HERE.

Owner/Manager: PVT

Sources

BUR05U0003	BURRASCANO, C. EMAIL FROM C. BURRASCANO TO D. TIBOR REGARDING QUESTIONS ABOUT MONARDELLA STONEANA. 2005-03-04.
ELV03A0001	ELVIN, M. & A. SANDERS. A NEW SPECIES OF MONARDELLA (LAMIACEAE) FROM BAJA CALIFORNIA, MEXICO, AND SOUTHERN CALIFORNIA, UNITED STATES. NOVON 13:425-432 (2003). 2003-XX-XX.
REI87S0001	REISER, C. REISER SN SD (CITED IN ELV03A0001). 1987-06-19.
ROB01S0001	ROBERTS, F. ROBERTS #5500 UCR (CITED IN ELV03A0001). 2001-06-20.
SCH89F0002	SCHEID, G. FIELD SURVEY FORM FOR MONARDELLA STONEANA. 1989-05-31.
SCH89R0001	SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Monardella stoneana

Jennifer's monardella

Element Code: PDLAM180Y0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G1
State: S1.2

Other Lists

CNPS List: 1B.2

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL, CLOSED CONE CONIFEROUS FOREST, RIPARIAN SCRUB.
Micro: USUALLY FOUND IN ROCKY, INTERMITTENT STREAMBEDS. 10-660M.

Occurrence No. 5 **Map Index:** 61546 **EO Index:** 61582

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2002-05-23
Site: 2002-05-23

Record Last Updated: 2005-06-09

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61981º / -116.91201º
UTM: Zone-11 N3609144 E508254
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 2.3 acres

Township: 18S
Range: 01E
Section: 07 **Qtr:** NE
Meridian: S
Elevation: 570 ft

Location: JUST EAST OF BUSCHALAUGH COVE ON LOWER OTAY RESERVOIR, ABOUT 0.3 MILES WSW OF PEAK 733.

Location Detail: MAPPED ALONG UNNAMED TRIBUTARY DRAINING NORTHWEST SIDE OF OTAY MOUNTAIN, JUST EAST OF BUSCHALAUGH COVE. MAPPED IN THE SE 1/4 OF THE NE 1/4 OF SECTION 7.

Ecological:

Threat:

General: 2 PLANTS SEEN IN 2000 & 2002. LANDS CONSERVED FOR WATERSHED MANAGEMENT OF OTAY LAKES.

Owner/Manager: CITY OF SAN DIEGO

Sources

BUR05U0002 BURRASCANO, C. EMAIL FROM C. BURRASCANO TO D. TIBOR WITH INFORMATION ON 4 SITES FOR MONARDELLA STONEANA. 2005-03-04.

MSC02R0001 CITY OF SAN DIEGO MSCP. SUMMARY OF MONITORING RESULTS FOR MONARDELLA LINOIDES SSP. VIMINEA. 2002-06-XX.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 14 **Map Index:** 04611 **EO Index:** 13436

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-04-14

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58968º / -116.94387º
UTM: Zone-11 N3605801 E505267
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 175.2 acres

Township: 18S
Range: 01W
Section: 24 **Qtr:** W
Meridian: S
Elevation: 450 ft

Location: BROWN FIELD BOMBING RANGE, OTAY MESA.

Location Detail: AREA IS ON PENINSULA OF MESA AND COULD BE PROTECTED BY FENCE ON EAST SIDE.

Ecological: WITH POGOGYNE NUDIUSCULA, ERYNGIUM ARISTULATUM VAR PARISHII, FEROCACTUS VIRIDESCENS, AND DUDLEYA VARIEGATA.

Threat: GRAZING COULD THREATEN.

General: 100 VERNAL POOLS SCATTERED ON 250 TO 300 ACRES. AREA LIGHTLY GRAZED BY CATTLE.

Owner/Manager: USFWS, SDG COUNTY

Sources

SCO80U0001 SCOTT, T. CURRENT STATUS OF POGOGYNE NUDIUSCULA IN SAN DIEGO COUNTY & BAJA. 1980-01-29.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.1
State: None	**State:** S2	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 15 **Map Index:** 04732 **EO Index:** 21713

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1967-05-12
Site: 1967-05-12

Record Last Updated: 1991-10-31

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58116º / -116.90808º
UTM: Zone-11 N3604859 E508627
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 29 **Qtr:** NW
Meridian: S
Elevation: 1,100 ft

Location: OTAY MTN TRUCK TRAIL, W SLOPE OF MTN.
Location Detail: ON TOP OF ROAD CUT ON SOUTH SIDE OF ROAD.
Ecological:
Threat:
General: OWNERSHIP IS BLM, OTAY NATIONAL COOPERATIVE LAND AND WILDLIFE MANAGEMENT AREA.
Owner/Manager: BLM-ESCONDIDO RA

Sources

BEA67S0008 BEAUCHAMP, R.M. BEAUCHAMP #426 SD. 1967-05-12.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.1
State: None	**State:** S2	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 16 **Map Index:** 26228 **EO Index:** 6476

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-04-10
Site: 1985-04-10

Record Last Updated: 1994-09-08

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56733º / -116.90851º
UTM: Zone-11 N3603326 E508588
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 8.0 acres

Township: 18S
Range: 01E
Section: 29 **Qtr:** SW
Meridian: S
Elevation: 700 ft

Location: E EDGE OF SAN YSIDRO MTNS, 1 MI N OF MEXICAN BORDER.

Location Detail: IN FAR SW CORNER OF SECTION 29.

Ecological: DISTURBED COASTAL SAGE SCRUB (REPEATED BURNING) WITH SOME SHRUBS & MANY NON-NATIVE WEEDY HERBS. ROCKY-GRAVELLY SOILS (SAN MIGUEL-EXCHEQUER ROCKY SILT LOAM). ASSOCIATED SPP: LATHYRUS LAETIFLORUS, PHACELIA CICUTARIA, ETC.

Threat: ORV TRAFFIC NOW, DEVELOPMENT OF RACE TRACK PLANNED.

General:

Owner/Manager: PVT

Sources

WIE85F0004 WIER, E. FIELD SURVEY FORM FOR BLOOMERIA CLEVELANDII. 1985-04-10.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.1
State: None	**State:** S2	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 17 **Map Index:** 04734 **EO Index:** 24440

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-04-10
Site: 1985-04-10

Record Last Updated: 1994-09-08

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57135º / -116.90801º
UTM: Zone-11 N3603772 E508634
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 29 **Qtr:** SW
Meridian: S
Elevation: 750 ft

Location: W EDGE OF SAN YSIDRO MTNS, 1.25 MI N OF MEXICAN BORDER.

Location Detail: ABOUT 1/4 MILE SOUTH OF RESERVOIR IN SW QUARTER OF SECTION 29.

Ecological: DISTURBED COASTAL SAGE SCRUB (REPEATED BURNING) WITH SOME SHRUBS AND MANY NON-NATIVE WEEDY HERBS. ROCKY-GRAVELLY SOIL (SAN MIGUEL-EXCHEQUER ROCKY SILT LOAM). ASSOCIATED SPP: LATHYRUS LAETIFLORUS, PHACELIA CICUTARIA, ETC.

Threat: PROPOSED RACETRACK. ORVS ALSO THREATEN.

General: AT LEAST 10,000 PLANTS IN 1985.

Owner/Manager: PVT

Sources

WIE85F0004 WIER, E. FIELD SURVEY FORM FOR BLOOMERIA CLEVELANDII. 1985-04-10.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 18 **Map Index:** 04759 **EO Index:** 21710

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1985-04-10
Site: 1985-04-10

Record Last Updated: 2004-04-22

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56092º / -116.90327º
UTM: Zone-11 N3602616 E509080
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 2.5 acres

Township: 18S
Range: 01E
Section: 32 **Qtr:** NW
Meridian: S
Elevation: 600 ft

Location: W EDGE OF SAN YSIDRO MTNS, 0.5 MI N OF MEXICAN BORDER.

Location Detail: SE1/4 NW1/4 SEC 32.

Ecological: DISTURBED COASTAL SAGE SCRUB (REPEATED BURNING) WITH SOME SHRUBS AND MANY NON-NATIVE WEEDY HERBS. ROCKY-GRAVELLY SOIL (SAN MIGUEL-EXCHEQUER ROCKY SILT LOAM). ASSOCIATED SP: LATHYRUS LATIFLORUS, PHACELIA CICUTARIA, ETC.

Threat: ORV TRAFFIC; DEVELOPMENT OF RACETRACK PLANNED.

General: 10,000+ PLANTS IN 1985.

Owner/Manager: PVT

Sources

WIE85F0004 WIER, E. FIELD SURVEY FORM FOR BLOOMERIA CLEVELANDII. 1985-04-10.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 30 **Map Index:** 23059 **EO Index:** 7779

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1986-04-22
Site: 1986-04-22

Record Last Updated: 1995-10-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59804º / -116.92887º
UTM: Zone-11 N3606729 E506674
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.6 acres

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 510 ft

Location: OTAY MESA, 1 KM (0.6 MI) SOUTH OF LOWER OTAY CAMPING AREA.

Location Detail: WITHIN THE SE 1/4 OF THE SE 1/4 OF SECTION 13.

Ecological: ASSOCIATED WITH ERYNGIUM ARISTULATUM VAR PARISHII & POGOGYNE NUDIUSCULA.

Threat: ORVS.

General: RELATIVELY UNDISTURBED IN 1986 EXCEPT FOR SOME VEHICLE TRACKS AND SOME MOUNDS REMOVED.

Owner/Manager: PVT, SDG COUNTY

Sources

BAU86F0001 BAUDER, E. & T. CASS. FIELD SURVEY FORM FOR POGOGYNE NUDIUSCULA & MYOSURUS MINIMUS SSP. APUS & BLOOMERIA CLEVELANDII. 1986-04-22.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B.1
State: None	**State:** S2	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 37 **Map Index:** 17892 **EO Index:** 12709

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-12-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60261º / -116.99528º
UTM: Zone-11 N3607233 E500443
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 4.7 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 370 ft

Location: OTAY MESA; JUST W OF DRAINAGE OF WOLF CANYON, W OF JEEP TRAIL.
Location Detail:
Ecological: APPEARS TO OCCUR WITH OR VERY NEAR HEMIZONIA CONJUGENS ACC TO MAP.
Threat:
General: UNKNOWN HOW MANY PLANTS SEEN, MAP IS PRIMARY SOURCE OF INFO.
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Muilla clevelandii

San Diego goldenstar

Element Code: PMLIL1H010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: MESA GRASSLANDS, SCRUB EDGES; CLAY SOILS. OFTEN ON MOUNDS BETWEEN VERNAL POOLS IN FINE, SANDY LOAM. 50-1090M.

Occurrence No. 38 **Map Index:** 17686 **EO Index:** 7800

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1986-04-22
Site: 1986-04-22

Record Last Updated: 1995-10-03

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55227º / -116.97196º
UTM: Zone-11 N3601653 E502632
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 58.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** XX
Meridian: S
Elevation: 470 ft

Location: NEAR US-MEXICO BORDER, JUST W OF LA MEDIA RD, ABOUT 1.5 MI S OF BROWN FIELD NAVAL AUXILIARY AIR STATION.

Location Detail: BEAUCHAMP VERNAL POOLS J19-21. BOTH SIDES OF SIEMPRE VIVA RD.

Ecological: IN 3 SEPARATE VERNAL POOLS. SEEN WITH SEVERAL OTHER RARE PLANTS: ERYNGIUM ARISTULATUM PARISHII, POGOYNE NUDIUSCULA, MYOSURUS MINIMUS VAR. APUS, DUDLEYA VARIEGATA, NAVARRETIA FOSSALIS, ORCUTTIA CALIFORNICA, AND MORE.

Threat: IN 1988 N. GILBERT (USFWS) REPORTED THAT POOLS HAD BEEN DISKED RECENTLY. BAUDER SAYS THEY HAVE BEEN DISKED IN THE PAST.

General: POOLS OVERGROWN WITH LOLIUM. DEVELOPMENT ALSO A THREAT.

Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

REI89R0002 REISER, C. THE RARE PLANTS OF SAN DIEGO COUNTY. 1989-XX-XX.

Myosurus minimus ssp. apus

little mousetail

Element Code: PDRAN0H031

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T2Q
State: S2.2

Other Lists

CNPS List: 3.1

Habitat Associations

General: VERNAL POOLS. THIS SUBSPECIES HAS TAXONOMIC PROBLEMS; DISTINGUISHING BETWEEN THIS AND M. SESSILIS IS DIFFICULT. HYBRID?

Micro: ALKALINE SOILS. 20-640M. (NOTE: CENTRAL VALLEY EO'S NOT MAPPED).

Occurrence No. 4 **Map Index:** 17686 **EO Index:** 7808

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen

Element: 1986-04-22
Site: 1986-04-22

Record Last Updated: 1995-10-03

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55227º / -116.97196º
UTM: Zone-11 N3601653 E502632
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 58.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** XX
Meridian: S
Elevation: 470 ft

Location: SSE OF SAN DIEGO NEAR MEXICAN BORDER; SSE OF BROWN FIELD, 1.2 AIR MI S OF ALTA SCHOOL.

Location Detail: BEAUCHAMP VERNAL POOLS J 19-21. BOTH SIDES OF SIEMPRE VIVA RD.

Ecological: IN SEVERAL POOLS IN 1979. ASSOCIATED WITH ERYNGIUM ARISTULATUM PARISHII AND POGOGYNE NUDIUSCULA IN SCRUB.

Threat: GRAZING; AG HAS ELIMINATED SOME POOLS. ALSO THREATENED BY DEVELOPMENT, PROPOSED SECOND BORDER CROSSING, & WEEDY GRASSES.

General: INCLUDES FORMER OCCURRENCE 5. ONLY SEEN IN POOL J 19 IN 1986.

Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

COO81M0021 COOLEY, G. MAP: OTAY MESA QUAD FOR MYOSURUS MINIMUS SSP. APUS. 1981-07-13.

Myosurus minimus ssp. apus

little mousetail

Element Code: PDRAN0H031

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T2Q
State: S2.2

Other Lists

CNPS List: 3.1

Habitat Associations

General: VERNAL POOLS. THIS SUBSPECIES HAS TAXONOMIC PROBLEMS; DISTINGUISHING BETWEEN THIS AND M. SESSILIS IS DIFFICULT. HYBRID?

Micro: ALKALINE SOILS. 20-640M. (NOTE: CENTRAL VALLEY EO'S NOT MAPPED).

Occurrence No. 16 **Map Index:** 23059 **EO Index:** 7776

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1986-04-22
Site: 1986-04-22

Record Last Updated: 2007-12-07

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59804º / -116.92887º
UTM: Zone-11 N3606729 E506674
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.6 acres

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 510 ft

Location: OTAY MESA, 1.0 KM (0.6 MI) SOUTH OF THE LOWER OTAY CAMPING AREA.

Location Detail: INCLUDES BEAUCHAMP POOLS J-26. WITHIN THE SE 1/4 OF THE SE 1/4 OF SECTION 13.

Ecological: ASSOCIATED WITH ERYNGIUM ARISTULATUM VAR. PARISHII AND POGOGYNE NUDIUSCULA.

Threat: ORVS.

General: RELATIVELY UNDISTURBED EXCEPT FOR SOME VEHICLE TRACKS AND SOME MOUNDS REMOVED. SOME QUESTION AS TO IDENTIFICATION.

Owner/Manager: PVT, SDG COUNTY

Sources

BAU86F0001 BAUDER, E. & T. CASS. FIELD SURVEY FORM FOR POGOGYNE NUDIUSCULA & MYOSURUS MINIMUS SSP. APUS & BLOOMERIA CLEVELANDII. 1986-04-22.

Myotis ciliolabrum

western small-footed myotis

Element Code: AMACC01140

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S2S3

Other Lists

CDFG Status:

Habitat Associations

General: WIDE RANGE OF HABITATS MOSTLY ARID WOODED & BRUSHY UPLANDS NEAR WATER. SEEKS COVER IN CAVES, BUILDINGS, MINES & CREVICES

Micro: PREFERS OPEN STANDS IN FORESTS AND WOODLANDS. REQUIRES DRINKING WATER. FEEDS ON A WIDE VARIETY OF SMALL FLYING INSECTS.

Occurrence No. 82 **Map Index:** 73281 **EO Index:** 74236

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-07-15
Site: 2003-07-15

Record Last Updated: 2008-12-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60143º / -116.92964º
UTM: Zone-11 N3607105 E506602
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 264 ft

Location: ALONG OTAY RIVER AT THE MOUTH OF DAM CANYON, OTAY VALLEY REGIONAL PARK.
Location Detail:
Ecological:
Threat:
General: DETECTED WITH ANABAT DETECTOR ON 15 JUL 2003 DURING A ROOST SURVEY. EUMOPS PEROTIS, LASIURUS BLOSSEVILLII, MYOTIS YUMANENSIS, NYCTINOMOPS FEMOROSACCUS, PIPISTRELLUS HESPERUS & TADARIDA BRASILIENSIS ALSO DETECTED HERE.
Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

Myotis yumanensis

Yuma myotis

Element Code: AMACC01020

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S4?

Other Lists

CDFG Status:

Habitat Associations

General: OPTIMAL HABITATS ARE OPEN FORESTS AND WOODLANDS WITH SOURCES OF WATER OVER WHICH TO FEED.

Micro: DISTRIBUTION IS CLOSELY TIED TO BODIES OF WATER. MATERNITY COLONIES IN CAVES, MINES, BUILDINGS OR CREVICES.

Occurrence No. 207 **Map Index:** 71975 **EO Index:** 72883

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2002-07-16
Site: 2002-07-16

Record Last Updated: 2008-09-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58781º / -116.91230º
UTM: Zone-11 N3605596 E508229
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 19 **Qtr:** XX
Meridian: S
Elevation: 640 ft

Location: O'NEAL CANYON, 0.50 MI NE OF KUEBLER RANCH, OTAY MOUNTAIN.

Location Detail:

Ecological: SEASONAL, NARROW & ROCKY TRIBUTARY DOMINATED WITH TECATE CYPRESS IN UPPER REACHES. FEW SYCAMORES & WILLOWS DOT LOWER & MIDDLE REACHES. THE SLOPES ABOVE THE CREEK CONSIST OF COASTAL SAGE SCRUB & SOME MARITIME SUCCULENTS.

Threat:

General: ROOST IN A ROCK CREVICE. 1 BAT (NO KEEL, POSSIBLE YOUNG OF YEAR) CAPTURED WITH A HANDNET IN CREVICE ON 16 JUL 2002. 6 OR MORE TADARIDA BRASILIENSIS OBS IN SAME CREVICE ON 9 APR 2002.

Owner/Manager: BLM

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

STO03R0001 STOKES, D. ET AL. (USGS-WERC). BAT INVENTORY OF THE SAN DIEGO COUNTY MULTIPLE SPECIES CONSERVATION PROGRAM AREA, 2003. 2003-XX-XX.

Myotis yumanensis

Yuma myotis

Element Code: AMACC01020

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S4?

Other Lists

CDFG Status:

Habitat Associations

General: OPTIMAL HABITATS ARE OPEN FORESTS AND WOODLANDS WITH SOURCES OF WATER OVER WHICH TO FEED.

Micro: DISTRIBUTION IS CLOSELY TIED TO BODIES OF WATER. MATERNITY COLONIES IN CAVES, MINES, BUILDINGS OR CREVICES.

Occurrence No. 208 **Map Index:** 71985 **EO Index:** 72888

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-07-15
Site: 2003-07-15

Record Last Updated: 2008-09-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60692º / -116.93003º
UTM: Zone-11 N3607714 E506564
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** XX
Meridian: S
Elevation: 520 ft

Location: LOWER OTAY CAMPING AREA, OTAY VALLEY REGIONAL PARK.
Location Detail:
Ecological:
Threat:
General: ROOST SITE IN BUILDING (RESTROOM 1). BAT(S) CAPTURED WITH A HANDNET ON 15 JUL 2003 DURING A NOCTURNAL ROOST SURVEY.
Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

STO03R0001 STOKES, D. ET AL. (USGS-WERC). BAT INVENTORY OF THE SAN DIEGO COUNTY MULTIPLE SPECIES CONSERVATION PROGRAM AREA, 2003. 2003-XX-XX.

Myotis yumanensis

Yuma myotis

Element Code: AMACC01020

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S4?

Other Lists

CDFG Status:

Habitat Associations

General: OPTIMAL HABITATS ARE OPEN FORESTS AND WOODLANDS WITH SOURCES OF WATER OVER WHICH TO FEED.

Micro: DISTRIBUTION IS CLOSELY TIED TO BODIES OF WATER. MATERNITY COLONIES IN CAVES, MINES, BUILDINGS OR CREVICES.

Occurrence No. 209 **Map Index:** 71986 **EO Index:** 72889

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-06-12
Site: 2003-06-12

Record Last Updated: 2008-09-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60861º / -116.92426º
UTM: Zone-11 N3607902 E507105
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 18 **Qtr:** XX
Meridian: S
Elevation: 380 ft

Location: DAM CANYON CAVES, 0.18 MI DOWN STREAM FROM SAVAGE DAM, OTAY VALLEY REGIONAL PARK.

Location Detail:

Ecological:

Threat:

General: ROOST SITE IN MINE. 2 BATS CAPTURED WITH A HANDNET ON 12 JUN 2003 DURING A NOCTURNAL ROOST SURVEY. 50 MYYU OBSERVED NIGHT ROOSTING. MOST APPEARED TO BE ADULTS WITH A FEW POSSIBLE JUVENILES.

Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

STO03R0001 STOKES, D. ET AL. (USGS-WERC). BAT INVENTORY OF THE SAN DIEGO COUNTY MULTIPLE SPECIES CONSERVATION PROGRAM AREA, 2003. 2003-XX-XX.

Myotis yumanensis

Yuma myotis

Element Code: AMACC01020

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S4?

Other Lists

CDFG Status:

Habitat Associations

General: OPTIMAL HABITATS ARE OPEN FORESTS AND WOODLANDS WITH SOURCES OF WATER OVER WHICH TO FEED.

Micro: DISTRIBUTION IS CLOSELY TIED TO BODIES OF WATER. MATERNITY COLONIES IN CAVES, MINES, BUILDINGS OR CREVICES.

Occurrence No. 257 **Map Index:** 73281 **EO Index:** 74237

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-07-15
Site: 2003-07-15

Record Last Updated: 2008-12-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60143º / -116.92964º
UTM: Zone-11 N3607105 E506602
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 264 ft

Location: ALONG OTAY RIVER AT THE MOUTH OF DAM CANYON, OTAY VALLEY REGIONAL PARK.
Location Detail:
Ecological:
Threat:
General: DETECTED WITH ANABAT DETECTOR ON 15 JUL 2003 DURING A ROOST SURVEY. EUMOPS PEROTIS, LASIURUS BLOSSEVILLII, MYOTIS CILIOLABRUM, NYCTINOMOPS FEMOROSACCUS, PIPISTRELLUS HESPERUS & TADARIDA BRASILIENSIS ALSO DETECTED HERE.
Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

Nama stenocarpum

mud nama

Element Code: PDHYD0A0H0

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4G5
State: S1S2

Other Lists

CNPS List: 2.2

Habitat Associations

General: MARSHES AND SWAMPS.
Micro: LAKE SHORES, RIVER BANKS, INTERMITTENTLY WET AREAS. 5-500M.

Occurrence No. 24 **Map Index:** 73582 **EO Index:** 81339

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2005-04-23
Site: 2005-04-23

Record Last Updated: 2010-10-11

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.56679º / -117.01260º
UTM: Zone-11 N3603263 E498817
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 4/5 mile

Township: 18S
Range: 01W
Section: 32 **Qtr:** XX
Meridian: S
Elevation:

Location: OTAY MESA.
Location Detail: EXACT LOCATION WITHIN OTAY MESA IS UNKNOWN. MAPPED BY CNDDB AS BEST GUESS AROUND THE WEST PORTION OF OTAY MESA BUT OCCURRENCE MAY ACTUAL BE FURTHER EAST ON OTHER PARTS OF OTAY MESA.
Ecological:
Threat:
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 2005 GREENHOUSE OBSERVATION. NEEDS FIELDWORK.
Owner/Manager: UNKNOWN

Sources

GRE05U0005 GREENHOUSE, J. CALFLORA OBSERVATION RECORD OF NAMA STENOCARPUM FROM OTAY MESA. 2005-04-23.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G1	**CNPS List:** 1B.1
State: None	**State:** S1	

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 2 **Map Index:** 04433 **EO Index:** 18464

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1979-XX-XX
Site: 1986-05-28

Record Last Updated: 2009-02-26

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61165º / -117.00108º
UTM: Zone-11 N3608235 E499898
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 2.6 acres

Township: 18S
Range: 01W
Section: 17 **Qtr:** NE
Meridian: S
Elevation: 490 ft

Location: 0.9 AIR MI SW OF OTAY RANCH, NNW OF BROWN FIELD, S OF SAN DIEGO.

Location Detail: FOUND IN FISH & GAME (BEAUCHAMP) POOL COMPLEX "M2". THIS POOL COMPLEX CONTAINED 2 VERNAL POOLS IN 1979.

Ecological: IN SCRUB ON OLIVENHAIN SOIL SERIES.

Threat: DEVELOPMENT. MINOR DISTURBANCES IN 1979. GRAVEL DUMPED IN ONE POOL TO FORM ROAD BED IN 1986.

General: FOUND IN THIS POOL COMPLEX BY BEAUCHAMP IN 1979. NOT SEEN IN A 1986 SURVEY.

Owner/Manager: UNKNOWN

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
COO81M0014	COOLEY, G. MAP 5: IMPERIAL BEACH, OTAY MESA QUADS FOR NAVARRETIA FOSSALIS. 1981-07-10.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G1	**CNPS List:** 1B.1
State: None	**State:** S1	

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 8 **Map Index:** 73617 **EO Index:** 7784

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1986-05-29
Site: 1986-05-29

Record Last Updated: 2009-02-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57574º / -116.93922º
UTM: Zone-11 N3604257 E505704
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 2.0 acres

Township: 18S
Range: 01W
Section: 25 **Qtr:** NW
Meridian: S
Elevation: 620 ft

Location: "RATTLESNAKE HILL", 0.7 KM (0.5 MI) SOUTH OF BROWN FIELD BOMBING RANGE, OTAY MESA.

Location Detail: FOUND IN FISH & GAME (BEAUCHAMP) POOL COMPLEX "J-22". THIS POOL COMPLEX HAD 3 VERNAL POOLS IN 1979.

Ecological: RICH WITH NON-POOL NATIVES; ASSOCIATED WITH ERYNGIUM ARISTULATUM PARISHII. SMALL SHALLOW POOLS WITH MEDIUM AND LARGE COBBLES. SURROUNDING AREA IS MOSTLY GRASSLAND WITH NATIVE AND EXOTIC SPECIES.

Threat: SITE IS WITHIN POSSIBLE ROUTE OF SR125 (1986).

General: FOUND IN THIS POOL COMPLEX BY BEAUCHAMP IN 1979. IN 2 POOLS AT CREST OF HILL IN 1985. UNCOMMON TO COMMON IN 3 POOLS IN 1986.

Owner/Manager: PVT

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
BIT83U0003	BITTMAN, R. TNC ELEMENT PRESERVATION PLAN, TABLES, ETC. 1983-10-19.
COO81M0012	COOLEY, G. MAP: OTAY MESA QUAD FOR NAVARRETIA FOSSALIS. 1981-07-09.
GRI85U0002	GRIGGS, T. MEMO REGARDING OTAY MESA. 1985-05-01.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G1	**CNPS List:** 1B.1
State: None	**State:** S1	

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 9 **Map Index:** 12006 **EO Index:** 13760

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1986-04-22
Site: 2008-XX-XX

Record Last Updated: 2009-10-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55896º / -116.96660º
UTM: Zone-11 N3602395 E503134
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 28.0 acres

Township: 18S
Range: 01W
Section: 34 **Qtr:** E
Meridian: S
Elevation: 480 ft

Location: OTAY MESA, ~0.5-0.8 AIR MI SSW OF THE INTERSECTION OF OTAY MESA RD AND LA MEDIA RD, SE OF BROWN FIELD.

Location Detail: FOUND IN FISH & GAME (BEAUCHAMP) POOL COMPLEX "J27" & "J28". THESE POOL COMPLEXES CONTAINED 27 VERNAL POOLS IN 1979. W SIDE OF LA MEDIA RD ON BOTH SIDES OF AIRWAY RD.

Ecological: IN SCRUB VEGETATION; ASSOCIATED WITH POGOGYNE NUDIUSCULA AND ERYNGIUM ARISTULATUM PARISHII.

Threat: DEVELOPMENT, ORVS, GRAZING, & WEEDY GRASSES THREATEN THESE POOLS. MANY POOLS HAVE BEEN HIGHLY DEGRADED OR EXTIRPATED.

General: FOUND IN THESE POOLS BY BEAUCHAMP IN 1979. COMMON IN 1 POOL IN SW PORTION OF MAPPED AREA IN 1986; N PORTION OF MAPPED AREA IS HIGHLY DISTURBED & NO PLANTS WERE FOUND IN 1986. S & E PORTION OF SITE STILL INTACT IN 2008. INCL FORMER EO #25.

Owner/Manager: UNKNOWN

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
CAS79S0008	CASS, T. CASS #106 SD #105685. 1979-05-06.
CAS79S0009	CASS, T. CASS #21D SD #105671. 1979-04-21.
COO81M0012	COOLEY, G. MAP: OTAY MESA QUAD FOR NAVARRETIA FOSSALIS. 1981-07-09.
GAN35S0035	GANDER, F. GANDER #217 SD #11554. 1935-06-12.
GRI85U0003	GRIGGS, T. MAPS WITH NOTES ON CONDITION OF VERNAL POOL AREAS. 1985-07-15.
MOR69S0011	MORAN, R. & H. WITHAM. MORAN #16041 UC #1445263 UCSB #32943 RSA #292838 SD #94938 DAV #48401 UCR #66553 SBBG #53489. 1969-06-06.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Sources

MOR77A0001 MORAN, R. MADRONO XXIV (3):155-158 (ORIGINAL DESCRIPTION AND DISCUSSION OF NAVARRETIA FOSSALIS). 1977-07-XX.

REI89R0002 REISER, C. THE RARE PLANTS OF SAN DIEGO COUNTY. 1989-XX-XX.

ROB09U0003 ROBERTS, F. OCCURRENCE REPORT MODIFICATIONS FOR NAVARRETIA FOSSALIS. 2009-09-30.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 10 **Map Index:** 04499 **EO Index:** 18458

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1979-XX-XX
Site: 1979-XX-XX

Record Last Updated: 2009-02-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59289º / -116.97300º
UTM: Zone-11 N3606157 E502533
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 22 **Qtr:** NW
Meridian: S
Elevation: 295 ft

Location: N OF THE OTAY RIVER, ~0.5 AIR MI SE OF ROCK MOUNTAIN, OTAY VALLEY.

Location Detail: FOUND IN FISH & GAME (BEAUCHAMP) POOL "K2".

Ecological: VERNAL POOL IN SCRUB.

Threat:

General: IN ONE POOL 16 SQUARE METERS IN AREA IN 1979. THIS POOL WAS NOT RELOCATED IN 1986.

Owner/Manager: UNKNOWN

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

COO81M0012 COOLEY, G. MAP: OTAY MESA QUAD FOR NAVARRETIA FOSSALIS. 1981-07-09.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G1	**CNPS List:** 1B.1
State: None	**State:** S1	

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 49 **Map Index:** 73640 **EO Index:** 74522

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2003-05-30
Site: 2003-05-30

Record Last Updated: 2009-02-19

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62296º / -116.91978º
UTM: Zone-11 N3609493 E507525
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 2.0 acres

Township: 18S
Range: 01E
Section: 07 **Qtr:** NW
Meridian: S
Elevation: 550 ft

Location: BETWEEN THE E ARM OF LOWER OTAY RESERVOIR & BUSCHALAUGH COVE, SE SIDE OF LOWER OTAY RESERVOIR.

Location Detail: MAPPED BY CNDDB ACCORDING TO DIGITAL DATA FROM THE CITY OF SAN DIEGO (2003); SITE NAME IS "OTAY LAKES", SEEN ON 5/30/2003.

Ecological: VERNAL POOLS ASSOCIATED WITH ERYNGIUM ARISTULATUM.

Threat:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS DIGITAL DATA FROM THE CITY OF SAN DIEGO (2003). NEED ADDITIONAL INFORMATION.

Owner/Manager: CITY OF SAN DIEGO

Sources

SAN03D0001 CITY OF SAN DIEGO. DIGITAL DATA: VERNAL POOL AMPHIBIANS, SHRIMP, PLANTS - SAN DIEGO. 2003-XX-XX.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G1	**CNPS List:** 1B.1
State: None	**State:** S1	

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 50 **Map Index:** 73643 **EO Index:** 74523

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1986-04-22
Site: 1986-04-22

Record Last Updated: 2009-03-09

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55275º / -116.97232º
UTM: Zone-11 N3601707 E502597
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 7.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** NW
Meridian: S
Elevation: 470 ft

Location: S OF SIEMPRE VIVA RD BETWEEN BRITANNIA BLVD & LA MEDIA RD, OTAY MESA.

Location Detail: MAPPED BY CNDDB AS 5 POLYS TO ENCOMPASS ALL 11 "J-19" POOLS; UNSURE WHICH POOLS N. FOSSALIS WAS FOUND IN. DATA SHEETS NOTE THAT "NAVARRETIA FOSSALIS?" WAS FOUND; POSSIBLE ID UNCERTAINTY.

Ecological: RECENTLY PLOWED VERNAL POOLS (1986). ASSOCIATED WITH COTULA, CRASSULA ERECTA, ELATINE BRACHYSPERMA, LOLIUM PERENNE, JUNCUS BUFONIUS, PILULARIA AMERICANA.

Threat: PLOWED FOR AG IN 1986. BASED ON 2008 AERIAL IMAGERY, THE MAJORITY OF THE POOLS HAVE BEEN EXTIRPATED; E PORTION EXTANT?

General: MENTIONED AS "COMMON ON MOIST BOTTOM OF VERNAL POOLS" IN 1967 S OF SIEMPRE VIVA RD. NOT SEEN HERE BY BEAUCHAMP IN 1979. MAY HAVE BEEN FOUND IN DIRT CLODS FOLLOWING A RECENT PLOWING OF THESE VERNAL POOLS IN 1986. NEEDS FIELDWORK.

Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

BEA67S0020 BEAUCHAMP, R. BEAUCHAMP #405 SD #79017. 1967-05-12.

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G1	**CNPS List:** 1B.1
State: None	**State:** S1	

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 51 **Map Index:** 73644 **EO Index:** 74527

Occ Rank: Unknown
Origin: Introduced Back into Native Hab./Range
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2003-04-16
Site: 2003-04-16

Record Last Updated: 2009-02-19

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56657º / -117.00074º
UTM: Zone-11 N3603239 E499930
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 2.0 acres

Township: 18S
Range: 01W
Section: 32 **Qtr:** NE
Meridian: S
Elevation: 500 ft

Location: WSW OF THE INTERSECTION OF OTAY MESA RD AND HERITAGE RD, SW OF BROWN FIELD.

Location Detail: MAPPED AS 3 POLYGONS ACCORDING TO 2003 DIGITAL DATA FROM THE CITY OF SAN DIEGO; DATA ORIGINALLY FROM HELIX (2003), SITE NAME IS "RECON SOUTH".

Ecological: CREATED VERNAL POOLS. ASSOCIATED WITH ERYNGIUM ARISTULATUM & POGOGYNE NUDIUSCULA.

Threat:

General: SEEN IN 4 CREATED VERNAL POOLS IN 2003, MAPPED BY CNDDB AS 3 POLYGONS. ONLY SOURCE OF INFORMATION FOR THIS SITE IS DIGITAL DATA SUBMITTED BY THE CITY OF SAN DIEGO (2003).

Owner/Manager: CITY OF SAN DIEGO

Sources

SAN03D0001 CITY OF SAN DIEGO. DIGITAL DATA: VERNAL POOL AMPHIBIANS, SHRIMP, PLANTS - SAN DIEGO. 2003-XX-XX.

Navarretia fossalis

Moran's nosegay

Element Code: PDPLM0C080

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS, CHENOPOD SCRUB, MARSHES AND SWAMPS, PLAYAS.

Micro: SAN DIEGO HARDPAN & SAN DIEGO CLAYPAN VERNAL POOLS; IN SWALES & V.P'S, OFTEN SURR. BY OTHER HABITAT TYPES. 30-1300M.

Occurrence No. 52 **Map Index:** 73645 **EO Index:** 74530

Occ Rank: Unknown
Origin: Introduced Back into Native Hab./Range
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2006-XX-XX
Site: 2006-XX-XX

Record Last Updated: 2009-03-23

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.54649º / -117.00083º
UTM: Zone-11 N3601012 E499921
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 4.0 acres

Township: 19S
Range: 01W
Section: 05 **Qtr:** SE
Meridian: S
Elevation: 445 ft

Location: APPROXIMATELY 0.35 AIR MI SE OF THE MOUTH OF WRUCK CANYON, SW END OF OTAY MESA.

Location Detail: MAPPED BY CNDDB AS 2 POLYGONS ACCORDING TO A 2006 ECOLOGICAL RESTORATION SERVICE MAP. THIS SITE IS CALLED "ARNIE'S POINT".

Ecological: CREATED/RESTORED VERNAL POOLS.

Threat:

General: NOT SEEN IN 2003. SEEN IN 6 CREATED OR RESTORED VERNAL POOLS IN 2004-2006; POPULATION ESTIMATES RANGED FROM ~250 PLANTS IN 2004 TO ~400 PLANTS IN 2006. POOLS WERE CREATED/RESTORED IN 2002.

Owner/Manager: UNKNOWN

Sources

ERS06R0001 ECOLOGICAL RESTORATION SERVICE. MAINTENANCE AND MONITORING OF VERNAL POOLS AND UPLAND VEGETATION AT ARNIE'S POINT, SAN DIEGO, CA: AREA A (YEAR 4) AND AREA B (YEAR 3), 2005-2006 HYDROLOGICAL YEAR. 2006-XX-XX.

FWS07D0001 U.S. FISH & WILDLIFE SERVICE, CARLSBAD OFFICE. USFWS CARLSBAD SPECIAL STATUS SPECIES DATABASE, AUGUST 2007 VERSION. 2007-08-09.

Neotoma lepida intermedia

San Diego desert woodrat

Element Code: AMAFF08041

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3?
State: S3?

Other Lists

CDFG Status: SC

Habitat Associations

General: COASTAL SCRUB OF SOUTHERN CALIFORNIA FROM SAN DIEGO COUNTY TO SAN LUIS OBISPO COUNTY.

Micro: MODERATE TO DENSE CANOPIES PREFERRED. THEY ARE PARTICULARLY ABUNDANT IN ROCK OUTCROPS & ROCKY CLIFFS & SLOPES.

Occurrence No. 62 **Map Index:** 50457 **EO Index:** 50457

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-06-01
Site: 2003-06-01

Record Last Updated: 2009-03-05

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.57597º / -117.00543º
UTM: Zone-11 N3604280 E499490
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: 29 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY MESA, WEST OF BROWN FIELD NAVAL AIR STATION, ABOUT 2 MI NORTH OF TIJUANA.

Location Detail: MAPPED TO ENTIRE SECTION AS PROVIDED IN NEW93U0001 (ALSO DESCRIBED AS 'CALIFORNIA TERRACES'). WOO04U0002 PROVIDED GENERAL UTM COORDS WHICH FELL WITHIN THE MAPPED SECTION.

Ecological:

Threat:

General: 1993: 1 FEMALE CAPTURED/RELEASED ON 14 APR, 1 MALE 2 FEMALES & 1 UNKNOWN ON 15 APR. 2003: 6 CAPTURED (SHERMAN'S LIVE TRAP) & RELEASED ON 1 JUN.

Owner/Manager: UNKNOWN

Sources

NEW93U0001 NEWMAN, J.M. SCIENTIFIC COLLECTING PERMIT REPORT FOR SMALL MAMMAL CAPTURES DURING 1993 IN SAN DIEGO COUNTY. 1993-06-11.

WOO04U0002 WOODWARD, B.W. (RECON ENVIRONMENTAL, INC.). SCIENTIFIC COLLECTING REPORT OF SPECIMENS CAPTURED OR SALVAGED. PERMIT SC-006265. 2004-10-15.

Nyctinomops femorosaccus

pocketed free-tailed bat

Element Code: AMACD04010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4
State: S2S3

Other Lists

CDFG Status: SC

Habitat Associations

General: VARIETY OF ARID AREAS IN SOUTHERN CALIFORNIA; PINE-JUNIPER WOODLANDS, DESERT SCRUB, PALM OASIS, DESERT WASH, DESERT RIPA

Micro: ROCKY AREAS WITH HIGH CLIFFS.

Occurrence No. 90 **Map Index:** 73281 **EO Index:** 74238

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-07-15
Site: 2003-07-15

Record Last Updated: 2008-12-30

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60143º / -116.92964º
UTM: Zone-11 N3607105 E506602
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 264 ft

Location: ALONG OTAY RIVER AT THE MOUTH OF DAM CANYON, OTAY VALLEY REGIONAL PARK.
Location Detail:
Ecological:
Threat:
General: DETECTED WITH ANABAT DETECTOR ON 15 JUL 2003 DURING A ROOST SURVEY. EUMOPS PEROTIS, LASIURUS BLOSSEVILLII, MYOTIS CILIOLABRUM, M. YUMANENSIS, PIPISTRELLUS HESPERUS & TADARIDA BRASILIENSIS ALSO DETECTED HERE.
Owner/Manager: SDG COUNTY

Sources

DFG06D0001 CALIFORNIA DEPARTMENT OF FISH & GAME. BAT INVENTORY OF SAN DIEGO COUNTY (DS105) - DIGITAL DATA FROM BIOS. SURVEYS CONDUCTED BY U.S. GEOLOGICAL SURVEY. METADATA ALSO ATTACHED. 2006-XX-XX.

Opuntia californica var. californica

snake cholla

Element Code: PDCAC0D2Y1

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3T2
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB.
Micro: 30-150M.

Occurrence No. 25 **Map Index:** 17804 **EO Index:** 10039

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-12-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59813º / -116.95921º
UTM: Zone-11 N3606737 E503827
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 9.4 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: N SIDE OTAY RIVER, ABOUT 0.1 MI S OF AQUEDUCT, 1.3 MI E OF ROCK MOUNTAIN PEAK.

Location Detail: NORTH SLOPES OF OTAY RIVER VALLEY.

Ecological: MAP SHOWS TAXON OCCURRING WITH OR VERY NEAR POPULATIONS OF FEROCACTUS VIRIDESCENS AND VIGUIERA LACINIATA.

Threat: DEVELOPMENT OF THIS AREA IS A CONSTANT THREAT.

General: THREE SUBPOPULATIONS NOTED BY ZIPPIN IN 1990, IN 2 MAIN AREAS.

Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Opuntia californica var. californica

snake cholla

Element Code: PDCAC0D2Y1

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3T2	**CNPS List:** 1B.1
State: None	**State:** S1.1	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB.

Micro: 30-150M.

Occurrence No. 26 **Map Index:** 17803 **EO Index:** 10038

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59885º / -116.96405º
UTM: Zone-11 N3606817 E503373
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 350 ft

Location: N SIDE OTAY RIVER, JUST S OF AQUEDUCT, 1 MI E OF ROCK MOUNTAIN PEAK.
Location Detail:
Ecological: N-FACING SLOPES, ALONG DRAINAGE OF OTAY RIVER.
Threat: DEVELOPMENT IS A THREAT.
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Opuntia californica var. californica

snake cholla

Element Code: PDCAC0D2Y1

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3T2	**CNPS List:** 1B.1
State: None	**State:** S1.1	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB.

Micro: 30-150M.

Occurrence No. 27 **Map Index:** 20127 **EO Index:** 9676

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1993-03-11

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60545º / -116.93694º
UTM: Zone-11 N3607550 E505916
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 13 **Qtr:** XX
Meridian: S
Elevation: 360 ft

Location: OTAY VALLEY; SOUTH OF LOWER OTAY RESERVOIR; ALONG JEEP TRAIL ABOUT 0.5 MILES WEST OF
Location Detail: LOWER OTAY CAMPING AREA.

Ecological: N-FACING SLOPES.
Threat: DEVELOPMENT IS A THREAT.
General:
Owner/Manager: PVT?

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Orcuttia californica

California Orcutt grass

Element Code: PMPOA4G010

Status

Federal: Endangered
State: Endangered

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS.
Micro: 15-660M.

Occurrence No. 3 **Map Index:** 04528 **EO Index:** 14993

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-XX
Site: 2001-05-23

Record Last Updated: 2009-03-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58028º / -116.96555º
UTM: Zone-11 N3604758 E503233
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 6.0 acres

Township: 18S
Range: 01W
Section: 27 **Qtr:** NE
Meridian: S
Elevation: 505 ft

Location: N EDGE OF OTAY MESA, 1.0 AIR MI N-NNE OF ALTA SCHOOL, NE OF BROWN FIELD.

Location Detail: 2 NW-MOST POLYS ARE BASED ON A 1979 BEAUCHAMP REPORT; FOUND IN FISH & GAME (BEAUCHAMP) POOL COMPLEX "J29", THIS COMPLEX CONTAINED 2 VERNAL POOLS IN 1979. SE-MOST POLY BASED ON A 1989 SCHEID ET AL. (RECON) MAP.

Ecological: VERNAL POOLS WITH ERYNGIUM ARISTULATUM VAR. PARISHII. POGOGYNE NUDIUSCULA SEEN IN THIS POOL COMPLEX IN 1986. SCRUB SURROUNDS.

Threat: MINOR DISTURBANCE IN 1979, BUT AGRICULTURE, PROPOSED BORDER CROSSING, AND DEVELOPMENT THREATEN.

General: 2 NW-MOST POLYS: SEEN IN THIS POOL COMPLEX IN 1979, NOT SEEN IN A 1986 SURVEY, NOT SEEN IN A 1990 SITE VISIT BY MISTRETTA & FRITSCH BUT HABITAT WAS CONSIDERED EXTANT, NO PLANTS SEEN IN 2001 BUT SITE WAS VERY DRY. SE-MOST POLY: SEEN IN 1989.

Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0001 BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

BOY01F0020 BOYKIN, L. & P. HALL. FIELD SURVEY FORM FOR ORCUTTIA CALIFORNICA. 2001-05-23.

COO81M0026 COOLEY, G. MAP FOR ORCUTTIA CALIFORNICA. 1981-08-20.

MIS90U0003 MISTRETTA, O. & P. FRITSCH. SUMMARY OF ORCUTTIA CALIFORNICA SEED COLLECTION SITES. 1990-XX-XX.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Orcuttia californica

California Orcutt grass

Element Code: PMPOA4G010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS.

Micro: 15-660M.

Occurrence No. 4 **Map Index:** 22339 **EO Index:** 22419

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1979-XX-XX
Site: 2001-04-23

Record Last Updated: 2009-03-26

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55769º / -116.96537º
UTM: Zone-11 N3602255 E503250
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 10.0 acres

Township: 18S
Range: 01W
Section: 34 **Qtr:** SE
Meridian: S
Elevation: 475 ft

Location: OTAY MESA, ~0.5-0.8 AIR MI SSW OF THE INTERSECTION OF OTAY MESA RD AND LA MEDIA RD, SE OF BROWN FIELD.

Location Detail: FOUND IN FISH & GAME (BEAUCHAMP) POOL COMPLEX "J28". THIS POOL COMPLEX CONTAINED 11 VERNAL POOLS IN 1979.

Ecological: VERNAL POOLS. ASSOCIATED WITH ERYNGIUM ARISTULATUM, POGOGYNE NUDIUSCULA, & NAVARRETIA FOSSALIS.

Threat: GOOD CONDITION IN 1979, BUT AGRICULTURE, PROPOSED BORDER CROSSING, DEVELOPMENT, & WEEDY GRASSES THREATEN.

General: SEEN IN THIS POOL COMPLEX BY BEAUCHAMP IN 1979. NOT SEEN HERE IN 1986 SURVEY. NO PLANTS OBSERVED IN 1990 SITE VISIT BY MISTRETTA AND FRITSCH; HABITAT WAS CONSIDERED EXTANT. NO PLANTS OBSERVED IN 2001; SITE WAS VERY DRY.

Owner/Manager: PVT

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
BOY01F0021	BOYKIN, L. & P. HALL. FIELD SURVEY FORM FOR ORCUTTIA CALIFORNICA. 2001-05-23.
COO81M0026	COOLEY, G. MAP FOR ORCUTTIA CALIFORNICA. 1981-08-20.
MIS90U0003	MISTRETTA, O. & P. FRITSCH. SUMMARY OF ORCUTTIA CALIFORNICA SEED COLLECTION SITES. 1990-XX-XX.

Orcuttia californica

California Orcutt grass

Element Code: PMPOA4G010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS.

Micro: 15-660M.

Occurrence No. 5 **Map Index:** 73643 **EO Index:** 7802

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1979-XX-XX
Site: 2001-05-23

Record Last Updated: 2009-03-26

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55275º / -116.97232º
UTM: Zone-11 N3601707 E502597
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 7.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** NW
Meridian: S
Elevation: 470 ft

Location: S OF SIEMPRE VIVA RD BETWEEN BRITANNIA BLVD & LA MEDIA RD, OTAY MESA.

Location Detail: FOUND IN FISH & GAME (BEAUCHAMP) POOL COMPLEX "J-19". THIS COMPLEX CONTAINED 11 VERNAL POOLS IN 1979.

Ecological: VERNAL POOLS WITH ERYNGIUM ARISTULATUM PARISHII.

Threat: GOOD CONDITION IN 1979, BUT AGRICULTURE, PROPOSED BORDER CROSSING, AND DEVELOPMENT THREATEN.

General: SEEN IN THIS POOL COMPLEX BY BEAUCHAMP IN 1979. NOT FOUND IN 1986 SURVEY. NO PLANTS SEEN IN 1990 SITE VISIT BY MISTRETTA AND FRITSCH. AREA HAD BEEN PLOWED FOR AGRICULTURE. NO PLANTS SEEN IN 2001, SITE WAS VERY DRY.

Owner/Manager: PVT

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
BOY01F0022	BOYKIN, L. & P. HALL. FIELD SURVEY FORM FOR ORCUTTIA CALIFORNICA. 2001-05-23.
COO81M0026	COOLEY, G. MAP FOR ORCUTTIA CALIFORNICA. 1981-08-20.
MIS90U0003	MISTRETTA, O. & P. FRITSCH. SUMMARY OF ORCUTTIA CALIFORNICA SEED COLLECTION SITES. 1990-XX-XX.

Orcuttia californica

California Orcutt grass

Element Code: PMPOA4G010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G2	**CNPS List:** 1B.1
State: Endangered	**State:** S2.1	

Habitat Associations

General: VERNAL POOLS.

Micro: 15-660M.

Occurrence No. 11 **Map Index:** 04442 **EO Index:** 7787

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1981-08-18
Site: 2001-05-23

Record Last Updated: 2009-03-26

Quad Summary: Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)
County Summary: San Diego

Lat/Long: 32.55220º / -117.00074º
UTM: Zone-11 N3601646 E499929
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 3.0 acres

Township: 19S
Range: 01W
Section: 05 **Qtr:** NE
Meridian: S
Elevation: 460 ft

Location: E OF SAN YSIDRO, 1.7 AIR MI ENE OF PORT OF ENTRY. N OF WRUCK CYN, S OTAY MESA.

Location Detail: FOUND IN FISH & GAME (BEAUCHAMP) POOL COMPLEX "J16". THIS POOL COMPLEX CONTAINED 5 VERNAL POOLS IN 1979. NOT MENTIONED AS OCCURRING IN THIS POOL COMPLEX IN 1979 BUT WAS SUBSEQUENTLY FOUND HERE BY BEAUCHAMP ACC TO 1981 PHONE CONVERSATION.

Ecological: VERNAL POOLS WITH ERYNGIUM ARISTULATUM PARISHII. SCRUB SURROUNDS. IN 2001 VERNAL POOLS WERE VERY DIFFICULT TO DISTINGUISH FROM THE SURROUNDING VEGETATION.

Threat: MINOR DISTURBANCE. AG HAS ELIMINATED MANY POOLS ON MESA. PROPOSED 2ND BORDER CROSSING & ILLEGAL ALIEN TRAFFIC THREATENS.

General: SEEN BY BEAUCHAMP (LIKELY IN 1981?). POOLS WERE NOT VISITED IN 1986 SURVEY. NO PLANTS OBSERVED IN 1990 SITE VISIT, HABITAT WAS DESCRIBED AS EXTANT BUT HIGHLY DEGRADED. NO PLANTS SEEN IN 2001, SITE WAS VERY DRY.

Owner/Manager: PVT

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0001	BEAUCHAMP, R.M. SAN DIEGO REGIONAL VERNAL POOL SUREY (WITH MAPS; PRELIMINARY REPORT OF BEA79M0001 AND BEA79R0002). 1979-03-29.
BEA81U0003	BEAUCHAMP, R.M. PHONE MEMO, CONVERSATION BETWEEN GENE COOLEY AND M. BEAUCHAMP, CONCERNING SAN DIEGO VERNAL POOL SURVEY, 1978. NOTE FILED IN POGOGYNE ABRAMSII FILE. 1981-04-30.
BOY01F0023	BOYKIN, L. & P. HALL. FIELD SURVEY FORM FOR ORCUTTIA CALIFORNICA. 2001-05-23.
COO81M0025	COOLEY, G. MAP FOR ORCUTTIA CALIFORNICA. 1981-08-19.
MIS90U0003	MISTRETTA, O. & P. FRITSCH. SUMMARY OF ORCUTTIA CALIFORNICA SEED COLLECTION SITES. 1990-XX-XX.
MIS90U0008	MISTRETTA, O. & P. FRITSCH. SENSITIVE SPECIES SEED COLLECTION FORM FOR ERYNGIUM ARISTULATUM VAR. PARISHII. 1990-09-22.

Orcuttia californica

California Orcutt grass

Element Code: PMPOA4G010

Status

Federal: Endangered
State: Endangered

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS.
Micro: 15-660M.

Occurrence No. 37 **Map Index:** 71110 **EO Index:** 72020

Occ Rank: Poor
Origin: Introduced Back into Native Hab./Range
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen

Element: 2005-XX-XX
Site: 2005-XX-XX

Record Last Updated: 2009-03-26

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.54620º / -117.00122º
UTM: Zone-11 N3600980 E499884
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 2.0 acres

Township: 19S
Range: 01W
Section: 05 **Qtr:** SE
Meridian: S
Elevation: 445 ft

Location: APPROXIMATELY 0.35 AIR MI SE OF THE MOUTH OF WRUCK CANYON, SW END OF OTAY MESA.

Location Detail: MAPPED BY CNDDB ACCORDING TO A 2006 ECOLOGICAL RESTORATION SERVICE MAP. SITE IS CALLED "ARNIE'S POINT".

Ecological: CREATED/RESTORED VERNAL POOLS.

Threat:

General: 3 PLANTS SEEN IN 1 VERNAL POOL IN 2004. 7 PLANTS SEEN IN 2 VERNAL POOLS IN 2005. NOT SEEN IN 2003 OR 2006. THESE POOLS WERE CREATED/RESTORED IN 2002.

Owner/Manager: UNKNOWN

Sources

ERS06R0001	ECOLOGICAL RESTORATION SERVICE. MAINTENANCE AND MONITORING OF VERNAL POOLS AND UPLAND VEGETATION AT ARNIE'S POINT, SAN DIEGO, CA: AREA A (YEAR 4) AND AREA B (YEAR 3), 2005-2006 HYDROLOGICAL YEAR. 2006-XX-XX.
FWS07D0001	U.S. FISH & WILDLIFE SERVICE, CARLSBAD OFFICE. USFWS CARLSBAD SPECIAL STATUS SPECIES DATABASE, AUGUST 2007 VERSION. 2007-08-09.

Orcuttia californica

California Orcutt grass

Element Code: PMPOA4G010

Status

Federal: Endangered
State: Endangered

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS.
Micro: 15-660M.

Occurrence No. 38 **Map Index:** 71111 **EO Index:** 72021

Occ Rank: Unknown
Origin: Introduced Back into Native Hab./Range
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-04-16
Site: 2003-04-16

Record Last Updated: 2008-04-07

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56677º / -117.00094º
UTM: Zone-11 N3603260 E499911
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 1.0 acres

Township: 18S
Range: 01W
Section: 32 **Qtr:** NE
Meridian: S
Elevation: 500 ft

Location: S OF STATE HWY 905 (OTAY MESA RD) BETWEEN INNOVATIVE DR AND HERITAGE RD, SW OF BROWN FIELD AIR STATION.

Location Detail: MAPPED AS 3 POLYGONS CONSISTING OF 5 POOLS BASED ON DIGITAL DATA SUBMITTED IN 2003 (DATA COLLECTED BY ROBERT MACALLER- RECON IN 2003). THE DIGITAL DATA INDICATES THAT THESE ARE CREATED VERNAL POOLS. SITE NAMES ARE J2W & J2S.

Ecological: OTHER RARE PLANTS IN THESE CREATED POOLS ARE ERYNGIUM ARISTULATUM AND POGOGYNE NUDIUSCULA.

Threat:

General: ONLY INFORMATION IS MAP DETAIL FROM DIGITAL DATA SUBMITTED BY THE CITY OF SAN DIEGO. NEED HABITAT AND POPULATION INFORMATION.

Owner/Manager: UNKNOWN

Sources

SAN03D0001 CITY OF SAN DIEGO. DIGITAL DATA: VERNAL POOL AMPHIBIANS, SHRIMP, PLANTS - SAN DIEGO. 2003-XX-XX.

Phrynosoma blainvillii

coast horned lizard

Element Code: ARACF12100

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4G5
State: S3S4

Other Lists

CDFG Status: SC

Habitat Associations

General: FREQUENTS A WIDE VARIETY OF HABITATS, MOST COMMON IN LOWLANDS ALONG SANDY WASHES WITH SCATTERED LOW BUSHES.

Micro: OPEN AREAS FOR SUNNING, BUSHES FOR COVER, PATCHES OF LOOSE SOIL FOR BURIAL, & ABUNDANT SUPPLY OF ANTS & OTHER INSECTS.

Occurrence No. 380 **Map Index:** 21543 **EO Index:** 10168

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-11-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61709º / -116.91619º
UTM: Zone-11 N3608841 E507862
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 06 **Qtr:** XX
Meridian: S
Elevation: 560 ft

Location: SOUTH OF BUSCHALAUGH COVE IN LOWER OTAY RESERVOIR. ABOUT 4.5 MILES NORTH OF US-MEXICO BORDER.

Location Detail: LIZARD FOUND ON THE SOUTH SIDE OF THE ROAD RUNNING UP BUSCHALAUGH COVE.

Ecological: HABITAT IS DIEGAN COASTAL SAGE SCRUB

Threat: DEVELOPMENT PLANNED FOR NEARBY OTAY RANCH-EAST.

General: ONE HORNED LIZARD OBSERVATION. CALIFORNIA GNATCATCHERS ALSO KNOWN FROM THIS AREA.

Owner/Manager: PVT

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Phrynosoma blainvillii

coast horned lizard

Element Code: ARACF12100

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4G5
State: S3S4

Other Lists

CDFG Status: SC

Habitat Associations

General: FREQUENTS A WIDE VARIETY OF HABITATS, MOST COMMON IN LOWLANDS ALONG SANDY WASHES WITH SCATTERED LOW BUSHES.

Micro: OPEN AREAS FOR SUNNING, BUSHES FOR COVER, PATCHES OF LOOSE SOIL FOR BURIAL, & ABUNDANT SUPPLY OF ANTS & OTHER INSECTS.

Occurrence No. 381 **Map Index:** 21549 **EO Index:** 16293

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-09-14

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62522º / -116.88241º
UTM: Zone-11 N3609746 E511031
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 09 **Qtr:** NE
Meridian: S
Elevation: 700 ft

Location: OTAY RANCH EAST, ESE OF EAST ARM OF LOWER OTAY RESERVOIR.

Location Detail: HORNED LIZARD FOUND NEXT TO JEEP TRAIL.

Ecological: DIEGAN COASTAL SAGE SCRUB WITH SMALL PATCHES OF CHAMISE CHAPARRAL. SOME AREAS ARE DISTURBED.

Threat: PARTS OF OTAY RANCH, EAST ARE PLANNED FOR DEVELOPMENT.

General: AT LEAST ONE INDIVIDUAL OBSERVED. CALIFORNIA GNATCATCHER AND LEAST BELL'S VIREO ALSO KNOWN FROM THIS SITE.

Owner/Manager: PVT-OTAY RANCH

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Phrynosoma blainvillii

coast horned lizard

Element Code: ARACF12100

Status

Federal: None
State: None

NDDB Element Ranks

Global: G4G5
State: S3S4

Other Lists

CDFG Status: SC

Habitat Associations

General: FREQUENTS A WIDE VARIETY OF HABITATS, MOST COMMON IN LOWLANDS ALONG SANDY WASHES WITH SCATTERED LOW BUSHES.

Micro: OPEN AREAS FOR SUNNING, BUSHES FOR COVER, PATCHES OF LOOSE SOIL FOR BURIAL, & ABUNDANT SUPPLY OF ANTS & OTHER INSECTS.

Occurrence No. 403 **Map Index:** 25625 **EO Index:** 5462

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2000-04-15
Site: 2000-04-15

Record Last Updated: 2007-05-31

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61489º / -116.88734º
UTM: Zone-11 N3608600 E510569
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 09 **Qtr:** SW
Meridian: S
Elevation: 900 ft

Location: 2 MILES EAST OF LOWER OTAY RESERVOIR AND SOUTH OF TELEGRAPH CANYON ROAD.

Location Detail: 2000 OBSERVATION ON RIDGE JUST NORTH OF CATTLE POND.

Ecological: 1989: MIXED CHAPARRAL AND CHAMISE CHAPARRAL, DOMINATED BY RHUS, ARTEMISIA, AND CHAMISE; SOILS ARE SANDY LOAM. 2000: OPEN COASTAL SAGE SCRUB, REDDISH CLAY SOILS, LOWER SLOPES DOMINATED BY ANNUAL GRASSLAND.

Threat: THREATENED BY ORV ACTIVITY AND DEVELOPMENT IN THE OTAY RANCH AREA.

General: 1 ADULT OBSERVED ON 7 JUNE 1989. 2 FORAGING ADULTS OBSERVED ON 15 APR 2000.

Owner/Manager: PVT

Sources

LEA00F0014 LEATHERMAN, B. (WHITE & LEATHERMAN BIOSERVICES). FIELD SURVEY FORM FOR PHRYNOSOMA CORONATUM (BLAINVILLII POPULATION). 2000-04-15.

NIC89F0010 NICOLAI, N. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR THAMNOPHIS HAMMONDII & PHRYNOSOMA CORONATUM BALINVILLI. 1989-06-07.

Phrynosoma blainvillii

coast horned lizard

Element Code: ARACF12100

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4G5	**CDFG Status:** SC
State: None	**State:** S3S4	

Habitat Associations

General: FREQUENTS A WIDE VARIETY OF HABITATS, MOST COMMON IN LOWLANDS ALONG SANDY WASHES WITH SCATTERED LOW BUSHES.

Micro: OPEN AREAS FOR SUNNING, BUSHES FOR COVER, PATCHES OF LOOSE SOIL FOR BURIAL, & ABUNDANT SUPPLY OF ANTS & OTHER INSECTS.

Occurrence No. 470 **Map Index:** 49068 **EO Index:** 49068

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-01-25
Site: 2002-01-25

Record Last Updated: 2002-10-17

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57028º / -116.90953º
UTM: Zone-11 N3603653 E508492
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 29 **Qtr:** 0.
Meridian: S
Elevation: 700 ft

Location: 6 MILE NE OF THE INTERSECTION OF OTAY MOUNTAIN ROAD AND ALTA ROAD, ADJACENT TO OTAY MESA GENERATING PLANT
Location Detail:

Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSLAND; SURROUNDED BY HISTORIC AGRICULTURAL LAND, OPEN SPACE, AND OTAY MESA GENERATING PLANT.

Threat: THREATENED BY ORV ACTIVITY.

General: 1 ADULT OBSERVED ON 25 JAN 2002.

Owner/Manager: UNKNOWN

Sources

EDW02F0004 EDWARDS, F. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR PHRYNOSOMA CORONATUM (BLAINVILLII POPULATION). 2002-01-25.

Pogogyne nudiuscula

Otay Mesa mint

Element Code: PDLAM1K040

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CNPS List:** 1B.1
State: Endangered	**State:** S1.1	

Habitat Associations

General: VERNAL POOLS.

Micro: DRY BEDS OF VERNAL POOLS AND MOIST SWALES W/ERYNGIUM ARISTULATUM VAR PARISHII AND ORCUTTIA CALIFORNICA. 85-250M.

Occurrence No. 1 **Map Index:** 58630 **EO Index:** 7782

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1993-07-01
Site: 1993-07-01

Record Last Updated: 2005-08-18

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59793º / -116.92873º
UTM: Zone-11 N3606717 E506687
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 15.2 acres

Township: 18S
Range: 01W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 510 ft

Location: OTAY MESA, 1 KM (0.6 MI) SOUTH OF LOWER OTAY CAMPING AREA.

Location Detail: INCLUDES BEAUCHAMP POOLS J-26, BETWEEN ALTA ROAD AND THE GATE TO OTAY RANCH; ABOUT 100 YARDS NORTH OF THE ENCLOSED RESERVOIR. WITHIN THE SE 1/4 OF THE SE 1/4 OF SECTION 13.

Ecological: VERNAL POOLS IN LARGE DRAINAGE AND CONNECTED, WITH COASTAL SAGE/CHAPARRAL COMMUNITY. PURE DENSE STANDS OF POGOGYNE SURROUNDED BY HEMIZONIA. ERYNGIUM ARISTULATUM VAR PARISHII ALSO PRESENT.

Threat: SITE BISECTED BY DIRT ROAD, PROPOSED OTAY MESA DEVELOPMENT PROJECT, & IMPACTED BY HORSES & VEHICLES (BORDER PATROL?).

General: PLANTS IN 19 OF 30 VERNAL POOLS. POOLS ON SOUTH SIDE OF ROAD WERE DISTURBED BY FIRE/FIRE BREAKS IN 1993, BUT P. NUDIUSCULA APPEARS TO HAVE REBOUNDED. ABOUT 1000 PLANTS OBSERVED IN 1992, AND ABOUT 1500 OBSERVED IN 1993.

Owner/Manager: PVT, SDG COUNTY

Sources

BAU86F0001	BAUDER, E. & T. CASS. FIELD SURVEY FORM FOR POGOGYNE NUDIUSCULA & MYOSURUS MINIMUS SSP. APUS & BLOOMERIA CLEVELANDII. 1986-04-22.
BAU98U0001	BAUDER, E. LETTER TO DIANA HICKSON REGARDING POGOGYNE ACCOUNTS. 1998-09-15.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
COO81M0029	COOLEY, G. MAP: OTAY MESA QUAD FOR POGOGYNE NUDIUSCULA. 1981-08-30.
FRI90U0001	FRITSCH, P. & O. MISTRETTA. SENSITIVE SPECIES FORM FOR POGOGYNE NUDIUSCULA. 1990-06-19.
MCM92F0003	MCMILLAN, S. FIELD SURVEY FORM FOR POGOGYNE NUDIUSCULA. 1992-06-01.
MCM93F0003	MCMILLAN, S. FIELD SURVEY FORM FOR POGOGYNE ABRAMSII. 1993-07-01.

Pogogyne nudiuscula

Otay Mesa mint

Element Code: PDLAM1K040

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CNPS List:** 1B.1
State: Endangered	**State:** S1.1	

Habitat Associations

General: VERNAL POOLS.

Micro: DRY BEDS OF VERNAL POOLS AND MOIST SWALES W/ERYNGIUM ARISTULATUM VAR PARISHII AND ORCUTTIA CALIFORNICA. 85-250M.

Occurrence No. 3 **Map Index:** 04611 **EO Index:** 13667

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-19
Site: 1990-06-19

Record Last Updated: 1993-03-08

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58968º / -116.94387º
UTM: Zone-11 N3605801 E505267
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 175.2 acres

Township: 18S
Range: 01W
Section: 24 **Qtr:** W
Meridian: S
Elevation: 450 ft

Location: OTAY MESA, PARTIALLY IN OLD BROWN FIELD BOMBING RANGE, 2.3 MI APPROX NE OF ALTA SCHOOL.

Location Detail: INCLUDES POOLS 23-25.

Ecological: IN 51 (OR MORE?) VERNAL POOLS IN MOIST AREAS AND BOMB CRATERS. ASSOCIATED WITH ERYNGIUM ARISTULATUM. HIGH DIVERSITY OF NON POOL NATIVE SPECIES ALSO.

Threat: AGRICULTURE HAS ELIMINATED MANY OTHER POOLS ON MESA. GRAZING ALSO THREATENS. SITE ADJACENT TO NEW PRISON.

General: ONE OF THE FEW REMAINING STANDS OF THIS PLANT AND ONE OF THE LEAST DISTURBED PARCELS.

Owner/Manager: USFWS, SDG COUNTY

Sources

BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
COO81M0029	COOLEY, G. MAP: OTAY MESA QUAD FOR POGOGYNE NUDIUSCULA. 1981-08-30.
COX84U0003	COX, R. UPDATED INFORMATION. 1984-03-16.
GRI85U0002	GRIGGS, T. MEMO REGARDING OTAY MESA. 1985-05-01.
MIS90F0001	MISTRETTA & FRITSCH. SENSITIVE SPECIES PLANT COLLECTION FORM. 1990-06-19.
SCH89R0001	SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.
SPR91U0001	SPROUL, F. PHONE CONVERSATION WITH M. ROBISON. 1991-05-02.
WIE90R0001	WIER, H.A. REPORT ON THE HYDROLOGY AND FLORA OF THE OTAY RANCH VERNAL POOLS, 1990, SAN DIEGO COUNTY, CALIFORNIA (MICHAEL BRANDMAN AND ASSOCIATES). 1990-11-21.
ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.
ZIP90R0001	ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Pogogyne nudiuscula

Otay Mesa mint

Element Code: PDLAM1K040

Status

Federal: Endangered
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS.

Micro: DRY BEDS OF VERNAL POOLS AND MOIST SWALES W/ERYNGIUM ARISTULATUM VAR PARISHII AND ORCUTTIA CALIFORNICA. 85-250M.

Occurrence No. 5 **Map Index:** 03319 **EO Index:** 13666

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1993-03-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58407º / -116.95925º
UTM: Zone-11 N3605179 E503824
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 110.5 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** SW
Meridian: S
Elevation: 500 ft

Location: OTAY MESA, NE OF BROWN FIELD, ABOUT 1.3 AIR MILE NE OF ALTA SCHOOL.

Location Detail: INCLUDES POOL J30.

Ecological: IN 10 VERNAL POOLS ASSOCIATED WITH ERYNGIUM ARISTULATUM VAR PARISHII. HIGH DIVERSITY OF NON-POOL NATIVE PLANT SPECIES ALSO.

Threat: SOME PLANTS NEAR GRAVEL ROAD.

General: ONE OF THE FEW REMAINING STANDS OF THIS PLANT AND ONE OF THE LEAST DISTURBED.

Owner/Manager: PVT

Sources

BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
COO81M0029	COOLEY, G. MAP: OTAY MESA QUAD FOR POGOGYNE NUDIUSCULA. 1981-08-30.
FRI90F0001	FRITSCH, P. & O. MISTRETTA. SEED COLLECTION FORM FOR POGOGYNE NUDIUSCULA. 1990-06-19.
GRI85U0002	GRIGGS, T. MEMO REGARDING OTAY MESA. 1985-05-01.
SCH89R0001	SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.
WIE90R0001	WIER, H.A. REPORT ON THE HYDROLOGY AND FLORA OF THE OTAY RANCH VERNAL POOLS, 1990, SAN DIEGO COUNTY, CALIFORNIA (MICHAEL BRANDMAN AND ASSOCIATES). 1990-11-21.
ZIP90M0001	ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.
ZIP90R0001	ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Pogogyne nudiuscula

Otay Mesa mint

Element Code: PDLAM1K040

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CNPS List:** 1B.1
State: Endangered	**State:** S1.1	

Habitat Associations

General: VERNAL POOLS.

Micro: DRY BEDS OF VERNAL POOLS AND MOIST SWALES W/ERYNGIUM ARISTULATUM VAR PARISHII AND ORCUTTIA CALIFORNICA. 85-250M.

Occurrence No. 6 **Map Index:** 04537 **EO Index:** 13664

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1995-04-10
Site: 1995-04-10

Record Last Updated: 2005-08-18

Quad Summary: Otay Mesa (3211658/010C)
County Summary: Mexico, San Diego

Lat/Long: 32.55785º / -116.96702º
UTM: Zone-11 N3602273 E503095
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 205.9 acres

Township: 18S
Range: 01W
Section: 34 **Qtr:** SE
Meridian: S
Elevation: 480 ft

Location: NEAR US-MEXICO BORDER ON OTAY MESA, WEST SIDE OF LA MEDIA ROAD; ABOUT 1.5 MI SOUTHEAST OF BROWN FIELD.

Location Detail: 4 POLYGONS THAT INCLUDE BEAUCHAMP VERNAL POOLS J19, 20, 21, 27, 28. ONE LARGE NORTHERN POLYGON IN THE E 1/2 OF SEC 34, N & S OF AIRWAY RD, WITH POOLS J27, 28. THREE OTHERS IN THE NE 1/4, & NE 1/4 OF NW 1/4, OF SEC 3; POOLS 19, 20, 21.

Ecological: VERNAL POOLS & SWALES WITHIN AN ANNUAL GRASSLAND. ASSOCIATED WITH OTHER RARE TAXA: ERYNGIUM ARISTULATUM PARISHII, NAVARRETIA FOSSALIS, DUDLEYA VARIEGATA, MYOSURUS MINIMUS VAR. APUS, FEROCACTUS VIRIDESCENS, & ORCUTTIA CALIFORNICA.

Threat: COMPETITION FROM EXOTIC ANNUAL GRASSES, AGRICULTURE, LEVELING AND DISKING, AND DEVELOPMENT A FUTURE THREAT.

General: ~200 PLANTS SEEN IN 1995 AT THE NORTHERN COLONY, ON NORTH SIDE OF AIRWAY RD, BUT NO PLANTS FOUND SOUTH OF AIRWAY RD. CONDITION/EXISTANCE OF SOUTHERN POOLS UNKNOWN. INCLUDES FORMER EOS 7 AND 12. PROTECTION OF REMAINING HABITAT IS ESSENTIAL.

Owner/Manager: UNKNOWN

Sources

BAU86R0001	BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.
BEA79M0001	BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.
BEA79R0002	BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.
BRA80S0002	BRAMLET, D. BRAMLET #10 UCR #31835. 1980-05-28.
COO81M0029	COOLEY, G. MAP: OTAY MESA QUAD FOR POGOGYNE NUDIUSCULA. 1981-08-30.
GRI85U0003	GRIGGS, T. MAPS WITH NOTES ON CONDITION OF VERNAL POOL AREAS. 1985-07-15.
MOR69S0002	MORAN, R. & H. WITHAM. MORAN #16042 UC. 1969-06-06.
SCO80U0001	SCOTT, T. CURRENT STATUS OF POGOGYNE NUDIUSCULA IN SAN DIEGO COUNTY & BAJA. 1980-01-29.
SKI95F0017	SKINNER, M. FIELD SURVEY FORM FOR POGOGYNE NUDIUSCULA. 1995-04-10.
SKI95F0018	SKINNER, M. FIELD SURVEY FORM FOR POGOGYNE NUDIUSCULA. 1995-04-10.

Pogogyne nudiuscula

Otay Mesa mint

Element Code: PDLAM1K040

Status

Federal: Endangered
State: Endangered

NDDB Element Ranks

Global: G1
State: S1.1

Other Lists

CNPS List: 1B.1

Habitat Associations

General: VERNAL POOLS.

Micro: DRY BEDS OF VERNAL POOLS AND MOIST SWALES W/ERYNGIUM ARISTULATUM VAR PARISHII AND ORCUTTIA CALIFORNICA. 85-250M.

Occurrence No. 8 **Map Index:** 58701 **EO Index:** 18046

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen

Element: 1996-XX-XX
Site: 1996-XX-XX

Record Last Updated: 2005-08-18

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56542º / -117.00497º
UTM: Zone-11 N3603111 E499533
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: 32 **Qtr:** NE
Meridian: S
Elevation: 500 ft

Location: WESTERN OTAY MESA, ALONG OTAY MESA ROAD, NORTH OF SPRING CANYON AND SOUTH OF DENNERY CANYON.

Location Detail: 2 CNDDB POLYGONS: (1) 0.1 MI SOUTH OF OTAY MESA ROAD AT BM 505, AND (2) 20-50 FT NORTH OF OTAY MESA RD, 0.75 MI EAST FROM BM 537.

Ecological: IN VERNAL POOL ASSOCIATED WITH OTHER RARE SPECIES INCLUDING HEMIZONIA CONJUGENS AND NAVARRETIA FOSSALIS. BURROWING OWLS ALSO HERE. ALTAMONT/DIABLO CLAY SOILS.

Threat: PROPOSED I-905, OTAY MESA ROAD WIDENING, HEAVY FOOT TRAFFIC AND BORDER PATROL ORV USE THREATEN.

General: UNKNOWN HOW MANY PLANTS SEEN AT COLONY (1). SITE TO BE PURCHASED FOR I-905 MITIGATION ACC TO M. ELVIN, 1996. COLONY (2) SITE SEARCHED IN 1985 AND NO PLANTS FOUND; HABITAT SEVERELY DEGRADED.

Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

BRA80S0001 BRAMLET, D. BRAMLET #1 UCR #31834. 1980-05-28.

COO81M0028 COOLEY, G. MAP: FOR POGOGYNE NUDIUSCULA. 1981-08-26.

ELV96M0001 ELVIN, M. MAP SHOWING LOCATION OF POGOGYNE NUDIUSCULA. 1996-XX-XX.

GRI85U0003 GRIGGS, T. MAPS WITH NOTES ON CONDITION OF VERNAL POOL AREAS. 1985-07-15.

MCM95F0001 MCMILLAN, B. FIELD SURVEY FORM FOR DEINANDRA CONJUGENS, POGOGYNE NUDIUSCULA & NAVARRETIA FOSSALIS. 1995-09-08.

SCO80U0001 SCOTT, T. CURRENT STATUS OF POGOGYNE NUDIUSCULA IN SAN DIEGO COUNTY & BAJA. 1980-01-29.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 92 **Map Index:** 04446 **EO Index:** 9854

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-09-10

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60243º / -116.99093º
UTM: Zone-11 N3607213 E500851
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: WOLF CANYON, NORTH OF OTAY VALLEY AND WEST OF LOWER OTAY RESERVOIR, OTAY RANCH.

Location Detail: GNATCATCHERS OBSERVED THROUGHOUT THE CANYON BUT MORE NUMEROUS IN THE LOWER SECTIONS.

Ecological: COASTAL SAGE SCRUB HABITAT DOMINATED BY ARTEMISIA CALIFORNICA, ERIOGONUM FASCICULATUM, AND SALVIA MELLIFERA. HABITAT DEGRADED BY ORV'S AND GRAZING.

Threat: DEVELOPMENT, ORV'S AND GRAZING.

General: ONE INDIVIDUAL OBSERVED; 3-6 PAIRS ESTIMATED IN 1980. 1989 SURVEY FOUND 4 GNATCATCHERS, WITH PREVIOUS SIGHTINGS OF 7 BIRDS.

Owner/Manager: PVT-OTAY RANCH

Sources

ATW80U0001 ATWOOD, J.L. CALIFORNIA BLACK-TAILED GNATCATCHER POPULATION SURVEY, 1980. UCLA DEPT. OF BIOLOGY. 1980-XX-XX.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 266 **Map Index:** 21544 **EO Index:** 10170

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-11-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60928º / -116.91446º
UTM: Zone-11 N3607976 E508025
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 3/5 mile

Township: 18S
Range: 01E
Section: 18 **Qtr:** XX
Meridian: S
Elevation: 700 ft

Location: SOUTHEAST OF LOWER OTAY RESERVOIR, ABOUT 3.75 MILES NORTH OF THE US-MEXICO BORDER. PART OF OTAY RANCH, EAST.
Location Detail:

Ecological: PRISTINE COASTAL SAGE SCRUB WITH SMALL PATCHES OF SOUTHERN MIXED CHAPARRAL AND CHAMISE CHAPARRAL.

Threat: DEVELOPMENT IS PLANNED FOR PARTS OF THESE OTAY RANCH-EAST LANDS.

General: 12 GNATCATCHERS OBSERVED WITHIN THIS AREA.

Owner/Manager: PVT-OTAY RANCH

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 267 **Map Index:** 21480 **EO Index:** 7857

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2000-07-XX
Site: 2000-07-XX

Record Last Updated: 2003-03-04

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)

County Summary: San Diego

Lat/Long: 32.62768º / -116.89237º
UTM: Zone-11 N3610018 E510096
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 04 **Qtr:** XX
Meridian: S
Elevation: 800 ft

Location: JAMUL VALLEY & SAN YSIDRO MTNS, EAST & SE OF EAST ARM OF LOWER OTAY RESERVOIR, ~5 MILES NORTH OF THE US-MEXICO BORDER.

Location Detail: OTAY RANCH-EAST, OTAY LAKES BIOLOGICAL PRESERVE

Ecological: HABITAT IS DIEGAN COASTAL SAGE SCRUB WITH SMALL PATCHES OF CHAMISE CHAPARRAL. ERIOGONUM FASCICULATUM AND ARTEMISIA CALIFORNICA ARE DOMINANT PLANTS LOCATED TO AT SOUTHERN EDGE. SOME AREAS HAVE BEEN DISTURBED.

Threat: PARTS OF OTAY RANCH-EAST ARE PLANNED FOR DEVELOPMENT. PORTION OF SITE DISTURBED BY FIRE (RECENT AS OF 2000) & GRAZING

General: AT LEAST 12 GNATCATCHERS OBSERVED WITHIN AREA. 8 OBSERVED BETWEEN 1990 & 1992. JUN 1995: 1 OBS. JUL 1995: 1PAIR, 1 IND OBS. 2 PAIRS & 1 FAMILY GROUP OBSERVED JULY 2000. SAN DIEGO COAST HORNED LIZARD & LEAST BELL'S VIREO FROM THIS SITE.

Owner/Manager: PVT-OTAY RANCH, THE ENV TRUST

Sources

COL95U0001 COLWELL, C. (COLWELL & ASSOCIATES, INC.). OTAY LAKES BIOLOGICAL PRESERVE; CONTAINS LOCATION INFORMATION FOR POLIOPTILA CALIFORNICA. 1995-XX-XX.

HEL00R0002 HELIX ENVIRONMENTAL PLANNING, INC. PROTOCOL GNATCATCHER SURVEY REPORT FOR OTAY RANCH VILLAGE 15. 2000-08-24.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

SWE92M0002 SWEETWATER ENVIRONMENTAL BIOLOGISTS, INC. MAPS OF PUBLIC 1990-1992 CALIFORNIA GNATCATCHER LOCATIONS WITHIN THE SAN DIEGO REGION. 1992-08-14.

Polioptila californica californica

coastal California gnatcatcher **Element Code:** ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 270 **Map Index:** 21655 **EO Index:** 9297

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2003-03-05

Quad Summary: Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B)
County Summary: San Diego

Lat/Long: 32.61810º / -116.94421º
UTM: Zone-11 N3608952 E505234
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: SALT CREEK AREA, WEST OF LOWER OTAY RESERVOIR, OTAY RANCH.

Location Detail: OTAY RANCH NEW MILLENNIUM PROPERTY (WITHIN VILLAGE 11). VERY HIGH DENSITIES OF GNATCATCHERS AND CACTUS WRENS AT THIS SITE.

Ecological: NEARLY PRISTINE DIEGAN COASTAL SAGE SCRUB ON EAST, BACCHARIS SCRUB ON WEST, & PATCHES OF MARITIME SUCCULENT SCRUB. WEST, NORTH & EAST PROPERTY IS VAC/AG. DEVELOPMENT TO NW & NE. CACTUS WRENS, ORANGE-THROATED WHIPTAILS IN VICINITY.

Threat: PROPOSED DEVELOPMENT (UNIVERSITY), MAJOR ROAD OVER SALT CREEK CYN REQUIRING STREAMBED-ALTERING FILL, SEWER ALIGNMENT.

General: 22 BIRDS OBS DURING SURVEY & 9 OBS KNOWN FROM PREVIOUS SURVEYS. 50 PAIRS ESTIMATED. 33 PRS, 5M, 3F & 15 FLEDGES OBS MAY-JUL 1999. 11 PRS, 5 FLEDGES, 2 MALES OBS 2 MAY-25 JUN 2001. DEVELOPMENT PREDICTED TO REDUCE GNATCATCHER POP BY 40%.

Owner/Manager: PVT-OTAY RANCH

Sources

DUD99U0001 PRIEST, J. (DUDEK & ASSOCIATES). CALIFORNIA GNATCATCHER SURVEY FOR OTAY RANCH NEW MILLENNIUM PROPERTY, CHULA VISTA, SAN DIEGO, CALIFORNIA. 1999-08-16.

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 274 **Map Index:** 21261 **EO Index:** 14346

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable

Dates Last Seen

Element: 2002-04-XX
Site: 2002-04-XX

Record Last Updated: 2003-05-13

Quad Summary: Imperial Beach (3211751/011D), Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)

County Summary: San Diego

Lat/Long: 32.61959º / -117.00157º
UTM: Zone-11 N3609116 E499852
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 400 ft

Location: PORTION OF POGGI CANYON WEST OF LOWER OTAY RESERVOIR, OTAY RANCH, EAST OF CHULA VISTA.

Location Detail: OBSERVATIONS FROM 2000 AND 2002 OCCURRED AT WEST END OF POLYGON.

Ecological: COASTAL SAGE SCRUB WITH DENSE PATCHES OF CHOLLA ON SOUTH-FACING SLOPES (EAST PORTION). COASTAL SAGE SCRUB, MARITIME SUCCULENT SCRUB ALONG POGGI CYN. SOME NATIVE GRASSLAND IN SW PORTION SITE. AREAS SERIOUSLY DEGRADED BY ORV'S AND GRAZING.

Threat: DEVELOPMENT, ORV'S AND GRAZING.

General: 1989: THREE GNATCATCHERS SEEN DURING THIS STUDY; THREE GNATCATCHERS SEEN HERE DURING PREVIOUS STUDIES. 3 PAIRS OBS 14-29 NOV 2000. 10 PAIRS OBS MAR-APR 2002. CACTUS WREN, BADGER, BLACK-TAILED JACKRABBIT, BURROWING OWL ALSO FOUND IN AREA.

Owner/Manager: PVT-OTAY RANCH

Sources

DUD01U0001 PRIEST, J. (DUDEK & ASSOCIATES). CALIFORNIA GNATCATCHER SURVEY FOR THE OTAY RANCH VILLAGE ONE WEST, SOUTH PLANNING AREA OF OTAY RANCH, CITY OF CHULA VISTA, SAN DIEGO, CALIFORNIA. 2001-01-31.

DUD02U0004 DUDEK & ASSOCIATES, INC. CALIFORNIA GNATCATCHER SURVEY FOR THE OTAY RANCH VILLAGE 2 PROJECT, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2002-05-30.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 275 **Map Index:** 21653 **EO Index:** 9884

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-08-24

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59635º / -116.94116º
UTM: Zone-11 N3606541 E505521
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: CANYONS SOUTH OF OTAY VALLEY AND SOUTHWEST OF LOWER OTAY RESERVOIR, OTAY RANCH.

Location Detail:

Ecological: STEEP COASTAL SAGE SCRUB AND MARITIME SUCCULENT SCRUB COVERED SLOPES.

Threat: DEVELOPMENT.

General: TWO GNATCATCHERS SEEN DURING THIS STUDY AND 3 SEEN DURING PREVIOUS STUDIES. YELLLOW-BREASTED CHAT ALSO KNOWN FROM HERE.

Owner/Manager: PVT-OTAY RANCH

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 276 **Map Index:** 21654 **EO Index:** 16565

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-06

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59423º / -116.97024º
UTM: Zone-11 N3606305 E502792
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 300 ft

Location: CANYONS NORTH OF OTAY VALLEY AND SOUTHWEST OF LOWER OTAY RESERVOIR, OTAY RANCH.

Location Detail: OBSERVATIONS FROM 2001 AT NORTH EDGE OF OTAY VALLEY.

Ecological: STEEP COASTAL SAGE SCRUB AND MARITIME SUCCULENT SCRUB COVERED SLOPES, INTERSPERSED WITH AGRICULTURE.

Threat: THREATENED BY DEVELOPMENT.

General: TWO GNATCATCHERS SEEN DURING THIS STUDY (1989). FOUR GNATCATCHERS OBS DURING PREVIOUS STUDIES. CACTUS WRENS ALSO FOUND HERE. 2 PAIRS, 2 FLEDGED YOUNG OBS 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 349 **Map Index:** 21794 **EO Index:** 25072

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1992-11-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59041º / -116.90303º
UTM: Zone-11 N3605885 E509100
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 20 **Qtr:** W
Meridian: S
Elevation: 900 ft

Location: NORTH SIDE OF O'NEAL CANYON AND UPSLOPE TO THE NORTH, TWO MILES SOUTHWEST OF OTAY VALLEY, IN THE SAN YSIDRO MOUNTAINS.

Location Detail: NON-SPECIFIC POLYGON COVERS CENTRAL PORTION OF SEC 20; 4 SIGHTINGS UPSLOPE NORTH OF CANYON, APPROX 1 MI NE OF KUEBLER RANCH, AND 1 SIGHTING TWO STREAM FORKS NORTHEAST OF O'NEAL CREEK.

Ecological: HABITAT UNKNOWN. STEEP SLOPE, ELEVATION RANGE: 700-1100 FEET.

Threat:

General: FIVE SIGHTINGS REPORTED IN 1990 BY MBA AND RECON; DATA CONSOLIDATED ON A MAP WITH OTHER SOURCES OF DATA FOR SURROUNDING AREAS BY SWEETWATER ENVIRONMENTAL BIOLOGISTS IN 1991 (SEE SOURCE CODE AND DOCUMENT).

Owner/Manager: UNKNOWN

Sources

SWE91M0001 SWEETWATER ENVIRONMENTAL BIOLOGISTS, INC. VEGETATION MAP SHOWING PUBLIC AND PRIVATE LAND IN THE VICINITY OF SWEETWATER AND LOWER OTAY RESERVOIRS (CONTAINS GNATCATCHER LOCATIONAL DATA). 1991-10-21.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 480 **Map Index:** 33171 **EO Index:** 2966

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1995-05-17
Site: 1995-05-17

Record Last Updated: 1995-05-31

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55201º / -117.00003º
UTM: Zone-11 N3601624 E499997
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 19S
Range: 01W
Section: 05 **Qtr:** NE
Meridian: S
Elevation: 440 ft

Location: SOUTH EDGE OF OTAY MESA, ADJACENT TO THE NORTH EDGE OF WRUCK CANYON, SAN DIEGO.

Location Detail: 2 MALES OBSERVED ON OPPOSITE SIDES OF THIS 35-ACRE SITE.

Ecological: HABITAT CONSISTS OF DISTURBED MARITIME SUCCULENT SCRUB, DOMINATED BY SIMMONDSIA CHINENSIS, AMBROSIA CHENOPODIIFOLIA, RHUS INTEGRIFOLIA, ERIOGONUM FASCICULATUM, AND ARTEMISIA CALIFORNICA.

Threat: THREATS INCLUDE VEHICULAR TRAFFIC (INCLUDING INS VEHICLES) & GRAZING BY GOATS.

General: 2 MALES IN BREEDING PLUMAGE RESPONDED TO TAPED CALLS ON 17 MAY 1995.

Owner/Manager: PVT

Sources

RIG95F0001 RIGGAN, R.B. (R.B. RIGGAN & ASSOCIATES). FIELD SURVEY FORM FOR POLIOPTILA CALIFORNICA CALIFORNICA. 1995-05-17.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 486 **Map Index:** 33361 **EO Index:** 126

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1996-01-12
Site: 1996-01-12

Record Last Updated: 1996-03-07

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59361º / -116.92428º
UTM: Zone-11 N3606238 E507105
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 19 **Qtr:** NW
Meridian: S
Elevation: 560 ft

Location: NORTH OF O'NEAL CANYON AND 1 MILE SOUTH OF LOWER OTAY RESERVOIR.
Location Detail:
Ecological: HABITAT CONSISTS OF REVEGETATING COASTAL SAGE SCRUB.
Threat: THREATS INCLUDE FILL DUMPING, CATTLE GRAZING, AND CONTINUAL FIRES.
General: 3 ADULTS OBSERVED FORAGING ON 12 JANUARY 1996.
Owner/Manager: SDG COUNTY

Sources

WEB96F0001 WEBB, M.W. (SAN DIEGO COUNTY). FIELD SURVEY FORM FOR POLIOPTILA CALIFORNICA CALIFORNICA. 1996-01-12.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 516 **Map Index:** 40482 **EO Index:** 35489

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1997-08-08
Site: 1997-08-08

Record Last Updated: 1999-01-04

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56097º / -116.99738º
UTM: Zone-11 N3602617 E500245
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 17.4 acres

Township: 18S
Range: 01W
Section: 32 **Qtr:** NE
Meridian: S
Elevation: 500 ft

Location: ALONG SPRING CANYON, SW OF BROWN FIELD NAVAL AUXILIARY AIR STATION, OTAY MESA.

Location Detail:

Ecological: HABITAT CONSISTS OF MARITIME SUCCULENT SCRUB, DOMINATED BY MALOSMA LAURINA, ARTEMISIA CALIFORNICA, RHUS INTEGRIFOLIA, EUPHORBIA MISERA, FEROCACTUS VIRIDESCENS, AND OTHERS.

Threat: POSSIBLY THREATENED BY DEVELOPMENT OF INDUSTRIAL BUILDINGS.

General: 4 ADULTS OBSERVED ON 8 AUG 1997.

Owner/Manager: PVT

Sources

SCH97F0046 SCHEIDT, V.N. FIELD SURVEY FORM FOR POLIOPTILA CALIFORNICA. 1997-08-08.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 557 **Map Index:** 47051 **EO Index:** 47051

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2007-12-18
Site: 2007-12-18

Record Last Updated: 2008-04-01

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57622º / -116.90708º
UTM: Zone-11 N3604313 E508720
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 29 **Qtr:** NW
Meridian: S
Elevation:

Location: SAN YSIDRO MOUNTAINS; 2.5 MILES SE OF SOUTH EDGE LOWER OTAY RESERVOIR & 1.1 MILES NE
Location Detail: INTERSECT OTAY MESA RD & ALTA RD.

Ecological: HABITAT CONSISTS OF DIEGAN COASTAL SAGE SCRUB DOMINATED BY VIGUIERA LACINIATA, CALIFORNIA SAGEBRUSH, ERIOGONUM FASCICULATUM & LOTUS SCOPARIUS. UNDERSTORY COMPRISED OF RED BROME, FASCICLED TARPLANT, FILAREE, PEPPERGRASS & PURPLE NEEDLEGRASS.

Threat: SITE PROPOSED FOR DEVELOPMENT; FIRE FREQUENCY HIGH IN AREA.

General: 29 JUN 2001: 1 OBSERVED - POSSIBLY DISPERSING JUVENILE. 18 DEC 2007: 1 MALE FORAGING/CALLING. SAN DIEGO HORNED LIZARD, COASTAL WESTERN WHIPTAIL, COASTAL ROSY BOA, NORTHERN RED-DIAMOND RATTLESNAKE & S. CA. RUFOUS-CROWNED SPARROW IN VICINTY.

Owner/Manager: PVT, UNKNOWN

Sources

CLA07F0012 CLARK, K. FIELD SURVEY FORM FOR POLIOPTILA CALIFORNICA CALIFORNICA. 2007-12-18.

EDA01R0001 EDAW, INC. RESULTS OF FOCUSED COASTAL CALIFORNIA GNATCATCHER SURVEYS FOR THE EAST OTAY MESA SPECIFIC PLANNING AREA PROJECT, COUNTY OF SAN DIEGO. 2001-08-20.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 558 **Map Index:** 47058 **EO Index:** 47058

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-20
Site: 2001-06-20

Record Last Updated: 2002-01-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57153º / -116.90146º
UTM: Zone-11 N3603792 E509249
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 13.1 acres

Township: 18S
Range: 01E
Section: 29 **Qtr:** XX
Meridian: S
Elevation: 800 ft

Location: SAN YSIDRO MTNS; 3.0 MILES SE OF SOUTH EDGE LOWER OTAY RESERVOIR & 1 MILE ENE OF INTERSECT OF OTAY MESA RD & ALTA RD.
Location Detail:

Ecological: HABITAT CONSISTS OF DIEGAN COASTAL SAGE SCRUB DOMINATED BY VIGUIERA LACINIATA, CALIFORNIA SAGEBRUSH, ERIOGONUM FASCICULATUM & LOTUS SCOPARIUS. UNDERSTORY COMPRISED OF RED BROME, FASCICLED TARPLANT FILAREE, PEPPERGRASS & PURPLE NEEDLEGRASS.

Threat: PROPOSED FOR DEVELOPMENT

General: 13 JUN 2001: 1 PAIR (2 ADULTS) OBS. 20 JUN 2001: 2 PAIRS (4 ADULTS) OBS. SAN DIEGO HORNED LIZARD, COASTAL WESTERN WHIPTAIL, COASTAL ROSY BOA, NORTHERN RED-DIAMOND RATTLESNAKE & THE S. CALIFORNIA RUFOUS-CROWNED SPARROW OBS IN VICINTY.

Owner/Manager: PVT

Sources

EDA01R0001 EDAW, INC. RESULTS OF FOCUSED COASTAL CALIFORNIA GNATCATCHER SURVEYS FOR THE EAST OTAY MESA SPECIFIC PLANNING AREA PROJECT, COUNTY OF SAN DIEGO. 2001-08-20.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 559 **Map Index:** 47059 **EO Index:** 47059

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-13
Site: 2001-06-13

Record Last Updated: 2002-01-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56393º / -116.89307º
UTM: Zone-11 N3602951 E510038
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 32 **Qtr:** NE
Meridian: S
Elevation: 660 ft

Location: SAN YSIDRO MTNS; 3.7 MILES SE OF SOUTH EDGE LOWER OTAY RESERVOIR & 1.55 MILES ESE INTERSECT OF OTAY MESA RD & ALTA RD.
Location Detail:

Ecological: HABITAT CONSISTS OF DIEGAN COASTAL SAGE SCRUB DOMINATED BY VIGUIERA LACINIATA, CALIFORNIA SAGEBRUSH, ERIOGONUM FASCICULATUM & LOTUS SCOPARIUS. UNDERSTORY COMPRISED OF RED BROME, FASCICLED TARPLANT FILAREE, PEPPERGRASS & PURPLE NEEDLEGRASS.

Threat: SITE PROPOSED FOR DEVELOPMENT

General: 13 JUN 2001: 2 ADULTS & 3 JUVENILES FORAGING IN CANYON BOTTOM. SAN DIEGO HORNED LIZARD, COASTAL WESTERN WHIPTAIL, COASTAL ROSY BOA, NORTHERN RED-DIAMOND RATTLESNAKE & THE S. CALIFORNIA RUFOUS-CROWNED SPARROW OBS IN VICINTY.

Owner/Manager: PVT

Sources

EDA01R0001 EDAW, INC. RESULTS OF FOCUSED COASTAL CALIFORNIA GNATCATCHER SURVEYS FOR THE EAST OTAY MESA SPECIFIC PLANNING AREA PROJECT, COUNTY OF SAN DIEGO. 2001-08-20.

Polioptila californica californica

coastal California gnatcatcher

Element Code: ABPBJ08081

Status

Federal: Threatened
State: None

NDDB Element Ranks

Global: G3T2
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro: LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Occurrence No. 862 **Map Index:** 71100 **EO Index:** 72009

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2007-12-18
Site: 2007-12-18

Record Last Updated: 2008-04-01

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57875º / -116.91326º
UTM: Zone-11 N3604592 E508140
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 30 **Qtr:** NE
Meridian: S
Elevation: 640 ft

Location: WEST FOOTHILLS OF OTAY MOUNTAIN, EAST OF ALTA ROAD, SOUTHEAST OF KUEBLER RANCH.

Location Detail: LOCATED ON SLOPE BELOW TRANSMISSION LINE TOWERS.

Ecological: HABITAT CONSISTS OF LOW, OPEN COASTAL SAGE SCRUB DOMINATED BY ERIOGONUM FASCICULATUM.

Threat: THIS AREA IS THREATENED BY HIGH FIRE FREQUENCY.

General: 1 FEMALE FORAGING AND OCCASIONALLY CALLING IN SCRUB ON 18 DEC 2007. IMMEDIATE/SURROUNDING LAND USE: OPEN HILLSIDE ABOVE FLATS CLEARED FOR AGRICULTURE AND INDUSTRIAL USES.

Owner/Manager: UNKNOWN

Sources

CLA07F0011 CLARK, K. FIELD SURVEY FORM FOR POLIOPTILA CALIFORNICA CALIFORNICA. 2007-12-18.

Salvadora hexalepis virgultea

coast patch-nosed snake

Element Code: ARADB30033

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5T3
State: S2S3

Other Lists

CDFG Status: SC

Habitat Associations

General: BRUSHY OR SHRUBBY VEGETATION IN COASTAL SOUTHERN CALIFORNIA.
Micro: REQUIRE SMALL MAMMAL BURROWS FOR REFUGE AND OVERWINTERING SITES.

Occurrence No. 12 **Map Index:** 56879 **EO Index:** 56895

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-05-24
Site: 2004-05-24

Record Last Updated: 2004-09-21

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57085º / -116.89750º
UTM: Zone-11 N3603718 E509620
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 29 **Qtr:** SE
Meridian: S
Elevation: 1,000 ft

Location: 1.3 MILES ENE OFTHE INTERSECTION OF OTAY MESA ROAD & ALTA ROAD, SAN YSIDRO MOUNTAINS
Location Detail:
Ecological: HABITAT CONSISTS OF RECENTLY-BURNED (OCT 2003) COASTAL SAGE SCRUB, ON A WEST-FACING SLOPE, WITH CLAY SOILS AND ABUNDANT ROCK OUTCROPS. VERY OPEN VEGETATION, DOMINATED BY VIGUIERA LACINATA, SALVIA APIANA, AND ERIOGONUM FASCICULATUM.
Threat: THREATENED BY A PROPOSED QUARRY DEVELOPMENT TO THE WEST.
General: ON 24 MAY 2004, SNAKE WAS OBSERVED BASKING ON A FLAT ROCK, ADJACENT TO A SMALL VIGUIERA SHRUB.
Owner/Manager: UNKNOWN

Sources

PAR04F0001 PARKER, B. (HELIX ENVIRONMENTAL PLANNING). FIELD SURVEY FORM FOR SALVADORA HEXALEPIS VIRGULTEA. 2004-05-24.

Salvia munzii

Munz's sage

Element Code: PDLAM1S140

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3
State: S2.2

Other Lists

CNPS List: 2.2

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL.
Micro: ROLLING HILLS AND SLOPES, IN ROCKY SOIL. 120-1090M.

Occurrence No. 6 **Map Index:** 17657 **EO Index:** 10190

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1991-10-01

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61798º / -116.93927º
UTM: Zone-11 N3608939 E505697
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 4.5 acres

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: 0.3 MI W OF LOWER OTAY RESERVOIR, ABOUT 2.8 MI E OF OTAY RANCH.
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

Sources

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Salvia munzii

Munz's sage

Element Code: PDLAM1S140

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 2.2
State: None	**State:** S2.2	

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL.

Micro: ROLLING HILLS AND SLOPES, IN ROCKY SOIL. 120-1090M.

Occurrence No. 7 **Map Index:** 17666 **EO Index:** 16355

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1992-09-24

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)

County Summary: San Diego

Lat/Long: 32.61856º / -116.90486º
UTM: Zone-11 N3609005 E508925
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 217.7 acres

Township: 18S
Range: 01E
Section: 08 **Qtr:** XX
Meridian: S
Elevation: 650 ft

Location: EXTENDING FROM BUSCHALAUGH COVE E-WARD TO NW 1/4 OF SEC 9. MAPPED N TO JUST S OF LOWER OTAY RES (E TIP).

Location Detail: ALSO IN SECTIONS 7,9, AND 5. SOME OF OCCURRENCE ON JAMUL MTNS QUAD.

Ecological: MAPS SHOW PLANTS OCCURRING WITH SELAGINELLA CINERASCENS, CUPRESSUS GUADALUPENSIS FORBESII, AND DUDLEYA VARIEGATA.

Threat: DEVELOPMENT IS PLANNED FOR THIS AREA.

General: SEVERAL SUBPOPULATIONS; MAPPED AS SIX POLYGONS. MAPS ARE ONLY SOURCES OF INFO.

Owner/Manager: UNKNOWN

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Salvia munzii

Munz's sage

Element Code: PDLAM1S140

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3
State: S2.2

Other Lists

CNPS List: 2.2

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL.
Micro: ROLLING HILLS AND SLOPES, IN ROCKY SOIL. 120-1090M.

Occurrence No. 8 **Map Index:** 17659 **EO Index:** 9825

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-06-XX
Site: 1990-06-XX

Record Last Updated: 1992-10-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60831º / -116.91742º
UTM: Zone-11 N3607868 E507748
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 40.0 acres

Township: 18S
Range: 01E
Section: 18 **Qtr:** NE
Meridian: S
Elevation: 600 ft

Location: SE OF LOWER OTAY RESERVOIR; FROM 0.3-0.7 MI E OF SAN BERNARDINO MERIDIAN.
Location Detail:
Ecological: MAPS SHOW PLANTS OCCURRING WITH SELAGINELLA CINERASCENS, CUPRESSUS GUADALUPENSIS FORBESII, VIGUIERA LACINIATA, AND FEROCACTUS VIRIDESCENS.
Threat: DEVELOPMENT IS PLANNED FOR THIS AREA.
General: MAPPED AS 2 POLYGONS. MAPS ARE ONLY SOURCES OF INFO.
Owner/Manager: UNKNOWN

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

ZIP90M0001 ZIPPIN, D. MAPS OF SEVERAL RARE PLANTS IN THE OTAY RANCH AREA, ACCOMPANIES THE BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

ZIP90R0001 ZIPPIN, D. BOTANICAL RESOURCES REPORT FOR THE OTAY RANCH PROPERTY. 1990-XX-XX.

Salvia munzii

Munz's sage

Element Code: PDLAM1S140

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 2.2
State: None	**State:** S2.2	

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL.

Micro: ROLLING HILLS AND SLOPES, IN ROCKY SOIL. 120-1090M.

Occurrence No. 24 **Map Index:** 21840 **EO Index:** 17828

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1989-06-XX
Site: 1989-06-XX

Record Last Updated: 1992-11-23

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59029º / -116.94974º
UTM: Zone-11 N3605869 E504716
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01W
Section: 23 **Qtr:** NE
Meridian: S
Elevation: 500 ft

Location: S SIDE OF OTAY RIVER VALLEY; VICINITY OF JOHNSON CANYON. ABOUT 0.1 MI E OF BROWN FIELD
Location Detail: BOMBING RANGE.

Ecological: MAP SHOWS PLANTS OCCURRING NEAR DUDLEYA VARIEGATA.
Threat: DEVELOPMENT IS PLANNED FOR THIS SITE.
General: MAP IS ONLY SOURCE OF INFO FOR THIS SITE.
Owner/Manager: UNKNOWN

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Salvia munzii

Munz's sage

Element Code: PDLAM1S140

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 2.2
State: None	**State:** S2.2	

Habitat Associations

General: COASTAL SCRUB, CHAPARRAL.

Micro: ROLLING HILLS AND SLOPES, IN ROCKY SOIL. 120-1090M.

Occurrence No. 26 **Map Index:** 04742 **EO Index:** 62860

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1997-03-12
Site: 1997-03-12

Record Last Updated: 2008-03-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57871º / -116.90599º
UTM: Zone-11 N3604588 E508823
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 18S
Range: 01E
Section: 29 **Qtr:** NW
Meridian: S
Elevation:

Location: JUST EAST OF HEAD OF JOHNSON CANYON, AND 0.5-1.5 MI NORTHEAST OF END OF OTAY RD (OTAY MESA RD?); SOUTHWEST OF OTAY MTN.

Location Detail: MAPPED EAST OF KUEBLER RANCH.

Ecological:

Threat:

General: 1997 PEIRCE COLLECTION IS THE ONLY SOURCE FOR THIS SITE. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Sources

PIE97S0001 PIERCE, C. PIERCE SN UCR #103424. 1997-03-12.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

Habitat Associations

General:
Micro:

Occurrence No. 3 **Map Index:** 04565 **EO Index:** 16183

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1985-05-XX
Site: 1985-05-XX

Record Last Updated: 1989-08-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58250º / -116.96121º
UTM: Zone-11 N3605005 E503640
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 158.4 acres

Township: 18S
Range: 01W
Section: 22 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY MESA, WEST OF JOHNSON CANYON, NORTH OF LONE STAR ROAD.

Location Detail: 12 POOLS OF ABOUT 500 SQ M AREA, 69 AC WATERSHED, 1979. BOUNDARY DRAWN TO INCLUDE LOCATIONS OF VERNAL POOL PLANTS MAPPED BY CASS, 1981. GRIGGS, 1981 STATES BOUNDARY REPRESENTS UNPLOWED LAND & ACTUAL VERNAL POOL DISTRIBUTION IS MUCH SMALLER.

Ecological:
Threat:
General:
Owner/Manager: USFWS-SAN DIEGO NWR

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

CAS81U0001 CASS, T. LETTER, COMPUTER PRINTOUT AND 5 MAPS OF VERNAL POOL LOCATIONS WITH RARE PLANTS ON OTAY MESA. 1981-XX-XX.

GRI85U0003 GRIGGS, T. MAPS WITH NOTES ON CONDITION OF VERNAL POOL AREAS. 1985-07-15.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

Habitat Associations

General:
Micro:

Occurrence No. 4 **Map Index:** 04659 **EO Index:** 23682

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1979-XX-XX
Site: 1979-XX-XX

Record Last Updated: 1997-04-14

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59803º / -116.92849º
UTM: Zone-11 N3606728 E506710
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 13 **Qtr:** SW
Meridian: S
Elevation: 520 ft

Location: OTAY MESA.
Location Detail: 4 POOLS OF APPROX 50 SQ M AREA, WATERSHED APPROX 9 ACRES. MAP DETAIL AT CNDDB.
Ecological: SPP LIST ON FILE AT CNDDB.
Threat: AG DEVEL HAS ELIMINATED OTHER POOLS ON MESA (NO THREAT HERE NOW-1979).
General:
Owner/Manager: UNKNOWN

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

CAS81U0001 CASS, T. LETTER, COMPUTER PRINTOUT AND 5 MAPS OF VERNAL POOL LOCATIONS WITH RARE PLANTS ON OTAY MESA. 1981-XX-XX.

COO81M0029 COOLEY, G. MAP: OTAY MESA QUAD FOR POGOGYNE NUDIUSCULA. 1981-08-30.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

Habitat Associations

General:
Micro:

Occurrence No. 6 **Map Index:** 04611 **EO Index:** 12511

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1985-05-XX
Site: 1985-05-XX

Record Last Updated: 1997-04-14

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58968º / -116.94387º
UTM: Zone-11 N3605801 E505267
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 175.2 acres

Township: 18S
Range: 01W
Section: 24 **Qtr:** W
Meridian: S
Elevation: 450 ft

Location: VICINITY OF OLD BROWN FIELD BOMBING RANGE, OTAY MESA. BEAUCHAMP POOLS J23, 24, 25.
Location Detail: ELEV RANGE 475-570 FT. 63 POOLS.
Ecological: HIGH SPECIES DIVERSITY IN NON-VERNAL POOL PORTIONS ALSO.
Threat: AREA TO EAST IS SITE OF PROPOSED CORRECTIONAL FACILITY.
General: ONE OF THE LEAST DISTURBED OTAY MESA PARCELS, 1985. TNC IS CONSIDERING ACQUISITION.
Owner/Manager: USFWS, SDG COUNTY

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

COX84U0003 COX, R. UPDATED INFORMATION. 1984-03-16.

GRI85U0002 GRIGGS, T. MEMO REGARDING OTAY MESA. 1985-05-01.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	
State: None	**State:** S2.1	

Habitat Associations

General:

Micro:

Occurrence No. 7 **Map Index:** 23060 **EO Index:** 13317

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-03-XX
Site: 1985-03-XX

Record Last Updated: 1989-08-10

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.57560º / -116.93931º
UTM: Zone-11 N3604241 E505696
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 11.3 acres

Township: 18S
Range: 01W
Section: 25 **Qtr:** NW
Meridian: S
Elevation: 620 ft

Location: OTAY MESA.
Location Detail:
Ecological: SPECIES PRESENT INCLUDE NAVARRETIA FOSSALIS & ERYNGIUM ARISTULATUM VAR PARISHII (1979 & 1985). AREA RICH IN NON-POOL NATIVES.
Threat: AG HAS ELIMINATED MANY POOLS IN AREA.
General:
Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

COO81M0012 COOLEY, G. MAP: OTAY MESA QUAD FOR NAVARRETIA FOSSALIS. 1981-07-09.

GRI85U0002 GRIGGS, T. MEMO REGARDING OTAY MESA. 1985-05-01.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

Habitat Associations

General:
Micro:

Occurrence No. 15 **Map Index:** 23607 **EO Index:** 23668

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1981-09-23
Site: 1981-09-23

Record Last Updated: 1997-04-14

Quad Summary: Imperial Beach (3211751/011D), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55229º / -117.00041º
UTM: Zone-11 N3601655 E499961
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 19S
Range: 01W
Section: 05 **Qtr:** NE
Meridian: S
Elevation: 440 ft

Location: OTAY MESA; ABOVE WRUCK CANYON.
Location Detail: MAP DETAIL AT CNDDB.
Ecological: SPECIES LIST ON FILE AT CNDDB.
Threat:
General:
Owner/Manager: UNKNOWN

Sources

CAS81U0001 CASS, T. LETTER, COMPUTER PRINTOUT AND 5 MAPS OF VERNAL POOL LOCATIONS WITH RARE PLANTS ON OTAY MESA. 1981-XX-XX.

COO81M0025 COOLEY, G. MAP FOR ORCUTTIA CALIFORNICA. 1981-08-19.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	
State: None	**State:** S2.1	

Habitat Associations

General:

Micro:

Occurrence No. 17 **Map Index:** 04536 **EO Index:** 16180

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-05-XX
Site: 1985-05-XX

Record Last Updated: 1997-04-14

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55841º / -116.96685º
UTM: Zone-11 N3602334 E503112
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 89.8 acres

Township: 18S
Range: 01W
Section: 34 **Qtr:** SW
Meridian: S
Elevation: 480 ft

Location: SOUTH OF ALTA SCHOOL, OTAY MESA. INCLUDES BEAUCAHMP #J-28, SOUTH OF AIRWAY ROAD.

Location Detail: OCCURRENCE FORMERLY INCLUDED BEAUCHAMP POOL #J27 NORTH OF AIRWAY RD WHICH WAS LEVELED IN 1985. (POOLS J19, 20 & 21 ARE NOW SHOWN AS SEPARATE OCCURRENCE #020).

Ecological: POOL SPP INCL ERYNGIUM ARISTULATUM VAR PARISHII, POGOGYNE NUDIUSCULA, ORCUTTIA CALIFORNICA, 1979.

Threat:

General:

Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

COX84U0003 COX, R. UPDATED INFORMATION. 1984-03-16.

GRI85U0003 GRIGGS, T. MAPS WITH NOTES ON CONDITION OF VERNAL POOL AREAS. 1985-07-15.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

Habitat Associations

General:
Micro:

Occurrence No. 18 **Map Index:** 04699 **EO Index:** 16178

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1979-XX-XX
Site: 1979-XX-XX

Record Last Updated: 1997-04-14

Quad Summary: Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B)
County Summary: San Diego

Lat/Long: 32.62269º / -116.91528º
UTM: Zone-11 N3609462 E507947
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 81.8 acres

Township: 18S
Range: 01E
Section: 07 **Qtr:** NW
Meridian: S
Elevation: 560 ft

Location: EAST OF LOWER OTAY RESERVOIR, JUST NORTH OF BUSCHALAUGH COVE, INCLUDES BEAUCHAMP #S K3,4,5.

Location Detail: POOLS ISOLATED.

Ecological: OLIVENHAIN SOILS. ASSOC VEG: SCRUB.

Threat:

General:

Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

San Diego Mesa Claypan Vernal Pool

Element Code: CTT44322CA

Status

Federal: None
State: None

NDDB Element Ranks

Global: G2
State: S2.1

Other Lists

Habitat Associations

General:
Micro:

Occurrence No. 20 **Map Index:** 17686 **EO Index:** 7803

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen

Element: 1979-02-XX
Site: 1985-03-XX

Record Last Updated: 1995-01-25

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55227º / -116.97196º
UTM: Zone-11 N3601653 E502632
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 58.0 acres

Township: 19S
Range: 01W
Section: 03 **Qtr:** XX
Meridian: S
Elevation: 470 ft

Location: OTAY MESA, ABOUT 1.25 MILES SOUTH OF ALTA SCHOOL.

Location Detail: BEAUCHAMP POOL CODE # J19, J21. (FORMERLY INCLUDED AS PART OF OCC #17)

Ecological: ASSOCIATED WITH ERYNGIUM ARISTULATUM VAR PARISHII, ORCUTTIA CALIFORNICA, POGOGYNE NUDIUSCULA.

Threat:

General: 1985 MAP OF EXISTING SAN DIEGO VEG SHOWS AREA WEST OF ROAD AS AG/URBAN; AREA W OF ROAD SHOWN AS COASTAL SAGE SCRUB (POL85M01). SMALL OUTLYING POOL AREA ALSO (J20) NEAR MEXICO BORDER STILL IN NATIVE VEG PER THIS MAP.

Owner/Manager: PVT

Sources

BEA79M0001 BEAUCHAMP, R.M. ATTACHMENT (MAPS) TO SAN DIEGO VERNAL POOL STUDY, 1978, 4 ADDITIONAL MAPS FROM M. BEAUCHAMP FOR POOL AREAS L, S, T, AND Y ATTACHED OCT. 1980: POGOGYNE ABRAMSII. 1979-08-XX.

BEA79R0002 BEAUCHAMP, R.M. SAN DIEGO VERNAL POOL STUDY, 1978. ADDITIONS AND CORRECTIONS FROM M. BEAUCHAMP ADDED TO CNDDB COPY, OCT. 1980. 1979-08-XX.

POL85M0001 POLANSKI, T. MAP OF VEGETATION OF SAN DIEGO COUNTY PREPARED FOR DEPT. OF FISH AND GAME, ENDANGERED PLANT PROGRAM, OTAY MESA QUAD. 1985-03-XX.

Southern Interior Cypress Forest

Element Code: CTT83230CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2
State: S2.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 27 **Map Index:** 05014 **EO Index:** 14960

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2003-05-04
Site: 2003-05-04

Record Last Updated: 2005-05-11

Quad Summary: Dulzura (3211667/010A), Otay Mesa (3211658/010C), Jamul Mountains (3211668/010B), Otay Mountain (3211657/010D)

County Summary: San Diego

Lat/Long: 32.59456º / -116.84384º
UTM: Zone-11 N3606353 E514653
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 7,554.9 acres

Township: 18S
Range: 01E
Section: 23 **Qtr:** XX
Meridian: S
Elevation: 2,400 ft

Location: SAN YSIDRO MTNS, EAST OF LOWER OTAY RESERVOIR.

Location Detail: BOUNDARIES GREATLY GENERALIZED FROM OBERBAUER MAP.

Ecological: CUPRESSUS GUADALUPENSIS SSP. FORBESII ASSOC SPP INCLUDE QUERCUS DUMOSA, ARCTOSTAPHYLOS, AND CEANOTHUS. PARTS BURNED IN 1870'S AND IN 1947.

Threat: GRAZING AND ROADS IN AREA; OTAY RANCH MAY DEVELOP. INAPPROPRIATE FIRE REGIME ALSO
General: THREATENS.

Owner/Manager: BLM-ESCONDIDO RA, PVT

Sources

GRI72R0001 GRIFFIN, J. & W. CRITCHFIELD. THE DISTRIBUTION OF FOREST TREES IN CALIFORNIA. USDA FOREST SERVICE RESEARCH PAPER PSW-82/1972. 1972-XX-XX.

KLE02F0003 KLEIN, M.W. FIELD SURVEY FORM FOR SOUTHERN INTERIOR CYPRESS FOREST & CALLOPHRYS THORNEI & CALLITROPSIS FORBESII. 2002-02-23.

MSC04D0001 MULTIPLE SPECIES CONSERVATION PROGRAM - SAN DIEGO. BASELINE DIGITAL DATA FOR PLANT SPECIES COVERED UNDER THE SAN DIEGO MSCP FROM 2001 THROUGH 2002. 2004-XX-XX.

OBE78M0001 OBERBAUER, T. COUNTY OF SAN DIEGO GENERALIZED VEGETATION MAP WITH FIELD-CHECKED BOUNDARIES OF TECATE CYPRESS (CALLITROPSIS FORBESII). 1978-06-XX.

ROB03F0005 ROBERTS, F. FIELD SURVEY FORM FOR SOUTHERN INTERIOR CYPRESS FOREST & CALLITROPSIS FORBESII. 2003-05-04.

SAN82S0005 SANDERS, A. SANDERS #2423 UCR #28372. 1982-03-19.

USF34M0002 U.S. FOREST SERVICE. VEGETATION TYPES OF CALIFORNIA, SAN DIEGO COUNTY. WIESLANDER MAPS. 1934-XX-XX.

VOG77A0001 VOGL, R. ET AL. THE CLOSED CONE PINES & CYPRESSES IN TERRESTRIAL VEGETATION OF CALIFORNIA. M. BARBOUR & J. MAJOR, EDS. 1977-XX-XX.

Spea hammondii

western spadefoot

Element Code: AAABF02020

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CDFG Status:** SC
State: None	**State:** S3	

Habitat Associations

General: OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

Micro: VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

Occurrence No. 305 **Map Index:** 58457 **EO Index:** 58493

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-05-16
Site: 2001-05-16

Record Last Updated: 2004-12-09

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.56084º / -116.89851º
UTM: Zone-11 N3602608 E509527
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 32 **Qtr:** SE
Meridian: S
Elevation: 550 ft

Location: EAST END OF OTAY MESA. ABOUT 1.7 MILES SOUTHEAST OF KUEBLER RANCH. JUST NORTH OF THE MEXICAN BORDER.

Location Detail: WITHIN THE EAST OTAY MESA SPECIFIC PLAN AREA.

Ecological: AREA HAS MIMA MOUND NATURAL VERNAL POOL TOPOGRAPHY; THE FEW REMAINING NATURALLY-OCCURRING POOLS HAVE BEEN DISTURBED BY AGRICULTURAL ACTIVITIES. MOST SAMPLED POOLS WERE ROAD RUTS & MAN-MADE PUDDLES WITHIN REMNANTS OF VERNAL POOL COMPLEX.

Threat: DEVELOPMENT

General: UNKNOWN NUMBER OF TOADS OBSERVED DURING 23 JAN TO 16 MAY 2001 SURVEYS FOR SAN DIEGO AND RIVERSIDE FAIRY SHRIMP.

Owner/Manager: UNKNOWN

Sources

GRI01U0002 GRIFFIN, D.J. (EDAW, INC.). RESULTS OF FOCUSED FAIRY SHRIMP WET SEASON SURVEYS FOR THE EAST OTAY MESA SPECIFIC PLAN AREA AMENDMENT IN THE COUNTY OF SAN DIEGO. 2001-09-19.

Stemodia durantifolia

purple stemodia

Element Code: PDSCR1U010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S2.1?

Other Lists

CNPS List: 2.1

Habitat Associations

General: SONORAN DESERT SCRUB.
Micro: SANDY SOILS; MESIC SITES. 180-300M.

Occurrence No. 16 **Map Index:** 80381 **EO Index:** 81368

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2000-09-26
Site: 2000-09-26

Record Last Updated: 2010-10-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58749º / -116.90989º
UTM: Zone-11 N3605562 E508456
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 20 **Qtr:** XX
Meridian: S
Elevation:

Location: O'NEAL CANYON, OTAY MOUNTAIN.

Location Detail: IN CRACKS OF BOULDERS IN DRAINAGE BOTTOM. EXACT LOCATION UNKNOWN. MAPPED BY CNDDB ALONG BOTTOM OF O'NEAL CANYON. VERY VAGUE AS CANYON EXTENDS FOR MILES AND NO ELEVATION WAS GIVEN IN SOURCE.

Ecological:

Threat:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 2000 BURRASCANO COLLECTION.

Owner/Manager: BLM, UNKNOWN

Sources

BUR00S0003 BURRASCANO, C. BURRASCANO SN SD #158285. 2000-09-26.

Stemodia durantifolia

purple stemodia

Element Code: PDSCR1U010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S2.1?

Other Lists

CNPS List: 2.1

Habitat Associations

General: SONORAN DESERT SCRUB.
Micro: SANDY SOILS; MESIC SITES. 180-300M.

Occurrence No. 17 **Map Index:** 80384 **EO Index:** 81369

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2003-06-03
Site: 2003-06-03

Record Last Updated: 2010-10-13

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61402º / -116.90504º
UTM: Zone-11 N3608503 E508908
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 4.0 acres

Township: 18S
Range: 01E
Section: 08 **Qtr:** SW
Meridian: S
Elevation: 574 ft

Location: JUST SE OF OTAY LAKE, 2.0 KM ENE OF SAVAGE DAM ALONG UNAMED CANYON ABOVE BUSCHALAUGH COVE, OTAY MESA.

Location Detail: ALONG NARROW ROCKY FLOWING STREAM COURSE. MAPPED AS THREE POLYGONS BASED ON 2004 SAN DIEGO MSCP DIGITAL DATA.

Ecological: ON SAN MIGUEL-EXCHEQUER ROCKY SILT LOAM SOILS IN MULEFAT-POVERTY WEED SCRUB; BACCHARIS SALICIFOLIA, JUNCUS ACUTUS, BRODIAEA ORCUTTII, MONARDELLA LINOIDES, IVA HAYESIANA.

Threat: SIGNIFICANTLY IMPACTED BY FIRE IN RECENT YEARS. ACTIVITIES ASSOCIATED WITH BORDER PATROL AND NEW TRAILS GENERATED.

General: 11 PLANTS WERE SEEN IN 2001. 20 WERE SEEN IN CENTRAL COLONY IN 2002. A 2002 SENSITIVE PLANT MONITORING REPORT CORRESPONDING TO THE 2004 DIGITAL DATA, NOTES THIS SITE AS A "CRITICAL RARE PLANT AREA". PLANT WAS LAST SEEN IN 2003.

Owner/Manager: UNKNOWN

Sources

MSC04D0001	MULTIPLE SPECIES CONSERVATION PROGRAM - SAN DIEGO. BASELINE DIGITAL DATA FOR PLANT SPECIES COVERED UNDER THE SAN DIEGO MSCP FROM 2001 THROUGH 2002. 2004-XX-XX.
REB03S0015	REBMAN, J. ET AL. REBMAN #9163 UCR #145602 SD #162861. 2003-06-03.
ROB01S0015	ROBERTS, F. ROBERTS #5501 SD #164416. 2001-07-20.
SDC02R0001	COUNTY OF SAN DIEGO. SENSITIVE PLANT MONITORING: FINAL REPORT, APRIL 30, 2002. 2002-04-30.

Streptanthus bernardinus

Laguna Mountains jewel-flower

Element Code: PDBRA2G060

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3
State: S3.3

Other Lists

CNPS List: 4.3

Habitat Associations

General: CHAPARRAL, LOWER MONTANE CONIFEROUS FOREST.

Micro: CLAY OR DECOMPOSED GRANITE SOILS; SOMETIMES IN DISTURBED AREAS SUCH AS STREAMSIDES OR ROADCUTS. 1440-2500M.

Occurrence No. 10 **Map Index:** 39267 **EO Index:** 35147

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1939-04-23
Site: 1939-04-23

Record Last Updated: 1998-11-12

Quad Summary: Dulzura (3211667/010A), National City (3211761/011A), Otay Mountain (3211657/010D), Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)

County Summary: San Diego

Lat/Long: 32.62445º / -116.94709º
UTM: Zone-11 N3609656 E504963
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 5 mile

Township: 18S
Range: 01W
Section: 11 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY LAKES.

Location Detail: EXACT LOCATION NOT KNOWN. MAPPED IN THE GENERAL VICINITY OF UPPER & LOWER OTAY LAKES.

Ecological:

Threat:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1939 COLLECTION BY WOGLUM.

Owner/Manager: UNKNOWN

Sources

WOG39S0001 WOGLUM, R. WOGLUM #2268 RSA. 1939-04-23.

Streptocephalus woottoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 2 **Map Index:** 03319 **EO Index:** 10187

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1990-XX-XX
Site: 1990-XX-XX

Record Last Updated: 1991-10-01

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.58407º / -116.95925º
UTM: Zone-11 N3605179 E503824
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 110.5 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** SW
Meridian: S
Elevation: 500 ft

Location: OTAY MESA NORTHEAST OF BROWN FIELD, SOUTH OF OTAY VALLEY.

Location Detail:

Ecological: POOLS HAVE MODERATE RANGE OF SIZE AND DEPTH, MANY HAVE LARGE COBBLES. MUCH OF MOUNDED TOPOGRAPHY IS INTACT. SURROUNDING VEG IS PRIMARILY GRASSLAND WITH SCATTERED SHRUBS.

Threat: GRAZING.

General:

Owner/Manager: PVT

Sources

BAU86R0001 BAUDER, E. SAN DIEGO VERNAL POOLS - RECENT AND PROJECTED LOSSES; THEIR CONDITION AND THREATS TO THEIR EXISTENCE, 1979-1990. VOLS I & II. PREPARED FOR EPP, CDFG. CONTRACT NO. EP85II-1. 1986-09-XX.

SIM90R0001 SIMOVICH, M.A. & M. FUGATE. "FAIRY SHRIMP OF THE VERNAL POOLS OF SAN DIEGO", UC SAN DIEGO, DEPT OF BIOLOGY. 1990-XX-XX.

Streptocephalus woottoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 21 **Map Index:** 56364 **EO Index:** 56380

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-07-29
Site: 2001-07-29

Record Last Updated: 2004-11-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55296º / -116.91712º
UTM: Zone-11 N3601733 E507780
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 31 **Qtr:** SE
Meridian: S
Elevation: 500 ft

Location: 2 MILES DIRECTLY SOUTH OF KUEBLER RANCH AND JUST NORTH OF THE CALIFORNIA/MEXICO BORDER, OTAY MESA.

Location Detail: MAR 2001: FOUND IN BASIN 82. JUL 2001: CYSTS FOUND IN VERNAL POOL #121

Ecological:

Threat:

General: RIVERSIDE FAIRY SHRIMP OBSERVED ON 15 MAR DURING THE 2000/2001 WET SEASON SAMPLING.

Owner/Manager: UNKNOWN

Sources

HEL01M0001 HELIX ENVIRONMENTAL PLANNING, INC. MAP OF SR-11 POTENTIAL JURISDICTIONAL AREAS & SENSITIVE SPECIES. LOCATIONS FOR FAIRY SHRIMP & OTHER TRACKED SPECIES ON MAP. 2001-05-09.

RAD01U0001 RADKEY, J. (RECON ENVIRONMENTAL, INC.). LETTER TO USFWS REPORTING OCCURRENCE OF BRANCHINECTA SP. & STREPTOCEPHALUS WOOTTONI CYSTS AT OTAY MESA, SAN DIEGO COUNTY. 2001-10-20.

Streptocephalus woottoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 22 **Map Index:** 56361 **EO Index:** 56382

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-02-16
Site: 2001-02-16

Record Last Updated: 2004-10-19

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego, Mexico

Lat/Long: 32.55305º / -116.90872º
UTM: Zone-11 N3601743 E508569
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 18S
Range: 01E
Section: 32 **Qtr:** SW
Meridian: S
Elevation: 490 ft

Location: LOCATED BETWEEN 2 UNNAMED TRIBUTARIES, 2 MILES SSE OF KUEBLER RANCH, OTAY MESA.

Location Detail: BASINS 87 AND 110.

Ecological:

Threat:

General: RIVERSIDE FAIRY SHRIMP OBSERVED ON 16 FEB AND 1 MAR DURING THE 2000/2001 WET SEASON SAMPLING. CULTURED FROM SOIL FROM OTAY MESA 2 MAR 1990 BY C. ROGERS.

Owner/Manager: UNKNOWN

Sources

HEL01M0001	HELIX ENVIRONMENTAL PLANNING, INC. MAP OF SR-11 POTENTIAL JURISDICTIONAL AREAS & SENSITIVE SPECIES. LOCATIONS FOR FAIRY SHRIMP & OTHER TRACKED SPECIES ON MAP. 2001-05-09.
ROG04U0002	ROGERS, D.C. EMAIL WITH LOCALITY RECORDS FOR LEPIDURUS PACKARDI, BRANCHINECTA CONSERVATIO, B. LONGIANTENNA, B. LYNCHI, B. MESOVALLENSIS, B. SANDIEGONENSIS AND STREPTOCEPHALUS WOOTTONI. 2004-10-08.

Streptocephalus woottoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status

Federal: Endangered
State: None

NDDB Element Ranks

Global: G1
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 25 **Map Index:** 57816 **EO Index:** 57840

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-03-15
Site: 2001-03-15

Record Last Updated: 2004-11-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.55940º / -116.90107º
UTM: Zone-11 N3602448 E509286
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 32 **Qtr:** XX
Meridian: S
Elevation: 550 ft

Location: OTAY MESA, ABOUT 1.7 MILES SOUTHEAST OF KUEBLER RANCH, JUST NORTH OF THE MEXICAN BORDER.

Location Detail: ADULTS (AND POSSIBLY LARVAE ON 7 FEB 2001) WERE OBSERVED IN POOL #68, AN ARTIFICIALLY-CREATED CATTLE TANK OR POND THAT TEMPORARILY FILLS WITH RUN-OFF FOLLOWING RAIN.

Ecological: AREA HAS MIMA MOUND NATURAL VERNAL POOL COMPLEXES; THE FEW REMAINING NATURALLY-OCCURRING POOLS HAVE BEEN DISTURBED BY AGRICULTURAL ACTIVITIES.

Threat: DEVELOPMENT

General: NUMBER OF SPECIMENS NOT GIVEN.

Owner/Manager: UNKNOWN

Sources

GRI01U0002 GRIFFIN, D.J. (EDAW, INC.). RESULTS OF FOCUSED FAIRY SHRIMP WET SEASON SURVEYS FOR THE EAST OTAY MESA SPECIFIC PLAN AREA AMENDMENT IN THE COUNTY OF SAN DIEGO. 2001-09-19.

Taxidea taxus

American badger

Element Code: AMAJF04010

Status

Federal: None
State: None

NDDB Element Ranks

Global: G5
State: S4

Other Lists

CDFG Status: SC

Habitat Associations

General: MOST ABUNDANT IN DRIER OPEN STAGES OF MOST SHRUB, FOREST, AND HERBACEOUS HABITATS, WITH FRIABLE SOILS.

Micro: NEEDS SUFFICIENT FOOD, FRIABLE SOILS & OPEN, UNCULTIVATED GROUND. PREYS ON BURROWING RODENTS. DIGS BURROWS.

Occurrence No. 5 **Map Index:** 21650 **EO Index:** 8489

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 2004-09-08

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)

County Summary: San Diego

Lat/Long: 32.62413º / -116.99016º
UTM: Zone-11 N3609619 E500923
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: POGGI CANYON, NORTH OF OTAY VALLEY AND WEST OF LOWER OTAY RESERVOIR

Location Detail: POGGI CANYON IS LOCATED ON OTAY RANCH.

Ecological: HABITAT CONSISTS OF COASTAL SAGE SCRUB WITH DENSE PATCHES OF CHOLLA. HABITAT HAS BEEN SERIOUSLY DEGRADED BY ORV USE AND GRAZING. ADJACENT AG FIELDS. CALIFORNIA GNATCATCHERS AND CACTUS WRENS ALSO FOUND HERE.

Threat: THREATENED BY DEVELOPMENT, ORV'S, ILLEGAL ALIEN TRAFFIC, AND GRAZING.

General: BADGER DEN OBSERVED FROM 31 MAY-7 JUN 1989.

Owner/Manager: PVT-OTAY RANCH

Sources

NIC89F0021 NICOLAI, N. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR TAXIDEA TAXUS. 1989-06-07.

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Tetracoccus dioicus

Parry's tetracoccus

Element Code: PDEUP1C010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B.2
State: None	**State:** S2.2	

Habitat Associations

General: CHAPARRAL, COASTAL SCRUB.

Micro: STONY, DECOMPOSED GABBRO SOIL. 150-1000M.

Occurrence No. 3 **Map Index:** 39267 **EO Index:** 34269

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 1998-08-03

Quad Summary: Dulzura (3211667/010A), National City (3211761/011A), Otay Mountain (3211657/010D), Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C), Imperial Beach (3211751/011D)

County Summary: San Diego

Lat/Long: 32.62445º / -116.94709º
UTM: Zone-11 N3609656 E504963
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 5 mile

Township: 18S
Range: 01W
Section: 11 **Qtr:** XX
Meridian: S
Elevation: 500 ft

Location: OTAY MESA - SAN YSIDRO MOUNTAINS.

Location Detail: EXACT LOCATION NOT KNOWN; MAPPED IN GENERAL VICINITY OF OTAY MESA AND THE SAN YSIDRO MOUNTAINS.

Ecological:

Threat:

General: FROM LIST OF SENSITIVE SPECIES IN THIS AREA. SPECIFICS OF WHEN SPECIES SIGHTED AND BY WHOM ARE NOT KNOWN.

Owner/Manager: UNKNOWN

Sources

ROW84R0001 ROWLANDS, P. MEMO REGARDING VEGETATION & SENSITIVE PLANT INVENTORY OF SAN DIEGO R&PP AND LAND EXCHANGE PARCELS. 1984-12-20.

Thamnophis hammondii

two-striped garter snake

Element Code: ARADB36160

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: COASTAL CALIFORNIA FROM VICINITY OF SALINAS TO NORTHWEST BAJA CALIFORNIA. FROM SEA TO ABOUT 7,000 FT ELEVATION.

Micro: HIGHLY AQUATIC, FOUND IN OR NEAR PERMANENT FRESH WATER. OFTEN ALONG STREAMS WITH ROCKY BEDS AND RIPARIAN GROWTH.

Occurrence No. 1 **Map Index:** 23954 **EO Index:** 25619

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 1989-06-07
Site: 1989-06-07

Record Last Updated: 1993-08-12

Quad Summary: Jamul Mountains (3211668/010B), Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62644º / -116.88566º
UTM: Zone-11 N3609880 E510726
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 09 **Qtr:** NE
Meridian: S
Elevation: 600 ft

Location: SOUTH SIDE OF JAMUL VALLEY, EAST OF LOWER OTAY RESERVOIR AND SOUTH OF OTAY LAKES ROAD, 4 MILES WEST OF DULZURA.
Location Detail:

Ecological: HABITAT CONSISTS OF A SMALL CATTLE RESERVOIR CONTAINING PERMANENT WATER; VEGEATATION SURROUNDING RESERVOIR INCLUDES SCIRPUS AND A FEW BLACK WILLOWS.

Threat: THREATS INCLUDE URBAN DEVELOPMENT PLANNED FOR THE OTAY RANCH AREA, SOME ORV ACTIVITY, AND SOME ILLEGAL ALIEN ACTIVITY.

General: ONE ADULT OBSERVED.

Owner/Manager: PVT

Sources

NIC89F0010 NICOLAI, N. (RECON ENVIRONMENTAL, INC.). FIELD SURVEY FORM FOR THAMNOPHIS HAMMONDII & PHRYNOSOMA CORONATUM BALINVILLI. 1989-06-07.

Thamnophis hammondii

two-striped garter snake

Element Code: ARADB36160

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: COASTAL CALIFORNIA FROM VICINITY OF SALINAS TO NORTHWEST BAJA CALIFORNIA. FROM SEA TO ABOUT 7,000 FT ELEVATION.

Micro: HIGHLY AQUATIC, FOUND IN OR NEAR PERMANENT FRESH WATER. OFTEN ALONG STREAMS WITH ROCKY BEDS AND RIPARIAN GROWTH.

Occurrence No. 79 **Map Index:** 49558 **EO Index:** 49558

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.62078º / -116.94197º
UTM: Zone-11 N3609249 E505443
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 12 **Qtr:** XX
Meridian: S
Elevation: 460 ft

Location: WEST OF LOWER OTAY RESERVOIR AND EAST OF SALT CREEK, SE OF CHULA VISTA

Location Detail: ~ 400 FEET EAST OF UNIMPROVED ROAD, APPROXIMATELY 1.7 MILES SOUTH OF OTAY LAKES ROAD

Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.

Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.

General: UNKNOWN NUMBER OBSERVED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Thamnophis hammondii

two-striped garter snake

Element Code: ARADB36160

Status

Federal: None
State: None

NDDB Element Ranks

Global: G3
State: S2

Other Lists

CDFG Status: SC

Habitat Associations

General: COASTAL CALIFORNIA FROM VICINITY OF SALINAS TO NORTHWEST BAJA CALIFORNIA. FROM SEA TO ABOUT 7,000 FT ELEVATION.

Micro: HIGHLY AQUATIC, FOUND IN OR NEAR PERMANENT FRESH WATER. OFTEN ALONG STREAMS WITH ROCKY BEDS AND RIPARIAN GROWTH.

Occurrence No. 93 **Map Index:** 63679 **EO Index:** 63774

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen

Element: 2000-05-01
Site: 2000-05-01

Record Last Updated: 2006-01-12

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61615º / -116.88744º
UTM: Zone-11 N3608741 E510559
Mapping Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 18S
Range: 01E
Section: 09 **Qtr:** SW
Meridian: S
Elevation: 790 ft

Location: ~1 MILE SE OF THE EAST END OF LOWER OTAY RESERVOIR, IN THE SAN YSIDRO MOUNTAINS

Location Detail:

Ecological: HABITAT CONSISTS OF A CATTLE POND WITHIN A NON-NATIVE GRASSLAND/OPEN SAGE SCRUB SETTING. OTHER RARE TAXA IN THE VICINITY: QUINO CHECKERSPOT, COAST HORNED LIZARD, SD BLACK-TAILED JACKRABBIT, AND GRASSHOPPER SPARROW.

Threat: THREATENED BY CATTLE GRAZING.

General: 1 SNAKE OBSERVED ON 31 MAR, 19 APR, AND 1 MAY 2000; BASED ON SIZE, THERE WERE AT LEAST 2 INDIVIDUALS.

Owner/Manager: PVT

Sources

LEA00F0013 LEATHERMAN, B. FIELD SURVEY FORM FOR THAMNOPHIS HAMMONDII. 2000-03-31.

Vireo bellii pusillus

least Bell's vireo

Element Code: ABPBW01114

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CDFG Status:**
State: Endangered	**State:** S2	

Habitat Associations

General: SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.

Micro: NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

Occurrence No. 178 **Map Index:** 21545 **EO Index:** 13848

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1989-06-08
Site: 1989-06-08

Record Last Updated: 1992-11-02

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.60169º / -116.92568º
UTM: Zone-11 N3607134 E506973
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01E
Section: 18 **Qtr:** SW
Meridian: S
Elevation: 480 ft

Location: OTAY RIVER, SOUTH OF LOWER OTAY RESERVOIR, ABOUT 3.5 MILES NORTH OF THE US-MEXICO BORDER.
Location Detail:
Ecological: RIPARIAN HABITAT ALONG OTAY RIVER.
Threat: THREATENED BY A PROPOSED DEVELOPMENT ON OTAY RANCH LOCATED TO THE SOUTH AND EAST.
General: AT LEAST 9 MALES WERE SEEN AT THIS AND ANOTHER SITE ON JAMUL CREEK EAST OF LOWER OTAY RESERVOIR.
Owner/Manager: PVT

Sources

SCH89R0001 SCHEID, G. ET AL. BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE OTAY RANCH PROPERTY. 1989-10-12.

Vireo bellii pusillus

least Bell's vireo

Element Code: ABPBW01114

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CDFG Status:**
State: Endangered	**State:** S2	

Habitat Associations

General: SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.

Micro: NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

Occurrence No. 214 **Map Index:** 49572 **EO Index:** 49573

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-05

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.61677º / -116.94248º
UTM: Zone-11 N3608805 E505396
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 18S
Range: 01W
Section: 12 **Qtr:** XX
Meridian: S
Elevation: 380 ft

Location: JUST WEST OF SALT CREEK, SE OF CHULA VISTA.

Location Detail: AREA AROUND SALT CREEK, APPROXIMATELY 1.95 MILES SOUTH OF OTAY LAKES ROAD.

Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.

Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.

General: UNKNOWN NUMBER OBSERVED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Vireo bellii pusillus

least Bell's vireo

Element Code: ABPBW01114

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G5T2	**CDFG Status:**
State: Endangered	**State:** S2	

Habitat Associations

General: SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.

Micro: NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

Occurrence No. 215 **Map Index:** 49584 **EO Index:** 49585

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25

Record Last Updated: 2002-12-06

Quad Summary: Otay Mesa (3211658/010C)
County Summary: San Diego

Lat/Long: 32.59586º / -116.95605º
UTM: Zone-11 N3606486 E504124
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 199.3 acres

Township: 18S
Range: 01W
Section: 23 **Qtr:** XX
Meridian: S
Elevation: 220 ft

Location: OTAY VALLEY, JUST SW OF LOWER OTAY RESERVOIR.

Location Detail: FROM ROCK MOUNTAIN TO THE EAST END OF OTAY VALLEY. SPECIES DETECTED AT 12 DIFFERENT LOCATIONS THROUGHOUT POLYGON.

Ecological: HABITAT CONSISTS PRIMARILY OF DISTURBED RIPARIAN VEGETATION (MULE FAT SCRUB, TAMARISK SCRUB, SOUTHERN WILLOW SCRUB), COASTAL SAGE SCRUB, CACTUS SCRUB/MARITIME SUCCULENT SCRUB, AND ANNUAL NON-NATIVE GRASSLAND.

Threat: THREAT CONSISTS OF A SEWER ALIGNMENT.

General: SPECIES DETECTED 2 MAY-25 JUN 2001 DURING LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER SURVEYS.

Owner/Manager: PVT-OTAY RANCH

Sources

ORT01R0002 ORTEGA, B. (DUDEK & ASSOCIATES). FOCUS SURVEY REPORT FOR THE SALT CREEK GRAVITY SEWER PROJECT SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO FOCUSED SURVEY, CITY OF CHULA VISTA, SAN DIEGO COUNTY, CALIFORNIA. 2001-11-01.

Appendix M – Land Use

Appendix M-1 – Property Owners

APPENDIX M-1
PROPERTY OWNER LIST

PROPERTIES/OWNERS WITHIN ONE MILE OF PROJECT SITE				
APN	**OWNER NAME**	**OWNER ADDRESS**		
64608011 64608012	RABAGO INVESTMENT GROUP L L C	6531 DATSUN ST	SAN DIEGO CA	92154
64807013	KOULADJIAN FAMILY REVOC TRUST	640 N FAIR OAKS AVE	PASADENA CA	91103
64804026 64604020 64801104 64608016	STATE OF CALIFORNIA	PUBLIC AGENCY		
64801034 64801032	COUNTY OF SAN DIEGO	PUBLIC AGENCY		
64802008	RANCHO VISTA DEL MAR	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64608017	INTERNATIONAL INDUSTRIAL PARK INC	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64804014	T O DEVELOPMENT L L C	3501 ORCHARD HILL RD	BONITA CA	91902
64804011	CCA WESTERN PROPERTIES INC, ATTN PROPERTY TAX DEPT	10 BURTON HILLS BLVD	NASHVILLE TN	37215
64804020 64804031 64804017 64804015 64804023 64808017 64808016	RANCHO VISTA DEL MAR	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64804028 64804025 64804027 64802007	INTERNATIONAL INDUSTRIAL PARK INC	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64805005	UNITED STATES OF AMERICA BUREAU OF LAND MANAGEMENT	PUBLIC AGENCY		00000
64801103	AMERICAN INTERNATIONAL RACING INC	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64801102 64808014 64808013 64808025 64804040 64804039	D&D LANDHOLDINGS	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64808027 64807003	KEARNY P C C P OTAY 311 L L C	655 W BROADWAY #1600	SAN DIEGO CA	92101
64807021	OTAY BUSINESS PARK L L C, C/O PARAGON MANAGEMENT CO L L C	4225 EXECUTIVE SQ #920	LA JOLLA CA	92037
64807017	HAWANO CORPORATION N V, C/O WOOD PM	P O BOX 261369	SAN DIEGO CA	92196
64807014	MCKANY MICHAEL J, C/O MCKANY REALTY	P O BOX 20847	EL CAJON CA	92021
64807009	TPO L L C, C/O DAVID WICK	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64613042 64613041 64613040 64613039	SOUTH COUNTY COMMERCE CENTER L L C	462 STEVENS AVE #301	SOLANA BEACH CA	92075
64613027	HANNA MAKRAM A & MAUREEN T	P O BOX 9225	RANCHO SANTA FE CA	92067
64807018	OTAY WATER DISTRICT	PUBLIC AGENCY		00000
64805017	KYDDLF&RDLFG FT NO 1 LLC, C/O NATIONAL ENTERPRISES	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64805014 64805013	OTAY HILLS L L C	1508 W MISSION RD	ESCONDIDO CA	92029
64804034	RANCHO VISTA DELMAR	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64805020	K Y D D L F&R D L F G F T NO 1 L L C	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64804035 64804036 64804037	O M C PROPERTIES L L C	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64804038	CALPINE CORP <LF> O M C PROPERTIES L L C	717 TEXAS ST #1000	HOUSTON TX	77002
64804042 64804041	ALTA PARCELS L P	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121

APPENDIX M-1
PROPERTY OWNER LIST

PROPERTIES/OWNERS WITHIN ONE MILE OF PROJECT SITE				
APN	**OWNER NAME**	**OWNER ADDRESS**		
64804043	ALTA PARCELS L P	717 TEXAS ST #1000	HOUSTON TX	77002
64804013	FONG-HSU TRUST 06-29-04	12925 ORANGEBURG AVE	SAN DIEGO CA	92129
64807032 64807031	OTAY LOGISTICS INDUSTRIAL L L C	P O BOX 1651	RANCHO SANTA FE CA	92067
64804046 64804048 64804045	CALPINE CORP <LF> D&D LANDHOLDINGS	SBE ASSESSED		
64804047	CALPINE CORP <LF> D G E N L P	SBE ASSESSED		
64631016 64631004 64631005	FIRST AMERICAN TRUST TR NO 1082-0284-00	5 FIRST AMERICAN WAY	SANTA ANA CA	92707

PROPERTIES/OWNERS WITHIN ONE-QUARTER MILE OF PROJECT LINEAR FACILITIES				
APN	**OWNER NAME**	**OWNER ADDRESS**		
64608032 64608033 64631001 thru 64631015	FIRST AMERICAN TRUST TR NO 1082-0284-00	5 FIRST AMERICAN WAY	SANTA ANA CA	92707
64612109 64612110 64612113 64612114 64613057	Owner information not available			
64613026	SCANNELL PROPERTIES NO 102 L L C <LF> H S L L C ET AL, C/O JAMES C CARLINO	800 E 96TH ST #175	INDIANAPOLIS IN	46240
64613027	HANNA MAKRAM A & MAUREEN T	P O BOX 9225	RANCHO SANTA FE CA	92067
64613039 64613040 64613041 64613042	SOUTH COUNTY COMMERCE CENTER L L C	462 STEVENS AVE #301	SOLANA BEACH CA	92075
64613045	SAN DIEGO GAS&ELECTRIC CO	CALIFORNIA STATE ASSESSED		
64613050	SAN DIEGO GAS&ELECTRIC CO, C/O OFFICE SERVICES EB 5	P O BOX 1831	SAN DIEGO CA	92112
64613056	PICO BIOMASS L L C, C/O JAMES F MOSIER	875 PROSPECT ST #301	LA JOLLA CA	92037
64613059	LARKSPUR ENERGY L L C	STATE ASSESED		
64613101	PINOS PRODUCE INC	P O BOX 210040	CHULA VISTA CA	91921
64613103 64613104 64613105 64613106	P G FILMS LLC	1913 MT BULLION DR	CHULA VISTA CA	91913
64613108	PINOS PRODUCE INC	P O BOX 210040	CHULA VISTA CA	91921
64613109 64613110 64613111 64613112	LBA REALTY FUND III-COMPANY I L L C, ATTN: HILARY RAYMOND	2235 FARADAY AVE #O	CARLSBAD CA	92008
64613116	OTAY RIDGE LLC	5965 CASTLETON DR	SAN DIEGO CA	92117
64614218	MAJESTIC OTAY PARTNERS LLC	13191 CROSSROADS PKY N	CITY OF INDUSTRY CA	91746
64624030	SUNROAD OTAY PARTNERS L P, C/O AARON FELDMAN	4445 EASTGATE MALL #400	SAN DIEGO CA	92121
64624081	OTAY MESA CROSSING L L C, C/O REGENCY REALTY GROUP INC	915 WILSHIRE BLVD #2200	LOS ANGELES CA	90017
64807023 64807025	MILLICAN PATRICIA G	773 DE LA TOBA RD	CHULA VISTA CA	91911
64807024 64807026	UNITED STATES OF AMERICA	PUBLIC AGENCY		

APPENDIX M-1
PROPERTY OWNER LIST

PROPERTIES/OWNERS WITHIN ONE-QUARTER MILE OF PROJECT LINEAR FACILITIES				
APN	**OWNER NAME**	**OWNER ADDRESS**		
64807029 64807030	R L R INVESTMENTS L L C, ATTN: CORPORATE LEGAL	600 GILLIAM RD	WILMINGTON OH	45177
64808018	RANCHO VISTA DEL MAR	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121
64808026	D&D LANDHOLDINGS	5440 MOREHOUSE DR #4000	SAN DIEGO CA	92121

Appendix M-2 – East Otay Mesa Business Park Specific Plan

COUNTY
OF
SAN DIEGO

EAST OTAY MESA BUSINESS PARK SPECIFIC PLAN

As Amended by
SPA 10-001
September 15, 2010

East Otay Mesa Specific Plan Amendment

2010 Combined Plan (SPA 10-001)

County of San Diego

Board of Supervisors

Greg Cox, First District

Dianne Jacob, Second District

Pam Slater-Price, Third District

Ron Roberts, Fourth District

Bill Horn, Fifth District

Prepared by
Department of Planning and Land Use
With the assistance of Project Design Consultants

Reviewed by the Planning Commission
On July 23, 2010

Approved by the Board of Supervisors
On September 15, 2010

East Otay Mesa Specific Plan

1994 Combined Plan

County of San Diego

Board of Supervisors

Brian P. Bilbray, First District

Dianne Jacob, Second District

Pam Slater-Price, Chairwoman, Third District

Leon L. Williams, Fourth District

John MacDonald, Fifth District

Prepared by
Department of Planning and Land Use
With the assistance of Shapouri & Associates
And Bryan Grunwald Associates and HGHB

Reviewed by the Planning Commission
On April 15, 1994

Approved by the Board of Supervisors
On July 27, 1994

CERTIFICATE OF ADOPTION

I hereby certify that this plan consisting of this text, exhibits, and appendices is the East Otay Mesa Specific Plan (SPA 10-001, which recombined Subarea 1 with Subarea 2). I also hereby certify that amendments to this plan were considered by the San Diego County Planning Commission on July 23, 2010, and those amendments were adopted by the San Diego County Board of Supervisors on September 15, 2010. The document, as amended, supercedes all previous Specific Plans for the area covered by SubArea 1and Subarea 2.

Date: SEPTEMBER 28, 2010

Attest: _____

Eric Gibson, Planning Director
Department of Planning and Land Use

SPECIFIC PLAN HISTORY

Specific Plan (SP) 93-004 created the East Otay Mesa Specific Plan Area and was approved by the Board of Supervisors on July 27, 1994.

The first amendment to the Specific Plan (SPA 98-002) was approved by the Board of Supervisors on January 13, 1999 (4). This amendment allowed for the sale of gasoline in Support Commercial areas.

The second amendment to the Specific Plan (SPA 00-005) was approved by the Board of Supervisors on June 12, 2002 (4). This amendment updated the land use plan and permit processing requirements and split the Specific Plan Area into Subareas 1 and 2.

The third amendment to the Specific Plan (SPA 04-002) was approved by the Board of Supervisors on February 2, 2005 (4). This amendment revised the public landscaping requirements.

The fourth amendment to the Specific Plan (SPA 05-005) was approved by the Board of Supervisors on November 2, 2005 (3). This amendment revised the parking requirements to conform to the standards for Subarea 2.

The fifth amendment to the Specific Plan (SPA 06-003) was approved by the Board of Supervisors on August 1, 2007 (1). This amendment updated the Circulation Plan, Sidewalk Standards, and Fencing Requirements,; It was combined with General Plan Circulation Element (GPA 06-013) and the Bicycle Transportation Plan.

The sixth amendment to the Specific Plan (SPA 06-005) was approved by the Board of Supervisors on April 8, 2009 (1). This amendment included minor amendments to Subarea 1.

The seventh amendment to the Specific Plan (SPA 10-001) was approved by the Board of Supervisors on September 15, 2010. This amendment recombined Subarea 1 and Subarea 2, modified the Specific Plan boundary in response to a voter initiative, and made minor revisions to the Circulation Plan, Land Use Plan and regulatory provisions.

Table of Contents

Section **Page**

1.0 INTRODUCTION 1

1.1 Background and History 2

1.2 Existing Site Characteristics 5

1.2.1 On-Site & Surrounding Land Uses 5
1.2.2 Regional Access 6
1.2.3 Biology, Topography & MSCP 8
1.2.4 Open Space Plan 10
1.2.5 Cultural Resources 10
1.2.6 Trails 11

1.3 Relationship to General Plan 11

1.4 Specific Plan Amendment Process 12

1.5 Regulatory Provisions 13

2.0 PLAN ELEMENTS 27

2.1 Land Use Element 27

2.1.1 Vision 27
2.1.2 Goals and Policies 28
2.1.3 Land Use Plan 31
2.1.4 Land Use Designations 33

2.2 Circulation Element 38

2.2.1 Introduction 38
2.2.2 Goals and Policies 38
2.2.3 Circulation Plan 43
2.2.4 Regional Access 43
2.2.5 Local Access Road Network 46
2.2.6 Road Operation 49
2.2.7 Alternative Modes of Transportation 50

Table of Contents (Cont.)

Section ..... **Page**

2.3 Urban Design Element 53
2.3.1 Introduction 53
2.3.2 Goals and Policies 53
2.3.3 Development Areas and Activity Nodes 56
2.3.4 Industrial Districts 58
2.3.5 Commercial Center 59
2.3.6 Public Landscaping 60
2.3.7 Usable Open Space 64
2.3.8 Clearance Zones 65
2.3.9 Root Barriers 65
2.3.10 Edge Conditions 65

2.4 Public Facilities Element 66
2.4.1 Introduction 66
2.4.2 Goals and Policies 66
2.4.2 Public Facilities Information 72
2.4.3 Facility Financing 78

3.0 Regulatory Provisions 81

3.1 Land Use Regulations 81

3.2 Development Standards 90
3.2.1 Site Planning 91
3.2.2 Landscaping Standards 110
3.2.3 Architectural Standards 119

3.3 Processing Requirements 130
3.3.1 Site Plan 130
3.3.2 Sensitive Resource Area Regulations 131
3.3.3 Establishing Activity Nodes 131
3.3.4 Establishing Commercial Center Overlay 133
3.3.5 Landfill Buffer Overlay 134

Table of Contents (Cont.)

Appendices **Appendix Page**

1 Streetscape Plant List A-1

2 Circulation Element Road Cross Sections A-7

3 Glossary A-13

4 Archaeological Status by Parcel Number A-17

5 Public Facility Information A-21

List of Figures

Figure **Page**

1.1-1 Location Map 3

1.2-1 Biology, Topography and MSCP Map 4

2.1-1 Land Use Plan 32

2.2-1 Circulation Plan 45

2.3-1 Activity Node Functional Diagram 57

2.3-2 Master Streetscape Plan 63

2.4-1 Sewer Basin Plan 74

3.2-1 Illustrative Site Plan 92

3.2-2 Grading Techniques 106

3.2-3 Open Space and Pedestrian Circulation for Multiple Buildings 107

3.2-4 Screening Techniques 108

3.2-5 Lighting of Parking, Service and Loading Areas 109

3.2-6 Parking Lot and Loading Area Landscaping Techniques 118

3.2-7 Building Form and Massing; Corner Articulation 123

3.2-8 Elevation and Entrance Treatments 124

3.2-9 Commercial Architectural Standards 128

Figure **Page**
3.2-10 Activity Node Storefronts/Preferred Character 129
3.3-1 Areas Subject to “G” Special Area Designator 132

List of Tables

Table **Page**
2.1-1 Planned Land Use Tabulation 31
2.2-1 Roadway Network 44
3.1-1 Land Use Matrix 85
3.2-1 Site Planning Standards 93
Use, Intensity and Bulk Regulations 93
Site Access 94
Parking 96
Grading 98
Building Location and Orientation 100
Usable Open Space 101
Service Areas 102
Fencing, Walls and Hedges 103
Lighting 105
3.2-2 Landscaping Standards 111
General 111
Streetscapes 111
Building Setback Landscaping 113
Building Landscaping 114
Parking Lot 114
Screening 115
Landscaping Adjacent to the Otay Valley Regional Park 115
Minimum Standards 116
Irrigation 117

Table of Contents (Cont.)

Table		Page
3.2-3	**Architectural Standards – Industrial Development**	**120**
	Building Design	120
	Exterior Building Materials	121
	Climatic Considerations	122
	Parking Structures	122
	Other Considerations	122
3.2-4	**Architectural Standards – Commercial Development**	**125**
	Building Design	125
	Exterior Building Materials	126
	Climatic Considerations	127
	Parking Structures	127
	Other Considerations	127

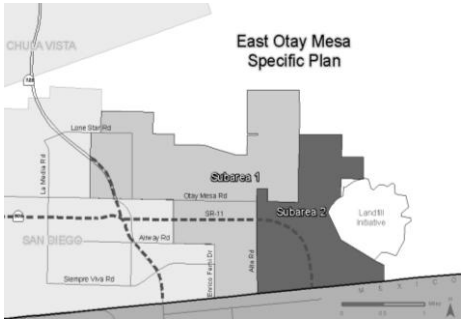
Chapter 1
INTRODUCTION

Chapter 1: Introduction

The East Otay Mesa Specific Plan sets forth a comprehensive vision for the Plan Area, within unincorporated San Diego County. The Specific Plan contains approximately 3,013 acres of land. Approximately 2,110 acres of the Specific Plan is planned as a modern industrial and business center while about 552 acres is set aside for conservation or very low-density residential use. The Specific Plan is a regulatory document that establishes standards for development, environmental conservation, and public facilities to implement the objectives of the County of San Diego General Plan and Otay Mesa Subregional Plan.

The Board of Supervisors approved the original Specific Plan in 1994. To facilitate development and respond to evolving real estate market trends, the County Board of Supervisors initiated a Specific Plan Amendment (SPA 00-005) process on June 21, 2000 (14). The objectives of that Specific Plan Amendment were to:

- Facilitate development of East Otay Mesa as a major employment area for southern San Diego County;
- Encourage and protect an area of critical size for regional technology manufacturing uses in a campus-like setting;
- Provide adequate land use area for warehousing and other light industrial uses;
- Provide an area for heavy industrial uses such as auto salvage and recycling that will not interfere with development and operation of more sensitive industrial park developments;
- Provide commercial uses in the Specific Plan to serve employees and visitors;
- Identify and address environmental resources; and
- Plan for public facilities concurrent with need.



When the Specific Plan was divided into two SubAreas in 2002, property located outside Subarea 1 was renamed Subarea 2. The plan was divided due to the time required to evaluate environmental constraints and the uncertainty of the alignment of State Route 11 and the proposed third Port-of-Entry in Subarea 2, Property located in SubArea 2 remained governed by the original East Otay Mesa Specific Plan, including Site Planning and Design Guidelines. Subarea 1, located on the western side of the Specific Plan, contained approximately 2,007 acres planned for a mixture of commercial, technology, park, light industrial and heavy industrial use. Subarea 2, located on the eastern side of the Specific Plan, contained approximately 1,311 acres of land planned for Mixed Industrial or low-density residential use.

In 2010, the Specific Plan was again amended to recombine Subarea 1 and 2 into a single Specific Plan. No major revisions were made to the land use or circulation plans with the 2010 amendment, except for a boundary change that resulted from a voter initiative. Its primary purpose was to simplify and clarify permitting and development requirements during a period when numerous landowners were processing permits. The 2010 Amendment governs property in SubArea 1 and SubArea 2. It relies primarily upon the goals and policies of the 1994 Specific Plan and the regulatory provisions of the Subarea 1 Specific Plan, adopted in 2002. Unless otherwise defined herein, all terms are as defined in the County of San Diego Zoning Ordinance.

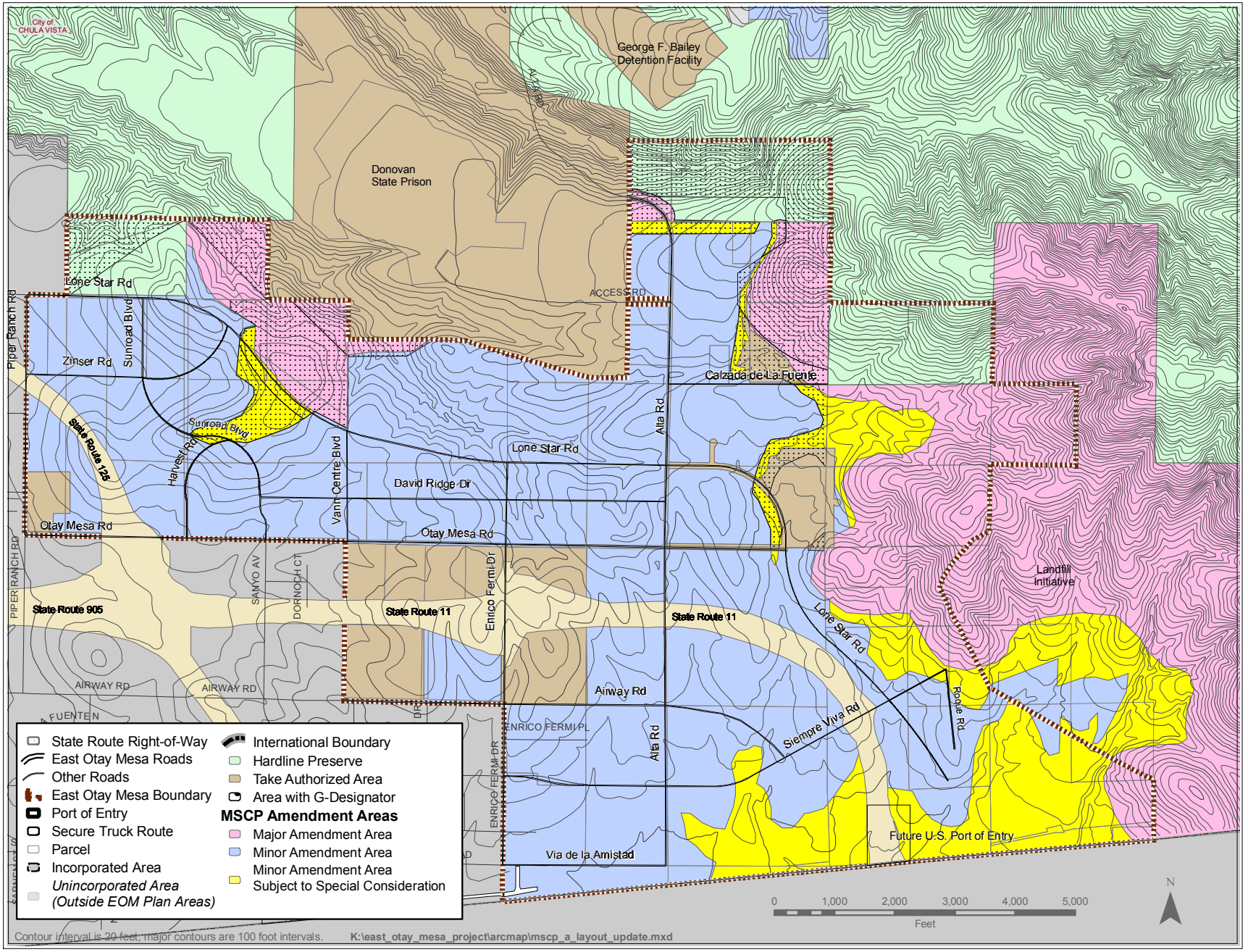
1.1 Background and History

With the growth of the Maquiladora or Twin Plant Program, the demand for industrial land accelerated in the U.S.

The East Otay Mesa Specific Plan is located in the southwestern portion of San Diego County immediately adjacent to the U.S./Mexico border (Figure 1.1-1). The Specific Plan lies between the Otay River Valley to the north, the international border with Mexico to the south, and the San Ysidro Mountains to the east, and the City of San Diego's 12,505-acre Otay Mesa Community Plan Area to the west. The area consists of a relatively flat mesa with a steep mountainous area on the eastern edge and a major river valley and tributary canyon to the north. Historically, the flatter portions of the Specific Plan Area were used for agriculture. The steeper areas were never developed.

Figure 1.1-1 Location Map

Figure 1.2-1 Biology, Topography and MSCP



In the 1960s, the Otay Mesa Property Owners Association was formed and the City portion of the Mesa experienced a land use transition. Due to the high cost of water and labor, industrial and commercial development became more attractive than agriculture for property owners. Relatively low land cost and an affordable labor supply, combined with favorable tariffs in Mexico, attracted manufacturing operations to the Mesa.

With the growth of the Mexican government's Maquiladora or Twin Plant Program in the early 1980s, the demand for industrial land accelerated in the U.S. to accommodate the distribution and warehousing of products manufactured in Mexico. The opening of the Otay Mesa Border Crossing and improvement of Otay Mesa Road and portions of State Route 905 in the mid-1980s further enhanced development opportunities in the area. Industrial uses expanded rapidly in the City portion of the Mesa, and there was a desire on the part of the County property owners to plan the East Otay Mesa for future development.

1.2 Existing Site Characteristics

1.2.1 On-site and Surrounding Land Uses

When the original Specific Plan was prepared in 1994, on-site uses were limited to a few scattered single-family residences, a State Truck Inspection facility, a 150-foot wide Border Enforcement Zone located immediately adjacent to and paralleling the border, and an auto storage/auction yard. Since that time, planned and approved on-site uses include several industrial subdivisions, an 80-acre truck/travel plaza, a 46-acre electrical generating plant, a 30-acre retail commercial center, a Fedex Ground facility, a 161-acre heavy industrial facility, a 40-acre private prison, and a variety of interim industrial and commercial uses authorized by Major Use Permits.

Off-site uses include the 12,505-acre City of San Diego's Otay Mesa Community Plan Area to the west, which includes 4,337 acres of planned industrial and commercial uses and 2,100 acres of planned residential uses. The City of Tijuana adjoins the southern edge of East Otay Mesa. This area is planned for and has been partially developed with industrial and residential uses. Tijuana's Rodriguez International Airport is located approximately one mile southwest of the East Otay Mesa Specific Plan.

To the immediate north of the Specific Plan is the existing 750-acre Donovan State Correctional Facility, operated by the State of California Department of Corrections, located on a mesa between O'Neal and Johnson Canyons. On the mesa north of O'Neal Canyon is the 523-acre County's George F. Bailey Detention Facility. The East Mesa Juvenile Hall Complex is also located on this site.

Further north is the Otay River Valley Regional Park, one of the largest regional parks planned for the County. A joint exercise of powers agreement (JEPA) has been executed by the County of San Diego and the cities of Chula Vista and San Diego to plan, acquire, and establish this regional park. Johnson Canyon is located in the Focused Planning Area (FPA) of the park. The FPA is that portion of the river valley identified as impacting the future park viewshed.

While most of the area immediately north of the Otay River Valley is currently vacant, the Otay Ranch, a 22,899-acre master-planned community, is planned for this area. Development of Otay Ranch began in 1998 with Villages 1 and 5 south of Telegraph Canyon Road in the City of Chula Vista. Residential units in the Otay Ranch could total over 24,000.

The Bureau of Land Management (BLM) manages several thousand acres of public lands just east of the East Otay Mesa Specific Plan Area. The land consists of low, gently rolling hills, which gradually transform into the steep slopes of the San Ysidro Mountains. The BLM land includes the Otay Mountain Wilderness, designated in December 1999, and provides protection for large, natural areas and the associated natural resources. The Wilderness is also within the San Diego County Multiple Species Conservation Program (MSCP) planning area.

1.2.2 Regional Access

An important component of the regional circulation network for East Otay Mesa is the existing freeways and local roads. Existing circulation conditions are described below.

- *Interstate 805:* Interstate 805 (I-805) is an eight-lane, north/south freeway that extends from a junction with Interstate 5 (I-5) on the south near the

An important component of the regional circulation network for East Otay Mesa is the existing freeways and local roads.

international border to a junction with I-5 to the north, near Del Mar. I-805 is approximately ten miles west of East Otay Mesa.

- *State Route 905:* State Route 905 (SR-905) is a north/south, six-lane road connecting the City of San Diego's Otay Mesa community with I-5 to the west. Approximately one mile east of I-805 is a break in the route, and SR-905 becomes Otay Mesa Road. The SR-905 designation begins again west of Harvest Road and continues to the Otay Mesa International Border Crossing.

- *Otay Mesa Road*: Otay Mesa Road is an east-west facility that extends from Beyer Boulevard in the City of San Diego to Siempre Viva Road in the Specific Plan Area. Within the City of San Diego, Otay Mesa Road varies from four to five lanes (two westbound lanes and two to three eastbound lanes). East of the eastern junction with SR-905, Otay Mesa Road is improved with the curb-to-curb width varying from approximately 24 feet to 40 feet.

- *Siempre Viva Road*: Siempre Viva Road is a six-lane divided roadway west of Enrico Fermi Drive.

- *Airway Road and Sunroad Boulevard*: Airway Road and Sunroad Boulevard (called Sanyo Avenue in the city of San Diego) are both local industrial roads traveling from the City of San Diego into the Specific Plan Area. Airway Road runs east-west between SR-125 and Siempre Viva Road. Sunroad Boulevard runs north-south between Lonestar Road and Otay Mesa Road. In the city of San Diego, Sanyo Aveune extends south from Otay Mesa Road to Paseo de las Americas Road.

- *Alta Road:* Alta Road is a 40-foot-wide curb-to-curb Industrial/Commercial Collector Road located within the Specific Plan Area. This road currently serves primarily as an access road to two prison facilities in this area: the County George F. Bailey Detention Facility and the State's Donovan Correctional Facility.

1.2.3 Biology, Topography, and Multiple Species Conservation Program (MSCP)

The Specific Plan Area contains a variety of habitats, some of which are biologically sensitive.

The Conservation Element establishes the plan for protecting sensitive environmental resources and establishing a system of open space for conservation, recreational, and aesthetic purposes. The Specific Plan Area contains a variety of habitats, some of which are biologically sensitive. These include vernal pools, Diegan coastal sage scrub, riparian areas, and other habitat types. Much of the sensitive habitat is located in the hilly eastern portion of the Specific Plan and in the southern portion along the border with Mexico. Recently completed biological surveys identified a number of threatened, endangered, and other sensitive species. These include Quino Checkerspot butterfly, San Diego and Riverside fairy shrimp and other sensitive species. An area west of Johnson Canyon contains coastal sage scrub and vernal pool habitat, a wetland that typically contains rare and endangered species (Figure 1.2-1).

The areas of steep slopes and biologically sensitive resources are primarily located in the Conservation/Limited Use designation. In order to insure that these environmentally sensitive areas are appropriately protected, they have been given a “G” Designator and are subject to the provisions of the Sensitive Resource Area Regulations of The Zoning Ordinance. The areas of the Specific Plan that are subject to the Sensitive Area Resources “G” Designator are largely the same areas that are encompassed by the MSCP Major Amendment Area and Minor Amendment with Special Considerations Area.

Most of the Specific Plan Area has been identified as Amendment Areas to the Multiple Species Conservation Plan (MSCP).

Steep slopes are defined in the Specific Plan as areas with slopes greater than 25 percent and slopes that are not suitable for development. In some cases, areas with lesser slopes are included in the Conservation/Limited Use designation, either because they are within a contiguous area of very steep slopes, or because of the existence of biological resources. In addition to this land use designation, certain areas of the Technology Business Park or industrial portions of the Specific Plan have been or will be dedicated as permanent open space through the Tentative Map, Major Use Permit or other permit review process, further restricting development. Reasons for such dedication could include protection of biological resources and protection of cultural or archaeological resources.

Since approval of the original Specific Plan, most of the Specific Plan Area has been identified as Amendment Areas to the MSCP, Figure 1.2-1. In order for development proposals to be approved, the Amendment process shall first be completed as specified in the MSCP SubArea Plan. These Amendment Areas include Major Amendment Areas, Minor Amendment Areas, and Minor Amendment Areas with Special Considerations. The majority of the Specific Plan, including the flatter topography that was historically the location of agricultural operations, is included in a Minor Amendment Area.

Processing a Minor Amendment to the MSCP requires preparation of a California Environmental Quality Act document, a biological resources report, identification of any mitigation required by the Biological Mitigation Ordinance (BMO), and concurrence by the local offices of the United States Department of Fish & Wildlife and California Department of Fish & Game. Most areas within the Specific Plan that are planned for commercial or industrial development are within a Minor Amendment Area. Most of the Minor Amendment Area is covered by non-native grasslands habitat. Before development may occur, a Minor Amendment must be granted and the required mitigation implemented.

Minor Amendment requests are currently being processed on a project-by-project basis. The County is considering an alternative expedited approach for non-native grasslands that would allow landowners to pay a fee for the purchase of off-site mitigation land in the case of non-native grasslands. Should this Minor Amendment processing approach be developed and approved by the wildlife agencies, approval of an ordinance will be necessary to establish the fee program. In addition, the ordinance would identify where the off-site mitigation would take place and direct the funds toward acquisition of those lands.

The Minor Amendment Areas with Special Considerations are transitional areas located primarily between the Major and Minor Amendment Areas where the likelihood of the presence of biologically sensitive resources is higher. The process for a Minor Amendment Area with Special Considerations is similar to Minor Amendment Area, but depending on the results of the biological resources report, on-site preservation may be required if particularly sensitive species are identified. Minor Amendment Areas with Special Considerations will be processed on a project-by-project basis.

Major Amendment Areas are located largely in the hilly eastern portions of the Specific Plan, formerly named Subarea 2, where the most sensitive biological resources are known to be located. The Major Amendment process is designed to identify which areas may be developed and which areas must be preserved. This process requires federal approval through the National Environmental Policy Act. Major Amendment Areas will be processed on a case-by-case basis.

1.2.4 Open Space Plan

Usable Open Space

Open space and small parks for relaxation, socializing, and recreation will be an amenity for East Otay Mesa employees. Common areas within the Activity Nodes as well as usable open space within project developments shall be required through the Processing Requirements contained in Section 3.3. Trails, sidewalks and other pedestrian linkages will provide additional outdoor recreational opportunities. This open space can also be incorporated into a post-construction storm water runoff and pollution prevention program.

1.2.5 Cultural Resources

Archaeological sites that are found to be not important will require no further analysis, nor mitigation.

Archaeological and historical surveys have been conducted over the majority of the East Otay Mesa Specific Plan Area.

Not all sites discovered have been tested for significance. Site locations have been identified on the basis of surface surveys (Appendix 1). For purposes of this Amendment, all untested or unevaluated cultural resources sites are considered significant resources. Later, based on results of testing, the resources shall be determined to be either important or not significant. Those sites that are found to be not important will require no further analysis, nor mitigation.

For sites determined to contain significant resources, mitigation of impacts shall be pursued at the discretionary level of review. These include, but are not limited to, the following: 1) Site avoidance through placement of the site in an open space easement;

2) Site avoidance through capping the site with a sterile fill and placing landscaping over the top; 3) Additional data recovery through implementation of an excavation and analysis program; and 4) A combination of one or more of the above measures.

Since approval of the original Specific Plan in 1994, additional archaeological work has taken place on East Otay Mesa. This work is summarized in the technical report, *Supplement to the East Otay Mesa Cultural Resources Technical Report, SPA 00-005, ER 93-19-006 A*. This technical report serves to update the information contained in the original report, East Otay Mesa Specific Plan Cultural Resources Technical Report, dated October 1993, prepared by Ogden Environmental. The new supplement to this report includes a summary of all the archaeological surveys, site testing, and mitigation that has occurred since the original report was prepared. Appendix 1 of this Specific Plan document includes a listing of all parcels on East Otay Mesa and their status regarding archaeological clearance or the need to conduct additional archaeological testing or mitigation as of November 2001. This date is based on completed cultural resource reports available at that time.

1.2.6 Trails

Trails proposed in the Specific Plan allow public access to natural scenic areas.

The Otay Valley Regional Park (OVRP) Concept Plan identifies trail corridors within Johnson and O'Neal Canyons, linking the San Ysidro Mountain Range to the Ruiz Valley. The Concept Plan encourages controlled access to trails within and outside the park, and staging and viewing areas in the vicinity as appropriate. Trails proposed in the Specific Plan allow public access to natural scenic areas. Since the approval of the East Otay Mesa Specific Plan in 1994, the County adopted a Community Trails Master Plan that governs the type and location of trails throughout the unincorporated area.

1.3 Relationship to County of San Diego General Plan

The East Otay Mesa Specific Plan implements the policies of the County General Plan and the Otay Subregional Plan. Generally, specific plans provide a more flexible method of implementing the General Plan than conventional zoning. The intent of the (21) SPA General Plan Land Use Designation is to establish a planning framework for developing a comprehensive Specific Plan text and map for East Otay Mesa Specific

Plan consistent with the objectives and policies established by the County of San Diego General Plan and Otay Subregional Plan.

The Specific Plan is intended to promote coordinated development of individual parcels consistent with policies designed to address land use, conservation and open space, circulation, urban design, and public facilities as well as site planning and design guidelines. To the extent that housing costs in the 2,100 acres planned for residential development in the Otay Community Plan area, including the nearby Otay Ranch, and types of employment (and income) in East Otay Mesa are compatible, a significant jobs/housing balance between these two areas could exist.

1.4 Specific Plan Amendment Process

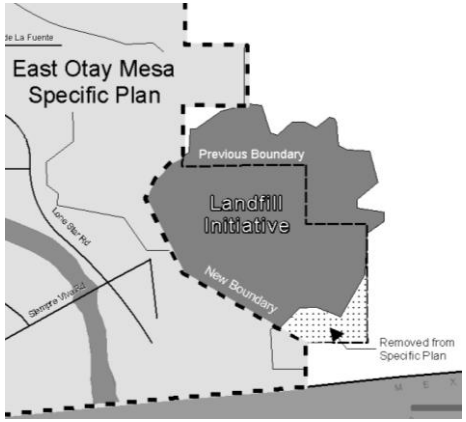
Development of the East Otay Mesa Specific Plan involved a multi-phase process with extensive property owner and public agency participation. For the 1994 Specific Plan, extensive data collection and technical report preparation was followed by the development of alternative land use and circulation scenarios. A preferred plan and phasing strategy was agreed upon by County staff and property owners in late 1992. In 1994, the Board of Supervisors adopted the Specific Plan along with an Environmental Impact Report, Comprehensive Flood Control Master Plan, and Site Planning and Design Review Guidelines. When the Subarea 1 Specific Plan (SPA 00-005) was prepared in 2001, it was developed in accordance with the State of California “Planner’s Guide to Specific Plans”. The process included four phases with extensive property owner and public agency participation.

- **Research and Analysis:** The first phase involved extensive data collection and evaluation of existing conditions and economic factors.
- **Specific Plan Amendment Alternatives:** The second phase consisted of formulating and reviewing various land use, conservation, circulation and infrastructure alternative concepts with the property owners, adjacent communities and various governmental agencies and special districts. This phase culminated in March 2001 when a conceptual Preferred Land Use and Circulation Plan were presented to all interested parties for review. Preferred Specific Plan Amendment: During the third phase, the Preferred Plan was

further refined and draft text was prepared. This phase involved a comprehensive review and analysis of the proposed Amendment to evaluate the environmental, land use, and facility impacts for the proposed project. Also during this phase, federal and state wildlife agencies were consulted to ensure consistency with the Regional Open Space and Conservation Program. A final draft was presented to the East Otay Mesa property owners in December 2001, and an Addendum to the East Otay Mesa Specific Plan Environmental Impact Report (EIR) was prepared that found no new environmental impacts.

- **Specific Plan Adoption:** The fourth phase concluded the process with public review of the final draft Specific Plan Amendment and public hearings. The Board of Supervisors adopted the Specific Plan Amendment creating Subarea 1 on June 12, 2002 along with Addendum No. 6 to the EIR, and General Plan Amendment 02-CE1 to the Circulation Element.

On September 15, 2010, the Board of Supervisors adopted another Specific Plan Amendment (SPA 10-001) that recombined Subarea 1 and Subarea 2 into a single Specific Plan. The 2010 Amendment utilized the format, organization and content of the previous SubArea 1 Specific Plan while retaining key components of the original Specific Plan within the recombined document. Those components included goal and policy statements, selected design guidelines, and public infrastructure information. An Addendum to the EIR was prepared for the 2010 Specific Plan Amendment.



The 2010 Amendment also redefined the boundary of southeastern portion of the Specific Plan. The boundary adjustment was made in response to a voter initiative, Proposition A, called the East Otay Mesa Recycling Collection Center and Landfill Ordinance. which was passed by the electorate in June 2010. The initiative effectively removed several hundred acres of land from the East Otay Mesa Specific Plan and it resulted in a change to the Specific Plan boundary.

1.5 Regulatory Provisions

The regulations that serve to implement the Specific Plan are described in this section. The use of all land in the East Otay Mesa Specific Plan Area and any buildings or

structures located upon this land and the construction, reconstruction, alteration, expansion, or relocation of any building, structure or use upon the land, shall conform to the applicable regulatory provisions contained in this Specific Plan, the San Diego County Zoning Ordinance, and the San Diego County Code.

The Specific Plan implementation requirements are based on the regulatory provisions contained in this document, the County's Zoning Ordinance, and the San Diego County Code.

The development approvals required in the Specific Plan Area are intended to allow for consistent implementation of objectives and policies as contained in the Land Use, Circulation, Urban Design, and Public Facilities Elements.

A synopsis of the Specific Plan's implementation policies, regulations and standards follows (see the applicable sections for detailed requirements):

MSCP and Topography (Section 1.2.3):

- In order for development proposals to be approved, the Amendment process shall first be completed as specified in the MSCP SubArea Plan.
- Processing a Minor Amendment to the MSCP requires the preparation of a CEQA document, a biological resources report, identification of any mitigation required by the Biological Mitigation Ordinance, and concurrence by the wildlife agencies.
- Before development may occur within a Minor Amendment Area, the Minor Amendment must be processed and the appropriate mitigation implemented.
- The process for a Minor Amendment Area with Special Considerations is similar to Minor Amendment Area, but depending on the results of the biological resources report, on-site preservation may be required if particularly sensitive species are identified. Minor Amendment Areas with Special Consideration will be processed on a case-by-case basis.
- The Major Amendment process requires federal approval through the National Environmental Policy Act. Major Amendment Areas will be processed on a project-by-project basis.
- The areas of the Specific Plan that are covered by the MSCP Major Amendment and Minor Amendment with Special Considerations are largely the same areas subject to the Sensitive Area Resources "G" Designator.

Cultural Resources (Section 1.2.5):

- Based on results of testing, the cultural resources shall be determined to be either significant or not significant.
- For sites determined to contain significant resources, mitigation of impacts shall be pursued at the discretionary level of review.
- Those sites that are found to be not important will require no further analysis, nor mitigation.

Development Approvals Required (Section 1.5):

- The use of all land in the Specific Plan Area and any building or structures located upon this land and the construction, reconstruction, alteration, expansion, or relocation of any building, structure or use upon the land shall conform to the applicable regulatory provisions contained in this Specific Plan, the San Diego County Zoning Ordinance, and the San Diego County Code.

Land Use Designations (Section 2.1.4):

- The land use designations for East Otay Mesa are: Technology Business Park, District Commercial, Light Industrial, Heavy Industrial, Mixed Industrial, Rural Residential, and Conservation/Limited Use. A Commercial Center Overlay and Activity Nodes are also proposed within the Technology Business Park. Activity Nodes may also be located within the Light Industrial District.
- The proposed corridor alignment for State Route 11 is subject to change upon the completion of CalTrans' Environmental Studies. The north-south boundaries of adjacent land uses are intended to conform with the final alignment of future SR-11.

Interim Uses (2.1.4):

- Interim Uses are allowed with a Major Use Permit and shall be developed in compliance with the Specific Plan Development Standards.

- Interim Uses shall be allowed for a maximum initial time of five years and only if there has been no application for a permanent use on an adjoining parcel in the Specific Plan that would be negatively impacted by the proposed interim use.
- A Major Use Permit Modification may allow additional five-year periods.

Local Access Road Network (Section 2.2.5):

- It is the intent of this Specific Plan that all discretionary projects shall be required to:
    a. Dedicate and improve all adjacent rights-of-way necessary to provide access to the project and to complete the Specific Plan circulation system.
    b. Dedicate and agree to construct, through means acceptable to the Director of Public Works, all adjacent rights-of-way necessary to further implement the Specific Plan circulation system, including where the rights-of-way do not provide direct access to the site. The purpose of this requirement is to implement the circulation system of the Specific Plan.
    c. Acquire and construct (or agree to construct if acceptable to the Director of Public Works) all off-site circulation element roads necessary to provide access to the site and to ensure that off-site road access will meet County standards.
- The Board of Supervisors may adopt a Development Impact Fee to replace or supplement the above requirements.

Road Operation (Section 2.2.6):

- Through trucks are expected to follow the Prime Arterial, Major, Collector and selected Industrial/Commercial Road street system.
- All streets shall be designed to accommodate truck traffic.
- On-street parking shall be prohibited.

Public Transit (Section 2.2.7):

- When the County Board of Supervisors adopts a Transit Plan, including development standards and route locations, all development within East Otay Mesa shall be required to comply with that plan and its implementation including the dedication of Right-of-Way for light rail and/or bus facilities.

Bicycle Routes (Section 2.2.7):

- The State of California, Department of Transportation publication, "Planning and Design Criteria for Bikeways in California", shall apply to the East Otay Mesa Specific Plan.

Pedestrian Circulation/Trails (Section 2.2.7):

- Sidewalks/trails are required on both sides of all streets.
- Sidewalks/trails shall meet the guidelines of the County of San Diego Public Road Standards except that sidewalks on all Circulation Element and Specific Plan roads shall be 4-feet wide, and shall be separated from the traveled way by a 3-foot wide landscaped parkway.
- Sidewalks shall meet Americans with Disabilities Act (ADA) standards.
- The Director of Public Works may waive sidewalk requirements or allow sidewalks to meander around existing utility poles (69kv or greater) that will not be placed underground if the applicant can demonstrate that no loss of pedestrian movement or connectively would result.
- All development adjacent to the Otay Valley Regional Park shall improve a 10-foot-wide trail for passive viewing and as a potential connection to the regional park trail system.
- The trail shall be open to the public and shall connect to a public sidewalk or an alternative location acceptable to the County.

Development Areas and Activity Nodes (Section 2.3.3):

- The placement of Activity Nodes shall be based on distances from major circulation roads and intersections, District Commercial within Subarea 2, on lines-of-sight and view corridors, and on creating walkable distances to and from transit stations and anticipated major employee areas.
- The maximum acreage of an Activity Node shall be 10 acres unless a higher amount is approved per Section 3.3.2 of this plan.
- A Collector Road shall connect Activity Nodes to each other, allowing pedestrian and standard occupancy vehicle access to cores without traveling on Prime Arterials or Major Roads.

Industrial Districts (Section 2.3.4):

- The Technology Business Park District identity will be achieved through campus-style site design, formal and informal open space, and architecture design.
- In contrast to the Technology Business Park District, development in the Light Industrial District will be more utilitarian.
- The Heavy Industrial and Mixed Industrial Districts will accommodate heavier industries but retain the same feel as the Light Industrial District due to screening, architectural design and landscaping.

Commercial Center (Section 2.3.5):

- The Commercial Center overlay will allow for development of large-scale retail operations to serve the industrial and office land uses in the area as well as the possibility to serve regional shopping needs.
- The center shall not exceed forty acres.
- The Commercial Center shall coordinate with the San Diego Association of Governments (SANDAG) to provide bus facilities on-site.

Streetscape Concept (Section 2.3.6):

- Gateway Roads (Prime Arterial, Major): Lone Star Road, Otay Mesa Road, and Siempre Viva Road are classified as the "Gateway" roads that shall have the following standards:
    a. Increased visibility and screening with a tree-lined median
    b. A 10-foot-wide landscaped parkway
    c. A 2-foot wide landscape easement located adjacent to the parkway and within the building setback, and
    d. A 25-foot wide landscaped building setback (Prime Arterials) and a 20-foot wide landscaped building setback (Major Roads).
- Major Roads (non-Gateway)
    a. Shall be planted with large-sized evergreen or deciduous trees spaced every 30 feet and located 10 feet from the face of the curb.
    b. Shall have a 10-foot-wide landscaped parkway and a 20-foot-wide landscaped building setback. A 2-foot wide landscape easement shall be located adjacent to the parkway and within the building setback.
    c. The median shall be paved with a sandstone colored concrete (Davis Sandstone or equal) and stamped with a Dry Creek Bed (or similar) pattern.
- Industrial/Commercial Collector Roads:
    a. Shall be planted with medium-sized evergreen or deciduous canopy trees spaced every 25 feet and located 10 feet from the face of the curb.
    b. A 2-foot wide landscape easement shall be located adjacent to the parkway and within the building setback.
- Activity Node Streets:

    Shall be planted with flowering canopy trees spaced every 25 feet in sidewalk cutout areas.

- Major Intersections:
  a. Shall be planted with three flowering trees at each corner.
  b. Additional landscaping such as shrubs and groundcover shall be required and sight lines preserved for vehicular safety.

Plant Materials (Section 2.3.5):

- Self-sustaining plant material is required on all roads.
- Cool season turf shall be restricted to 15 percent of the landscaped area unless it is irrigated with recycled water or designed for active public use.
- No turf shall be allowed in a public right-of-way.

Usable Open Space (Section 2.3.7):

- All plans shall designate a location(s) on-site for employee passive or recreational activity.
- This area shall be screened from parking and traffic and shall be improved with benches and shade structures.

Clearance Zones / Median Cuts (Section 2.3.8):

- Trees and shrubs shall be located and maintained to preserve a clear zone of at least ten feet from fire hydrants, utility poles, overhead utility wires, streetlight luminaries, and above-ground utility structures such as transformer enclosures. Clearance zones also shall be established to preserve adequate sight-line distance at intersections. Check SDG&E setback requirements when locating trees next to existing 69 KV lines on Otay Mesa Road, Harvest Road, and Alta Road.

- The design of road networks and intersections should minimize the size of clearance zones at Major Intersections and along Gateway Roads in order to retain street trees and other landscaping identified in the Master Streetscape Plan. Median cuts also should be minimized along Gateway Roads in order to retain planned landscaped medians.

Root Barrier (Section 2.3.9):

- All trees planted 5 feet or closer to hardscape shall be accompanied by a root barrier installed parallel and adjacent to the pavement centered at tree (not wrapped around the rootball).

Edge Conditions (Section 2.3.10):

- At the time of Site Plan review, special attention shall be given to areas of the Specific Plan where uses abut open space, differing land uses, SR-11, SR-125, or other circulation element roads.

Wastewater (Section 2.4.2):

- The East Otay Mesa Sewer Maintenance District shall provide the necessary sewer service to accommodate planned development within the Specific Plan.
- In order to transmit project wastewater, East Otay Mesa shall connect to existing wastewater collection sewers in the City of San Diego Metro System.
- A map of the Specific Plan Area wastewater mains shall be maintained by the East Otay Mesa Sewer Maintenance District.

Storm Water Drainage (Section 2.4.2):

- Storm water drainage facilities for East Otay Mesa shall be designed to mitigate flood and water quality impacts per County and State requirements.

Dry Utilities (Section 2.4.2):

- Utility lines shall be underground in roadways with the exception of the 69kV electrical lines and the 230 kV line on the eastern portion of the Specific Plan Area.
- Other facilities such as transformers shall be located in underground vaults or screened.

Fire Protection and Emergency Medical Services (Section 2.4.2):

- Properties outside the Fire Protection District boundary shall annex to the District as condition of development approval.
- As projects develop, the District shall require developers to form and annex into a Community Facilities District to augment revenues for ongoing service costs.
- Capital facilities shall be funded through contributions to the County's Fire Mitigation Fee program with impact fees payable at building permit issuance.

Solid Waste (Section 2.4.2):

- Businesses in East Otay Mesa shall comply with County standards and guidelines in order to minimize solid waste generated from the area.
- Recycle containers shall be located in the interior of a site or behind solid walls per the Design Guidelines contained in this Specific Plan.

Facility Financing (Section 2.4.3):

- Property owners have the primary responsibility of implementing the required infrastructure and public facility improvements. Implementation shall include developer exactions, formation of a Local Improvement District(s), impact fees and Special Districts.

Regulatory Provisions (Section 3.0):

- No land, building, structure or premises shall be used for any purpose or in any manner other than as permitted in the district in which such land, building, structure, or premise is located, except as provided by the Nonconforming Use provisions of the County's Zoning Ordinance.

Land Use Regulations (Section 3.1):

- All uses shall comply with applicable portions of the Performance Standards in Section 6300 et seq. of the County Zoning Ordinance.

- Parcels with a "G" Designator shall comply with the County Zoning Ordinance Sensitive Resources Area Regulations Sections 5300 – 5307. In addition, for those parcels, a Resource Conservation Plan must be prepared prior to approval of a Tentative map; or if no subdivision is needed, prior to any other discretionary approval, including the erection, construction, conversion, establishment, alteration, enlargement, or demolition of or improvement of any portion of any building, excavation or grading of soils, or clearing or grubbing of any natural vegetation.
- The following uses are specifically prohibited in certain portions of the East Otay Mesa Specific Plan (areas previously called SubArea 1):
  - Manufacturing or storage of explosives
  - Permanent storage of toxic waste
  - Cemeteries
  - Animal Auctioning
  - Stockyards
  - Animal rendering plants; and
  - Mining and processing.
- All development in East Otay Mesa shall require approval of a Site Plan unless a Major Use Permit or other discretionary permit has already addressed the criteria set forth in this Specific Plan or was approved prior to the adoption of this Specific Plan. The Site Plan requirement shall not apply to the development or improvement of new or existing County Parks.

Development Standards (Section 3.2):

- The Development Standards shall apply to all parcels and serve as criteria for the review of all development.
- Section 6250 of the County Zoning Ordinance shall regulate On-Premise Signage.
- If not otherwise specified herein, requirements of the County Off-Street Parking Manual, the County Water Conservation in Landscaping Design Manual, County Grading Ordinance and County Dark Sky Ordinance shall apply to both permanent and interim uses.

Site Planning (Section 3.2.1)

- All development projects in the Specific Plan Area shall comply with the Site Planning Standards, except County Parks as mentioned in Section 3.1.

Landscaping Standards (Section 3.2.2)

- Landscape plans for all development in East Otay Mesa shall be submitted and approved pursuant to Sections 86.701 through 86.729 of the San Diego County Code.
- Every lot improved with a building or other substantial structure, interim or permanent, shall install approved landscaping and irrigation before final inspection of the project, and shall be maintained thereafter as per the projects' approved Landscaping and Irrigation Maintenance schedule.
- Drought tolerant, non-invasive, and fire-wise landscaping is required throughout East Otay Mesa.
- Plant material as specified in the County's Water Conservation in Landscaping Ordinance and Design Manual shall be used. Other shrubs, trees, and ground covers not listed may also accomplish the desired goals of the Specific Plan, and if they do so, are encouraged also.
- The preparer of the Landscape Documentation Package shall certify that the landscape plans meet the requirements of the East Otay Mesa Specific Plan and the County's Water Conservation in Landscaping Ordinance and Design Manual.

Architectural Standards (Section 3.2.3)

- All development projects within the Specific Plan shall comply with the Architectural Standards.
- Independent pad sites or buildings shall have their own unique identity but relate to the large main structure.

Processing Requirements: Site Plan (Section 3.3.1)

- Development within the East Otay Mesa Specific Plan shall be subject to the issuance of a Site Plan in conformance with Section 7150 of the County Zoning Ordinance.
- All submittals shall contain sufficient information to describe the project and allow County staff to determine compliance with the East Otay Mesa Specific Plan.
- The Director of the Department of Planning and Land Use shall be responsible for administering the Site Plan Review Procedure and for reviewing and evaluating all Site Plans submitted pursuant to this Specific Plan.
- The Site Plan requirement shall not apply to the development or improvement of new and existing County Parks.
- Site Plan reviews shall require avoidance and mitigation measures for reducing Greenhouse Gas (GHG) emissions identified in the previously approved or certified environmental document applicable to the property for which the Site Plan is proposed.
- Site Plan reviews will be processed concurrently with a Minor Use Permit, as required, for development within the Landfill Buffer Overlay.

Establishing Activity Nodes (Section 3.3.3)

- A Site Plan application and an accompanying concept plan shall be submitted to ensure overall plan implementation.
- The maximum acreage of an Activity Node shall be 10 acres unless a higher amount is approved.
- A larger area for the Activity Node may be approved if it is demonstrated that traffic impacts for the acreage that exceeds 10 acres are fully mitigated .
- Both near-term and build out impacts must be assessed and approved by the County decision-making authority.

Establishing Commercial Overlay (Section 3.3.4)

- The environmental studies prepared for the adoption of the East Otay Mesa Specific Plan have analyzed traffic impacts associated with this retail commercial use to a maximum of 56 acres in size. The geographic extent of the commercial overlay is consistent with land use policies in the Specific Plan. Its location and size is based on proximity to the SR-125 interchange as well as the size and configuration of existing parcels in that area.
- A Site Plan shall be required to implement this designation.
- If a Tentative Parcel Map or Tentative Map is processed for property within the commercial overlay, the project description must identify whether a commercial or industrial (i.e. technology park) subdivision is proposed.
- Unless a discretionary permit is issued to implement a Commercial Center on this site, the underlying Technology Business Park land use designation and associated standards shall apply.

Chapter 2

PLAN ELEMENTS

Chapter 2: Plan Elements

2.1 LAND USE ELEMENT

Goal:

Promote a well-organized international district in East Otay Mesa to attract and accommodate regional forecasted demand for industrial and business development.

2.1.1 Vision

With large, level, relatively inexpensive land located near a large, affordable labor pool and moderately priced housing, East Otay Mesa is highly suitable for large-scale industrial and business development.

The technology sector in the San Diego region has expanded, creating additional demand for industrial space. East Otay Mesa is the largest planned industrial district in the unincorporated portion of the County and is poised to serve the demand for technology business park space. With large, level, relatively inexpensive land located near a large, affordable labor pool and moderately priced housing, East Otay Mesa is highly suitable for large-scale industrial and business development. Moreover, its prominent location along the Mexican border makes it a prime location for industrial use, specifically technology manufacturing as well as warehouse and distribution uses associated with manufacturing activities in Mexico as part of the Maquiladora Program.

The intent of the East Otay Mesa Specific Plan is to promote development of the area into a comprehensive industrial and business district with centrally located cores of more intense employee uses and commercial services. This is accomplished through land use classifications that create defined districts devoted to technology-oriented industrial, manufacturing, and business serving uses. The circulation system supports these uses. Traffic is dispersed as it moves toward the core areas through a hierarchy of streets. These streets direct truck traffic from the State Routes to Prime Arterials, Major, and Industrial/Commercial Collector Roads. At full development, these areas served by local roads are encouraged to develop with Activity Nodes. Activity Nodes allow for greater intensity and provide opportunity for social gathering and pedestrian

activity. These planning and circulation features combine to create a unique image to set East Otay Mesa apart from other industrial areas of San Diego County.

2.1.2 Land Use Goals and Policies[1]

GOALS:

Goal 1: Promote a well-organized international industrial and business district in East Otay Mesa to attract and accommodate forecasted growth.

Goal 2: Promote the conservation of open space to preserve environmental resources and provide recreational opportunities for the industrial workforce and surrounding community residents.

POLICIES:

Industrial Land Use:

Policy LU-I: Accommodate the forecasted mixed industrial uses in East Otay Mesa.

Implementation: The land use map and regulatory section of the Specific Plan accommodates forecasted industrial development in East Otay Mesa.

Commercial Land Use:

Policy LU-2: Provide land uses that allow for a range of commercial uses in optimum locations to serve the retail needs of the future industrial and highway users in East Otay Mesa.

Implementation: The land use map and regulatory sections of the Specific Plan establish specific locations and development standards for commercial land uses.

Policy LU-3: The Commercial Center (commercial overlay) shall allow for transit-oriented land uses, encouraging pedestrian circulation.

[1] The goals and policies listed in Chapter 2 were developed for the original (1994) East Otay Mesa Specific Plan. Minor updates were made, as needed, when preparing the 2010 Amendment to reflect new information.

Implementation: Compliance with this policy will be determined during the Site Plan review process.

Policy LU-4: Avoid strip commercial development in the industrial area**.**

Implementation: In industrial areas, this policy could be implemented by clustering commercial development at intersections or by locating commercial development at the interior of industrial lots. In addition, commercial development in industrial areas should feature a pedestrian friendly layout and safe vehicular access.

Policy LU-5: Should industrial development be located in an area planned for commercial use, commercial use cannot be re-established within that area without bringing the development into conformance with commercial use regulations in the Specific Plan.

Implementation: During the Site Plan review process, plans for commercial development will be reviewed for compliance with applicable development standards to insure that the development incorporates provisions for parking, architectural design, and site planning that are necessary to accommodate commercial use.

Policy LU-6: Coordinate vehicular and pedestrian circulation between adjacent commercial properties.

Implementation: During the Tentative Map and the Site Plan review process, plans will be reviewed to ensure compliance with provisions that require coordinated circulation between adjacent commercial properties.

Residential Land Use

Policy LU-7: Designate very low density Rural Residential development as the appropriate land use in sensitive hillside areas in the East Otay Mesa Specific Plan Area.

Implementation: The land use map of the Specific Plan designates the hillside areas for Rural Residential use at a density of one dwelling unit per 20 gross acres. Rural Residential areas with steep slopes and sensitive biological resources are given a "G" Designator and are subject to the Sensitive Resource Area Regulations of the Zoning Ordinance. To protect sensitive environmental resources in Rural Residential areas, the Specific Plan requires that development be preceded by detailed environmental review prior to approval of discretionary permits.

Interim Use

Policy LU-9: Provide for interim land uses that are compatible with the planned industrial and commercial land uses.

Implementation: The land use regulations of the Specific Plan allow interim uses by Major Use Permit. Such uses shall be limited to a maximum initial period of 5 years unless a finding is made that the proposed use has an overriding significant economic benefit to the region. Time extensions for additional 5-year periods may be permitted.

Conservation / Open Space

Policy LU-10: Protect and conserve steep slopes and biologically sensitive areas in the Specific Plan Area (previous policy COS-1).

Implementation: This policy will be implemented primarily through the application of the Rural Residential and Conservation / Limited Use land use designations, the MSCP program (see Figure 1.2-1), and the application of the "G" Designator to Sensitive Resource Areas (see Figure 3.2-1). The areas to be protected include the following: (a) the eastern hillside area which has steep slopes and biologically sensitive resources, (b) Johnson and O'Neal Canyons, which have steep slopes; and (3) and the area west of Johnson Canyon, which contains both coastal sage scrub and vernal pool habitat.

Policy LU-11: Avoid any agricultural or pre-development clearing and grading on steep slope areas (previous policy COS-2).

Implementation: This policy would be implemented during discretionary project review. Projects with a "G" Designator will be reviewed for compliance with the Sensitive Resource Area Regulations and projects with a "B" Designator will be reviewed for compliance with Specific Plan regulations during Site Plan review.

Policy LU-12: Protect and conserve significant cultural resource sites (archaeological and historical sites) in the Specific Plan Area (previous policy COS-5).

Implementation: This policy would be implemented during discretionary project review when preparing CEQA documents. Archaeological and historical surveys were conducted over the majority of the East Otay Mesa Specific Plan (see Appendix 4).

2.1.3 Land Use Plan

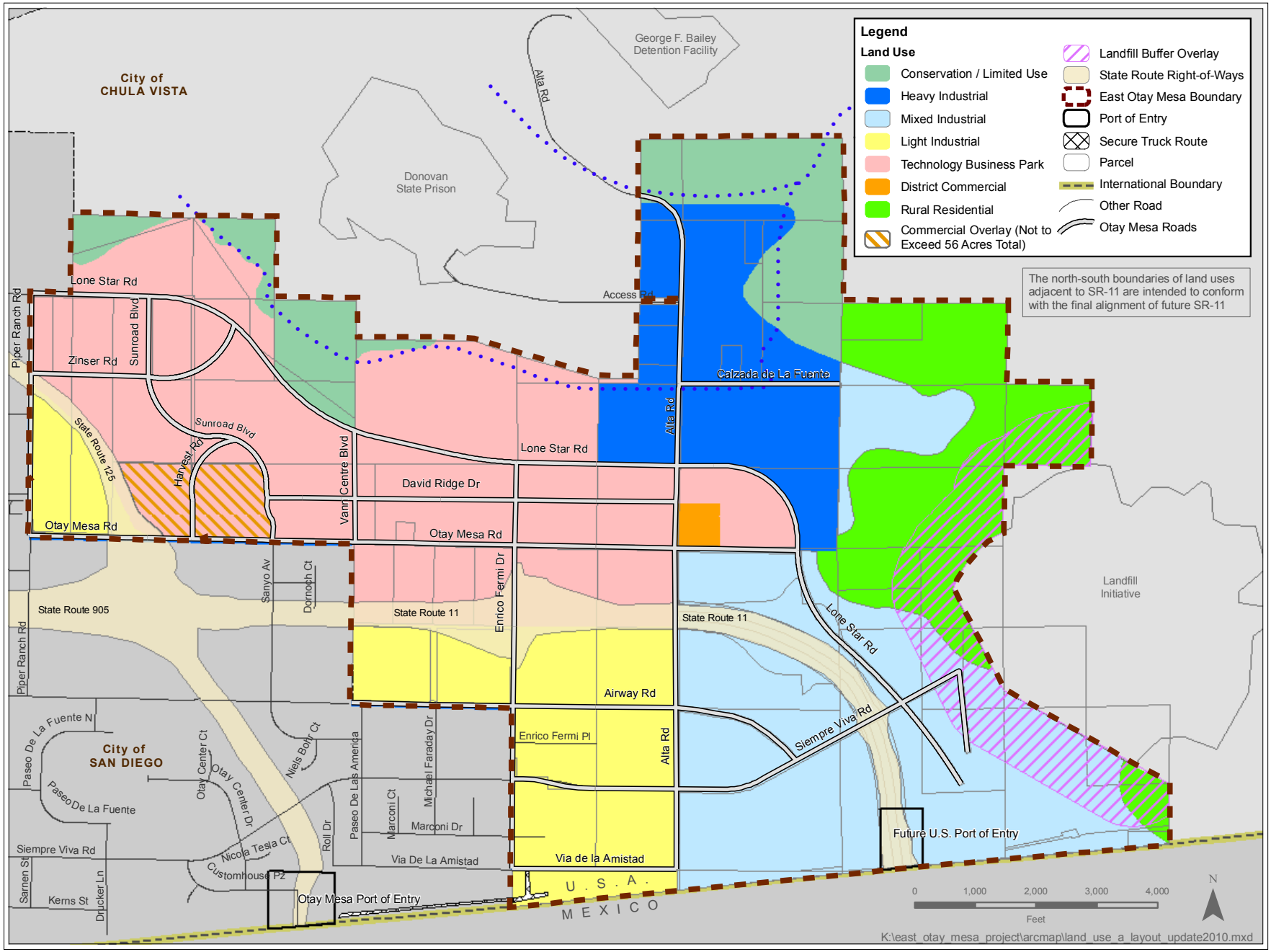
The distribution, location, and extent of land use in the East Otay Mesa Specific Plan is shown on the Land Use Plan, Figure 2.1-1 and Table 2-1 below. Approximately 304 acres of land were removed from the Specific Plan in 2010 as a result of a change made to the Specific Plan boundary following passage of a voter initiative.

Table 2.1-1: Planned Land Use Tabulation

Land Use Designation	**Approximate Acres (Net)**	
	Land Use (Acres)	**Subtotals**
Activity Node Overlay	*28 (Maximum)*	*84 Acres of Overlay*
Commercial Center Overlay	*56 (Maximum)*	
District Commercial	11.0	**2,110.1 Acres** High-Intensity Commercial and Industrial Use
Heavy Industrial	292.0	
Mixed Industrial	629.9	
Light Industrial	363.0	
Technology Business Park	814.0	
Rural Residential	311.3	**552.3 Acres** Low Intensity Use
Conservation/Limited Use	241.0	
Circulation Corridors (1)	350.4	
TOTAL	**3,012.7 Acres**	

(1) Circulation corridors include State freeways, Circulation Element roads, and Specific Plan roads. Standard rights-of-way were used to obtain land use calculations, with the exception of Caltrans freeways where average road widths were developed using data provided by Caltrans.

Figure 2.1-1 Land Use Plan



2.1.4. Land Use Designations

Multiple land use designations achieve the envisioned mixture of industrial, business, commercial, and conservation areas.

The land use designations for East Otay Mesa are: Technology Business Park, District Commercial, Light Industrial, Heavy Industrial, Mixed Industrial, Rural Residential, and Conservation/Limited Use. A Commercial Center Overlay and Activity Nodes are located within the Technology Business Park. Activity Nodes may also be located within the Light Industrial District. A Landfill Buffer was established for those portions of Mixed Industrial and Rural Residential that are located within 1,000 feet of a landfill site, which is located outside the southeastern corner of the Specific Plan. These planned land uses will be implemented through various discretionary permits.

Multiple land use designations achieve the envisioned mixture of industrial, business and commercial land uses, as well as conservation areas. Table 2.1-1, Planned Land Use Tabulation, summarizes the amount of planned development by land use designation. The general intents of the Technology Business Park, Activity Node, Commercial Center, Light Industrial, Heavy Industrial, and Conservation/Limited Use Area designations are described below. Specific permitted uses and development requirements within each of these designations are detailed in Section 3.0.

Locations of East Otay Mesa Activity Nodes are based on a hierarchy of streets, topography, views and walking distances. The outer boundary of Activity Nodes shall be spaced a minimum of 300 feet from Prime Arterial or Major Roads. In addition, each Activity Node shall be a minimum of 1,250 feet apart. The proposed corridor alignment for State Route 11 is subject to change upon the completion of CalTrans' Environmental Studies. The north-south boundaries of adjacent land uses are intended to conform with the final alignment of future SR-11.

Technology Business Park

The presence of applied scientific institutes and diverse research and development industries in the San Diego region creates a demand for future research, development, testing and manufacturing sites. East Otay Mesa is considered an ideal location for these facilities and offers the following amenities:

- Large, fairly level, developable land that is relatively inexpensive;

- Good access provided by three planned freeway links, an existing border crossing, and a planned additional border crossing;
- Ample employee pool from adjacent communities and Mexico;
- Special visual and environmental amenities associated with the San Ysidro Mountains and Otay River Valley; and
- Proximity to regional and international airports and to the Mexican border.

The intent of the East Otay Mesa land use plan is to provide the quality environment that technology businesses are often accustomed to and create a pleasant working environment for employees, focusing development in parks, or campus-like settings.

The Technology Business Park designation is applied in the northern and western portions of the Specific Plan Area, closest to planned regional highways, proposed light rail and urbanized lands (Figure 2.1-1). Land subject to the Technology Business Park designation is intended for development of manufacturing operations and business offices that research, develop and produce advanced technologies, such as defense and space technologies, communication, computer and internet, audio/visual, pharmaceutical and medical products. The intent of the East Otay Mesa land use plan is to provide the quality environment that technology businesses are often accustomed to and create a pleasant working environment for employees, focusing development in parks, or campus-like settings. This campus-like setting complements the aim of the Activity Node, which strongly encourages pedestrian activity.

Activity Nodes

At full development, the Activity Nodes will act as pedestrian friendly business cores and social gathering areas for the East Otay Mesa employee population. Foreseeable uses in East Otay Mesa Activity Nodes include office and computer supply, building supply, hotels or motels, restaurants, and health club businesses.

The siting and design of Activity Nodes is discussed in Sections 2.3.2 Urban Design Element, and 3.3.2 Processing Requirements. The Activity Nodes allow for increased floor area ratios and shall be located at the time a property owner proposes to enact the benefits of this land use~~s~~ designation. The property could develop without establishing an Activity Node. At the time a property owner wanted to benefit from an Activity Node's commercial land uses and increased intensity, the proposed land uses and/or lot design would be reviewed by the County staff for conformance with this Specific Plan, including the parameters for Activity Node location.

Commercial Center

Commercial Center is an overlay designation and provides opportunity for major retail development in the East Otay Mesa Specific Plan.

The Commercial Center is an overlay designation and provides an opportunity for a major retail development of up to fifty-six acres in the East Otay Mesa Specific Plan. The site is identified on the land use plan (Figure 2.1-1), in the northwestern portion of the plan area. Uses anticipated in this designation include a combination of local-serving and regional-serving retailers that could create a destination commercial development. Unless a discretionary permit is issued to implement a Commercial Center on this site, the underlying Technology Business Park land use designation and associated standards shall apply.

The San Diego Association of Governments (SANDAG) is currently refining the transit network for the South Bay. This study will address the transit needs and potential locations within Otay Mesa. Since the Commercial Center will be a traffic generator for East Otay Mesa, transit needs will need to be addressed as part of any discretionary application. This may necessitate the need for on-site transit facilities, including a station and pedestrian and bicycle connections.

Major site access points, curb cut locations, and parking lot layouts shall be coordinated with adjacent properties through the Site Plan review process to facilitate vehicular and pedestrian circulation throughout commercial shopping areas. Parking lot layouts shall be closely coordinated with adjoining commercially zoned properties to provide shared driveways and access, where feasible. Pedestrians should be able to access adjacent commercial properties without exiting onto a public street to re-enter an adjoining commercial property.

District Commercial

The District Commercial designation is intended to accommodate an appropriate range of retail goods and services intended to serve a 1 to 2 mile trade area. Application of this designation is limited to a 10-acre parcel on the northeast corner of Alta Road and Otay Mesa Road, where commercial use can support industrial development in the eastern portion of the Specific Plan.

Light Industrial

The Light Industrial designation is applied to lands on the western edge of the Technology Business Park area in addition to lands in the southern portion of the Specific Plan Area (Figure 2.1-1). Land designated as Light Industrial is intended to accommodate all uses permitted in the Technology Business Park plus wholesale storage and distribution, manufacturing, general industrial and several commercial uses.

Heavy Industrial

The Heavy Industrial designation is applied to areas north of Otay Mesa Road adjacent to Alta Road (Figure 2.1-1). These areas provide for most uses allowed in the Technology Business Park and Light Industrial land use designations plus recycling plants, salvage yards, and outdoor storage.

Mixed Industrial

The Mixed Industrial designation is applied to areas formerly known as Subarea 2. These areas provide are intended primarily for wholesale storage and distribution, research services, and general industrial uses. General industrial land use is defined as industrial plants primarily engaged in manufacturing, compounding, processing, assembling, packaging, treatment or fabrication of materials and products. Many other compatible commercial types of uses such as construction sales and services, automotive and equipment uses, and custom manufacturing are also permitted.

Support commercial uses are permitted within Mixed Industrial areas, and are planned to serve the daily convenience needs of the industrial work force in East Otay Mesa. They may be incorporated within industrial structures or located in a separate structure on the industrially zoned land. Support commercial development is limited to a maximum percentage of the gross acreage for industrial parcels, and it should be clustered at intersections or located within the interior of industrial developments.

Rural (Hillside) Residential

The hillside area at the eastern edge of East Otay Mesa is planned for very low-density rural residential land use. This area has steep slopes and contains significant biological resources. Because of the area's rugged terrain and its sensitive biology, this area is not suitable for agriculture, commercial or industrial use.

Conservation/Limited Use Area

Lands in the northwestern and northeastern reaches of the Specific Plan SubArea 1 area are designated Conservation/Limited Use Area (Figure 2.1-1). The rugged terrain and sensitive biological resources render these areas undesirable for commercial or industrial uses. The Conservation/Limited Use Area will allow uses such as outdoor participant sports, campgrounds and resorts with a Major Use Permit.

Interim Uses

Interim Uses are allowed with a Major Use Permit and shall be developed in compliance with this Specific Plan Development Standards (Section 3.2). Interim Uses shall be allowed for a maximum initial time limit of five years and only if there has been no application for a permanent use on an adjoining parcel that would be negatively impacted by the proposed Interim Use. Time extensions for additional 5-year periods may be permitted, but permit extensions must be approved no later than two years following the end of the interim use period. Under extreme economic circumstances, the County may establish policies that temporarily modify development standards for interim uses provided a sunset date is established and findings are made that the interim use does not impact permanent development within East Otay Mesa.

Permitted Interim Uses are shown in Table 3.1-1 in this Specific Plan, with the exception of uses permitted within the Landfill Buffer as shown in Appendix 6.

Landfill Buffer Overlay

A 1,000 foot wide buffer overlay was identified around a landfill site established by a voter initiative in June 2010. The purpose of the buffer is to establish development regulations that minimize land use conflicts between the landfill and nearby development.

2.2 Circulation Element

Goal:

Provide a multi-modal transportation system consisting of highways, streets, and transit networks adequate to serve subregional transportation needs at an acceptable level of service.

2.2.1 Introduction

The Circulation Element sets the planning framework and provides a safe, convenient and efficient circulation system.

The Circulation Element of the Specific Plan and the General Plan set the planning framework to provide a safe, convenient and efficient circulation system. The East Otay Mesa Specific Plan identifies transportation facilities capable of supporting the anticipated growth in this area, consistent with policies presented in the Land Use Element of the Specific Plan and the County's General Plan.

2.2.2 Goals and Policies

GOAL:
Provide a multi-modal transportation system consisting of highways, streets, and transit networks adequate to serve sub-regional transportation needs at an acceptable level of service.

POLICIES:

Regional Road Policies

Policy C-1: Promote the development of regional road facilities as necessary to accommodate future development in the East Otay Mesa Specific Plan Area.

Implementation: Property owners shall be required to reserve right-of-way for the SR-905, SR-125 and SR-11 freeways and the planned International Border Crossing. Property owners will also be required to reserve additional road right-of-way on Enrico

Fermi Drive and Siempre Viva Road for future ramps and auxiliary lanes to access the SR-11 freeway extension.

Policy C-2: Promote the development of inter-state freeway facilities to the existing Otay Mesa Border Crossing and planned international border crossings in the East Otay Mesa Specific Plan Area.

Implementation: The County will coordinate with Caltrans to promote the development of SR-905 and SR-11 from the existing and planned international border crossings to I-805.

Local Road Policies

Policy C-3: Promote the development of local road network to adequately serve the planned land uses in the East Otay Mesa Specific Plan Area.

Implementation: The local road system, which includes Circulation Element and Specific Plan roads indicated in the Circulation Plan, will be built by the adjacent property owners according to County policies. Through the discretionary permit process, property owners will be required to dedicate and improve roads.

Policy C-4: Ensure that new development provides adequate access to existing land owned and operated by the federal Border Patrol along the USA/Mexico border.

Implementation: The Border Patrol currently owns and operates an approximately 150 foot wide corridor that functions as a view and emergency access area, consistent with Board Policy I-111. Property owners with projects adjacent to the international border shall consult with the Border Patrol during the discretionary review process to determine whether land must be acquired by the Border Patrol to access this corridor from north/south oriented Circulation Element or Specific Plan roads.

City of San Diego Road Coordination

Policy C- 5: Promote circulation coordination between the County of San Diego and the City of San Diego to develop a safe and efficient roadway system for Otay Mesa.

Alternative Modes of Transportation Policies

Policy C- 6: Promote the development and use of a regional transit system to serve the East Mesa.

Implementation: The County will coordinate with SANDAG/MTS to implement regional bus and future LRT service to the East Otay Mesa area.

Policy C-7: Property owners shall dedicate right-of-way for transit facilities as shown in the SANDAG Regional Transportation Plan (RTP)/MTS South Bay Public Transportation Plan.

Implementation: Property owners would dedicate right-of-way for transit facilities during the discretionary review process.

Policy C-8: Promote connections between transit stops and employment destinations in East Otay Mesa.

Implementation: Adequate shoulder space should be retained within the public right-of way to allow a loop bus system to be developed in the future. When development levels are adequate to support a shuttle bus service, the County DPLU and DPW will coordinate with SANDAG, appropriate transit agencies (MTS), and property owners to plan a local bus shuttle service to serve the East Otay Mesa Area. This will include provision of bus stop shelters along the proposed bus route for the convenience of bus patrons. This facility would be implemented in conjunction with a Transportation System Demand Program.

Policy C-9: Promote development of freight rail service to East Otay Mesa.

Implementation: The County and Caltrans will coordinate with rail line operators and other agencies as appropriate to promote freight rail service to East Otay Mesa.

Policy C-10: Provide for development of a bicycle system that will provide a safe and convenient means of transportation for bicyclists.

Implementation: Implement the bicycle network as defined by Table 2.2-1 of the Circulation Element. The objective of these bicycle routes would be connecting transit facilities with appropriate employment areas as individual projects are reviewed. To encourage bicycle use, bicycle parking should be provided at all commercial and industrial facilities.

Policy C-11: Promote pedestrian circulation in East Otay Mesa.

Implementation: Require all road rights-of-way in East Otay Mesa to include a sidewalk in accordance with Specific Plan standards. As part of the discretionary permit review process, the County will require pedestrian connections between commercial and industrial facilities and the pedestrian network located on public roads. Large developments should include on-site pedestrian access networks.

Regional Transportation Management

Policy C-12: Promote a variety of techniques to maximize the efficiency of the existing and planned transportation network.

Implementation: The County will work with other agencies in the region to comply with the San Diego County Regional Growth Management Strategy (RGMS), Congestion Management Pro-gram (CMP), and Air Quality Plan Transportation Control Measures. Businesses within East Otay Mesa will need to comply with any Regional Transportation Demand Management (TDM) Pro-gram as it is promulgated.

Phasing and Monitoring Policies

Policy C-13: Work with the City of San Diego and Caltrans to expedite the construction of the SR-905 freeway and to plan the SR-11 freeway to support development within the Specific Plan.

Implementation: The County will maintain contact with the City of San Diego and Caltrans to keep abreast of planning and funding developments pertaining to regional roadways. The County will assist property owners by working with SANDAG, Caltrans, and the federal government to ensure that SR-11 and the second Otay Mesa Port of Entry will be planned, designed and constructed in a manner consistent with this Specific Plan. Important features include road alignment, two interchanges (Enrico Fermi Road, Siempre Viva Road), and elevated road segments to ensure connectivity within the local road network without the use of bridges.

Policy C-14: Monitor traffic growth in East Otay Mesa and its effects on the transportation system.

Implementation: Traffic will be monitored as part of the discretionary review process, and the Specific Plan will be updated, as appropriate, in response to major changes in regional roadway or transit systems. When appropriate, staff will prepare a summary

report on traffic conditions for submittal to the Directors of DPLU and DPW identifying traffic-related issues and recommending appropriate actions.

Other Circulation Issues

Policy C-15: Assure that necessary, feasible road improvements are provided to mitigate project impacts.

Implementation: Conditions prepared for discretionary projects will comply with the Specific Plan, Board Policies and CEQA. Applicants for discretionary permits shall also be required to comply with the requirements of the County's Transportation Impact Fee (TIF) Ordinance to pay their fair share of cumulative transportation impacts.

Policy C-16: Support a future international border crossing in East Otay Mesa.

Implementation: The Specific Plan should be compatible and consistent with the proposed location of an international border crossing in the southeastern portion of the Specific Plan as well as expansion plans for the existing border crossing in the City of San Diego.

Policy C-17: Facilitate the implementation of the Otay River Valley Regional Park and trails (previous policies COS-3 and COS-4).

Implementation: The County will coordinate with the Otay Valley Regional Park Policy Committee to ensure that the Otay Valley Regional Park Plan shows trail links in Johnson and O'Neal Canyons in accordance with the East Otay Mesa Specific Plan (see Figure 2.2-1 Circulation Plan). Commercial or industrial development will be reviewed for compliance with trail requirements in the Specific Plan during the discretionary review process. Property owners will be required to dedicate an easement for trail right-of-way in Johnson and O'Neal Canyons for future trail connections within the regional trail system. The precise alignment of the trail corridor should be located within one-quarter mile of its depiction in Figure 2.2-1, or as required by the County Trails Program.

2.2.3 Circulation Plan

Figure 2.2-1, Circulation Plan, shows the roadway network and road classifications for the East Otay Mesa Specific Plan. Roadway classifications by roadway segments are shown in Table 2.2-1, East Otay Mesa Roadway Network. Please note that Figure 2.2-1 depicts a conceptual alignment for Circulation Element and Specific Plan roads. Precise alignments shall be determined during the discretionary review process or through special studies conducted by the County of San Diego.

In preparation of this element, coordination occurred with the City of Chula Vista, the City of San Diego, the California Department of Transportation (CalTrans), the San Diego Association of Governments (SANDAG), and the City of Tijuana, Mexico.

2.2.4 Regional Access

Future regional thoroughfares play an important role in the development of East Otay Mesa. Planned State Routes (SR-125 and SR-11), along with the extension of SR-905 to the Otay Mesa Border crossing, are critical to accommodating the future development of the entire Otay Mesa area. In addition to freeways, planned local roads within East Otay Mesa will play an important role in the area's future. Planned improvements to regional highway system in the area include:

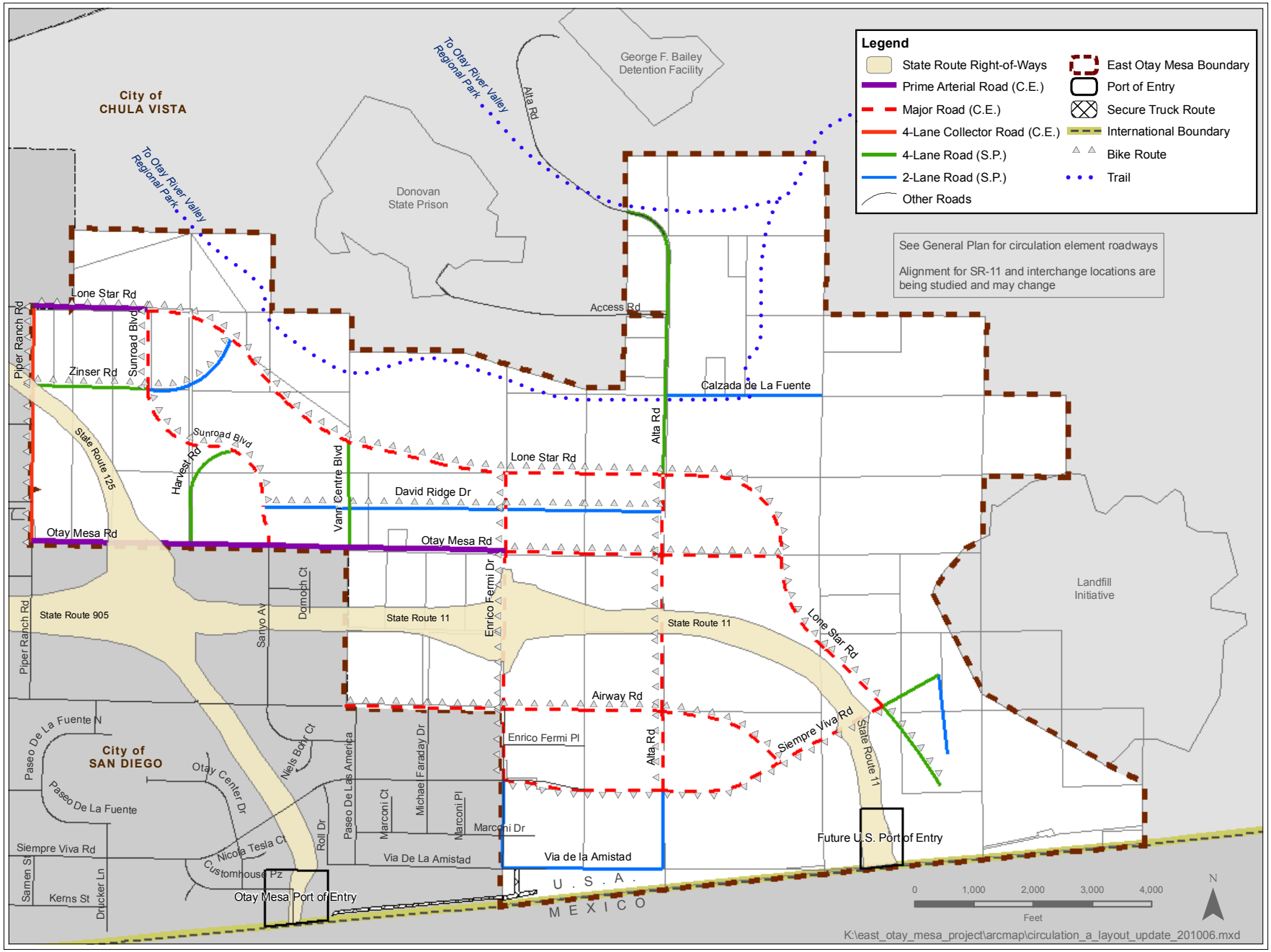
- **State Route 905 (SR-905):** The ultimate plan for the extension of SR-905 is to provide six single occupancy vehicle (SOV) lanes and two high occupancy vehicle (HOV) lanes between Interstate 805 (I-805) and SR-125/Harvest Road. The planned extension would travel east to SR-125 and then curve south to the border. Within Otay Mesa, interchanges are planned at Caliente Boulevard, Heritage Road, Britannia Boulevard, Le Media Road, and SR-125. The southern terminus of SR-905 would be the Otay Mesa Border crossing. As part of this project the SR-905/Siempre Viva Road grade separated interchange was completed and opened to traffic in 2005. Currently, Caltrans is constructing Phases 1A and 1B of the SR-905 facility. As currently scheduled the construction of Phase 1A will be completed by late 2010 and Phase 1B will be completed by the summer of 2012. Other phases (2 through 4) of the SR-905 facility will be programmed as funding becomes available.

Table 2.2-1
East Otay Mesa Roadway Network

ROAD NAME	FROM	TO	CLASSIFICATION	Road Type	Bicycle Network ?
Airway Road	City of San Diego	Siempre Viva Road	4L-Major	Circulation Element (CE)	Yes
Alta Road	Specific Plan Boundary	Lone Star Road	4L-I/C Collector	Specific Plan (SP)	No
	Lone Star Road	Otay Mesa Road	4L-Major	Circulation Element (CE)	Yes
	Otay Mesa Road	Siempre Viva Road	4L-Major	Circulation Element (CE)	Yes
	Siempre Viva Road	Via de la Amistad	2L-I/C Collector	Specific Plan (SP)	No
David Ridge Drive	Sunroad Boulevard	Alta Road	2L-I/C Collector	Specific Plan (SP)	Yes
Calzada de la Fuente	Alta Road	East end of E.C. Way	2L-I/C Collector	Specific Plan (SP)	No
Enrico Fermi Drive	Lone Star Road	Otay Mesa Road	4L-Major	Circulation Element (CE)	Yes
	Otay Mesa Road	Airway Road	4L-Enhanced Major[2]	Circulation Element (CE)	Yes
	Airway Road	Siempre Viva Road	4L-Major	Circulation Element (CE)	Yes
	Siempre Viva Road	Via de la Amistad	2L-I/C Collector	Specific Plan (SP)	No
Harvest Road	Sunroad Boulevard	Otay Mesa Road	4L-I/C Collector	Specific Plan (SP)	No
Lone Star Road	City of San Diego	Sunroad Boulevard	6L-Prime Arterial	Circulation Element (CE)	Yes
	Sunroad Boulevard	Siempre Viva Road	4L-Major	Circulation Element (CE)	Yes
	Siempre Viva Road	End Of Road	4L I/C Collector	Specific Plan (SP)	Yes
Otay Mesa Road[1]	City of San Diego	Enrico Fermi Drive	6L-Prime Arterial	Circulation Element (CE)	No
	Enrico Fermi Drive	Alta Road	4L-Major	Circulation Element (CE)	Yes
	Alta Road	Lone Star Road	4L-Major	Circulation Element (CE)	Yes
Piper Ranch Road	Lone Star Road	Otay Mesa Road	4L-Collector	Circulation Element (CE)	Yes
Siempre Viva Road	City of San Diego	Lone Star Road	4L-Major	Circulation Element (CE)	Yes
	Lone Star Road	End of Road	4L I/C Collector	Specific Plan (SP)	Yes
Sunroad Boulevard	Lone Star Road	David Ridge Drive	4L-Major	Circulation Element (CE)	Yes
	David Ridge Drive	Otay Mesa Road	4L-Major	Circulation Element (CE)	No
Vann Centre Blvd.	Otay Mesa Road	Lone Star Road	4L-I/C Collector	Specific Plan (SP)	No
Via de la Amistad	City of San Diego	Alta Road	2L-I/C Collector	Specific Plan (SP)	No
Zinser Road	Piper Ranch Road	Sunroad Blvd.	4L- I/C Collector	Specific Plan (SP)	Yes
	Sunroad Blvd.	Lone Star Road	2L-I/C Collector	Specific Plan (SP)	Yes
State Route 11	City of San Diego	Port of Entry	Freeway	Circulation Element (CE)	No
State Route 125	City of San Diego	City of San Diego	Freeway	Circulation Element (CE)	No

[1] If existing utility poles on Otay Mesa Road from the City of San Diego to Enrico Fermi Drive are placed under ground, a Bicycle Network Route will be required.
[2] Enhanced Major Road (CE) requires additional Right-Of-Way to accommodate turn movements and freeway access from Otay Mesa Road to SR-11.

Figure 2.2-1 Circulation Plan



Major Roads and Local Industrial Commercial Collector Roads provide through access into the center of development areas and the Activity Nodes.

- **State Route 125 (SR-125):** SR-125 is constructed as a 4-lane freeway/toll facility from Otay Mesa Road to San Miguel Road. Future planned improvements include a connecting interchange between SR-905 and future SR-11 as well as an interchange at Lonestar Road. The Lonestar Road interchange is located in the City of San Diego, and it is part of the City's community plan for the Otay Mesa area. The future planned SR-125 improvements are currently unfunded and therefore have no projected opening date or completion target. The EIR prepared for SB 125 evaluated the Lone Star Road interchange. The developer (SBX) agreement for SR-125 requires construction of the Lone Star interchange when warranted by traffic conditions.

- **Future Border Crossing and State Route 11 (SR-11):** State Route 11 is planned as a new freeway/toll facility to extend easterly of SR-905 to connect with the future third border crossing east of Alta Road. The extension would revise the SR-905/125 interchange and provide two new interchanges at Enrico Fermi Drive and Siempre Viva Road. The State Route 11 project is currently in the environmental phase. The Environmental Document (ED) for SR 11 is expected to be a two-phase document. Phase 1 document will be programmatic-level document for SR 11 and the new Otay Mesa East Port. Phase 2 is expected to be a project-level document for SR 11 only. Construction is expected to begin in 2012, with completion in 2014. Actual funding for the remaining project has not yet been identified.

2.2.5 Local Access Road Network

To plan for future travel demand to and from as well as within East Otay Mesa, traffic forecasts were generated for build-out of the Specific Plan. The traffic forecasts incorporate the type and density of future land uses, the location and potential interaction of various land use types, as well as specific characteristics and the capacity of each of the area's future roads. The East Otay Mesa Specific Plan's roadways are forecasted to operate at an acceptable Level of Service (LOS) at buildout (EIR Addendum No. 6).

The East Otay Mesa Specific Plan is based on a hierarchy of circulation roads as designated on the County's General Plan Circulation Element, and non-Circulation

Element Local Industrial/Commercial Collectors designated on the Specific Plan as indicated in Table 2.2-1. Prime Arterial, Major and Industrial/Commercial Collector Roads provide the regional connections through the Specific Plan and beyond. Major Roads and Industrial/Commercial Collector Roads provide through access into the center of the development areas and the Activity Nodes. Figure 2.2-1, Circulation Plan, shows the road classifications and Appendix 4 shows cross-sections from the General Plan Circulation Element for portions of Otay Mesa Road, Enrico Fermi Drive and Alta Road. These classifications have been designated to serve Specific Plan build-out traffic needs. These classifications (Circulation Element and/or Specific Plan Roads) have been designated to accommodate build-out traffic volumes assessed through the preparation of traffic forecasts for the land use development pattern and circulation network identified in this plan. Implementation of this circulation network shall be through the incremental approval and eventual development of individual public and/or private projects.

It is the intent of this Specific Plan that all private discretionary projects shall be required to:

- Dedicate and improve all adjacent rights-of-way necessary to provide access to the project and to complete the Specific Plan circulation system,

- Dedicate and agree to construct, through means acceptable to the Director of Public Works, all adjacent rights-of-way necessary to further implement the Specific Plan circulation system, including where the rights-of-way do not provide direct access to the site. The purpose of this requirement is to implement the circulation system of the Specific Plan, and

- Acquire and construct (or agree to construct if acceptable to the Director of Public Works) all off-site circulation element roads necessary to provide access to the site and to ensure off-site road access will meet County standards.

The Board of Supervisors adopted a Transportation Impact Fee (TIF) program in April 2005 to facilitate mitigation of cumulative traffic impacts. The TIF program was updated in January 2008.

Principal County arterials in the circulation network are described below:

- **Otay Mesa Road:** Otay Mesa Road is shown in the City of San Diego's most recent Circulation Element for the Otay Mesa Community as a four-lane Major between the terminus of SR-905 and SR-125/Harvest Road. The County General Plan includes the road as a six-lane Prime Arterial between Piper Ranch Road and Enrico Fermi Drive. The road continues east to Lone Star Road as a four-lane Major. A cross-section of a portion of Otay Mesa Road from the General Plan Circulation Element is included in Appendix 4.

- **Lone Star Road:** In the City of San Diego Lone Star Road is classified as a four-lane Major. In the County it becomes a six-lane Prime Arterial to Sunroad Boulevard. East of Sunroad Boulevard it transitions into a four-lane Major. This roadway will carry traffic from SR-125 east into the northern portions of the Specific Plan. As Lone Star Road travels east past Alta Road, it heads south to Siempre Viva Road in SubArea 2 of the Specific Plan.

- **Airway Road, Siempre Viva Road and Via de la Amistad:** The City of San Diego's Circulation Element shows Airway Road as four-lane Major Road, Siempre Viva Road as a six-lane Prime Arterial Road and Via de la Amistad as a four-lane Collector Road. These roads continue east from Enrico Fermi Drive, a north/south Major located on the border between the City of San Diego and the County to Alta Road as four-lane Major Roads to serve SubArea 1. Airway Road and Siempre Viva Road are planned to extend east into SubArea 2 terminating at Roque Road. Via de la Amistad will continue east from Enrico Fermi Drive to Alta Road as a two-lane Industrial/Commercial Collector Road.

- **Piper Ranch and Harvest Roads:** Piper Ranch Road and Harvest Road are both north-south four-lane Collector Roads in the County of San Diego that provide access into the Specific Plan Area. Within the County of San Diego's Specific Plan Area, Piper Ranch Road is planned as a four-lane Collector Road. Harvest Road will terminate at Sunroad Boulevard as a four-lane Industrial/Commercial Collector Road.

- **Enrico Fermi Drive:** In the City of San Diego, Enrico Fermi Drive is classified as a four-lane Major Road. In the County of San Diego's East Otay Mesa Specific Plan Area, it is also planned as a north-south four-lane Major Road between

Lone Star Road and Siempre Viva Road. It continues south to Via de la Amistad as a two-lane Industrial/Commercial Collector Road. A cross-section of a portion of Enrico Fermi Drive from the General Plan Circulation Element is included in Appendix 4.

- **Alta Road:** Alta Road is planned as a north/south four-lane Industrial/Commercial Collector Road extending north from Lone Star Road. North of Lone Star Road, its main function is to provide access for planned adjacent development and to the detention facilities to the north. It is not proposed to be extended over the Otay Valley. South of Lone Star Road it is planned as a four-lane Major Road to Siempre Viva Road. Alta Road will continue south as a two-lane Industrial/Commercial Collector Road to Via de la Amistad. A cross-section of a portion of Alta Road from the General Plan Circulation Element is included in Appendix 4.
- **Sunroad Boulevard/Sanyo Avenue:** Sunroad Boulevard is classified as a Major Road between Lone Star Road and Otay Mesa Road in the County of San Diego. South of Otay Mesa Road the road is referred to as Sanyo Avenue, a four-lane collector road.
- **Calzada de la Fuente:** This road will be located entirely within the Specific Plan Area and is planned as an Industrial/Commercial Collector Road.
- **Zinser Road, Vann Centre Boulevard and David Ridge Drive:** These roads are planned as Industrial/Commercial Collector Roads between Lone Star and Otay Mesa Roads within the Specific Plan Area.

Please note that development projects in East Otay Mesa shall utilize names identified in this chapter for all Circulation Element and Specific Plan roads.

2.2.6 Road Operation

Truck Routes

Through trucks are expected to follow the Prime Arterial, Major, Collector and (non-Circulation Element) selected Local Industrial/Commercial Road street system. Due to

the industrial character of the Specific Plan Area, all streets shall be designed to accommodate truck traffic.

In order to minimize impediments for truck operation and allow access for each of the land uses in East Otay Mesa SubArea 1, the circulation network shall be designed according to the County Public Road Standards. The needs of truck traffic, access, and loading activities shall be incorporated in the design of the roadways. In addition, on-street parking shall be prohibited on all Prime Arterial, Major and four-lane Industrial/Commercial Collector public roads within the Specific Plan Area.

It should be noted that CalTrans may also designate truck only routes to accommodate the future Port of Entry.

2.2.7 Alternative Modes of Transportation

Public Transit

Public transit represents an opportunity to provide a convenient and inexpensive transportation choice for employees.

Public transit represents an opportunity to provide a convenient and inexpensive transportation choice for employees, help achieve air quality enhancement goals and reduce vehicular traffic. The development of public transportation facilities, while considered highly desirable for East Otay Mesa, will take place over a period of time. The County of San Diego will continue to work with SANDAG to extend public transit facilities into East Otay Mesa.

SANDAG is currently refining the transit network for the South Bay and once this study is complete, they expect to have a reasonably well-defined network for this area. The SANDAG Plan will include a bus rapid transit (BRT) line to serve the Otay Mesa. A 29-mile loop line would connect the existing light rail station at 24th Street in National City with the Otay Ranch area, the Otay Mesa International Border Crossing, and the Iris Street station in San Ysidro. Future developments will be required to coordinate with SANDAG and the County to ensure that transit is a consideration when planning their development. When the County Board of Supervisors adopts a Transit Plan, including development standards and route locations, all development within East Otay

Mesa shall be required to comply with that plan and its implementation including the dedication of right-of-way for light rail and/or bus facilities.

The north-south line would generally follow the SR-125 alignment to provide access between Chula Vista, Otay Ranch, and the International Border. The east-west BRT line may follow Otay Mesa Road or Airway Road and potentially continue along this road into the Specific Plan Area to the proposed third border crossing. If this should occur, then a transit station at SR-125/Otay Mesa Road interchange, a station at the border, and possibly one intervening station would be feasible.

Bicycle Network

Use of bicycles as a commuting mode of transportation is encouraged as a means to reduce traffic congestion and minimize greenhouse gas emissions. The bicycle network of East Otay Mesa is focused to safely direct bicycle traffic to and from key locations. It is the intent of the plan to link all transit, commercial, and employment locations via certain Circulation Element roads and Specific Plan roads that would allow bicycling commuters the ability to access East Otay Mesa in a direct manner. The General Plan bike routes are shown on Sheet 6 of the General Plan Circulation Element. Additional bike routes are provided in the Specific Plan.

It is likely that the vast majority of workers within East Otay Mesa will be traveling from areas outside of the Mesa, such as Otay Ranch, portions of the City of San Diego, and Chula Vista, and possibly from the International Border Crossing. To encourage bicycle use within the Specific Plan Area, a connected system of roads suitable for bicycle traffic has been designated for the Mesa. This bike network is detailed on Figure 2.2-1 and in Table 2.2-1 of the Specific Plan. The bicycle network in East Otay Mesa is composed of Class II facilities (bike lanes), and bicyclists are permitted to travel on all public roadways within the Specific Plan. The State of California, Department of Transportation publication, Planning and Design Criteria for Bikeways in California, is the bikeway standard of San Diego County. These regulations shall also apply to the East Otay Mesa Specific Plan.

The amount of projected employees in the Specific Plan Area that would take mid-day lunches and shopping trips necessitates the establishment of a pedestrian circulation and trails system that will support and encourage walking as a mode of transportation.

Pedestrian Circulation

Walking is encouraged within the East Otay Mesa Specific Plan. The amount of projected employees in the Specific Plan Area that would take mid-day lunches and shopping trips necessitates the establishment of a pedestrian circulation and trails system that will support and encourage walking as a mode of transportation. To create safe and attractive pedestrian travel, it is necessary to keep sidewalk areas free of obstructions and allow for the flow of pedestrians. Crosswalks and signal timing help reduce pedestrian/auto conflicts and improve safety conditions. Sidewalks are required on both sides of all public streets. Sidewalks shall meet the guidelines of the County of San Diego Public Road Standards except that sidewalks on all Circulation Element and Specific Plan roads shall be 4-feet wide and shall be separated from the traveled way by a 3-foot landscaped parkway (Section 2.3.5). Sidewalks shall meet the Americans with Disabilities Act (ADA) standards. The Director of Public Works may allow sidewalks to meander around existing utility poles (69kv or greater) that will not be placed underground. In limited circumstances, the Director of Public Works may waive sidewalk requirements where existing utility poles (69kv or greater) will not be placed underground if the applicant can demonstrate that no loss of pedestrian movement or connectivity would result.

Trails

Since the approval of the East Otay Mesa Specific Plan in 1994, the County adopted a Community Trails Master Plan that governs the type and location of trails throughout the unincorporated area. Trails proposed in the Specific Plan are non-motorized, multi-use trails that allow public access to natural scenic areas. Trails and pathways in East Otay Mesa shall meet the Community Trails Master Plan Design and Construction Guidelines. All development adjacent to the Otay Valley Regional Park shall improve a 10-foot wide trail for passive viewing and as a potential connection to the regional park trail system (Figure 2.2-1). The trail shall be open to the public and shall connect to a public sidewalk or an alternative location acceptable to the County.

2.3 Urban Design Element

Goal:

Promote land uses, infrastructure, buildings and landscaping, both in the public and private realms, that create a distinct urban image and establish a unique sense of identity for East Otay Mesa.

2.3.1 Introduction

The intent of the Urban Design Element is to create an industrial and business district, with distinct Activity Nodes and well-designed infrastructure, buildings and landscaping. This section establishes urban design principles to guide the appearance and organization of buildings, infrastructure, site layouts, and landscaping.

The intent of the Urban Design Element of the Specific Plan is to create an industrial and business district, consisting of a technology business park and mixed industrial community, with distinct Activity Nodes and well-designed infrastructure, buildings and landscaping. Features of the area-wide design concept include: the preservation of prominent natural features, site planning appropriate to the landforms and land uses, a functional circulation system with a unified public streetscape, and guidelines and standards for private sites, buildings, and landscape elements. These elements combine to create an area-wide image for East Otay Mesa that will help attract potential investment, tenants and employees to the area.

This section establishes urban design principles to guide the appearance and spatial organization of buildings, infrastructure, site layouts, and landscaping. These design principles are qualitative and intended to guide development, but not mandate style or specific design. Guidelines that will implement these principles through individual projects are contained in Section 3.2, Development Standards.

2.3.2 Goals and Policies

G O A L :

Promote well-designed infrastructure, buildings and landscaping, both in the public and private realms, that creates a distinct urban image and establish a unique sense of identity for East Otay Mesa.

POLICIES

Policy UD-1: Encourage the preservation and enhancement of visually prominent land forms and areas of special scenic beauty, particularly the San Ysidro Mountain foothills and the valley walls of Johnson and O'Neal Canyons.

Implementation: Preservation of prominent landforms and areas of scenic beauty described above, especially as observed from Circulation Element roadways and Open Space Element trails, will be implemented during the Site Plan review process. This policy primarily applies to those portions of Johnson and O'Neal Canyons designated as Rural Residential (previously called Hillside Residential) and Conservation / Limited Use.

Policy UD-2: Implement a Streetscape Plan that enhances the identity and image of the East Otay Mesa Specific Plan Area. Coordinate the Streetscape Plan for roads that are within the jurisdiction of both the City and County**.**

Implementation: The Streetscape Plan for the area shall be implemented as part of roadway design and construction.

Policy UD-3: Major public buildings such as the Fire Station, and MTDB transit stations should be ~~unique~~ buildings that enhance the image of East Otay Mesa.

Implementation: The County and property owners will work with the appropriate public agencies to ensure high quality design in public buildings and plazas, and to ensure that they contribute to a consistent design theme for East Otay Mesa.

Policy UD-4: Promote well-designed infrastructure and public works, including the bridge overpass and abutment for SR-125 at Otay Mesa Road.

Implementation: The County and property owners will work with the appropriate agencies involved to promote sensitive design and incorporate special design features where appropriate. The County will work with Caltrans to encourage a high degree of landscaping along regional freeway corridors within the Specific Plan and architectural

design of bridge structures to promote a positive gateway image of the East Mesa as viewed from the freeway and local streets.

Policy UD-5: Promote high quality design of buildings and landscaping on private property throughout East Otay Mesa to create a strong identity and image of high quality urban design for the area.

Implementation: The entire East Otay Mesa Specific Plan Area, excluding Rural Residential zoned areas, were given a "B" Designator and are subject to Design Review based on the Site Planning and Design Guidelines developed for the Specific Plan..

Policy UD-6: On-site landscaping along public streets should be compatible and complementary with the streetscape design of the public right-of-way.

Implementation: Compatibility of on-site landscaping with the public streetscape will be reviewed during the discretionary review process. Issues that should be considered include visual compatibility, water usage, root systems, invasive species, and fire-prone characteristics. This policy should be implemented in a way that provides adequate flexibility to accommodate new standards.

Policy UD-7: All utility lines shall be under-grounded through the development process, with the exception of existing 69 KV SDG&E high-voltage lines. Traffic signal vaults, electrical trans-formers, telephone switchboards and other such structures shall be located underground or appropriately screened with landscaping or architectural treatment acceptable to the County.

Implementation: The County will coordinate with San Diego Gas & Electric (SDG&E) and Pacific Bell to ensure that all electric, gas, and telephone lines will be underground to the greatest extent possible. County staff will work to ensure under-grounding or appropriate screening of transformers, traffic signal vaults, telephone switching boxes, and other such structures as part of the required infrastructure improvement phase of the project. In addition, County staff will work with SDG&E or other sources to obtain

grants (or other special funds) to underground existing 69 KV high-voltage lines on Otay Mesa Road, Alta Road, and Harvest Road.

Policy UD-8: Encourage placement of public art in new development within the industrial and commercial areas of East Otay Mesa**.**

Implementation: The County will encourage developers to include public art for projects in the industrial and commercial areas.

2.3.3 Development Areas and Activity Nodes

The main development portion of East Otay Mesa is planned to include distinct development areas defined by circulation element roads. Several of these areas are planned to encourage centralized mixed use Activity Nodes where pedestrian-oriented design is promoted and higher intensities are encouraged. The Activity Nodes are intended to:

- Create a "village center" and sense of place;
- Provide a unifying, central plaza open space;
- Create a sense of community in the work place environment;
- Provide for a pedestrian environment and encourage greater pedestrian activity;
- Provide a visual focus and consistent streetscape; and
- Intensify land uses to promote social interaction.

The purpose of Activity Nodes is to create a focus for surrounding office and industrial areas and to provide opportunities for employees to meet daily shopping, dining and office support needs.

The placement of Activity Nodes shall be based on distances from major circulation roads and intersections, District Commercial within SubArea 2, on lines-of-sight and view corridors, and on creating walkable distances to and from transit stations and anticipated major employee areas. The following criteria are applicable to determining Activity Node locations:

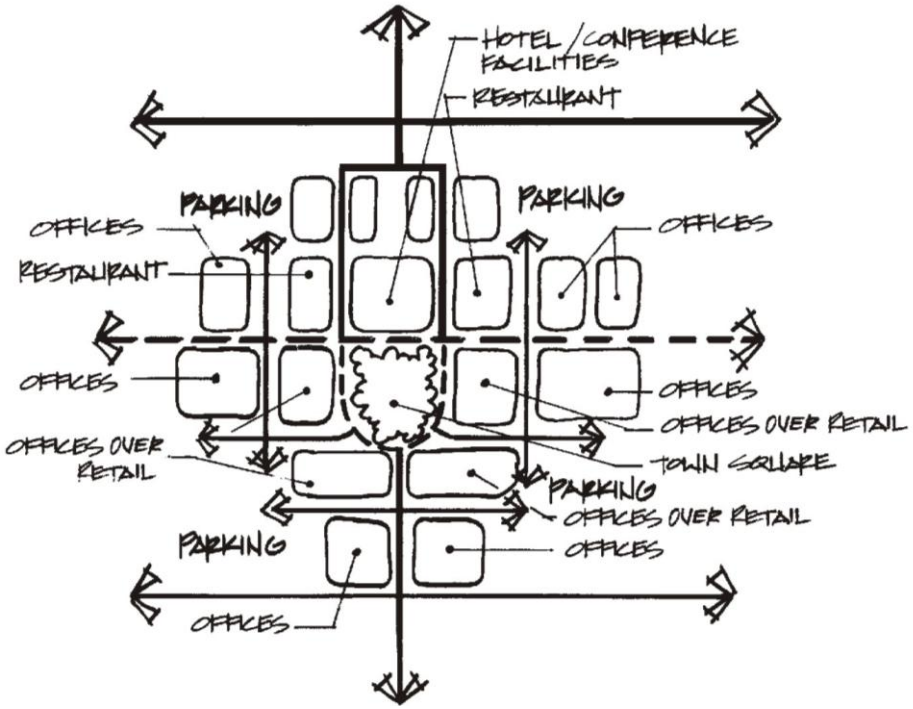
- An Activity Node's core shall be centrally located;
- A Node's outer boundaries shall be a minimum 300 feet from a four-lane Major Road and a minimum 300 feet from a Prime Arterial Road;
- Activity Nodes shall be separated from each other and District Commercial by a minimum of 1,250 feet (measured from edge to edge), and

- The maximum acreage of an Activity Node shall be 10 acres unless a higher amount is approved per Section 3.3.2 of this plan.

The following criteria are also applicable to Activity Node development and operation:

- An increased floor area ratio is permitted in the Activity Node core areas; and
- Through truck traffic is not permitted to traverse the Activity Node core areas.

Figure 2.3-1 Activity Node Functional Diagram



As described in Section 2.1, Land Use Element, the purpose of Activity Nodes is to create a focus for surrounding office and industrial areas and to provide opportunities for employees to meet daily shopping, dining and office support needs. These commercial uses shall be clustered around a central core to avoid the creation of strip commercial style development. Site design shall allow for street-oriented parking in addition to side and rear parking. Pedestrian connections to adjacent industrial development are required. Extensive landscaping shall screen utilitarian areas, minimize expanses of parking areas, and integrate individual projects with the streetscape. The usable common open space area such as a park, plaza or public square in each Activity Node may also serve the dual purpose of a post construction stormwater retention and pollution prevention area. In addition, a Collector Road shall connect Activity Nodes to each other, allowing pedestrian and standard occupancy vehicle access to cores without traveling on Prime Arterials or Major Roads. Figure 2.3-1 illustrates land use and site design concepts in a conceptual Activity Node diagram.

2.3.4 Industrial Districts

East Otay Mesa is planned to provide distinct districts with complementary functions. As described in Section 2.1, Land Use Element, the Technology Business Park District will accommodate businesses that combine office, research and development, and manufacturing components in a campus setting, while the more utilitarian Light Industrial and Heavy Industrial Districts will accommodate manufacturing, industrial uses and warehouses in a traditional industrial park design. The character of each district is described below.

The Technology Business Park District identity will be achieved through campus-style site design; formal and informal open space, and architecture design.

Technology Business Park District

The Technology Business Park District identity will be achieved through campus-style site design, formal and informal open space, and architecture design (See Development Standards in Section 3.2). The multi-functional operations of businesses in this district provide an opportunity for distinct architectural styles with multiple components. Building exteriors shall be well articulated to promote corporate images.

A typical campus-style Site Plan provides open spaces between buildings and along roadways. Pedestrian facilities within the developments and linkages to Activity Nodes,

planned light rail and bus transfer stations are particularly important. Pedestrian facilities shall incorporate landscaping, periodic shade and rest areas, and lighting. Parking lots shall be appropriately distributed within the development and visually minimized with landscaping, walls or berming.

In contrast to the Technology Business Park District, development in the Light Industrial District will be more utilitarian.

Light Industrial District

In contrast to the Technology Business Park District, development in the Light Industrial District will be more utilitarian. Land usage shall be optimized, with buildings located in proximity to one another and to the street. Site design shall provide for vehicle circulation and building access, screened storage, and similar functions of industrial and manufacturing operations. Industrial building architecture is typically low-maintenance with minimal windows and pedestrian entries.

The utilitarian aspects of this district require sensitive site planning and appropriate architectural and landscape enhancements to avoid creating a stark, negative image. Outdoor seating and lunch areas shall be provided in protected spaces in proximity to the buildings. Architectural enhancements shall be oriented towards public view areas and public or private streets. Business signs shall be coordinated with the building architecture and be located to facilitate project identity. Extensive perimeter landscaping is required to provide screening of undesirable views from adjacent parcels and roadways and to soften the architecture of mostly blank lengthy walls associated with large industrial buildings and warehouses.

Heavy Industrial and Mixed Industrial

The Heavy Industrial and Mixed Industrial Districts will have the same feel as the Light Industrial District. Screening, architectural design and landscaping will play an important role in this district due to the potential heavy industries and the need for appropriate buffering.

2.3.5 Commercial Center

The Commercial Center overlay will allow for development of large-scale retail operations to serve the industrial and office land uses in the area as well as the possibility to serve regional shopping needs. Typical uses may include “big-box”

Typical uses may include "big-box" retailers, office support services, gasoline service stations and associated commercial development.

retailers, office support services, gasoline service stations and associated commercial development. One location has been identified for the Commercial Center at the western side of the Specific Plan. Due to traffic circulation and road capacity issues, the center shall not exceed 40 acres.

2.3.6 Public Landscaping

Streetscape Concept

A unifying design feature of the East Otay Mesa Specific Plan is the Master Streetscape Plan. Figure 2.3-2 depicts the overall design theme for the public streetscape, which includes landscaping, medians, sidewalks/trails, and a street tree program for each of the roadway classifications. Streetscape improvements will primarily be located within a 10-foot wide landscaped parkway and a landscaped building setback. A 2-foot wide landscape easement will be established within the landscape setback for the purpose of providing adequate space for street trees. The landscape easement shall be graded level with the parkway; together, they provide space for public circulation and public streetscape. An exception process will be established for tree types on roads with existing SDGE easements/lines.

A unifying design feature of the East Otay Specific Plan is the Master Streetscape Plan.

- *Gateway Roads (Prime Arterial):* Lone Star Road (Piper Ranch Road to Sunroad Boulevard) and Otay Mesa Road (Piper Ranch Road to Enrico Fermi Drive) are classified as the "Gateway". These roads shall have increased visibility and screening with a tree-lined median, a 10-foot wide landscaped parkway, and a 25-foot wide landscaped building setback. Within the 10-foot wide landscaped parkway a 2-1/2-foot wide planter (3 feet from face of curb to edge of sidewalk) shall separate the roadway from the 4-foot wide sidewalks with large canopy trees[1] planted 10 feet from the face of the curb at 25 feet on center with shrubs spaced every 3 feet. A 2-foot wide landscape easement shall be located within the landscaped building setback and adjacent to the parkway. Spacing of trees shall be adjusted accordingly with intersections, utilities, and median layouts. Required landscaping in the building setbacks will supplement the parkway planting. Medium-sized evergreen trees spaced every 25 feet in the median will help separate traffic moving in opposite directions. The median shall be paved with a sandstone colored concrete (Davis Sandstone or equal) and stamped with a Dry Creek Bed (or similar) pattern. Five-

[1] Medium-sized canopy trees will be required on the south side of Otay Mesa Road due to the presence of existing SDG&E utility lines.

foot x five-foot (5' x 5') tree grates shall be set flush with concrete (per San Diego Regional Standard Drawing L-4) around each tree located down the center of the median.

- *Gateway Roads (Major):* Lone Star Road (Sunroad Boulevard to Siempre Viva Road), Siempre Viva Road, and Otay Mesa Road east of Enrico Fermi Drive. These roads shall also have increased visibility and screening with a tree-lined median, a 10-foot wide landscaped parkway, and a 20-foot wide landscaped building setback. Within the 10-foot wide landscaped parkway, a 2-1/2-foot wide planter (3 feet from face of curb to edge of sidewalk) shall separate the roadway from the 4-foot wide sidewalks with large canopy trees planted 10 feet from the face of the curb at 25 feet on center with shrubs spaced every 3 feet. A 2-foot wide landscape easement shall be located within the landscaped building setback and adjacent to the parkway. Spacing of trees shall be adjusted accordingly with intersections, utilities, and median layout. Required landscaping in the building setbacks will supplement the parkway planting. Medium-sized evergreen trees spaced every 25 feet in the median will help separate traffic moving in opposite directions. The median shall be paved with a sandstone colored concrete (Davis Sandstone or equal) and stamped with a Dry Creek Bed (or similar) pattern. Five-foot by five-foot (5' x 5') tree grates shall be set flush with concrete (per San Diego Regional Standard Drawing L-4) around each tree located down the center of the median.

- *Major Roads (non-Gateway)* shall be planted with large-sized evergreen/or deciduous trees spaced every 30 feet and located 10 feet from the face of the curb. A 2-1/2-foot wide planter (3 feet from face of curb to edge of sidewalk) shall separate the roadway from the 4-foot wide sidewalks with shrubs spaced every 3 feet on center and maintained at a height of 36 inches maximum (Appendix 3, Streetscape Plant List). A 20-foot landscaped building setback will help add depth to the streetscape along these roads. A 2-foot wide landscape easement shall be located within the landscaped building setback and adjacent to the parkway. The median shall be paved with a sandstone colored concrete (Davis Sandstone or equal) and stamped with a Dry Creek Bed (or similar) pattern.

- *Industrial/Commercial Collector Roads* shall be planted with medium-sized evergreen or deciduous canopy trees spaced every 25 feet and located 10 feet from the face of the curb. A 2-1/2-foot wide planter (3 feet from face of curb to edge of sidewalk) shall separate the roadway from the 4-foot wide sidewalks with shrubs spaced every 3 feet on center and maintained at a height of 36 inches maximum (Appendix 3,

Streetscape Plant List). A 10-foot landscaped setback for two-lane Collectors and a 20-foot landscaped setback for four-lane Collectors shall supplement the 10-foot parkway planting. A 2-foot wide landscape easement shall be located within the landscaped building setback and adjacent to the parkway.

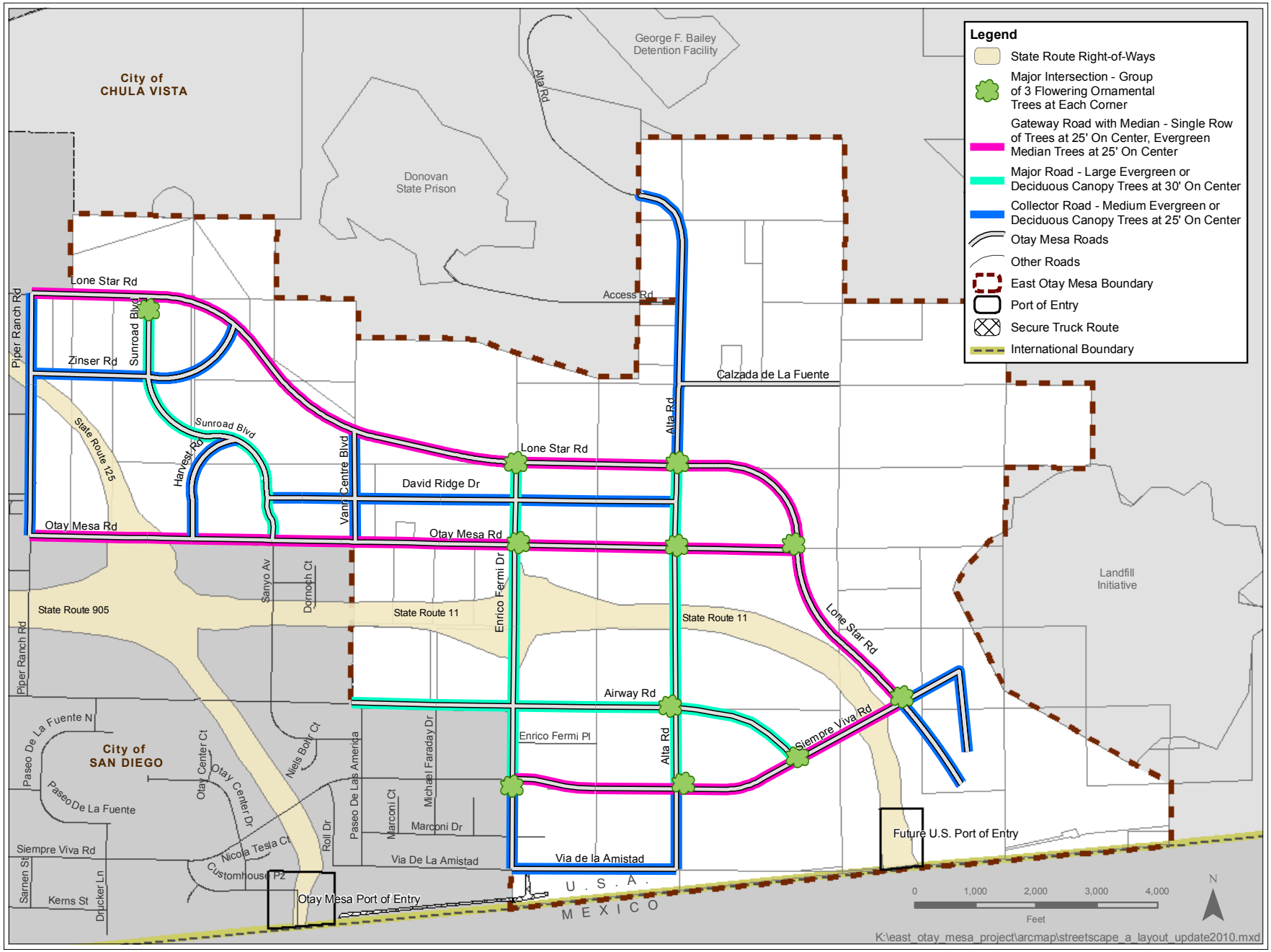
- *Activity Node Streets* shall be planted with flowering canopy trees spaced every 25 feet in sidewalk cutout areas. The trees shall be located 10 feet from the curb and shall utilize a root barrier system. Cutout areas shall be covered with tree grates. The 4' x 4' tree grates shall set flush with the concrete cutout areas. A 2-foot wide landscape easement shall be located within the landscaped building setback and adjacent to the parkway.

- *Local Roads* shall be planted with medium-sized evergreen or deciduous canopy trees spaced every 30 feet and located 8 feet from the face of the curb. Local roads shall include a 5-foot wide sidewalk that is attached to the curb or, alternatively, a 5-foot sidewalk that is non-contiguous with the curb. If a non-contiguous sidewalk is selected, it should be used throughout the development or transitions should be provided to ensure connectivity within the pedestrian network. In all cases, ADA standards for sidewalk widths would supersede Specific Plan standards.

- *Major Intersections* shall be planted with three flowering trees at each street corner. Additional landscaping such as shrubs and groundcover shall be required and sight lines will be preserved for vehicular safety (see County Road Standards for Corner Sight Distance at Intersections). Flowering groundcovers and shrubs shall supplement the trees. No turf is allowed with the intersection plantings. Shrubs shall not exceed 30 inches in height within this area.

Exceptions to the streetscape requirements may be granted in limited cases to address public safety issues. However, exceptions for Gateway Roads shall only be granted after other feasible measures are taken to implement the streetscape requirements of the Specific Plan.

Figure 2.3-2 Master Streetscape Plan



Plant Materials

To minimize maintenance and irrigation costs as well as create a "signature" landscape for the East Otay Mesa Specific Plan, self-sustaining plant material is required on all roads. The Streetscape Plant List is located in Appendix 3. Self-sustaining plant material shall meet two requirements: (1) It shall be drought tolerant and fire-wise; and (2) It shall require little or no maintenance.

Mowed turf shall be allowed only within the Activity Nodes and strongly recommended only for active and passive public use areas. Consistent with County requirements for other areas, mowed turf shall be restricted to 15 percent of the landscaped area unless it is being designed for active public use.

2.3.7 Usable Open Space

All plans shall designate a location(s) on-site for employee passive or recreational activity. This area shall be screened from parking and traffic and shall be improved with benches and shade structures. For purposes of satisfying this requirement, outdoor passive or recreational areas of not less than 2,000 square feet in area shall be provided for each 10 acres of development area. The outdoor areas may occur as one large area serving lots as identified on the Site Plan or subdivision map. Within an Activity Node, a plaza may satisfy this requirement.

Where more than one building is located on a site, buildings shall be organized around or designed to create courtyards or outdoor spaces, unless this is precluded by the primary use of the facility, such as truck loading docks.

Spaces between buildings shall include entry courts, defined plazas, lunchtime retreats, or formal and informal gardens, unless this is precluded by the primary use facility, such as truck loading docks.

Plantings, low walls and fences shall enclose one or more sides of an outdoor space. Off-street parking and loading areas, driveways, and service areas shall not be counted as usable open space.

2.3.8 Clearance Zones / Median Cuts

Trees and shrubs shall be located and maintained to preserve a clear zone of at least ten feet from fire hydrants, utility poles, overhead utility wires, streetlight luminaries, and above ground utility structures such as transformer enclosures. Clearance zones also shall be established to preserve adequate sight-line distance at intersections. Check SDG&E setback requirements when locating trees next to existing 69 KV lines on Otay Mesa Road, Harvest Road, and Alta Road.

The design of road networks and intersections should minimize the size of clearance zones at Major Intersections and along Gateway Roads in order to retain street trees and other landscaping identified in the Master Streetscape Plan. Median cuts also should be minimized along Gateway Roads in order to retain planned landscaped medians.

2.3.9 Root Barriers

All trees planted five feet or closer to hardscape shall be accompanied by a root barrier installed parallel and adjacent to the pavement centered at tree (not wrapped around the rootball). Root barriers shall be two feet deep and 10 feet long.

2.3.10 Edge Conditions

At the time of Site Plan review, special attention shall be given to areas of the Specific Plan where land uses abut open space, differing land uses, SR-11, SR-125, or other circulation element roads.

2.4 Public Facilities Element

Goal:

Provide infrastructure and public facilities to accommodate planned growth in East Otay Mesa.

2.4.1 Introduction

This element describes the infrastructure and public facilities proposed for East Otay Mesa. Infrastructure and public services include water supply, wastewater, reclaimed water, and storm water. Public facilities and services include wastewater collection and treatment; storm water drainage; dry utilities; fire protection; emergency medical services; law enforcement; and solid waste disposal. Water and reclaimed water facilities have not been addressed in this plan. The Otay Water District (OWD) has adopted a Master Plan that provides for such facilities in the Specific Plan Area.

Additional information on public facility development and financing was contained in the Public Facilities Element section of the 1994 East Otay Mesa Specific Plan, which is located in Appendix 5 of this document.

The EOM Sewer Maintenance District, encompassing approximately 2,500 acres, shall provide the necessary sewer service to accommodate planned development.

2.4.2 Goals and Policies

GOAL1:
Provide infrastructure and public facilities in a planned and orderly fashion that will accommodate the planned growth in East Otay Mesa while meeting applicable County standards.

POLICIES:

Water Facility

Policy PF-I: Require development proposals to provide water service to meet the needs of development in East Otay Mesa.

Implementation: Otay Water District will serve the development of East Otay Mesa in conformance with their Master Plan. A portion of the Specific Plan, adjacent to the eastern boundary, shall be annexed to Improvement District Number 7 before recordation of any map in that area. Water transmission and storage facilities will be constructed as indicated in Appendix 5, Public Facilities Information. Facilities required for distribution to each property will be included in road improvements to be constructed before a Final Map can be recorded. If the water distribution system is not located in roadway right-of-way, property owners shall be required to reserve right-of-way easements for water service lines.

Wastewater Collection and Treatment

Policy PF-2: Establish adequate sewer capacity to support planned development in East Otay Mesa.

Implementation: A County Sewer Maintenance District was formed by the Board of Supervisors in 1999, and one million gallons per day (1.0 mgd) of treatment capacity was purchased in the City of San Diego's Metropolitan Wastewater System for treatment and disposal of sewage generated in the East Otay Mesa Sewer Maintenance District. Property owners in East Otay Mesa and the County are working closely with the City of San Diego to ensure adequate financing for sewage transportation and treatment facilities, and property owners are required to demonstrate the availability of adequate wastewater transportation and treatment capacity for new development.

Policy PF-3: Provide a wastewater collection system throughout East Otay Mesa.

Implementation: Facilities required for distribution to each property will be included in road improvements to be constructed before a Final Map can be recorded. If the water distribution system is not located in roadway right-of-way, property owners shall be required to reserve right-of-way easements for water service lines.

Policy PF-4: Formulate a long-range plan for wastewater treatment for East Otay Mesa properties with the San Diego Metropolitan Sewage System (Metro).

Implementation: Property owners will form a community facilities district to fund the cost of the Otay Mesa Sewer System identified in the Otay Mesa Trunk Sewer Infrastructure

Upgrades Cost Estimate and Constructability Review (Brown and Caldwell), dated June 9, 2009 (or as subsequently amended).

Reclaimed Water Facility

Policy PF-5: Provide a reclaimed water distribution system to conserve potable water usage.

Implementation: A reclaimed water transmission system will be installed to distribute reclaimed water for streetscape landscaping and possibly for toilet flushing or processing water. The transmission system lines will be constructed as part of the basic street infrastructure, to be financed by property owners.

Storm Water Drainage

Policy PF-6: Provide a storm drainage system for East Otay Mesa that minimizes surface water degradation, reduces soil erosion, promotes natural beauty, and is otherwise consistent with the Best Management Practices of the Clean Water Act.

Implementation: Through the subdivision process, the County will implement the policy for storm water drainage in accordance with the Comprehensive Flood Control Master Plan and DPW administrative procedure. Construction and maintenance of on-site detention facilities will be the responsibility of the property owners.

Dry Utility

Policy PF-7: Coordinate with Franchise Utility Providers to provide dry utilities to serve East Otay Mesa.

Implementation: The County will work with SDG&E and Pacific Bell to provide dry utilities to serve development in East Otay Mesa. Utility easements should occur in conjunction with road dedications whenever feasible.

Fire Protection and Emergency Medical

Policy PF-8: The entire East Otay Mesa Specific Plan Area shall be supported by adequate fire protection and emergency medical services.

Implementation: Fire protection is provided by the San Diego Rural Fire Protection District (RFPD). Nearly all of the East Otay Mesa is within the Fire District's boundaries. Properties outside the Fire District but within the Specific Plan shall annex to the District as a condition of development approval.

Policy PF-9: Provide adequate fire protection and emergency medical services in East Otay Mesa concurrent with need**.**

Implementation: The RFPD shall be responsible for providing fire protection services and will operate from appropriate facilities constructed within the Specific Plan..

Law Enforcement

Policy PF-10: The County shall provide law enforcement services for East Otay Mesa consistent with Countywide policies.

Implementation: Law enforcement will be provided by the County Sheriff. Countywide policies shall establish financing methods for law enforcement facilities.

Child Care

Policy PF-11: Encourage the development of child care facilities as warranted in East Otay Mesa.

Implementation: Child care facilities shall be permitted in commercial districts or by minor use permits in industrial designated areas.

Solid Waste

Policy PF-12: Provide solid waste and recycling collection services for East Otay Mesa.

Implementation: A private operator will provide solid waste and recycling collection services under permit from the County.

Policy PF-13: Promote recycling of waste materials generated by businesses in East Otay Mesa.

Implementation: All businesses should abide by County ordinances for solid waste management. Development standards and guidelines require that enclosed areas be set aside for storage of solid waste and recyclable materials.

Policy PF-14: Support the County's effort to find a site for a new solid waste disposal facility to serve the South County area.

Implementation: The County will continue efforts to locate a new solid waste disposal facility to serve the South County area.

Hazardous Materials

Policy PF-15: Apply Countywide policies to provide for regulation and inspection of the storage and handling of hazardous materials, as well as response to emergency incidents involving hazardous materials.

Implementation: The County DEH and City/County Hazardous Incident Response Team are responsible for hazardous materials countywide.

GOAL 2:

Provide adequate public facilities at the time of need to serve East Otay Mesa in a planned orderly fashion, phased in response to market demand, financed through the equitable participation of all affected property owners and developers, and implemented through public-private partnership arrangements.

POLICIES:

Public Facility Phasing and Financing

Policy F-l: Phasing of development shall be non-geographic.

Implementation: The County will require the provision of adequate facilities and services as conditions of approval prior to recordation of subdivision maps.

Policy F-2: Development within the East Otay Mesa Specific Plan Area shall ~~only~~ be built to a level supported by off-site facilities.

Implementation: The availability of public facilities and services to support new development is evaluated as part of the discretionary review process. The County will condition new projects to construct and/or fund fair share costs of off-site public facility improvements required to serve the project as identified in the East Otay Mesa Sewer Master Plan or other superseding regional sewer plans. In addition, the County will ~~continue to~~ coordinate with Caltrans and the City of San Diego to promote the construction of necessary transportation facilities.

Policy F-3: On-site public facilities shall be constructed as a coordinated program designed to serve a specified threshold of development.

Implementation: The County will review, and may approve, alternative phasing as part of the permit review process.

Financing Strategy

Policy F-4: The initial and ultimate public facilities are to be financed by all benefiting property owners using various sources of public and private financing.

Implementation: The County should work with the property owners to secure appropriate public financing for public facilities, with initial funding potentially generated by the CSA or a local improvement district. Local improvement districts, which would be formed and financed by property owners, may include sewer, roads, sheriff station, fire station, landscape maintenance, and other public facilities required to support existing and future development in East Otay Mesa. Owners in East Otay Mesa shall contribute their fair share toward financing local improvement districts formed for the benefit of all property owners.

Policy F-5: Property Owners in East Otay Mesa shall contribute their fair share toward financing the off-site transportation facilities necessary to serve the demand created by East Otay Mesa.

Implementation: Fair share contributions or mitigation measures for off-site improvements will be determined during the discretionary review process.

Policy F-6: Property Owners in East Otay Mesa shall contribute their fair share toward financing a Landscape Maintenance District.

Implementation: Developers shall participate in a Landscape Maintenance and Stormwater District created to finance the irrigation and maintenance of landscaping within the public right-of-way. Interim maintenance agreements will be utilized for landscape and stormwater maintenance until a District is established.

Policy F-7: Property Owners in East Otay Mesa shall contribute their fair share toward financing a sheriff substation.

Implementation: A Community Facilities District was formed by property owners in 2009 for the purpose of constructing interim and permanent law enforcement facilities in East Otay Mesa. The interim sheriff station became operational in 2010.

Policy F-8: Whenever feasible, the backbone system for water and sewer lines shall be located within public rights-of-way.

2.4.3 Public Facilities Information

The following section contains information on wastewater collection and treatment, storm water drainage, dry utilities, public safety, solid waste disposal, and facility financing. Information on the development of public facilities within the Specific Plan was developed in 1994 and is located in Appendix 5.

Wastewater Collection and Treatment

The County approved the formation of the East Otay Mesa Sewer Maintenance District (EOMSMD) in 1999 to provide an institutional mechanism for wastewater management and operations for development within the East Otay Mesa Specific Plan Area. The EOMSMD, encompassing approximately 2,500 acres, shall provide the necessary sewer service to accommodate development. In 2010, property owners were in the process of forming a community facilities district to fund the cost of the Otay Mesa Sewer System, as identified in the Otay Mesa Basin No. 6 Regional Sewer Study. In addition, the Board of Supervisors directed staff to prepare an application to LAFCO to consolidate the County's five sanitation and four sewer maintenance districts into a single sewer maintenance district.

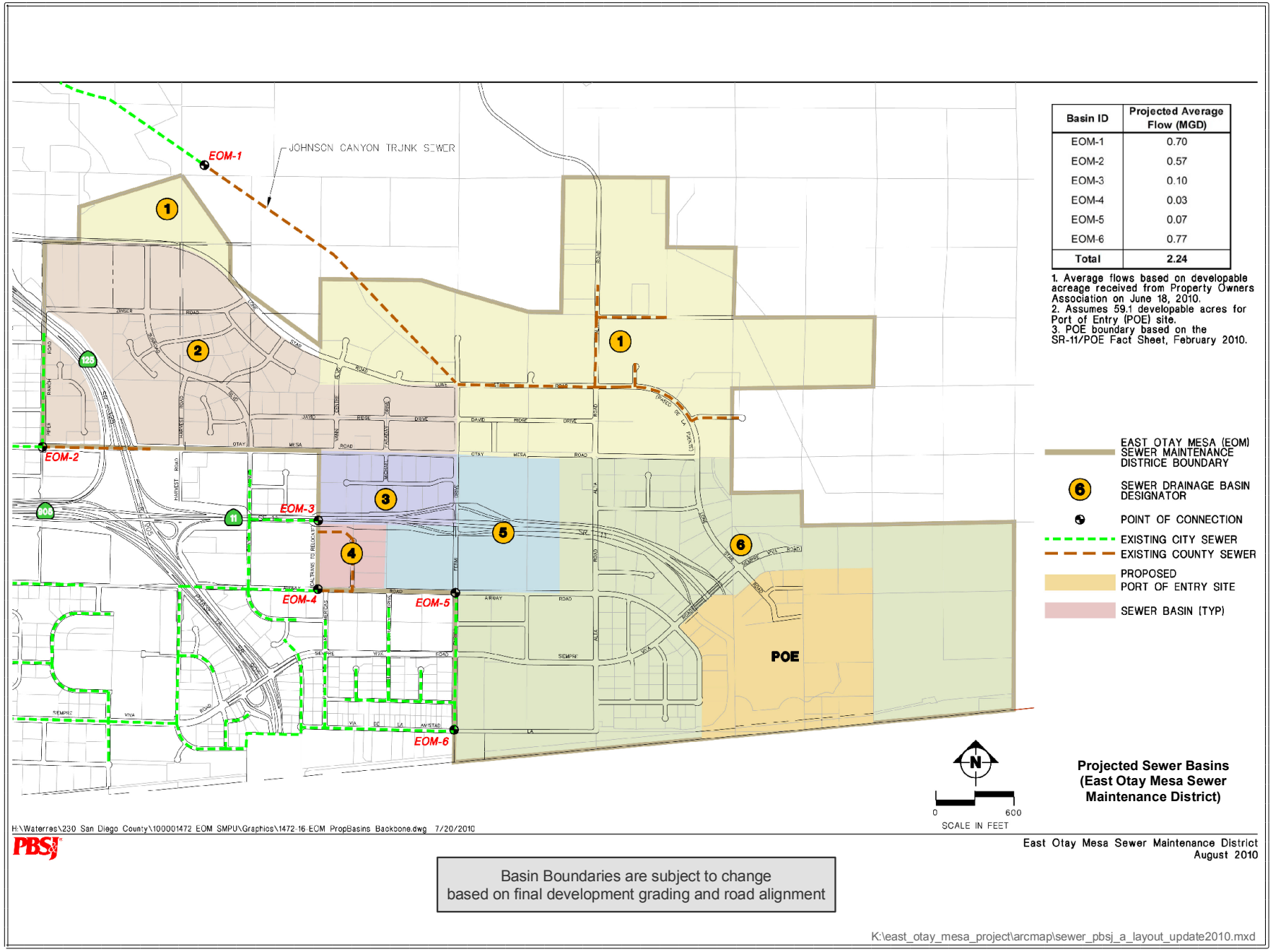
The County acquired 1.0 million gallons per day (mgd) of sewer treatment capacity from the Spring Valley Sanitation District for East Otay Mesa. The 1.0 mgd of (wastewater) capacity will be sufficient to support approximately 400 acres (net) of industrial development. This represents about one-fourth of the projected total capacity needed (4.0 mgd) for the ultimate build-out of East Otay Mesa. In order to transmit project wastewater, East Otay Mesa shall connect to existing wastewater collection sewers in the City of San Diego Metro system. The southern watershed of the Specific Plan Area generally drains to the Otay Mesa Trunk Sewer, currently stubbed near the southwestern corner of the planning area. The northern portion of the Specific Plan Area drains toward the Otay Valley Trunk Sewer, currently stubbed at the State of California Donovan Correctional Facility. Some of the tributary basins within the East Otay Mesa Specific Plan will require pump stations to convey sewage to the City of San Diego's facilities. A map of the Specific Plan Area wastewater mains is maintained by the EOMSMD.

Hydrology and Water Quality

Storm water runoff will inevitably increase as permeable ground is transformed into impervious rooftops, parking lots, and streets. Accordingly, storm water drainage facilities for East Otay Mesa shall be designed to mitigate flood and water quality impacts per County and State requirements.

From a regional perspective, the existing northerly and westerly watersheds within the project limits drain to either the Otay River, within County jurisdiction, or the City of San Diego, respectively. The easterly watershed will drain south across the border into Mexico and ultimately to the Tijuana River. Agreements with the City of San Diego restrict increases in runoff from projects that are tributary to Mexico.

Figure 2-4.1 Sewer Basins



The Clean Water Act strictly regulates non-point source storm water pollution in the waters of the United States. In California, the Clean Water Act is administered by the State Water Resources Control Board (SWRCB), which issues Construction and/or Industrial Permits to discharge storm water. In an industrial area, the primary source of non-point pollution is oil from automobiles deposited on roads and parking lots. All storm water runoff in East Otay Mesa shall be in compliance with County and State Best Management Practices requirements. Best Management Practices include but are not limited to the following:

- Minimize the number of street cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.
- Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more lots together.
- Reduce the overall imperviousness associated with parking lots by providing compact car spaces, incorporating efficient parking lanes and using pervious materials in spillover parking areas.
- Lower parking requirements where mass transit is available.
- Conserve trees and other vegetation at each site by planting additional vegetation, clustering tree areas and promoting native and native compatible plants.
- Direct rooftop runoff to pervious areas such as yards, open channels or vegetated areas and avoid routing it to the roadway storm water conveyance system.
- Provide storm water treatment for parking lot runoff using bioretention areas, filter strips and/or other practices that can be integrated into required landscaping areas and traffic islands.

Development projects in East Otay Mesa shall refer to the East Otay Mesa Specific Plan Comprehensive Flood Control Master Plan for all applicable Master Drainage Facilities. In addition, projects shall comply with the County's current Standard urban Stormwater Mitigation Plan (SUSMP) and Jurisdictional Urban Runoff Management

Plan (JURMP). In general, the requirement is that pre and post-construction runoff must be the same.

Dry Utilities

Utility lines shall be underground in roadways with the exception of the 69 kV electrical lines and the 230 kV line on the eastern portion of the Specific Plan Area.

Dry utilities include electrical power, natural gas, telephone, and cable television. San Diego Gas and Electric Company provides electrical power and natural gas. Telephone service is provided by Pacific Bell. Service connection points currently terminate at the western boundary of the site. Utility lines shall be underground in roadways with the exception of the 69 kV electrical lines and the 230 kV line on the eastern portion of the Specific Plan Area. Other facilities such as transformers shall be located in underground vaults or screened.

Public Safety

Fire Protection and Emergency Medical Services:

Fire protection has historically been and shall continue to be provided by the San Diego Rural Fire Protection District (Fire District). All of East Otay Mesa is within the Fire District's boundaries. Currently, the Fire District operates Type I and Type III fire engines out of the Donovan Correctional Facilities on-site fire station. This equipment is cross-staffed (24/7) with full-time paid firefighters who are employees of CDC&R. Additionally the Fire District operates a second station temporarily located at the East Otay Mesa Detention Facility. The Fire District currently operates a Type I and Type III fire engine and will be adding an aerial ladder truck in January 2011. Further, the Fire District, with cooperation from the San Diego County Sheriff's Department, implemented a special tax CFD 09-1 which shall be used for the construction of both a permanent fire station and a new Sheriff's substation. The CFD will also allow for ongoing operational needs of the Fire District. With the presence of a full-time career fire station in East Otay Mesa, the Fire District has been able to secure Automatic Aid agreements with both the City of Chula Vista and the City of San Diego. The Fire District's next closest permanent facility is located in Jamul with a 40-minute response time. The Fire District, the City of San Diego, City of Chula Vista, County of San Diego, and the CDC&R Donovan Correctional Facility are signatories to a County Mutual Aid Agreement.

There is a need to establish a full-time fire and emergency medical service presence in East Otay Mesa. The Fire District, in conjunction with CAL FIRE and the San Diego Sheriff, are in the process of implementing that service. As projects develop, developers will be required to annex into a newly established Community Facilities District (CFD) 09-1 to augment District revenues for ongoing operational costs. At build-out, a permanent facility will be co-located with a sheriff's station at the northwestern corner of Enrico Fermi Drive and Lone Star Road.

Capital facilities shall be funded through contributions to the County's Fire Mitigation Fee program, with impact fees payable at building permit issuance. It has been projected that the standard amount of impact fees will be sufficient to pay for the needed fire station and equipment. It is the Fire District's plan to develop and staff a permanent facility within the next seven years.

Ideally, fire protection will be an area of cooperation and mutual support between the Rural Fire Protection District and the surrounding cities. As the County develops a comparable presence on the Mesa, all agencies on the Mesa will realize significant service improvements and cost savings by coordinating equipment, staffing, training, and other needs.

Law Enforcement:

The San Diego Sheriff's Department performs law enforcement patrol duties for the East Otay Mesa unincorporated area of the County. Currently, no Sheriff facilities exist within East Otay Mesa. The nearest station is the Imperial Beach Station, located approximately 9.5 miles west of East Otay Mesa. On occasions, there are Sheriff's jail vehicles in the area transporting prisoners to the jail facilities, however, most of the patrol functions are carried out by one of the two to three patrol units assigned to the entire Otay Mesa area.

As the number of development permits increased in 2009, the County and property owners' acted upon the need to locate a Sheriff's substation in the East Otay Mesa area. Initially, a temporary facility sized at approximately 1530 square feet was located at the southeast corner of Otay Mesa Road and Enrico Fermi Road on 1.4 acres of land. When the temporary facility can no longer accommodate the needs of ongoing

development within the Mesa, a permanent substation sized at 4,000 square feet will be constructed at the northwest corner of Enrico Fermi Drive and Lonestar Road. It will be co-located with a permanent fire station. The temporary sheriff station will accommodate approximately three patrol units working 12.5-hour shifts. At build-out, the permanent substation will need to be expanded up to 4,000 square feet (or as determined by the Sheriff's department) to accommodate the needs of more units that will be needed to respond to calls for service.

Solid Waste Disposal

Private operators, under non-exclusive franchise with the County, provide solid waste and recycling collection services for East Otay Mesa. The solid waste disposal facility that currently serves East Otay Mesa is the Otay Landfill. The current closure date for the landfill is estimated to be 2028.

In recent years, the County initiated a program to reduce solid waste sent to landfill facilities and maximize recycling of materials. The County's ordinance regarding the management of solid waste was amended in 1998 to include recycling requirements for commercial and industrial recyclables. The ordinance requires that industrial businesses separate the following materials for recycling: dirt, land clearing brush, asphalt, concrete, sand, and rock. Office buildings and hospitality facilities are also required to recycle materials appropriate to the use such as: aluminum, corrugated cardboard, paper, glass jars and bottles, etc. Businesses in East Otay Mesa shall comply with County standards and guidelines in order to minimize solid waste generated from the area. Recycle containers shall be required to be located in the interior of a site or behind solid walls per the Design Guidelines contained in this Specific Plan.

2.4.4 Facility Financing

All public facilities in the East Otay Mesa Specific Plan will be financed through the equitable participation of all benefiting property. Public facility development will primarily occur through conditions of development approval placed on individual parcels that require public facilities and services to the extent needed to serve its demand. In cases where over-sizing is needed for future demand, the County will consider reimbursement

The property owners have the primary responsibility of implementing the required infrastructure and public facility improvements.

agreements, off-site dedications and/or improvements, bonding, or lien contracts to ensure that facilities will be provided concurrent with need.

The property owners have the primary responsibility of implementing the required infrastructure and public facility improvements. Implementation shall include developer exactions, formation of a Local Improvement District(s), impact fees, and Special Districts (e.g., the Sanitation District).

Operation and maintenance costs of these facilities will be financed in several ways: (1) through the County General Fund, (2) by user fees from established utility service providers, (3) by taxes or assessments established by a County Service Area or Local Improvement District, and/or (4) by user fees and benefit fees established by Special Districts to augment their general operating budgets for specific services.

This page left intentionally blank.

Chapter 3

REGULATORY PROVISIONS

Chapter 3.0 Regulatory Provisions

This chapter sets forth the policies, regulatory procedures and standards for implementing the East Otay Mesa Specific Plan. The policies and regulations are premised on several objectives:

- Achieve a high quality industrial and business district through good site planning and building design;
- Protect sensitive environmental resources;
- Accommodate land uses and building types appropriate to an international industrial district;
- Coordinate development with a comprehensively planned network of regional and local roads; and
- Provide public facilities and services prior to or concurrent with need.

These policies and regulatory procedures and standards shall apply to all areas of the East Otay Mesa Specific Plan.

These policies, regulatory procedures and standards shall apply to all areas within the East Otay Mesa Specific Plan[1]. The use and employment of land, buildings or structures, and the construction, reconstruction, alteration, expansion, or relocation of any building, structure or use upon the land, shall conform to these regulations. No land, building, structure or premises shall be used for any purpose or in any manner other than as permitted in the district in which such land, building, structure, or premise is located, except as provided by the Nonconforming Use provisions of the County's Zoning Ordinance.

3.1 Land Use Regulations

Land use districts in the East Otay Mesa Specific Plan, as shown in Figure 2.1-1, include Technology Business Park, Activity Nodes (overlay), District Commercial, Commercial Center (overlay), District Commercial, Light Industrial, Mixed Industrial, Heavy Industrial, Rural Residential, and Conservation/Limited Use. It should also be

[1] The 2010 Amendment to the Specific Plan incorporated select items from Site Planning and Design Guidelines, developed for the 1994 Specific Plan.

noted that all uses shall comply with applicable portions of Section 6300 et seq. of the County Zoning Ordinance: Performance Standards. Regarding noise measurements, uses in the Activity Node, District Commercial and Commercial Center shall comply with Section 6310.b; uses in the Technology Business Park shall comply with Section 6310.c; uses in the Light Industrial areas shall comply with Section 6310.d; uses in the Heavy and Mixed Industrial areas shall comply with Section 6310.e; and uses in the Rural Residential and Conservation/Limited Use areas shall comply with Section 6310.b.

The *Technology Business Park District* is intended to accommodate research and development as well as manufacturing of goods and materials associated with emerging industries in San Diego County.

Activity Nodes are intended to create a focal point for daily operations and employee needs within East Otay Mesa. Development standards requiring pedestrian oriented designs will help create a sense of place, unique to East Otay Mesa and the proposed Technology Business Park development.

The *Landfill Buffer Overlay* is intended to identify areas where land use conflicts may occur due to an adjacent landfill. The overlay is located 1,000 feet from the edge of the landfill boundary, which also forms the southeastern boundary of the East Otay Mesa Specific Plan. Two land use designations – Mixed Industrial and Rural Residential – are located within the Landfill Buffer Overlay. Processing requirements and use restrictions are described in Table 3.1-1 (and footnote 16) as well as Section 3.3.5, which describes processing requirements for development within the overlay.

The *Commercial Center overlay* is intended to accommodate an appropriate range of retail goods and services for the employee population and bi-national traffic.

The *District Commercial* designation is intended to accommodate an appropriate range of retail goods and services intended to serve a 1 to 2 mile trade area. Only one 10-acre parcel on the northeast corner of Alta Road and Otay Mesa Road is located in this district.

The *Light Industrial Use District* is intended to accommodate general industrial plants primarily engaged in manufacturing.

The *Heavy Industrial Use District* is intended to accommodate all of the uses allowed in the Technology Business Park and Light Industrial Districts plus recycling and salvage uses.

The *Mixed Industrial District* is intended to accommodate industrial plants that primarily engage in the manufacturing, compounding, processing, assembling, packaging, treatment, warehousing, or fabrication of materials and products. Support commercial uses are permitted within Mixed Industrial areas. They may be incorporated within industrial structures or located in a separate structure on the industrially zoned land. Support commercial development is limited to a maximum of five percent (5%) of the gross acreage for industrial parcels, and it should be clustered at intersections or located within the interior of industrial developments. The 5% allocation for support commercial use may be transferred from one parcel to another parcel in Mixed Industrial areas (only), provided that the maximum amount of commercial use does not exceed 10% of the gross acreage of any one parcel being utilized for Support Commercial development. Traffic impacts related to the transfer of commercial use shall be evaluated during Site Plan reviews.

The *Rural Residential* designation is intended for very low-density residential use on land generally unsuitable for intensive development. This designation is applied to areas of the Specific Plan (former Subarea 2) containing steeper slopes and possible significant biological resources. Density is limited to 1 dwelling unit per 20 acres. Rural residential areas with steep slopes and biological resources are given a “G” Designator, are subject to the Sensitive Resource Area Regulations of the Zoning Ordinance (which require a Site Plan Review Process), and require a Resource Conservation Plan approved by the County prior to any development including clearing or grading. Clustering is strongly encouraged in Rural Residential areas.

The *Conservation/Limited Use* designation is applied to areas of the Specific Plan containing steeper slopes and possible significant biological resources.

The “G” Designator was established to ensure that environmentally sensitive areas are appropriately protected. Parcels with a “G” Designator shall comply with the County Zoning Ordinance Sensitive Resources Area Regulations Sections 5300 – 5307. In addition, the Specific Plan requires the preparation of a Resource Conservation Plan for all parcels with the “G” Designator.

Table 3.1-1 identifies permitted and conditionally permitted land uses by district. Similar to the County Zoning Ordinance, the Specific Plan specifies permitted uses (P), uses subject to a Minor Use Permit (m), uses subject to a Major Use Permit (M). Where the box is blank, use is not permitted. Also included are interim uses (I) that are allowed only by a Major Use Permit to be issued or renewed for up to five years, only with the finding that "a reasonable projection of market demand indicates that it is unlikely that any allowed permanent use (approved or in house for processing) will be sited within five years that would be negatively impacted by the Interim Use.

In Table 3.1-1, the number in parentheses following each use refers to the use classification described in the County Zoning Ordinance, Sections 1200 through 1899. These sections of The Zoning Ordinance describe the land uses in more detail. The following uses are specifically prohibited in that portion of the East Otay Mesa Specific Plan previously known as SubArea 1:

- Manufacturing or storage of explosives;
- Permanent storage of toxic waste;
- Cemeteries;
- Animal Auctioning;
- Stockyards;
- Animal rendering plants; and
- Mining and processing.

All proposed development in East Otay Mesa shall require approval of a Site Plan, described in Section 3.3.1 of this Specific Plan, unless a Major Use Permit or other discretionary permit has already addressed the criteria set forth in this Specific Plan or was approved prior to the adoption of this Specific Plan Amendment. The Site Plan requirement shall not apply to the development or improvement of new or existing County parks.

Table 3.1-1 Land Use Matrix[(1)]	**San Diego County Zoning Ordinance Nos.**	**Technology Business Park**			**District Commercial**	**Industrial Use Types**			**Rural Residential**	**Conservation Area**
		Technology Business Park	**Activity Node (per Section 3.3.2)**	**Commercial Center (Overlay- per Section 3.3.3)**		**Light Industrial**	**Heavy Industrial**	**Mixed Industrial**		
1. CIVIC USE TYPES										
Administrative Services	(1310)	P	P	P	M	P	(m)	(m)(16)		
Ambulance Services	(1315)	P			M	P	P	P (16)		
Clinic Services	(1320)	P	P	P	M	P	M	M (12, 16A)		
Community Recreation	(1325)	P	P	P		P			M	
Cultural Exhibits and Library Services	(1330)	P	P	P	M	P	(m)	(m) (16A)	M	
Child Care Center	(1332)		M	M	P					
Essential Services	(1335)	P	P	P	P	P	P	P (16)	P (16)	P
Fire Protection Services	(1340)	P	P	P		P	P	P (12, 16)	P (16)	
Law Enforcement Services	(1346)	P	P	P		P	P	P (16)		
Lodge, Fraternal and Civic Assembly	(1348)	M	P	P	M	M	M	M (16A)		
Major Impact Services and Utilities	(1350)	M(9)	M(9)	M(9)	M	M(9)	M	M	M	
Minor Impact Services and Utilities	(1355)	P	P	P	P	P	P	P (16)	(m)	
Parking Services	(1360)	P	P	P	P	P	P	P (16)		
Postal Services	(1365)	P	P	P	M	P	P	P(16)		
Small Schools/Trade Schools	(1375)	M	M	M		(m)	(m)	(m) (16)		
2. **COMMERCIAL USE TYPES**										
Administrative and Professional Services	(1410)	P	P	P	P(10)	P	P (12)	P (12, 16)		
Agricultural and Horticultural Sales	(1415)									
a) Agricultural Sales		I		P(2)	P	I	I	I (16A)		
b) Horticultural Sales		I		P	P	I	I	I (16A)		
Agricultural Services	(1420)	I			P(13)	I	I	M		
Animal Sales and Services	(1425)									
b) Grooming				P		I				
c) Horse Stables						I	I	I (16A)		
d) Kennels						I	I	I (16A)		
e) Veterinary – Large Animals							P (12)	P (12,16)		
f) Veterinary – Small Animals			P	P			P (12)	P (12,16)		

Table 3.1-1 Land Use Matrix[(1)]	**San Diego County Zoning Ordinance Nos.**	**Technology Business Park**			**District Commercial**	**Industrial Use Types**			**Rural Residential**	**Conservation Area**
		Technology Business Park	**Activity Node (per Section 3.3.2)**	**Commercial Center (Overlay- per Section 3.3.3)**		**Light Industrial**	**Heavy Industrial**	**Mixed Industrial**		
Automotive and Equipment	(1430)									
a) Cleaning				P(2)	P(13)	P(2)	P(2)	P(2, 16)		
b) Fleet Storage		I(2)				P(2)	P(2)	P(2, 16)		
c) Parking		I(2)			P	P(2)	P(2)	P(2, 16)		
d) Repairs (Heavy Equipment)					P (13)	I(2)	P(2)	P(2, 16)		
e) Repairs (Light Equipment)				P(2)	P (2)	I(2)	P(2)	P (2,16)		
f) Sales Rentals (Heavy Equipment)		I(2)			P(2)	I(2)	P(2)	P(2, 16)		
g) Sales Rentals (Farm Equipment)		I(2)			P(2)	I(2)	P(2)	P(2, 16)		
h) Sales Rentals (Light Equipment)		I(2)		P(2)	P(2)	I(2)	P(2)	P(2, 16)		
i) Storage (Non-Operating Vehicles)		I(3)			M		M	M		
j) Storage (Recreational Vehicles and Boats)		I			M		P(2)	P(2)		
Building Maintenance Services	(1435)	P(2)	P (2)	P(2)	P	P(2)	P (12)	P (12, 16)		
Business Equipment Sales and Service	(1440)	P	P	P	P	P	P (12)	P(12, 16)		
Business Support Services	(1445)	P	P	P	P	P	P (12)	P(12, 16)		
Communications Services	(1450)	P	P	P	P	P	P (12)	P(12, 16)		
Construction Sales and Services	(1455)	P(2)	-	P(2)	P (13)	P(2)	P	P (16)		
Convenience Sales and Personal Services	(1460)	P	P	P	P (14)	P	P (12)	P (12, 16)		
Eating and Drinking Establishments	(1465)	P(5)	P(4)	P	P(4)	P(5)	M (5)	M (5,16A)		
Financial, Insurance and Real Estate	(1475)	P	P	P	P (4)	P	P (12)	P (4,12,16)		
Food and Beverage Sales	(1480)	P(5)	P	P	P (12)	P(5)	P(5)	P (5,16)		
Funeral and Internment Services	(1485)									
a) Cremating					M		M	M		
c) Undertaking							P	P (16)		
Gasoline Sales	(1490)	P(6)		P(6)	P (6)	P(6)	P(6, 12)	M (6. 12)		
Laundry Services	(1495)		P	P	P			P(12,16)		

Table 3.1-1 Land Use Matrix[(1)]	**San Diego County Zoning Ordinance Nos.**	**Technology Business Park**			**District Commercial**	**Industrial Use Types**			**Rural Residential**	**Conservation Area**
		Technology Business Park	**Activity Node (per Section 3.3.2)**	**Commercial Center (Overlay- per Section 3.3.3)**		**Light Industrial**	**Heavy Industrial**	**Mixed Industrial**		
Medical Services	(1500)	P	P	P						
Participant Sports and Recreation	(1505)									
a) Indoor		P (12)	P	P	P	P	P (12)	P (12,16)		
b) Outdoor		M		M	M	M	M	M (12,16A)	M	
Personal Services	(1510)	P	P	P		P				
Recycling Collection Center	(1512)									
a) Small (7)			P	P	P	P	P	P(16)		
b) Large (7)					P		P	P(16)		
Recycling Processing Facility	(1513)									
a) Light (8)							M	M (16)		
b) Heavy (8)							M	M		
c) Wood and Green Materials, Light (8)							M	M		
d) Wood and Green Materials, Heavy (8)							M	M		
Repair Services	(1515)	P	P	P	P	P	P (12)	P (12,16)		
Research Services	(1520)	P	P	-		P	P	P (16)		
Retail Sales	(1525)									
a) General		P(5)	P	P	P			M (12, 16)		
b) Specialty		P	P	P	P	P	M(5)			
Scrap Operations	(1530)						P	M		
Spectator Sports and Entertainment	(1535)									
a) Limited		I		P	M	(m)	M (12)	M (12)		
b) General				M	M	M	M	M		
Swap Meets	(1540)	I				I	I	I		
Transient Habitation	(1545)									
a) Campground										M
b) Lodging		M	M	P	P (11)					
c) Resort										M

Table 3.1-1 Land Use Matrix[(1)]	**San Diego County Zoning Ordinance Nos.**	**Technology Business Park**			**District Commercial**	**Industrial Use Types**			**Rural Residential**	**Conservation Area**
		Technology Business Park	**Activity Node (per Section 3.3.2)**	**Commercial Center (Overlay- per Section 3.3.3)**		**Light Industrial**	**Heavy Industrial**	**Mixed Industrial**		
3. **INDUSTRIAL USE TYPES** (9)										
Wholesale Storage and Distribution	(1550)									
a) Mini Warehouse					P (17)	P	P	P (16)		
b) Light		P(2)		P(2)	P (17)	P	P	P (16)		
c) Heavy					P (17)	P	P	P (16)		
Custom Manufacturing	(1610)	P	P	P	P (17)	P	P	P (16)		
General Industrial	(1620)	P			P (17)	P	P	P (16)		
4. **AGRICULTURAL USE TYPES**										
Horticultural	(1710)									
a) Cultivation		I				I	I	I (16)		
b) Storage		I				I	I	I (16)		
Tree Crops	(1715)	I				I	I	I (16)		
Row and Field Crops	(1720)	I				I	I	I (16)		
Packing and Processing	(1735)									
a) Limited						P	P	P (16)		
b) Winery						P	P	P (16)		
c) General						P	P	P (16)		
d) Support						P	P	P (16)		
5. EXTRACTIVE USE TYPES										
Site Preparation	(1820)	M			M	M	M	M (12)		
Extractive Use	(6550-6557)							M (15)	M (15)	
6. **RESIDENTIAL USE TYPES**	(1260)									
Family Residential: Density = 1 du/20 acre									P (16A)	

Symbol Key:

P = Permitted Use by Right
I = Interim Use (Major Use Permit Required; Initial 5 Years; additional 5-year increments by Major Use Permit Modifications)
(m) = Minor Use Permit
M = Major Use Permit
Blank = Not Permitted

Land Use Matrix Footnotes

1. Accessory uses, as defined by The Zoning Ordinance Section 6156 et seq., customarily associated with, and appropriate, incidental and subordinate to the principal use shall be permitted in all districts. The Director of Planning and Land Use shall determine whether the proposed accessory use qualifies as an accessory use, and said determination is subject to appeal pursuant to Section 7200 of the County of San Diego Zoning Ordinance.
2. All operations, including storage of materials, shall be enclosed (within a building or within a solid fence or wall, minimum six feet in height). (Note 13 shall apply when the Zoning Ordinance requires enclosed buildings for specific uses.)
3. One auto auction was legally established prior to amendment of this Specific Plan. That interim use may be renewed for up to 5 years at a time if the finding can be made that a "reasonable projection of market demand indicates that it is unlikely that permitted uses in the Technology Business Park will be established in the time period for which the renewal is authorized."
4. Drive-through only permitted with a Major Use Permit.
5. Eating and Drinking Establishments, Food and Beverage Retail Sales and General Retail Sales in areas outside of the Activity Nodes or Commercial Center are allowed as accessory to the main use.
6. Gasoline Sales use type as defined per The Zoning Ordinance, are limited to sites located at the intersection of Prime Arterials and Collector Streets and Major Roads and Collector Streets.
7. Uses shall comply with Section 6970 of the County Zoning Ordinance: Recycling Collection Facility.
8. Uses shall comply with Section 6975 of the County Zoning Ordinance: Recycling Processing Facility.
9. Transit center allowed by right; all others require Major Use Permit.
10. Office space must be less than 100,000 square feet, otherwise a Major Use Permit is required.
11. A Major Use Permit is required for more than 100 rooms (lodging).
12. Support Commercial only; can occupy a maximum of 5% of an industrial parcel (see transfer limits, page 85).
13. All operations, including storage of materials, shall be entirely within an enclosed building.
14. Maximum of one establishment.
15. Extractive use was permitted with a Major Use Permit (MUP) by previous Subarea 2 language; that provision is retained for Subarea 2, which includes Mixed Industrial and Rural Residential. Specific Plan conformance, MUP findings, and (in some areas) a Major Amendment to the MSCP shall be required for the MUP. Extractive use remains prohibited outside previous Subarea 2. For surface mining, see Chapter 7 (Sections 87.701 and 87.714) of the Grading Ordinance.
16. See section 3.3.5 for processing requirements within the Landfill Buffer Overlay. Uses labeled (16A) are prohibited within the Landfill Buffer Overlay.
17. See Policy LU-5. Development should meet Site Plan and design review criteria for future commercial use. If Heavy Industrial, General Industrial or Custom Manufacturing use is proposed within a designated commercial area (District Commercial, Commercial Overlay), then Civic and Commercial uses are subject to same limitations as Heavy Industrial.

3.2 Development Standards

The Development Standards apply to all parcels and serve as criteria for the review of all proposed development.

The Development Standards, key implementation tools for the East Otay Mesa Specific Plan SubArea 1, shall apply to all parcels and serve as criteria for the review of all development including interim uses. These Standards will accomplish the following:

- Administration through a Site Plan Permit or other discretionary permit;
- Creation of industrial and business parks with strong identities and a place of distinction and quality;
- Establishment of criteria to create cohesive, visually unified industrial and business centers;
- Assurance of a compatible interface with the proposed Otay Valley Regional Park that enhances both the industrial development as well as the nearby Regional Park;
- Establishment of tools necessary to implement the goals and objectives of the Specific Plan; and
- Implementation of mitigation measures identified in CEQA documents prepared for the Specific Plan.

If not otherwise specified herein, requirements of the County Public Road Standards, County Off Street Parking Manual, County Water Conservation in Landscaping Ordinance and Design Manual, County Grading Ordinance, and County Dark Sky Ordinance

The Development Standards are intended to allow design flexibility under the premise that several design solutions can ultimately achieve a stated goal.

The intent of this section is to create a user-friendly, quick reference, in table format, that contains pertinent information for various design professionals that will be implementing the Specific Plan through development proposals. The desired result is to assist the applicant in preparing complete comprehensive submittals that can be readily reviewed by County staff. Section 6250 of the County Zoning Ordinance shall regulate On-Premise Signage. Development Standards are broken into three main areas as follows:

- Site Planning
- Landscaping
- Architectural

If not otherwise specified herein, requirements of the County Public Road Standards, County Off-Street Parking Manual, County Water Conservation in Landscaping Ordinance Design Manual, County Grading Ordinance, County Subdivision Ordinance, and County Dark Sky Ordinance shall apply to both permanent and interim uses. Where there are conflicting requirements, those included in this Specific Plan shall apply.

3.2.1 Site Planning

All permanent development in the Specific Plan Area shall comply with the Site Planning Standards.

Table 3.2-1 sets forth specific standards and requirements for Site Plan design and for development. Many of the standards apply to all of the land uses allowed in the Specific Plan Area, and others apply only to a specific type of land use. All permanent development projects in the Specific Plan Area shall comply with the Site Planning Standards. Interim uses shall also comply with the Site Planning Standards with the exception of type of structure, which is limited by The Zoning Ordinance. The Site Plan requirement does not apply to the development or improvement of new or existing County Parks.

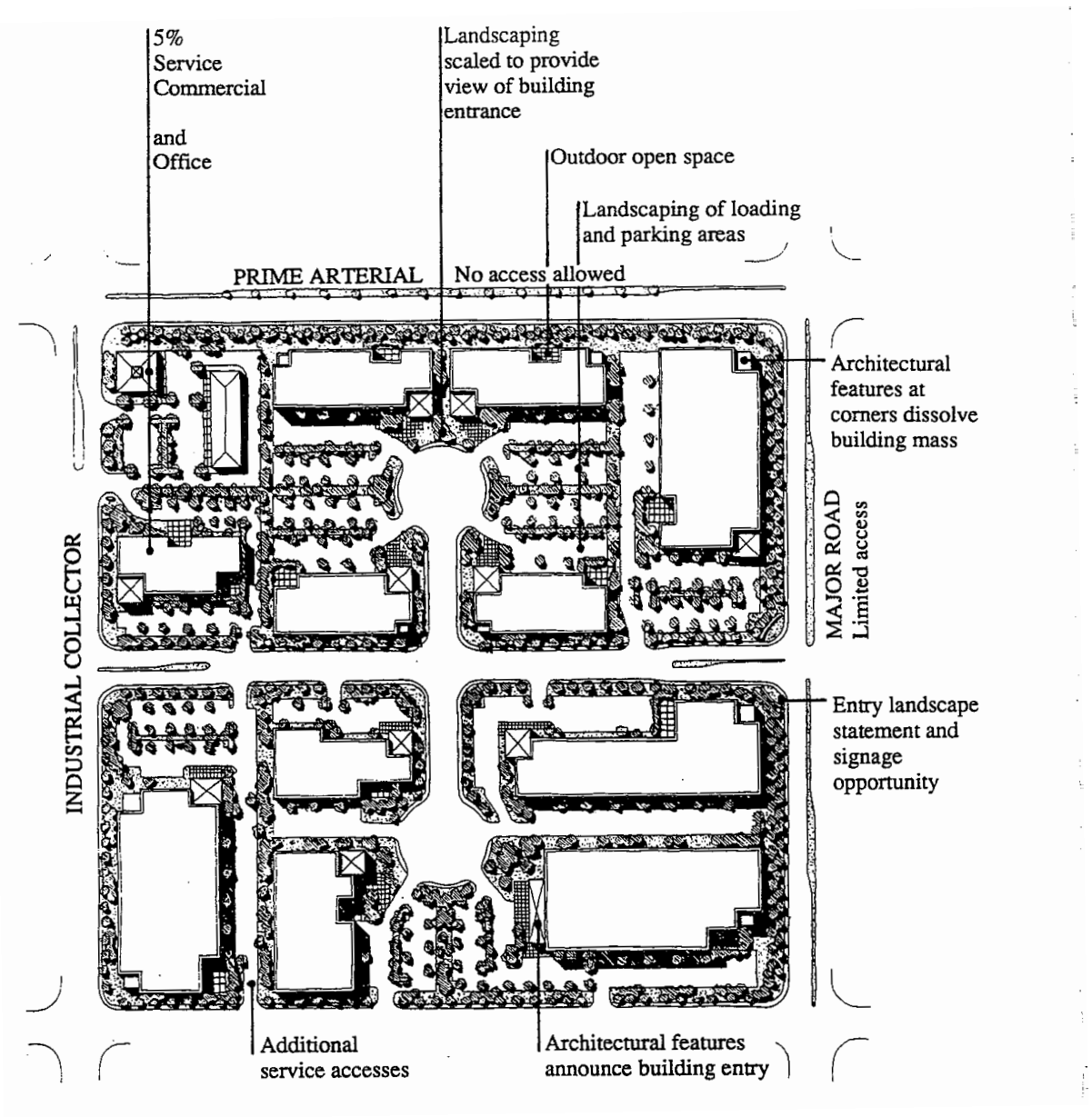
The Site Planning Standards (Table 3.2-1) addresses the following:

The entire Specific Plan is subject to a B Special Area Designator, requiring the preparation of a Site Plan, and areas shown on Figure 3.2-11 are also subject to a G Special Area Designator. The only exception is rural residential development located areas designated as Rural Residential.

- Use, Intensity and Bulk Requirements
- Site Access
- Parking
- Grading
- Building Orientation
- Usable Open Spaces
- Service Areas
- Fencing, Walls and Hedges
- Lighting

The 2010 Amendment to the Specific Plan incorporated select site planning guidelines and standards from the Site Planning and Design Guidelines prepared for the 1994 Specific Plan. The drawing on the following page, Figure 3.2-1, demonstrates how the Site Planning Standards could be applied in a typical situation.

Figure 3.2-1 Illustrative Site Plan



When processing a subdivision in East Otay Mesa, a conceptual layout should be submitted early in the permitting process to demonstrate that the proposed subdivision can accommodate industrial development that meets site planning standards of the Specific Plan.

Table 3.2-1:	**Site Planning Standards: Use, Intensity and Bulk Regulations**								
Regulations	**Technology Business Park**	**Light Industrial**	**Heavy Industrial**	**Activity Node**	**Commercial Center**	**District Commercial**	**Mixed Industrial**	**Rural Residential** (9)	**Conserva-tion/ Limited Use**
Use Regulations	S88	S88	S88	S88	S88	S88	S88	S88	S88
Minimum Lot Size	30,000SF	30,000SF	30,000SF	4,000SF	10,000SF	10,000 SF	30,000 SF	20 AC (9)	1 AC
Building Type	W	W	W	W	W	W	W	B	W
Floor Area Ratio	.5 / 1.0 (8)	.5	.5	1.0	1.0	.25	.40	N/A	.35
Max. Building Height (5)	150 feet	100 feet	60 feet	150 feet	35 feet	60 feet	60 feet	25 feet	25 feet
Max. Building Coverage	.40	.50	.50	.50	.50	.25	.40	N/A	.25
Min. Building Setbacks	Streets (6):								
Prime Arterial Road	25 ft.	25 ft.	25 ft.		20 ft.	25 ft.	25 ft	60 ft (front yard setback)	25 ft.
Major Road	20 ft.	20 ft.	20 ft.		20 ft.	20 ft.	20 ft.		25 ft.
Industrial/Commercial Collector Road (4-Lane)	20 ft.	20 ft.	20 ft.	5 ft.	20 ft.	20 ft.	20 ft.		25 ft.
Industrial/Commercial Collector Road (2-Lane)	10 ft.	10 ft.	10 ft.	5 ft.	15 ft.	15 ft.	10 ft.		15 ft.
Min. Building Setbacks	***Yards** (7):*								
Interior Side Yard	10 feet to 30 feet, and sum of interior yards shall equal at least 30'; 50' from top of slope if adjacent to the Otay Valley Regional Park			0 feet	20' for buildings & 15' for parking and driveway. (see note 1).	15 feet	15 feet	15' Side 35' Exterior	20 feet
Rear Yard	5 feet	5 feet	5 feet	5 feet	5 feet			25'	5'
Enclosures	Outdoor storage with screening per Development Standards (Fencing, Walls and Hedges)			Outdoor storage prohibited (2)	Outdoor storage prohibited (3)				Outdoor storage with screening (4)
Animal Regulations	D	D	D	D	D	D	D	D	D

Site Planning Matrix Footnotes:

Note 1: Shared driveways will not require an interior yard setback.

Note 2: Except weekend sidewalk sales

Note 3: Except for display and sale of landscape items and seasonal items.

Note 4: Per Development Standards.

Note 5: FAA regulations related to Brown Field may result in reduced height limits in some locations. FAA review is required for most development permits in East Otay Mesa.

Note 6: Measured from edge of right-of-way

Note 7: Measured from property line.

Note 8: 1.0 FAR when within 1,250 feet of Activity Node; 0.5 FAR when located more than 1,250 feet from Activity Node

Note 9: Rural Residential has a "C" setback designator (see Zoning Ordinance, Section 4810), building type B, height C. For clustered development: (a) setbacks will be established during Site Plan review, (b) at least 40% of the project must be in permanent open space, and (c) the minimum parcel size is 20,000 SF or less.

Symbol Key:

W: Non-residential, attached or detached, same lot or separate lot.

D: See Designator "D" of the Animal Schedule of the County Zoning Ordinance, Section 3100.

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
	SITE ACCESS
Prime Arterials	▪ Controlled intersections are the preferred access points for roadways classified as Prime Arterials. Direct property access via private driveways shall be limited (per County Road Standards).
Major Roads	▪ Driveway cuts permitted wherever street intersections would otherwise be allowed (separation of 300 feet, per County Road Standards) and shall be right-in and right-out only with no median cuts for driveways permitted. If additional driveways are proposed, shared driveways should be utilized where feasible to minimize curb cuts on Circulation Element and Specific Plan roads.
Collector Roads	▪ Driveway cuts permitted wherever street intersections would otherwise be allowed (separation of 300 feet, per County Standards). If additional driveways are proposed, shared driveways should be used where feasible to minimize curb cuts on Circulation Element and Specific Plan roads.
Specific Plan Roads and Local Streets	▪ Where frontage is less than 150 feet, one curb cut is permitted. ▪ Where frontage is 150 to 200 feet, 2 curb cuts are permitted. ▪ Where frontage is greater than 200 feet, 1 curb cut is permitted every 100 feet (round up at 250 feet or more).
Driveway Width	▪ 40 foot maximum; 30 foot maximum in Activity Nodes; 60 foot maximum for tandem driveways.
Curb Radius	▪ Refer to County Road Standards ▪ Driveways may be increased to 30 foot radius for truck traffic
Driveway Spacing	▪ Provide 60 feet or more between driveways per lot, but the number of driveways shall be limited by street frontage allowance. ▪ Provide 15 feet or more from the interior property line, except for shared driveways where no interior yard setback is required from the property line. ▪ Provide 30 feet or more from the end of curb radius. ▪ Driveway spacing less than 200 feet shall require a design modification approved by the Director of Public Works ▪ Driveways should be located to minimize interference with required street tree spacing on Circulation Element and Specific Plan roads.
Transit Planning	▪ Bus pullouts at transit stops needs shall be reviewed by MTDB and may be required on all Prime Arterials

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
	and Major Roads. ▪ The Commercial Center shall accommodate transit facilities to the satisfaction of the County and in coordination with MTDB. ▪ When the County Board of Supervisors adopts a Transit Plan, including development standards and route locations, all development within East Otay Mesa shall be required to comply with that plan.
Pedestrian Circulation	▪ Provide pedestrian walkways that link building entries to sidewalks located within public rights-of-way (pedestrian connections should meet ADA and California Accessibility standards). ▪ When more than one building is located on a development parcel, provide pedestrian walkways that link together building entries (pedestrian connections should meet ADA and California Accessibility standards). Minimize conflicts between vehicular and pedestrian circulation within the development parcel.
Site Plan Coordination Between Separate Commercial Properties	▪ Circulation: Major site access points, curb cut locations, and parking lot layouts shall be coordinated with adjacent properties through the Site Plan review process to facilitate vehicular and pedestrian circulation throughout commercial shopping areas. Curb cuts on collector roads shall also be coordinated with the planned curb cuts across the street to create four-way intersections. Parking lot layouts shall be closely coordinated with adjoining commercially zoned properties to maximize ease of vehicular circulation, through shared driveways and access, where feasible. ▪ Reciprocal Access Easements: Reciprocal access easements are encouraged for adjoining commercially zoned properties to allow for efficient circulation and parking between separate commercial properties, i.e., pedestrians and vehicles should be able to access adjacent commercial properties without exiting onto a public street to re-enter an adjoining commercial property where feasible.

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
PARKING	
Number Required *Also see Multiple Uses below.*	**Storage and Warehouse Uses:** ▪ 1 space per 1,000 square feet of gross floor area (SF/GFA) plus 1 space for each vehicle used in conjunction with the use. ▪ 1 bicycle space for every 10 parking spaces, but not less than 3 spaces
	Industrial Uses: ▪ Up to 100,000 gross square feet 2.5 parking spaces per 1,000 SF/GFA plus 1 space for each vehicle used in conjunction with the use. ▪ 100,000 gross square feet or more 2 parking spaces per 1,000 SF/GFA plus 1 space for each vehicle used in conjunction with the use. ▪ 1 bicycle space for every 10 parking spaces
	Support Office / Commercial Uses: ▪ 25,000 gross square feet or less: 4 parking spaces per 1,000 SF/GFA ▪ Greater than 25,000 gross square feet: 3.3 parking spaces per 1,000 SF/GFA • 1 bicycle space for every 10 parking spaces • When more than 10 percent of the gross floor area of a support commercial use is devoted to eating and drinking establishments, the parking requirements are as follows: 10-25 percent: 10 parking spaces per 1,000 SF/GFA Over 25 percent: 12 parking spaces per 1,000 SF/GFA

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
Number Required	**All Other Uses:** ▪ Refer to County Parking Requirements, Section 6750 of County Zoning Ordinance and Off Street Design Manual except as noted below. ▪ Detention and correction institutions 100,000 gross square feet or more (San Diego County Zoning Ordinance 1350) located in the Heavy Industrial land use designation: 1 space per 1,000 SF/GFA ▪ On-street parking prohibited on Prime Arterials, Major Roads or four-lane Collector Roads. ▪ On-street parking (parallel only) permitted on local streets. **Multiple Uses:** ▪ In cases where multiple uses are located within a building or on a lot, the total requirements for off-street parking facilities shall be the sum of the requirements for the various uses computed separately. ▪ Off-street parking facilities for one use shall not be considered as providing parking facilities for any other use except as specified in the Zoning Ordinance for joint use parking facilities. **All Uses:** When processing a Major Use Permit for specialized businesses, parking standards may be modified when adequate evidence is supplied that supports the proposed parking standard. Reduced parking standards are limited to the life of the Major Use Permit and cannot be transferred. **Speculative Development**: Speculative industrial or commercial development may establish an overall parking ratio, based on assumptions about ultimate use, provided that a subsequent permit is obtained by the ultimate user that verifies parking provisions do meet the requirements of this Specific Plan.
Location	▪ Off street parking prohibited in landscape setback areas. ▪ In Activity Nodes, off street parking prohibited between building and street right-of-way. ▪ In Activity Nodes, off street parking permitted on non-street side of building.
Screening	▪ Commercial truck parking lots are not permitted unless screened from views from all public rights-of-way. Provide screening using landscaped berms (maximum four-foot tall), fencing, landscaping and/or buildings that block views to the parking lot from the public rights-of-way. When truck parking is elevated due to topography, evidence shall be supplied demonstrating that adequate screening is provided.

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
	▪ Chain-link fencing is prohibited except for specific circumstances identified in the following section: "Fencing, Walls & Hedges – Materials". ▪ Parking areas located within or adjacent to the Otay Valley Regional Park FPA shall be screened from the Park by native landscaping. In addition, views from the Park as well as the regional trail system should be considered when identifying screening requirements for such parking areas.
Interim Use Truck Parking	• Disintegrated granite may be used as a surface material for truck parking in appropriate locations, subject to approval by the Director, Department of Public Works.
	GRADING
General *See page102 for Rural Residential and Conservation / Limited Use.*	▪ Grading shall conform to the County's Grading Ordinance or as specified in this Specific Plan (the more restrictive would apply). The maximum slope shall not exceed 2:1, although a slope of 3:1 should be used whenever feasible. Existing and/or rough graded slopes in excess of 3:1 should be regraded to provide the same general effect by rounding and rolling the tops and toes of slopes. Where turf grass is planned, the maximum slope shall be 5:1. ▪ The amount of grading should be minimized. Where there is a significant slope across the site, terraced grading for building pads should follow the natural topography of the site except where large industrial buildings are anticipated. Whenever feasible, use contoured slopes and/or landscaping to minimize visual impacts on slope banks that exceed 20 feet. ▪ Adjacent building pads: The elevation difference between adjacent building pads should not exceed 30 feet. Retaining walls and bench cuts should not be used to circumvent the limits on slope banks. ▪ Pads and adjacent public road(s): The elevation difference between a building pad and an adjacent public road is limited to 30 feet when the pad is located below a public road and to 20 feet when the pad is located above the public road. No standard is set for limited circumstances where the elevation difference is the result of the natural topography of the land, the planned alignment of the road and/or the requirements of public road standards (the primary example is Lone Star Road.) ▪ Along the boundaries of areas designated for industrial or commercial use (and those designated for Rural Residential or Conservation/Limited Use) within the Specific Plan, avoid the appearance of manufactured slopes. New slopes should be contoured to blend into the natural topography and support plant material matching the existing native vegetation. (See figure 3.2-2) ▪ The maximum slope gradient for cut or fill slopes is 2:1, per the County's Grading Ordinance.

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
Retaining Walls	▪ Limit the use of retaining walls, and locate them only where they are not likely to be damaged by vehicles and where they are separated from any road surface by at least 5 feet of landscaping. ▪ Minimum horizontal separation between walls is 4 feet. ▪ Minimum distance to street right of way 10 feet, landscaped to include minimum five-gallon shrubs to achieve a 3-foot tall height at maturity. Shrubs shall be located between street right-of-way and wall at a ratio of 4 per 20 linear feet. ▪ Permitted materials: stone, stucco, cast stone, split-face CMU, brick, poured-in-place concrete, brick block, keystone. ▪ Timber retaining walls are prohibited. ▪ Walls of buildings are permitted to act as retaining walls, subject to all applicable building codes.
Drainage Control	▪ Stormwater management and drainage shall be designed to meet County ordinances and State and National Pollutant Discharge Elimination System (NPDES) permit requirements. ▪ Volume for all storage facilities shall be designed according to maximum anticipated buildout.

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
Conservation Areas and Adjacent to Otay Valley Regional Park and Johnson and O'Neal Canyons	▪ Grading within Rural Residential and Conservation/Limited Use areas shall be limited, with heights between building pads (and roads) limited to 15 feet. ▪ Projects located within or adjacent to the Otay Valley Regional Park shall be designed to minimize the visual impact of grading to the Park. ▪ Grading into Johnson and O'Neal Canyons shall be restricted. Grading plans for properties adjacent to Johnson Canyon shall incorporate erosion control devices that are put in place prior to construction. ▪ Grading or temporary stockpiling of excess fill in canyons is prohibited. ▪ Daylight cut conditions are required on the edge of Johnson and O'Neal canyons. ▪ Fill slopes shall be planted with non-invasive native plant material similar/compatible with the adjacent areas. ▪ Retaining walls and terrace building pads at the canyon edge are prohibited. Note 1: Policies above related to Johnson and O'Neal Canyons primarily apply to those portions of the canyons located in areas designated as Rural Residential in the original (1994) Specific Plan. Those areas are currently designated as Rural Residential or Conservation / Limited Use.
BUILDING LOCATION AND ORIENTATION	
General Principles	▪ Development should be sited to produce a consistent relationship of buildings to public streets. This can be accomplished by providing consistent building setbacks, by orienting building entries to the street or to interior courtyards in a consistent manner, and by locating buildings at the corner of a site when it is located next to a public street intersection. ▪ In development complexes of more than one building, buildings should be organized around courtyards, or grouped in compact clusters, to create coherent and useful outdoor spaces with shelter from wind or sun. ▪ Outdoor areas created as a result of building locations should have clear, recognizable shapes that reflect careful planning and are not simply left-over areas between buildings. Central courtyards, entry courts, plazas and enclosed gardens are examples of useful spaces between buildings. Use landscaping, low walls, benches and other elements to improve their visual appearance and provide shade and sitting areas for pedestrians.
Accessibility	▪ Primary and ground floor building entrances shall orient to plazas or pedestrian sidewalks. ▪ Walkways to transit stops shall be landscaped with canopy trees, minimum one 24" box tree / 30 lineal feet

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
	of walkway. ▪ Buildings in Activity Nodes shall be oriented toward the street that they front.
Adjacent to Otay Valley Regional Park	▪ Open space areas within development located adjacent to the Park should maximize setback of structures from the Park. ▪ Buildings shall be sited so as to maximize views to the Otay Valley Regional Park while maintaining 50-foot setback from top of slope. ▪ All development adjacent to the Otay Valley Regional Park shall improve a 10-foot wide trail for passive viewing and as a potential connection to the regional park trail system. The trail shall be open to the public and shall connect to a public sidewalk or an alternative location acceptable to the County. ▪ Window walls shall be oriented to the park.
	USABLE OPEN SPACE
Screening	▪ Ground level open space shall include minimum 4' tall (at maturity) screening from abutting parking by dense landscaping, or masonry fence or wall, either solid or semi-opaque. Chain link fencing is prohibited except for specific circumstances identified in the following section: "Fencing, Walls & Hedges – Materials". ▪ When adjacent to plazas and courtyards, views to trash dumpster areas, equipment or storage areas, and loading docks shall be screened utilizing material compatible with the adjacent building and integrated into building architecture.
Location	**Industrial and Commercial:** ▪ All plans shall designate a location(s) on-site for employee passive or recreational activity. This area shall be screened from parking and traffic and shall be improved with benches and shade structures. The slope of a usable open space shall not exceed two percent. ▪ Usable open space should be accessible to all buildings on the lot or building site. ▪ For purposes of satisfying this requirement, outdoor passive or recreational areas of not less than 2,000 square feet in area shall be provided for each 10 acres of development area. The outdoor areas may occur as one large area serving several lots as identified on the site plan or subdivision map. Within an Activity Node, a plaza may satisfy this requirement. ▪ Where more than one building is located on a site, buildings shall be organized around or designed to create courtyards or outdoor spaces, unless this is precluded by the primary use of the facility, such as

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
	truck loading docks (see Figures 3.2-1 and 3.2-3). ▪ Spaces between buildings shall include entry courts, defined plazas, lunchtime retreats, or formal and informal gardens, unless this is precluded by the primary use of the facility, such as truck loading docks. ▪ Planting, low walls and fences shall enclose one or more sides of an outdoor space. A minimum of 200 square feet of the area should be shaded by a roof overhang, trellis, or other shade device. ▪ Off-street parking and loading areas, driveways, and service areas shall not be counted as usable open space. Adequate screening shall be provided if usable open space is located next to such uses.
	Activity Node: ▪ The required 5-foot setback between building and street right-of-way shall apply towards usable open space. The setbacks may be increased to 10' to create outdoor dining areas and to avoid buildings with straight unbroken facades. ▪ The usable open space may be a central plaza, park or "public square or green" located central to the Activity Node and easily accessible from buildings in the Node.
SERVICE AREAS	
Loading Areas	▪ The number of loading areas shall conform to the applicable Zoning Ordinance provisions.
Loading Areas, Docks and Storage or Service Areas	▪ Shall not encroach into landscape setback areas. ▪ Shall be a minimum 30 feet from the street front property line (and outside setback areas) and adequately screened. ▪ Shall be screened from the Otay Valley Regional Park. ▪ Shall be located within or behind buildings or be adequately screened from any public right-of-way by a wall, hedge, row of evergreen trees space 12-feet on center, or other visual barrier (Figure 3.2-4).
Mechanical Equipment	▪ Satellite dishes, back flow preventors, stand pipes, etc. that cannot be located indoors, shall be screened from view by fences, walls or landscape materials that blend with the landscape palette.

TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
Public Utility Structures	▪ Traffic signal boxes, transformers, telephone switching boxes and other public utility structures shall be located underground or appropriately screened, with landscaping or architectural treatment.
FENCING, WALLS & HEDGES	
Required Fences and Walls	▪ All open sales, display and storage areas not otherwise (fully) screened by topography, buildings, or mature landscaping shall be enclosed by a view-obscuring fence or wall not less than six feet high. This requirement does not apply to the following commercial use types: a. Agricultural Sales (Retail nursery only); b. Outdoor dining areas of Eating and Drinking Establishments; and c. Gasoline Sales (No open storage of goods or materials; all repair and lubrication services shall take place in an enclosed building.) ▪ In Heavy Industrial and Mixed Industrial areas, the above requirement may be waived by the Planning Director for the following commercial use types: a. Automotive and equipment: Cleaning, Sales/rental, Heavy equipment, and Light equipment b. Gasoline Sales ▪ See Parking and Loading Areas, Docks and Storage or Service Areas for additional areas where screening is required.
General Requirements	▪ Wherever screening is required, a fence, wall, hedge or other visual barrier shall be used. Where fences are used as a required screening device, the fence must be opaque. (See Landscaping Standards for information on hedges used as a screening device.)
Maximum Height	▪ Within the setback area, fences, walls and hedges shall have a maximum height of 6 feet above grade. Noise walls may be higher than 6 feet when additional height is needed to comply with General Plan Noise Element or Noise Ordinance requirements. ▪ Beyond the setback area, or within the building envelope, fences, walls and hedges are permitted up to the maximum height applicable to the main building. Although this interpretation allows fencing greater that 6', the County does not want to create fortresses that do not meet the following goals of the Development Standards: 1. Creation of industrial and business parks with strong identities and a place of distinction and quality;

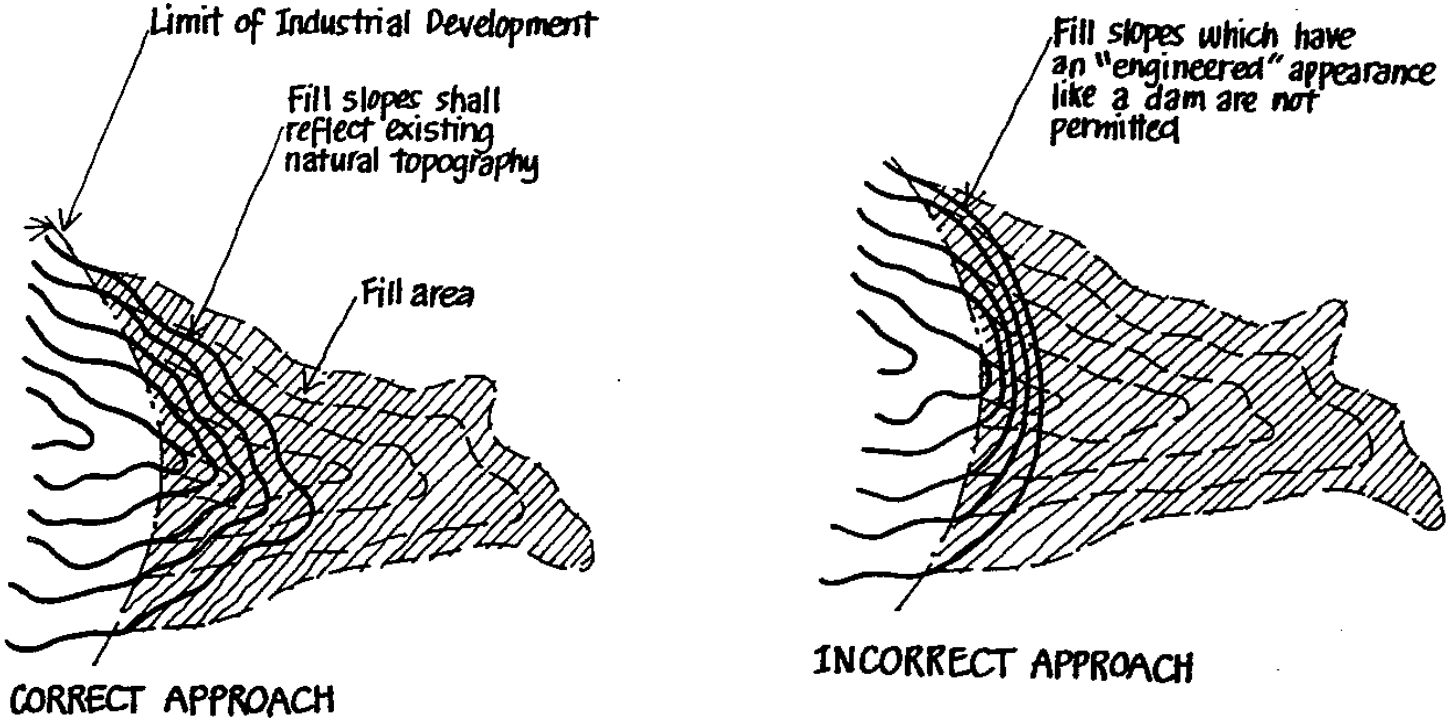
TABLE 3.2-1
Site Planning Standards

	All Land Use Designations
	2. Establishment of criteria to create cohesive, visually unified industrial and business centers.
Materials	▪ The Specific Plan allows any durable material. The wrought-iron type tube material is favored. This type of fencing can also have the angled top that limits someone climbing over. ▪ Prohibited materials include wood, barbed wire, razor wire, corrugated metal, and chain link (with/without vinyl covering) except as noted below. ▪ Detention and correction institutions (San Diego County Zoning Ordinance 1350) located in the Heavy Industrial land use designation may utilize chain link fencing (in conjunction with barbed wire and razor wire, with or without vinyl coating) where required for security purposes. Landscaped berms or setbacks shall be used to minimize visual impacts from adjacent properties and the public rights-of-way. ▪ For other types of uses, chain link is permitted in the following circumstances: 1. Property boundaries adjacent to SR-11, except within setbacks from a public right-of-way. 2. Interior lot locations (perimeter locations are excluded) in areas designated as Heavy Industrial and Mixed Industrial where the fence is located outside the setback from the public right-of-way. 3. Interior lot locations (perimeter locations are excluded) in areas designated as Light Industrial and Technology Business Park where the fence is located outside the setback from the public right-of-way AND the fence is not visible (and will not be visible) from an existing or planned public right-of-way. For example, a location that is hidden from view by existing or planned structures would be permitted. Applicants must submit adequate evidence (maps, photographs, visual simulations, etc.) that demonstrates the fence meets these requirements. 4. Interior lot locations for Interim Uses (perimeter locations are excluded), where the fence is located outside the setback from the public right-of-way. In the above cases, vinyl coated chain link fencing must be used, combined with a screening treatment such as fabric, wood lath or dense vines. Views from the public rights-of-way (and adjacent properties) should be minimized by using landscaped berms (maximum four-foot tall), landscaping and/or buildings that block views. When a lot is elevated from the public right-of-way due to topography, evidence shall be supplied to the County demonstrating that adequate screening is provided.

TABLE 3.2-1
Site Planning Standards

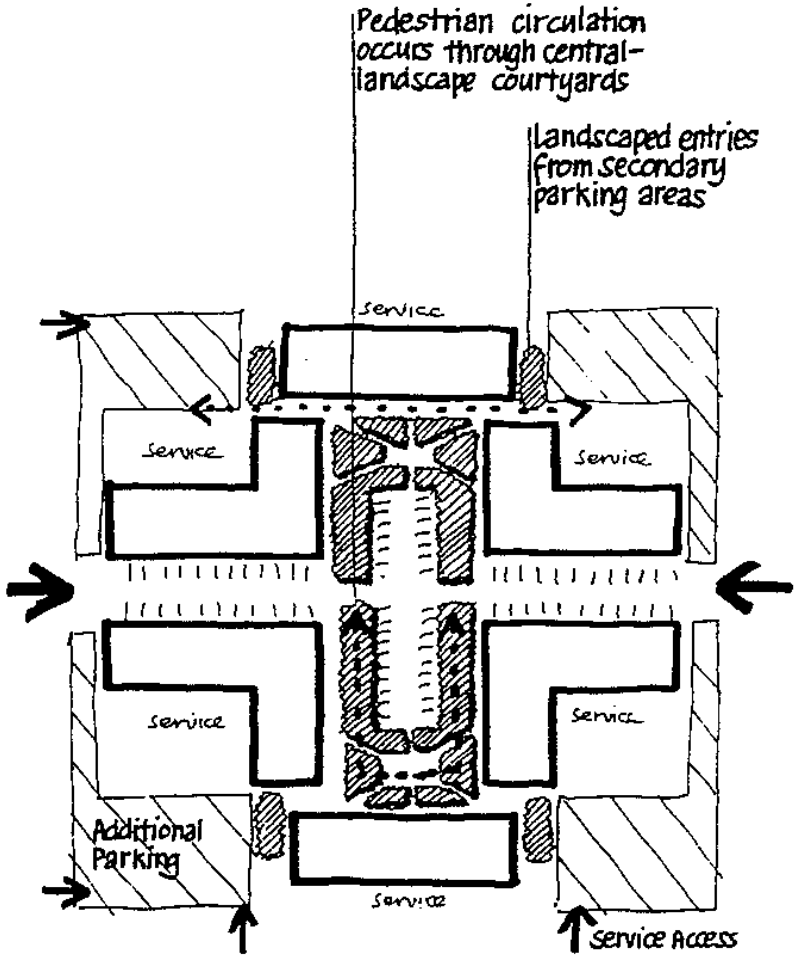
	All Land Use Designations
	▪ All open sales, display and storage areas, including those for trucks, must be enclosed by a view-obscuring fence, wall or building. A hedge or other dense landscaping can satisfy a requirement for a view-obscuring fence and shall be maintained in accordance with landscape provisions of the Water Conservation in Landscaping Ordinance and Design Manual (refer to Landscaping Standards, Table 3.2-2).
LIGHTING	
General	▪ All lighting shall comply with the County Light Pollution Code (County Code § 59.101 et seq.).
Vehicular Areas	▪ In Activity Node parking areas, lighting shall be on 15'-poles and complementary to building architecture. Illumination levels shall meet guidelines for vehicular areas (see County Light Pollution Code - County Code § 59.101 et seq.).
Service and Loading Areas	▪ Lighting shall include directional shields and shall not overflow from the service areas into adjoining parcels. ▪ No floodlights shall be permitted on buildings except for wall packs with cut-off luminaries.
Buildings	▪ Building illumination and architectural lighting shall be indirect in character (no light source visible). ▪ Architectural lighting shall articulate and animate entrances and other prominent architectural elements as well as provide the required functional lighting for safety and clarity of pedestrian movement.
Pedestrian Areas	▪ Lighting for pedestrian walks shall be designed for point-to-point illumination, but no specific illumination levels are required. The main emphasis shall be to clearly identify the pedestrian walkway and direction of travel.
Adjacent to Natural Open Space and/or the OVRP	▪ Lighting shall be directed away from areas designated as Conservation/Limited Use Area or permanent open space area and away from the Otay Valley Regional Park.

Figure 3.2-2 Grading Techniques



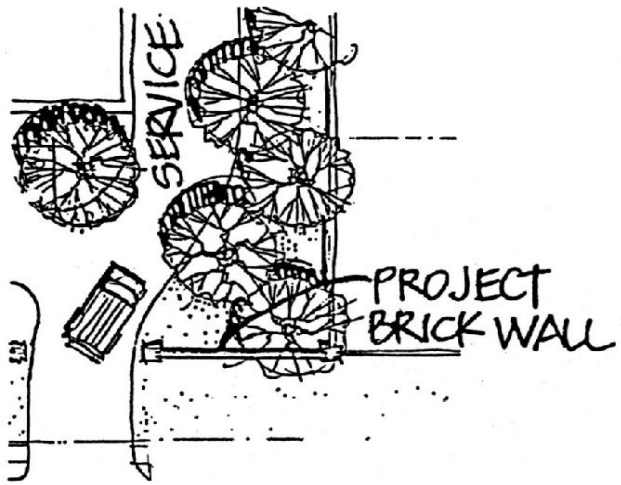
Approaches to Grading
Figure 3

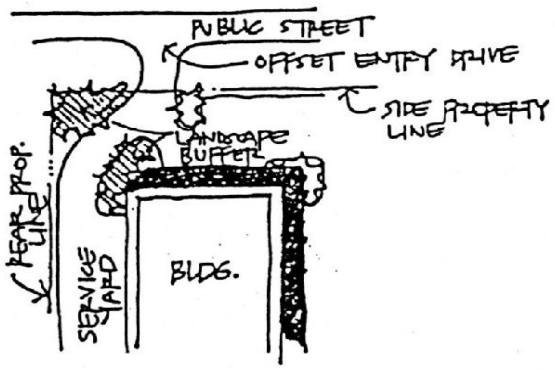
Figure 3.2-3 Open Space and Pedestrian Circulation for Multiple Building

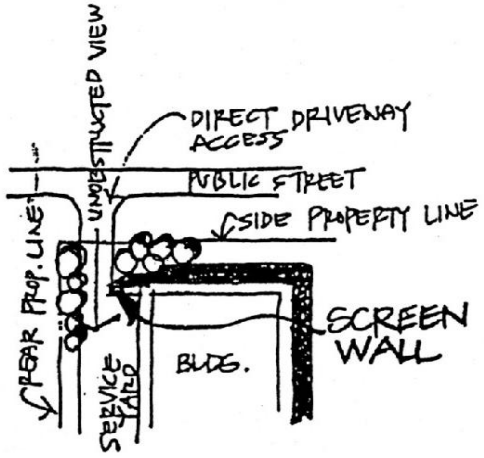


Siting Opportunities for Multiple Buildings

Figure 3.2-4 Screening Techniques







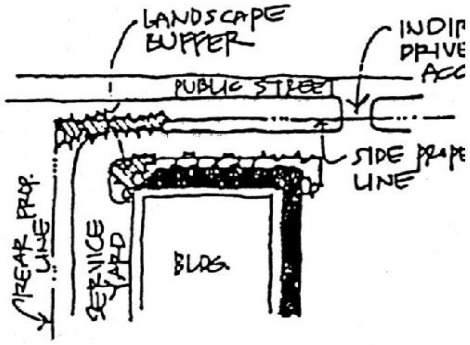
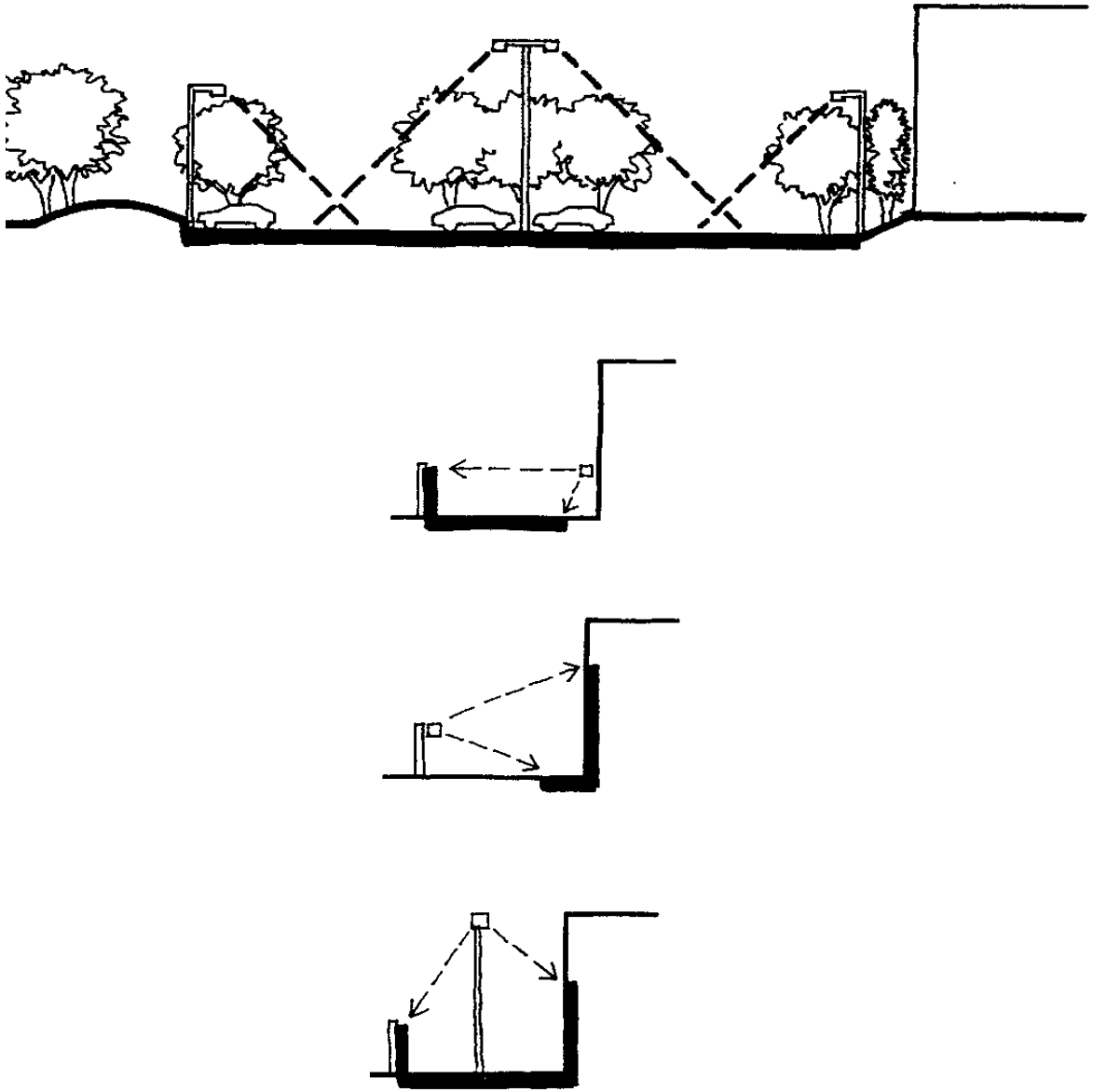


Figure 3.2-5 Lighting of Parking, Service and Loading Areas



3.2.2 Landscaping Standards

Landscape standards establish a sense of cohesiveness and harmony of uses as well as create a park-like identity that will soften the building elements and large areas of paving.

Table 3.2-2 provides landscaping guidelines for the entire East Otay Mesa Specific Plan. The overall intent is to establish a sense of cohesiveness and harmony of uses as well as create a park-like identity that will soften the building elements and large areas of paving. Landscape plans for all development in East Otay Mesa shall be submitted and approved pursuant to Sections 86.701 through 86.729 of the San Diego County Code. Every lot improved with a building or other substantial structure, interim or permanent, shall install the approved landscape and irrigation before final inspection of the structure(s), and shall be maintained thereafter as per the project's approved Landscaping and Irrigation Maintenance schedule. Drought tolerant, non-invasive, and fire-wise landscaping is required throughout East Otay Mesa. Plant material as specified in the County's Water Conservation in Landscaping Ordinance and Design Manual shall be used. Other shrubs, trees, and ground covers not listed may also accomplish the desired goals of the Specific Plan, and if they do so, are encouraged also.

The Landscaping table addresses the following:

- General Landscaping Notes
- Streetscapes
- Building Setback Landscaping
- Building Landscaping
- Parking Lot Landscaping
- Screening
- Landscaping Adjacent to the Otay Valley Regional Park
- Minimum Standards
- Irrigation

Every lot improved with a building or other substantial structure, interim or permanent, shall install the approved landscape and irrigation before final inspection of the permitted structure(s). ,

The preparer of the Landscape Documentation Package shall certify that the landscape plans meet the requirements of the East Otay Mesa Specific Plan and the County's Water Conservation in Landscaping Ordinance and Design Manual.

TABLE 3.2-2
Landscaping Standards

	All Land Use Designations
GENERAL	
Berming	▪ Landscaping in setback areas adjacent to streets shall be contoured and mounded to create continuous rounded slopes and berms. These areas shall be planted with ground cover, hedges and trees. However, berms and mounds should not be used within parkways and the adjacent 2-foot wide landscape easement so that a consistently flat, graded finish is established for street trees and the public right-of-way. ▪ Average mound height shall be a minimum 30”.
Plant Material	▪ Plant material shall be selected from the County Water Conservation in Landscaping Ordinance and Design Manual or to the satisfaction of the Director of the Department of Planning and Land Use. ▪ Plant material shall be drought tolerant and capable of naturalizing or surviving on their own after two years of supplemental irrigation. Exotics and invasive species are prohibited on property within 300 feet of the Conservation/Limited Use Area or the Otay Valley Regional Park. ▪ On slopes adjacent to open space, only native plant material shall be used. ▪ Mowed turf grass should be limited and confined to the front setback areas due to its greater water requirements over other ground covers. Turf grass of an evergreen variety is the preferred type where turf is proposed.
STREETSCAPES	
Street Trees - General	▪ On-site tree planting in required setbacks shall be coordinated with planting in the public right-of-way and shall be consistent with the public right-of-way streetscape concept (Section 2.3.5 Public Landscaping and Streetscape Plant List in Appendix 3). ▪ Retaining walls shall not be located within the first 10 feet of landscape setback. ▪ Exceptions: See Streetscape Plant List, Appendix 3, for tree types to be used in locations on Otay Mesa Road, Harvest Road and Alta Road where existing, above ground SDGE lines are located. For Otay Mesa Road, the Exception List applies only to the south side of the roadway.

TABLE 3.2-2
Landscaping Standards

	All Land Use Designations
Gateway Roads **(Prime Arterials and Majors, Circulation Element roads)**	▪ Tree species and planting pattern shall be a single row of Fern Pine trees spaced 25 feet apart (Streetscape Plant List, Appendix 3). ▪ The Fern Pine trees shall be planted 10 feet from the street curb. ▪ Sidewalks, which shall be 4-feet wide, shall be separated from the traveled way by a 3-foot landscaped parkway. The 3-foot wide planter shall include shrubs spaced every 3 feet on center and maintained at a height of 36 inches maximum (Streetscape Plant List, Appendix 3). Note: If ADA standards require a wider sidewalk, those standards supersede the requirements of the Specific Plan. ▪ Medians shall be landscaped with medium evergreens (Streetscape Plant List, Appendix 3). Trees shall be planted every 25 feet. The median shall be paved with Sandstone colored concrete and stamped with a Dry Creek Bed pattern. Five-foot by five-foot tree grates shall be set flush with concrete (per San Diego Regional Standard Drawings L-4) around each tree located down the center of the median. ▪ Design road networks to minimize curb cuts and retain planned landscaped medians.
Major Roads (non-Gateway, Circulation Element roads)	▪ Shall be planted with large-sized evergreen trees (Streetscape Plant List, Appendix 3). ▪ Minimum number of trees shall be 1 tree for every 30 lineal feet of street frontage and located 10 feet from the face of the curb. ▪ Sidewalks, which shall be 4-feet wide, shall be separated from the traveled way by a 3-foot landscaped parkway. The 3-foot wide planter shall include shrubs spaced every 3 feet on center and maintained at a height of 36 inches maximum (Streetscape Plant List, Appendix 3). Note: If ADA standards require a wider sidewalk, those standards supersede the requirements of the Specific Plan.
Industrial/ Commercial Collector Roads (Specific Plan roads)	▪ Shall be planted with medium-sized evergreen or deciduous canopy trees spaced every 25 feet and located 10 feet from the face of the curb. (Streetscape Plant List, Appendix 3) ▪ Sidewalks, which shall be 4-feet wide, shall be separated from the traveled way by a 3-foot landscaped parkway. The 3-foot wide planter shall include shrubs spaced every 3 feet on center and maintained at a height of 36 inches maximum (Streetscape Plant List, Appendix 3). Note: If ADA standards require a wider sidewalk, those standards supersede the requirements of the Specific Plan.

TABLE 3.2-2
Landscaping Standards

	All Land Use Designations
Activity Node Street	▪ Shall be planted with flowering canopy trees in sidewalk cutout areas (Streetscape Plant List, Appendix 3). ▪ Cutout areas shall be covered with tree grates. ▪ Trees shall be planted every 25 lineal feet, at a distance of 10 feet from curb. ▪ The 4-foot x 4-foot tree grates shall be flush with the concrete cutout areas.
Major Intersections	▪ Shall be planted with three flowering trees located outside of the right-of-way on private property at each corner (Streetscape Plant List, Appendix 3). ▪ Additional landscaping such as shrubs and groundcover shall be required and sight lines preserved for vehicular safety. (See County Road Standards for Corner Sight Distance at Intersections). ▪ Flowering groundcover and shrubs shall supplement the trees. ▪ No turf is allowed with the intersection plantings. ▪ Shrubs shall not exceed 30 inches in height within this area. ▪ Minimize clearance zones at Major Intersections in order to retain planned landscaping.
BUILDING SETBACK LANDSCAPING	
Facing Gateway Roads (Prime Arterials)	▪ On-site tree species and planting pattern shall be a single row of Fern Pine trees spaced 25 feet apart alternating with a single row of evergreen canopy trees spaced 25 feet apart, or as directed by the local fire district. (Streetscape Plant List, Appendix 3)
Facing Major Roads (non-Gateway)	▪ On-site trees shall be coordinated with parkway trees to create an alternating pattern of evergreen trees based on 1 tree per 30 feet of street frontage, or as directed by the local fire district.
Facing Industrial/ Commercial Collector Roads	▪ On-site trees shall be small canopy size, planted in groupings of a minimum 11 trees per group and spaced every 100-feet or fraction thereof, or as directed by the local fire district, and shall be compatible with on-site landscaping of adjacent developed properties.

TABLE 3.2-2
Landscaping Standards

	All Land Use Designations
BUILDING LANDSCAPING	
Minimum Depth	▪ Landscaped area between the building and any auto circulation area shall be 10 feet minimum.
Trees and Shrubs	▪ One tree (24 inch box minimum) per each 20 lineal feet of the combined length of the front and both sidewall dimensions of the building. ▪ Shrubs (5-gallon container) shall be planted at the following ratio: a. Front: 1 shrub / 4 lineal feet b. Corner Side: 1 shrub / 5 lineal feet c. Interior Side: 1 shrub / 5 lineal feet for first 25 feet of building closest to fronting street. d. Rear: N/A e. Side Adjacent Open Space: 1 shrub / 7.5 lineal feet ▪ All remaining areas of the planting bed shall be groundcover or one-gallon shrubs, vines, ornamental grasses or perennials with a minimum of 2 inch organic mulch for water conservation.
PARKING LOT	
General	▪ All trees, shrubs or groundcover shall comply with the County Off-Street Parking Design Manual
Planting Islands	▪ One minimum 5 foot x 18 foot island or equivalent is required for every ten parking spaces. Each island shall be planted with one 24-inch box canopy tree and 5-gallon shrubs that will achieve 60% coverage in two growing seasons. ▪ Turf not permitted. ▪ All landscape areas within a parking lot shall be permanently irrigated.
Screening	▪ Parking areas adjacent to Otay Valley Regional Park shall be screened from public view by native or native compatible landscaping. ▪ Parking areas located between buildings and street shall be screened with shrubs and trees.

TABLE 3.2-2
Landscaping Standards

	All Land Use Designations
SCREENING	
General	▪ Groups of evergreen shrubs should be planted along property line setbacks to screen parking areas, storage and similar unattractive views. Side and read yard setbacks should be planted with large-scale landscape materials (trees, shrubs) to screen views into parking lot and service areas.
Hedges	▪ Where required, screening shrub masses shall be planted at a rate of four five-gallon shrubs per 20 linear feet. ▪ Other ornamental shrubs may also be planted in masses for accents or erosion control. ▪ Screen hedges shall be spaced to insure complete screening within two growing seasons and should be maintained at a height of no less than 36 inches in order to provide effective screening. ▪ Hedges shall not block any required sight lines at intersections or driveways.
LANDSCAPING ADJACENT TO THE OTAY VALLEY REGIONAL PARK	
Restrictions	▪ Invasive plant species that out-grow and take over natural vegetation shall not be used within Johnson or O'Neal Canyons, or within 300 feet of any boundary within the Otay Valley Regional Park Concept Plan Boundary.

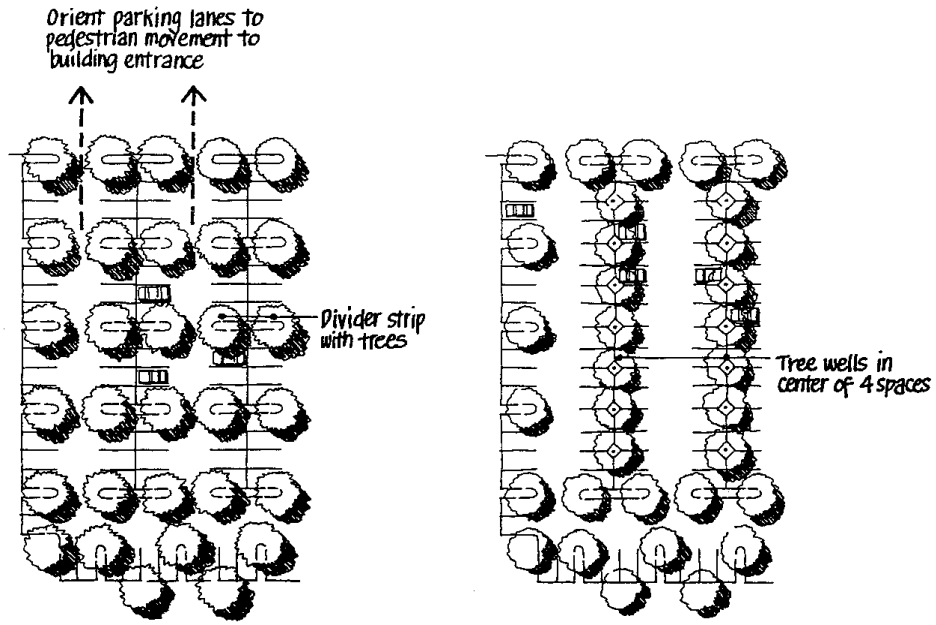
TABLE 3.2-2
Landscaping Standards

	All Land Use Designations
MINIMUM STANDARDS	
Trees	▪ Required trees planted in the street frontage, parking lot, or adjacent to the buildings shall be a minimum size of 24-inch box and double staked. No tree guying shall be allowed. ▪ All other trees shall be minimum 15-gallon, except Eucalyptus trees, which may be minimum 5-gallon, but are limited to 20 percent of the required tree planting. All 15-gallon trees shall be single staked.
Groundcover & Shrubs	▪ All exposed soil areas shall be planted with ground cover and shrubs that will cover the area within approximately six months from the time of planting. ▪ Types of shrubs and ground cover shall be complementary to the streetscape plantings. ▪ Required shrubs planted in the street frontage, building setback areas and parking lots shall be a minimum size of 5 gallons unless plant material is only grown in smaller sizes. ▪ Spacing of shrubs shall be based on size of plant at maturity; shrubs shall be planted closer when used for screening.
Manufactured Slopes **(steeper than 3:1)**	▪ Supplemental shrubs and ground cover shall be planted at the average minimum rate of one shrub (one gallon size) per 100 square feet and one five-gallon shrub per 200 square feet.
Maintenance	▪ Landscape Documentation Plackage plans shall include a Landscaping and Irrigation Maintenance schedule as per Section 86.724 of the County's Water Conservation in Landscaping Ordinance. ▪ Provide a note on plans as to the individual or entity to be responsible for installation and on-going maintenance of irrigation and planting within both the public right-of-way and the property itself. ▪ Each discretionary project shall be conditioned to require participation in a permanent maintenance program, including assessments or special taxes to finance the maintenance of landscaping and irrigation within the public right-of-way.

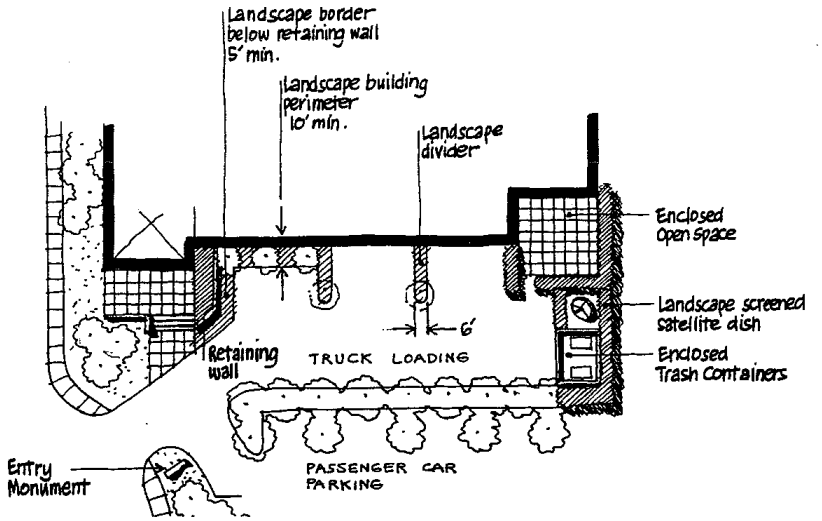
TABLE 3.2-2
Landscaping Standards

	All Land Use Designations
IRRIGATION	
General	▪ A water use authorization issued by the County shall establish the Maximum Applied Water Allowance for each property on which a project subject to this Specific Plan is proposed. ▪ All landscaped areas shall be efficiently irrigated per the requirements of the County's Water Conservation in Landscaping Ordinance, including streetscape (parkways and medians), building setbacks, areas around buildings, parking lots, and divided access driveways. ▪ The irrigation system shall be designed to prevent standing water and any condition such as runoff, overspray, and low-head drainage where irrigation water flows or sprays onto areas not intended for irrigation. ▪ Irrigation plans required by the Specific Plan shall be prepared by a landscape architect, civil engineer, forester or architect licensed by the State of California. Irrigation plans shall be and installed by a California licensed landscape contractor. ▪ Drip irrigation systems shall be used where appropriate.
Screening Requirements	▪ All exposed mechanical equipment such as automatic controllers, backflow preventors, and vacuum breakers shall be screened or located in an area away from ~~public~~ view from a public right-of-way.
Conservation	▪ Rain sensing override devices attached to an automatic controller are required on all irrigation projects, temporary or permanent. ▪ All plants shall be grouped in hydrozones and the irrigation system shall be designed to deliver water to hydrozones based on the moisture requirements of the plant groupings. ▪ Vegetation within 24-inches of an impermeable surface shall utilize low volume or subsurface irrigation unless the impermeable surface drains entirely into a landscaped area.
Water Management Plan	▪ Must be submitted for all Landscape Documentation Packages and be in conformance with the County's Water Conservation in Landscaping Ordinance and Design Manual.

Figure 3.2-6 Parking Lot and Loading Area Landscaping Techniques



Loading Area



3.2.3 Architectural Standards

Emphasis is on high quality design and construction in order to promote well-designed, well-detailed buildings. Harmonious development, pedestrian-scale architecture, particularly at the street level, and a hierarchical scale of uses are sought.

The purpose of the Architectural Standards is to define architectural principles that are appropriate, distinctive and add value by their ability to attract investors, tenants and employees. Standards contained in Tables 3.2-3 and 3.2-4 are meant to insure the architectural integrity of the community as a whole. Emphasis is on high quality design and construction in order to promote well-designed, well-detailed buildings. Harmonious development, pedestrian-scale architecture, particularly at the street level, and a hierarchical scale of uses are sought. For example, anchor stores are to be emphasized as more important structures and smaller businesses in the main retail structure are to have lesser emphasis. Independent pad sites or buildings shall have their own unique identity but relate to the large main structure.

All development projects within the Specific Plan Area shall comply with the Architectural Standards of this plan. The Architectural Standards are broken into two tables, one for industrial development (Table 3.2-3) and one for commercial development (Table 3.2-4). Each table addresses information as follows:

- Building Design
- Exterior Building Materials
- Climatic Considerations
- Parking Structures
- Other Considerations

All signage shall be in conformance with the standards set forth in the Zoning Ordinance (see sections 6200, 6250).

TABLE 3.2-3

Architectural Standards – Industrial Development

Industrial Development	Technology Business Park, Light Industrial, Heavy Industrial and Mixed Industrial
BUILDING DESIGN	
Form, Mass and Texture	▪ Architectural façade treatments shall be used to provide visual interest and break up the scale of industrial buildings, particularly on facades that face the street or a courtyard used by pedestrians. ▪ Plan offsets on the street-facing elevation(s) shall be incorporated to avoid buildings with straight, unbroken facades. No building shall be longer than 200 lineal feet without some modulation of the façade. Changes in material may occur at plan offsets. ▪ Offsets, projections, overhangs, horizontal and vertical color bands, windows, false window panels, recesses and cornice detailing are devices that shall be used to increase areas of shade and shadow and prevent blank walls (Figure 3.2-2). ▪ When a corner of a building is located adjacent to an intersection or driveway, the corner shall be articulated using any of the strategies identified in Figure 3.2-3. A right angle corner with no articulation is prohibited. Façade modulations (inverted, revealed or towered corners) should be used to create a special treatment on corner sites (adjacent to a public right-of-way). ▪ Variations in texture should be used to add scale and visual interest. These may include patterns, sandblasted surfaces, exposed aggregate and different types or colors of materials.
Reveals	▪ Exterior walls shall provide architectural reveals to break up the wall surface. At a minimum, reveals shall occur at every structural bay (Figure 3.2-4). ▪ Reveals of varying size and direction shall be required. For example, on long horizontal walls, vertical reveals shall be utilized accentuating the height of a building and lessening its horizontal impact.
Roofline Articulation and Roof Forms	▪ Long continuous parapets shall be broken to add hierarchy, scale and visual interest. This can be achieved by adding architectural elements of greater height at appropriate locations, stepping the height of the parapet at appropriate intervals, or adding tower and/or shed roof forms. ▪ Distinctive roof forms shall be used to distinguish entry points. ▪ Flat roof buildings should incorporate shed roofs or trellises covering exterior walkways or loggias to scale down the structure and provide visual relief.

TABLE 3.2-3

Architectural Standards – Industrial Development

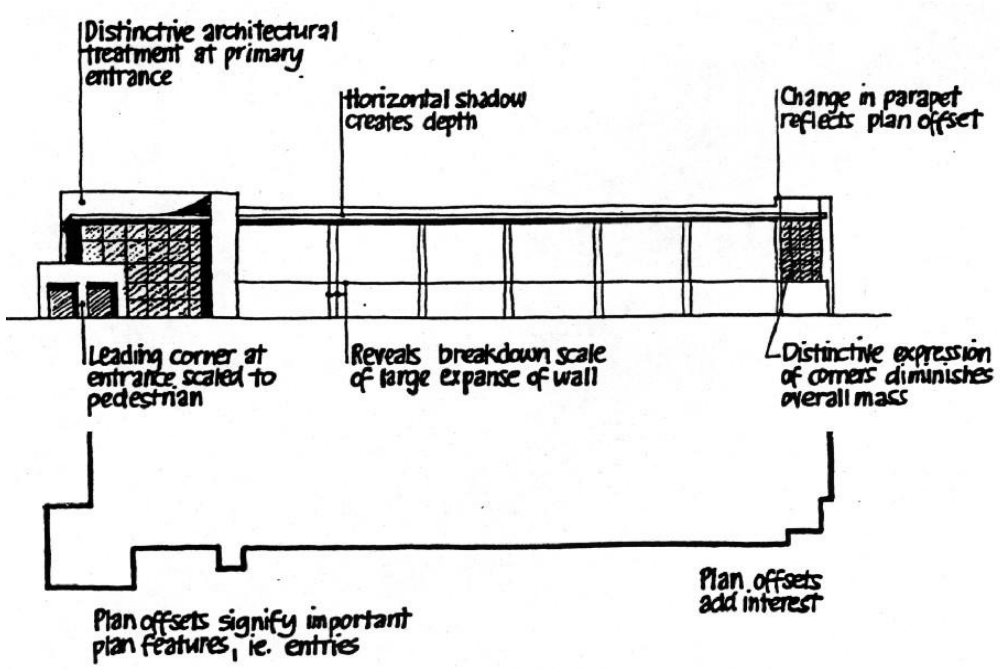
Industrial Development	Technology Business Park, Light Industrial, Heavy Industrial and Mixed Industrial
Entrances	▪ Building entrances shall be emphasized so their location is apparent and clear. Porches, loggias, arcades and canopies are helpful to call attention to an entrance (Figure 3.2-5). ▪ Use of color accents and special materials at entrances can be used to create an intensity of focus to the overall building.
Windows	▪ For the office portion of buildings fronting on a street, a minimum 50 lineal feet of every 100 lineal feet shall be glass. Width of glass may vary. ▪ Windows should be recessed along street frontages to create shadows. Large, glazed areas should be broken up into smaller window panes.
Rooftop Equipment	▪ Buildings should be designed to minimize mechanical equipment located on roofs. ▪ Rooftop equipment shall be fully screened from view from street and Regional Park by the extension of building sidewalls or parapets to a height at least as great as the highest piece of equipment, or by a screening structure that may incorporate grillwork, louvers and/or latticework. Where a screening device would create more distraction than the equipment would otherwise, the screening device may be omitted and the equipment painted to match the roof color.
Accessory Building and Outdoor Storage Areas	▪ All accessory buildings shall be designed as an integral component of the site development and architecture. ▪ Building material colors, roofline, general form and character shall be compatible with primary building or buildings on the site. ▪ Where permitted, outdoor storage shall be screened from a public street view or views from common areas.
EXTERIOR BUILDING MATERIALS	
Permitted	▪ Treated concrete, masonry, ornamental plaster and/or stone are permitted. Variations and combinations are permitted. Metal is permitted in Mixed Industrial and Heavy Industrial areas.
Prohibited	▪ Stucco, metal, mirror glass, curtain wall, wood or plastic are prohibited as dominant materials, except that metal is not prohibited in Mixed Industrial and Heavy Industrial areas. They may be used for trim, decorative elements, and signs.

TABLE 3.2-3

Architectural Standards – Industrial Development

Industrial Development	Technology Business Park, Light Industrial, Heavy Industrial and Mixed Industrial
CLIMATIC CONSIDERATIONS	
	▪ Site development (such as window locations, building orientation and roof overhangs) should be designed to minimize heating and cooling costs and provide more comfortable indoor spaces. ▪ Courtyards, particularly south facing, may be used to create outdoor spaces with a favorable microclimate for year-round activities.
Window Locations	▪ Windows on the east, west, and south shall use landscaping and window treatment (i.e., shades and blinds) to reduce solar glare and heat gain. ▪ Whenever feasible, locate the largest windows on the north side of building and use overhangs to minimize heat gain on south elevations. Windows on the west side of a building are discouraged.
Elements to Shade Wall Surface	▪ Protected courtyards, porches, arcades, trellises, loggias, pergolas, verandas, overhangs or trees are encouraged to shade exterior wall surfaces and windows from direct sun exposure and provide relief from the sun in outdoor recreation areas.
PARKING STRUCTURES	
Design	▪ All sides of a parking structure visible from the street or common area shall be faced with a building material similar to or the same as the adjoining building.
Location	▪ Parking structures shall be placed toward the rear of properties, away from street frontage and shall meet building setback requirements.
Screening Methods	▪ Parking structures shall be screened by one or a combination of the following: dense planting, sunken parking structure design, with dense slope planting, berms, and planting in front of structure.
OTHER CONSIDERATIONS	
Building Types	▪ Construction trailers permitted only as interim facilities during construction phase of project.
Signage	Signage shall be in conformance with the County of San Diego Zoning Ordinance.

Figure 3.2-7 Building Form and Massing and Corner Articulation



Building Corner Articulation

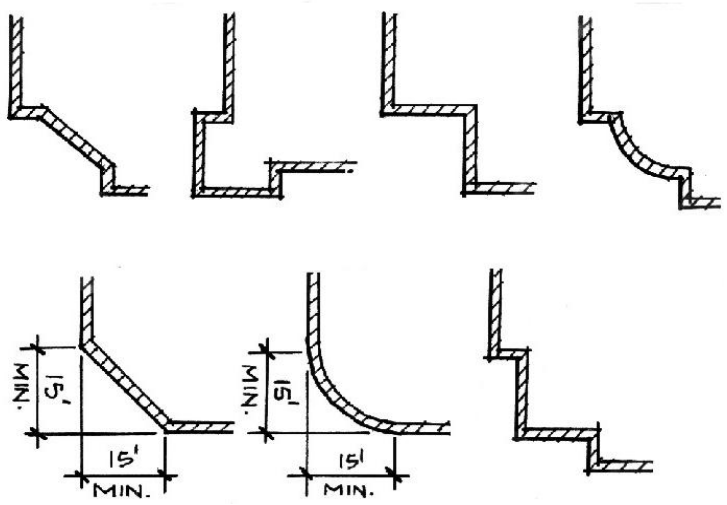
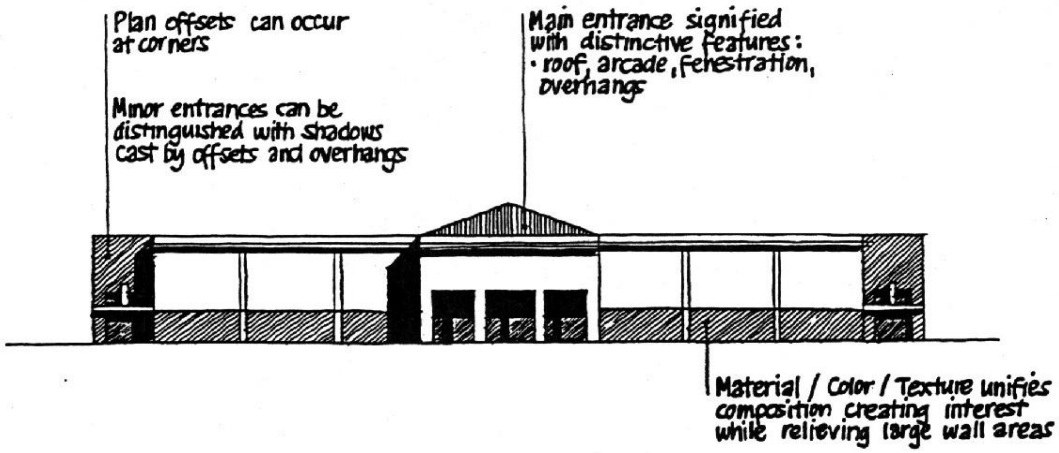
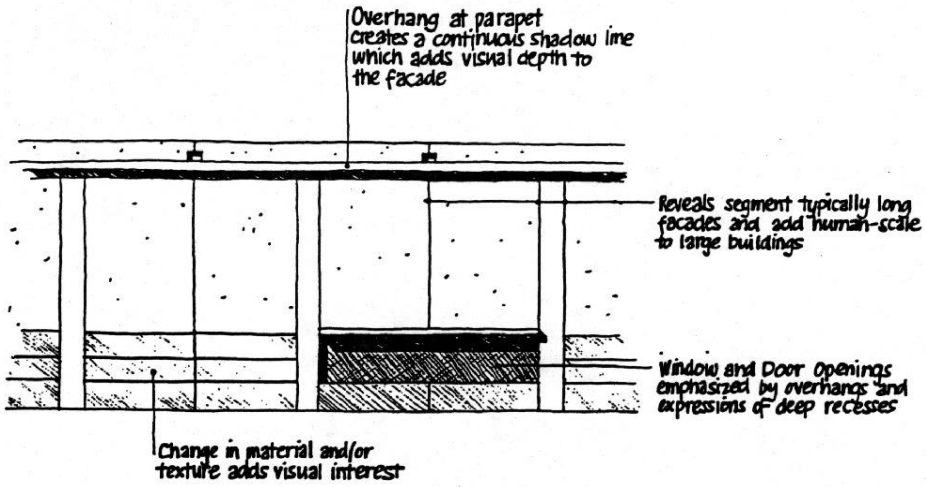


Figure 3.2-8 Building Elevation and Entrance Treatments



Elevation Treatments



Entrance Treatments

TABLE 3.2-4

Architecture Standards – Commercial Development

Commercial	Activity Node, Commercial Center and District Commercial
BUILDING DESIGN	
Form and Mass	▪ Varying roof slopes and building mass is required. Continuous flat rooflines shall not be permitted. ▪ Building facades longer than 200 feet shall include gables and arches or other articulation at distances of 75-90 feet (Figure 3.2-6). ▪ Valid methods of wall articulation include but are not limited to faux windows, arcade, building indentations, architectural detailing, gables, and arches as shown in Figure 3.2-7.
Cornice	▪ Permitted materials: stucco; trim stone parapet, and pre-cast concrete or prefab cornice to match project brick.
Downspouts	▪ Downspouts shall be incorporated into the structure of the columns or be painted to match the adjacent building façade. ▪ Roof drainage may not flow cross pedestrian walks or trails.
Entrances	▪ Building entrances shall be emphasized so their location is apparent and clear. Porches, loggias, arcades and canopies are helpful to call attention to an entrance. ▪ Use of color accents and special materials at entrances can be used to create an intensity of focus to the overall building.
Arcades, Loggias and Awnings	▪ All retail storefronts shall employ the use of arcades, loggias, arbors or awnings that may encroach 3 feet into the setback area.
Corner or End Treatment	▪ All street corner buildings and the main building in a commercial center must be punctuated at the ends/corners with an articulated architectural element (i.e., tower, cupola, notching, etc.). ▪ Articulation shall consist of a minimum five-foot offset and a length of 12’ - 25’, and shall be higher than the adjacent building façade by at least 4’.
Reveals	▪ Exterior wall surface areas shall provide architectural reveals to break up the wall surface. At a minimum, reveals should occur at every structural bay. ▪ Reveals of varying size and direction are encouraged. For example, on long horizontal walls, vertical reveals shall be utilized accentuating the height of a building and lessening its horizontal impacts.

TABLE 3.2-4

Architecture Standards – Commercial Development

Commercial	Activity Node, Commercial Center and District Commercial
Windows	▪ Windows and doorframes shall be aluminum with bronze or white finish. Aluminum-clad and vinyl clad window frames with a bronze finish are acceptable. ▪ Full height windows shall be permitted. ▪ Security bars or rolling grilles are prohibited unless fully concealed during regular business hours.
Roofline Articulation and Roof Forms	▪ Long continuous parapets shall be broken to add hierarchy, scale, and visual interest. ▪ Distinctive roof forms shall be used to distinguish entry points and create a unique skyline. ▪ Flat roof buildings shall incorporate shed roofs or trellises covering exterior walkways or loggias to scale down the structure and provide relief.
Rooftop Equipment	▪ Rooftop structures and/or mechanical equipment, including appurtenances, shall be fully screened from view from street, park or adjacent property by the extension of building side walls or parapets to a height at least as great as the highest piece of equipment, or by a screening structure which may incorporate grill work, louvers and/or latticework.
Accessory Buildings and Outdoor Storage	▪ Building material colors, roofline, general form and character shall match or be compatible with primary building or buildings on the site. ▪ Temporary wood and metal type buildings are prohibited. Temporary trailers are permitted only as interim facilities during construction phase of project. ▪ Where outdoor storage is permitted, a minimum 8 foot tall fence or wall shall enclose the outdoor storage.
EXTERIOR BUILDING MATERIALS	
Permitted: Front and Sides of Buildings	▪ Permitted materials include brick, stone, stucco, Hardiplank siding, tinted storefront glass (non-reflective), glass block, pre-cast concrete or cast stone. Cast stone, stucco, complementary brick, stone or granite is acceptable as architectural trim material or accents.
Permitted: Rear of Buildings	▪ Permitted building materials on rear of buildings shall be brick, tilt wall, split face, CMU painted to match the primary building material, or stucco.
Not Permitted	▪ Curtain wall, wood or plastic is prohibited as dominant materials. They may be used for trim, decorative elements, and signs.

TABLE 3.2-4

Architecture Standards – Commercial Development

Commercial	Activity Node, Commercial Center and District Commercial
CLIMATIC CONSIDERATIONS	
Window Locations	▪ All retail storefronts are encouraged to use arcades, loggias or awnings at windows and doorways. Other uses shall, at a minimum, locate said structures at the building entry.
Elements to Shade Wall Surface	▪ Protected courtyards, porches, arcades, trellises, loggias, pergolas, verandas, overhangs or trees shall be used to shade exterior wall surfaces and windows from direct sun exposure.
Courtyards	▪ Any size courtyard, particularly south-facing, may be used to create outdoor spaces, giving the site a more favorable microclimate for year-round activities.
PARKING STRUCTURES	
Design	▪ All sides of a parking structure visible from the street or common area must be faced with a building material similar to or the same as the adjoining building.
Location	▪ Parking structures shall be placed toward the rear of property lines, away from street frontage, and shall meet building setback requirements.
Screening Methods	▪ Parking structures shall be screened by one or a combination of the following: dense planting of trees; sunken parking structure design with dense slope planting; berms and planting in front of structure.
OTHER CONSIDERATIONS	
Outdoor Open Space Areas	▪ Outdoor open space areas may encroach the setback area by no more than 10 feet. ▪ Open frame structures such as arbors or trellises will be permitted to encroach the setback area.

Figure 3.2-9 Commercial Architectural Standards

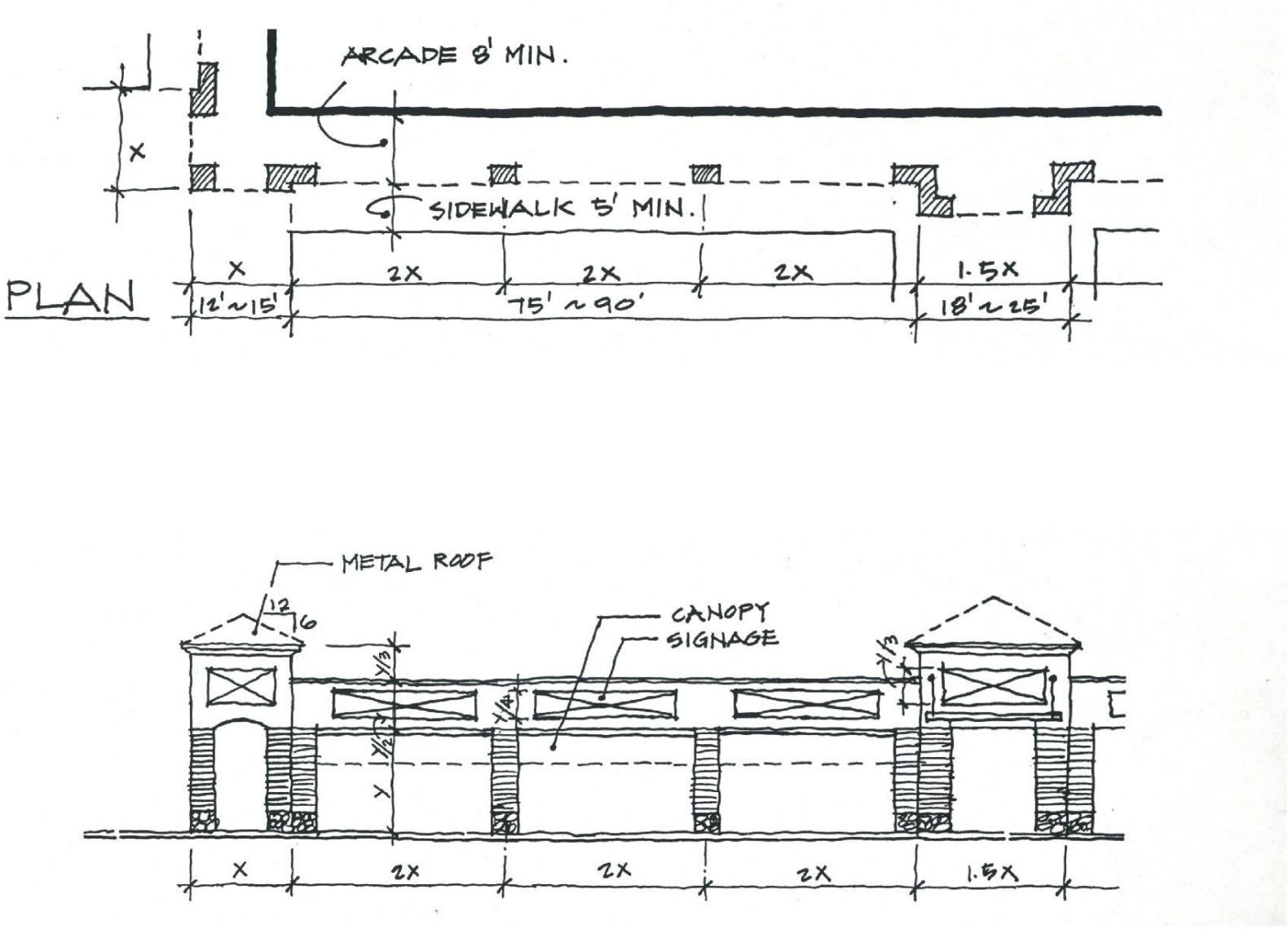


Figure 3.2-10 Activity Node Storefronts/Preferred Character

3.3 Processing Requirements

3.3.1 Site Plan (B)

Development[2] within the East Otay Mesa Specific Plan Area shall be subject to the approval of a Site Plan in conformance with Section 7150 of the County Zoning Ordinance. The primary purpose of the Site Plan requirement is to ensure compliance with this Specific Plan and to allow review of a project's detailed physical design, siting, interior vehicular access and pedestrian access. A secondary purpose of the Site Plan is to ensure compliance under the California Environmental Quality Act (CEQA) with the avoidance and mitigation measures identified in the previously approved or certified environmental document applicable to the property for which the Site Plan is proposed – in particular, to implement and enforce avoidance and mitigation measures designed to reduce Greenhouse Gas (GHG) emissions.

Contact the County Department of Planning and Land Use for full submittal requirements such as standard application forms, service availability forms, legibility of prints, number of required copies and folding of plans, etc. All submittals shall contain sufficient information to describe the project and allow County staff to determine compliance with the East Otay Mesa Specific Plan. The Site Plan requirement shall not apply to the development or improvement of new or existing County Parks.

The Director of the Department of Planning and Land Use shall be responsible for administering the Site Plan Review Procedure and for reviewing and evaluating all Site Plans submitted pursuant to this Specific Plan. The Director may waive the submission or approval of a Site Plan if a finding is made that all of the purposes and requirements of the Site Plan have been fulfilled by another discretionary permit. The Director may also waive the Site Plan requirement if it is determined that the proposed development or improvement is minor in nature and the public purpose for which the Site Plan would normally be required will not be harmed by waiver of said requirement.

[2] Does not apply to grading permits prepared pursuant to an approved Tentative Map or Tentative Parcel Map.

3.3.2 Sensitive Resource Area Regulations (G)

Areas subject to the "G" Special Area Designator (see Figure 3.2-11) are subject to the provisions of the Sensitive Resources Area Regulations of the Zoning Ordinance. Prior to approval of a tentative map, or if no subdivision is needed prior to any development including clearing or grading, a Resource Conservation Plan shall be approved by the County for parcels with a "G" Designator. The RCP shall be reviewed as part of the Site Plan process. The areas of the Specific Plan that are subject to the Sensitive Area Resources "G" Designator are largely the same areas that are covered by the MSCP Major Amendment and Minor Amendment with Special Considerations. Therefore, the MSCP Amendment process could satisfy the requirement for a Resource Conservation Plan.

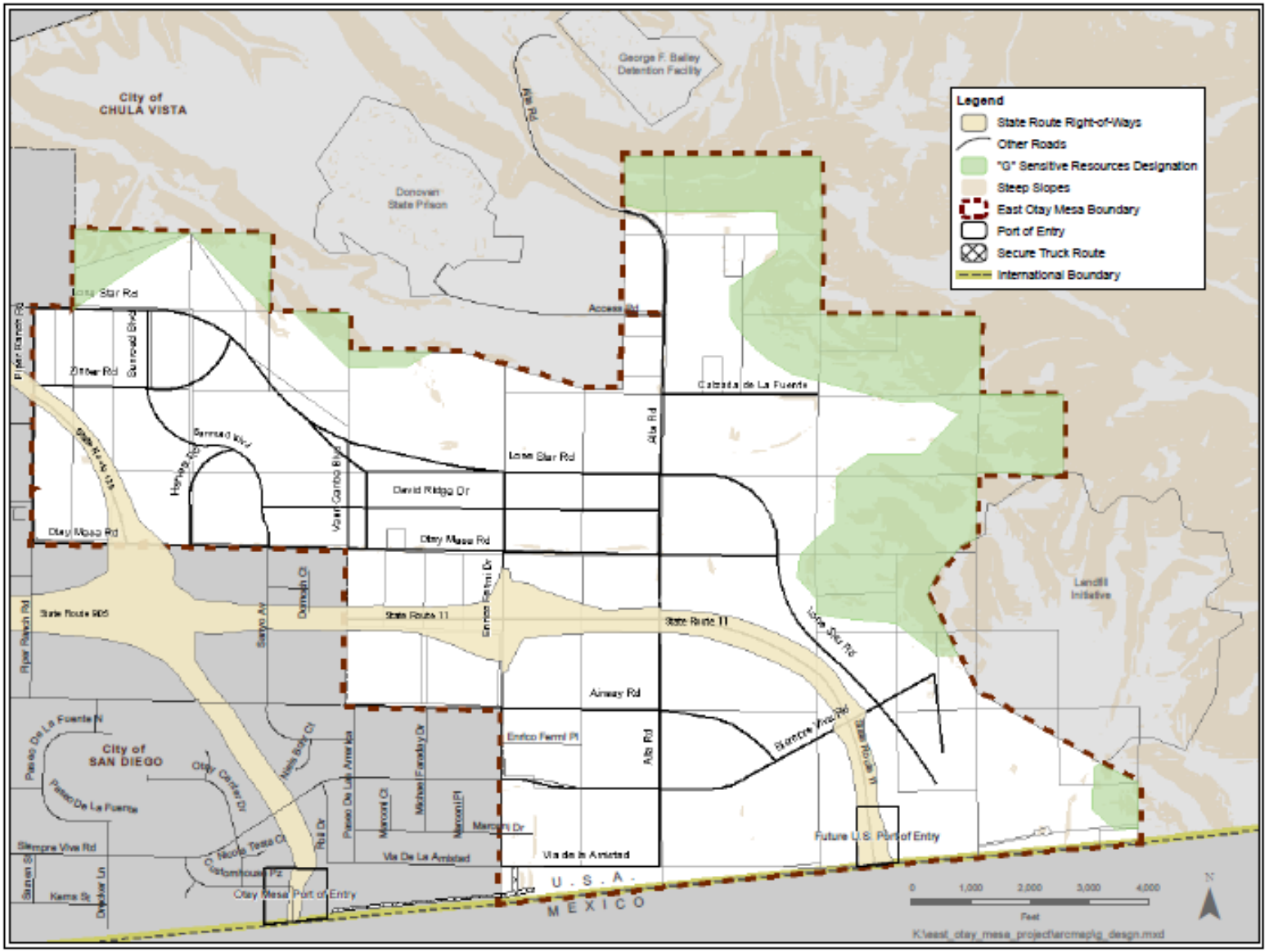
3.3.3 Establishing Activity Nodes

Activity Nodes will be located when a project applicant wishing to enact the benefits of an Activity node files for a Site Plan Permit.

The increased intensity (i.e., commercial land uses, higher floor area ratios, etc.) permitted in Activity Nodes is subject to the design criteria contained in Section 2.3.2 of this Specific Plan. A Site Plan application and an accompanying concept plan shall be submitted to ensure overall plan implementation. The maximum acreage of an Activity Node shall be ten acres. A larger area for the Activity Node may be approved if it is demonstrated that traffic impacts for the acreage that exceed ten acres are fully mitigated for all of the Specific Plan. Siting an Activity Node adjacent to the District Commercial (in the area previously known as Subarea 2) would be evaluated by the same process as expanding an Activity Node. Both near-term and build out impacts must be assessed for Subarea 1 and approved by the County decision making authority. The accompanying overall concept plan need only illustrate the following:

- Activity Node location.
- Grading for the proposed project and how it relates to the surrounding properties. The intent is to ensure that the remaining area can be implemented as indicated in the Specific Plan.
- Infrastructure, including circulation, drainage and utilities and how each of these relates to and connects with the surrounding properties.

Figure 3.2-11 Areas Subject to "G" Sensitive Resource Special Area Designator



The Site Plan shall be in compliance with the Activity Node location and urban design criteria contained in Section 2.3.2.

3.3.4 Establishing Commercial Center Overlay

The Commercial Center Overlay designation is intended to provide an opportunity for a community commercial retail center that would support the employee population in East Otay Mesa as well as the surrounding communities. It is located in the northwestern portion of the plan area to take advantage of access links to the north and west as well as be centrally located to all of the industrial uses on the mesa. The traffic analysis prepared for the purpose of amending the East Otay Mesa Specific Plan has analyzed traffic impacts associated with this retail commercial use to a maximum of 40 acres in size. Design of the site shall conform to the Land Use Regulations (Section 3.1) and Development Standards (Section 3.2) and Urban Design (Section 2.3.4) of this plan. A Site Plan shall be required to implement this designation.

The Commercial Overlay designation is intended to provide an opportunity for a community commercial retail center that would support the employee population in East Otay Mesa as well as the surrounding communities.

- The purpose of this overlay is to permit the development of a retail commercial center with allowable uses described in Table 3.1-1 of this plan. Therefore, a Site Plan identifying the complete extent of the commercial center shall be included, regardless of phasing.
- Limited direct vehicular access is permitted to/from Otay Mesa Road.
- This commercial center shall be subject to all other requirements of a Site Plan Permit in conformance with Section 7150 of the County Zoning Ordinance.
- Unless a Discretionary Permit is issued to implement a Commercial Center Overlay on this site, the underlying Technology Business Park land use designation and associated standards shall apply. When a Tentative Parcel Map or Tentative Map is processed for property within the commercial overlay, the project description must identify whether a Commercial Center Overlay or Technology Business Park is proposed. If the project description specifies Technology Business Park, then a subsequent Tentative Parcel Map or Tentative Map will be required should the landowner elect to develop a commercial subdivision on the same property.

3.3.5 Landfill Buffer Overlay

Projects located within the Landfill Buffer Overlay shall process a Minor Use Permit, concurrent with a Site Plan, in conformance with Sections 7350 et seq of the County Zoning Ordinance. The primary purpose of the Minor Use Permit is to minimize potential land use conflicts between the proposed development and an adjacent landfill located outside the boundary of the Specific Plan. Issues that shall be addressed include toxic air and soil contaminants and nuisance impacts from odors, dust and noise. Examples of methods that may be used to reduce land use conflicts include:

- Utilizing specialized building construction and systems that minimize the infiltration or migration of toxic air contaminants.
- Locating operations within enclosed buildings.
- Limiting occupied areas to those portions of the site that are furthest away from the landfill. Conversely, unoccupied areas (such as parking or storage of inert materials) should be located on those portions of the site closest to the landfill.
- Prohibiting uses when all Use Permit findings cannot be made.

Development subject to the Minor Use Permit shall be sent to the Local Enforcement Agency (LEA) of the Department of Environmental Health (DEH) for comments. LEA review also shall be required when processing subsequent Building Permits, and monitoring programs shall be established as necessary to ensure compliance.

The Director of the Department of Planning and Land Use shall be responsible for administering the Use Permit process and for reviewing and evaluating permits within the Landfill Buffer Overlay. The Director may waive the Minor Use Permit requirement when a finding is made that the project site would be located more than 1000 feet from the actual disposal area of the landfill, called the waste footprint. Waste footprint areas shall be based on officially adopted plans. In addition, the Director shall waive the Minor Use Permit requirement when a Major Use Permit (MUP) is already being processed for the same site. In such cases, the MUP shall address all land use issues identified in this section of the Specific Plan.

East Otay Mesa Business Park Specific Plan

APPENDICES

Appendix 1

STREETSCAPE PLANT LIST

This page left intentionally blank.

TREES

Gateway Roads:

Road	Tree Type*	Botanical & Common Name	Spacing	Size	Showy Season	Comments
Lonestar, Otay Mesa** (east to Enrico Fermi), Loop and Siempre Viva (street trees)	Evergreen	Podocarpus gracilior *Fern Pine (Exception List applies to the south side of Otay Mesa Road.)*	25' On Center	24" B container size. All trees planted in row shall be the same height at time of planting.	Year Round	Large canopy tree with soft gray-green foliage. Drought tolerant, no pests
Otay Mesa (setback area)	Evergreen	Tristania conferta *Brisbane Box*	25' On Center	24" Box	Summer	White, reddish bark
Siempre Viva	Evergreen	Cinnamomum Camphora *Camphor Tree*	25 On Center	24" Box	Yr. Round	White flowers
Lonestar and Loop	Evergreen	Pinus canariensis Canary *Island Pine*	25' On Center	24" Box		
Otay Mesa (Medians)	Evergreen	Agonis flexuosa *Peppermint Tree*	25' On Center	24" Box		Medium sized tree with weeping willow-like leaves
Siempre Viva (Medians)	Evergreen	Arbutus Unedo *Strawberry Tree*	25' On Center	24" Box		Blue-green gray color, weeping
Lonestar and Loop (Medians)	Evergreen	Geijera Parvifolia *Australian Willow*	25' On Center	24" Box	Summer	Medium green, drooping leaves

- * All trees and plantings shall require sufficient root barrier protection from curbs, sidewalks, and other hardscape features.
- ** Otay Mesa Road: Street trees on the south side of Otay Mesa Road, which contains existing SDG&E utility lines, shall utilize the Exception List (see next page).

Major Roads (non-Gateway):

Tree Type	Botanical & Common Name	Spacing	Size	Showy Season	Comments
Evergreen	Eucalyptus nicholli *Willow-leafed Peppermint*	30' On Center	24" Box		Fine-texture foliage, weeping
Evergreen	Quercus agrifolia *Coast Live Oak*	30' On Center	24" Box		
Deciduous	Platanus acerifolia *London Plane Tree*	30' On Center	24" Box	Fall	Yellow-brown foliage, motled bark
Deciduous	Liquidambar styraciflua *Sweet Gum*	30' On Center	24" Box	Fall	Red to bronze
Evergreen	Phoenix canariensis *Canary Island Date Palm*	30' On Center	10" Brown Trunk Height		
Deciduous	Populus nigra 'Italica" *Lombardy Poplar*	30' On Center	24" Box	Fall	Yellow
Deciduous	Gleditsia tricanthos 'Shademaster" *Honey Locust*	30' On Center	24" Box	Fall	Golden Yellow

Exception List of SDG&E Approved Trees (Otay Mesa Rd. (south side), Harvest Rd., and Alta Rd.)

Tree Type	Botanical & Common Name	Spacing	Size	Showy Season	Comments
Evergreen	Raphiolepis 'Majestic Beauty' *(No common name)*	25' On Center	24" Box	Blooms late fall-late spring.	Moderate growth to 15'. Dark green, large leaves. Fragrant light pink flowers. Drought tolerant.
Evergreen	Pittosporum phillyraeoides (Willow Pittosporum)	25' On Center	24" Box	Blooms winter – spring.	Slow growing to 20'. Medium green leaves, light yellow flowers, fragrant. Drought tolerant; no pests
Evergreen	Arbuytus Unedo (Strawberry Tree)	25' on Center	24" Box		Slow growing to 20 feet (spread of 20 feet), drought tolerant. Does not include 'cultivar "Marina" variation.

Note: One tree type will be selected for each road. For Otay Mesa Road, the Exception List applies only to the south side of the roadway.

Collector Roads:

Tree Type	Botanical & Common Name	Spacing	Size	Showy Season	Comments
Evergreen	Cupaniopsis anacardioides *Carrotwood Tree*	25' On Center	24" Box		
Deciduous	Brachychition acerifolius *Flame Tree*	25' On Center	24" Box	May-June	Red
Deciduous	Pyrus calleryana 'Bradford" *Ornamental Pear*	25' On Center	24" Box	Fall	White flowers
Deciduous	Ginkgo biloba 'Autumn Glory' *Maidenhair Tree*	25' On Center	24" Box	Fall	Golden yellow
Deciduous	Betula pendula *European White Birch*	25' On Center	24" Box	Fall	Plant in mass
Deciduous	Tipuanu tipu *Tipu Tree*	25' On Center	24" Box	June-July	Apricot flower

Activity Node Streets:

Tree Type	Botanical & Common Name	Spacing	Size	Showy Season	Comments
Deciduous	Cercis Occidentalis *Western Redbud*	25' On Center	24" Box		
Deciduous	Geijera Parvifolia Australian Willow	25' On Center	24" Box		
Deciduous	Arctostaphylos Manzanita *Common Manzania*	25' On Center	24" Box		

Major Intersections:

Tree Type	Botanical & Common Name	Spacing	Size	Showy Season	Comments
Flowering Ornamental	Albizia julibrissin *Silk Tree*	Groups of 3	24" Box	Summer	Pink fluffy flower
Deciduous	Lagerstroemia indica *Crape Myrtle*	Groups of 3	24" Box	Summer-Fall	Red-White flowers
Deciduous	Koelreuteria bipinata *Chinese Flame Tree*	Groups of 3	24" Box	Summer-Fall	Small yellow flower, orange caps
Deciduous	Prunus cerasifera 'Thundercloud' *Flowering Plum*	Groups of 3	24" Box	Feb-March	White, pink flowers, purple leaf

All Other Roads:

Tree Type	Botanical & Common Name	Spacing	Size	Showy Season	Comments
Deciduous	Alnus rhombifolia *Alder*	30' On Center	24" Box		
Evergreen	Casuruarina stricta *Drooping She-oak*	30' On Center	24" Box		Plant in mass
Evergreen	Pinus elderica *Russian Pine*	30' On Center	24" Box		
Deciduous	Pistacia chinensis *Pistache*	30' On Center	24" Box	Fall	Orange and red, male, red bark

SHRUBS (Gateway Roads):

Roads	Shrub Type	Botanical & Common Name	Spacing	Size
Lonestar & Loop Roads	Evergreen	Raphiolephis Indica 'Pink Cloud" *Dwaft India Hawthorn*	3' On Center	5 Gallon
Otay Mesa Road (East of Enrico Fermi Road)	Evergreen	Nerium Oleander 'Petite Pink' *Dwarf Oleander*	3' On Center	5 Gallon
Siempre Viva Road	Evergreen	Escallonia 'Compakta' *Dwarf Escallonia*	3' On Center	5 Gallon

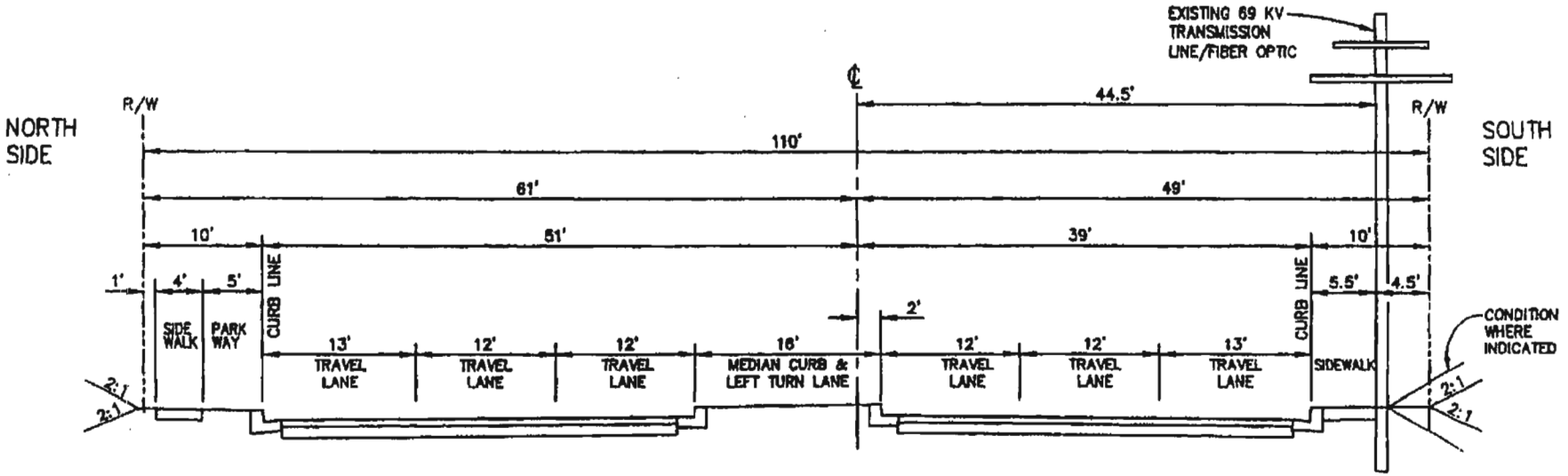
Appendix 2
GENERAL PLAN
CIRCULATION ELEMENT ROAD CROSS SECTIONS

Notes on Road Cross-sections:

- **Parkway Dimensions / Composition**: The road cross-sections do not contain the correct dimensions for parkways (the area outside the curb line) on certain types of Circulation Element and Specific Plan roads. For correct dimensions and requirements for parkway design (and the adjacent landscape easement), see Section 3.2.2 Landscaping Standards and Table 3.2-2 Landscaping Standards.

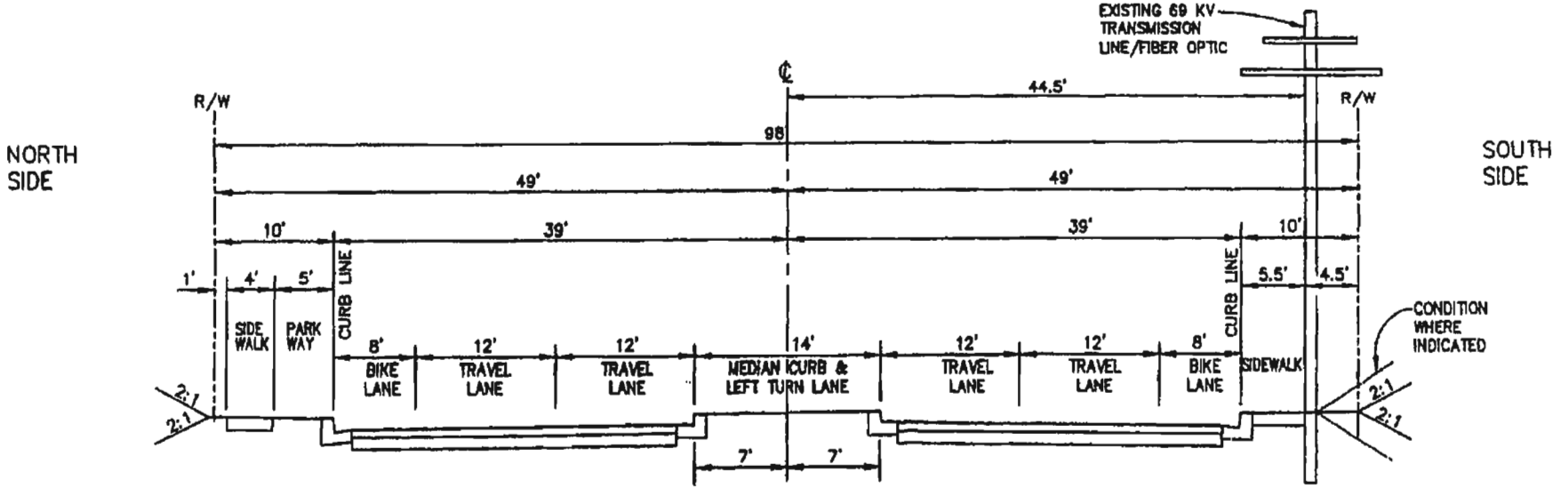
- **Landscape Easements**: The cross-sections do not include a two-foot landscape easement that is required along all Circulation Element and Specific Plan roads. This easement is located along the property line, adjacent to the public right-of-way.

- **Trails**: The cross-sections do not show a trail (called a Pathway) on Alta Road that is required by the Community Trails Master Plan.



HARVEST ROAD TO ENRICO FERMI DR

NO SCALE



ENRICO FERMI DR TO ALTA RD

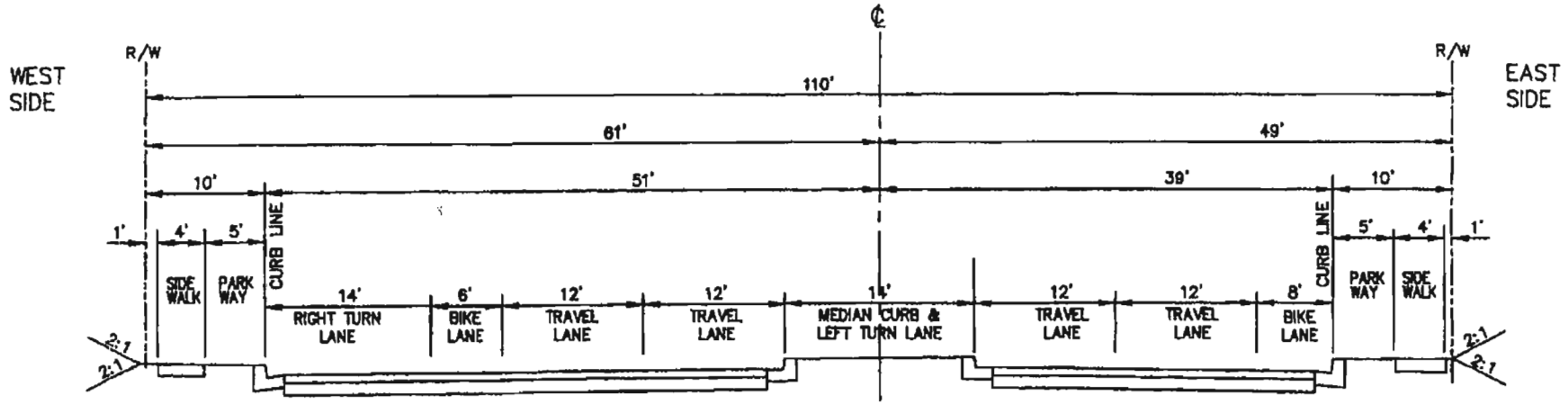
NO SCALE

NOTE: THE CROSS-SECTIONS ARE CONCEPTUAL PLANS AND THE FINAL ROAD DESIGN WILL BE SUBJECT TO APPROVAL OF THE DIRECTOR OF DPW.

GPA 06-013 EXHIBIT B-3

CROSS-SECTION FOR OTAY MESA ROAD

SOURCE: Darnell & ASSOCIATES, INC. 060411CC.dwg 6-18-07 SN



ENRICO FERMI DR

OTAY MESA ROAD TO SR-11

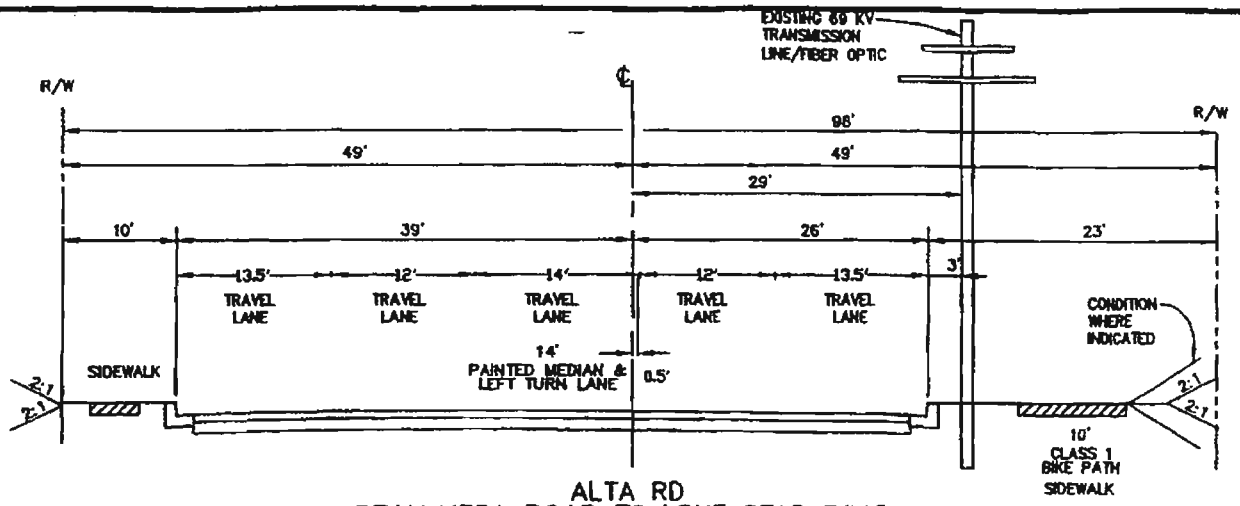
NO SCALE

NOTE: THE CROSS-SECTIONS ARE CONCEPTUAL PLANS AND THE FINAL ROAD DESIGN WILL BE SUBJECT TO APPROVAL OF THE DIRECTOR OF DPW.

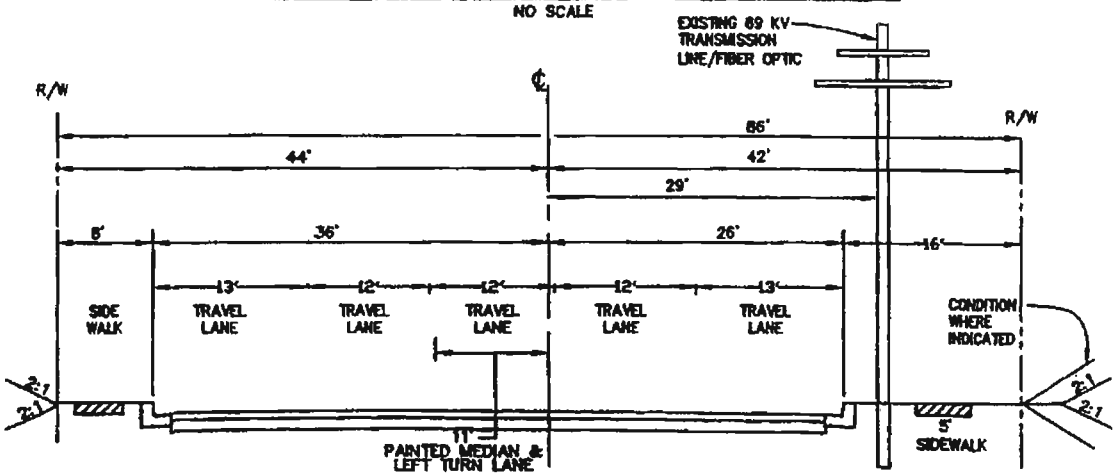
GPA 06-013 Exhibit B-3

CROSS-SECTION FOR ENRICO FERMI DRIVE

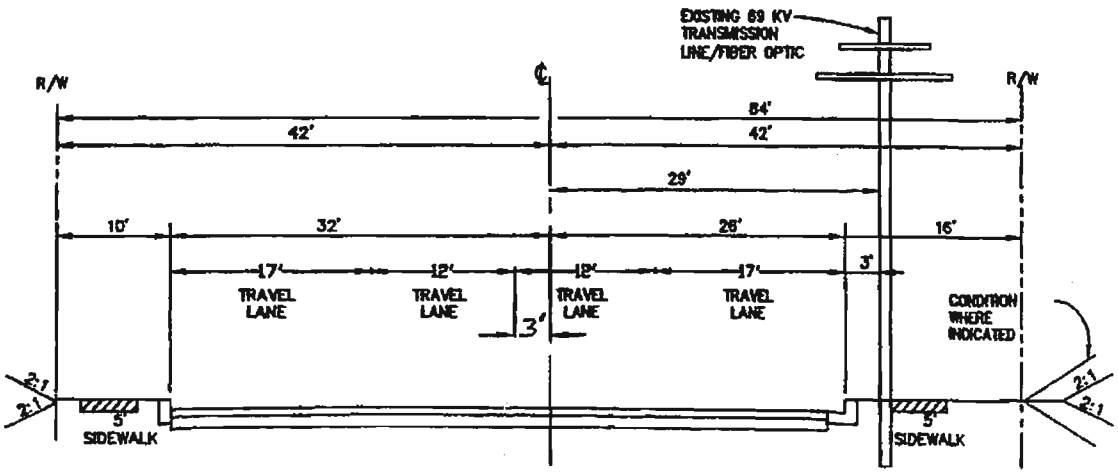
SOURCE: Darnell & ASSOCIATES, INC. 060411CC.dwg 7-12-07 SN



ALTA RD
OTAY MESA ROAD TO LONE STAR ROAD
NO SCALE



ALTA RD
LONE STAR ROAD TO DONOVAN STATE PRISON ROAD
NO SCALE



ALTA RD
N/O DONOVAN STATE PRISON ROAD
NO SCALE

NOTE: THE CROSS-SECTIONS ARE CONCEPTUAL PLANS AND THE FINAL ROAD DESIGN WILL BE SUBJECT TO APPROVAL OF THE DIRECTOR OF DPW.

GPA 06-013 EXHIBIT B-3

CROSS-SECTION FOR ALTA ROAD

SOURCE: Darnell & ASSOCIATES, INC. 060411CC.dwg 6-18-07 SN

This page left intentionally blank.

Appendix 3
GLOSSARY OF TERMS

This page left intentionally blank.

GLOSSARY OF TERMS

Refer to the Planning and Zoning Code for other definitions not included in this list.

- *CDRB* - Community Design Review Board.
- *CSA* - County Service Area.
- *DPW* – Department of Public Works
- *DEH* – Department of Environmental Health
- *DPLU* – Department of Planning and Land Use
- *Floor Area Ratio (FAR)* - The ratio of total enclosed building area at and above grade to the area of the site. The FAR is an indication of the intensity of development; as such, it identifies the upper limit of building space permissible on a given lot.
- *Frontage* - The length of any one property line of a premise, which property line abuts a legally accessible street right-of-way.
- *Level of Service* - The Level of Service is used to describe the operation of an intersection. Ratings of level of service range from A, representing free flow conditions, to F, representing extreme congestion. Each rating is based upon the ratio of the volume of traffic in the intersection at a given time to the maximum capacity of the intersection. The intersection capacity is the number of cars which can use the intersection in an hour.
- *Maquiladora or Twin Plant Program* - The Maquiladora or Twin Plant Program, initiated by the Mexican government in 1965, allows U.S. companies to manufacture in a trade zone in Mexico along the international border. Relaxed tariffs and low cost labor are the benefits of the program to U.S. companies. Correspondingly, Maquiladora trade is the second greatest income generator in Mexico today. Since its inception, Maquiladoras have expanded to over 900 in operation today.
- *Metro* - San Diego Metropolitan Sewage System.
- *NAFTA – North American Trade Agreement*
- *Net Acres* - The total developable acres of a land parcel, land use district, etc., equivalent to gross acres minus land for roadway right-of-way and public facilities.
- *Residential Density* - A measure of housing expressed in dwelling units per acre (du/ac).
- *RFPD* - Rural Fire Protection District.
- *SANDAG* - San Diego Association of Governments.
- SPA - East Otay Mesa Specific Plan Area.

GLOSSARY OF TERMS

Refer to the Planning and Zoning Code for other definitions not included in this list.

- *Local Improvement District* - A Local Improvement District is used as a generic term which applies to financing available pursuant to formation of an Assessment District (1911-1913-1915 Improvement Acts), or a Community Facilities District (1982 Mello Roos Community Facility Act).
- *Gross Acres* - The total amount of acreage of a land parcel, land use district, etc.
- *Gross Floor Area* - The area included within the surrounding walls of a building plus any roofed, partially roofed or open area customarily used for display or business operations. Interior open court may be exempt if not used for display or business operations.
- *ISTEA* - Intermodal Surface Transportation Efficiency Act.
- *Setback* - A horizontal separation between a vertical element and a property line. Setbacks occur at street level.
- *SF/GFA* - Square Feet of Gross Floor Area.
- *Usable Public Open Space* - Those usable spaces accessible by the general public.
- *Vernal Pools* - Vernal pools consist of slight depressions in soil, sometimes created between mima mounds, that are natural spring-rain accumulations of water which provide unique habitats for a wide range of plant and wildlife species. Four of these species are listed by the Federal government as endangered or threatened and may occur within the Specific Plan Area. Vernal Pool habitats are considered very rare and highly sensitive habitats because the vast majority of them have been destroyed for urban uses.

Appendix 4
ARCHAEOLOGIAL STATUS BY PARCEL NUMBER

This page left intentionally blank.

Parcel Numbers with Archaeology Status

ITEM	PARCEL NO.	ACRES	ARCHAEOLOGY STATUS	ITEM	PARCEL NO.	ACRES	ARCHAEOLOGY STATUS
1	646-070-33, 34	44.39/14.25	Grading Monitoring	37	648-011-03	18.65	Testing or Mitigation Required
2	646-080-18, 19	34.26/ 5.74	Grading Monitoring	38	648-040-27	4.41	Cleared, with Grading Monitoring Required
3	646-070-15	9.77	Grading Monitoring	39	648-040-23	6.34	Cleared, with Grading Monitoring Required
4	646-070-16	9.77	Grading Monitoring	40	648-011-02	79.5	Testing or Mitigation Required
5	646-070-07	19.54	Grading Monitoring	41	648-040-15	4.78	Cleared, with Grading Monitoring Required
6	646-070-24	19.66	Grading Monitoring	42	648-040-28	91.86	Cleared, with Grading Monitoring Required
7	646-070-23	18.75	Grading Monitoring	43A**	648-040-29	40	Testing or Mitigation Required
8	646-080-20, 21	32.24/7.48	Grading Monitoring	43B**	648-040-30	40	Cleared
9	646-080-22, 23	34.26/5.74	Grading Monitoring	44	648-040-17	5	Cleared, with Grading Monitoring Required
10	646-240-47	39.38	Grading Monitoring	45	648-040-22	79.09	Testing or Mitigation Required
11	646-240-46	39.54	Grading Monitoring	46	648-040-21	79.09	Testing or Mitigation Required
12	646-240-30	39.28	Grading Monitoring	47	648-070-03	158.79	Testing or Mitigation Required
13	646-080-25	73.37	Grading Monitoring	48	648-070-04	159.36	Testing or Mitigation Required
14	646-240-48	38.87	Grading Monitoring	49	648-070-08	49	Cleared
15	646-080-08	87.42	Grading Monitoring	50A**	648-050-07	101.1	Cleared
16	646-080-17	117.81	Testing or Mitigation Required	50B**	648-050-08	40	Testing or Mitigation Required
17	646-080-11	65.74	Testing or Mitigation Required	51A**	648-050-10	80	Testing or Mitigation Required
18	646-080-12	2.29	Cleared	51B**	648-050-11	80	Testing or Mitigation Required
19	646-130-39	19.78	Cleared	52	648-080-13	20	Cleared
20	646-130-40	19.82	Cleared	53	648-080-14	20	Cleared

ITEM	PARCEL NO.	ACRES	ARCHAEOLOGY STATUS	ITEM	PARCEL NO.	ACRES	ARCHAEOLOGY STATUS
21	646-130-41	19.85	Cleared	54	648-080-04	159.98	Cleared
22	646-130-42	19.88	Cleared	55	648-080-06	3.52	Cleared
23	646-130-26	35.69	Testing or Mitigation Required	56	648-080-15	40	Cleared
24	646-130-27	34.39	Cleared	57	648-080-16	20	Cleared
25	648-040-25	7.79	Cleared	58	648-080-17	20	Cleared
26	648-040-20	40	Testing or Mitigation Required	59	648-080-18	40	Cleared
27	648-040-11	39.09	Testing or Mitigation Required	60*	648-050-04	160*	Cleared
28	648-040-14	40.44	Testing or Mitigation Required	61	648-080-02	40	Cleared
29	648-040-13	38.21	Testing or Mitigation Required	62	648-080-08	40	Testing or Mitigation Required
30	648-070-09	81.93	Cleared	63	648-080-19	74.55	Testing or Mitigation Required
31	648-070-13	38.19	Cleared	64A**	648-080-21	40	Testing or Mitigation Required
32	648-070-14	39.09	Cleared	64B**	648-080-22	40	Testing or Mitigation Required
33	648-070-19	39.3	Cleared	65	648-080-10	40	Testing or Mitigation Required
34	648-070-17	78.17	Testing or Mitigation Required	66	648-080-05	3.25	Cleared
35	648-070-16	41.52	Cleared	67***	648-090-04	513***	Cleared
36	648-070-07	29.68	Cleared				

NOTES:

* A portion of this parcel - 80 of the 160 acres -- is located within the EOM Specific Plan
** Parcel split after original Specific Plan
*** A portion of this parcel – 80 of 513 acres – is included within the EOM Specific Plan

Appendix 5
PUBLIC FACILITIES INFORMATION

The following information was taken from the original, 1994 Specific Plan. It provides important information related to public facilities planning, phasing and financing, as required for Specific Plan documents. Some information is out-of-date, and the original text was edited to clarify sentences or to eliminate repetitive information. Out-of-date maps and information in Appendix 5 were not removed and, when in conflict, do not change provisions in other sections of the East Otay Mesa Specific Plan.

PUBLIC FACILITIES INFORMATION

A-5.1 Public Facilities Overview

Public facilities in East Otay Mesa will be financed through the equitable participation of all benefiting property owners. In 2009, the property owners developed a financing mechanism for the construction of a temporary and permanent sheriff station; the permanent site (located north of Lone Star Road) will also accommodate a fire station. In 2009, property owners made progress toward developing an agreement with the City of San Diego for sewer transport through the City.

***Phasing**:* The first phase of public facilities in East Otay Mesa will support approximately 500 gross acres of future development, based on the 1.0 million gallons per day (mgd) threshold of wastewater treatment capacity available from Metro which the County acquired via the National City agreement.

The capital improvements that are recommended by the Plan to be included as part of phase one, to be financed by the property owners, include

- Fair share contribution to off-site road improvements, as part of a regional financing strategy
- Acquisition of Metro wastewater treatment capacity
- On-site road and infrastructure improvements to serve the affected properties
- Establishment of funding mechanisms for fire services and facilities.

***Financing**:* The preferred strategy for financing a backbone or area-wide capital facilities is to: (1) for phase one improvements, use land secured public debt instruments; e.g., Assessment Act proceedings; and (2) for subsequent phases of improvements; utilize a combination of impact fees, reimbursement agreements, additional land secured public debt financing instruments, and/or revenue bonds. However, conditions of development approval will be placed on individual parcels that require public facilities and services be built only to the extent needed to serve its demand. In cases where oversizing is needed for future demand, the County will consider reimbursement agreements.

Operation and maintenance costs of these facilities will be financed in several ways: (1) through the County General Fund, (2) by user fees from established utility service providers, (3) by taxes or assessments established by a County Service Area or Local Improvement District (see Glossary for definition), and/or (4) by user fees and benefit fees established by Special Districts to augment their general operating budgets for specific services.

***Implementation**:* The property owners have the primary responsibility of implementing the required on-site

infrastructure and public facility improvements. Implementation will include formation of a Local Improvement District(s), Fee Districts, and Special Districts (e.g., the Sanitation District).

To implement regional facilities, such as roads, where other jurisdictions will benefit from the required improvements, it is recommended that the County enter into joint powers agreements and/or other similar methods with the benefiting jurisdictions (City of San Diego and City of Chula Vista) to equitably finance these regional facilities. Conditions on individual project approval maybe required, to the extent necessary to ensure the provision of adequate facilities and services.

In order to administer the development of the East Otay Mesa District, it is also recommended that the County and property owners consider forming a Local Development Corporation (LDC) for East Otay Mesa or other suitable entity capable of coordinating development activities in East Otay Mesa. The LDC would be a nonprofit corporation that could assume certain responsibilities subject to the Board of Supervisors' approval, such as review and update of the Facility Phasing and Financing Plan coordination, marketing and other economic development services.

A-5.2 Water

East Otay Mesa is located in the southern service **area** or Otay Mesa System of the Otay Water District, a water purveyor serving the South San Diego County region. There are numerous existing facilities in the Study Area as indicated on Figure 2-23, Water Facilities Plan. Otay Water District has indicated that there is currently sufficient existing or planned water storage and transmission capacity to accommodate development in East Otay Mesa provided that regional water supplies are met by the San Diego County Water Authority and Metropolitan Water District. The District's planned water facilities are outlined in the Subarea Water Master Plan prepared for Otay Mesa (May, 1991).

The location and size of planned waterlines, pump stations, and reservoirs that are expected to be needed within the East Otay Mesa Specific Plan Area are indicated on Figure 2-23, Water Facilities Plan. The District may modify their plan as needed.

Water Facility Implementation

Otay Water District will serve the development of East Otay Mesa in conformance with their Master Plan. In order to implement this master plan, a portion of the Specific Plan Area adjacent to the eastern boundary shall be annexed to Improvement District Number 7 of the Otay Water District before recordation of any map in that area.

Water transmission and storage facilities will be constructed as indicated on the Water Facilities Plan, Figure 2-23. Major capital improvements required, for example, water storage reservoirs, will be constructed by the District using revenue generated from property owners. Facilities required for distribution to each property will be included in road improvements to be constructed before any Final Map can be recorded.

The water distribution system is generally located in roadway right-of-way. However, if not, property owners through the subdivision process shall be required to reserve right-of-way easements for water service lines as indicated in the Water Facilities Plan.

A-5.3 Wastewater Collection and Treatment

Wastewater facilities do not currently exist in East Otay Mesa. Furthermore, East Otay Mesa is within the unincorporated area of San Diego County and is not located within a Sanitation District. Otay Water District has indicated that they are not interested in providing sewer service to this area of the County. Therefore, a Sanitation District for a wastewater collection system and treatment needs to be formed for the East Otay Mesa Specific Plan Area. In the short term, the County has purchased 1.0 million gallons per day (mgd) of capacity through the San Diego Metropolitan Sewage System (Metro) from National City. This capacity is being held by the Spring Valley Sanitation District until a Sanitation District for East Otay Mesa is formed. When a Sanitation District is formed for East Otay Mesa, this capacity will be transferred to provide interim sewage treatment capacity for approximately 500 gross acres (400 net acres) of industrial or commercial development on a project by project basis.

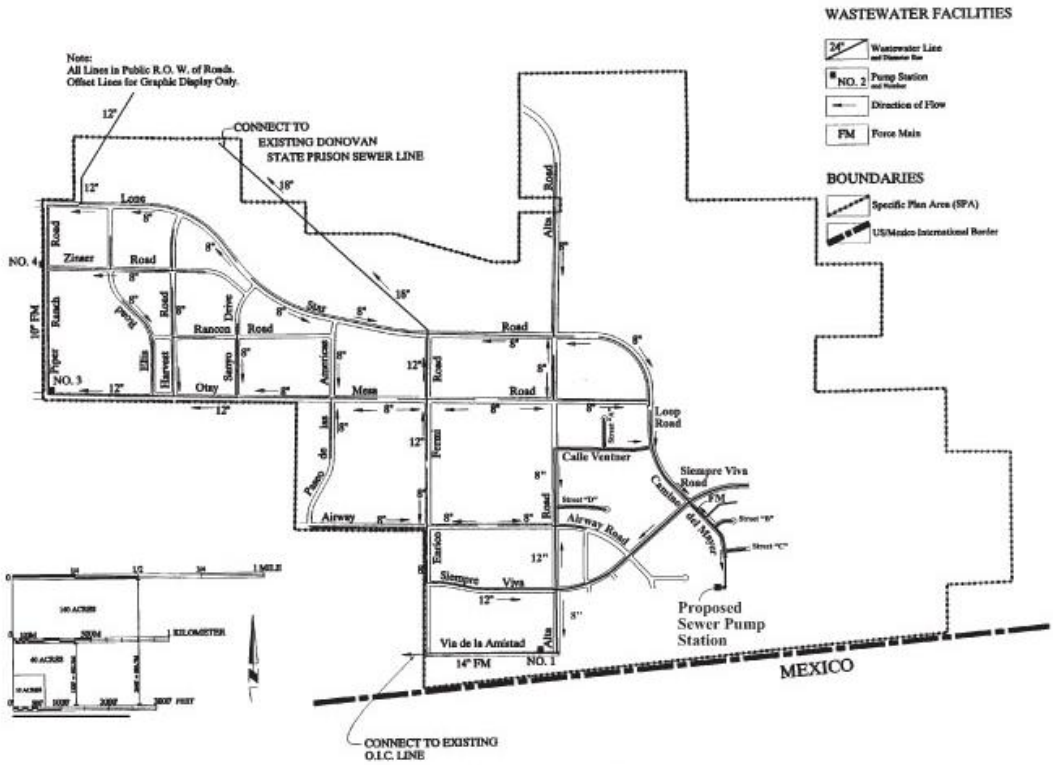


Figure 2-24, Wastewater Facilities Plan

To access this treatment capacity, East Otay Mesa must connect to existing wastewater collection sewers in the City of San Diego. The southern watershed of the Study Area generally drains to the Otay International Center (OIC) Line, currently stubbed out near the southwestern corner of the planning area, see Figure 2-24. Some of the basins within the southern watersheds will need pump stations to access the OIC Line. The northern portion of the Study Area drains toward the Prison Line, currently stubbed out at the State of California Donovan Correctional Facility. In order to use these collection lines, property owners will have to pay a reimbursement fee, on a project by project basis, to secure capacity in these sewer lines. Additional connection costs to pay for

pump stations and other improvements may be charged by the Sanitation District.

Beyond this interim treatment capacity of 1.0 mgd, East Otay Mesa should consider two treatment and disposal alternatives:

- Additional capacity in Metro
- On-site sewer treatment.

The first alternative is the proposed plan alternative. Facilities required are shown on Figure 2-24, Wastewater Facilities Plan. However, Metro is part of a regional wastewater master-planning program called the Clean Water Program, and the costs of treatment under the new program are uncertain at this time and may prove to be extremely high. Furthermore, capacity in Metro may not be available on a timely basis.

Consequently, as an alternative to the proposed option of using additional capacity in Metro, an on-site sewer treatment plant was considered. This second alternative would require developing an on-site treatment facility totally independent from Metro beyond the initial first phase of 1.0 mgd of sewer treatment capacity. Until more specific information is available from the Clean Water Program, it is recommended that a dual planning process occur including consideration of both Metro off-site and/or on-site treatment.

The County has recently undertaken an implementation feasibility study for an on-site sewer treatment plant to examine in greater detail the issues of facility siting, treatment methods, wastewater effluent reuse and costs. The study is due to be completed in 1994. The determination of which treatment alternative is most appropriate will be based on the timing of available capacity and cost, including cost of entitlement for an on-site treatment plant, wet weather storage reservoirs, and possibly spray irrigation fields.

Wastewater Collection and Treatment Implementation

Sanitation District: Application will be made for the formation of a Sanitation District to the Local Agency Formation Commission. Subject to funding by the property owners, the County Department of Public Works will take responsibility for formation of a Sanitation District and execution of agreements.

The interim wastewater treatment capacity of 1 mgd will only be adequate to support a portion of the ultimate wastewater treatment capacity that will be needed to support the entire Specific Plan Area. *All development projects proposed prior to establishment of the long-range wastewater treatment strategy will be required to demonstrate the availability of adequate wastewater treatment capacity*.

Subdivision maps will not be allowed to be re-corded for that portion of an existing parcel that is beyond the ability of available interim wastewater treatment capacity of 1 mgd. Phased recordation of Final Maps will be based on allocation of this interim capacity with subsequent recordation of additional phases only after establishing the long-range wastewater treatment strategy discussed herein.

Wastewater collection system: The wastewater collection system is generally included in road improvements to be financed by property owners through a Local Improvement District and/or impact fees. However, through the Subdivision process property owners shall dedicate easements for any wastewater collection lines not in a road right-of-way.

Long-range system: The County will coordinate with Metro to provide the development of a regional wastewater treatment system to serve the East Mesa beyond the interim treatment capacity described in Policy PF-2. In the event that Metro is not available to meet the requirements of East Otay Mesa in a timely and cost-effective manner, the Sanitation District, subject to funding by property owners, will plan, design, finance, construct and operate an on-site wastewater treatment facility. Future studies shall determine the exact siting of the treatment plant.

A-5.4 Reclaimed Water

Based on Metro's current plan, the reclaimed water source for East Otay Mesa will be the planned Otay Valley Treatment Plant which will have complete reclamation capabilities. Metro has indicated that local water purveyors (in this case the Otay Water District) will also become the reclaimed water purveyor. Although Otay Water District will not own and operate the reclamation plant, they will receive reclaimed water at their district boundary and then become responsible for its distribution. If East Otay Mesa Sanitation District develops its own on-site treatment and disposal facility, then reclaimed water may be wholesaled to Otay Water District for distribution.

East Otay Mesa development will be required to install a dual water distribution system throughout the development. Therefore, reclaimed water and potable water lines will most likely be installed in every roadway. The reclaimed water will be used for streetscapes and industrial development landscaping. Some buildings could possibly be plumbed with reclaimed water for toilet flushing or processing water. Use of potable water in the reclaimed water system for irrigation could potentially be permitted until reclaimed water becomes available**.**

Figure 2-25, Reclaimed Water Facilities Plan, indicates the facilities proposed for an area wide reclaimed wastewater system.

Reclaimed Water Facility Implementation

A reclaimed water transmission system will be installed to distribute re-claimed water for streetscape landscaping and possibly for toilet flushing or processing water. The transmission system lines will be constructed as part of the basic street infrastructure, to be financed by the property owners.

Generally, the reclaimed water supply system is included in the roadway improvements. However, right-of-way easements for any supply line outside of a roadway shall be dedicated by property owners as part of the Subdivision process.

A-5.5. Storm Water Drainage

Storm water runoff will inevitably increase with development as permeable ground primarily in agricultural uses is transformed into impervious rooftops, parking lots and streets. Accordingly, storm water drainage facilities will be needed to accommodate development in East Otay Mesa.

Facilities needed to accommodate the runoff vary between the three major watersheds in East Otay Mesa, see Figure 2-26. The northern watershed region made up of basins B and H drains to the Otay River. Facilities in this basin require collection facilities only. The western watershed region made up of basins I, K, L, M1, M2, P, Q, and R drains to the City of San Diego. Collection and onsite detention facilities will be required for each property to ensure that the peak runoff into the City of San Diego does not increase above historical rates. The southern watershed region, made up of watershed basins D, El, E2, F, and G drains to Mexico. Based on international agreements, the peak runoff into Mexico may not be increased above historical rates. In order to accommodate runoff, on-site detention basins will be required in the western and southern watershed region. These detention basins are to be placed at the down-stream end of each drainage area within each existing parcel. As an alternative, regional detention facilities are planned in substitution for on-site facilities in the western and southern watershed region. The western watershed region has not been studied to provide for regional detention basins and potential regional detention basin sites have not been located. This alternative decreases the number of detention basins ,

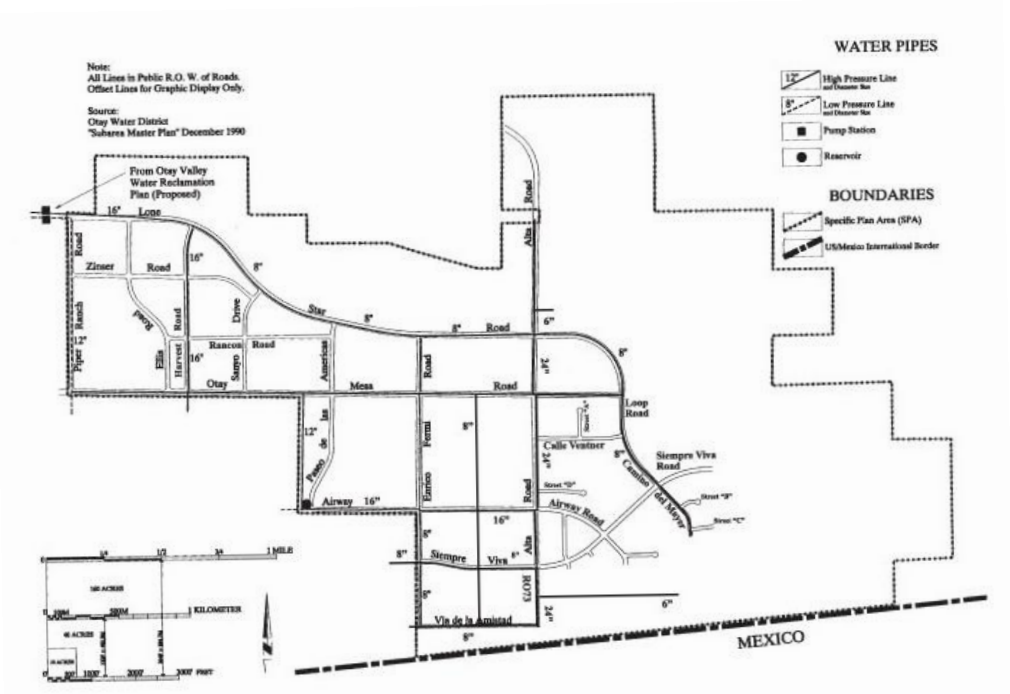


Figure 2-25, Reclaimed Water Facilities Plan

overall detention basin volume, and the overall the detention basin area. The construction and maintenance of these detention basins will be the responsibility of benefiting property owners or an assessment district. On-site and regional detention basins are to be designed so that the downstream discharge is no greater than the predeveloped peak flow. Regional detention facilities are

less land consumptive, have lower capital and operating costs and can be phased by drainage basin. However, they have high up front costs compared to on-site detention. Other smaller southern watershed basins are planned to have on-site detention.

The Clean Water Act strictly regulates non-point source storm water pollution of the waters of the United States. In California, the Clean Water Act is administered by the State Water Resources Control Board which issues Construction and/or Industrial Permits to discharge storm water. In an industrial area, the primary source of non-point pollution is oils from automobiles deposited on roads and parking lots. The County of San Diego is in the process of promulgating Best Management Practices to implement the Clean Water Act.

Storm Water Drainage Implementation

Through the Subdivision process, the County will implement the policy for storm water drainage for East Otay Mesa in acc dance with the Comprehensive Flood Control Master Plan and Department of Public Works administrative procedure. Construction of on-site detention facilities will be the responsibility of each property owner and are to be constructed at the downstream end of the drainage area within each subdivision. Maintenance of on-site detention facilities will be the responsibility of the benefiting property owners. An easement showing detention basin locations will be required to be shown on subdivision maps. Should the property owners elect regional detention facilities in lieu of on-site detention facilities, the construction of regional detention facilities are to be financed by benefiting property owners through a financing mechanism. Ongoing maintenance of the regional detention facilities will be the responsibility of a benefit assessment district funded through assessments levied on benefiting properties.

A-5.6 Dry Utilities

Dry utilities include electrical power, natural gas, telephone, and cable television. Electrical power and natural gas are provided by San Diego Gas and Electric Company. Telephone is provided by Pacific Bell. Service connection points currently terminate at the western boundary of the site. No off-site constraints were identified. ***The utility lines will be underground in roadways in accordance with company standards with the exception of the 69 KV electrical line on Otay Mesa Road and the 230 KV line on the eastern portion of the Specific Plan Area***. Other facilities such as transformers should be located in underground vaults or screened (See **Urban Design Policy UD-7).**

Dry Utility Implementation

The County shall work with San Diego Gas & Electric and Pacific Bell to provide dry utilities to serve development in East Otay Mesa as part of the subdivision process. Through the subdivision process, the County shall require property owners to dedicate utility easements for dry utility lines. These easements shall be in conjunction with road dedications whenever feasible. This will be implemented as part of the road improvements to be financed by property owners.

A-5.7 Fire Protection and Emergency Medical

East Otay Mesa is serviced by the Rural Fire Protection District (RFPD) of San Diego County. This district, which is independent of County government, has the primary responsibility for fire protection and emergency medical service in all but a small portion of the northern area of East Otay Mesa. A portion of the planning area generally west of Paseo de Las Americas, between Lone Star Road and Otay Mesa Road, is not located within a structural fire protection district. In order to provide service to this area, the optimum solution is to annex to RFPD.

The closest Rural Fire Protection District station is located at 14145 Highway 94 in Jamul, a 20 to 30 minute response time. Since the station is remote it does not conform to the five-minute response time contained in the Public Facility Element of the General Plan.

Other agencies also provide backup fire protection services to East Otay Mesa. The City of San Diego will respond in situations requiring an unusually high level of fire protection resources, based on a mutual aid agreement between the City, the RFPD, and the State's Donovan Correction Facility. Additionally, because the Specific Plan Area is located within the State Responsibility Area, the California Department of Forestry has the responsibility for wildland fires in East Otay Mesa.

Emergency medical services are currently provided by contractors in Chula Vista and National City. From either city the response time is 15 minutes. Advanced life-support ambulance service is not currently provided to East Otay Mesa. This response time does not conform to the five-minute response time contained in the Public Facility Element of the General Plan as the mini-mum objective for industrial development.

According to the RFPD, substantial new fire protection and emergency medical services are required to adequately service **any** new development in East Otay Mesa. One alternative is to build a new temporary or permanent fire station on a 1.5 net acre site at the intersection of Otay Mesa Road and Alta Road, which was dedicated for that purpose as part of a major use permit approval for the Bradley Auto Storage Auction Pool, presently Roberts Leasing. The temporary station would need to be a facility which includes one bay - 2,200 square feet and which is capable of accommodating an engine and quarters for a three person crew.

The ultimate station would need to be approximately three bay - 6,500 square feet and capable of accommodating the engine, a truck, an additional light vehicle and quarters for an eight person crew. Fire fighters could be trained to provide emergency medical services to provide combined fire fighting and emergency medical services.

Another alternative, if cost effective, is to effect a joint operating agreement or contract with the City of San Diego to provide fire protection and emergency medical services for both the City and County Otay Mesa. The City is planning to build a fire station nearby Brown Field in the next two years. There have been some preliminary

discussions with the City regarding this possibility. Further coordination and discussion are taking place at this time to determine the feasibility of this proposal.

Fire Protection and Emergency Medical Implementation

The County will require all properties that are not already in the Rural Fire Protection District to either annex to RFPD or be part of a district that contracts with the City of San Diego for fire protection and emergency medical services. In addition, the Rural Fire Protection District shall be responsible for providing fire protection services, either by operating from appropriate facilities at a temporary or permanent substation or alternatively, by contracting with the City of San Diego for services.

The County will require evidence of provision of adequate fire protection and emergency medical services and facilities, with a financing strategy acceptable to the fire agency, to be implemented prior to recordation of final subdivision maps. All property owners in East Otay Mesa will be required to participate in a funding strategy acceptable to the fire agency to provide adequate fire protection and emergency medical services prior to recordation of subdivision maps and/or final approval of any discretionary permits.

The costs of initial capital facilities and operating costs will be financed by property owners through a Local Improvement District and/or Mello-Roos District. Ultimate needs for capital facilities could be financed by property owners through an Impact Fee District or other means.

A-5.8 Law Enforcement

Law enforcement duties are performed by the County Sheriff's Department. Currently, no sheriff facilities exist within East Otay Mesa. The nearest station is the Imperial Beach Station, located approximately 9-1/2 miles west of the western edge of East Otay Mesa. Depending on the beat, the most recent data indicates a response time of 16 to 29 minutes for priority calls, and 17 to 59 minutes for non-priority calls.

County standards for response time are established in the Public Facility Element of the General Plan. In urban unincorporated areas such as East Otay Mesa, the minimum acceptable response time for priority calls is 8 minutes, and 16 minutes for non-priority calls.

The sheriff’s office has indicated the need for a new sheriff’s substation on East Otay Mesa to provide law enforcement services at the onset of development since response time goals could not possibly be met from the existing Imperial Beach substation. Initially, the facility could be under 1,000 square feet to accommodate the needs of three deputies each operating on an eight and a half hour shift. Ultimately, to ensure 24-hour service, the substation will need to be expanded up to 4,000 square feet to accommodate the needs of three deputies per shift. It is proposed that the sheriff’s substation be built on the same site which has been dedicated to the RFPD for a fire station *at Lone Star Road and Enrico Fermi Road*. The area of the site is large enough to accommodate both the fire and sheriff station facilities since the site coverage of both buildings is only 15 percent of the site.

Law Enforcement Implementation

Law enforcement will be provided by the County Sheriff. Countywide policies shall establish financing methods for law enforcement facilities. The County shall evaluate the cost effectiveness and feasibility of joint siting a sheriff s substation with a fire facility. East Otay Mesa property owners may choose to augment the Sheriffs standard service level with a benefit assessment for higher service levels or with private security patrols if they desire additional law enforcement.

A-5.9 Child Care

The Public Facility Element of the County General Plan and the Otay Subregional Plan contain policies encouraging the provision of child-care for new development, particularly at places of work. Policy 3.1 of the Public Facility Element states that: "The County will work to ensure that child care facilities are available when needed by new development." Moreover, modern industrial and business parks of the level of quality envisioned in East Otay Mesa have increasingly provided private child care facilities as an amenity toattract tenants and employees. For all these reasons, provision of child care in East Otay Mesa is strongly encouraged.

Data provided by the County Child Care Coordinator indicates that there may be a substantial demand for child care in East Otay Mesa. Population estimates indicate that when East Otay Mesa is built out, there may be a demand for child care facilities to accommodate up to"150 children. Child care near the workplace is only workable when it is located within very close proximity to a parent's workplace, generally within a half-mile radius. For East Otay Mesa, this would imply a need for at least two child care facilities. It is possible that some child care facilities may be provided by individual employers.

One of the advantages of child care near the workplace is that it can reduce vehicle trip generation. Parents can use transit or car pool if their children are near work, where otherwise they need their car to commute to their daycare. One of the child care sites should be located within the Regional Commercial Center near to the light rail transfer station. By locating the child care facility close to the light rail transfer station, it will en-courage parents to make child care part of the commute trip, thus reducing vehicle-miles traveled. This is consistent with the General Plan Policy of locating child care near transit.

Child Care Implementation

Child care facilities shall be permitted in the commercial districts as designated in the Zoning Map, Figure 3-32, and Land Use Regulations of the Specific Plan and by minor use permit in industrial designated districts.

A-5.10 Solid Waste

In recent years, the County has initiated a program to reduce solid waste sent to landfill facilities and maximize recycling of materials. The County has recently passed an ordinance regarding solid waste and goals for recycling of solid waste materials. The ordinance requires that industrial businesses separate the following materials for recycling: dirt, land clearing brush, asphalt, concrete, sand and rock. Office buildings and hospitality

facilities are also required to recycle materials appropriate to the use such as: aluminum, corrugated cardboard, paper, glass jars and bottles, etc.

The County is also in the process of developing standards regarding on-site storage of recyclable materials. For each type of land use, the size and type of area to be set aside for recycled materials will be specified. Facilities for bailing recyclables will also be encouraged, particularly for industrial uses, so by-products of production can be sold for reuse. Reuse of landscape debris such as mulch will also be a priority. Businesses in East Otay Mesa will need to comply with these new standards and guidelines in order to minimize solid waste generated from the area. The City and County of San Diego have jointly established a Market Development Recycling Zone to encourage the recycling businesses to locate in Otay Mesa.

Solid waste and recycling collection services for East Otay Mesa will be provided by private operators under permit by the County. The solid waste disposal facility which currently serves the East Otay Mesa is the Otay landfill. It is anticipated to reach capacity between the years 2000 and 2005, and a new landfill facility will be required. The County is currently conducting a study and EIR for three alternate landfill sites, one of which is within East Otay Mesa in the eastern hillside area, see Figure 1-5. In the event that none of the landfill sites prove feasible, there may not be adequate solid waste disposal facilities to support future development in the South County area including the East Otay Mesa Specific Plan Area.

Solid Waste Implementation

.A private operator will provide solid waste and recycling collection services under permit from the County. .

In addition, all businesses will need to abide by all County ordinances for solid waste management. The Site Planning and Design Guidelines require that enclosed areas be set aside for storage of solid waste and recyclable materials.

The County will continue efforts to locate a new solid waste disposal facility to serve the South County area.

A-5.11 Hazardous Materials

Hazardous materials are regulated primarily by the County Department of Environmental Health Services. Permits are required for the storage and use of certain types and quantities of materials.

Other public agencies are also involved in the regulation of hazardous materials, depending on the types of hazardous materials involved. For example, the Rural Fire Protection District has regulations regarding flammable materials, and the Air Pollution Control District regulates the use of chemicals that will be emitted into the air. The County Department of Environmental Health Services directs businesses to the appropriate agency for all required permits.

The Hazardous Incident Response Team (HIRT) program provides the County with highly trained teams of hazardous materials experts to respond to any chemical

emergencies. HIRT is managed under a joint powers agreement between the County and all the cities within San Diego County. The HIRT would respond to hazardous materials incidents in East Otay Mesa.

Hazardous Materials Implementation

The County Department of Environmental Health Services and City/County Hazardous Incident Response Team are responsible for hazardous materials countywide.

A-5.12 Facility Phasing, Financing, and Implementation

The Otay Subregional Plan requires that public facility improvements for East Otay Mesa be "financed through the equitable participation of all affected property owners and developers." It further requires that a facilities phasing and financing strategy plan be prepared, where public and private services and facilities would be available prior to the needs of development and located in response to the market demand.

This section of the Specific Plan describes the proposed phasing and financing strategy for public facilities in East Otay Mesa. The financing strategy primarily addresses the capital facilities that are of area wide benefit and will be financed equitably by all the property owners. Operating and maintenance type expenses which are not to be paid out of the County's General Fund are also discussed.

There are five categories of public facility improvements that are of area wide benefit, and which shall need to be financed jointly by the property owners in East Otay Mesa:

1. ***On-Site Roads and Infrastructure****:* These facilities include the basic network of roads with utility lines in the right-of-way. It should be noted that for roads, the facilities that are considered to be "general interest portion" are the improvement of the median and center lanes as well as intersection signalization and safety lighting. The "lo-cal interest portion" of roads includes the improvement of the road lanes fronting a privately owned parcel which are the responsibility of the property owner. In addition, the property owner is responsible for all other frontage improvements, including curbs, gutter, sidewalk, street lighting, park-way, landscaping and contribution to local intersection signalization as warranted.

2. ***On-Site Capital Facilities****:* These include buildings for public services, like a fire station, wastewater treatment facility, or storm water detention facilities.

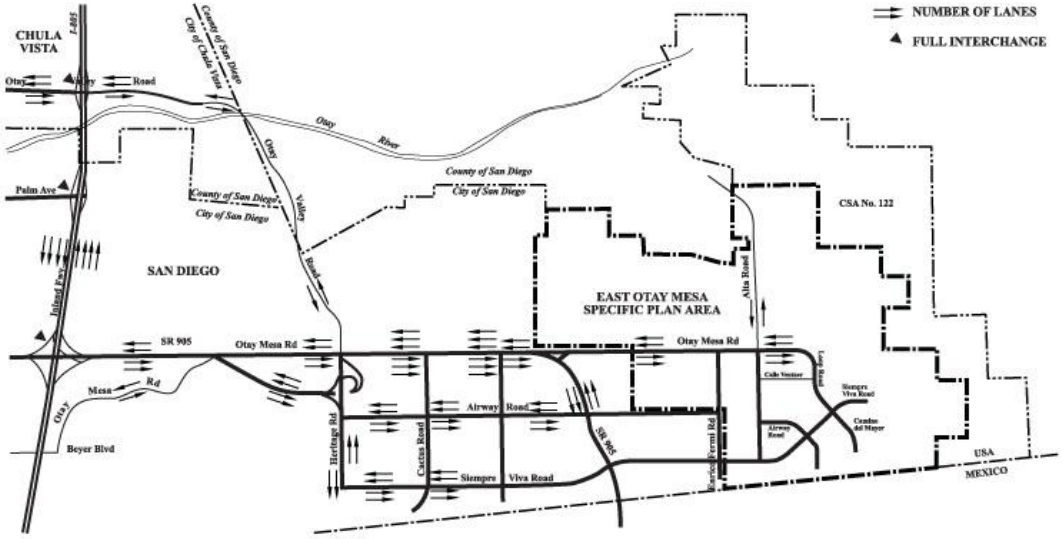


Figure 2-27, Off-Site Road Improvements

3. ***On-Site Operation and Maintenance****:* Property owners will need to finance the on-going operation and maintenance cost of the following public facilities: fire protection and emergency medical services, street lighting and landscaping, and regional storm water detention facilities.

4. ***Off-Site Roads****:* Road improvements out-side the Study Area that are necessary to accommodate traffic generated by East Otay Mesa Development. East Otay Mesa property owners shall be responsible for their "fair share" of the construction cost of these road improvements.

5. ***Off-Site Capital Facilities****: Regional facilities such as a regional wastewater treatment plant, for which East Otay Mesa property owners shall contribute their "fair share."*

6. ***Public Transit Service****: Property owners may be asked to finance local bus service through a local improvement district in accordance with County and MTDB transit policies.*

These facilities are discussed in depth in the Circulation Element and Public Facility Element.

The facility phasing and financing plan herein is intended as a guide and general direction for capital improvements. Implementation will need to take into account key factors which will change over the course of the area's development, including:

- Rate/intensity and Location of Development
- Facility Capacity Determination
- Sources of Financing
- Land Secured Public Debt Lien-to-Value Ratio
- Land Value

A-5.13 Public Facility Phasing

The Otay Subregional Plan allows development to proceed as one geographic phase. However, the plan also allows non-geographic phasing of development if adequate public facilities and services are provided.

In order to accommodate a non-geographic phasing plan, on-site and off-site facility demand and phasing was analyzed in a comprehensive pro-cess. Alternatives for on-site backbone facilities (primarily roads, wastewater treatment, and storm water drainage facilities) were analyzed to deter-mine which increments were most critical to the development and which were to benefit most of the property owners. Simultaneously, the capac-ity of off-site facilities was analyzed to determine the thresholds of on-site development which facilities could support. Cost estimates were pre-pared for the recommended on-site and off-site facility improvements. These cost estimates were compared to the estimated land secured public debt financing capacity for the recommended first phase improvement plan, based on the currently acceptable lien-to-value ratios for the Specific Plan Area.

Phase One

Based on this analysis, it was determined that the recommended first phase of public facilities in East Otay Mesa should be of a magnitude to support 500 gross acres of development (equivalent to 400 net acres). A key factor in this determination was the availability of wastewater treatment facilities from Metro. A million gallons per day of treatment capacity has been acquired for East Otay Mesa, which is enough to support 500 gross acres of development. Currently, an on-site sewer treatment study is underway that evaluates the potential feasibility of a treatment plant in Otay Mesa to serve future development. After that point, if additional capacity cannot be acquired from Metro in a timely and cost-effective manner, it may be necessary to build an on-site treatment plant. Building an on-site treatment plan would be a major undertaking, requiring years for planning, permitting and construction, and thus would be a major threshold for development in East Otay Mesa.

The financial analysis also indicated that the Specific Plan Area had an acceptable lien to value ratio for a Local Improvement District, (see Glossary for definition) to issue land secured public debt instruments to finance the recommended first phase "backbone" on-site roadway and infrastructure plan, as well as other capital facilities. Additional on-site improvements beyond what is recommended may be dependent on the amount of funding required contributions for off-site roadway improvements.

The East Otay Mesa property owners are encouraged to form a Local Improvement District to implement the coordinated recommended first phase of improvements as recommended in the Specific Plan. However, it is recognized that the implementation of all the recommended first phase improvements may require significant initial capital funding. Moreover, the recommended first phase improvements are based on current information and circumstances. Therefore, the property owners, subject to County approval, have the option of implementing alternative phased facility

improvements for individual development proposals provided adequate facilities and services are provided. If initial development proposals are required to improve needed facilities beyond their "fair share", the County may enter into reimbursement agreements with affected property owners. The purpose of these agreements is for the County to reimburse these property owners by collecting funds from subsequent development proposals that will utilize the facilities.

It should be pointed out however, that all Tentative Maps in the Specific Plan Area will be conditioned to required initial developers in the East Otay Mesa to not oppose formation of future Improvements Districts to the extent allowable by State law. This requirement may further expedite the reimbursement of funds to the initial developers.

The recommended first phase, capital facilities are described as follows:

l. ***Acquisition of Metro Capacity for Wastewater Treatment***

The County has purchased 1.0 million gallons per day capacity of San Diego Metropolitan Sewage System (Metro) treatment capacity from National City, which accommodates 500 gross acres of development. This capacity is being held in the interim by the Spring Valley Sanitation District until the East Otay Mesa Sanitation District is formed. East Otay Mesa property owners will reimburse the Spring Valley Sanitation District, over a period of ten years, once the East Otay Mesa Sanitation District is formed. Fair share reimbursement charges have to be paid at the building permit stage for the connection to the Otay Inter-national Center (OIC) and Pump Station and to the Prison Sewer Line on a project by project basis.

2. ***Fair Share Contribution to Off-Site Roads, If Required***

There is currently no or very limited existing off-site road capacity to accommodate development in East Otay Mesa. Any improvement of off-site roads would improve accessibility in the City's portion of the Mesa. It may prove feasible to share off-site road improvement costs with the City of San Diego. Other jurisdictions may also benefit by off-site road improvements.

Assuming improvements to off-site road capacity would be shared with the City's West Otay Mesa, City/County staff studied off-site road improvement options to service 1,000 acres of development, half in the City and half in the County. Summarized below are four alternatives, the first three of which produced this capacity and would involve some freeway improvement.

- Build an interim extension of SR-905 east to Heritage Road; and improve east/west arterials to County jurisdictional border, see figure 2-27, off-site road improvements;

- Build interim SR-125 to Otay Mesa border crossing for north-south capacity, and up- grade one east-west arterial to 6 lanes to the existing improved terminus of SR-905;

- Build interim SR 905 to the Otay Mesa border crossing;

- Use of major arterial roads, including Otay Mesa Road, Siempre Viva Road, and air-way Road, and feeding traffic to heritage Road. From Heritage Road, traffic would flow north to the new freeway interchange at Palm Avenue and I-805. This alternative did not meet the 1,000 acre capacity objective.

Alternative A is by far the least costly option that meets the objective of 500 gross acres of development in the specific plan area. It assumes 500 gross acres of development would be allocated to the city's West Otay Mesa. The other alternatives have higher costs or do not meet the capacity objectives. Figure 2-27, off-site road improvements shows the preferred alternative that would provide capacity for the full first phase of development.

The availability of public or toll authority funding for the design and construction of SR-905 (by CALTRANS) and SR-125 (by California Transportation Ventures) is critical to the determination of the amount of off-site road contributions required from East Otay Mesa property owners. Currently, there is only funding for preliminary design and the environmental reports necessary for the route adoption procedure. Caltrans has indicated that if funding for design and construction were avail-able, freeway improvements would not be open to traffic until late 1997 or early 1998. See the Circulation Element Technical Report for a more detailed discussion.

3. On-Site Roads and Infrastructure Facilities:

There are two alternative approaches to the first phase of road improvement plans, as depicted in Figures 2-28 and 2-30. Infrastructure included in Phase One roads right-of-way include:

- Water Distribution System
- Wastewater Collection System
- Reclaimed Water Distribution System
- Storm Water Drainage Collection System
- Dry Utilities - Telephone, Gas, Electric Power, and Cable TV

The proposed Phase One road improvement plan may be considered the minimum backbone road system providing a loop of Otay Mesa Road to Siempre Viva Road, see Figure 2-28. This alter-native is preferred because it is less costly and more financially feasible to construct. The alter-native expanded Phase One road plan is preferred by the property owners, see Figure 2-30, which also includes Lone Star Road in the initial con-struction. This alternative would provide greater access, however, it is more costly.

Land acquisition and construction cost of the backbone area wide "general interest portion" share of roads, as defined by Board of Supervisors Policy J-16, and the County Road Policy, dated March 20, 1962, is to be financed by all the property owners by means of a Local Improvement District and local impact fee. Land acquisition and construction cost of the lane and parkway adjacent to private property or the "local interest portion," as defined by Board of Supervisors Policy J-16, and the

County Road Policy, is the financial responsibility of property owners at time of development.

It should be noted that certain portions of planned roads are located on the City/County jurisdictional boundary, with the centerline of these roads serving as the boundary. It is assumed that the allocation of the responsibility of financing for roadway improvements will be on the basis of property frontage.

In implementing State Route SR-125 and/or 905, Caltrans has indicated that it will be responsible for financing the design, land acquisition and improvements. This will include signalization of the portion of Otay Mesa Road between the ramps termini that facilitate access to the freeway. The financial participation would be negotiated by the City, County and Caltrans as part of a Freeway Agreement.

The key variable in deciding whether to build the minimum (Figure 2-28) or the expanded (Figure 2-30) road network in Phase One is the cost of fair share contributions to off-site roads. If the cost is high, possibly only the minimum road system is affordable. Moreover, the expanded network is best-timed to coincide with the construction of the Lone Star ramps of SR-125 . Those ramps will be built after construction of an interim SR-125, at a point in time when demand warrants.

The individual property owners have the option of improving facilities beyond their fair share to allow for expedited improvements to their proper-ties. Reimbursement agreements may be executed for reimbursements in such situations.

1. Fire Station

Prior to any development in East Otay Mesa, an adequate level of fire protection and emergency medical services must be assured. There are two options for providing capital facilities to accommodate the first phase of development:

Build an interim fire station at the site which has been dedicated at Otay Mesa and Alta Road.

Alternatively, the Rural Fire Protection District would coordinate with the City of San Diego to share the capital and operating cost of a fire station planned at Brown Field.

Capital as well as operating costs for fire protection can be financed by established funding mechanisms such as a combination of a Local Improvement District and impact fees.

Phasing Thresholds and Pace of Development

Table *2-2,* Recommended Key First Phase Improvements, indicates critical thresholds for construction of major public facilities. Table *2-3,* Recommended Phasing Plan, summarizes the phasing plan, showing the first phases of development and the ultimate buildout condition.

Based on the Market Study prepared for the Specific Plan, the earliest point at which development would begin is *1998.* If Otay Mesa Road is widened to six lanes, some modest capacity will be available in *1995.* However, due

to off-site roadway constraints, significant development will not be in place until late *1997* or early *1998* at the earliest, assuming freeway and local off-site road-way capital costs are funded. Under one scenario, land would be absorbed slowly in the early years since it is competing with the City's West Otay Mesa industrial areas which are more centrally located and have infrastructure. In the first years of development, the first 400 net acres or 500 gross acres will be built. Another scenario indicates that development of East Otay Mesa could be delayed until all of the adjacent City industrial land is built out, and then rapidly built out in the following years.

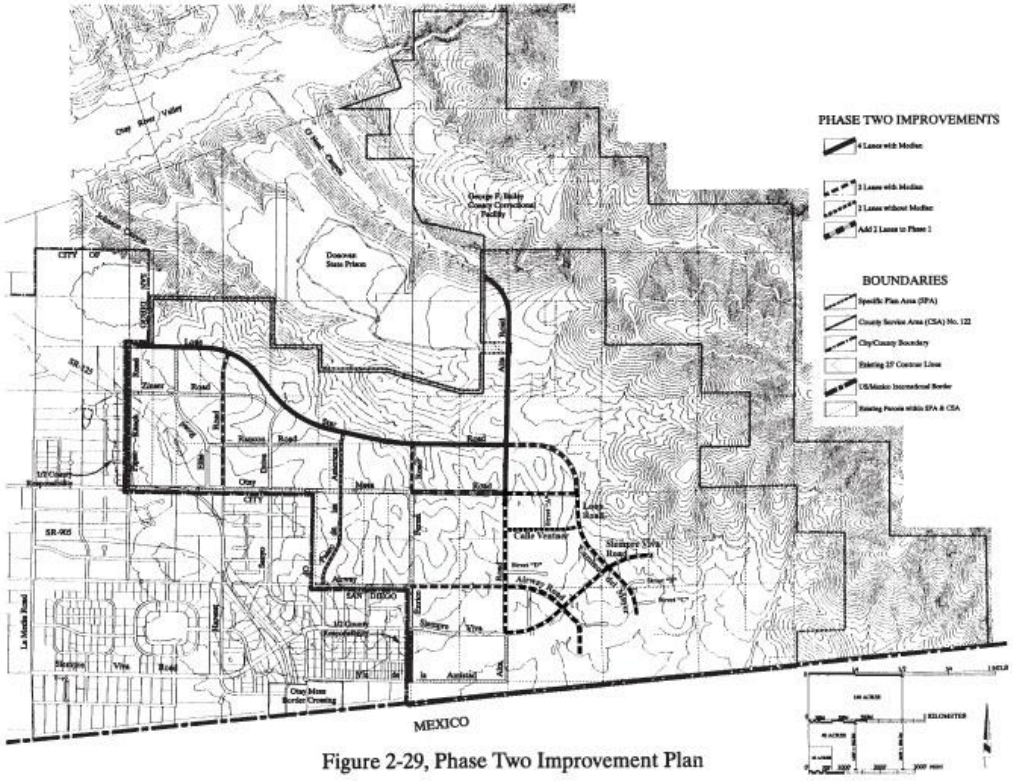


Figure 2-29, Phase Two Improvement Plan

Ultimate Buildout

Subsequent phases of public facilities are to be built commensurate with the pace of development. Figures *2-29* and *2-31,* Phase Two Improvement Plans, show the alternatives for the ultimate buildout of the facilities that will be jointly financed by the property owners. If the pace of development is fairly rapid, with a large amount at the outset and a steady pace thereafter, it may be possible to build improvements in one large second phase possibly financed by a Local Improvement District impact fees. Alternatively, it may be necessary to build the improvements in smaller phases over a longer period of time possibly financed by reimbursement agreements and impact fees. Capital improvements and necessary public services would be provided prior to the time of need, based on the rate of development.

Public Facility Phasing Implementation

Non-Geographic Phasing. The County will require the provision of adequate facilities and services as conditions of tentative subdivision maps to be implemented prior to recordation of final subdivision maps.

Recommended Key First Phase Improvements

- Wastewater Treatment: Secure 1 million

gallons per day Metro capacity from National City.

- Off-Site Roads: Three options described above.
- Water: Facilities as per Otay Water District Plan.
- On-Site-Roads: Minimum loop roadway network
- Fire Protection Interim Fire Station or coordinate with City to provide joint services.

Off-Site Facilities: As discussed above, the existing off-site transportation facilities are inadequate to support the development of planned land uses in East Otay Mesa. The off-site wastewater treatment and transportation public facilities to be improved in the recommended initial phase would be adequate to support 500 gross acres of development. After the initial phase of public facilities are built, the County will monitor off-site public facility capacity, especially wastewater treatment and roadway capacity, to keep pace with the rate of development in the East Otay Mesa Specific Plan Area. The County will continue to coordinate with CalTrans and the City of San Diego to pro-mote the recommended initial and ultimate buildout transportation facilities as described in Policy C-15. The County will review off-site roadway capacity pursuant to the Circulation/ Land Use Monitoring Program described in Policy C-16. Prior to the discretionary permit approval, the County will verify off-site facility capacity and mitigation program for consistency with the policies of the Specific Plan.

On-Site Facilities: The recommended first phase (Phase One) and ultimate buildout phase (Phase Two) of on-site facility improvements are de-scribed above. However, the Specific Plan does not preclude any individual property owner to propose an alternative improvement phasing approach that provides adequate public facilities and services in advance of development. The County will review and may approve alternative phasing as part of an individual project discretionary permit review process. This review process will include analysis of existing and proposed on-site roadway capacity required pursuant to the Circulation/Land Use Monitoring Program described in Policy C-16.

4.13 Financing Strategy

Capital Costs

The optimum strategy for financing capital facilities needed as part of the initial phase of development in the East Otay Mesa Specific Plan Area is to use land-secured public debt instruments. This type of financing would be obtained either through the formation of a Local Improvement District, used herein as a general term to apply to financing available pursuant to formation of an Assessment District (1911-1913 Improvement Acts), a Community Facilities District (1982 Mello Roos Com-munity Facility Act), or some other Special District. The amount of public debt financing permissible will be limited by the prevailing acceptable lien-to-value ratio of the land after the public improvements are constructed. Subsequent phases of infrastructure and public facility improvements would be financed either through: (1) Countywide, Special District or local impact fees on development collected when building permits are issued; (2) additional public debt instruments, *which* could be

issued based on the increase in lien-to-value ratio of the land generated by earlier development; and/or (3) revenue bonds issued by specific service districts such as a Sanitation District.

Other sources of financing for specific types of public improvements may also be available. These include, but are not limited to:

1. Intermodal Surface Transportation Efficiency Act funding, channeled through SANDAG, to pay for certain regional road and transit improvements.

2. North American Free Trade Agreement funding, channeled through SANDAG, to pay for certain regional road and transit improvements.

3. California Transportation Ventures, a private firm that may finance the SR-125 toll road and improvements to Otay Mesa Road between Piper Ranch and Sanyo Drive to facilitate access to the freeway.

4. Reclaimed Water Sales Revenue, which would be generated if an on-site wastewater treatment plant is built and the Sanitation District sells the treated wastewater.

5. Private Landowner Financing of Facilities and applicable Reimbursement Agreements, where the landowner constructs the facilities with private resources, and the other property owners who benefit from the improvement reimburse the initial contributing landowner in the future.

6. Community Development Block Grant Funds could be used to finance first phase public facility improvement design.

7. Joint financing of shared public facilities and associated pertinent costs with the City of San Diego and/or the City of Chula Vista.

Operation and Maintenance Costs

Most types of operation and maintenance costs related to public facilities are provided for either by the County General Fund or user fees or benefit fees collected by a service provider. The County collects property taxes and other general revenues to pay for such services as law enforcement. The gas tax is used to pay for road maintenance. Service providers, for example the Otay Water District, collect fees for services provided. However, some types of operational and maintenance services required in East Otay Mesa will not be covered by either of these types of funding, so other administrative and funding arrangements are necessary. The following facilities will need supplemental funding of on-going operation and maintenance:

- Fire Protection and Emergency Medical Services will require funding to supplement the property tax revenues of the District.
- Regional Storm Water Detention
- Parkway Landscaping

County Service Areas, Community Facility Districts, or Benefit Assessment Districts can be used to collect

special taxes or assessments to pay for operation and maintenance expenses of public improvements and services. Through these mechanisms, property owners are billed on their property tax bill for their pro-rated share of the operation and maintenance costs.

The San Diego County Street Lighting District encompasses the entire County for the purpose of maintaining street lights. As each parcel develops, it would be billed its share of district costs on the property tax bill.

Financing Strategy Implementation

Financing by Property Owners. The County will work with the property owners to secure appropriate public financing for public facilities. Initial funding of County services could be generated by the County Service Area (CSA) or a local improvement district or other means.

Property owners may use private funds to construct planned public facilities and services. The County may permit reimbursement agreements, as discussed above. The intent of this provision is to allow for individual property owners to proceed with development in East Otay Mesa prior to implementation of the initial phase of improvements. The benefiting property owners and./or the first phase improvement district will reimburse those property owners who have provided more than their fair share of local and/or regional facility improvements subject to County approval.

Fair-Share Contributions to Off-Site Transportation Facilities: To the extent that East Otay Mesa contributes to the need for road improvements outside it's boundaries, East Otay Mesa property owners shall mitigate their impacts by participating in impact fee programs, or other means determined prior to recordation of any maps in East Otay Mesa. The regional financing plan or impact fee program shall be approved and adopted by the Board of Supervisors.

A-5. Implementation

Local Improvement District

The first step in implementing backbone public facilities will be formation of a County Service Area or public financing district for the phase one improvements. The CSA or public financing district could be responsible both for financing and for project administration. In reference to the financing, the County, City, Sanitation District, or Fire District issues the bonds, and charges the proportionate tax or assessment liability to each property.

Special Districts

Special districts will take responsibility for construction of their respective capital facilities in East Otay Mesa, as follows:

- Water: Otay Water District Wastewater Treatment East Otay Mesa Sanitation
- District (to be formed) Fire Station**:** Rural Fire Protection District

Funding for these capital improvements will come from one or a combination of the following sources: a benefit assessment district, impact fees and/or user fees.

Joint Powers Agreements

For some types of public facilities in East Otay Mesa, where jurisdiction is not entirely within the County, it is recommended that the County consider Joint Powers Agreements with the City of San Diego and the City of Chula Vista. A Joint Powers Agreement enables facilities to be jointly funded and financed by different jurisdictions. Specific recommendations are as follows:

Off-Site Road Improvements: Several of the road improvements necessary for the development of East Otay Mesa are outside the Study Area. These include:

- Interim SR-905
- Interim SR-125
- Regional Share Arterials - Otay Mesa Road, Airway Road, Siempre Viva Road, Heritage Road, Lone Star Road, Otay Valley Road, La Media Road, Alta Road, Harvest Road, etc.

Joint Powers Agreements may be required for East Otay Mesa property owners to contribute to the construction of these road improvements.

Fire Protection and Emergency Medical: It is clear that a new fire station is needed to serve development in East Otay Mesa. The City of San Diego has indicated that additional fire protection services are also required for the City's West Otay Mesa industrial area. It may be most efficient to provide fire protection services to both industrial areas from a single fire station. A Joint Powers Agreement would be **a** vehicle for establishing this type of shared fire protection and emergency medical service. Alternatively, the RFPD could contract for service or could provide service itself.

Local Development Corporation

A Local Development Corporation (LDC) is a public corporation that performs a variety of services related to the development of a specific area, for example, the City of San Diego's Center City Development Corporation. The purpose of forming a LDC is to have a single agency focused on facilitating improvements in a particular area. The Board of Supervisors may consider creation of a LDC to further development in East Otay Mesa.

Critical First Steps for Implementation

Listed on the next page are a series of actions that should be taken in order to begin implementation of phase one improvements that will open East Otay Mesa for development.

- Certification of an Environmental Impact Report for the General Plan Amendment, Specific Plan and other implementation actions
- Adoption of the East Otay Mesa General Plan Amendment and Specific Plan

- Annexation of certain properties to the Otay Water District's Improvement District Number 7

- Formation of a Sanitation District

- Annexation of certain properties to the Rural Fire Protection District

- Approval by Local Agency Formation Commission (LAFCO) for the formation of, or annexation to, service districts

- Formation of a Local Improvement District, depending on when liens are placed on the property, after engineering plans and construction bids are submitted.

- Establishment of Joint Powers Agreements to provide shared services and facilities in the City(s) and County

- Study contracting with adjacent cities for certain services

- Study the potential for the formation of a Local Development Corporation.

Appendix M-3 – Zoning Ordinance

PART TWO: USE REGULATIONS

GENERAL PROVISIONS

2000 GENERAL INTENT OF THE USE REGULATIONS.
The provisions of Section 2000 through Section 2999, inclusive, shall be known as the San Diego County Use Regulations. The purpose of these provisions is to specify the range and combinations of uses necessary to meet requirements for residential and non-residential development within San Diego County as set forth in the policies and principles of the San Diego County General Plan.

2005 USE DESIGNATOR REQUIRED.
A Use Designator shall be required as a component of all zones within San Diego County except for the Fallbrook Village Zones. Said Use Designator, together with Animal Designator (if required) as specified in Section 3000 through Section 3999, inclusive; Development Designator as specified in Section 4000 through Section 4999, inclusive; and any applicable Special Area Designator as specified in Section 5000 through 5999, inclusive, shall describe a zone which prescribes regulations of land uses within San Diego County.

(Amended by Ord. No. 8166 (N.S.) adopted 10-21-92)
(Amended by Ord. No. 9620 (N.S.) adopted 12-10-03)

2010 BUILDING ENCLOSURE.
The uses classified within the use types listed for each Use Designator shall be conducted in the type of building enclosure as set forth in the Enclosure Regulations commencing at Section 6800.

RESIDENTIAL USE REGULATIONS

RS# SINGLE FAMILY RESIDENTIAL USE REGULATIONS
RD# DUPLEX/TWO FAMILY RESIDENTIAL USE REGULATIONS
RM# MULTI-FAMILY RESIDENTIAL USE REGULATIONS
RV# VARIABLE FAMILY RESIDENTIAL USE REGULATIONS
(# = Number which denotes approximate dwelling units per acre.)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2100 INTENT.

The provisions of Section 2100 through Section 2109, inclusive, shall be known as the RS Single Family Residential Use Regulations, the RD Duplex/ Two Family Residential Use Regulations, the RM Multi-Family Residential Use Regulations, or the RV Variable Family Residential Use Regulations, depending on the building type specified in the title. These Use Regulations are intended to create and enhance areas where family residential uses are the principal and dominant use and where certain civic uses are conditionally permitted when they serve the needs of residents. Typically, these Use Regulations would be applied to rural, suburban, and urban areas where adequate levels of public service are available and where there is a desire to create residential neighborhoods and to maintain such neighborhoods once developed. Application of the appropriate Use Regulations with appropriate development designators can create a traditional, exclusively single-family residential area, a duplex or two- family residential area, a multi-family residential area, or an area with a combination of single family, duplex, two-family or multi-family dwellings.

2102 PERMITTED USES.

The following use types are permitted by the RS, RD, RM, and RV Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

2102

c. Agricultural Use Types.

Horticulture: Cultivation
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2103 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the RS, RD, RM and RV Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Mobilehome Residential "18"

b. Commercial Use Types.

Recycling Collection Facility, Small "2"

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2104 USES SUBJECT TO MINOR USE PERMIT.
The following use types are permitted by the RS, RD, RM, and RV Use Regulations, upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)

2105 USES SUBJECT TO MAJOR USE PERMIT.
The following use types are permitted by the RS, RD, RM, and RV Use Regulations, upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services

Community Recreation
Cultural Exhibits and Library Services
Group Care
Major Impact Services and Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Wholesaling, Storage and Distribution: Mini-Warehouses, RM and RV only (See Section 6300 and Section 6909)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6984 (N.S.) adopted 7-03-85)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2106 USES SUBJECT TO MAJOR USE PERMIT IN CERTAIN PLANNED DEVELOPMENTS. The following use types are permitted by the RS, RD, RM, and RV Use Regulations if approved by a major use permit as part of a Planned Development which has the minimum site area required by Section 6610 and which is developed pursuant to the Planned Development Standards commencing at Section 6600.

a. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Automotive and Equipment: Parking
Business Support Services
Convenience Sales and Personal Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate Services
Food and Beverage Retail Sales
Medical Services
Participant Sports and Recreation (all types)
Personal Services, General
Retail Sales: General
Retail Sales: Specialty
Spectator Sports and Entertainment: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5878 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)

RU# URBAN RESIDENTIAL USE REGULATIONS

(# = Number which denotes approximate dwelling units per acre.)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2140 INTENT.

The provisions of Section 2140 through Section 2149, inclusive, shall be known as the RU Urban Residential Use Regulations. The RU Use Regulations are intended to create and enhance areas where permanent family residential uses are permitted and institutional residential care uses are conditionally permitted and civic uses are permitted when they serve the needs of the residents. Typically, the RU Use Regulations would be applied to rural, suburban, or urban areas where adequate levels of public services are available. Various applications of the RU Use Regulations with appropriate development designators can create areas which have a single-family character or areas which, because of the scale of structures, are recognizable as high-density areas.

2142 PERMITTED USES.

The following use types are permitted by the RU Use Regulations:

a. Residential Use Types.

Family Residential
Group Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture: Cultivation
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2143 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the RU Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Mobilehome Residential "18"

b. Commercial Use Types.

Recycling Collection Facility, Small "2"

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2144 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the RU Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Cultural Exhibits and Library Services
Minor Impact Utilities
Small Schools

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)

2145 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the RU Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services (see Section 6900)
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Group Care
Major Impact Services and Utilities
Parking Services
Postal Services

2145

b. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2146 USES SUBJECT TO MAJOR USE PERMIT IN CERTAIN PLANNED DEVELOPMENTS. The following use types are permitted by the RU Use Regulations if approved by a major use permit as part of a Planned Development which has the minimum site area required by Section 6610 and which is developed pursuant to the Planned Development Standards commencing at Section 6600.

a. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Automotive and Equipment: Parking
Business Support Services
Convenience Sales and Personal Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate Services
Food and Beverage Retail Sales
Medical Services
Participant Sports and Recreation (all types)
Personal Services, General
Retail Sales: General
Retail Sales: Specialty
Spectator Sports and Entertainment: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)

RMH# MOBILEHOME RESIDENTIAL USE REGULATIONS

(# - Number which denotes approximate dwelling units per acre.)

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)

2160 INTENT.

The provisions of Sections 2160 through 2168, inclusive, shall be known as the RMH Mobilehome Residential Use Regulations. These regulations are intended to create and preserve areas for Mobilehome Residential uses; and to avoid the economic and social dislocations, and reduction of housing stock resulting from conversion of mobilehome parks to other uses. Typically, these Use Regulations would be applied to rural, suburban, and urban areas where adequate levels of public services are available and where it is appropriate to create a permanent mobilehome residential area and maintain such area once developed. Various applications of the RMH Use Regulations with appropriate development or special area designators can create a low density, rural mobilehome environment, a traditional urban mobilehome park, or mobilehome subdivisions.

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)

2162 PERMITTED USES.

The following use types are permitted by the RMH Use Regulations:

a. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

b. Agricultural Use Types.

Horticulture: Cultivation
Tree Crops
Row and Field Crops

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2163 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the RMH Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

2163

a. Residential Use Types.

Mobilehome Residential "18"

b. Commercial Use Types.

Recycling Collection Facility, Small "2"

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2164 USES SUBJECT TO MINOR USE PERMIT.
The following use types are permitted by the RMH Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)

2165 USES SUBJECT TO MAJOR USE PERMIT.
The following use types are permitted by the RMH Use Regulations, upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Group Care
Major Impact Services and Utilities
Parking Services
Postal Services

b. Extractive Use Types.

Site Preparation

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2166 USES SUBJECT TO MAJOR USE PERMIT IN CERTAIN PLANNED DEVELOPMENTS. The following use types are permitted by the RMH Use Regulations if approved by a major use permit as part of a Planned Development which has the minimum site area required by Section 6610 and which is developed pursuant to the Planned Development Standards commencing at Section 6600.

a. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Automotive and Equipment: Parking
Business Support Services
Convenience Sales and Personal Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate Services
Food and Beverage Retail Sales
Medical Services
Participant Sports and Recreation (all types)
Personal Services, General
Retail Sales: General
Retail Sales: Specialty
Spectator Sports and Entertainment: Limited

(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 5787 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)

2168 SPECIAL PROVISIONS: RMH USE REGULATIONS.
The following are permitted by the RMH Use Regulations prior to establishment of mobilehome residential uses.

a. A Major Use Permit may be granted to authorize, for a specified period of time, any use not involving a significant investment in buildings, structures or other improvements. Alternatively, a Major Use Permit may be granted for any use pursuant to a bonded agreement in an amount sufficient to ensure the removal of all buildings, structures, and other improvements within a specified time and/or under specified conditions when the decision-making body finds that such agreement will carry out the intent of this Ordinance and is enforceable by the County.

b. An Administrative Permit may be granted by the Director to authorize alteration or expansion of existing structures, or erection of accessory structures, if such construction does not hinder the eventual development of the property for Mobilehome Residential uses.

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 8506 (N.S.) adopted 3-1-95)

RR# RURAL RESIDENTIAL USE REGULATIONS

(# = Number which denotes approximate dwelling units per acre.)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2180 INTENT.
The provisions of Section 2180 through 2189, inclusive, shall be known as the RR Rural Residential Use Regulations. The RR Use Regulations are intended to create and enhance residential areas where agricultural use compatible with a dominant, permanent residential use is desired. Typically, the RR Use Regulations would be applied to rural or semi-rural areas where urban levels of service are not available and where large lots are desired. Various applications of the RR Use Regulations with appropriate development designators can create buffers between residential and agricultural uses, family or small farm areas, or large lot rural residential developments.

2182 PERMITTED USES.
The following use types are permitted by the RR Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2183 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the RR Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Mobilehome Residential "18"

2183

b. Commercial Use Types.

Recycling Collection Facility, Small "2"

(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 5652 (N.S.) adopted 11-21-79)
(Amended by Ord. No. 6268 (N.S.) adopted 4-14-82)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2184 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are allowed by the RR Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

b. Commercial Use Types.

Cottage Industries (see Section 6920)

c. Agricultural Use Types

Farm Labor Camps

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6268 (N.S.) adopted 4-14-82)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 7790 (N.S.) adopted 8-01-90)
(Amended by Ord. No. 8271 (N.S.) adopted 6-30-93)
(Amended by Ord. No. 8698 (N.S.) adopted 7-17-96)
(Amended by Ord. No. 10003 (N.S.) adopted 8-5-09)

2185 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the RR Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

b. Civic Use Types.
Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services

Group Care
Law Enforcement Services
Major Impact Services and Utilities
Parking Services
Postal Services

c. Commercial Use Types.
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)
Transient Habitation: Resort (see Section 6400)
Wholesaling, Storage and Distribution: Mini-Warehouses Warehouses (see Section 6300 and Section 6909)

d. Agricultural Use Types.
Packing and Processing: Limited
Packing and Processing: Winery

e. Extractive Use Types.
Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6984 (N.S.) adopted 7-03-85)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

RRO RECREATION ORIENTED RESIDENTIAL USE REGULATIONS

2220 INTENT.

The provisions of Section 2220 through Section 2229, inclusive, shall be known as the RRO Recreation Oriented Residential Use Regulations. The RRO Use Regulations are intended to create and enhance areas where recreationally-oriented residential development is desired. Typically, the RRO Use Regulations would be applied to rural and suburban areas where outdoor recreationl use is desired as an important supportive feature of residential development. Various applications of the RRO Use Regulations with appropriate development designators can create areas of exclusively single-family development surrounding a lake or golf course, or a mix of single and multi-family dwellings in association with equestrian, tennis, or other recreational facilities. Certain non-recreational commercial uses may be permitted within the zone as long as they support the dominant residential recreational character of the area.

2221 SITE PLAN REVIEW REQUIRED.

All development within the RRO Recreation Oriented Residential Use Regulations, except the construction of 4 or less single-family dwellings or 2 or less two-family dwellings, shall require site plan review in accordance with the Site Plan Review Procedure commencing at Section 7150 and the following guidelines.

a. Content of the Site Plan. A site plan required by this section shall contain such maps, plans, drawings, and sketches as are necessary to show:

   1. The location, size, height, use, general exterior design, and entrances and exits of all proposed buildings and structures, and their relationship to existing buildings and structures located on the development site.

   2. The location, size and use of all existing and proposed recreation facilities.

   3. The internal circulation plan of the development site, including the location, size and capacity of all roads and driveways, parking areas, pedestrian walkways, and bicycle paths, and the relationship of this plan to the existing circulation pattern of the area surrounding the development site.

   4. The location, size and type of all existing vegetation and all proposed landscaping.

b. Relationship to Subdivision Ordinance.

Any tentative map or tentative parcel map which is required by the Subdivision Ordinance shall be used to the maximum extent possible in satisfying the requirements of subsection "a" of this section.

c. Standards and Criteria.

The following standards and criteria shall be followed by the Director in his review and evaluation of a site plan required by this section.

1. The placement and siting of the existing and proposed buildings, structures, and recreation facilities, with respect to their uses and activities, shall functionally relate to each other and mutually support a residential recreation character.

2. The internal circulation plan shall provide adequate and convenient access to all buildings, structures, and recreation facilities located on the development site and shall give priority to pedestrian walkways and bicycle paths.

3. The internal circulation plan shall conform to and, where possible, strengthen the existing circulation pattern of the area surrounding the development site.

4. The proposed landscaping should be compatible with existing landscaping and should take into consideration the appropriateness of selected plant materials to the area. Landscaping and planting should be used to the maximum extent practical to screen unsightly parking, storage and utility areas. Landscaping and plantings should not obstruct significant views, either when installed or when they reach mature growth.

2222 PERMITTED USES.
The following use types are permitted by the RRO Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture: Cultivation
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2223 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the RRO Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Mobilehome Residential "18"

b. Commercial Use Types.

Recycling Collection Facility, Small "2"

(Added by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2224 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the RRO Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)

2225 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the RRO Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

b. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center

2225

Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Major Impact Services and Utilities
Parking Services
Postal Services

c. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments
Food and Beverage Retail Sales
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)
Transient Habitation: Resort (see Section 6400)

d. Agricultural Use Types.

Packing and Processing: Limited
Packing and Processing: Winery

e. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2226 USES SUBJECT TO MAJOR USE PERMIT IN CERTAIN PLANNED DEVELOPMENTS. The following use types are permitted in the RRO Use Regulations if approved by a major use permit as part of a Planned Development which has the minimum site *area required by Section 6610 and which is developed pursuant to the Planned Development* Standards commencing at Section 6600.

a. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Parking

Business Support Services
Financial, Insurance and Real Estate Services
Medical Services
Participant Sports and Recreation: Indoor
Personal Services, General
Retail Sales: General
Retail Sales: Specialty
Spectator Sports and Entertainment: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5787 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)

RC RESIDENTIAL/COMMERCIAL USE REGULATIONS

2260 INTENT.

The provisions of Section 2260 through Section 2269, inclusive, shall be known as the RC Residential/Commercial Use Regulations. The RC Use Regulations are intended to create and enhance neighborhoods where a mixture of residential, professional, and convenience commercial uses is desired. Typically, the RC Use Regulations would be one in which a few specific types of convenience commercial services would be permitted in a residential area. Commercial uses would be subordinate to the dominant residential character of the area and would be designed principally with a pedestrian orientation. Various applications of the RC Use Regulations with appropriate development designators could create single-family areas where professional and commercial uses are conducted on the ground floor with residential units in upper stories, or area where commercial uses would be conducted in separate structures built at the same scale as adjacent residential structures.

2262 PERMITTED USES.

The following use types are permitted by the RC Use Regulations:

a. Residential Use Types.

Family Residential
Group Residential

b. Civic Use Types.

Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Group Care
Small Schools

c. Agricultural Use Types.

Horticulture: Cultivation
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2263 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the RC Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Mobilehome Residential "18"

b. Commercial Use Types.

Administrative and Professional Services "4"
Financial, Insurance and Real Estate Services "11"
Medical Services "4"
Recycling Collection Facility, Small "2"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6268 (N.S.) adopted 4-14-82)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2264 USES SUBJECT TO A MINOR USE PERMIT.

The following use types are permitted by the RC Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

b. Commercial Use Types.

Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Grooming
Convenience Sales and Personal Services
Eating and Drinking Establishments
Food and Beverage Retail Sales
Retail Sales: General
Retail Sales: Specialty
Transient Habitation: Lodging

2264

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)

2265 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the RC Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Community Recreation
Major Impact Services and Utilities
Parking Services
Postal Services

b. *Commercial Use Types.*

Wholesaling, Storage and Distribution: Mini-Warehouses Warehouses (see Section 6300 and Section 6909)

c. Agricultural Use Types.

Packing and Processing: Winery

d. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6984 (N.S.) adopted 7-03-85)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)

2266 USES SUBJECT TO MAJOR USE PERMIT IN CERTAIN PLANNED DEVELOPMENTS. The following use types are permitted by the RC Use Regulations if approved by a major use permit as part of a Planned Development which has the minimum site area required by Section 6610 and which is developed pursuant to the Planned Development Standards commencing at Section 6600.

a. Commercial Use Types.

Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Parking
Business Support Services
Communications Services
Gasoline Sales

Participant Sports and Recreation (all types)
Personal Services, General
Spectator Sports and Entertainment: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5787 (N.S.) adopted 6-4-80)

COMMERCIAL USE REGULATIONS

C30 OFFICE-PROFESSIONAL USE REGULATIONS

2300 INTENT.

The provisions of Section 2300 through Section 2309, inclusive, shall be known as the C30 Office-Professional Use Regulations. The C30 Use Regulations are intended to create and enhance areas where administrative, office and professional services are the principal and dominant use. It is also intended that uses involving high volumes of vehicular traffic be excluded from the C30 Use Regulations. Typically, the C30 Use Regulations would be applied near residential areas, have a scale and appearance compatible with and complementary to the adjacent residential use, and have pedestrian as well as vehicular access.

(Amended by Ord. No. 5786 (N.S.) adopted 6-4-80)

2302 PERMITTED USES.

The following use types are permitted by the C30 Use Regulations:

a. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Clinic Services
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Parking Services
Small Schools

b. Commercial Use Types.

Administrative and Professional Services
Business Support Services
Financial, Insurance and Real Estate Services
Medical Services
Personal Services: General

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)

2303 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the C30 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Convenience Sales and Personal Services "10"
Eating and Drinking Establishments "10"
Food and Beverage Retail Sales "10"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2304 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C30 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

b. Commercial Use Types.

Automotive and Equipment: Parking
Communications Services

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2305 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C30 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Civic, Fraternal or Religious Assembly
Community Recreation
Major Impact Services and Utilities
Postal Services

b. Commercial Use Types.

Research Services
Funeral and Interment Services: Undertaking

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

C31 RESIDENTIAL-OFFICE-PROFESSIONAL USE REGULATIONS

2310 INTENT.

The provisions of Section 2310 through Section 2319, inclusive, shall be known as the C31 Residential-Office-Professional Use Regulations. The C31 Use Regulations are intended to create and enhance areas where administrative, office, and professional services are the principal and dominant use. It is also intended that uses involving high volumes of vehicular traffic be excluded from the C31 Use Regulations. Typically, the C31 Use Regulations would be applied near residential areas, have a scale and appearance compatible with and complementary to the adjacent residential use, and have pedestrian as well as vehicular access. When considered desirable, residential uses may be permitted.

(Amended by Ord. No. 5786 (N.S.) adopted 6-4-80)

2312 PERMITTED USES.

The following use types are permitted by the C31 Use Regulations:

a. Residential Use Types.

Family Residential
Group Residential

b. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Clinic Services
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Group Care
Parking Services
Small Schools

c. Commercial Use Types.

Administrative and Professional Services
Business Support Services
Financial, Insurance and Real Estate Services
Medical Services
Personal Services: General

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2313 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the C31 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Convenience Sales and Personal Services "10"
Eating and Drinking Establishments "10"
Food and Beverage Retail Sales "10"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2314 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C31 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

b. Commercial Use Types.

Automotive and Equipment: Parking
Communications Services

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2315 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C31 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Civic, Fraternal or Religious Assembly
Community Recreation
Law Enforcement Services
Major Impact Services and Utilities
Postal Services

b. Commercial Use Types.

Funeral and Internment Services: Undertaking
Research Services

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

C32 CONVENIENCE COMMERCIAL USE REGULATIONS

2320 INTENT.

The provisions of Section 2320 through Section 2329, inclusive, shall be known as the C32 Convenience Commercial Use Regulations. The C32 Use Regulations are intended to create and enhance areas where a limited number of retail commercial goods and services are desired to meet day-to-day needs of local residents. Typically, the C32 Use Regulations would be applied within walking or short driving distance of a residential area, would be designed to serve only a limited local market, and would permit only those uses which do not create in the adjacent residential area increased traffic, noise or other such impacts considered incompatible with the residential use. Various applications of the C32 Use Regulations with appropriate development designators can create shopping areas which serve low-density neighborhoods, more urbanized, high-density residential or transient use areas.

2322 PERMITTED USES.

The following use types are permitted by the C32 Use Regulations:

a. Civic Use Types.

Child Care Center
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Small Schools

b. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments
Food and Beverage Retail Sales

c. Agricultural Use Types.

Horticulture: Cultivation
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)

2323 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the C32 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

2323

a. Residential Use Types.

Family Residential "1"

b. Commercial Use Types.

Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2324 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C32 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

b. Commercial Use Types.

Automotive and Equipment: Parking
Participant Sports and Recreation: Indoor

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture: Storage

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 7843 (N.S.) adopted 12-19-90

2325 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C32 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services

Major Impact Services and Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Gasoline Sales

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

C34 GENERAL COMMERCIAL/RESIDENTIAL USE REGULATIONS

2340 INTENT.

The provisions of Section 2340 through 2349, inclusive, shall be known as the C34 General Commercial/Residential Use Regulations. The C34 Use Regulations are intended to create and enhance areas where a mixture of commercial uses and residential uses is desired. Typically, the C34 Use Regulations would be applied in areas where multi-family dwellings in combination with commercial uses are desired. Various applications of the C34 Use Regulations with appropriate development designators can create areas where a single structure may serve a principal commercial function and a secondary residential use, or where a separate residential or a commercial structure is appropriate.

2341 SITE PLAN REVIEW REQUIRED.

All development within the C34 General Commercial/Residential Use Regulations, except developments containing only residential or civic uses, shall require site plan review in accordance with the Site Plan Review Procedure commencing at Section 7150 and the following guidelines.

a. Content of the Site Plan. A site plan required by this section shall contain such maps, plans, drawings and sketches as are necessary to show:

   1. The location, use and entrances and exits of all proposed buildings and structures and their relationship to existing buildings and structures located on and in the immediate vicinity of the development site.

   2. The internal circulation of the development site, including the location, size, and capacity of all roads and driveways, parking areas, pedestrian walkways, and bicycle paths, and the relationship of this plan to the existing circulation pattern of the area surrounding the development site.

   3. The location, size and type of all existing vegetation and all proposed landscaping.

b. Relationship to Subdivision Ordinance. Any tentative map or tentative parcel map which is required by the Subdivision Ordinance shall be used to the maximum extent possible in satisfying the requirements of subsection "a" of this section.

c. Standards and Criteria. The following standards and criteria shall be followed by the Director in his review and evaluation of a site plan required by this section.

1. Proposed uses, including uses within a mixed residential/commercial development, shall be functionally and visually compatible with one another and with other uses, buildings and structures in the immediate vicinity.

2. The internal circulation plan shall provide adequate and convenient access to the variety of uses contained within the development site. Common access serving more than one use or facility shall be provided whenever possible and in a manner which prevents mutual interference.

3. The internal circulation plan shall conform to and, where possible, strengthen the existing circulation pattern of the area surrounding the development site.

4. The proposed landscaping should be compatible with existing landscaping and should take into consideration the appropriateness of selected plant materials to the area. Landscaping and plantings should be used to the maximum extent practical to screen unsightly parking, storage and utility areas. Landscaping and plantings should not obstruct significant views, either when installed or when they reach mature growth.

d. Exemption for Signs. A site plan shall not be required for addition of new signs or modification of existing signs, provided the site is not subject to an approved site plan that designates sign location and that all such signs comply with all other pertinent requirements of this ordinance. This exemption shall not apply to any site subject to the Community Design Review, Historic Landmark, Historic District, or Design Review Special Area Regulations.

(Amended by Ord. 8105 (N.S.) adopted 7-15-92)

2342 PERMITTED USES.

The following use types are permitted by the C34 Use Regulations:

a. Residential Use Types.

Family Residential
Group Residential

b. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Essential Services

Fire Protection Services (see Section 6905)
Group Care
Law Enforcement Services
Parking Services
Postal Services
Small Schools

c. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Grooming
Automotive and Equipment: Parking
Automotive and Equipment: Sales/Rentals, Light Equipment (see Section 6800)
Business Support Services
Communications Services
Convenience Sales and Personal Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate Services
Food and Beverage Retail Sales
Medical Services
Personal Services, General
Repair Services, Consumer
Retail Sales: General
Retail Sales: Specialty
Transient Habitation: Lodging

d. Industrial Use Types.

Custom Manufacturing (see Section 6300)

e. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2343 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the C34 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Business Equipment Sales and Services "7"
Construction Sales and Services "8" (see Section 6300)
Gasoline Sales "12"
Laundry Services "13"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2344 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C34 Use Regulations upon issuance of a Minor Use Permit:

a. Civic Use Types.

Minor Impact Utilities

b. Commercial Use Types.

Automotive and Equipment: Sales/Rental, Farm Equipment
Participant Sports and Recreation: Indoor

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2345 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C34 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Major Impact Services and Utilities

b. Commercial Use Types.

Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Storage, Recreational Vehicles and Boats
Funeral and Interment Services (All Types)
Research Services
Spectator Sports and Entertainment (All Types)
Transient Habitation: Campground (see Section 6450)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

C35 GENERAL COMMERCIAL/LIMITED RESIDENTIAL USE REGULATIONS

2350 INTENT.

The provisions of Section 2350 through 2355, inclusive, shall be known as the C35 General Commercial/Limited Residential Use Regulations. The C35 Use Regulations are intended to create and enhance areas where a mixture of commercial uses and residential uses is desired. Typically, the C35 Use Regulations would be applied in areas where multi-family dwellings in combination with commercial uses are desired. Various applications of the C35 Use Regulations with appropriate development designators can create areas where a single structure may serve a principal commercial function and a secondary residential use, or where a separate residential or a commercial structure is appropriate.

(Added by Ord. No. 5809 (N.S.) adopted 6-18-80, operative 9-1-80)

2352 PERMITTED USES.

The following use types are permitted by the C35 Use Regulations:

a. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Group Care
Law Enforcement Services
Parking Services
Postal Services
Small Schools

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Grooming
Automotive and Equipment: Parking
Automotive and Equipment: Sales/Rentals, Light Equipment(see Section 6800)
Business Support Services
Convenience Sales and Personal Services
Communications Services
Eating and Drinking Establishments

2352

Financial, Insurance and Real Estate Services
Food and Beverage Retail Sales
Medical Services
Personal Services, General
Repair Services: Consumer
Retail Sales, General
Retail Sales: Specialty
Transient Habitation: Lodging

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Added by Ord. No. 5809 (N.S.) adopted 6-18-80, operative 9-1-80)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 7306 (N.S.) adopted 5-20-87)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2353 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the C35 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Business Equipment Sales and Services "7"
Construction Sales and Services "8"
Gasoline Sales "12"
Laundry Services "13"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"

(Added by Ord. No. 5809 (N.S.) adopted 6-18-80, operative 9-1-80)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2354 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C35 Use Regulations upon issuance of a Minor Use Permit:

a. Civic Use Types.

Minor Impact Utilities

b. Commercial Use Types.

Automotive and Equipment: Sales/Rentals, Farm Equipment
Participant Sports and Recreation: Indoor

(Added by Ord. No. 5809 (N.S.) adopted 6-18-80, operative 9-1-80)

2355 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C35 Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Major Impact Services and Utilities

c. Commercial Use Types.

Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Storage, Recreational Vehicles and Boats
Funeral and Interment Services (all types)
Research Services
Spectator Sports and Entertainment (all types)
Transient Habitation: Campground (see Section 6450)

d. Extractive Use Types.

Site Preparation

(Added by Ord. No. 5809 (N.S.) adopted 6-18-80, operative 9-1-80)

C36 GENERAL COMMERCIAL USE REGULATIONS

2360 INTENT.

The provisions of Section 2360 through Section 2369, inclusive, shall be known as the C36 General Commercial Use Regulations. The C36 Use Regulations are intended to create and enhance commercial areas where a wide range of retail goods and services are permitted. Typically, the C36 Use Regulations would be applied where central area commercial facilities were desired in association with administrative and office uses. Various applications of the C36 Use Regulations with appropriate development designators can create community or regional shopping complexes, central business districts, or small but highly diverse commercial developments.

2362 PERMITTED USES.

The following use types are permitted by the C36 Use Regulations:

a. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Minor Impact Utilities
Parking Services
Postal Services
Small Schools

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Grooming
Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Parking
Automotive and Equipment: Repairs, Light Equipment

Automotive and Equipment: Sales/Rentals, Farm Equipment
Automotive and Equipment: Sales/Rentals, Light Equipment
Business Support Services
Communications Services

Convenience Sales and Personal Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate Services
Food and Beverage Retail Sales
Funeral and Interment Services: Undertaking
Medical Services
Participant Sports and Recreation: Indoor
Personal Services, General
Repair Services: Consumer
Retail Sales: General
Retail Sales: Specialty
Spectator Sports and Entertainment: Limited
Transient Habitation: Lodging

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2363 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the C36 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Family Residential "1"

b. Commercial Use Types.

Agricultural Services "9"

2363

Automotive and Equipment: Repairs, Heavy Equipment "8"
Business Equipment Sales and Services "7"
Construction Sales and Services "8" (see Section 6300)
Drug Paraphernalia Establishment "21"
Gasoline Sales "12"
Laundry Services "13"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5840 (N.S.) adopted 7-30-80)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 7649 (N.S.) adopted 7-17-89)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)

2365 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C36 Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

b. Civic Use Types.

Major Impact Services and Utilities

c. Commercial Use Types.

Automotive and Equipment: Cleaning
Automotive and Equipment: Storage, Recreational Vehicles and Boats
Funeral and Interment Services: Cremating
Funeral and Interment Services: Interring
Research Services
Spectator Sports and Entertainment: General
Transient Habitation: Campground (see Section 6450)
Wholesaling, Storage and Distribution: Mini-Warehouses (see Section 6300 and Section 6909)

Wholesaling, Storage and Distribution: Light (see Section 6300)

d. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5786 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)

C37 HEAVY COMMERCIAL USE REGULATIONS

2370 INTENT.

The provisions of Section 2370 through Section 2379, inclusive, shall be known as the C37 Heavy Commercial Use Regulations. The C37 Use Regulations are intended to, as closely as possible, duplicate the old C2 Zone.

2372 PERMITTED USES.

The following use types are permitted by the C37 Use Regulations:

a. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Group Care
Law Enforcement Services
Minor Impact Utilities
Parking Services
Postal Services
Small Schools

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Agricultural Services
Animal Sales and Services: Grooming
Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Cleaning
Automotive and Equipment: Fleet Storage
Automotive and Equipment: Parking
Automotive and Equipment: Repairs, Heavy Equipment
Automotive and Equipment: Repairs, Light Equipment
Automotive and Equipment: Sales/Rentals, Farm Equipment

Automotive and Equipment: Sales/Rentals, Heavy Equipment
Automotive and Equipment: Sales/Rentals, Light Equipment
Automotive and Equipment: Storage, Recreational Vehicles and Boats
Building Maintenance Services
Business Equipment, Sales and Service
Business Support Services
Communication Services
Construction Sales and Services (see Section 6300)
Convenience Sales and Personal Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate Services
Food and Beverage, Retail Sales
Funeral and Interment Services: Undertaking
Gasoline Sales
Laundry Services
Medical Services
Participant Sports and Recreation: Indoor
Personal Services, General
Repair Services, Consumer
Research Services
Retail Sales: General
Retail Sales: Specialty
Spectator Sports and Entertainment (all types)
Transient Habitation: Lodging
Wholesaling, Storage and Distribution: Mini-Warehouses (see Section 6300 and Section 6909)

c. *Industrial Use Types.*

Custom Manufacturing (see Sections 1610 and 6300 for standards)

d. Agricultural Use Types.

Horticulture (All Types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5786 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 7220 (N.S.) adopted 10-22-86)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord No. 9569 (N.S.) adopted 7-9-03)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2373 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the C37 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Family Residential "1"

b. Commercial Use Types.

Drug Paraphernalia Establishment "21"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"
Recycling Processing Facility, Wood and Green Materials "15"
Wholesaling, Storage and Distribution: Light "8"

c. Industrial Use Types.

General Industrial "15"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5840 (N.S.) adopted 7-30-80)
(Amended by Ord. No. 7220 (N.S.) adopted 10-22-86)
(Amended by Ord. No. 7649 (N.S.) adopted 7-17-89)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)

2375 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C37 Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

b. Civic Use Types.

Major Impact Services and Utilities

c. Commercial Use Types.

Automotive and Equipment: Storage, Non-operating Vehicles
Funeral and Interment Services: Cremating
Funeral and Interment Services: Interring
Swap Meets
Transient Habitation: Campground (see Section 6450)
Wholesaling, Storage and Distribution: Heavy (see Section 6300)

d. Extractive Use Types.

Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)

2380

C38 SERVICE COMMERCIAL USE REGULATIONS

2380 INTENT.

The provisions of Section 2380 through Section 2389, inclusive, shall be known as the C38 Service Commercial Use Regulations. The C38 Use Regulations are intended to create and enhance areas where certain heavier commercial or light industrial uses with large acreage requirements, may locate. Typically, the C38 Use Regulations would be applied to the periphery of retail commercial areas from which such uses could supply goods and services to the retail commercial zones. Various applications of the C38 Use Regulations with appropriate development designators can create wholesaling or warehousing areas.

2382 PERMITTED USES.

The following use types are permitted by the C38 Use Regulations:

a. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Community Recreation
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Minor Impact Utilities
Parking Services
Postal Services
Small Schools

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Agricultural Services
Animal Sales and Services: Veterinary (Large Animals)
Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Cleaning
Automotive and Equipment: Fleet Storage
Automotive and Equipment: Parking
Automotive and Equipment: Repairs, Light Equipment
Automotive and Equipment: Sales/Rentals, Light Equipment
Automotive and Equipment: Sales/Rentals, Farm Equipment
Automotive and Equipment: Sales/Rentals, Heavy Equipment
Automotive and Equipment: Storage, Recreational Vehicles and Boats
Building Maintenance Services
Business Equipment Sales and Services

Business Support Services
Communication Services
Construction Sales and Services (see Section 6300)
Gasoline Sales
Laundry Services
Repair Services, Consumer
Research Services
Wholesale, Storage and Distribution: Mini-Warehouses (see Section 6300 and Section 6909)

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture (All Types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 9101 (N.S.) adopted 12-8-99)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)

2383 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the C38 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Family Residential "1"

b. Commercial Use Types.

Food and Beverage Retail Sales "10"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"
Wholesaling, Storage and Distribution: Light "8" (see Section 6300)

2383

c. Industrial Use Types.

General Industrial "15"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2384 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C38 Use Regulations upon issuance of a Minor Use Permit.

a. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 9101 (N.S.) adopted 12-8-99)

2385 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C38 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Civic, Fraternal or Religious Assembly
Clinic Services
Major Impact Services and Utilities

b. Commercial Use Types.

Automotive and Equipment: Storage, Non-operating Vehicle
Funeral and Interment Services: Cremating
Participant Sports and Recreation: Indoor
Scrap Operation (see Section 6300)
Spectator Sports and Entertainment: General
Swap Meets
Wholesaling, Storage and Distribution: Heavy (see Section 6300)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

C40 RURAL COMMERCIAL USE REGULATIONS

2400 INTENT.

The provisions of Section 2400 through Section 2409, inclusive, shall be known as the C40 Rural Commercial Use Regulations. The C40 Use Regulations are intended to create and enhance commercial centers which serve predominantly agricultural areas with a broad range of goods and services. Typically, the C40 Use Regulations would be applied to rural or semi-rural areas where many diverse types of commercial uses are desired. Various applications of the C40 Use Regulations with appropriate development designators can create large scale commercial agricultural areas where outdoor storage and sale of animals is permitted, or smaller commercial areas which function as rural town centers.

2402 PERMITTED USES.

The following use types are permitted by the C40 Use Regulations:

a. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Parking Services
Postal Services
Small Schools

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Agricultural Services
Animal Sales and Services: Grooming
Animal Sales and Services: Veterinary (Large Animals)
Animal Sales and Services: Veterinary (Small Animals)
Automotive and Equipment: Cleaning
Automotive and Equipment: Fleet Storage
Automotive and Equipment: Parking
Automotive and Equipment: Repairs, Heavy Equipment
Automotive and Equipment: Repairs, Light Equipment

Automotive and Equipment: Sales/Rentals, Farm Equipment
Automotive and Equipment: Sales/Rentals, Heavy Equipment
Automotive and Equipment: Sales/Rentals, Light Equipment
Automotive and Equipment: Storage, Recreational Vehicles and Boats
Building Maintenance Services
Business Equipment Sales and Services
Business Support Services
Communications Services
Convenience Sales and Personal Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate Services
Food and Beverage Retail Sales
Funeral and Interment Services: Undertaking
Gasoline Sales
Laundry Services
Medical Services
Participant Sports and Recreation: Indoor
Personal Services, General
Repair Services, Consumer
Research Services
Retail Sales: General
Retail Sales: Specialty
Spectator Sports and Entertainment: Limited
Transient Habitation: Lodging
Wholesaling, Storage and Distribution: Mini-Warehouses (see Section 6300 and Section 6909)

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2403 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the C40 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes

following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Family Residential "1"

b. Commercial Use Types.

Construction Sales and Services "9"
Drug Paraphernalia Establishment "21"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"
Recycling Processing Facility, Wood and Green Materials "15"
Wholesaling, Storage and Distribution: Light "8" (see Section 6300)

c. Industrial Use Types.

General Industrial "15"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5840 (N.S.) adopted 7-30-80)
(Amended by Ord. No. 7649 (N.S.) adopted 7-17-89)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)

2404 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C40 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2405 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C40 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Major Impact Services and Utilities

b. Commercial Use Types.

Animal Sales and Services: Auctioning
Animal Sales and Services: Stockyards

2405

Automotive and Equipment: Storage, Non-operating Vehicles
Funeral and Interment Services: Cremating
Funeral and Interment Services: Interring
Scrap Operation (see Section 6300)
Spectator Sports and Entertainment: General
Swap Meets
Transient Habitation: Campground (see Section 6450)
Wholesaling, Storage and Distribution: Heavy (see Section 6300)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

C42 VISITOR-SERVING COMMERCIAL USE REGULATIONS

2420 INTENT.

The provisons of Section 2420 through 2429, inclusive, shall be known as the C42 Visitor-Serving Commercial Use Regulations. The C42 Use Regulations are intended to create and enhance areas devoted to the provision of recreational and tourist services. Thus, a broad range of recreational and visitor-serving uses are permitted and other uses are very limited. Typically, the C42 Use Regulations would be applied to areas where tourist-oriented recreational opportunities exist and associated facilities and services are desired. Various applications of the C42 Use Regulations with appropriate development designators can create an intensive-use recreational village, vacation spa, or resort, or in areas considered generally unsuitable for intensive development, more rural, open recreation-oriented developments.

(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)

2421 SITE PLAN REVIEW REQUIRED IN CALIFORNIA COASTAL ZONE.

All development within the C42 Visitor-Serving Commercial Use Regulations located within the Calfornia Coastal Zone shall require site plan review in accordance with the Site Plan Review Procedure commencing at Section 7150 and the following guidelines.

a. Content of the Site Plan. A site plan required by this section shall contain such maps, plans, drawings, and sketches as are necessary to show:

   1. The location, size, height, use, general exterior design, and entrances and exits of all proposed buildings and structures and their relationship to existing buildings and structures located on the development site.

   2. The location, size and use of all existing and proposed recreation facilities.

   3. The internal circulation plan of the development site, including the location, size and capacity of all roads and driveways, parking areas, pedestrian walkways, and bicycle paths, and the relationship of this plan to the existing circulation pattern of the area surrounding the development site.

4. The location, size and type of all existing vegetation and all proposed landscaping.

b. Relationship to Subdivision Ordinance. Any tentative map or tentative parcel map which is required by the Subdivision Ordinance shall be used to the maximum extent possible in satisfying the requirements of subsection "a" of this section.

c. Standards and Criteria. The following standards and criteria shall be followed by the Director in his review and evaluation of a site plan required by this section.

1. The placement and siting of the existing and proposed buildings, structures, and recreation facilities, with respect to their uses and activities, shall functionally relate to each other and mutually support a recreational and/or tourist-serving character.

2. The internal circulation plan shall provide adequate and convenient access to all buildings, structures, and recreation facilities located on the development site and shall give priority to pedestrian walkways and bicycle paths.

3. The internal circulation plan shall conform to and, where possible, strengthen the existing circulation pattern of the area surrounding the development site.

4. The proposed landscaping should be compatible with existing landscaping and should take into consideration the appropriateness of selected plant materials to the area. Landscaping and plantings should be used to the maximum extent practical to screen parking, storage and utility areas. Landscaping and plantings should not obstruct significant views, either when installed or when they reach mature growth.

(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6619 (N.S.) adopted 07-06-83)
(Amended by Ord. No. 6743 (N.S.) effective 1-11-85)

2422 PERMITTED USES.
The following use types are permitted by the C42 Use Regulations:

a. Civic Use Types.

Essential Services
Parking Services

b. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments
Participant Sports and Recreation (all types)
Retail Sales: Specialty
Transient Habitation: Campground (applicable site plan subject to standards commencing at Section 6450)
Transient Habitation: Lodging
Transient Habitation: Resort (applicable site plan subject to standards commencing at Section 6400)

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6855 (N.S.) adopted 10-10-84)
(Amended by Ord. No. 7220 (N.S.) adopted 10-22-86)

2423 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the C42 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types.

Family Residential "20"

b. Commercial Use Types.

Administrative and Professional Services "20"
Business Support Services "20"
Financial, Insurance and Real Estate Services "20"
Recycling Collection Center "3"

(Added by Ord. No. 6187 (N.S.) adopted 11-18-81)
(Amended by Ord. No. 6743 (N.S.) effective 1-11-85)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)

2424 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C42 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2425 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C42 Use Regulations upon issuance of a Major Use Permit.

a. Commercial Use Types.

Gasoline Sales
Spectator Sports and Entertainment (all types)

b. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 6187 (N.S.) adopted 11-18-81)

C44 FREEWAY COMMERCIAL USE REGULATIONS

2440 INTENT.

The provisions of Section 2440 through Section 2449, inclusive, shall be known as the C44 Freeway Commercial Use Regulations. The C44 Use Regulations are intended to create and enhance areas where automobile associated traveler services are desired. Typically, the C44 Use Regulations would be applied adjacent to freeway interchanges or in areas with convenient access to freeways. Various applications of the C44 Use Regulations with appropriate development designators can create a limited service area with a gas station and restaurant, or a more extensive service area including motels and overnight travel trailer accommodations.

2442 PERMITTED USES.

The following use types are permitted by the C44 Use Regulations:

a. Civic Use Types.

Child Care Center
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Small Schools

b. Commercial Use Types.

Eating and Drinking Establishments
Transient Habitation: Lodging

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)

2443 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the C44 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

2443

a. Commercial Use Types.

Gasoline Sales "12"
Recycling Collection Facility, Small "2"
Recycling Processing Facility "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2444 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C44 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2445 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the C44 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Major Impact Services and Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Automotive and Equipment: Storage, Recreational Vehicles and Boats
Transient Habitation: Campground (see Section 6450)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

C46 MEDICAL CENTER USE REGULATIONS

(Renumbered by Ord. No. 5508 (N.S.) adopted 5-16-79. Formerly S84 Med. Cen. Use Regs.)

2460 INTENT.

The provisions of Section 2460 through Section 2469, inclusive, shall be known as the C46 Medical Center Use Regulations. The C46 Use Regulations are intended to create and enhance areas where a concentration of medical and other compatible uses is desired. Typically, the C46 Use Regulations would be applied to areas where there is a desire to discourage use by non-medical associated uses and where a community of a size sufficient to support a medical center exists or is planned. Various applications of the C46 Use Regulations, with appropriate development designators, can create major regional medical centers, including hospitals, medical office buildings, laboratories, and other supportive commercial and service facilities, or small community medical centers whose scale would more clearly reflect the needs of the immediate area.

(Renumbered by Ord. No. 5508 (N.S.) adopted 5-16-79. Formerly 2840)

2461 SITE PLAN REVIEW REQUIRED.

All development within the C46 Medical Center Use Regulations shall require site plan review in accordance with the Site Plan Review Procedure commencing at Section 7150 and the following guidelines.

a. Content of the Site Plan. A site plan required by this section shall contain such maps, plans, drawings, documents, and sketches as are necessary to show:

   1. The location, use, entrances and exits of all proposed buildings and structures.

   2. The projected scale of operations and service loads of the development as related to their expected impact on the area immediately surrounding the development site.

   3. The internal circulation plan of the development site, including the location, size, and capacity of all roads and driveways, parking areas, pedestrian walkways, and bicycle paths, and the relationship of this plan to the existing circulation pattern of the area surrounding the development site.

   4. The location, size and type of all existing vegetation and all proposed landscaping.

b. Relationship to Subdivision Ordinance. Any tentative map or tentative parcel map which is required by the Subdivision Ordinance shall be used to the maximum extent possible in satisfying the requirements of subsection "a" of this section.

c. Standards and Criteria. The following standards and criteria shall be followed by the Director in his review and evaluation of a site plan required by this section.

1. The overall physical design of the project, with respect to the interior placement and siting of buildings and structures, shall mitigate the adverse impacts of the development on the immediately surrounding area.

2. The internal circulation plan shall provide adequate and convenient access to all buildings and structures contained within the development.

3. The internal circulation plan shall conform to and, where possible, strengthen the existing circulation pattern of the area surrounding the development site.

4. The proposed landscaping should be compatible with existing landscaping and should take into consideration the appropriateness of selected plant materials to the area. Landscaping and plantings should be used to the maximum extent practical to screen unsightly parking, storage and utility areas. Landscaping and plantings should not obstruct significant views, either when installed or when they reach mature growth.

(Renumbered by Ord. 5508 (N.S.) adopted 5-16-79. Formerly 2841)

2462 PERMITTED USES.
The following use types are permitted by the C46 Use Regulations:

a. Civic Use Types.

Child Care Center
Clinic Services
Essential Services
Fire Protection Services (see Section 6905)
Group Care
Law Enforcement Services
Parking Services
Small Schools

b. Commercial Use Types.

Medical Services

c. Agricultural Use Types.

Horticultural: Cultivation
Tree Crops
Row and Field Crops

(Renumbered by Ord. 5508 (N.S.) adopted 5-16-79. Formerly 2842)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)

2463 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the C46 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Convenience Sales and Personal Services "10"
Eating and Drinking Establishments "10"
Food and Beverage Retail Sales "10"
Recycling Collection Facility, Small "2"
Recycling Processing Facility "3"

(Renumbered by Ord. No. 5508 (N.S.) adopted 5-16-79. Formerly 2843)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2464 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the C46 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities

(Renumbered by Ord. No. 5508 (N.S.) adopted 5-16-79. Formerly 2844)

2465 USES SUBJECT TO A MAJOR USE PERMIT.

The following use types are permitted by the C46 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Civic, Fraternal or Religious Assembly
Community Recreation
Cultural Exhibits and Library Services
Major Impact Services and Utilities
Postal Services

b. Extractive Use Types.

Site Preparation

(Renumbered and amended by Ord. No. 5508 (N.S.) adopted 5-16-79. Formerly 2845)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

MANUFACTURING AND INDUSTRIAL USE REGULATIONS

M50 BASIC INDUSTRIAL USE REGULATIONS

2500 INTENT.
The provisions of Section 2500 through Section 2509, inclusive, shall be known as the M50 Basic Industrial Use Regulations. The M50 Use Regulations are intended to create and preserve areas for basic manufacturing operations which evidence no or very low nuisance characteristics. Non-manufacturing uses are restricted to those providing essential support services to manufacturing plants and their personnel. Typically, the M50 Use Regulations would be applied in urban or suburban areas where nuisance characteristics involving noise, odor, traffic generation or unsightliness were undesired and where all uses (with certain exceptions) would be conducted entirely within enclosed buildings. Various applications of the M50 Use Regulations with appropriate development designators can create a community of industries in a high quality industrial park or preserve large tracts of land for basic manufacturing, assembling, or processing uses.

2502 PERMITTED USES.
The following use types are permitted by the M50 Use Regulations:

a. Civic Use Types.

Ambulance Services
Community Recreation
Emergency Shelters (see Section 6911)
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Parking Services
Postal Services

b. Commercial Use Types.

Automotive and Equipment: Parking
Recycling Processing Facility, Wood and Green Materials
Research Services

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited
Packing and Processing: Winery
Packing and Processing: General

2503

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2503 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the M50 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Adult Entertainment Establishments "19"
Administrative and Professional Services "5"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"
Wholesaling, Storage and Distribution: Light "8" (see Section 6300)

b. Industrial Use Types.

General Industrial "14"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)

2504 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the M50 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

b. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments
Food and Beverage Retail Sales

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2505 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the M50 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Cultural Exhibits and Library Services
Major Impact Services and Utilities

b. Commercial Use Types.

Wholesaling, Storage and Distribution: Heavy (see Section 6300)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

M52 LIMITED IMPACT INDUSTRIAL USE REGULATIONS

2520 INTENT.

The provisions of Section 2520 through Section 2529, inclusive, shall be known as the M52 Limited Impact Industrial Use Regulations. The M52 Use Regulations are intended to create and preserve areas where manufacturing and industrial uses which evidence no or very low nuisance characteristics may locate. Non-industrial uses which support or are adjuncts to industrial uses and are compatible with such uses are permitted within the zone particularly administrative, sales, and services uses. Typically, the M52 Use Regulations would be applied in urban or suburban areas where nuisance characteristics involving noise, odor, traffic generation or unsightliness were undesired and where all uses (with certain exceptions) would be conducted entirely within enclosed buildings. Various applications of the M52 Use Regulations with appropriate development designators can create a community of industries in a high quality industrial park or a strip of low impact industrial uses.

2522 PERMITTED USES.

The following use types are permitted by the M52 Use Regulations:

a. Civic Use Types.

Ambulance Services
Community Recreation
Emergency Shelters (see Section 6911)
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Parking Services
Postal Services

b. Commercial Use Types.

Administrative and Professional Services
Automotive and Equipment: Parking
Business Equipment Sales and Services
Business Support Services
Communications Services
Laundry Services
Participant Sports and Recreation: Indoor
Recycling Processing Facility, Wood and Green Materials
Research Services
Wholesaling, Storage and Distribution: Mini-Warehouses (see Section 6300 and Section 6909)

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing "Limited"
Packing and Processing "Winery"
Packing and Processing "General"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6761 (N.S.) adopted 4-25-84)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2523 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the M52 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Adult Entertainment Establishments "19"
Agricultural and Horticultural Sales "8" (all types)
Automotive and Equipment: Cleaning "8"
Automotive and Equipment: Repairs, Heavy Equipment "8"
Automotive and Equipment: Repairs, Light Equipment "8"
Automotive and Equipment: Sales/Rentals, Farm Equipment "9"
Automotive and Equipment: Sales/Rentals, Heavy Equipment "9"
Automotive and Equipment: Sales/Rentals, Light Equipment "9" (see Section 6800)
Building Maintenance Services "8"
Construction Sales and Services "8" (see Section 6300)
Food and Beverage Retail Sales "10"
Gasoline Sales "12"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"
Wholesaling, Storage and Distribution: Light "8" (see Section 6300)

b. Industrial Use Types.

General Industrial "14"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6761 (N.S.) adopted 4-25-84)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2524 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the M52 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

b. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2525 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the M52 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Cultural Exhibits and Library Services
Major Impact Services and Utilities

b. Commercial Use Types.

Funeral and Interment Services: Cremating
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)
Wholesaling, Storage and Distribution: Heavy (see Section 6300)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

M54 GENERAL IMPACT INDUSTRIAL USE REGULATIONS

2540 INTENT.

The provisions of Section 2540 through Section 2549, inclusive, shall be known as the M54 General Impact Industrial Use Regulations. The M54 Use Regulations are intended to create and preserve areas where manufacturing and industrial uses not having high nuisance characteristics may locate. Non-industrial uses which support industrial uses are permitted within the zone, particularly administrative, sales, and services uses. Typically, the M54 Use Regulations would be applied near rail and trucking facilities, or other locations where impacts associated with noise, odor and traffic would not impact on residential or commercial areas. All outdoor storage areas would be subject to screening regulations. Various applications of the M54 Use Regulations with appropriate development designators can create a large transportation-dependent industrial center or a small, geographically isolated grouping of a few small scale industrial uses.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2542 PERMITTED USES.

The following use types are permitted by the M54 Use Regulations:

a. Civic Use Types.

Ambulance Services
Community Recreation
Emergency Shelters (see Section 6911)
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Minor Impact Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Veterinary, Large Animals
Automotive and Equipment: Cleaning
Automotive and Equipment: Fleet Storage
Automotive and Equipment: Parking
Automotive and Equipment: Repairs, Heavy Equipment
Automotive and Equipment: Repairs, Light Equipment
Automotive and Equipment: Sales/Rentals, Farm Equipment
Automotive and Equipment: Sales/Rentals, Heavy Equipment
Automotive and Equipment: Sales/Rentals, Light Equipment
Automotive and Equipment: Storage, Recreational Vehicles & Boats
Building Maintenance Services
Business Equipment Sales and Services
Business Support Services
Communications Services

2542

Construction Sales and Services (See Section 6300)
Gasoline Sales
Laundry Services
Participant Sports and Recreation: Indoor
Recycling Processing Facility, Wood and Green Materials
Research Services
Wholesaling, Storage and Distribution: Mini-Warehouses (see Section 6300 and Section 6909)

c. Industrial Use Types.

Custom Manufacturing

d. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing "Limited"
Packing and Processing "Winery"
Packing and Processing "General"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5786 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 7220 (N.S.) adopted 10-22-86)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8283 (N.S.) adopted 7-21-93)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2543 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the M54 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Adult Entertainment Establishments "19"
Agricultural Services "14"
Food and Beverage Retail Sales "10"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"
Wholesaling, Storage and Distribution: Heavy "14"
Wholesaling, Storage and Distribution: Light "8"

b. Industrial Use Types.

General Industrial "14"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 7220 (N.S.) adopted 10-22-86)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9013 (N.S.) adopted 3-17-99)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)

2544 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the M54 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types

Small Schools

b. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2545 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the M54 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Cultural Exhibits and Library Services
Major Impact Services and Utilities

b. Commercial Use Types.

Automotive and Equipment: Storage, Nonoperating Vehicles
Explosive Storage (see Section 6904)
Funeral and Interment Services: Cremating
Participant Sports and Recreation: Outdoor
Scrap Operations (see Section 6300)
Swap Meets
Transient Habitation: Campground (see Section 6450)

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8283 (N.S.) adopted 7-21-93)
(Amended by Ord. No. 9013 (N.S.) adopted 3-17-99)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2560

M56 MIXED INDUSTRIAL USE REGULATIONS

2560 INTENT.

The provisions of Section 2550 through 2579, inclusive, shall be known as the M56 Mixed Industrial Use Regulations, (M56 Use Regulations). The M56 Use Regulations will create an industrial area, and a maximum of five percent of each lot to be designated as support commercial area. *The right to develop a support commercial area shall be transferable. The M56 Use* Regulations will generally be applied to large areas of 100 or more acres, where a unified appearance can be created. A Specific Plan will be required prior to or concurrent with each rezone to address the availability of public facilities. The types of uses in the M56 Use Regulations will include industrial plants that are primarily engaged in the manufacturing, compounding, processing, assembling, packaging, treatment, warehousing or fabrication of materials or products, and commercial use types necessary to support those uses. Site development will be reviewed for compliance with a Design review manual adopted for the area.

2561 SUPPORT COMMERCIAL AREA.

Support commercial areas shall be designated, and the transfer of the rights to develop support commercial area shall be subject to the following requirements.

a. Designation of Commercial Area. Each lot in the specific plan area shall be granted a maximum of five percent of commercial use. At the time of application for a building permit, the applicant shall apply for an administrative permit indicating what portion of the site will be reserved for commercial use, and the location of the parking to be reserved for the use. If no area is designated through the administrative permit process at the time the lot is initially developed, the owner retains the right to make such designation at a later date. Additionally, the applicant may relinquish the permit at any time by making an application for relinquishment to the Director. When an applicant has either chosen not to use the right to develop the commercial area of the property or has relinquished the administrative permit to develop the area as a commercial use, the right may be transferred to another property through the process described in subsection b of this section.

b. Transfer of Designated Commercial Area. Commercial development rights shall be transferable. Transfer shall only be to a site located within the contiguous area within which the M56 use regulation has been applied. The transfer shall not result in more than ten percent of any one site being utilized for support commercial development.

Prior to completing any transfers of development rights, the applicant shall obtain written approval from the Director. No purported transfer shall be of any force or effect without the Director's approval. The applicant shall notify the Department of the completion of the transfer on a form prescribed by the Department, and such notification shall be recorded. Failure to comply with the Department's requirements for notification shall be grounds for refusal to issue building permits.

2562 PERMITTED USES WITHIN THE INDUSTRIALLY DESIGNATED AREA

The following use types are permitted by the M56 Use Regulations within the industrially designated areas:

a. Civic Use Types.

Ambulance Services
Essential Services
Fire Protection Services
Law Enforcement Services
Minor Impact Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Automotive and Equipment
- b) Fleet Storage
- c) Parking
- d) Repairs [Heavy Equipment]
- e) Repairs [Light Equipment]
- f) Sales/Rentals [Heavy Equipment]
- g) Sales/Rentals [Farm Equipment]
- h) Sales/Rental [Light Equipment]

Building Maintenance Services
Construction Sales and Services
Recycling Processing Facility, Wood and Green Materials
Research Services
Wholesale Storage and Distribution
- a) Mini Warehouse (see Section 6300 and Section 6909)
- b) Light
- c) Heavy

c. Industrial Use Types.

Custom Manufacturing
General Industrial

2562

d. Agricultural Use Types.

Packing and Processing
a) Limited
b) Winery
c) General
d) Support

(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)

2563 PERMITTED USES WITHIN THE INDUSTRIALLY DESIGNATED AREAS THAT ARE SUBJECT TO LIMITATIONS.

The following use types are permitted by the M56 Use Regulations within the industrially designated areas, subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Eating and Drinking Establishments "10"
Food and Beverage Retail Sales "10"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"

(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2564 USES SUBJECT TO A MINOR USE PERMIT WITHIN THE INDUSTRIALLY DESIGNATED AREAS.

The following uses are permitted by the M56 Use Regulations in the industrially designated areas upon issuance of a Minor Use Permit.

a. Civic Use Types

Small Schools

2565 USES SUBJECT TO A MAJOR USE PERMIT WITHIN THE INDUSTRIALLY DESIGNATED AREAS.

The following uses are permitted by the M56 Use Regulations in the industrially designated areas upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Civic, Fraternal or Religious Assembly
Clinic Services
Cultural Exhibits and Library services
Child Care Center
Major Impact Services and Utilities

(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2566 PERMITTED USES WITHIN THE AREAS DESIGNATED FOR SUPPORT COMMERCIAL.

The following uses are permitted by the M56 Use Regulations within the commercially designated areas.

a. Civic Use Types.

Child Care Center
Essential Services
Law Enforcement Services
Minor Impact Utilities

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales
    a) Agricultural Sales
    b) Horticultural Sales
Automotive and Equipment
    c) Parking
Building Maintenance Services
Business Equipment Sales and Services
Business Support Services
Communications Services
Eating and Drinking Establishments
Financial, Insurance and Real Estate
Food and Beverage Retail Sales
Gasoline Sales
Laundry Services
Participant Sports and Recreation
    a) Indoor
Recycling Collection Center
Repair Services [Consumer]
Research Services
Retail Sales
    a) General
Wholesale Storage and Distribution
    a) Mini Warehouse

c. Agricultural Use Types.

Horticultural
    a) Cultivation
    b) Storage
Tree Crops
Row and Field Crops
Packing and Processing
    a) Limited
    b) Support

(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)

2567 PERMITTED USES WITHIN THE AREAS DESIGNATED FOR SUPPORT COMMERCIAL SUBJECT TO LIMITATIONS.

The following uses are permitted by the M56 Use Regulations within the commercially designated areas, subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Agricultural Services "8"
Automotive and Equipment
- a) Cleaning "8"
- d) Repairs [Heavy Equipment] "8"
- e) Repairs [Light Equipment] "9"
- f) Sales/Rentals [Heavy Equipment] "9"
- g) Sales/Rentals [Farm Equipment] "9"
- h) Sales/Rentals [Light Equipment] "9"

Construction Sales and Services "8"

b. Agricultural Use Types

Animal Raising "16"

2568 USES SUBJECT TO A MAJOR USE PERMIT WITHIN THE AREAS DESIGNATED FOR SUPPORT COMMERCIAL.

The following uses are permitted by the M56 Use Regulations in the commercially designated areas upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Civic, Fraternal or Religious Assembly
Clinic Services
Cultural Exhibits and Library services
Major Impact Services and Utilities
Postal Services

b. Commercial Use Types

Automotive and Equipment
- i) Storage [Nonoperating Vehicles]
- j) Storage [Recreational Vehicles and Boats]

Funeral and Interment Services
- a) Cremating

Participant Sports and Recreation
b) Outdoor
Scrap Operations
Spectator Sports and Entertainment
a) Limited
b) General
Swap Meets
Transient Habitation
b) Lodging

c. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2569 SPECIFIC PLAN REQUIRED.
The M56 Use Regulations may be made applicable to any property for which a Specific Plan has been adopted. Alternatively, the provisions of the M56 Use Regulations may be adopted as a part of any Specific Plan. The Specific Plan required by these regulations shall address the availability of public facilities, including but not limited to sewer, water, fire protection and roads. Performance standards shall be included within the Specific Plan to assure that there are adequate public facilities to serve the proposed development. If the necessary facilities are not available, or are fully utilized according to the adopted performance standards, no further building permits shall be issued for any new or expanded commercial or industrial uses. In addition, the Specific Plan shall establish a maximum limit to the total area to be devoted to the support commercial uses. Said commercial uses shall not exceed, and may be less than the five percent that is otherwise allowed by the zone.

2570 ADMINISTRATIVE DESIGN REVIEW REQUIRED.
No permit of any type shall be issued for the construction or alteration of any building or structure, nor shall any person construct or alter a building or structure, nor shall any new use be established in areas subject to the M56 Use Regulations until an Administrative Design Review has been approved as conforming to the criteria of a Design Manual which has been adopted by the Board of Supervisors. Alterations to the interior of a structure which are not visible from the exterior of the structure are exempt from the requirement for review. An applicant may chose to submit a site plan rather than an administrative design review application if the project does not comply with the specific requirements of the Design Manual, but the applicant is of the opinion that the project does comply with the intent of the Design Manual. A separate manual shall be adopted for each separate area when the M56 Use Regulations are applied and shall

reflect the concerns of that area. An existing Community Design Manual may be adopted to serve as the Design Manual. The Design Manual shall require the preservation of environmental resources that are identified as being significant, including wildlife habitat and open space.

2571 WAIVER OF ADMINISTRATIVE DESIGN REVIEW.
The administrative design review required by Section 2570 may be waived by the Director if it is determined that the nature of the proposed project is such that subjecting it to the review process would not materially contribute to the attainment of the objectives and guidelines set forth in the *applicable Design Manual.*

a. In making a decision on waiver of an administrative design review due consideration shall be given to the recommendation of the Community Planning/Subregional Planning Group, Community Design Review Board or Property Owners Review Committee, whichever has *been designated as the review body as required by Section 2572.*

b. The Director, upon receipt of a request for waiver of the administrative design review requirement, shall provide a copy of said request to the review body for their recommendation.

2572 DESIGNATION BY BOARD OF SUPERVISORS OF REVIEW BODY.
The Board of Supervisors shall designate a review body to review all applications for administrative design review. Such designation shall take place at such time as the M56 Use Regulations are applied to any specific properties. Where there is a Community Planning Group, Subregional Planning Group or Community Design Review Board, such group shall be designated as the review body unless that body agrees to the appointment of a Property Owners Review Committee and the Board of Supervisors so designates. Where there is no planning group or design review board, a Property Owners Review Committee shall be appointed. The number of members of such Property Owners Review Committee, their length of service and identities shall be at the discretion of the Board of Supervisors. The members shall be owners of property wholly or partly within the area affected by the M56 Use Regulations or shall be designated representatives of a property owner.

2574 REVIEW OF APPLICATION BY THE DESIGNATED REVIEW BODY.
The Department of Planning and Land Use, upon receipt of an application for administrative design review, shall provide a copy of said application to the designated review body for their comments. The review body shall have 30 days to review the application and respond with their recommendations.

2576 DECISION BY THE DIRECTOR ON ADMINISTRATIVE DESIGN REVIEW.
The Director shall decide if the application complies with the requirements of the Design Manual and issue that decision within 60 days of the initial application. A denial of the application may be followed by an application for a site plan if the applicant feels that the overall intent of the design requirements can be met by the project without the project being in strict compliance with the requirements of the Design Manual.

2578 APPEAL OF DIRECTOR'S DECISION.
The Director's decision may be appealed pursuant to the appeal procedures commencing at Section 7200.

2580

M58 HIGH IMPACT INDUSTRIAL USE REGULATIONS

2580 INTENT.

The provisions of Section 2580 through Section 2589, inclusive, shall be known as the M58 High Impact Industrial Use Regulations. The M58 Use Regulations are intended to create and preserve areas where a full range of industrial uses with moderate to high nuisance characteristics may locate. Typically, the M58 Use Regulations would be applied at locations where large land acreages were available and where the impacts associated with unsightliness, noise, odor, and traffic, and the hazards associated with certain industrial uses, would not impact on residential or commercial areas. Various applications of the M58 Use Regulations with appropriate development designators can create major heavy industrial centers or an area for a single, large industrial use.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2582 PERMITTED USES.

The following use types are permitted by the M58 Use Regulations:

a. Civic Use Types.

Ambulance Services
Community Recreation
Emergency Shelters (see Section 6911)
Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services
Minor Impact Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Administrative and Professional Services
Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Veterinary, Large Animals
Automotive and Equipment: Cleaning
Automotive and Equipment: Fleet Storage
Automotive and Equipment: Parking
Automotive and Equipment: Repairs, Heavy Equipment
Automotive and Equipment: Light Equipment
Automotive and Equipment: Sales/Rentals, Farm Equipment
Automotive and Equipment: Sales/Rentals, Heavy Equipment
Automotive and Equipment: Sales/Rentals, Light Equipment
Automotive and Equipment: Storage, Recreational Vehicles and Boats
Building Maintenance Services
Business Equipment Sales and Services
Business Support Services
Communications Services
Construction Sales and Services (See Section 6300)
Gasoline Sales

Laundry Services
Participant Sports and Recreation: Indoor
Recycling Processing Facilities, Wood and Green Materials
Research Services
Wholesaling, Storage and Distribution: Mini-Warehouses (see Section 6300 and Section 6909)

c. Industrial Use Types.

Custom Manufacturing (see Section 6300)

d. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing (all types)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5786 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 7220 (N.S.) adopted 10-22-86)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8318 (N.S.) adopted 10-27-93)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2583 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the M58 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Adult Entertainment Establishments "19"
Agricultural Services "14"
Automotive and Equipment: Storage, Nonoperating Vehicles "9"
Food and Beverage Retail Sales "10"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Light or Heavy "3"
Wholesaling, Storage and Distribution: Heavy "14"
Wholesaling, Storage and Distribution: Light "8"

b. Industrial Use Types.

General Industrial "14"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 7220 (N.S.) adopted 10-22-86)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9013 (N.S.) adopted 3-17-99)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)

2584 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the M58 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Small Schools

b. Commercial Use Types.

Convenience Sales and Personal Services
Eating and Drinking Establishments

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2585 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the M58 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Cultural Exhibits and Library Services
Major Impact Services and Utilities

b. Commercial Use Types.

Animal Sales and Services: Stockyard
Explosive Storage (see Section 6904)
Funeral and Interment Services: Cremating
Participant Sports and Recreation: Outdoor
Scrap Operations (see Section 6300)
Swap Meets

c. Industrial Use Types.

Heavy Industrial (see Section 6300)

d. Agricultural Use Types.

Animal Waste Processing (see Section 6902)

e. Extractive Use Types.

Mining and Processing
Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 7935 (N.S.) adopted 6-19-91)
(Amended by Ord. No. 8318 (N.S.) adopted 10-27-93)
(Amended by Ord. No. 9013 (N.S.) adopted 3-17-99)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

AGRICULTURAL USE REGULATIONS

A70 LIMITED AGRICULTURAL USE REGULATIONS

2700 INTENT.

The provisions of Section 2700 through Section 2709 inclusive, shall be known as the A70 Limited Agricultural Use Regulations. The A70 Use Regulations are intended to create and preserve areas intended primarily for agricultural crop production. Additionally, a limited number of small farm animals may be kept and agricultural products raised on the premises may be processed. Typically, the A70 Use Regulations would be applied to areas throughout the County to protect moderate to high quality agricultural land.

2702 PERMITTED USES.

The following use types are permitted by the A70 Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited
Packing and Processing: Wholesale Limited Winery

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 7741 (N.S.) effective 3-28-90 (Urg. Ord.))
(Amended by Ord. No. 9422 (N.S.) adopted 1-9-02)

2703 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the A70 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types

Mobilehome Residential "18"

b. *Commercial Use Types*

Animal Sales and Services: Veterinary (Large Animals) "6"
Animal Sales and Services: Veterinary (Small Animals) "6"
Recycling Collection Facility, Small "2"
Recycling Processing Facility, Wood and Green Materials "3"

c. Agricultural Use Types

Packing and Processing: Boutique Winery "22" (see Section 6910)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5652 (N.S.) adopted 11-21-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6783 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9940 (N.S.) adopted 6-18-08)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2704 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are allowed by the A70 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Law Enforcement Services
Minor Impact Utilities
Small Schools

b. Agricultural Use Types.

Farm Labor Camps

c. Commercial Use Types.

Cottage Industries "17" (see Section 6920)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 7741 (N.S.) effective 3-28-90 (Urg. Ord.))
(Amended by Ord. No. 7768 (N.S.) adopted 6-13-90)
(Amended by Ord. No. 7964 (N.S.) adopted 8-14-91)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8271 (N.S.) adopted 6-30-93)
(Amended by Ord. No. 10003 (N.S.) adopted 8-5-09)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

2705 USES SUBJECT TO A MAJOR USE PERMIT.

The following use types are permitted by the A70 Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

b. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Group Care
Major Impact Services and Utilities
Parking Services
Postal Services

c. Commercial Use Types.

Agricultural and Horticultural Sales (all types)
Explosive Storage (see Section 6904)
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)
Transient Habitation: Resort (see Section 6400)

d. Agricultural Use Types.

Agricultural Equipment Storage
Packing and Processing: Winery
Packing and Processing: General
Packing and Processing: Support

e. Extractive Use Types.

Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6134 (N.S.) adopted 7-22-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6761 (N.S.) adopted 4-25-84)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6855 (N.S.) adopted 10-10-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2720

A72 GENERAL AGRICULTURAL USE REGULATIONS

2720 INTENT.

The provisions of Section 2720 through Section 2729, inclusive, shall be known as the A72 General Agricultural Use Regulations. The A72 Use Regulations are intended to create and preserve areas for the raising of crops and animals. Processing of products produced or raised on the premises would be permitted as would certain commercial activities associated with crop and animal raising. Typically, the A72 Use Regulations would be applied to areas distant from large urban centers where the dust, odor, and noise of agricultural operations would not interfere with urban uses, and where urban development would not encroach on agricultural uses.

2722 PERMITTED USES.

The following use types are permitted by the A72 Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited
Packing and Processing: Wholesale Limited Winery

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6268 (N.S.) adopted 4-14-82)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 7741 (N.S.) effective 3-28-90 (Urg. Ord.))
(Amended by Ord. No. 9101 (N.S.) adopted 12-8-99)
(Amended by Ord. No. 9422 (N.S.) adopted 1-9-02)

2723 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the A72 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Residential Use Types

Mobilehome Residential "18"

b. Commercial Use Types

Animal Sales and Services: Veterinary (Large Animals) "6"
Animal Sales and Services: Veterinary (Small Animals) "6"
Recycling Collection Facility, Small "2"
Recycling Processing Facility, Wood and Green Materials "3"

c. Agricultural Use Types

Packing and Processing: Boutique Winery "22" (see Section 6910)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5652 (N.S.) adopted 11-21-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6783 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 9940 (N.S.) adopted 6-18-08)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2724 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are allowed by the A72 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

b. Agricultural Use Types

Farm Labor Camps

c. Commercial Use Types.

Cottage Industries "17" (see Section 6920)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 7741 (N.S.) effective 3-28-90 (Urg. Ord.))
(Amended by Ord. No. 7768 (N.S.) adopted 6-13-90)
(Amended by Ord. No. 7964 (N.S.) adopted 8-14-91)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8271 (N.S.) adopted 6-30-93)
(Amended by Ord. No. 9101 (N.S.) adopted 12-8-99)
(Amended by Ord. No. 10003 (N.S.) adopted 8-5-09)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2725 USES SUBJECT TO A MAJOR USE PERMIT.

The following use types are permitted by the A72 Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

b. Civic Use types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Group Care
Major Impact Services and Utilities
Parking Services
Postal Services

c. Commercial Use Types.

Agricultural and Horticultural Sales (all types)
Animal Sales and Services: Auctioning
Explosive Storage (see Section 6904)
Gasoline Sales
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)
Transient Habitation: Resort (see Section 6400)

d. Agricultural Use Types.

Agricultural Equipment Storage
Animal Waste Processing (see Section 6902)
Packing and Processing: Winery
Packing and Processing: General
Packing and Processing: Support

e. Extractive Use Types.

Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6761 (N.S.) adopted 4-25-84)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6855 (N.S.) adopted 10-10-84)
(Amended by Ord. No. 9690 (N.S.) adopted 12-15-04)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

SPECIAL PURPOSE REGULATIONS

S80 OPEN SPACE USE REGULATIONS

2800 INTENT.

The provisions of Section 2800 through Section 2809, inclusive, shall be known as the S80 Open Space Use Regulations. The S80 Open Space Use Regulations are intended to provide for appropriate controls for land generally unsuitable for intensive development. Typically, the S80 Use Regulations would be applied in both urban and rural environments to hazard or resource areas, public lands, recreation areas, or lands subject to open space easement or similar restrictions. Uses permitted within the S80 Use Regulations include those having a minimal impact on the natural environment, or those compatible with the hazards, resources, or other restrictions on the property. Various applications of the S80 Use Regulations with appropriate development designators can create or protect areas of very large residential parcels, agricultural areas, recreation areas, or limited use areas having identified hazards or resources.

2801 SITE PLAN REVIEW REQUIRED.

All development within areas subject to the S80 Open Space Regulations shall require site plan review in accordance with the Site Plan Review Procedure commencing at Section 7150 and the following guidelines.

a. Content of the Site Plan. A site plan required by this section shall contain such maps, plans, drawings, and sketches as are necessary to show the location, size and use of all proposed buildings and structures and their relationship to the significant physical features located on the development site.

b. Relationship to Subdivision Ordinance. Any tentative map or tentative parcel map which is required by the Subdivision Ordinance shall be used to the maximum extent possible in satisfying the requirements of subsection "a" of this section.

c. Standards and Criteria. The placement and siting of the proposed structures and buildings shall preserve the open space value of the development site, avoid degradation of the significant physical features located on the development site, and avoid hazards.

2802 PERMITTED USES.
The following use types are permitted by the S80 Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (All Types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2803 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the S80 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood and Green Materials "3"

(Added by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2804 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are allowed by the S80 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

b. Agricultural Use Types

Farm Labor Camps

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No 10003 (N.S.) adopted 8-5-09)

2805 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the S80 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Major Impact Services and Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Automobile and Equipment: Parking
Explosive Storage (see Section 6904)
Participant Sports and Recreation: Outdoor

c. Extractive Use Types.

Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2810

S81 ECOLOGICAL RESOURCE AREA REGULATIONS

2810 INTENT.

The provisions of Section 2810 through 2819, inclusive, shall be known as the S81 Ecological Resource Area Use Regulations. The S81 Use Regulations are intended to recognize and preserve the coastal wetlands as resources of national, statewide and regional significance for their biological habitat value; to facilitate the maintenance and enhancement of the biological productivity and scenic quality of the wetlands; and to insure that human use of the wetlands is compatible with their biological and habitat functions. It is intended that these regulations be applied to lagoons and their tributary streams and adjacent uplands within the California Coastal Zone. Unless otherwise clearly delineated by a road, property line, or similar feature, these regulations are intended to be applied to extend to one hundred feet upland of the 100-year floodplain.

(Added by Ord. No. 6743 (N.S.) effective 1-11-85)

2812 PERMITTED USES.

The following use types are permitted by the S81 Use Regulations in accordance with the Special Provisions and Limitations set forth in Section 2818.

a. Civic Use Types

Cultural Exhibits and Library Services: Educational and scientific nature study involving observation only.

Essential Services: Sewer, gas and petroleum products pipelines, telephone and electric lines only.

(Added by Ord. No. 6743 (N.S.) effective 1-11-85)

2815 USES SUBJECT TO A MAJOR USE PERMIT.

The following use types are permitted by the S81 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Essential Services: Passive recreation only.

b. Agricultural Use Types.

Animal Raising, Specialty: Aquaculture only

c. Extractive Use Types.

Site Preparation: Dredging and filling for purposes of habitat enhancement only.

(Added by Ord. No. 6743 (N.S.) effective 1-11-85)

2818 SPECIAL PROVISIONS AND LIMITATIONS.

a. When development is subject to issuance of a Coastal Act Permit pursuant to the California Coastal Act of 1976, said permit shall be issued in accordance with Section 7400 et seq. of this Zoning Ordinance.

b. In addition to the findings required for granting a major use permit pursuant to Section 7358 or for issuance of a Coastal Act permit commencing at Section 7400, the following specific findings shall be made:

1. The proposed use, activity or construction will not have any significant adverse effects on the habitat or scenic values of the wetlands or on associated rare, threatened or endangered species; or that adequate measures will be provided to mitigate such significant adverse effects.

2. The proposed use, activity or construction will not:

Involve wetland fill, except as related to habitat enhancement;
Increase sedimentation of the wetland;
Adversely decrease stream flow into the wetland; nor
Reduce tidal interchange or internal water circulation.

3. The proposed use, activity, or construction is consistent with the applicable goals and policies of the California Coastal Act and of the San Diego County Local Coastal Program Land Use Plan.

c. The environmental review documentation prepared and submitted pursuant to Sections 7610 and 7611 shall be utilized to the maximum extent possible in carrying out the provisions of the S81 Use Regulations.

(Added by Ord. No. 6743 (N.S.) effective 1-11-85)

2820

S82 EXTRACTIVE USE REGULATIONS

2820 INTENT.
The provisions of Section 2820 through Section 2829, inclusive, shall be known as the S82 Extractive Use Regulations. The S82 Use Regulations are intended to identify and create areas within the County where mining, quarrying, or oil extractive uses are permitted. Typically, the S82 Use Regulations would be applied to areas of mineral deposits, to signify the presence of such deposit and notify adjacent or affected properties of the intention to allow extraction of minerals within the zone. They may be used to preserve areas with valuable mineral deposits until extraction can take place. Special regulations are to be imposed governing the conduct of mineral extraction, associated operating characteristics, and care of the site at conclusion of the extraction operation.

2822 PERMITTED USES.
The following use types are permitted by the S82 Use Regulations:

a. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

b. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2823 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the S82 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood and Green Materials "3"

(Added by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2824 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the S82 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Law Enforcement Services
Minor Impact Utilities

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8175 (N.S.) adopted 11-19-92)

2825 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the S82 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Major Impact Services and Utilities
Parking Services
Postal Services

b. Commercial Use Types.

Automotive and Equipment: Nonoperating Vehicle Storage
Explosive Storage (see Section 6904)
Participant Sports and Recreation: Outdoor
Scrap Operation (see Section 6300)

c. Extractive Use Types.

Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

S86 PARKING USE REGULATIONS

2860 INTENT.

The provisions of Section 2860 through Section 2869, inclusive, shall be known as the S86 Parking Use Regulations. The S86 Use Regulations are intended to identify and create areas for automotive parking in association with another dominant land use. Typically, the S86 Use Regulation would be applied to assure a physical separation between one type of use and another, or to accommodate off-street parking requirements for commercial or industrial uses. Various applications of the S86 Use Regulations with appropriate development designators can create small buffer areas between uses or large parking areas designed to satisfy parking needs of a major commercial or industrial complex.

2862 PERMITTED USES.

The following use types are permitted by the S86 Use Regulations:

a. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)
Parking Services

b. Commercial Use Types.

Automotive and Equipment: Parking

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2863 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the S86 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood or Green Materials "3"

(Added by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2864 USES SUBJECT TO A MINOR USE PERMIT.

The following use types are permitted by the S86 Use Regulations upon issuance of a Minor Use Permit.

2864

a. Civic Use Types.

Law Enforcement Services
Minor Impact Utilities

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)

2865 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the S86 Use Regulations upon issuance of a Major Use Permit.

a. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

S87 LIMITED CONTROL USE REGULATIONS

2870 INTENT.

The provisions of Section 2870 through Section 2879, inclusive, shall be known as the S87 Limited Control Use Regulations. The S87 Use Regulations are intended to provide limited controls on the use of property in portions of the unincorporated area of the County pending specific studies to enable rezoning of said area in conformance with the adopted General Plan.

2872 PERMITTED USES.

The following use types are permitted by the S87 Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2873 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the S87 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Animal Sales and Services: Veterinary (Large Animals) "6"
Animal Sales and Services: Veterinary (Small Animals) "6"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood or Green Materials "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5652 (N.S.) adopted 11-21-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2874 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are allowed by the S87 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Civic, Fraternal, or Religious Assembly (within existing buildings)
Law Enforcement Services
Minor Impact Utilities
Small Schools

b. Agricultural Use Types

Farm Labor Camps

c. Expansion of any existing use type located on the property.

d. Commercial Use Types

Cottage Industries "17" (see Section 6920)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6398 (N.S.) adopted 7-14-82)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 7741 (N.S.) effective 3-28-90 (Urg. Ord.))
(Amended by Ord. No. 7768 (N.S.) adopted 6-13-90)
(Amended by Ord. No. 7964 (N.S.) adopted 8-14-91)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8271 (N.S.) adopted 6-30-93)
(Amended by Ord. No. 10003 (N.S.) adopted 8-5-09)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2875 USES SUBJECT TO A MAJOR USE PERMIT.
In addition to the Use Types permitted by Section 2872 through 2874, above, all other Use Types, with the exception of Adult Entertainment Establishments and Emergency Shelters, are permitted by the S87 Use Regulations upon issuance of a Major Use Permit.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord No. 9469 (N.S.) adopted 6-12-02)
(Amended by Ord. No. 10035 (N.S.) adopted 1-27-10)

S88 SPECIFIC PLANNING AREA USE REGULATIONS

2880 INTENT.

The provisions of Section 2880 through Section 2889, inclusive, shall be known as the S88 Specific Planning Area Use Regulations. The S88 Use Regulations are intended to *accommodate Specific Plan areas shown on the San Diego County General Plan or on those* lands for which a Specific Plan has been adopted by the Board of Supervisors pursuant to the Government Code. Application of the S88 Use Regulations can create an unlimited variety of land uses in conformance with the General Plan.

2882 PERMITTED USES.

Until a Specific Plan applicable to the property is adopted, the following use types are permitted by the S88 Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 8581 (N.S.) adopted 9-20-95)

2883 PERMITTED USES SUBJECT TO LIMITATIONS.

Until a Specific Plan applicable to the property is adopted, the following use types are permitted by the S88 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood and Green Material "3"

(Added by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Added by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 8581 (N.S.) adopted 9-20-95)

2884

2884 USES SUBJECT TO A MINOR USE PERMIT.
Until a Specific Plan applicable to the property is adopted, the following use types are allowed by the S88 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Law Enforcement Services.
Minor Impact Utilities

b. Agricultural Use Types

Farm Labor Camps

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 7768 (N.S.) adopted 6-13-90)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8271 (N.S.) adopted 6-30-93)
(Amended by Ord. No. 8581 (N.S.) adopted 9-20-95)
(Amended by Ord. No. 10003 (N.S.) adopted 8-5-09)

2885 USES SUBJECT TO A MAJOR USE PERMIT.
Until a Specific Plan applicable to the property is adopted, the following use types are permitted by the S88 Use Regulations upon issuance of a Major Use Permit.

a. Agricultural Use Types.

Packing and Processing: Winery
Packing and Processing: General
Packing and Processing: Support

b. Extractive Use Types.

Site Preparation

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6761 (N.S.) adopted 4-25-84)
(Amended by Ord. No. 8581 (N.S.) adopted 9-20-95)

2887 SPECIFIC PLANS
If a Specific Plan has been adopted for property which is also subject to the S88 Specific Planning Area Use Regulations, any provisions of the Specific Plan relating to subjects contained in the Animal Regulations at Part Three (commencing at Section 3000), the Development Regulations at Part Four (commencing at Section 4000), the Special Area Regulations at Part Five (commencing at Section 5000), and/or the General Regulations at Part Six (commencing at Section 6000), of The Zoning Ordinance, shall prevail over The Zoning Ordinance regulations to the extent of any conflict between them.

(Added by Ord. No. 8581 (N.S.) adopted 9-20-95)

2888 SPECIAL PROVISIONS AND LIMITATIONS: S88 USE REGULATIONS.

a. Prior to adoption of a Specific Plan, a Major Use Permit may be granted pursuant to the S88 Use Regulations to authorize, for a specified period of time, any use not involving a significant investment in buildings, structures, or other improvements. Alternatively, a Major Use Permit may be granted for any use pursuant to a bonded agreement in an amount sufficient to ensure the removal of all buildings, structures, and other improvements within a specified time and/or under specified conditions when the decision-making body finds that such agreement will carry out the intent of this Ordinance and is enforceable by the County.

b. Following the adoption of a Specific Plan, any use set forth in the Specific Plan is permitted by the S88 Specific Planning Area Use Regulations.

c. All uses established pursuant to an applicable Specific Plan shall be subject to all of the conditions and restrictions set forth in the Specific Plan, and said Specific Plan conditions and restrictions concerning uses shall prevail over The Zoning Ordinance regulations to the extent of any conflict between them.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 7935 (N.S.) adopted 6-19-91)
(Amended by Ord. No. 8506 (N.S.) adopted 3-1-95)
(Amended by Ord. No. 8581 (N.S.) adopted 9-20-95)

2889 CALIFORNIA COASTAL ZONE: AGRICULTURAL LAND.
A Specific Plan for any property subject to these use regulations which lies within the California Coastal Zone, and which is designated Agricultural Cropland on the Local Coastal Program Land Use Plan, shall, in addition to other applicable requirements, be prepared and approved in accordance with the provisions of this section.

a. The Specific Plan shall cover all contiguous properties owned or under the control of the applicant.

b. Approval of the Specific Plan shall be subject to a specific finding that continued exclusive agricultural use of the entire property is no longer feasible, or that allowing residential development on a portion of the property will enhance the feasibility of agricultural use of the remaining portions of the property.

c. The Specific Plan shall show at least fifty percent of the land suitable for agriculture as reserved for agricultural use.

d. Total dwelling units permitted by the Specific Plan shall not exceed the number obtained by multiplying the total acreage covered by the specific plan, exclusive of any wetland areas, by a density factor of 2.8.

e. All development and other activities subject to the Specific Plan shall conform to the following:

1. All development shall be subject to the Planned Development Area Regulations commencing at Section 5800.

2. All land shown as reserved for agriculture shall be permanently protected for such use by an appropriate restriction.

3. Areas shown as reserved for agriculture shall, where feasible, be a minimum of forty contiguous acres in size.

4. Development shall be located and clustered so as to avoid, to the degree possible, conflict with the continued agricultural use of land reserved for that purpose and, where feasible, shall be located adjacent to existing development or areas planned for development.

5. To the degree feasible, development shall be concentrated on lands least suitable for agricultural production. Land best suited for agricultural production is defined as land containing Class I-IV soils on slopes of ten percent or less, and is either currently in agricultural production or has the potential for commercial production of food crops.

6. Where feasible, buffer areas shall be established in the specific plan between agricultural lands and non-agricultural areas within and adjacent to the area covered by the specific plan. Uses within such buffer areas shall be limited to agricultural uses that do not require the application of pesticides or herbicides, or open space uses.

7. Deeds for residential lots or dwelling units shall contain a clause stating that such lots or dwelling units are located in close proximity to lands reserved for agricultural use and that such use could result in some adverse impacts on such lots or dwelling units.

8. No roads other than farm access roads shall be constructed across agricultural lands unless mitigation measures are provided that assure the continued long-term viability of agricultural uses.

9. If land subject to the specific plan borders a lagoon, continuous bluff-top accessways or equivalent overlook areas shall be provided. Such accessways or overlooks shall be reserved for public use by dedication of easements as a condition of development approval.

(Added by Ord. No. 6743 (N.S.) effective 1-11-85)

S90 HOLDING AREA USE REGULATIONS

2900 INTENT.

The provisions of Section 2900 through Section 2909 shall be known as the Holding Area Use Regulations. The Holding Area Use Regulations are intended to prevent isolated or premature land uses from occuring on lands for which adequate public services and facilities are unavailable or for which the determination of the appropriate zoning regulations is precluded by contemplated or adopted planning proposals or by a lack of economic, demographic, geographic, or other data. It is intended that the Holding Area Use Regulations will be replaced by other use regulations when the aforementioned conditions no longer exist. The uses permitted are those which are community services, interim uses, or uses which, with appropriate development designators, will not prematurely commit the land to a particular use or intensity of development.

2902 PERMITTED USES.

The following use types are permitted by the S90 Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)

2903 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the S90 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood or Green Materials "3"

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5652 (N.S.) adopted 11-21-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2904 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are allowed by the S90 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Law Enforcement Services
Minor Impact Utilities
Small Schools

b. Agricultural Use Types

Farm Labor Camps

c. Commercial Use Types

Cottage Industries "17" (see Section 6920)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 7768 (N.S.) adopted 6-13-90)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8271 (N.S.) adopted 6-30-93)
(Amended by Ord. No 10003 (N.S.) adopted 8-5-09)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2905 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the S90 Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

2905

b. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Group Care
Major Impact Services and Utilities
Parking Services
Postal Services

c. Commercial Use Types.

Agricultural and Horticultural Sales (all types)
Agricultural Services
Explosive Storage (see Section 6904)
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)
Transient Habitation: Resort (see Section 6400)

d. Extractive Use Types.

Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2908 SPECIAL PROVISIONS AND LIMITATIONS: S90 USE REGULATIONS.

a. A Major or Minor Use Permit may be continued, modified, reinstated, or renewed for any use which, prior to the application of the S90 Holding Area Use Regulations on the subject property, was permitted pursuant to a duly authorized use permit.

b. A Major Use Permit may be granted to authorize, for a specified period of time, any use not involving a significant investment in buildings, structures, or other improvements. Alternatively, a Major Use Permit may be granted for any use pursuant to a bonded agreement in an amount sufficient to ensure the removal of all buildings, structures, and other improvements within a specified time and/or under specified conditions when the decision-making body finds that such agreement will carry out the intent of this Ordinance and is enforceable by the County.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8506 (N.S.) adopted 3-1-95)

S92 GENERAL RURAL USE REGULATIONS

2920 INTENT.

The provisions of Section 2920 through Section 2929, inclusive, shall be known as the S92 General Rural Use Regulations. The S92 Use Regulations are intended to provide appropriate controls for land which is: rugged terrain, watershed, dependent on ground water for a water supply, desert, susceptible to fires and erosion, or subject to other environmental constraints. Various applications of the S92 Use Regulations with appropriate development designators can create or protect areas suitable for low intensity recreational uses, residences on very large parcels, animal grazing, and other uses consistent with the intent of this Section.

(Added by Ord. 5508 (N.S.) adopted 5-16-79)

2922 PERMITTED USES.

The following use types are permitted by the S92 Use Regulations:

a. Residential Use Types.

Family Residential

b. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)
Law Enforcement Services (see Section 6905)

c. Agricultural Use Types.

Horticulture (All Types)
Tree Crops
Row and Field Crops
Packing and Processing: Limited

(Added by Ord. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 7741 (N.S.) effective 3-28-90 (Urg. Ord.))
(Amended by Ord. No. 9101 (N.S.) adopted 12-8-99)

2923 PERMITTED USES SUBJECT TO LIMITATIONS.
The following use types are permitted by the S92 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Animal Sales and Services: Veterinary (Large Animals) "6"
Animal Sales and Services: Veterinary (Small Animals) "6"
Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood and Green Materials "3"

(Added by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5652 (N.S.) adopted 11-21-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2925 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are allowed by the S92 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Minor Impact Utilities
Small Schools

b. Agricultural Use Types

Farm Labor Camps

c. Commercial Use Types

Cottage Industries "17" (see 6920)

(Added by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6654 (N.S.) adopted 9-21-83)
(Amended by Ord. No. 7741 (N.S.) effective 3-28-90 (Urg. Ord.))
(Amended by Ord. No. 7768 (N.S.) adopted 6-13-90)
(Amended by Ord. No. 7964 (N.S.) adopted 8-14-91)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)
(Amended by Ord. No. 8271 (N.S.) adopted 6-30-93)
(Amended by Ord. No. 9101 (N.S.) adopted 12-8-99)
(Amended by Ord. No. 10003 (N.S.) adopted 8-5-09)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)

2926 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the S92 Use Regulations upon issuance of a Major Use Permit.

a. Residential Use Types.

Group Residential

b. Civic Use Types.

Administrative Services
Ambulance Services
Child Care Center
Civic, Fraternal or Religious Assembly
Clinic Services
Community Recreation
Cultural Exhibits and Library Services
Group Care
Major Impact Services and Utilities
Parking Services
Postal Services

c. Commercial Use Types.

Agricultural and Horticultural Sales (all types)
Explosive Storage (see Section 6904)
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)
Transient Habitation: Resort (see Section 6400)

d. Agricultural Use Types.

Animal Waste Processing (see Section 6902)
Packing and Processing: Winery
Packing and Processing: General
Packing and Processing: Support

e. Extractive Use Types.

Mining and Processing (see Section 6550)

(Added by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6761 (N.S.) adopted 4-25-84
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09

2940

S94 TRANSPORTATION AND UTILITY CORRIDOR USE REGULATIONS

2940 INTENT.

The provisions of Section 2940 through 2949, inclusive, shall be known as the S94 Transportation and Utility Corridor Use Regulations. The S94 Use Regulations are intended to create and protect corridors for existing or future highways, railways, pipelines, other modes of transportation, and facilities for transmission of electricity, gas, water and other materials and forms of energy. The S94 Use Regulations are designed in recognition of the fact that transportation and utility facilities can cause adverse impacts on surrounding residents and properties including, for example, noise, vibration, emissions, pollutants, odors, visual appearance, detraction from natural scenic values, electrical interference, and potential for hazards and disasters. Some facilities can also be adversely affected by incompatible uses nearby. It is intended that these and other regulations be applied in a manner that will create sufficient open space or buffering along corridors to mitigate any adverse impacts of the facilities. The uses permitted are those which will not detract from the corridor's primary purpose, will not involve large, permanent concentrations of people, and will not adversely affect surrounding residents and properties. Various applications of the S94 Use Regulations with appropriate development designators can preserve future corridors while allowing appropriate interim uses, and permit suitable uses of land under powerlines, over buried pipelines, or alongside railroads or highways.

2942 PERMITTED USES.

The following use types are permitted by the S94 Use Regulations:

a. Civic Use Types.

Essential Services
Fire Protection Services (see Section 6905)

b. Agricultural Use Types.

Horticulture (all types)
Tree Crops
Row and Field Crops

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

2943 PERMITTED USES SUBJECT TO LIMITATIONS.

The following use types are permitted by the S94 Use Regulations subject to the applicable provisions of Section 2980. The number in quotes following the use type refers to the subsection of Section 2980 which applies.

a. Commercial Use Types.

Recycling Collection Facility, Small or Large "2"
Recycling Processing Facility, Wood and Green Materials "3"

(Added by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)

2944 USES SUBJECT TO A MINOR USE PERMIT.
The following use types are permitted by the S94 Use Regulations upon issuance of a Minor Use Permit.

a. Civic Use Types.

Law Enforcement Services
Minor Impact Utilities
Parking Services

b. Commercial Use Types.

Automotive and Equipment: Parking

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8175 (N.S.) adopted 11-18-92)

2945 USES SUBJECT TO A MAJOR USE PERMIT.
The following use types are permitted by the S94 Use Regulations upon issuance of a Major Use Permit.

a. Civic Use Types.

Administrative Services
Ambulance Services
Community Recreation
Cultural Exhibits and Library Services
Major Impact Services and Utilities
Postal Services

b. Commercial Use Types.

Agricultural and Horticultural Sales (all types)
Agricultural Services
Participant Sports and Recreation: Outdoor
Transient Habitation: Campground (see Section 6450)

c. Extractive Use Types.

Mining and Processing (see Section 6550)

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)

2948

2948 SPECIAL PROVISIONS AND LIMITATIONS: S94 USE REGULATIONS.

a. A Major Use Permit may be granted pursuant to the S94 Use Regulations to authorize, for a specified period of time, any use not involving a significant investment in buildings, structures, or other improvements. Alternatively, a Major Use Permit may be granted for any use pursuant to a bonded agreement in an amount sufficient to ensure the removal of all buildings, structures, and other improvements within a specified time and/or under specified conditions when the decision-making body finds that such agreement will carry out the intent of this Ordinance and is enforceable by the County.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 8506 (N.S.) adopted 3-1-95)

2950 SOLID WASTE FACILITY (SWF)

On November 8, 1994, the voters adopted County of San Diego Proposition C, an initiative that created the SWF zoning classification, applied it to the Gregory Canyon site and described a new class III solid waste landfill (the Project). *

The SWF zoning classification shall allow the Project without the need for any permits from the County of San Diego except the Water Course Alteration Permit, Bridge Permit, Grading Permit and Building Permit.

* This unadopted introductory paragraph is provided for informational purposes.

SUPPLEMENTAL LIMITATIONS ON USES.

2980 LIMITATIONS ON PERMITTED USES.
The following limitations apply to the uses indicated by the corresponding number in quotes in the previous sections entitled "Permitted Uses Subject to Limitations."

"1" Dwellings as Secondary Uses. Limited to dwellings which are secondary uses of a structure, lot or parcel primarily used for business purposes.

"2" Recycling Collection Facilities shall comply with the applicable provisions of Section 6970.

"3" Recycling Processing Facilities shall comply with the applicable provisions of Section 6975.

"4" Secondary Use. Permitted only as a secondary use within a dwelling. No such use shall have a floor area greater than the floor area devoted to residential purposes.

"5" Same Lot. Permitted only if located on the same lot as the industrial use it serves.

"6" Veterinary Hospitals. Hospital must be located on a parcel of land not less than 2 acres in size. Indoor treatment areas must be located at least 100 feet from the nearest property line, and out door treatment or confinement areas must be located at least 200 feet from the nearest property line. If a proposed Hospital does not meet any of these requirements it may be allowed upon issuance of a Minor Use Permit.

"7" Limitation on Enclosed Storage. All operations, including the storage of materials and equipment, shall be entirely within an enclosed building, and the area devoted to storage shall not be greater than the area devoted to sales and administrative offices.

"8" Enclosed Building. All operations, including the storage of materials and equipment, shall be entirely within an enclosed building.

"9" Enclosed Building or Walls. All operations, including the storage of materials and equipment, shall be entirely within an enclosed building or inside walls or solid fences not less than 6 feet in height.

"10" Retail Establishments. Limited to retail establishments intended for the convenience of permitted establishments and/or clients thereof, provided no such retail establishment occupies more than 15 percent of the total floor area of the building in which it is located and has no entrance except from the lobby or interior of said building, or from a patio entirely surrounded by said building.

"11" Insurance and Real Estate Offices. Limited to insurance and real estate offices as a secondary use within a dwelling. No such office shall have a floor area greater than the floor area devoted to residential purposes.

"12" Gasoline Sales. There shall be no open storage of goods or materials, and all repair and lubrication services shall take place in an enclosed building.

"13" Drycleaning Plants and Laundries. Limited to drycleaning plants and laundries which provide retail services only, use only non-flammable solvents, and employ not more than 10 people.

"14" Performance Standards. Subject to meeting the applicable provisions of the performance standards specified in Section 6300.

"15" Performance Standards and Power. Subject to meeting the applicable provisions of the performance standards specified in Section 6300. Prior to the installation or operation of electric or other power sources in excess of 20 horsepower, the proposed use shall be reviewed pursuant to Section 6304 and the Director shall certify that the use complies with the applicable performance standards.

"16" Animal Related Activities. Animal related activities may be permitted subject to the Animal Regulations commencing at Section 3000.

"17" Cottage Industries. Permitted subject to the provisions of Section 6920.

"18" Mobilehome Residential. Subject to the Mobilehome Park Regulations commencing at Section 6500 or the Planned Development Standards commencing at Section 6600.

"19" Adult Entertainment Establishments. Subject to meeting the applicable provisions of the regulations and performance standards specified in Section 6930 and upon issuance of an Administrative Permit as specified in Section 6930.

"20" Secondary Use: On building sites 5 acres or less in size, the use shall be restricted to locations above the first story of a building or buildings the first story of which is reserved for permitted principal uses. On building sites larger than 5 acres, the use may, as an alternate to the foregoing, be located in a building or buildings intended and located solely for secondary uses provided that not less than 50 percent of the site area is devoted exclusively to permitted principal uses.

"21" Drug Paraphernalia Establishments. Subject to meeting the applicable provisions of the standards specified in Section 6932 and upon issuance by the Director of an Administrative Permit.

"22" Boutique Wineries. Allowed subject to the provisions of Section 6910.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 5612 (N.S.) adopted 10-10-79)
(Amended by Ord. No. 5652 (N.S.) adopted 11-21-79)
(Amended by Ord. No. 5786 (N.S.) adopted 6-4-80)
(Amended by Ord. No. 5840 (N.S.) adopted 7-30-80)
(Amended by Ord. No. 5935 (N.S.) adopted 11-19-80)
(Amended by Ord. No. 6743 (N.S.) effective 1-11-85)
(Amended by Ord. No. 6924 (N.S.) adopted 2-20-85)
(Amended by Ord. No. 6983 (N.S.) adopted 07-03-85)
(Amended by Ord. No. 7649 (N.S.) adopted 07-17-89)
(Amended by Ord. No. 8058 (N.S.) adopted 4-15-92)
(Amended by Ord. No. 8166 (N.S.) adopted 10-21-92)
(Amended by Ord. No. 9469 (N.S.) adopted 6-12-02)
(Amended by Ord. No. 9935 (N.S.) adopted 4-23-08)
(Amended by Ord. No. 9940 (N.S.) adopted 6-18-08)

USE MATRIX

2990 USE MATRIX.
The Director shall prepare and cause to be inserted in copies of the Zoning Ordinance, an official Use Matrix which expresses in graphic form the Use Regulations contained in Sections 2100 through 2989, inclusive.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

USE & ENCLOSURE MATRIX

SUMMARY PREPARED PURSUANT TO SECTIONS 2990 AND 6816

NOTE: This matrix is a summary only. For complete regulations see appropriate sections of The Zoning Ordinance. In case of conflict between the provisions graphically represented in this matrix and the provisions set forth in the text of The Zoning Ordinance, the provisions of The Zoning Ordinance shall apply.

USE TYPES	1250	1260	1265	1280	1300	Enclosed (See Section 6816)	Open	1310	1315	1320	1325	1330	1332	1334	1335	1340	1345	1346	1348	1350	1355	1360	1365	1375	1380	Use Regulations
RESIDENTIAL																										
RS	●			18		●	●	M		M	M	M	M		●	S	M		M	M	m	M	M	m	A	RS Single-Family Residential
RD	●			18		●	●	M		M	M	M	M		●	S	M		M	M	m	M	M	m	A	RD Duplex/Two-Family Residential
RM	●			18		●	●	M		M	M	M	M		●	S	M		M	M	m	M	M	m	A	RM Multi-Family Residential
RV	●			18		●	●	M		M	M	M	M		●	S	M		M	M	m	M	M	m	A	RV Variable Family Residential
RU	●	●		18		●	●	M	M	M	M	m	M		●	S	M		M	M	m	M	M	m	A	RU Urban Residential
RMH				18		●	●	M		M	M	M	M		●	S	M		M	M	m	M	M	m	A	RMH Mobilehome Residential
RR	●	M		18		●	●	m	M	M	M	M	M	M	●	S	M	M	M	M	m	M	M	m	A	RR Rural Residential
RRO*	●	M		18		●	●	m	M	M	M	M	M	M	●	S			M	M	m	M	M	m	A	RRO* Recreation-Oriented Residential
RC	●	●		18		●	●		M	M	●	M	●	●	●	S	●		●	M	m	M	M	●	A	RC Residential-Commercial
COMMERCIAL																										
C30						●	●		●	●	●	M	●	●		●	S		●	M	M	m	●	M	●	A	C30 Office-Professional
C31	●	●				●	●		●	●	●	M	●	●		●	S	●	M	M	M	m	●	M	●	A	C31 Residential/Office Professional
C32	1					●	●	M	M	M	M	M	●		●	S		●	M	M	m	M	M	●	A	C32 Convenience Commercial
C34*	●	●				●	●		●	●	●	●	●		●	S	●	●	●	M	m	●	●	●	A	C34* Gen. Commercial/Residential
C35	M					●	●		●	●	●	●	●		●	S	●	●	●	M	m	●	●	●	A	C35 Gen. Comm.//Ltd. Residential
C36	1	M				●	●		●	●	●	●	●		●	S		●	●	M	●	●	●	●	A	C36 General Commercial
C37	1	M				●	●	●	●	●	●	●	●		●	S	●	●	●	M	●	●	●	●	A	C37 Heavy Commercial
C38	1					●	●		●	●	M	●	●	●	●	S		●	M	M	●	●	●	●	A	C38 Service Commercial
C40	1					●	●		●	●	●	●	●	●	●	S		●	●	M	m	●	●	●	A	C40 Rural Commercial
C42*	20					●	●								●						m	●			A	C42* Visitor Serving Commercial
C44						●	●	M	M	M	M	M	●		●	S		●	M	M	m	M	M	●	A	C44 Freeway Commercial
C46*						●	●	M	M	●	M	M	●		●	S	●	●	M	M	m	●	M	●	A	C46* Medical Center
INDUSTRIAL																										
M50						●	●	M	●	M	●	M	M	●	●	S		●	M	M	m	●	●	m	A	M50 Basic Industrial
M52						●	●	M	●	M	●	M	M	●	●	S		●	M	M	m	●	●	m	A	M52 Limited Impact Industrial
M54						●	●	M	●	M	●	M	M	●	●	S		●	M	M	●	●	●	m	A	M54 General Impact Industrial
M56+								M	●	M		M	M		●	S		●	M	M	●	●	●	m	A	M56+ Mixed Industrial
M58						●	●	M	●	M	●	M	M	●	●	S		●	M	M	●	●	●	m	A	M58 High Impact Industrial
AGRICULTURAL																										
A70	●	M		18		●	●	m	M	M	M	M	M	M		●	S	M	m	M	M	m	M	M	m	A	A70 Limited Agriculture
A72	●	M		18		●	●	m	M	M	M	M	M	M		●	S	M	S	M	M	m	M	M	m	A	A72 General Agriculture
SPECIAL PURPOSE																										
S80*	●					●	●		M	M	M	M	M	M		●	S			M	M	m	M	M	m	A	S80* Open Space
S81												O			O											S81 Ecological Resource Area
S82						●	●	M	M	M	M	M			●	S		m	M	M	m	M	M		A	S82 Extractive
S86						●	●								●	S		m			m	●			A	S86 Parking
S87+	●	M		M		●	●	m	M	M	M	M	M	M	●	S	M	m	m	M	m	M	M	m	A	S87+ Limited Control
S88+	●					●	●	●							●	S		m			m				A	S88+ Specific Plan Area
S90+	●	M				●	●	m	M	M	M	M	M	M	●	S	M	m	M	M	m	M	M	m	A	S90+ Holding Area
S92	●	M				●	●	m	M	M	M	M	M	M	●	S	M	S	M	M	m	M	M	m	A	S92 General Rural
S94+						●	●	m	M	M		M	M		●	S		m		M	m	m	M		A	S94+ Transportation & Utility Corridor
SWF																				●						SWF Solid Waste Facility

MATRIX LEGEND

- ● 1-22 Subject to Limitations (See Section 2980)
- A * May Be Subject to Site Plan Approval
- S + Other Uses Not Shown on Matrix May Be Permitted (See Text of Use Regulations)
- m O Subject to Limitations (See Sections 2812 and 2818)
- M [E] Exceptions to Enclosure Matrix (See Section 6814)
- P

USE & ENCLOSURE MATRIX

SUMMARY PREPARED PURSUANT TO SECTIONS 2990 AND 6816

NOTE: This matrix is a summary only. For complete regulations see appropriate sections of The Zoning Ordinance. In case of conflict between the provisions graphically represented in this matrix and the provisions set forth in the text of The Zoning Ordinance, the provisions of The Zoning Ordinance shall apply.

USE TYPES COMMERCIAL	1400	Enclosed	Semi-Enclosed	Open	Drive-In	1410 Administrative and Professional Services	6930 Adult Entertainment Establishments	1415 Agricultural & Horticultural Sales	a) Agricultural Sales	b) Horticultural Sales	1420 Agricultural Sales [E]	1425 Animal Sales and Services:	a) Auctioning	b) Grooming	c) Horse Stables	d) Kennels	e) Stockyards	f) Veterinary [Large Animal]	g) Veterinary [Small Animal]	1430 Automotive and Equipment:	a) Cleaning	b) Fuel Storage	c) Parking [E]	d) Repairs [Heavy Equipment]	e) Repairs [Light Equipment]	f) Sales/Rentals [Heavy Equipment]	g) Sales/Rentals [Farm Equipment]	h) Sales/Rentals [Light Equipment] [E]	i) Storage [Recreation Vehicles & Boats]	j) Storage [Nonoperating Vehicles]	*Commercial continued on next page*	Use Regulations
																																	RESIDENTIAL
RS					P			P	P					16	16								P										RS Single-Family Residential
RD					P			P	P					16	16								P										RD Duplex/Two-Family Residential
RM					P			P	P					16	16								P										RM Multi-Family Residential
RV					P			P	P					16	16								P										RV Variable Family Residential
RU					P			P	P					16	16								P										RU Urban Residential
RMH					P			P	P														P										RMH Mobilehome Residential
RR	●	●	●											16	16																			RR Rural Residential
RRO*	●	●	●		P			P	P					16	16				P				P											RRO* Recreation-Oriented Residential
RC	●	m	m		4			m	m				m	16	16				P				P											RC Residential-Commercial
																																		COMMERCIAL
C30	●			m	●									16	16								m											C30 Office-Professional
C31	●			m	●									16	16								m											C31 Residential/Office Professional
C32	●			m										16	16								m											C32 Convenience Commercial
C34*	●	m	M	m	●			●	●				●	16	16				M				●					m	●		M			C34* Gen. Commercial/Residential
C35	●	m	M	m	●			●	●				●	16	16				M				●					m	●		M			C35 Gen. Comm.//Ltd. Residential
C36	●	m	M	●	●			●	●	9			●	16	16				●		M		●	8	●			●	●		M			C36 General Commercial
C37	●	●	●	●	●			●	●	●			●	16	16				●		●	●	●	●	●	●	●	●	●	M	●			C37 Heavy Commercial
C38	●	●	●	●	●			●	●	●				16	16		●	●			●	●	●		●	●	●	●	●	M	●			C38 Service Commercial
C40	●	●	●	●	●			●	●	●		M	●	16	16	M	●	●			●	●	●	●	●	●	●	●	●	M	●			C40 Rural Commercial
C42*	●	●	●	●	20																													C42* Visitor Serving Commercial
C44	●	●	●	●										16	16																M			C44 Freeway Commercial
C46*	●													16	16																			C46* Medical Center
																																		INDUSTRIAL
M50	●	m	M	m	5	19								16	16								●											M50 Basic Industrial
M52	●	m	M	m	●	19		8	8					16	16						8		●	8	8	9	9	9						M52 Limited Impact Industrial
M54	●	●	●	●	●	19		●	●	14				16	16		●				●	●	●	●	●	●	●	●	●	M	●			M54 General Impact Industrial
M56+																						●	●	●	●	●	●	●						M56+ Mixed Industrial
M58	●	●	●	●	●	19		●	●	14				16	16	M	●				●	●	●	●	●	●	●	●	●	9	●			M58 High Impact Industrial
																																		AGRICULTURAL
A70	●	●	●					M	M					16	16		6	6																A70 Limited Agriculture
A72	●	●	●					M	M			M		16	16		6	6																A72 General Agriculture
																																		SPECIAL PURPOSE
S80*	●	S	M											16	16								M											S80* Open Space
S81																																		S81 Ecological Resource Area
S82	●	●	●											16	16															M				S82 Extractive
S86	●	●	●	●										16	16								●											S86 Parking
S87+	●	●	●	●	M			M	M	M		M	M	16	16	M	6	6			M	M	M	M	M	M	M	M	M	M	M	M			S87+ Limited Control
S88+	●	●	●	●										16	16																				S88+ Specific Plan Area
S90+	●	●	●	●				M	M	M																									S90+ Holding Area
S92	●	●	●					M	M					16	16		6	6																	S92 General Rural
S94+	●	●	●	●				M	M	M													m												S94+ Transportation & Utility Corridor
SWF																																			SWF Solid Waste Facility

MATRIX LEGEND

- ● Permitted
- A Permitted by Administrative Permit
- S Permitted by Site Plan
- m Permitted by Minor Use Permit
- M Permitted by Major Use Permit
- P Permitted Only Within Planned Developments of 20 Acres or Larger
- 1-22 Subject to Limitations (See Section 2980)
- * May Be Subject to Site Plan Approval
- + Other Uses Not Shown on Matrix May be Permitted (See Text of Use Regulations)
- O Subject to Limitations (See Sections 2812 and 2818)
- [E] Exceptions to Enclosure Matrix (See Section 6814)

USE & ENCLOSURE MATRIX

SUMMARY PREPARED PURSUANT TO SECTIONS 2990 AND 6816

NOTE: This matrix is a summary only. For complete regulations see appropriate sections of The Zoning Ordinance. In case of conflict between the provisions graphically represented in this matrix and the provisions set forth in the text of The Zoning Ordinance, the provisions of The Zoning Ordinance shall apply.

USE TYPES COMMERCIAL (cont.)	Enclosed	Semi-Enclosed	Open	Drive-in	1435 Building Maintenance Services	1440 Business Equipment Sales and Services	1445 Business Support Services	1450 Communications Services	1455 Construction Sales and Services (See Sec. 6300)	1460 Convenience Sales and Personal Services	1463 Cottage Industries (See Sec. 6920)	1464 Drug Paraphernalia Establishment	1465 Eating and Drinking Establishments	1470 Explosive Storage (See Sec. 6904)	1475 Financial, Insurance and Real Estate	1480 Food and Beverage Retail Sales [E]	1485 Funeral and Interment Services a) Cremating	b) Interring	c) Undertaking	1490 Gasoline Sales [E]	1495 Laundry Services	1500 Medical Services	Use Regulations
1400																							
RESIDENTIAL																							
RS							P			P			P		P	P						P	RS Single-Family Residential
RD							P			P			P		P	P						P	RD Duplex/Two-Family Residential
RM							P			P			P		P	P						P	RM Multi-Family Residential
RV							P			P			P		P	P						P	RV Variable Family Residential
RU							P			P			P		P	P						P	RU Urban Residential
RMH							P			P			P		P	P						P	RMH Mobilehome Residential
RR											17												RR Rural Residential
RRO*							P			M			M		P	M						P	RRO* Recreation-Oriented Residential
RC							P	P		m			m		11	m				P		4	RC Residential-Commercial
COMMERCIAL																							
C30							●	m		10			10		●	10			M			●	C30 Office-Professional
C31							●	m		10			10		●	10			M			●	C31 Residential/Office Professional
C32										●			●			●				M			C32 Convenience Commercial
C34*						7	●	●	8	●			●		●	●	M	M	M	12	13	●	C34* Gen. Commercial/Residential
C35						7	●	●	8	●			●		●	●	M	M	M	12	13	●	C35 Gen. Comm./Ltd. Residential
C36						7	●	●	8	●		21	●		●	●	M	M	●	12	13	●	C36 General Commercial
C37		●	●	●	●	●	●	●	●	●		21	●		●	●	M	M	●	●	●	●	C37 Heavy Commercial
C38		●	●	●	●	●	●	●	●	m			m			10	M			●	●		C38 Service Commercial
C40		●	●	●	●	●	●	●	9	●		21	●		●	●	M	M	●	●	●	●	C40 Rural Commercial
C42*							20			●			●		20					M			C42* Visitor Serving Commercial
C44													●							12			C44 Freeway Commercial
C46*										10			10			10						●	C46* Medical Center
INDUSTRIAL																							
M50										m			m			m							M50 Basic Industrial
M52					8	●	●	●	8	m			m			10	M			12	●		M52 Limited Impact Industrial
M54					●	●	●	●	●	m			m	M		10	M			●	●		M54 General Impact Industrial
M56+					●				●				10			10							M56+ Mixed Industrial
M58					●	●	●	●	●	m			m	M		10	M			●	●		M58 High Impact Industrial
AGRICULTURAL																							
A70											17			M									A70 Limited Agriculture
A72											17			M						M			A72 General Agriculture
SPECIAL PURPOSE																							
S80*														M									S80* Open Space
S81																							S81 Ecological Resource Area
S82														M									S82 Extractive
S86																							S86 Parking
S87+					M	M	M	M	M	M	17		M	M	M	M		M	M	M	M	M	S87+ Limited Control
S88+																							S88+ Specific Plan Area
S90+											17			M									S90+ Holding Area
S92											17			M									S92 General Rural
S94+																							S94+ Transportation & Utility Corridor
SWF																							SWF Solid Waste Facility

Commercial continued on next page

MATRIX LEGEND

- ● Permitted
- A Permitted by Administrative Permit
- S Permitted by Site Plan
- m Permitted by Minor Use Permit
- M Permitted by Major Use Permit
- P Permitted Only Within Planned Developments of 20 Acres or Larger
- 1-22 Subject to Limitations (See Section 2980)
- * May Be Subject to Site Plan Approval
- + Other Uses Not Shown on Matrix May be Permitted (See Text of Use Regulations)
- O Subject to Limitations (See Sections 2812 and 2818)
- E Exceptions to Enclosure Matrix (See Section 6814)

USE & ENCLOSURE MATRIX

SUMMARY PREPARED PURSUANT TO SECTIONS 2990 AND 6816

NOTE: This matrix is a summary only. For complete regulations see appropriate sections of The Zoning Ordinance. In case of conflict between the provisions graphically represented in this matrix and the provisions set forth in the text of The Zoning Ordinance, the provisions of The Zoning Ordinance shall apply.

USE TYPES COMMERCIAL (cont.)	Enclosed	Semi-Enclosed	Open	Drive-In	Participant Sports and Recreation: a) Indoor	b) Outdoor	Personal Services (General)	Recycling Collection Facility (See Sec. 6970): a) Small [E]	b) Large [L]	Recycling Processing Facility (See Sec. 6975): a) Light	b) Heavy	c) Wood and Green Materials	Repair Services (Consumer)	Research Services	Retail Sales: a) General	b) Specialty	Scrap Operations (See Section 6300)	Spectator Sports and Entertainment: a) Limited	b) General	Swap Meets	Use Regulations
1400				1505			1510	1512			1513				1515	1520	1525			1530	1535			1540	
RESIDENTIAL																									
RS					P	P	P		2									P	P			P			RS Single-Family Residential
RD					P	P	P		2									P	P			P			RD Duplex/Two-Family Residential
RM					P	P	P		2									P	P			P			RM Multi-Family Residential
RV					P	P	P		2									P	P			P			RV Variable Family Residential
RU					P	P	P		2									P	P			P			RU Urban Residential
RMH					P	P	P		2									P	P			P			RMH Mobilehome Residential
RR						M			2																RR Rural Residential
RRO*					P	M	P		2									P	P			P			RRO* Recreation-Oriented Residential
RC					P	P	P		2									m	m			P			RC Residential-Commercial
COMMERCIAL																									
C30							●		2	2		3	M			M									C30 Office-Professional
C31							●		2	2		3	M			M									C31 Residential/Office Professional
C32					m				2	2		3	M												C32 Convenience Commercial
C34*					m		●		2	2		3	M		●	M		●	●			M	M		C34* Gen. Commercial/Residential
C35					m		●		2	2		3	M		●	M		●	●			M	M		C35 Gen. Comm./Ltd. Residential
C36					●		●		2	2		3	M		●	M		●	●			●	M		C36 General Commercial
C37					●		●		2	2		3	3	15	●	●		●	●			●	●	M	C37 Heavy Commercial
C38					M				2	2		3	3	15	●	●				M			M	M	C38 Service Commercial
C40					●		●		2	2		3	3	15	●	●		●	●	M		●	M	M	C40 Rural Commercial
C42*					●	●													●			M	M		C42* Visitor Serving Commercial
C44									2			3	M												C44 Freeway Commercial
C46*									2			3	M												C46* Medical Center
INDUSTRIAL																									
M50									2	2		3	M	●		●									M50 Basic Industrial
M52					●	M			2	2		3	M	●		●									M52 Limited Impact Industrial
M54					●	M			2	2		3	3	●		●				M				M	M54 General Impact Industrial
M56+									2	2		3	M	●		●									M56+ Mixed Industrial
M58					●	M			2	2		3	3	●		●				M				M	M58 High Impact Industrial
AGRICULTURAL																									
A70						M			A					m											A70 Limited Agriculture
A72						M			A					m											A72 General Agriculture
SPECIAL PURPOSE																									
S80*						M			2	m				m											S80* Open Space
S81																									S81 Ecological Resource Area
S82						M			2	m				m						M					S82 Extractive
S86									2	m				m											S86 Parking
S87+					M	M	M		2	m				m	M	M		M	M	M		M	M	M	S87+ Limited Control
S88+									2	m				m											S88+ Specific Plan Area
S90+						M			2	m				m											S90+ Holding Area
S92						M			2	m				m											S92 General Rural
S94+						M			2	m				m											S94+ Transportation & Utility Corridor
SWF																									SWF Solid Waste Facility

Commercial continued on next page

MATRIX LEGEND

- ● Permitted
- A Permitted by Administrative Permit
- S Permitted by Site Plan
- m Permitted by Minor Use Permit
- M Permitted by Major Use Permit
- P *Permitted Only Within Planned Developments of 20 Acres or Larger*
- 1-22 Subject to Limitations (See Section 2980)
- * May Be Subject to Site Plan Approval
- + Other Uses Not Shown on Matrix May be Permitted (See Text of Use Regulations)
- O Subject to Limitations (See Sections 2812 and 2818)
- [E] Exceptions to Enclosure Matrix (See Section 6814)

USE & ENCLOSURE MATRIX

SUMMARY PREPARED PURSUANT TO SECTIONS 2990 AND 6816

NOTE: This matrix is a summary only. For complete regulations see appropriate sections of The Zoning Ordinance. In case of conflict between the provisions graphically represented in this matrix and the provisions set forth in the text of The Zoning Ordinance, the provisions of The Zoning Ordinance shall apply.

USE TYPES	COMMERCIAL (cont.)											INDUSTRIAL							
	1400	Enclosed	Semi-Enclosed	Open	1545	Drive-In Transient Habitation: a) Campground (See Section 6450)	b) Lodging	c) Resort (See Section 6400)	1550	Wholesaling, Storage and Distribution: a) Mini Warehouse (See Section 6909)	b) Light	c) Heavy	1600	Enclosed	Semi-Enclosed	Open	1610	Custom Manufacturing	1620	General Industrial	1630	Heavy Industrial	Use Regulations
RESIDENTIAL																							
RS																							RS Single-Family Residential
RD																							RD Duplex/Two-Family Residential
RM										M													RM Multi-Family Residential
RV										M													RV Variable Family Residential
RU																							RU Urban Residential
RMH																							RMH Mobilehome Residential
RR					M		M			M													RR Rural Residential
RRO*					M		M																RRO* Recreation-Oriented Residential
RC						m				M							m						RC Residential-Commercial
COMMERCIAL																							
C30																							C30 Office-Professional
C31																							C31 Residential/Office Professional
C32																	m						C32 Convenience Commercial
C34*					M	●											●						C34* Gen. Commercial/Residential
C35					M	●											●						C35 Gen. Comm./Ltd. Residential
C36					M	●				M	M						●						C36 General Commercial
C37					M	●				●	8	M					●		15				C37 Heavy Commercial
C38										●	8	M					●		15				C38 Service Commercial
C40					M	●				●	8	M					●		15				C40 Rural Commercial
C42*					●	●		●															C42* Visitor Serving Commercial
C44					M	●																	C44 Freeway Commercial
C46*																							C46* Medical Center
INDUSTRIAL																							
M50											8	M					●		14				M50 Basic Industrial
M52					M					●	8	M					●		14				M52 Limited Impact Industrial
M54					M					●	8	14					●		14				M54 General Impact Industrial
M56+										●	●	●					●		●				M56+ Mixed Industrial
M58										●	8	14					●		14		M		M58 High Impact Industrial
AGRICULTURAL																							
A70					M			M															A70 Limited Agriculture
A72					M			M															A72 General Agriculture
SPECIAL PURPOSE																							
S80*																							S80* Open Space
S81																							S81 Ecological Resource Area
S82																							S82 Extractive
S86																							S86 Parking
S87+					M	M	M			M	M	M					M	M	M				S87+ Limited Control
S88+																							S88+ Specific Plan Area
S90+					M		M																S90+ Holding Area
S92					M		M																S92 General Rural
S94+					M																		S94+ Transportation & Utility Corridor
SWF																							SWF Solid Waste Facility

MATRIX LEGEND

- ● Permitted
- A Permitted by Administrative Permit
- S Permitted by Site Plan
- m Permitted by Minor Use Permit
- M Permitted by Major Use Permit
- P Permitted Only Within Planned Developments of 20 Acres or Larger
- 1-22 Subject to Limitations (See Section 2980)
- * May Be Subject to Site Plan Approval
- + Other Uses Not Shown on Matrix May Be Permitted (See Text of Use Regulations)
- O Subject to Limitations (See Sections 2812 and 2818)
- E Exceptions to Enclosure Matrix (See Section 6814)

USE & ENCLOSURE MATRIX

SUMMARY PREPARED PURSUANT TO SECTIONS 2990 AND 6816

NOTE: This matrix is a summary only. For complete regulations see appropriate sections of The Zoning Ordinance. In case of conflict between the provisions graphically represented in this matrix and the provisions set forth in the text of The Zoning Ordinance, the provisions of The Zoning Ordinance shall apply.

USE TYPES / AGRICULTURAL 1700	Enclosed / Semi-Enclosed / Open	Horticulture 1710	(a) Cultivation	(b) Storage	Tree Crops 1715	Row & Field Crops 1720	Animal Raising 1725	Animal Waste Processing (see Section 6902) 1730	Packing and Processing 1735	a) Limited	b) General	c) Support	d) Winery	e) Boutique Winery (see Section 6910)	f) Wholesale Limited Winery	Agricultural Equipment Storage 1740	Farm Labor Camp 1750	EXTRACTIVE 1800	Mining and Processing (See Section 6550) 1810	Site Preparation 1820	Use Regulations
	[redacted]																				**RESIDENTIAL**
RS	[redacted]		●		●	●	16													M	RS Single-Family Residential
RD	[redacted]		●		●	●	16													M	RD Duplex/Two-Family Residential
RM	[redacted]		●		●	●	16													M	RM Multi-Family Residential
RV	[redacted]		●		●	●	16													M	RV Variable Family Residential
RU	[redacted]		●		●	●	16													M	RU Urban Residential
RMH	[redacted]		●		●	●	16													M	RMH Mobilehome Residential
RR	[redacted]		●	●	●	●	16			M			M				m		M		RR Rural Residential
RRO*	[redacted]		●		●	●	16			M			M							M	RRO* Recreation-Oriented Residential
RC	[redacted]		●		●	●	16						M							M	RC Residential-Commercial
	[redacted]																				**COMMERCIAL**
C30	[redacted]						16													M	C30 Office-Professional
C31	[redacted]						16													M	C31 Residential/Office Professional
C32	[redacted]		●	m	●	●	16													M	C32 Convenience Commercial
C34*	[redacted]		●	●	●	●	16													M	C34* Gen. Commercial/Residential
C35	[redacted]		●	●	●	●	16													M	C35 Gen. Comm.//Ltd. Residential
C36	[redacted]		●	●	●	●	16													M	C36 General Commercial
C37	[redacted]		●	●	●	●	16												M		C37 Heavy Commercial
C38	[redacted]		●	●	●	●	16													M	C38 Service Commercial
C40	[redacted]		●	●	●	●	16													M	C40 Rural Commercial
C42*	[redacted]		●	●	●	●														M	C42* Visitor Serving Commercial
C44	[redacted]		●	●	●	●	16													M	C44 Freeway Commercial
C46*	[redacted]		●		●	●	16													M	C46* Medical Center
	[redacted]																				**INDUSTRIAL**
M50	[redacted]		●	●	●	●	16			●	●		●							M	M50 Basic Industrial
M52	[redacted]		●	●	●	●	16			●	●		●							M	M52 Limited Impact Industrial
M54	[redacted]		●	●	●	●	16			●	●		●							M	M54 General Impact Industrial
M56+	[redacted]									●	●	●	●								M56+ Mixed Industrial
M58	[redacted]		●	●	●	●	16	M		●	●		●						M	M	M58 High Impact Industrial
	[redacted]																				**AGRICULTURAL**
A70	[redacted]		●	●	●	●	16			●	M	M	M	22	●	M	m		M		A70 Limited Agriculture
A72	[redacted]		●	●	●	●	16	M		●	M	M	M	22	●	M	m		M		A72 General Agriculture
	[redacted]																				**SPECIAL PURPOSE**
S80*	[redacted]		●	●	●	●	16			●							m		M		S80* Open Space
S81	[redacted]						M													M	S81 Ecological Resource Area
S82	[redacted]		●	●	●	●	16												M		S82 Extractive
S86	[redacted]																			M	S86 Parking
S87+	[redacted]		●	●	●	●	16	M		●	M	M	M				m		M	M	S87+ Limited Control
S88+	[redacted]		●	●	●	●	16			●	M	M	M				m			M	S88+ Specific Plan Area
S90+	[redacted]		●	●	●	●	16			●							m		M		S90+ Holding Area
S92	[redacted]		●	●	●	●	16	M		●	M	M	M				m		M		S92 General Rural
S94+	[redacted]		●	●	●	●	16												M		S94+ Transportation & Utility Corridor
SWF	[redacted]																				SWF Solid Waste Facility

MATRIX LEGEND

●	Permitted	1-22	Subject to Limitations (See Section 2980)
A	Permitted by Administrative Permit	*	May Be Subject to Site Plan Approval
S	Permitted by Site Plan	+	Other Uses Not Shown on Matrix May be Permitted (See Text of Use Regulations)
m	Permitted by Minor Use Permit		
M	Permitted by Major Use Permit	O	Subject to Limitations (See Sections 2812 and 2818)
P	Permitted Only Within Planned Developments of 20 Acres or Larger	E	Exceptions to Enclosure Matrix (See Section 6814)

APPENDIX P-1

Risk Assessment Tables

Table P-1.1
Pio Pico Energy Center
Annual and Maximum Hourly Non-Criteria Pollutant Emissions from Turbines (per turbine)

CAS No.	Pollutant	Emission Factor lb/MMSCF	Source	Emission Factor lb/MMBtu	Turbine Max firing rate MMBtu/hr	Turbine Operating Hours hours/yr	Turbine Emissions lbs/hr	Turbine Emissions tons/yr	Hourly Emission Rate g/sec	Annual Emission Rate g/sec
7664417	Ammonia	7	SDAPCD Permit	6.87E-03	890.2	4337	6.12E+00	1.33E+01	7.71E-01	3.81E-01
115071	Propylene	3.86E-01	District workbook	3.78E-04	890.2	4337	3.37E-01	7.30E-01	4.24E-02	2.10E-02
	Hazardous Air Pollutants (HAPs, federal)									
75070	Acetaldehyde	2.04E-02	0.5*AP-42[1]	2.00E-05	890.2	4337	1.78E-02	3.86E-02	2.25E-03	1.11E-03
107028	Acrolein	3.27E-03	0.5*AP-42[1]	3.21E-06	890.2	4337	2.86E-03	6.19E-03	3.60E-04	1.78E-04
71432	Benzene	6.10E-03	0.5*AP-42[1]	5.99E-06	890.2	4337	5.33E-03	1.16E-02	6.71E-04	3.32E-04
106990	1,3-Butadiene	2.20E-04	0.5*AP-42[7]	2.15E-07	890.2	4337	1.92E-04	4.16E-04	2.42E-05	1.20E-05
100414	Ethylbenzene	1.63E-02	0.5*AP-42[1]	1.60E-05	890.2	4337	1.42E-02	3.09E-02	1.79E-03	8.88E-04
50000	Formaldehyde	4.59E-01	CATEF	4.50E-04	890.2	4337	4.01E-01	8.69E-01	5.05E-02	2.50E-02
110543	Hexane, n-	1.30E-01	CATEF	1.27E-04	890.2	4337	1.13E-01	2.45E-01	1.43E-02	7.06E-03
91203	Naphthalene	6.65E-04	0.5*AP-42[1]	6.53E-07	890.2	4337	5.81E-04	1.26E-03	7.32E-05	3.62E-05
	PAHs (listed individually below)	3.28E-04	SUM	3.22E-07	890.2	4337	2.86E-04	6.21E-04	3.61E-05	1.79E-05
83329	*Acenaphthene*	*9.50E-06*	*CATEF*	*9.32E-09*	*890.2*	*4337*	*8.30E-06*	*1.80E-05*	*1.05E-06*	*5.18E-07*
208968	*Acenapthyene*	*7.35E-06*	*CATEF*	*7.21E-09*	*890.2*	*4337*	*6.42E-06*	*1.39E-05*	*8.09E-07*	*4.01E-07*
120127	*Anthracene*	*1.69E-05*	*CATEF*	*1.66E-08*	*890.2*	*4337*	*1.48E-05*	*3.20E-05*	*1.86E-06*	*9.21E-07*
56553	*Benzo(a)anthracene*	*1.13E-05*	*CATEF*	*1.11E-08*	*890.2*	*4337*	*9.87E-06*	*2.14E-05*	*1.24E-06*	*6.16E-07*
50328	*Benzo(a)pyrene*	*6.95E-06*	*CATEF*	*6.82E-09*	*890.2*	*4337*	*6.07E-06*	*1.32E-05*	*7.65E-07*	*3.79E-07*
192972	*Benzo(e)pyrene*	*2.72E-07*	*CATEF*	*2.67E-10*	*890.2*	*4337*	*2.38E-07*	*5.15E-07*	*2.99E-08*	*1.48E-08*
205992	*Benzo(b)fluoranthrene*	*5.65E-06*	*CATEF*	*5.54E-09*	*890.2*	*4337*	*4.94E-06*	*1.07E-05*	*6.22E-07*	*3.08E-07*
207089	*Benzo(k)fluoranthrene*	*5.50E-06*	*CATEF*	*5.40E-09*	*890.2*	*4337*	*4.81E-06*	*1.04E-05*	*6.05E-07*	*3.00E-07*
191242	*Benzo(g,h,i)perylene*	*6.85E-06*	*CATEF*	*6.72E-09*	*890.2*	*4337*	*5.98E-06*	*1.30E-05*	*7.54E-07*	*3.73E-07*
218019	*Chrysene*	*1.26E-05*	*CATEF*	*1.24E-08*	*890.2*	*4337*	*1.10E-05*	*2.39E-05*	*1.39E-06*	*6.87E-07*
53703	*Dibenz(a,h)anthracene*	*1.18E-05*	*CATEF*	*1.15E-08*	*890.2*	*4337*	*1.03E-05*	*2.23E-05*	*1.29E-06*	*6.40E-07*
206440	*Fluoranthene*	*2.16E-05*	*CATEF*	*2.12E-08*	*890.2*	*4337*	*1.89E-05*	*4.09E-05*	*2.38E-06*	*1.18E-06*
86737	*Fluorene*	*2.90E-05*	*CATEF*	*2.85E-08*	*890.2*	*4337*	*2.53E-05*	*5.49E-05*	*3.19E-06*	*1.58E-06*
193395	*Indeno(1,2,3-cd)pyrene*	*1.18E-05*	*CATEF*	*1.15E-08*	*890.2*	*4337*	*1.03E-05*	*2.23E-05*	*1.29E-06*	*6.40E-07*
85018	*Phenanthrene*	*1.57E-04*	*CATEF*	*1.54E-07*	*890.2*	*4337*	*1.37E-04*	*2.97E-04*	*1.73E-05*	*8.56E-06*
129000	*Pyrene*	*1.39E-05*	*CATEF*	*1.36E-08*	*890.2*	*4337*	*1.21E-05*	*2.63E-05*	*1.53E-06*	*7.58E-07*
75569	Propylene oxide	1.48E-02	0.5*AP-42[1]	1.45E-05	890.2	4337	1.29E-02	2.80E-02	1.63E-03	8.06E-04
108883	Toluene	6.65E-02	0.5*AP-42[1]	6.53E-05	890.2	4337	5.81E-02	1.26E-01	7.32E-03	3.62E-03
1210	Xylene	3.27E-02	0.5*AP-42[1]	3.20E-05	890.2	4337	2.85E-02	6.19E-02	3.59E-03	1.78E-03
	HAP Total =						**0.655**	**1.419**		

Table P-1.2
Pio Pico Energy Center
Annual and Maximum Hourly Non-Criteria Pollutant Emissions from Cooling Tower (total)

Cast. No.	Pollutant	TAC concentration makeup water ug/liter	Cooling Tower circulating water ug/liter	Cooling Tower Max circulation gpm	Operating Hours hours/yr	Totsl Per Cell				Hourly Emission Rate g/sec	Annual Emission Rate g/sec
						Cooling Tower Emissions lbs/hr	Cooling Tower Emissions tons/yr	Cooling Tower Emissions lbs/hr	Cooling Tower Emissions tons/yr		
7440382	Arsenic	1.80E+00	8.41E+00	14,000	4,337	5.89E-08	1.28E-07	4.91E-09	1.06E-08	7.43E-09	3.68E-09
56235	Carbon Tetrachloride	2.10E+00	9.81E+00	14,000	4,337	6.88E-08	1.49E-07	5.73E-09	1.24E-08	8.66E-09	4.29E-09
7782505	Chlorine	2.30E+05	1.07E+06	14,000	4,337	7.53E-03	1.63E-02	6.28E-04	1.36E-03	9.49E-04	4.70E-04
7440473	Chromium	2.80E+00	1.31E+01	14,000	4,337	9.17E-08	1.99E-07	7.64E-09	1.66E-08	1.16E-08	5.72E-09
7440508	Copper*	6.50E+00	3.04E+01	14,000	4,337	2.13E-07	4.61E-07	1.77E-08	3.85E-08	2.68E-08	1.33E-08
1101	Fluoride*	1.10E+03	5.14E+03	14,000	4,337	3.60E-05	7.82E-05	3.00E-06	6.51E-06	4.54E-06	2.25E-06
7439921	Lead	8.60E-01	4.02E+00	14,000	4,337	2.82E-08	6.11E-08	2.35E-09	5.09E-09	3.55E-09	1.76E-09
	HAP Total =					**0.0076**	**0.0164**	**0.0006**	**0.0014**		

TAC = toxic air contaminants
HAP = hazardous air pollutants
Bg/liter = micrograms per liter
lb = pound
The maximum concentration for each TAC in makeup water as determined from the highest water samples collected from Otay Water District's Ralph W. Chapman Water Recycling Facility effluent in 2007, 2008, and 2009.
Cycles of concentration = 4.67
Drift rate = 0.0001%

Table P-1.3
Pio Pico Energy Center
Stack Parameters for HRA Modeling

Case/Year	Stack height feet	Stack Diam feet	Stack flow wacfm	Stack Vel ft/sec	Stack Temp deg F	Stack Height meters	Stack Diam meters	Stack flow m3/sec	Stack Vel m/sec	Stack Temp deg K
Turbines: Cold Low / All met data used	100	14.5	645,580	65.16	802	30.48	4.42	414.3	27.0	700.9
Cooling Tower (per cell)	22	13	268,650	33.73	86	6.71	3.96	126.8	10.3	303.2

Comparison of Impacts of Specified Pollutants with 8-hour RELs

The District also requested that predicted impacts of certain pollutants be compared with the 8-hour RELs published by OEHHA. The maximum 8-hour concentrations for these pollutants were calculated by multiplying the highest 8-hour unit impact factor from the turbine impact screening runs (see Table G-4.4, excerpted below as Table P-1.4) times the emission rate for each pollutant. The result is the 8-hour concentration (in µg/m^3), which can be compared with the REL. Table P-1.6 shows that the project impacts are below the 8-hour RELs.

Table P-1.4
Modeling Unit Impacts
Pio Pico Energy Center

Operating Mode/Year	8-hr unit Conc. (µg/m3)
2008 Met Data	
Startup/shutdown	5.7689
1. Hot Base	5.0529
2. Avg Base	4.9330
3. Cold Base	5.0247
4. Hot Low	5.7689
5. Avg Low	6.3693
6. Cold Low	6.3948
2007 Met Data	
Startup/shutdown	5.3818
1. Hot Base	5.0009
2. Avg Base	4.9220
3. Cold Base	4.9815
4. Hot Low	5.3818
5. Avg Low	5.8517
6. Cold Low	5.8820
2006 Met Data	
Startup/shutdown	7.0322
1. Hot Base	6.2762
2. Avg Base	6.1252
3. Cold Base	6.2393
4. Hot Low	7.0322
5. Avg Low	7.6959
6. Cold Low	**7.7377**

Table P-1.5
Calculation of Maximum 8-hour Concentration for Compounds with 8-Hour RELs

Pollutant	Emission rate (g/sec)	Unit Impact (µg/m^3) per (g/sec)	Maximum 8-hour Average Concentration (µg/m^3)
Acetaldehyde	2.25E-03	7.7337	1.74E-02
Acrolein	3.60E-04	7.7337	2.79E-03
Formaldehyde	5.05E-02	7.7337	3.91E-01

Table P-1.6
Comparison of Maximum 8-Hour Average Impacts from Project Operation with 8-Hour RELs

Pollutant	8-hour REL[1] (µg/m^3)	Maximum 8-hour Average Concentration (µg/m^3)	Complies? (Y/N)
Acetaldehyde	300	0.02	Y
Acrolein	0.7	0.003	Y
Formaldehyde	9	0.4	Y

Notes:

[1]OEHHA, *Table of All Acute, Chronic and 8 hour Reference Exposure Levels*, http://www.oehha.ca.gov/air/allrels.html (December 18, 2008)

Diesel Health Risks from Construction Activities

Construction of the PPEC is expected to take approximately 16 months. No significant public health effects are expected during construction. Strict construction practices that incorporate safety and compliance with applicable LORS will be followed. In addition, mitigation measures to reduce air emissions from construction impacts will be implemented as described in Section 5.2.

The dominant emission with potential health risk is diesel particulate matter (DPM) from combustion of diesel fuel in construction equipment (e.g., cranes, dozers, excavators, graders, front-end loaders, backhoes). DPM emissions from on-site construction are summarized in Table P-1.7.

Table P-1.7
MAXIMUM ONSITE CONSTRUCTION DPM EMISSIONS

Emitting Activity	Pounds per Day	Tons per Year
Construction Equipment	1.6	0.2

This HRA was performed in accordance with OEHHA (2003) guidance, which requires adjusting the 70-year lifetime dosage to an exposure period of 9 years (despite the fact that project construction will only last 16 months). The resulting maximum off-property cancer risk is located at the project's fenceline, a workplace receptor. When the dosage is adjusted to account for the reduced period of time that a worker is present (8 hours per day, 245 days per year), the calculated risk from this temporary activity is 3.2 in one million. This is below the significance threshold of 10 in one million.

TABLE P-1.8
MAXIMUM MODELED CONSTRUCTION IMPACTS

	Impact, µg/m^3		
Pollutant	**2006**	**2007**	**2008**
Annual Combustion DPM	0.208	0.205	0.196

TABLE P-1.9
MAXIMUM CONSTRUCTION DIESEL RISK CALCULATIONS

Annual Avg DPM concentration at PMI (µg/m^3)	Unit Risk (µg/m^3)$^{-1}$	Duration Exposure Adjustment	Residential Risk at PMI	Worker Exposure Adjustment	Worker Risk at PMI
0.208	5.28E-04	0.129	1.41E-05	0.223	3.15E-06

Notes:
All combustion PM2.5 is assumed to be DPM
DPM = Diesel Particulate Matter
Unit Risk = (Lifetime Dose Response) * (Breathing Rate) = (1.1 mg/kg)$^{-1}$ * (581 l/day per kg of body weight)
Duration Exposure Adjustment = 9 years/70 years
Worker Exposure Adjustment = (245 days per year) * (8 hours per day) / (365 days per year) * (24 hours per day)

Because the offsite particulate impacts fall off sharply with distance from the facility, the residential risk at the nearest residential receptor, more than 1.4 km away, will be well below the significance threshold, as shown in Table P-1.10.

TABLE P-1.10
MAXIMUM CONSTRUCTION DIESEL RISK CALCULATIONS

Annual Avg DPM concentration at MEIR (µg/m^3)	Unit Risk (µg/m^3)$^{-1}$	Duration Exposure Adjustment	Residential Risk at MEIR
0.00041	5.28E-04	0.129	2.79E-08

Notes:
All combustion PM2.5 is assumed to be DPM
DPM = Diesel Particulate Matter
Unit Risk = (Lifetime Dose Response) * (Breathing Rate) = (1.1 mg/kg)$^{-1}$ * (581 l/day per kg of body weight)
Duration Exposure Adjustment = 9 years/70 years

APPENDIX G-4

Modeling Analysis

Table G-4.1

Screening Modeling Inputs

Pio Pico Energy Center (Revised 3/8/2011)

Operating Mode	Ambient Temp deg F	Stack height feet	Stack Diam feet	Stack flow wacfm	Stack Vel ft/sec	Stack Temp deg F	Stack Height meters	Stack Diam Meters	Stack flow m3/sec	Stack Vel m/sec	Stack Temp deg K
				~~733,309~~	~~74.01~~	~~825~~			~~346.13~~	~~22.56~~	~~713.8~~
Startup/shutdown	30	100	14.5	645,580	65.16	820	30.48	4.4196	304.72	19.86	711.2
Hot Peak	110	100	14.5	877,825	88.60	802	30.48	4.4196	414.34	27.01	700.9
Avg Peak	63	100	14.5	913,717	92.22	785	30.48	4.4196	431.28	28.11	691.2
Cold Peak	30	100	14.5	909,632	91.81	754	30.48	4.4196	429.36	27.98	674.0
Hot Low	122	100	14.5	733,309	74.01	825	30.48	4.4196	346.13	22.56	713.8
Avg Low	63	100	14.5	646,428	65.24	831	30.48	4.4196	305.12	19.89	717.2
Cold Low	30	100	14.5	645,580	65.16	820	30.48	4.4196	304.72	19.86	711.2

Operating Mode	NOx lb/hr	CO lb/hr	SOx lb/hr	PM10 lb/hr	NOx g/sec	CO g/sec	SOx g/sec	PM10 g/sec
Startup/Shutdown	26.63	53.51			3.36	6.74		
Hot Peak	7.72	7.52	1.79	5.50	0.97	0.95	0.23	0.69
Avg Peak	8.18	7.97	1.90	5.50	1.03	1.00	0.24	0.69
Cold Peak	8.07	7.86	1.87	5.50	1.02	0.99	0.24	0.69
Hot Low	5.92	5.77	1.38	5.50	0.75	0.73	0.17	0.69
Avg Low	4.94	4.82	1.15	5.50	0.62	0.61	0.14	0.69
Cold Low	4.92	4.79	1.14	5.50	0.62	0.60	0.14	0.69

Table G-4.2

Startup Modeling Inputs

Pio Pico Energy Center (Revised 3/8/2011)

Case	Amb Temp deg F	Stack height feet	Stack Diam feet	Stack flow wacfm	Stack Vel ft/sec	Stack Temp deg F	Stack Height meters	Stack Diam meters	Stack flow m3/sec	Stack Vel m/sec	Stack Temp deg K
~~Hot Low~~	~~122~~	~~100~~	~~14.5~~	~~733,309~~	~~74.01~~	~~825.1~~	~~30.48~~	~~4.42~~	~~346.13~~	~~22.56~~	~~713.8~~
Cold Low	30	100	14.5	645,580	65.16	820	30.48	4.42	304.72	19.86	711.2

Table G-4.4
Screening Modeling Results
Pio Pico Energy Center (Revised 3/8/2011)

Operating Mode/Year	Conc. (ug/m3) NO2 1-hr	Conc. (ug/m3) CO 1-hr	Conc. (ug/m3) SO2 1-hr	Conc. (ug/m3) SO2 3-hr	Conc. (ug/m3) CO 8-hr	Conc. (ug/m3) PM10 24-hr	Conc. (ug/m3) SO2 24-hr	Conc. (ug/m3) NO2 Annual	Conc. (ug/m3) PM10 Annual	Conc. (ug/m3) SO2 Annual
2008 Met Data										
Startup/shutdown	~~100.3~~ 110.5	~~201.6~~ 222.1	0.0	0.0	~~38.9~~ 43.1	0.0	0.0	N/A	N/A	N/A
Hot Peak	25.7	25.0	6.0	2.3	4.8	1.3	0.4	0.25	0.18	0.06
Avg Peak	26.5	25.8	6.2	2.4	5.0	1.3	0.5	0.26	0.18	0.06
Cold Peak	**26.6**	**25.9**	**6.2**	2.4	5.0	1.3	0.5	0.26	0.18	0.06
Hot Low	22.3	21.7	5.2	2.0	4.2	1.5	0.4	0.23	0.22	0.05
Avg Low	20.4	19.9	4.7	1.8	3.9	1.7	0.4	0.22	0.25	0.05
Cold Low	20.4	19.9	4.7	1.8	3.9	1.7	0.4	0.22	0.25	0.05
2007 Met Data										
Startup/shutdown	~~89.0~~ 98.1	~~178.7~~ 192.1	0.0	0.0	~~36.3~~ 39.7	0.0	0.0	N/A	N/A	N/A
Hot Peak	22.7	22.1	5.3	2.1	4.7	1.3	0.4	0.26	0.18	0.06
Avg Peak	23.4	22.8	5.4	2.2	4.9	1.3	0.5	0.27	0.18	0.06
Cold Peak	23.5	22.9	5.5	2.2	4.9	1.3	0.5	0.27	0.18	0.06
Hot Low	19.8	19.3	4.6	1.8	3.9	1.5	0.4	0.22	0.20	0.05
Avg Low	18.1	17.6	4.2	1.7	3.6	1.6	0.3	0.20	0.23	0.05
Cold Low	18.1	17.6	4.2	1.7	3.5	1.6	0.3	0.20	0.23	0.05
2006 Met Data										
Startup/shutdown	~~95.6~~ 110.2	~~192.0~~ 221.4	0.0	0.0	~~47.4~~ 52.2	0.0	0.0	N/A	N/A	N/A
Hot Peak	24.8	24.1	5.8	3.1	5.9	1.9	0.6	0.29	0.21	0.07
Avg Peak	25.8	25.1	6.0	3.2	6.1	1.9	0.6	0.30	0.20	0.07
Cold Peak	25.8	25.1	6.0	**3.2**	**6.2**	1.9	**0.6**	**0.30**	0.21	**0.07**
Hot Low	21.2	20.7	4.9	2.7	5.1	2.3	0.6	0.25	0.23	0.06
Avg Low	20.3	19.8	4.7	2.4	4.7	2.6	0.5	0.23	0.26	0.05
Cold Low	20.3	19.8	4.7	2.4	4.7	**2.6**	0.5	0.23	**0.26**	0.05

APPENDIX G-5

Evaluation of Best Available Control Technology (BACT)

TABLE G-5.1
Recent NOx BACT Determinations for Simple-Cycle Combustion Turbines[1]
(Revised 3/8/2011)

Facility	District	NOx Limit[2]	Averaging Prd	Control Method Used	Date Permit Issued	Source
TID Almond 2 Power Plant	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	2/16/10	FDOC
El Cajon Energy, LLC	SCDAPCD	2.5 ppmvd	1 hr	water injection and SCR	12/11/09	ATC
Miramar Energy Facility II	SDCAPCD	2.5 ppmvd	3 hrs	water injection and SCR	11/4/08	ATC
Orange Grove Energy, LLP	SCDAPCD	2.5 ppmvd	1 hr	water injection and SCR	12/4/08 (FDOC)	CEC Siting Div website
Starwood Midway Firebaugh/Panoche	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	9/5/07 (FDOC)	CEC Siting Div website
EIF Panoche	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	7/13/07 (FDOC)	CEC Siting Div website
San Francisco Electric Reliability Project	BAAQMD	2.5 ppmvd	1 hr	water injection and SCR	2/8/06 (FDOC)	CEC Siting Div website
EI Colton	SCAQMD	3.5 ppmvd	3 hrs	water injection and SCR	1/10/03	SCAQMD website
MID Ripon	SJVAPCD	2.5 ppmvd	3 hrs	water injection and SCR	2004	ATC

Note:
1. All projects listed here utilize GE LM6000-model units except Starwood Midway, which utilizes P&W FT8-3 SwiftPacs and EIF Panoche, which uses GE LMS 100 CTGs.
2. All concentrations expressed as parts per million by volume dry, corrected to 15% O_2.

TABLE G-5.4
Summary of BACT Determinations (CEC Decisions)
(Revised 3/8/2011)

Facility/District	Decision Date	Equipment/Rating	NOx Limit/ Control Technology	CO Limit/Control Technology	VOC Limit/Control Technology
TID Almond 2 Power Plant Ceres, CA	December 2010	GE LM6000 Sprint PG 3 turbines, 174 MW	2.5 ppm Ultra-low NOx burners, water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Canyon Power Plant Orange Co., CA	March 2010	GE LM6000 Sprint PC 4 turbines, 200 MW total	2.5 ppm Ultra-low NOx burners, water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Orange Grove Energy, LLP	December 2008	GE LM6000 Sprint PC 2 turbines, 96 MW total	2.5 ppm Ultra-low NOx burners, water injection and SCR	n/a	2.0 ppm Oxidation catalyst
Starwood Power-Midway Fresno Co., CA	January 2008	Pratt & Whitney FT8-3 SwiftPac 2 turbines, 120 MW total	2.5 ppm Water injection and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Panoche Energy Project Fresno Co., CA	December 2007	GE LMS100 4 turbines, 400 MW total	2.5 ppm Water injection and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
San Francisco Electric Reliability Project Power Plant San Francisco Co., CA	October 2006	GE LM6000 Sprint PC 3 turbines, 145 MW total	2.5 ppm Water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Niland Power Plant Imperial County, CA	October 2006	GM LM6000 Sprint PC 2 turbines, 93 MW total	2.5 ppm Dry low-NOx burners and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst

TABLE G-5.7
Proposed BACT Determinations for PPEC Simple-Cycle Gas Turbines
(Revised 3/8/2011)

Pollutant	Proposed BACT Determination
Nitrogen Oxides	Water injection and SCR system, 2.5 ppmc[a], 1-hour average~~, with excursions under specific conditions~~; no CCS
Sulfur Dioxide	Natural gas fuel (sulfur content not to exceed 0.75 grain/100 scf short-term average, 0.25 grains/100 scf long-term average)
Carbon Monoxide	Good combustion practices and oxidation catalyst, 4.0 ppmc, 1-hour average
VOC	Good combustion practices, 2.0 ppmc, 1-hour average
PM_{10}	Natural gas fuel, 5.5 PM_{10} lbs/hr
$PM_{2.5}$	Natural gas fuel, 5.5 $PM_{2.5}$ lbs/hr
Startup/Shutdown	Best operating practices to minimize startup/shutdown times and emissions
GHGs	LMS 100 simple-cycle gas turbine technology, good combustion practices

Note:
a. ppmc: parts per million by volume, corrected to 15% O_2

APPENDIX G-7

Compliance Demonstration Federal NO_2 and $PM_{2.5}$ Standards

Table G-7.1
Emission Rates and Stack Parameters for Refined Modeling (Revised 3/8/2011)

Case/Year	Stack Height meters	Stack Diam meters	Stack flow m^3/sec	Stack Vel m/sec	Stack Temp deg K	Emission rates, lb/hr		Emission rates, g/s	
						NOx	PM_{10}	NOx	PM_{10}
Averaging Period: One hour Startup NOx									
~~Hot Low~~			~~346.13~~	~~22.56~~	~~713.8~~				
Cold Low	30.48	4.42	414.34	27.01	700.9	26.63	n/a	3.36	n/a
Averaging Period: 24-hour PM2.5									
Cold Low	30.48	4.42	414.34	27.01	700.9	n/a	5.50	n/a	0.69

Table G-7.2
Results of Compliance Demonstration (Revised 3/8/2011)

Pollutant	Averaging Time	Maximum Predicted Impact (operating mode) ($\mu g/m^3$)	Maximum Background Concentration ($\mu g/m^3$)	3 year Average of 98th Percentile of Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hr	~~79~~111 (startup)	154	~~156~~159	188	339
$PM_{2.5}$	24-hr	2.6 (normal)	45.7	~~25.8~~25.9	35	

APPENDIX P-1

Risk Assessment Tables

Table P-1.1A
Pio Pico Energy Center
Hourly Non-Criteria Pollutant Emissions from Turbines during Startup (per turbine) (Added 3/8/2011)

CAS No.	Pollutant	Emission Factor lb/MMSCF	Source	Emission Factor lb/MMBtu	Turbine Max firing rate MMBtu/hr	Turbine Startup Emissions lbs/hr	Hourly Emission Rate g/sec
7664417	Ammonia	7	SDAPCD Permit	6.87E-03	890.2	6.12E+00	7.71E-01
115071	Propylene	3.86E-01	District workbook	3.78E-04	890.2	9.64E-01	1.22E-01
	Hazardous Air Pollutants (HAPs, federal)						
75070	Acetaldehyde	2.04E-02	0.5*AP-42(1)	2.00E-05	890.2	5.10E-02	6.43E-03
107028	Acrolein	3.27E-03	0.5*AP-42(1)	3.21E-06	890.2	8.18E-03	1.03E-03
71432	Benzene	6.10E-03	0.5*AP-42(1)	5.99E-06	890.2	1.53E-02	1.92E-03
106990	1,3-Butadiene	2.20E-04	0.5*AP-42(7)	2.15E-07	890.2	5.49E-04	6.92E-05
100414	Ethylbenzene	1.63E-02	0.5*AP-42(1)	1.60E-05	890.2	4.08E-02	5.14E-03
50000	Formaldehyde	4.59E-01	CATEF	4.50E-04	890.2	1.15E+00	1.45E-01
110543	Hexane, n-	1.30E-01	CATEF	1.27E-04	890.2	3.24E-01	4.08E-02
91203	Naphthalene	6.65E-04	0.5*AP-42(1)	6.53E-07	890.2	1.66E-03	2.10E-04
	PAHs (listed individually below)	3.28E-04	SUM	3.22E-07	890.2	8.20E-04	1.03E-04
83329	*Acenaphthene*	*9.50E-06*	*CATEF*	*9.32E-09*	*890.2*	*2.38E-05*	*2.99E-06*
208968	*Acenapthyene*	*7.35E-06*	*CATEF*	*7.21E-09*	*890.2*	*1.84E-05*	*2.32E-06*
120127	*Anthracene*	*1.69E-05*	*CATEF*	*1.66E-08*	*890.2*	*4.23E-05*	*5.33E-06*
56553	*Benzo(a)anthracene*	*1.13E-05*	*CATEF*	*1.11E-08*	*890.2*	*2.83E-05*	*3.56E-06*
50328	*Benzo(a)pyrene*	*6.95E-06*	*CATEF*	*6.82E-09*	*890.2*	*1.74E-05*	*2.19E-06*
192972	*Benzo(e)pyrene*	*2.72E-07*	*CATEF*	*2.67E-10*	*890.2*	*6.80E-07*	*8.57E-08*
205992	*Benzo(b)fluoranthrene*	*5.65E-06*	*CATEF*	*5.54E-09*	*890.2*	*1.41E-05*	*1.78E-06*
207089	*Benzo(k)fluoranthrene*	*5.50E-06*	*CATEF*	*5.40E-09*	*890.2*	*1.38E-05*	*1.73E-06*
191242	*Benzo(g,h,i)perylene*	*6.85E-06*	*CATEF*	*6.72E-09*	*890.2*	*1.71E-05*	*2.16E-06*
218019	*Chrysene*	*1.26E-05*	*CATEF*	*1.24E-08*	*890.2*	*3.15E-05*	*3.97E-06*
53703	*Dibenz(a,h)anthracene*	*1.18E-05*	*CATEF*	*1.15E-08*	*890.2*	*2.94E-05*	*3.70E-06*
206440	*Fluoranthene*	*2.16E-05*	*CATEF*	*2.12E-08*	*890.2*	*5.40E-05*	*6.81E-06*
86737	*Fluorene*	*2.90E-05*	*CATEF*	*2.85E-08*	*890.2*	*7.25E-05*	*9.14E-06*
193395	*Indeno(1,2,3-cd)pyrene*	*1.18E-05*	*CATEF*	*1.15E-08*	*890.2*	*2.94E-05*	*3.70E-06*
85018	*Phenanthrene*	*1.57E-04*	*CATEF*	*1.54E-07*	*890.2*	*3.93E-04*	*4.95E-05*
129000	*Pyrene*	*1.39E-05*	*CATEF*	*1.36E-08*	*890.2*	*3.48E-05*	*4.38E-06*
75569	Propylene oxide	1.48E-02	0.5*AP-42(1)	1.45E-05	890.2	3.70E-02	4.66E-03
108883	Toluene	6.65E-02	0.5*AP-42(1)	6.53E-05	890.2	1.66E-01	2.10E-02
1210	Xylene	3.27E-02	0.5*AP-42(1)	3.20E-05	890.2	8.17E-02	1.03E-02

Note:

a. Assumes 50% reduction of organic HAP due to operation of CO catalyst.
b. Assumes emissions of organic HAPs during startup and shutdown are proportional to VOC emissions.
c. VOC emissions during shutdown = 6.53 lb/hr, VOC emissions during normal operation = 2.28 lb/hr Ratio = 2.86

Update of Regulatory Setting Section to reflect Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV.

5.2 AIR QUALITY

…

5.2.1 Laws, Ordinances, Regulations, and Standards

…

5.2.3.3 Local LORS

San Diego Air Pollution Control District Rules and Regulations

Authority: CA Health & Safety Code §40001

Requirements: Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.

Administering Agency: SDAPCD, with CARB oversight.

Prohibitions

The SDAPCD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibition rules that apply to the proposed PPEC project are listed below.

- Rule 50 – Visible Emissions: This rule prohibits any source from discharging any emissions of any air contaminant that is darker in shade than that designated as Number 1 on the Ringelmann Chart for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes.

- Rule 51 – Nuisance: This rule prohibits the discharge from a facility of air contaminants that cause injury, detriment, nuisance, or annoyance to the public, or cause damage to business or property.

- Rule 52 – Particulate Matter Emission Standards: This rule does not apply to stationary internal combustion engines. Rule 53 addresses particulate emissions from such sources. ~~This rule prohibits the discharge from any source of particulate matter in excess of 0.10 grain per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas.~~

- Rule 53 – Specific Air Contaminants: This rule sets the following limits for combustion sources:

    - Sulfur compounds, calculated as SO_2: 0.05% by volume on a dry basis

    - Particulates: 0.10 grains/dscf @ 12% CO_2.

- Rule 55 – Fugitive Dust Control: This rule requires control of dust emissions during construction activities. It prohibits visible dust emissions beyond the property line for periods aggregating more than 3 minutes in any 60-minute period, and minimization and daily removal of roadway dust;

- Rule 62 – Sulfur Content of Fuels: This rule prohibits any stationary source to use any gaseous fuel containing more than 10 grains of sulfur compounds per 100 cubic feet of dry gaseous fuel.

- Rule 69.3 – Stationary Gas Turbines Engines – Reasonable Available Control Technology: This rule limits NOx emissions from a gas turbine to 42 ppmv @15% O_2. The limit does not apply during a startup or shutdown period that does not exceed 120 minutes.

- Rule 69.3.1 – Stationary Gas Turbines Engines – Reasonable Available Retrofit Control Technology: This rule limits NOx emissions from a gas turbine larger than 10 MW to 9 x E/25 ppm @15% O_2, where E is the unit's thermal efficiency.

- Rule 1200 – Toxic Air Contaminants: This rule requires preparation of a health risk assessment, and demonstration that the project will not result in unacceptable health risks (cancer risk > 10 in a million, chronic health index > 1, acute health index > 1).

- Regulation XIV – Title V Operating Permits: this regulation implements the Title V federal operating permit program discussed above under Federal LORS.

All applicable LORS are summarized in Table 5.2-12.

Update of Applicable Rules table to reflect Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV.

TABLE 5.2-12
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS
(REVISED 3/8/2011)

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
Federal					
Clean Air Act (CAA) §160-169A and implementing regulations, Title 42 United States Code (USC) §7470-7491 (42 USC 7470-7491), Title 40 Code of Federal Regulations (CFR) Parts 51 & 52 (40 CFR 51 & 52) (Prevention of Significant Deterioration Program)	Requires prevention of significant deterioration (PSD) review and facility permitting for construction of new or modified major stationary sources of air pollution. PSD review applies to pollutants for which ambient concentrations are lower than NAAQS.	EPA	Issues PSD Permit with conditions limiting emissions	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §171-193, 42 USC §7501 et seq. (New Source Review)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. NSR applies to pollutants for which ambient concentration levels are higher than NAAQS.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §401 (Title IV), 42 USC §7651 (Acid Rain Program)	Requires quantification of NO_2 and SO_2 emissions, and requires operator to hold allowances.	SDAPCD with EPA oversight	Issues Acid Rain permit after review of application	Application to be submitted 18 months prior to start of operation.	§5.2.6.1
CAA §501 (Title V), 42 USC §7661 (Federal Operating Permits Program)	Establishes comprehensive permit program for major stationary sources.	SDAPCD with EPA oversight	Issues Title V permit after review of application	Application to be submitted 12 months after start of operation.	§5.2.6.1
CAA §111, 42 USC §7411, 40 CFR Part 60 (New Source Performance Standards [NSPS])	Establishes national standards of performance for new stationary sources.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §112, 42 USC §7412, 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants [NESHAPs])	Establishes national emission standards for hazardous air pollutants.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
State					
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.2
H&SC §44300-44384; California Code of Regulations (CCR) §93300-93347 (Toxic "Hot Spots" Act)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.2
California Public Resources Code §25523(a); 20 CCR §1752, 2300-2309 (CEC & CARB Memorandum of Understanding)	Requires that CEC's decision on AFC include requirements to assure protection of environmental quality; AFC required to address air quality protection.	CEC	After project review, issues conditions of certification that includes the conditions in the FDOC		§5.2.6.2
Global Warming Solutions Act and other GHG reduction measures	Minimize emissions of GHG from all sources in CA; operator must purchase and surrender GHG allowances	CEC and CARB	After project review, CEC issues conditions of certification requiring reporting of GHG emissions		§5.2.6.2
Local					
California Health & Safety Code (H&SC) §40001 (Air pollution--general)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation II, Rule 10 (Permits required) and Rule 20.5 (Power Plants)	Administers air quality regulation program for power plants	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation II, Rule 20.3 (New Source Review)	Establishes criteria for siting new and modified emission sources.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation XII, Rule 1200 (Toxic Air Contaminants New Source Review)	Establishes procedures for review and control of toxic air contaminants from new sources	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation X, Standards of Performance for New Stationary Sources	Incorporates federal NSPS standards.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
SDAPCD Rules 1401, 1410, and 1412 (Federal permits)	Implements Acid Rain and Title V permit programs	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 20.3 (d)(4)	Public Notification Requirement	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation III (Permit Fees)	Permit fees	SDAPCD		Payment of fees required at time of application	§5.2.6.3
SDAPCD Rule 50 (Visible Emissions)	Prohibits visible emissions above certain levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 51 (Nuisance)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
~~SDAPCD Rule 52 (Particulate Matter)~~	~~Limits emissions of particulate matter~~	~~SDAPCD with CARB oversight~~	~~After project review, issues FDOC/ATC with conditions limiting emissions.~~	~~Agency approval to be obtained before start of construction~~	~~§5.2.6.3~~
SDAPCD Rule 53 (Specific Air Contaminants)	Limits emissions of sulfur compounds and particulates from combustion sources.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 55 (Fugitive Dust Control)	Applies to construction activities. Limits visible emissions beyond property line. Requires minimization of roadway dust.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 62 (Fuel Sulfur)	Limits fuel sulfur content	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 69.3 (Stationary Gas Turbine Engines-RACT)	Limits NOx emissions from new gas turbines.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of	§5.2.6.3

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
				construction	
SDAPCD Rule 69.3.1 (Stationary Gas Turbine Engines-RARCT)	Limits NOx emissions from gas turbines.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 1200 (Toxic Air Contaminants)	Requires preparation of a health risk assessment. Limits offsite impacts of toxic air contaminants	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.16.2
SDAPCD Regulation XIV (Title V Operating Permits)	Requires application for Title V permit and compliance with permit once issued	SDAPCD with EPA oversight	After application review, issues title V with conditions.	Application to be submitted within 12 months after startup	§5.2.2

Revisions to Environmental Consequences section to reflect new revised modeling using new District meteorological data. Please also see modeling files on CD-ROM.

5.2.4 Environmental Consequences

…

5.2.4.14 Commissioning Impacts

…

TABLE 5.2-26
MODELED MAXIMUM IMPACTS DURING COMMISSIONING
(REVISED 3/8/2011)

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	Background Concentration (µg/m³)	Total Concentration[1] (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	~~185~~187	154	~~339~~341	188	339
	Annual	--	32	--	NA	NA
SO_2	1-hr	3	45	48	196	655
	3-hr	1	34	35	1300	--
	24-hr	0	10	10	--	105
	Annual	--	8	--	NA	--
CO	1-hr	311	4	315	40,000	23,000
	8-hr	73	2	75	10,000	20.000
PM_{10}	24-hr	3	57	60	150	50
	Annual	--	26.7	--	--	NA
$PM_{2.5}$	24-hr	2.6	45.7	49	35	--
	Annual	--	12.5	--	NA	NA

[1] The total concentration shown in this table is the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.

Table 5.2-26 shows that commissioning emissions will not cause new exceedances of any state or federal air quality standards, with the exception of the state and federal 1-hour NO_2 standards. (Because commissioning is a temporary activity lasting a few weeks at most, the annual standards are not applicable. Commissioning emissions will count toward the limit on annual emissions for the first year of normal operations, so the analysis of annual impacts in Section 5.2.4.15 is applicable to commissioning). The table shows that worst-case background concentrations of PM_{10} are already above the state standard, although they are below the federal standard. The project's 24-hour PM_{10} impacts are lower than the federal significance threshold of 5 $\mu g/m^3$ (see Table 5.2-11). The table indicates that commissioning activities may contribute to existing exceedances of the federal 24-hour average $PM_{2.5}$ standard; however, this standard is evaluated based on the three-year average of the 98th percentile concentration and commissioning emissions, as a short-term activity, are not likely to contribute significantly to an exceedance in fact.

Table 5.2.26 indicates that the sum of the worst-case commissioning NO_2 impacts and the worst-case ambient background concentration is greater than the state 1-hour NO_2 standard. In order to demonstrate that commissioning activities will not result in a violation of the state standard,

modeled impacts were paired with the corresponding measured ambient concentrations. Table 5.2-26A shows that all impacts are below the state standard.

TABLE 5.2-26A
COMMISSIONING 1-HOUR STATE STANDARD COMPLIANCE

Modeled Impact[1] (µg/m³)	Hour[2]	Background[3] (µg/m³)	Total Impact (µg/m³)	Compliance with State Standard (339 µg/m³)
186.8	8031620	97.7	284.5	Yes
186.3	8031620	97.7	284.0	Yes
185.6	8031620	97.7	283.3	Yes
185.2	8031620	97.7	282.9	Yes
184.2	8031620	97.7	281.9	Yes
184.0	8031620	97.7	281.8	Yes
186.2	6112719	124.1	310.3	Yes
186.0	6112719	124.1	310.1	Yes
184.8	6112719	124.1	308.9	Yes

1. All 1-Hour Commissioning Modeling Impact (with PVMRM) > 184 ug/m3 among the 3 years modeling
2. The hour in which the modeling impacts > 184ug/m3, the format fo the hour is "YMMDDHH"
3. Corresponding NO2 background data: for each clock hour, the highest 1-hour reading during the calendar month.

…

TABLE 5.2-27
SUMMARY OF MODELING RESULTS
(REVISED 3/8/2011)

Pollutant	Averaging Period	Modeled Concentration (µg/m³)			PSD Significant Impact Level (µg/m³)
		Normal Operation	Startup	Inversion Breakup Fumigation[1]	
NO_2	1-hr	27	~~100~~111	2.9	7.5[2]
	Annual	0.3	--	--	1.0
SO_2	1-hr	6	--	0.2	7.8[2]
	3-hr	3	--	0.1	25
	24-hr	1	--	0.1	5
	Annual	<0.1	--	--	1.0
CO	1-hr	26	~~202~~222	5.8	2000
	8-hr	6	~~39~~52	3.0	500
PM_{10}	24-hr	2.6	--	0.2	5
	Annual	0.26	--	--	1
$PM_{2.5}$	24-hr	2.6	--	0.2	1.2
	Annual	0.26	--	--	0.3

Notes:
[1] Inversion breakup fumigation is a short-term phenomenon and does not affect annual impacts.
[2] These are interim SILs and have not been formally adopted by EPA.

…

TABLE 5.2-28
SUMMARY OF RESULTS (MODELED MAXIMUM IMPACTS PLUS BACKGROUND)
(REVISED 3/8/2011)

Pollutant	Averaging Time	Maximum Predicted Impact (operating mode) (µg/m³)	Background Concentration (µg/m³)	Total Concentration (Maximum Impact plus Background) (µg/m³)	3 year Average of 98th Percentile of Total Concentration (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	~~100~~111 (startup)	154	~~254~~265	~~156~~159	188	339
	Annual	0.3 (normal)	32	32	--	100	57
SO_2	1-hr	6 (normal)	45	51	--	196	655
	3-hr	3 (normal)	34	37	--	1300	--
	24-hr	1 (normal)	10	11	--	--	105
	Annual	<0.1 (normal)	8	8	--	80	--
CO	1-hr	~~202~~222 (shutdown)	4	~~206~~226	--	40,000	23,000
	8-hr	~~39~~52 (shutdown)	2	~~41~~54	--	10,000	20.000
PM_{10}	24-hr	3 (normal)	57	60	--	150	50
	Annual	0.3 (normal)	26.7	30	--	--	20
$PM_{2.5}$	24-hr	2.6 (normal)	45.7	--	~~25.8~~25.9	35	--
	Annual	0.26 (normal)	12.5	12.8	--	15.0	12

[1] 40 CFR 51.165 (b)(2).

…

TABLE 5.2-29
SUMMARY OF RESULTS OF DEMONSTRATION OF COMPLIANCE WITH FEDERAL 1-HOUR NO_2 AND 24-HOUR $PM_{2.5}$ STANDARDS
(REVISED 3/8/2011)

Standard	Maximum Predicted Impact (µg/m³)	Maximum Background Concentration (µg/m³)	3 year Average of 98th Percentile of Total Concentration (µg/m³)	NAAQS (µg/m³)
Federal 1-hour NO_2	~~100~~111 (startup)	154	~~156~~159	188
Federal 24-hour PM_{10}	2.6 (normal)	45.7	~~25.8~~25.9	35

Update of Regulatory Compliance Section to reflect Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV.

5.2.6 Consistency with Laws, Ordinances, Regulations, and Standards

…

5.2.6.3 Consistency with Local Requirements

…

Offsets

SDAPCD Rule 20.3(d)(5)~~1~~ requires that projects with emissions of any federal nonattainment criteria pollutant or its precursors, which exceed major source thresholds (~~operational emissions above~~ 50 tons per year (TPY) of NOx or VOC), be offset with actual emission reductions. The District is a federal nonattainment area only for ozone.~~, 100 TPY of PM_{10} or SOx, provide emission offsets by emission reductions from other sources~~. Based on emissions data presented in Section 5.2.4.4, Operational Emissions, annual emissions of NOx from PPEC would exceed the District's offset trigger of 50 TPY. According to Rule 20.3, NOx offsets need to be provided at a ratio of 1.2:1.

…

Prohibitions

The SDAPCD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibition rules that apply to the proposed PPEC project are listed below.

- Rule 52 – Particulate Matter Emission Standards: This rule ~~prohibits the discharge from any source of particulate matter in excess of 0.10 grain per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas. The proposed PPEC project will have particulate matter emissions less than 0.23 grams per dry standard cubic meter and will thus comply with this rule.~~does not apply to stationary internal combustion engines. Rule 53 addresses particulate emissions from such sources.

- Rule 53 – Specific Air Contaminants: This rule sets the following limits for combustion sources:

    - Sulfur compounds, calculated as SO_2: 0.05% by volume on a dry basis
    - Particulates: 0.10 grains/dscf @ 12% CO_2.

  The SOx concentration in the turbine exhaust will be less than 0.42 ppm (see Table 5.2-32), or 0.000042 %, which complies with the limit in the rule.

  Particulate emissions from each turbine will be less than 5.5 lb/hr. At low loads, the turbine flow rate will be 236,320 dscfm @ 3.92% CO_2 (see Table G-3.1). The particulate

concentration will be 0.0027 grains/dscf[1] @ 3.92% CO_2, or 0.0083 grains/dscf[2] @ 12% CO_2, which complies with the limit in the rule.

- Rule 55 – Fugitive Dust Control: This rule requires control of dust emissions during construction activities. It prohibits visible dust emissions beyond the property line for periods aggregating more than 3 minutes in any 60-minute period, and minimization and daily removal of roadway dust. Project measures to minimize fugitive dust emissions from construction activities are described in Appendix G-2. These measures include sweeping paved roadways twice daily, as well as other dust minimization measures that will assure compliance.

- Rule 69.3 – Stationary Gas Turbines Engines: Reasonable Available Control Technology: This rule limits NOx emissions from a gas turbine to 42 ppmv @15% O_2. The limit does not apply during a startup or shutdown period that does not exceed 120 minutes. The project's proposed NOx limit of 2.5 ppm will comply with the rule.

- Rule 69.3.1 – Stationary Gas Turbines Engines: Reasonable Available Retrofit Control Technology: This rule limits NOx emissions from a gas turbine larger than 10 MW to 9 x E/25 ppm @ 15% O_2, where E is the unit's thermal efficiency. The project's heat rate is 8,694 Btu (HHV) per kw-hr, which is a thermal efficiency of 39.3%. The allowable NOx limit under this rule is therefore 14.1 ppm @ 15% O_2. The project's proposed NOx limit of 2.5 ppm will comply with the rule.

- Rule 1200 – Toxic Air Contaminants: This rule requires preparation of a health risk assessment, and demonstration that the project will not result in unacceptable health risks (cancer risk > 10 in a million, chronic health index > 1, acute health index > 1). The project will comply with these limits. The health risk assessment is discussed in detail in Section 5.16

- Regulation XIV – Title V Operating Permits: This regulation implements the Title V federal operating permit program discussed above under Federal LORS. An application for a Title V permit will be submitted within 12 months of start of facility operation.

[1] (5.5 lb/hr) / (236,320 dscfm) *(7,000 grains / lb) * (1 hr/60 min) = 0.0027 grains/dscf

[2] The stack oxygen content for the low load case is 14.1%. Adjusting for a CO_2 content of 12% is equivalent to adjusting for stoichiometric combustion, or a stack O_2 concentration of 0%. The equation for calculating that adjustment is as follows: 0.0027 gr/dscf * (20.9 – 0)/(20.9 – 14.1) = 0.0083 grains/dscf @12% CO2.

Update of Health Impact Assessment section to reflect new revised modeling using new District meteorological data. Please also see modeling files on CD-ROM.

5.16 PUBLIC HEALTH

5.16.2 Environmental Consequences

5.16.2.3 Public Health Impact Assessment Approach

TABLE 5.16-5
SUMMARY OF POTENTIAL HEALTH RISKS FROM PROJECT OPERATION
(REVISED 3/8/2011)

Receptor	Carcinogenic Risk (per million)[1]	Cancer Burden	Acute Health Hazard Index	Chronic Health Hazard Index
Maximum Incremental Cancer Risk (MICR) at Point of Maximum Impact (PMI)	0.094	0	--	--
Maximum Exposed Individual at an Existing Residential receptor (MEIR) (assumed to be at the PMI)	0.094	--	~~0.034~~ 0.11	0.011
Maximally Exposed Individual at an Existing Worker receptor (MEIW) (assumed to be at the PMI)[2]	0.014	--	~~0.034~~ 0.11	0.011
Significance Level and SDAPCD Rule 1200 Threshold	10	1.0	1.0	1.0

Notes:
[1]Derived (Adjusted) Method used by San Diego Air Pollution Control District to determine compliance with Regulation 12.
[2]The worker is assumed to be exposed at the work location 8 hours per day, instead of 24; 245 days per year, instead of 365; and for 40 years, instead of 70.

Pio Pico Energy Center, LLC
P.O. Box 95552
South Jordan, UT 84095

April 1, 2011

Mr. Gerardo Rios
Chief, Permits Office
USEPA Region IX
75 Hawthorne Street
San Francisco, CA 94105

Subject: Pio Pico Energy Center
Application for a Prevention of Significant Deterioration Permit

Dear Mr. Rios:

Enclosed please find an Application for a Prevention of Significant Deterioration (PSD) Permit for the proposed Pio Pico Energy Center, filed by Pio Pico Energy Center, LLC, to be located in Otay Mesa, California. The Application for Certification (AFC) was filed with the California Energy Commission on February 9, 2011, concurrent with an application for Authority to Construct submitted to the San Diego County Air Pollution Control District. The portions of the AFC materials that are relevant to the PSD permitting process are enclosed for your review. Supplemental PSD modeling data files have not been included, because, based on guidance from Region 9 staff last year, modeling cannot be completed for the 1-hour NO_2 standard until EPA has reviewed the proposed list of non-project facilities to include in the modeling. Included with the materials we are providing are the additional impact analysis (including impacts on soil, vegetation, visibility, and potential for growth inducement), and special PSD compliance demonstrations.

The generating facility will include three General Electric (GE) LMS100 natural gas-fired combustion turbine generators (CTGs), each equipped with water injection to the combustors for reducing production of oxides of nitrogen (NOx), a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia (NH_3) injection to further reduce NOx emissions, and an oxidation catalyst to reduce carbon monoxide (CO) emissions. The total net generating capacity would be approximately 300 MW. The new emitting units will be installed on a 9.9 acre parcel in the southeast quadrant of the intersection of Alta Road and Calzada De La Fuente Road, adjacent to the Otay Mesa Energy Center. The Project will be a new major source under the federal Prevention of Significant Deterioration (PSD) program because it will have the potential to emit more than 100,000 TPY of greenhouse gases (GHGs), a federally regulated pollutant, and construction will commence after July 1, 2011.

The applicant's contact information is:

Gary Chandler
President, Pio Pico Energy Center, LLC
P.O. Box 95592
2542 Singletree Lane
South Jordan, UT 84095

If you have any questions regarding this application, please contact the applicant's representative David Jenkins at (317) 431-1004 or Gary Rubenstein at (916) 444-6666.

Sincerely,

Gary Chandler
President, Pio Pico Energy Center, LLC

enclosures

cc: (w/o enclosure)
John McKinsey, Stoel Rives LLP
David Jenkins, Apex Power Group
Steve Moore, SDAPCD
Steve Hill, Sierra Research