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August 6, 2012

California Energy Commission
DOCKETED
12-AFC-02
TN # 66490
August 6, 2012

VIA HAND DELIVERY

Ms. Felicia Miller, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Huntington Beach Energy Project (12-AFC-02)
Data Adequacy Supplement

Dear Ms. Miller:

On behalf of AES Southland Development, LLC ("AES-SD"), enclosed herewith please find supplemental information related to the Application for Certification for the Huntington Beach Energy Project ("HBEP"). Specifically, enclosed are 35 paper copies and 40 disks containing information needed for purposes of attaining data adequacy. In addition, certain appendices are submitted concurrently herewith under confidential cover. The requisite application was previously submitted to the Executive Director on June 27, 2012 pursuant to California Code of Regulations, section 2505. Finally, attached please find AES-SD's letter of attestation regarding the supplemental data provided herein.

Should you have any questions concerning this submittal, please do not hesitate to contact Robert Mason at (949) 439-5312 or me at (916) 319-4673.

Respectfully submitted,

Melissa A. Foster

MAF:jmw
cc: Stephen O'Kane, AES Southland Development, LLC
Robert Mason, CH2M Hill, Inc.

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AES
the power of being global

AES Southland Development
690 North Studebaker Road
Long Beach, CA 90803
tel 562 493 7736
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August 6, 2012

Mr. Robert Oglesby, Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: Huntington Beach Energy Project (12-AFC-02)
Data Adequacy Supplement

Dear Mr. Oglesby:

AES Southland Development, LLC ("AES-SD") herein submits its Data Adequacy Supplement for the Huntington Beach Energy Project. In accordance with the provisions of Title 20, California Code of Regulations, section 1707, AES-SD attests to the truth and accuracy of the information contained in the Data Adequacy Supplement.

AES-SD looks forward to working with you and your staff to make this a successful project for all. Should you have any questions or concerns regarding this application, please contact Stephen O'Kane at (562) 493-7840.

Sincerely,

Jennifer Didlo
President
AES Southland Development, LLC

cc: Stephen O'Kane, AES Southland, LLC
Robert Mason, CH2M Hill, Inc.
John A. McKinsey, Stoel Rives LLP
Melissa A. Foster, Stoel Rives LLP

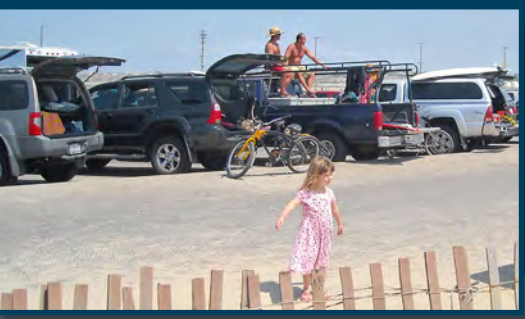
Supplement:
Response to Data Adequacy Review

Application for Certification

Huntington Beach Energy Project

(12-AFC-02)

August 2012



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Data Adequacy Supplement

In support of the

Application for Certification

for the

Huntington Beach Energy Project (12-AFC-02)

Submitted to:

California Energy Commission

Submitted by:

AES Southland Development, LLC

With Technical Assistance by:

CH2MHILL®

Sacramento, California

August 6, 2012

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Attachments

DA3.0-1 Revised Section 3.0, Transmission System Engineering
DA3.0-2 Figure 2.1-4R
DA3.0-3 CAISO Cluster Study (Phase 1 and Phase II)

DA5.1-1 South Coast Air Quality Management District Notice of Completeness

DA5.2-1 Supplemental Botanical and Wildlife Surveys for the Huntington Beach Energy Project
DA5.2-2 Appendix 5.2C Revised
DA5.2-3 CNDDB Lists and the How to Read RareFind 3 Reports
DA5.2-4 Figure 5.2-4cR and Figure 5.2-4dR
DA5.2-5 Figure 5.2-2aR and Figure 5.2-2bR

DA5.3-1 Literature Search—Confidential
DA5.3-2 Copies of DPR523 Forms—Confidential
DA5.3-3 Parcel Map for the Built Environment Survey
DA5.3-4 Maps of the Individual Buildings Recorded during the Built Environment Survey
DA5.3-5 Updated Map of Appendix 5.3E—Confidential

DA5.9-1 Section 5.9, Public Health, Revised
DA5.9-2 Appendix 5.9B, Supporting Documentation for the Screening Construction Health Risk Assessment

1.0 Introduction

This Supplement to AES Southland Development, LLC's (AES-SLD) Application for Certification (AFC) for the Huntington Beach Energy Project (HBEP) (12-AFC-02) provides information in response to comments that California Energy Commission (CEC) Staff have made as a result of their data adequacy review of the AFC. The intention of this Supplement is to provide all additional information necessary for Staff to find that the AFC contains adequate data to begin a power plant site certification proceeding under Title 20, California Code of Regulations and the Warren-Alquist Energy Resources Conservation and Development Act.

The format for this Supplement follows the order of the AFC and provides additional information and responses to CEC Staff's information requests for several disciplines. Only sections for which CEC Staff posed requests or questions related to data adequacy are addressed in this Supplement. If the response calls for additional appended material, it is included at the end of each subsection. Appended material is identified by the prefix "DA" indicating an item submitted in response to a Staff Data Adequacy comment, a number referring to the applicable AFC chapter, and a sequential identifying number. For example, the attachment in response to a Transmission System Engineering comment would be Attachment DA3.0-1, because the AFC section describing electrical transmission is Section 3.0. Tables are also numbered in this way. Appended material is paginated separately from the remainder of the document.

Each subsection contains data adequacy comments or information requests, with numbers and summary titles and, in parentheses, the citation from Appendix B (Information Requirements for an Application) of Title 20, California Code of Regulations indicating a particular information requirement for the AFC. Each item follows with the CEC Staff comment on data adequacy for this item, under the heading "Information required to make AFC conform with regulations" followed by AES-SLD's response to the information request and the information requested.

3.0 Transmission System Engineering

1. Transmission System Facilities (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.

Information required to make the AFC conform with regulations:

1. *Please resubmit Figure 2.1-4 and Figure 3.1-1. Show all equipment ratings including generator circuit breakers, disconnect switches, isolated phase bus duct, motor operated disconnect switches, and etc. which required for the project.*

Response:

1. A revised Section 3.0 – Transmission System Engineering is included as Attachment DA3.0-1 and includes revised Figure 3.1-1R showing equipment ratings for the generator circuit breakers, disconnect switches, isolated phase bus duct, and motor operated disconnect switches. The revised section also includes revised Figure 3.1-2R showing the typical support tower designs that could be used for the transmission lines connecting HBEP to the SCE switchyard. Please remove the existing Section 3.0 from the AFC and replace it in its entirety with the revised section.
2. Figure 2.1-4R (a revision of Figure 2.1-4 from Section 2.1.6.1 of the Project Description – Section 2.0 of the AFC) is provided as Attachment DA3.0-2 and provides the revised single-line diagram that includes the equipment ratings for the generator circuit breakers, disconnect switches, isolated phase bus duct, and motor operated disconnect switches.
3. In addition to revised Figures 3.1-1R and 3.1-2R, clarifications have been made in the text of Sections 3.1 and 3.1.1 of Transmission System Engineering (Attachment DA3.0-1). These two sections are also provided below with the revisions highlighted:

3.1 Transmission Lines Description, Design, and Operation – [Revisions – shown as strike-thru (deleted) and underlined (new)]

HBEP will connect to the regional electrical grid using the existing Southern California Edison (SCE) 230-kilovolt (kV) switchyard located on a parcel owned by SCE within the existing Huntington Beach Generating Station site. No new offsite transmission lines will be needed for HBEP. HBEP Blocks 1 and 2 will connect into the existing SCE switchyard via ~~new double-circuit~~ new single-circuit 230-kV lines. Figure 3.1-1R, Electrical One-line Diagram, shows the interconnection configuration of HBEP to the SCE electric transmission system. Figure 3.1-2R shows typical support tower designs that could be used for the transmission lines connecting HBEP to the SCE switchyard. New Figure 3.1-3 shows the general electrical interconnection plan for HBEP including the routing of the proposed 230 kV tie-lines, the location of the generators, step up transformers, and transmission structures.

3.1.1 Overhead Transmission Line Characteristics

No changes are planned for the SCE transmission line circuits connecting HBEP to the California Independent System Operator (CAISO) transmission system. Each proposed 230-kV line will be designed as ~~a combination of a single- and/or double-circuit~~ a single-circuit self-supporting steel structures, which may be installed on concrete pier foundations.

The insulators for the 230-kV generation tie lines will be polymer or porcelain with overall lengths of approximately 10 to 15 feet for suspension insulators. The length of the insulator strings will be increased on

structures other than tangent to ensure compliance with National Electrical Code (NEC) and National Electrical Safety Code (NESC) clearances.

2. Transmission Interconnection Schedule (Appendix B (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.

Information required to make AFC conform with regulations:

Provide a schedule for the CAISO Cluster Study (Phase I and Phase II) of the proposed project.

Response: Attachment DA3.0-3 provides information from the CAISO regarding the Cluster Study (Phase 1 and Phase II) as it relates to HBEP.

Attachment DA3.0-1
Revised Section 3.0, Transmission System Engineering

SECTION 3.0

Transmission System Engineering

This section discusses the transmission interconnection between the Huntington Beach Energy Project (HBEP) and the existing electrical grid, and the anticipated impacts that operation of HBEP will have on the flow of electrical power in the Southern California region. This analysis contains the following discussions:

- A description of the electrical interconnection between HBEP and the electrical grid
- The impacts of HBEP on the existing transmission grid
- Potential nuisances (electrical effects, aviation safety, and fire hazards)
- Safety of the interconnection
- Description of applicable laws, ordinances, regulations, and standards (LORS)

Sections 3.2 and 3.3 discuss the transmission alternatives investigated and the results of the transmission interconnection studies.

3.1 Transmission Lines Description, Design, and Operation

HBEP will connect to the regional electrical grid using the existing Southern California Edison (SCE) 230-kilovolt (kV) switchyard located on a parcel owned by SCE within the existing Huntington Beach Generating Station site. No new offsite transmission lines will be needed for HBEP. HBEP Blocks 1 and 2 will connect into the existing SCE switchyard via new ~~double~~single-circuit 230-kV lines. Figure 3.1-1, Electrical One-line Diagram, shows the interconnection configuration of HBEP to the SCE electric transmission system. Figure 3.1-2 shows typical support tower designs that could be used for the transmission lines connecting HBEP to the SCE switchyard. Figure 3.1-3 shows the general arrangement plan of HBEP including the routing of the proposed 230 kV tie-lines, the location of the generators, step up transformers, and transmission structures.

3.1.1 Overhead Transmission Line Characteristics

No changes are planned for the SCE transmission line circuits connecting HBEP to the California Independent System Operator (CAISO) transmission system. Each proposed 230-kV line will be designed as ~~a combination of~~ single ~~- and/or double-~~circuit self-supporting steel structures, which may be installed on concrete pier foundations.

The insulators for the 230-kV generation tie lines will be polymer or porcelain with overall lengths of approximately 10 to 15 feet for suspension insulators. The length of the insulator strings will be increased on structures other than tangent to ensure compliance with National Electrical Code (NEC) and National Electrical Safety Code (NESC) clearances.

3.1.2 230-kV Interconnection Switchyard Characteristics

The interconnection at the SCE 230-kV switchyard will utilize 230-kV air or gas-insulated circuit breakers in a ring bus arrangement to obtain a high level of service reliability.

Station service power will be provided via the onsite SCE 230-kV switchyard. Auxiliary controls and protective relay systems for the SCE 230-kV switchyard will be located in a control building separate from HBEP.

3.1.3 Power Plant Interconnect Characteristics

Each of the two new HBEP power blocks will interconnect to the CAISO transmission system through a ring bus breaker arrangement presently located in the existing SCE switchyard. HBEP Blocks 1 and 2 are both rated higher than the existing Huntington Beach Generating Station's Units 1, 2, 3 and 4; therefore, the existing 230-kV breakers may be replaced with higher-rated circuit breakers acceptable for each of HBEP power blocks. The HBEP interconnection will use 230-kV air- or gas-insulated circuit breakers for Blocks 1 and 2 and an individual generator step-up transformer for each of the generating units within each power block. The interconnection to the SCE

switchyard and all equipment will be designed to ensure compliance with applicable NEC and NESC rules following the CAISO requirements. The main buses and the bays will also be designed following these requirements. Power for HBEP will be back-fed through the generator step-up transformer and auxiliary transformer. Auxiliary controls and protective relay systems for the SCE switchyard may be located in the HBEP control building. No existing underground interconnect lines will be affected by the project.

3.2 Transmission Interconnection Studies

On May 15, 2008, the CAISO requested permission from the Federal Energy Regulatory Commission (FERC) to implement proposed reforms to generator interconnection processes. The CAISO filed a revised version of the proposal on June 27, 2008 (CAISO, 2008). The reform process includes the following goals:

- Clearing the backlog of Interconnection Requests existing in the CAISO queue
  - Reduce the number of projects through increased Interconnection Cost financial commitments or project viability tests
  - Apply group study principles to the remaining projects
  - Develop procedures to ensure a more efficient interconnection of resources that more closely match system needs
- Provide interconnection applicants with reasonable cost and timing certainty
- Better integrate transmission planning with the generation interconnection process

In many cases, system impact studies show that network upgrades are needed to connect new generation to deliver the full project output from the first point of interconnection with the transmission provider system to the grid. Network upgrades can include transmission lines, transformer banks, substation breakers, voltage support devices and other equipment needed to transfer the generation output to the customer load. The specific network upgrades and their costs, if needed, are determined from the Feasibility Study, System Impact Study, and Facility Study of the CAISO Generator Interconnection Procedure.

During 2007 and 2008, the CAISO, as directed by FERC, implemented Generator Interconnection Process Reform. A key element of the reform is that projects are now evaluated in groups called clusters, not in a serial, first in, first out manner. This reform has delayed the issuance of studies for projects that were to be included in the initial cluster (which CAISO labeled the “transition cluster”).

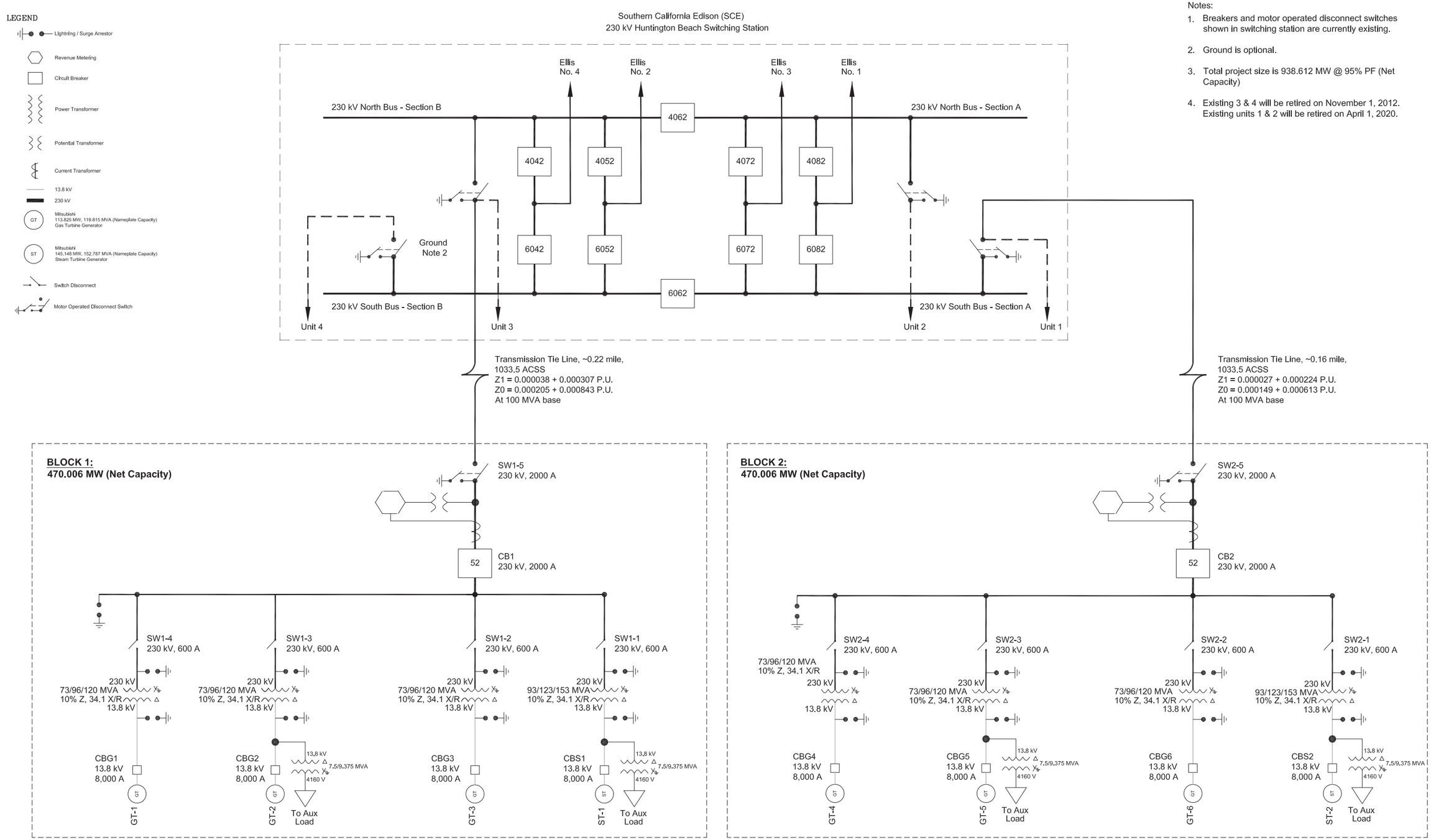
Because HBEP is largely replacing megawatts from the existing Huntington Beach Generating Station at the same electrical node, the actual marginal addition of generation to the grid at this connection point is small (approximately 34 MW). This will make system impact issues minimal.

The HBEP interconnection request was filed on March 30, 2012. The interconnection fee has been paid and HBEP has a position in the CAISO queue. Appendix 3A contains a copy of the Generator Interconnection Study documents and proof of payment. This is the equivalent of the “signed System Impact Study Agreement” required of data adequacy requirement B (b)(2)(E)). Based on discussions with CAISO, the C5, Phase II is anticipated to start May 1, 2013 and be complete in 205 days or approximately November 22, 2013.[1]

3.3 Transmission Line Safety and Nuisances

It is anticipated that no modifications are necessary on the 230-kV transmission lines connecting the SCE switchyard at HBEP to the CAISO transmission system. The only new transmission lines that will be built are the 230-kV electrical lines that will connect each of the HBEP generator’s step-up transformers to the SCE switchyard, this section discusses the safety and nuisance issues associated with the project’s transmission lines.

[1] Leslie Feusi, Lead Interconnection Specialist,/CAISO Interconnection Resources, 2012. Personal communication with Julie Gill/AES SLD. July 24, 2012.



Notes:

1. Breakers and motor operated disconnect switches shown in switching station are currently existing.
2. Ground is optional.
3. Total project size is 938.612 MW @ 95% PF (Net Capacity)
4. Existing 3 & 4 will be retired on November 1, 2012. Existing units 1 & 2 will be retired on April 1, 2020.

FIGURE 3.1-1R
Electrical One-line Diagram
AES Huntington Beach Energy Project
Huntington Beach, California

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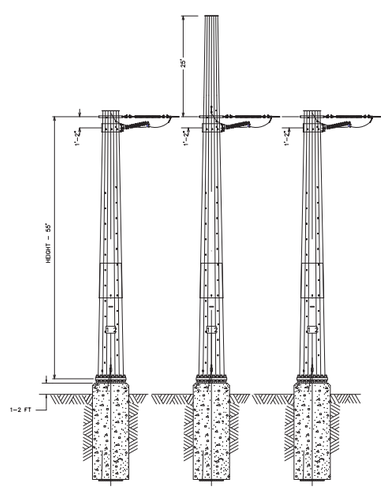
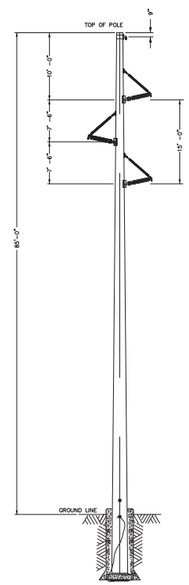
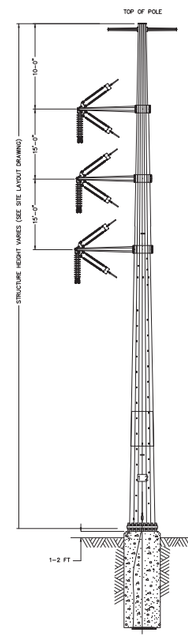
NOT TO SCALE



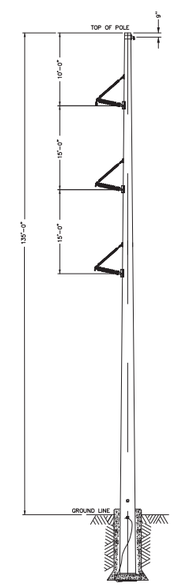
Single Circuit Horizontal Dead End



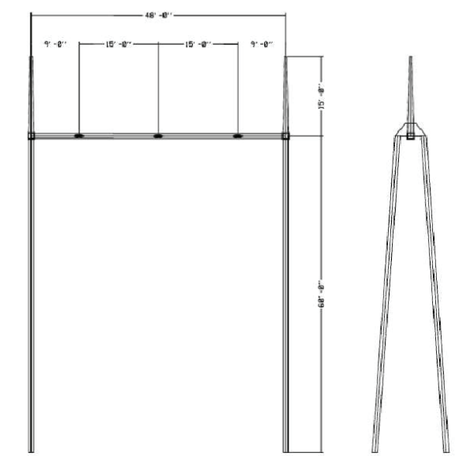
Single Circuit Braced Post Delta
Structures: B2–2



Single Circuit Dead End
Structures: B1–1, B1–3, B2–1



Single Circuit Braced Post
Structures: B1 – 2



230 kV 60' A–Frame Dead End

FIGURE 3.1-2R
Typical Transmission Structure Configurations
AES Huntington Beach Energy Project
Huntington Beach, California

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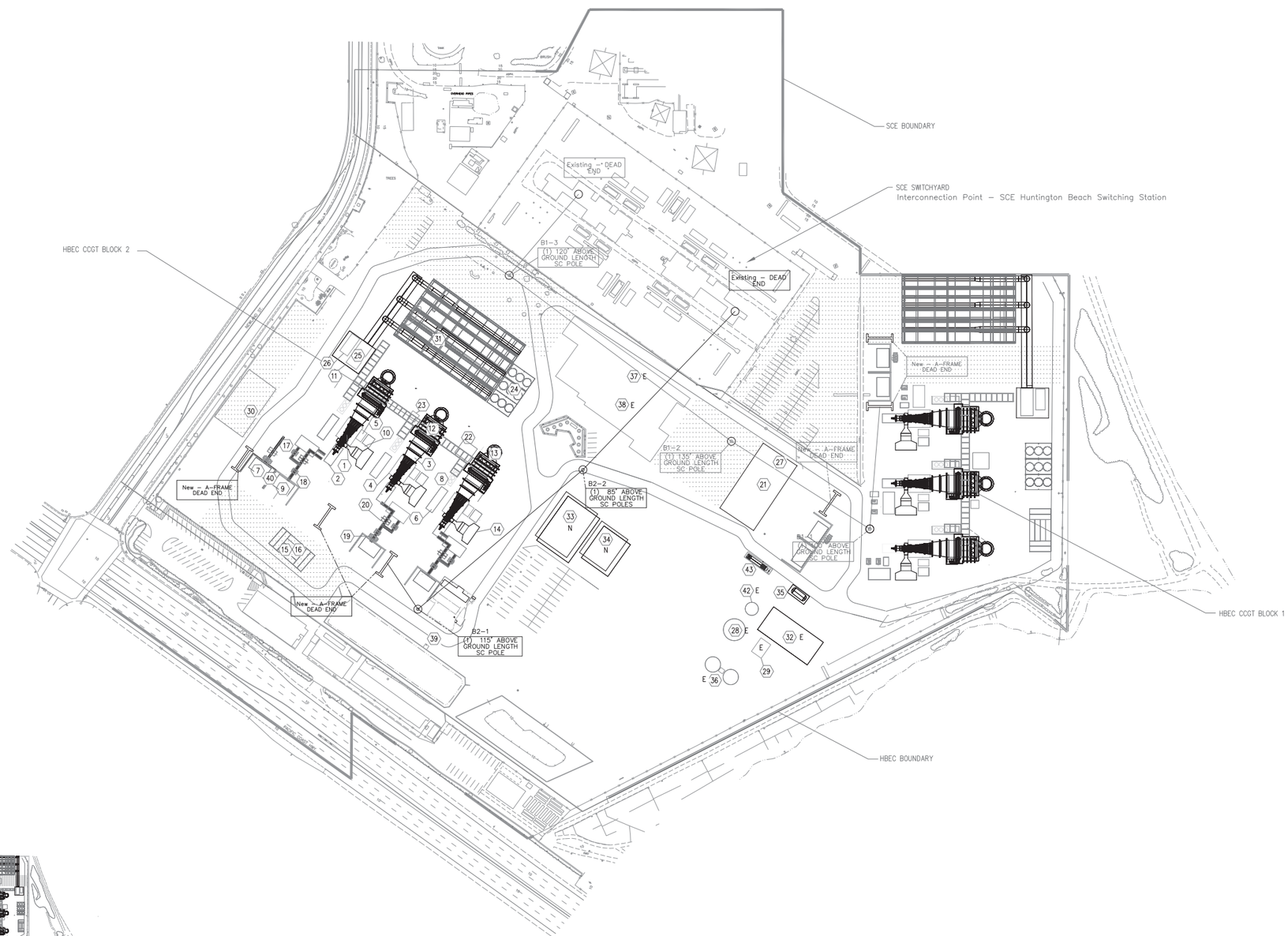
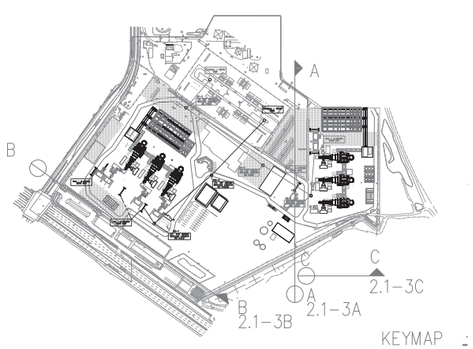


EQUIPMENT LIST		
NO.	DESCRIPTION	DIMENSIONS
1	COMBUSTION GAS TURBINE (CGT)	
2	CGT GENERATOR ENCLOSURE	16'x39'x34'
3	CGT/HRSG TRANSITION DUCT	
4	CGT ENCLOSURE	41' x 32' x 25
5	FUEL GAS SKID	20' x 12'
6	CGT CONTROL/LUBE OIL SKID	50' x 14.5'
7	STG STEP UP TRANSFORMER	35' x 23'
8	TURBINE COOLING AIR SKID **	10' x 8' x 38'
9	CGT STEP UP TRANSFORMER	35' x 22'
10	CO2 F/F (LP TANK)	
11	STG ENCLOSURE	59' x 55' x 40'
12	HEAT RECOVERY STEAM GENERATOR	
13	STACK	18' DIA.
14	CGT AIR INTAKE SYSTEM	40' x 38'
15	CONTROL PACKAGE	40' x 20'
16	ELECTRICAL PACKAGE	40' x 20'
17	SFC. TRANSFORMER	
18	SEC. TRANSFORMER	
19	UNIT TRANSFORMER	
20	GENERATOR MAIN CIRCUIT BREAKER	28' x 20'
21	FUEL GAS COMPRESSOR BLDG.	144'x75'x25'
22	BOILER FEEDPUMP ENCLOSURE	30' x 30'
23	CEMS	15'x15'
24	BOP FIN FAN COOLER	86'x48'x15'
25	STEAM TURBINE GENERATOR	52' x 23'
26	STG CONTROL/LUBEOIL SKID	38' x 17'
27	FUEL GAS CONDITIONING SKID	71.5' x 34'
28	EXIST. SERVICE WTR. TANK (RESUE)	40' DIA.x48' S.S
29	EXIST.FIRE WATER PUMP ENCLOSURE	22' x 30'
30	RELOCATED GAS METERING STATION	108' x 82'
31	ACC	209'x127'x104'
32	EXISTING RO/EDI BUILDING (REUSE)	113'x51'x30'
33	NEW CONTROL/ADMIN BUILDING	100'x72'x40'
34	NEW MAINT./WAREHOUSE BUILDING	72'x60'x35'
35	AMONIA TANK AND CONTAINMENT	18' x 38'
36	EXIST. DI WATER TANKS (2)(REUSE)	28' DIA.x32'S.S
37	EXIST.SHOPS & WAREHOUSE(REUSE)	214'x115'x17'
38	EXIST. ADMIN BUILDING (REUSE)	81'x57'x11'
39	TRANSMISSION STRUCTURE (TYP.)	
40	TRANSFORMER BLAST WALL	
41		
42	EXIST. BRINE TANK (REUSE)	24' DIA. x 22'
43	AMONIA UNLOADING	56'x12'

N = DENOTES NEW
E = DENOTES EXISTING
** = TCA HEIGHT FOR BLOCK 1 IS 24'
** = TCA HEIGHT FOR BLOCK 2 IS 12'
FENCE
MASONRY WALL
CONSTRUCTION LAYDOWN & STAGING



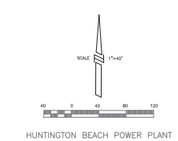


FIGURE 3.1-3
General Electrical Interconnection
AES Huntington Beach Energy Project
Huntington Beach, California

3.3.1 Electrical Clearances

Typical high-voltage overhead transmission lines are composed of bare conductors connected to supporting structures by means of porcelain, glass, or plastic insulators. The air surrounding the energized conductor acts as the insulating medium. Maintaining sufficient clearances, or air space, around the conductors to protect the public and utility workers is paramount to the safe operation of the transmission line. The required safety clearance required for the conductors is determined by considering various factors such as: the normal operating voltages, conductor temperatures, short-term abnormal voltages, wind-blown swinging conductors, contamination of the insulators, clearances for workers, and clearances for public safety. Minimum clearances are specified in the NESC (IEEE C2) and California Public Utilities Commission (CPUC) General Order (GO) 95. Electric utilities, state regulators, and local ordinances may specify additional (more restrictive) clearances. Typically, clearances are specified for the following:

- Distance between the energized conductors themselves
- Distance between the energized conductors and the supporting structure
- Distance between the energized conductors and other power or communication wires on the same supporting structure, or between other power or communication wires above or below the conductors
- Distance from the energized conductors to the ground and features such as roadways, railroads, driveways, parking lots, navigable waterways, and airports
- Distance from the energized conductors to buildings and signs
- Distance from the energized conductors to other parallel power lines

The 230-kV lines connecting the HBEP power blocks to the SCE switchyard will be designed to meet appropriate national, state, and local clearance requirements.

3.3.2 Electrical Effects

The electrical effects of high-voltage transmission lines, both within the HBEP site and outside of the HBEP site, fall into two broad categories: corona effects and field effects. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware because of 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. Field effects are the voltages and currents that may be induced in nearby conducting objects. A transmission line's inherent electric and magnetic fields cause these effects. Based on the analyses below, HBEP will not result in any significant impacts to electric and magnetic fields or audible noise or radio and television interference.

3.3.2.1 Electric and Magnetic Fields

Operating power lines, like the energized components of electrical motors, home wiring, lighting, and other electrical appliances, produce electric and magnetic fields and a corresponding electromagnetic force (EMF). The fields produced by the alternating current electrical power system in the United States has a frequency of 60 hertz, meaning that the intensity and orientation of the field changes 60 times per second.

Electric fields around transmission lines are produced by electrical charges on the energized conductor. Electric field strength is directly proportional to the line's voltage; that is, increased voltage produces a stronger electric field. At a given distance from the transmission line conductor, the electric field is inversely proportional to the distance from the conductors, so the electric field strength declines as the distance from the conductor increases. The strength of the electric field is measured in units of kilovolts per meter. The electric field around a transmission line remains steady and is not affected by the common daily and seasonal fluctuations in usage of electricity by customers.

Magnetic fields around transmission lines are produced by current flow, measured in terms of amperes, through the conductors. The magnetic field strength is directly proportional to the current; that is, increased amperes

produce a stronger magnetic field. The magnetic field is inversely proportional to the distance from the conductors. Thus, like the electric field, the magnetic field strength declines as the distance from the conductor increases. Magnetic fields are expressed in units of milligauss (mG). The amperes and, therefore the magnetic field around a transmission line, fluctuate daily and seasonally as the usage of electricity varies.

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 or evocative evidence, some states, including California, have chosen not to specify maximum acceptable levels of EMF and California, as well as other states, does not have a regulatory level of EMF. Instead, these states, including California, mandate 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.

The new transmission lines that connect HBEP Blocks 1 and 2 to the existing SCE 230-kV switchyard located on the Huntington Beach Generating Station will not affect the public because they are located within the HBEP site. No changes are proposed for the transmission lines connecting the SCE switchyard to the CAISO transmission system. The estimated electric field of the existing 230-kV SCE transmission line at the center of the SCE right-of-way (ROW) from the SCE 230-kV switchyard to SCE Ellis substation is 0.9 kV/meter, and is 0.7 kV/meter at the edge of the ROW. The estimated magnetic field under the SCE 230-kV transmission line and at the center of the ROW is 46 mG (0.046 G), and 35 mG (0.035 G) at the edge of the ROW, which are well below regulatory levels 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 the voltage of the transmission line.

Additionally, the estimated electric field of the new generator transmission tie lines that connect HBEP Block 1 and Block 2 to the existing SCE 230-kV switchyard are within the boundary of the existing Huntington Beach Generating Station. The estimated magnetic field under HBEP generator transmission lines from Blocks 1 and 2 to the SCE 230-kV switchyard is approximately 0.51 kV/meter right under the lines, and is 0.015 kV/meter at the edge of the HBEP site boundary. The estimated magnetic field directly under these HBEP 230-kV transmission tie lines to the SCE switchyard is approximately 32.4 mG (0.0324 G) right under the lines, and 1.0 mG (0.001 G) at the edge of the HBEP site boundary, which are well below regulatory levels established by states that do have limits as stated above.

3.3.2.2 Audible Noise and Radio and Television Interference

Corona from a transmission line may result in the production of audible noise or radio and television interference. Corona is a function of the voltage of the line, the diameter of the conductor, and the condition of the conductor and suspension hardware. The electric field gradient is the rate at which the electric field changes and is directly related to the line voltage.

The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface and, hence, lower corona than smaller conductors, everything else being equal. Also, irregularities (such as nicks and scrapes on the conductor surface) or sharp edges on suspension hardware concentrate the electric field at these locations and, thus, increase corona at these spots. Similarly, contamination on the conductor surface, such as dust or insects, can cause irregularities that are a source for corona. Raindrops, snow, fog, and condensation are also sources of irregularities.

The existing Huntington Beach Generating Station’s Units 1 and 2 interconnect to the SCE 230-kV switchyard with two separate 230-kV interconnection lines. The two new 230-kV interconnection lines from HBEP Blocks 1 and 2 to the existing SCE switchyard will be designed and constructed not to affect the public from audible noise and radio and television interference as they are located within the HBEP site. On a cumulative basis, the existing Huntington Beach Generating Station’s Units 3 and 4 interconnect to the SCE 230-kV switchyard with two separate 230-kV interconnection lines. HBEP will replace the four existing 230-kV interconnection lines from the existing Huntington Beach Generating Station with two 230-kV interconnection lines. Therefore, HBEP will have no impacts on audible noise.

No changes are proposed for the transmission lines connecting the SCE switchyard to the CAISO transmission system.

3.3.2.3 EMF, Audible Noise, and Radio and Television Interference Assumptions

EMF, audible noise, and radio and television interference near power lines vary with regard to the line design, line loading, distance from the line, and other factors. The new overhead 230-kV line located between the HBEP power blocks and the SCE 230-kV switchyard are entirely located within the HBEP site. The interferences described in this section are not expected to affect the public outside of the HBEP site.

Electric fields, corona, audible noise, and radio and television interference depend on line voltage and not the level of power flow. Because line voltage remains nearly constant for the new HBEP 230-kV lines to the SCE switchyard during normal operation, the audible noise associated with the transmission lines in the area will be of the same magnitude before and after construction of the HBEP.

Corona typically becomes a design concern for transmission lines having voltages of 345-kV and above. Because the HBEP's transmission lines are rated at less than 345 kV and will be constructed on the HBEP site, no corona-related design issues are expected.

The magnetic field is proportional to line loading (amperes), which varies as demand for electrical power varies and as generation from the generating facility is changed by the system operators to meet changes in demand.

HBEP construction and operation, including the interconnection of HBEP with SCE's existing switchyard and transmission system, are not expected to result in significant changes in EMF levels, corona, audible noise, or radio and television interference.

3.3.2.4 Induced Current and Voltages

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 on the electric field strength, the size and shape of the conducting object, and the object-to-ground resistance. 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 ground. The mitigation for this potential 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 milliamperes.

Magnetic fields also can 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. A person who closes an electrical loop by grounding the object at a different location will experience a shock similar to that described above for an ungrounded object. Mitigation for this potential hazard is to ensure multiple grounds on fences or pipelines, especially those orientated parallel to the transmission line.

The proposed 230-kV lines within the HBEP site will be constructed in conformance with CPUC GO-95 and Title 8 California Code of Regulations (CCR) 2700 requirements. Therefore, hazardous shocks are unlikely to occur as a result of project construction, operation, or maintenance.

3.3.3 Aviation Safety

Federal Aviation Administration (FAA) Regulations, 14 Code of Federal Regulations (CFR) Part 77, establish standards for determining obstructions in navigable airspace and set forth requirements for notification of proposed construction. These regulations require FAA notification for construction over 200 feet above ground level. Notification also is required if the obstruction is lower than specified heights and falls within restricted airspace in the approaches to public or military airports and heliports. For airports with runways longer than 3,200 feet, the restricted space extends 20,000 feet (3.3 nautical miles) from the runway. For airports with runways measuring 3,200 feet or less, the restricted space extends 10,000 feet (1.7 nautical miles). The nearest public airport to the HBEP is the John Wayne–Orange County Airport, which is approximately 5.9 miles east of

HBEP. The nearest military airport is the Los Alamitos Army Airfield, which is approximately 10.5 miles north of HBEP.

In addition to the two airports, there are also six public or private heliports in the vicinity of HBEP. For public or private heliports, the restricted space extends 5,000 feet (0.8 nautical mile) from the heliport. The six heliports are as follows:

- Onshore Heliports (approx. distance from HBEP)
  - Huntington Beach Police Department 3.6 miles
  - Boeing Huntington Beach Heliport 7.6 miles
  - Civic Center Heliport 2.5 miles
  - Area Energy LLC Heliport 3.6 miles
- Near Off-Shore Heliports (approx. distance from HBEP)
  - Union Eva Heliport 4.5 miles
  - Platform Emmy Heliport 3.5 miles

The HBEP structures, including transmission structures design, are less than 200 feet tall, and fall outside of the restricted airspace for the above airports and heliports. The FAA air navigation hazard review is unlikely to find that the project could cause a hazard to air navigation. However, as part of the analysis for the HBEP, the FAA Notice Criteria Tool has been used to determine whether HBEP may meet Federal Aviation Regulation 77.13 (FAR §77.13) requirements regarding the need to notify FAA of HBEP construction. As shown in Appendix 5.12C of Section 5.12, Traffic and Transportation, the results of the FAA Notice Criteria Tool indicate that the HBEP structures, including the onsite transmission towers and the six exhaust stacks, do not exceed a height of 200 feet; therefore, an FAA air navigation hazard review is unlikely to find that HBEP would have the potential to cause a hazard to air navigation. Based on the findings of the FAA Notice Criteria Evaluation, an FAA Form 7460-1, Notice of Proposed Construction or Alteration, is not necessary because the onsite transmission towers or the exhaust stacks will not exceed the Notice Criteria. See Section 5.6, Land Use, and Section 5.12, Traffic and Transportation, for additional information regarding aviation.

3.3.4 Fire Hazards

The existing 230-kV transmission interconnection has been designed, constructed, and maintained in accordance with applicable standards including GO-95, which establishes clearances from other manmade and natural structures as well as tree-trimming requirements to mitigate fire hazards. SCE is expected to maintain the transmission line corridor and immediate area in accordance with existing regulations and accepted industry practices that will include identification and abatement of fire hazards.

The new 230-kV line within the HBEP site will be designed in accordance with applicable standards including GO-95.

3.4 Applicable Laws, Ordinances, Regulations, and Standards

This section provides a list of applicable LORS that apply to the proposed transmission line, substations, and engineering.

3.4.1 Design and Construction

Table 3.4-1 lists the LORS for the design and construction of the HBEP electrical tie-in line and interconnection to the existing SCE 230-kV switchyard.

TABLE 3.4-1
Design and Construction LORS for the Electrical Transmission

LORS	Applicability	AFC Section Explaining Conformance
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 3.3
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 3.3.2.4
GO-95, CPUC, "Overhead electric line construction"	CPUC rule covers all aspects of design, construction, operation, and maintenance of electrical transmission line and fire safety (hazards).	Section 3.3.1
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 3.3.1

ANSI = American National Standards Institute

3.4.2 Electric and Magnetic Fields

The LORS pertaining to EMF are listed in Table 3.4-2.

TABLE 3.4-2
Electric and Magnetic Field LORS

LORS	Applicability	AFC Section Explaining Conformance
Decision 93-11-013, CPUC	Presents the CPUC position on EMF reduction.	Section 3.3.2.1
GO-131-D, CPUC, "Rules for Planning and Construction of Electric Generation, Line, and Substation Facilities in California"	Establishes the CPUC construction application requirements, including requirements related to EMF reduction.	Section 3.3.2.1
ANSI/IEEE 544-1994, "Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines"	Presents the standard procedure for measuring EMF from an electric line that is in service.	Section 3.3.2.1

3.4.3 Hazardous Shock

Table 3.4-3 lists the LORS regarding hazardous shock protection that apply to the transmission interconnection and the overall project. LORS for the overall project are discussed in the appropriate section of this Application for Certification (AFC). The existing SCE 230-kV switchyard is located on a separate parcel that is located within the secured area of the existing Huntington Beach Generating Station. The SCE switchyard fence is located to protect any person within the HBEP site from entering the switchyard where they could be exposed to associated hazardous shocks resulting from electrical faults from the new HBEP equipment and also the SCE high-voltage transmission system electrical disturbances.

The new HBEP 230-kV electrical tie-in line and interconnection to the existing SCE 230-kV switchyard will be designed in accordance with applicable LORS.

TABLE 3.4-3
Hazardous Shock LORS

LORS	Applicability	AFC Section Explaining Conformance
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 3.3.2.4
ANSI/IEEE 80, "IEEE Guide for Safety in Alternating Current Substation Grounding"	Presents guidelines for assuring safety through proper grounding of alternating current outdoor substations.	Section 3.3.2.4
NESC, ANSI C2, Section 9, Article 92, Paragraph E; Article 93, Paragraph C	Covers grounding methods for electrical supply and communications facilities.	Section 3.3.2.4

3.4.4 Communication Interference

The LORS pertaining to communication interference are listed in Table 3.4-4.

TABLE 3.4-4
Communication Interference LORS

LORS	Applicability	AFC Section Explaining Conformance
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 3.3.2
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 3.3.24
CEC staff, Radio Interference and Television Interference (RI-TVI) Criteria (Kern River Cogeneration) Project 82-AFC-2, Final Decision, Compliance Plan 13-7	Prescribes the CEC's RI-TVI mitigation requirements, developed and adopted by the CEC in past citing cases.	Section 3.3.2.2

CEC = California Energy Commission

3.4.5 Aviation Safety

Table 3.4-5 lists the aviation safety LORS that may apply to the proposed transmission interconnection and the overall project. LORS for the overall project are discussed in the appropriate sections of this AFC.

TABLE 3.4-5
Aviation Safety LORS

LORS	Applicability	AFC Section Explaining Conformance
Title 14 CFR, Part 77, "Objects Affecting Navigable Airspace"	Describes the criteria used to determine whether a "Notice of Proposed Construction or Alteration" (FAA Form 7450-1) is required for potential obstruction hazards.	Section 3.3.3
FAA Advisory Circular No. 70/7450-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting of obstructions as identified by FAA Regulations Part 77.	Section 3.3.3

TABLE 3.4-5
Aviation Safety LORS

LORS	Applicability	AFC Section Explaining Conformance
CPUC, Sections 21555-21550	Discusses the permit requirements for construction of possible obstructions in the vicinity of aircraft landing areas, in navigable airspace, and near the boundaries of airports.	Section 3.3.3

3.4.6 Fire Hazards

Table 3.4-6 lists the LORS governing fire hazard protection for the proposed transmission interconnection and the overall project. LORS for the overall project are discussed in the appropriate sections of this AFC.

TABLE 3.4-6
Fire Hazard LORS

LORS	Applicability	AFC Section Explaining 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 3.3.4
ANSI/IEEE 80, "IEEE Guide for Safety in AC Substation Grounding"	Presents guidelines for assuring safety through proper grounding of AC outdoor substations.	Section 3.3.4
GO-95, CPUC, "Rules for Overhead Electric Line Construction," Section 35	CPUC rule covers all aspects of design, construction, operation, and maintenance of electrical transmission line and fire safety (hazards).	Section 3.3.4

3.4.7 Jurisdiction

Table 3.4-7 identifies national, state, and local agencies with jurisdiction to issue permits or approvals, conduct inspections, or enforce the above-referenced LORS. Table 3.4-7 also identifies the responsibilities of these agencies as they relate to the construction, operation, and maintenance of the HBEP.

TABLE 3.4-7
National, State, and Local Agencies with Jurisdiction over Applicable LORS

Agency or Jurisdiction	Responsibility
FAA	Establishes regulations for marking and lighting of obstructions in navigable airspace (AC No. 70/7450-1G).
Caltrans Department of Aeronautics	Grants permits to private heliports in California. May advise local jurisdictions regarding obstructions to helicopter navigation.
CPUC	Regulates construction and operation of overhead transmission lines. (GO-95)
CPUC	Regulates construction and operation of power and communications lines for the prevention of inductive interference. (General Order No. 52)
Local Electrical Inspector	Jurisdiction over safety inspection of electrical installations that connect to the supply of electricity (National Fire Protection Association 70).
City of Huntington Beach	Establishes and enforces zoning regulations for specific land uses. Issues variances in accordance with zoning ordinances.

3.5 Permits and Permit Schedule

No permits are required to comply with the transmission impacts of the project.

3.6 References

California Independent System Operator (CAISO). 2008. Generator Interconnection Process Reform, Revised Draft Proposal, June 27, 2008. California Independent System Operator. Available at: http://www.caiso.com/1f42/1f42c00d28c30.html.

Attachment DA3.0-2
Figure 2.1-4R

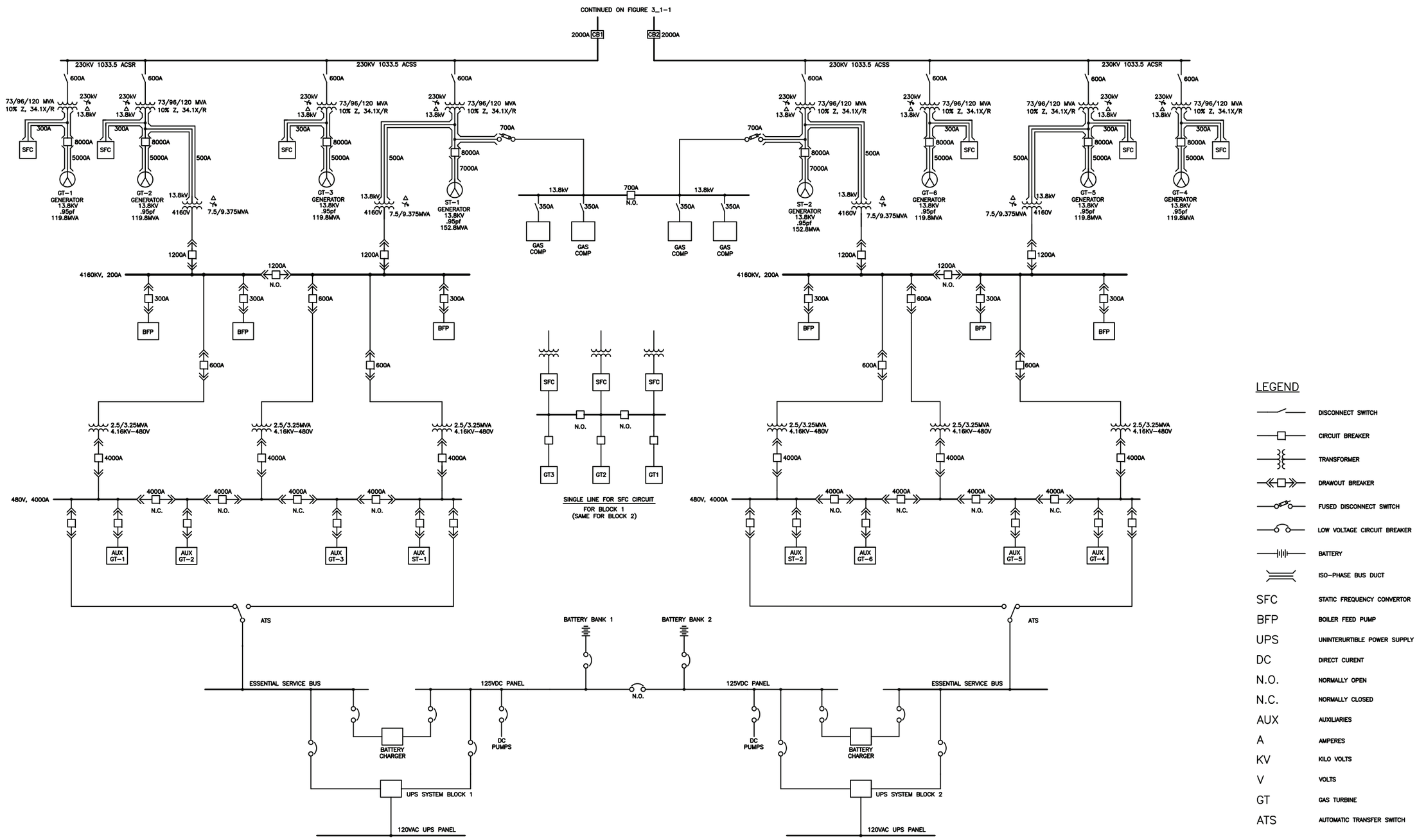


FIGURE 2.1-4R
One-line Diagram
AES Huntington Beach Energy Project
Huntington Beach, California

Attachment DA3.0-3
CAISO Cluster Study (Phase 1 and Phase II)

GIP Cluster Process

Receive IR (3.5.1) All of the following:

- IR
- Study Deposit ($50K + $1K/MW)
- Site Exclusivity or deposit in lieu of ($100,000 small/$250,000 large)

Validation (3.5.2)

- Within **1 BD** of IR receipt – Scan and forward IR package to ISO and PTO (and Affected System if applicable) engineers and project managers.
- Within **10 BD** of receipt notify customer of deemed complete or deficient. *(3.5.2.1)*
- Deficiencies must be cleared no later than **20 BD** after close of cluster window or **10BD** after CAISO first provides deficiency notification, whichever is later. If not cured, the project is not included in cluster. *(3.5.2.2)*
- Within **30CD** of close of cluster window provide IC that has valid IR, a pro forma Generator Interconnection Study Process Agreement *(6.1)*

Scoping Meeting

- Within **5 BD** of IR being deemed complete, the CAISO shall set date for Scoping Meeting. *(6.2)*
- Scoping Meeting to occur no later than **60 CD** after close of Cluster Window. *(6.2)*
- Within **3 BD** of Scoping Meeting – IC must confirm or identify Point of Interconnection (POI). *(6.1)*
- Within **10 BD** of receipt of POI confirmation- CAISO provides the Interconnection Customer a signed Large Generator Interconnection Study Process Agreement. *(6.1)*
- **30 CD** - IC executes the Large Generator Interconnection Study Process Agreement and deliver to the CAISO no later than thirty (30) calendar days after the Scoping Meeting. *(6.1)*

Phase 1 Interconnection Study

134 Calendar Days – Commence study by June 1st of each year. Complete by October 12th of each year. *(6.8)*

Phase 1 Interconnection Study Results Meeting

- Within **30 CD** of providing Phase 1 Interconnection Study report to IC. *(6.9)*
- Within **5 BD** of results meeting IC may submit modifications for approval to any information provided in the Interconnection Request and completed form of Appendix B (confirm deliverability status). *(6.9.2.2)*

Interconnection Customer Initial Posting of Interconnection Financial Security

3 Months - (90) calendar days after publication of the final Phase I Interconnection Study report. *(9.2.2)*

- Post the lesser of fifteen percent (15%) of total cost responsibility assigned for the Network Upgrades or $20,000 per megawatt of electrical output or $7,5M, but in no event less than $50,000 (small gen) or $500,000 (large gen). *(9.2.3)*
- Post the lesser of fifteen percent (15%) of total cost responsibility assigned for the Interconnection Facilities or $20,000 per megawatt of electrical output or $7,5M, but in no event less than $50,000 (small gen) or $500,000 (large gen). *(9.2.4)*

Phase II Interconnection Study
196 Calendar Days - Commence study by January 15th of each year. Complete by July 30th of each year. *(7.5)*

Phase II Interconnection Study Results Meeting

- Within **30 CD** of providing Phase II Interconnection Study report to IC. *(7.7)*

Second Posting of Interconnection Financial Security

- On or before **one hundred eighty (180) calendar days** after publication of the final Phase II Interconnection Study report or at the start of Construction Activities of Network Upgrades or Participating TO's Interconnection Facilities on behalf of the Interconnection Customer, whichever is earlier, the Interconnection Customer must post two separate Interconnection Financial Security instruments: *(9.3.1.1)*
  - **Network Upgrades** - 30% of the total cost responsibility assigned to the Interconnection Customer in either the final Phase I Interconnection Study or final Phase II Interconnection study, whichever is lower, or $15M, but in no event less than $500,000. *(9.3.1.2)*
  - **PTO Interconnection Facilities** – 30% of the total cost responsibility assigned to the Interconnection Customer in the final Phase II Interconnection Study. *(9.3.1.3)*

Third Posting of Interconnection Financial Security

- On or before the start of Construction Activities for Network Upgrades or PTO's Interconnection Facilities on behalf of the Interconnection Customer, whichever is earlier, the Interconnection Customer shall modify the two separate Interconnection Financial Security instruments so that they equal 100% of the total cost responsibility assigned to the Interconnection Customer. *(9.3.2)*

LGIA

- Within **30CD** after CAISO provides the final Phase II Interconnection Study report to the Interconnection Customer, together with draft appendices TO & CAISO issue draft LGIA to IC. *(11.1.1)*
- **30 CD** – IC reviews and issues notification of comments or no comments to draft LGIA Appendices. *(11.1.1)*.
- **30 CD** - Negotiate concerning any disputed provisions of the appendices to the draft LGIA for not more than ninety (90) calendar days from date final Phase II Interconnection Study report issued. *(11.2)*
- Withdraw IR if IC fails to request either the filing of the unexecuted LGIA or initiates Dispute Resolution **90 CD** after issuance of final Phase II Interconnection Study report. *(11.2)*
- **15 BD** - The TO and CAISO shall provide to the Interconnection Customer a final LGIA within fifteen (15) Business Days after the completion of the negotiation process. *(11.2)*

http://www.caiso.com/planning/Pages/GeneratorInterconnection/GeneratorInterconnectionApplicationProcess/Default.aspx is a link to GIP Webpage.

Interconnection Study Deposit
Refund Availability upon Interconnection Request Withdrawal

(See Appendix Y Section 3.5.1.1)

Point of Withdrawal	Refund
Up to 30 days past Scoping Meeting	100% of unused portion of Study Deposit
31 days past Scoping Meeting to 30 days past Phase I Results Meeting	Lesser between deposit less: • Costs incurred, or • $100,000 ($50,000 for projects 20 MW or less)
31 days past Phase I Results Meeting	No refund

Interconnection Financial Security for Network Upgrades
Refund Availability upon Interconnection Request Withdrawal
or Termination of LGIA

(See Appendix Y Section 9.4.1, 9.4.2)

Point of Withdrawal	Refund
Up to 180 days past issuance of Phase II Study **AND**: • Failure to Secure a Power Purchase Agreement • Failure to Secure a Necessary Permit • Increase in Cost of Participating TO's Interconnection Facilities • Material Change in Interconnection Customer Interconnection Facilities Created by CAISO Change in the Point of Interconnection	Lesser of: • 50% of posted value with a maximum of $10,000/MW, or • Remaining balance
Between 181 days past issuance of Phase II Study and commencement of Construction Activities	Lesser between: • 50% of posted value with a maximum of $20,000/MW, or • Remaining balance
After commencement of Construction Activities	• No refund

California ISO

Generator Interconnection & Deliverability Allocation Procedures (GIDAP)

Cluster 5 project scoping meeting handout

Integrating generator interconnection procedures with transmission planning process (GIDAP) addresses three key challenges

1. Plan and approve major ratepayer-funded upgrades under a single, holistic transmission planning process

   Minimize role of GIP in driving rate-based upgrades

2. Ratepayers will cover GIP delivery upgrade costs only for projects aligned with TPP resource portfolios

   Current GIP tariff requires ratepayers to fully reimburse new generation projects for all network upgrade costs

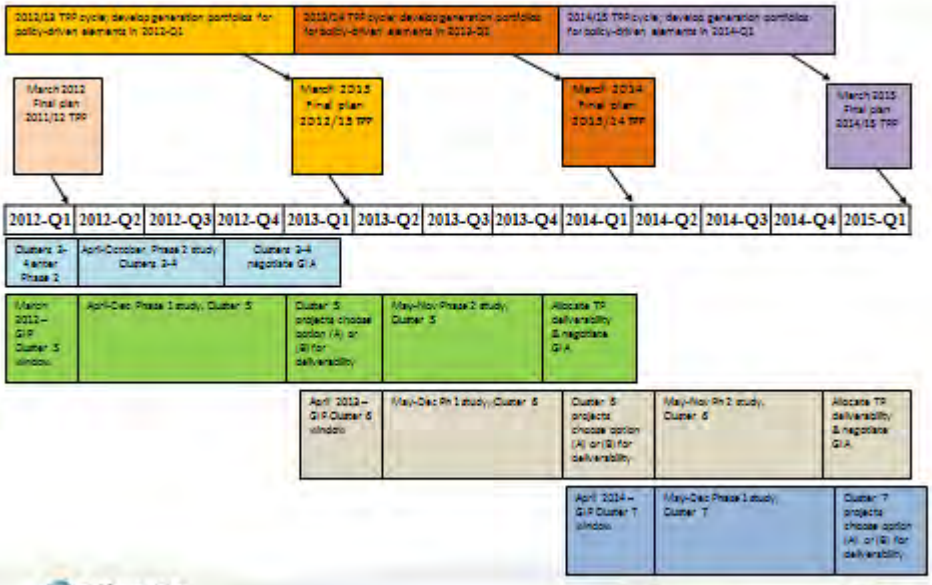
3. Structure of GIP study process will produce realistic results even with extreme queue volume

   Huge volume drives unrealistic upgrade requirements

Overview of GIDAP structure (starting with Cluster 5)

- Phase 1 study assesses deliverability for reasonable MW amounts (based on TPP portfolios) when queue is very large
- Each project makes a choice in entering phase 2:
  - Option A: Project requires rate-based TP deliverability
  - Option B: Project is willing & able to pay for delivery upgrades
- Phase 2 study identifies delivery upgrades only for Option B, assuming Option A & prior clusters use TP deliverability
- ISO allocates TP deliverability to the most viable projects
  - Rank projects based on development milestones
  - Both A and B are eligible for allocation
  - Option A not allocated may "park" until next cycle
  - Projects allocated must demonstrate retention milestones

GIDAP Timeline



3 network upgrade types for generation projects

- Area Delivery Network Upgrades (ADNU)
  - Identified in TPP to provide deliverability for MW generation quantities in grid areas specified in TPP resource portfolios
    - Projects allocated rate-based TP Deliverability are not required to post or pay for ADNU
  - Identified in GIP Phase 2 study for Option B projects
- Local Delivery Network Upgrades (LDNU)
  - Identified in GIP studies; specific to generation project
- Reliability Network Upgrades (RNU)
  - Identified in GIP studies; specific to generation project
  - Required to address a problem that cannot be managed through market congestion management
- All projects post for their shares of LDNU and RNU.

GIDAP Phase 1

- GIP phase 1 results provide each project with cost cap for its RNU and LDNU
  - Retain today's GIP provisions on security posting
  - Modify LDNU cash reimbursement to align with TP deliverability allocation.
- Phase 1 does not cap project exposure to ADNU costs.
- Between phase 1 results and deadline for posting for phase 2, project must elect one of two options (next slide)

Phase 1 to Phase 2 – customer options (A) or (B)

(A) => the project requires TP deliverability

- Project makes normal GIP first security posting for RNU and LDNU, but not for ADNU

(B) => the project is willing & able to pay for all network upgrades without reimbursement (if not allocated TP deliverability) .

- Project posts security for RNU, LDNU and ADNU
- ADNU security posting equals $/MW cost rate determined in phase 1 study, times project MW deliverability
- Upgrades paid for without reimbursement are treated as merchant transmission, eligible for CRRs
- Customer may select non-incumbent transmission company

GIDAP Phase 2 study will determine

- RNU and LDNU for all projects
- RNU and LDNU cost caps
  - same as today
- ADNU for (B) projects
  - assuming (A) projects fully utilize available TP deliverability
- ADNU cost estimates
  - but not cost caps for (B) projects

Reimbursement of LDNU postings is linked to Transmission Planning (TP) deliverability allocation

- All projects are reimbursed for RNU costs up to $60,000 per MW of installed capacity after commercial operation
- Option (A) and (B) projects allocated TP deliverability receive full reimbursement of LDNU postings after commercial operation
- Option (A) projects not allocated TP deliverability that remain in queue as energy only are reimbursed for first LDNU posting
- Option (B) projects not allocated TP deliverability are not eligible for reimbursement of LDNU or ADNU costs

Application of Existing Posting Requirements for Network Upgrades to (A) and (B) Projects*

	Network Upgrades *• LDNU, RNU for A projects* *• ADNU, LDNU and RNU for B projects* *•RNU for Energy Only projects*		
Project Size	**First Posting** **(Due 90 calendar days after phase I study report is issued)**	**Second Posting** **(Due 180 calendar days after phase II study report is issued)**	**Third Posting** **(Due at start of construction)**
20 MW or less	Lesser of • 15% of phase I study estimated network upgrade costs • $20,000 per MW (but not less than the lesser of $50,000, or the estimated cost of network upgrades)	Lesser of • $1 million • 30% of lower of phase I or phase II study estimated network upgrade costs (but not less than the lesser of $100,000, or the estimated cost of the network upgrades)	100% of lower of phase I or phase II study estimated network upgrade costs
Greater than 20MW	Lesser of • $7.5 million • 15% of Phase I estimated network upgrade costs • $20,000 per MW (but not less than the lesser of $500,000, or the estimated cost of network upgrades)	Lesser of • $15 million • 30% of lower of phase I or phase II study estimated network upgrade costs (but not less than the lesser of $500,000, or the estimated cost of the network upgrades)	100% of lower of phase I or phase II study estimated network upgrade costs

** These requirements are the same as existing tariff requirements.*

Allocation of TP deliverability after GIDAP Phase 2
(two step process)

Step 1: Determine how much TP deliverability to reserve for prior queued projects
- based on criteria measuring near-term viability of prior queued projects
- if TP deliverability is fully consumed by above, none is available for the new cluster

Step 2: Allocate available TP deliverability to current cluster and "parked" previous cluster (A) projects
- Eligible projects must meet two minimum threshold criteria related to permitting and project financing:
  - Applied for government permit/approval for construction of generating facility
  - On an active short-list for an LSE's request for offer.

Allocating TP deliverability when (A) and (B) MW meeting threshold criteria exceeds amount available

- Calculate a numerical score for each eligible project and allocate TP deliverability to highest scoring projects
- Three categories of development milestones:
  - Permitting status
  - Project financing status
  - Land acquisition
- "Borderline" project (last project where remaining available TP deliverability is less than project's capacity)
  - project may accept available TP deliverability , then choose
    - partial deliverability, or
    - reduce physical capacity to amount allocated

After the allocation process – (A) projects

- An (A) project that does not obtain TP deliverability in the current cluster allocation may either:
  - Execute an energy only (EO) GIA, or
  - Defer execution of EO GIA and "park" for one cycle, or
  - Withdraw from the queue.
- If it parks and does not obtain TP deliverability in the next cluster's allocation, it must either
  - Withdraw from the queue, or
  - Go forward as an EO project and meet all requirements associated with an EO GIA.
- If it withdraws, it is eligible for partial refund of first posting, based on failure to be allocated deliverability
  - Refund eligibility will extend to 18 months after phase 2

After the allocation process – (B) projects

- If a (B) project is not allocated TP deliverability in the current cluster allocation period, it must either
  - Execute a GIA agreeing to pay for needed ADNU and LDNU without cash reimbursement, or
  - Withdraw from the queue.
- If the (B) project withdraws, it will be eligible for partial refund of first security posting if its phase 2 ADNU cost estimate exceeds phase 1 by lesser of 20% or $20 million
  - Must withdraw no later than 180 days after phase 2 results to be eligible for partial refund

An (A) or (B) project allocated TP deliverability must meet annual retention criteria or lose the allocation

- Loss of allocation does not terminate GIA: project may amend GIA to continue as energy only

Upon approval by FERC
(initial ruling expected before end of July, 2012)

- Cluster 5 interconnection customers may opt out of process
  - Cluster 5 projects have 10 business days to withdraw after FERC ruling
  - Study deposit is refundable, minus costs incurred to date
  - Cluster 5 Phase 1 studies have to wait for interconnection customers' decision before performing the analysis

From: Julie Gill
To: Jennifer Didlo; Stephen O"Kane
Subject: FW: GIDAP Info.
Date: Tuesday, July 24, 2012 11:48:06 AM

FYI.

Julie Gill
Director of Regulatory and Government Affairs
AES Southland
Office: (916) 484-0192
Cell: (916) 509-0598

From: Feusi, Leslie [mailto:LFeusi@caiso.com]
Sent: Tuesday, July 24, 2012 11:35 AM
To: Julie Gill
Subject: RE: GIDAP Info.

Hi Julie,

Here's the current C5, Phase II anticipated schedule, subject to change: Start May 01, 2013 and complete in 205 days (11/22/2013).

Thanks,

Leslie Feusi
Lead Interconnection Specialist
CAISO, Interconnection Resources
916-351-2330

NOTE: Failure to include the correct Project Name and Queue Number in the message SUBJECT LINE may delay the processing of and response to your communications.

From: Feusi, Leslie
Sent: Monday, July 23, 2012 12:08 PM
To: 'julie.gill@aes.com'
Subject: GIDAP Info.

Hi Julie,

It was so nice getting caught up!

I've attached that overview for the GIDAP process. We expect the FERC ruling for this submitted Tariff change as early as tomorrow. So, as I mentioned, this could change based on that ruling.

I'll let you know what I find on that C5 Phase II study schedule.

Thanks,

Leslie Feusi
Lead Interconnection Specialist
CAISO, Interconnection Resources
916-351-2330

NOTE: Failure to include the correct Project Name and Queue Number in the message SUBJECT LINE may delay the processing of and response to your communications.

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5.1 Air Quality

3. Compliance Determination (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.

Information required to make AFC conform with regulations:

Please provide a copy of the letter of completeness from South Coast Air Quality Management District.

Response: The South Coast Air Quality Management District Notice of Completeness is provided in Attachment DA5.1-1.

Attachment DA5.1-1
South Coast Air Quality Management District
Notice of Completeness

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 · www.aqmd.gov

July 24, 2012

Stephen O'Kane
Vice President
AES Southland
690 N. Studebaker Road
Long Beach, CA 90803

Subject: Permit Applications for the Huntington Beach Energy Project, located at 21730 Newland Street, Huntington Beach, CA 92646 (Facility ID# 115389)

Dear Mr. O'Kane:

The South Coast Air Quality Management District (AQMD) received permit applications for the Huntington Beach Energy Project (HBEP) on June 26, and July 18, 2012. As a first step in our review process, we have briefly evaluated the applications to determine whether they are complete and ready for review. Based on our initial review of the submitted materials it has been determined that the application package is complete. The reference application numbers for this project and our initial review determination are provided in the table below:

Application	Equipment Description	Completeness Determination
539746	Mitsubishi Gas Turbine #1A	Deemed Complete
539747	Mitsubishi Gas Turbine #1B	Deemed Complete
539748	Mitsubishi Gas Turbine #1C	Deemed Complete
539768	Mitsubishi Gas Turbine #2A	Deemed Complete
539769	Mitsubishi Gas Turbine #2B	Deemed Complete
539770	Mitsubishi Gas Turbine #2C	Deemed Complete
540256	SCR/CO Catalyst #1A	Deemed Complete
540257	SCR/CO Catalyst # 1B	Deemed Complete
540258	SCR/CO Catalyst #1C	Deemed Complete
540260	SCR/CO Catalyst #2A	Deemed Complete
540261	SCR/CO Catalyst #2B	Deemed Complete
540262	SCR/CO Catalyst #2C	Deemed Complete
540255	Aqueous Ammonia Storage Tank	Deemed Complete
540259	Title V/RECLAIM Significant Revision	Deemed Complete

Please be aware that additional information will be needed during the course of our full engineering evaluation. Your cooperation is key to the timely review of the applications. The following issues have been identified during the completeness review:

- SCR and CO catalyst vendor guarantees and PM10 emission rates– AQMD requires that the control system vendors provide their guarantees for emission rates and catalyst life and that the turbine manufacturer provides its guarantee for PM10 emission rates. HBEP has indicated that these guarantees are not available at this time, but will be available in approximately 60 days. Therefore, the guarantees must be submitted to AQMD no later

than September 24, 2012 in order for AQMD to process your applications in a timely manner.

- Greenhouse Gas (GHG) PSD Permit – At this time the EPA has not delegated the permitting authority to AQMD. Please contact EPA and submit the GHG PSD permit application directly to EPA.

- PM2.5 – AQMD has adopted Rule 1325, Federal PM2.5 New Source Review Program. Based on their Potential to Emit (PTE), the new turbines will constitute a PM2.5 major polluting facility in and of themselves. You must provide offsets for these emissions. As an alternative, you may wish to propose enforceable operating conditions to reduce the PM2.5 PTE to below the major source threshold.

- As part of your project, AES HB Boilers 1 and 2 and AES Redondo Beach Boilers 6 and 8 will be shutdown. In order to verify that the shutdowns are permanent, AQMD will need a detailed decommissioning plan outlining the schedule and steps that will be taken to render these units non-operational.

If you have any questions regarding your permit applications please contact Mr. Chris Perri at (909) 396-2696 or cperri@aqmd.gov.

Sincerely,

Brian L. Yeh
Senior Manager
Mechanical, Chemical, and Public Services Team
Engineering & Compliance

BLY:AYL:JTY:cgp

Cc: Mohsen Nazemi
Felicia Miller, CEC

5.2 Biological Resources

4. Plant Survey (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.

Information required to make AFC conform with regulations:

1. *Please conduct plant surveys for special status species in 2012 to supplement 2011 site walk. Then provide discussion of direct, indirect, and cumulative impacts to any special status species found during surveys.*

Response: Additional botanical surveys were conducted on July 19, 2012, within the project area to supplement the 2011 site reconnaissance survey. No special-status plant species were identified during the surveys; therefore, no additional discussion of direct, indirect, and cumulative impacts to any special-status plant species is required. The survey methodology, surveyor's qualifications, and survey results are presented in Attachment DA5.2-1.

2. *Please provide a discussion of any monitoring plans proposed to verify the effectiveness of the mitigation.*

Response: Because no suitable habitat for special-status plant species is present within the project area and no such special-status plant species were noted during the 2011 initial reconnaissance survey or during the 2012 supplemental biological survey, no preconstruction monitoring of special-status plant species on the HBEP site will be required, and no monitoring of special-status plant species will be required during operation of HBEP.

As discussed in Section 5.2.5, Mitigation Measures (p. 5.2-38), the project owner will conduct a preconstruction active nesting bird survey within 100 feet of the HBEP site, and, if determined necessary, monitoring of active nests during construction/demolition activities will be performed if it is determined that active nests will be significantly disturbed by HBEP construction or demolition activities.

In response to this CEC Staff Data Adequacy request, the project owner will also conduct a preconstruction survey for special-status bird species that may be foraging within 100 feet of the HBEP site, and if, determined necessary, will monitor for foraging special-status bird species within 100 feet of the HBEP site during construction/demolition activities.

5. Sensitive Biological Resources (Appendix B (g)(13)(A)(iii))

species identified as state Fully Protected;

Information required to make AFC conform with regulations:

Please update Appendix 5.2A to include Fully Protected Species.

Response: Fully protected species have been included in a revised AFC Appendix 5.2C provided as Attachment DA5.2-2.

6. Sensitive Biological Resources (Appendix B (g)(13)(A)(iv))

species identified as state Fully Protected;

Information required to make AFC conform with regulations:

Please provide a discussion of species covered by the Migratory Bird Treaty Act.

Response: The Migratory Bird Treaty Act (MBTA; 16 USC 703 to 711) protects all migratory birds, including nests and eggs (USFWS, 2012). The existing Huntington Beach Generating Station site could potentially provide nesting habitat for some species covered under the MBTA, such as killdeer (*Charadrius vociferous*), doves (*Zenaida* spp.) and house finches (*Carpodacus mexicanus*) that may nest in open areas, perimeter landscaping, and unused

structures on the site. Because the existing Huntington Beach Generating Station has been active since 1958 and the project site is located in a highly urbanized area, most MTBA-protected species that have the potential to nest within the project area have adjusted to the highly urbanized area. Additionally, no special-status wildlife species were identified during the site surveys discussed above.

United States Fish and Wildlife Service (USFWS). 2012. Digest of Federal Resource Laws. Available online at: http://www.fws.gov/laws/lawsdigest/resourcelaws.htm

7. Sensitive Biological Resources (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:

Information required to make AFC conform with regulations:

*Please include a list of species actually observed. Please include Laguna Beach dudleya (*Dudleya stolonifera*) and south coast branching phacelia (*Phacelia ramosissima *var.* austrolitoralis*) in the species list as they are known to occur in the project quads.*

Response: A species list from the 2011 site reconnaissance survey was provided in Sections 5.2.2.7 and 5.2.2.8 of the AFC. California Natural Diversity Database (CNDDB) occurrences that have been documented within 1 mile of the project area were provided in Figure 5.2-4c. Additional plant and wildlife species lists observed during the recent biological resource survey are provided in Attachment DA5.2-2.

There are no documented occurrences in the CNDDB for the Laguna Beach dudleya (*Dudleya stolonifera*) and south coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*) within 1 mile of the project area. In addition, there are no CNDDB records for these species within 10 miles of HBEP. Additional CNDDB quad searches were conducted for the U.S. Geological Survey Newport Beach, California 7.5-minute series topographic quadrangle and the U.S. Geological Survey Los Alamitos, California 7.5-minute series topographic quadrangle and these species were not documented in those searches. The CNDDB lists and the *How to Read RareFind 3 Reports*, which provides the definitions and code key for these lists, are provided in Attachment DA5.2-3

8. Sensitive Biological Resources (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;

Information required to make AFC conform with regulations:

Please label the survey areas.

Response: The survey area for the 2011 initial reconnaissance survey and the 2012 supplemental survey has been labeled on revised Figures 5.2-4c and 5.2-4d, which are provided in Attachment DA5.2-4. As requested by the California Energy Commission, an additional 500-foot buffer within the Huntington Beach Wetlands Conservancy Coastal Marsh Complex was surveyed for nesting birds from the project area existing perimeter fencing. The results of this survey are documented in Attachment DA5.2-2.

9. Sensitive Biological Resources (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.

Information required to make AFC conform with regulations:

1. *Figures provided are at 1:24,000 scale which is not detailed enough to determine where wetlands are located in relation to the project boundary. Please provide maps at a scale of 1:2,400.*

Response: Figure 5.2-2a and Figure 5.2-2b have been revised at a scale of 1:2,400, and are provided in Attachment DA5.2-5

2. *Please provide Coastal zone wetland map at a scale of 1:2,400.*

Response: Figures 5.2-2a and 5.2-2b provide data from the United States Fish and Wildlife Service's National Wetland Inventory. For these figures, wetlands, as defined by the Coastal Act, were included. The Huntington Beach Wetlands Conservancy Coastal Marsh Complex is also depicted in Figure 5.6-1 in Section 5.6, Land Use, in the AFC. This wetland is an identified Environmentally Sensitive Habitat Area (ESHA) in the Huntington Beach Coastal Element of the City's General Plan and HBEP will comply with the requirements in the City's Coastal Element (see Section 5.6.2.1.2, Natural Resource Protection and Natural Resource Extraction Areas, of the Land Use section of the AFC for additional information).

10. Biological Resources (Appendix B (g)(13)(C)(i))

A list of all the species actually observed;

Information required to make AFC conform with regulations:

Please provide a complete list of all the species observed.

Response: The observed plant and wildlife species lists are provided in Attachment DA5.2-2.

11. Biological Survey Results (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:

Information required to make AFC conform with regulations:

1. *Please provide a description of survey methods.*

Response: A description of the survey methods used during the additional site survey is provided in Attachment DA5.2-2.

2. *Please provide results of all field studies and seasonal surveys used to provide biological baseline information about the project site and associated facilities for the 1-mile buffer around project site (100% coverage not required).*

Response: The 2012 supplemental site survey results are provided in Attachment DA5.2-2.

3. *Please provide names of surveyors and dates of surveys.*

Response: The supplemental site survey was conducted on July 19, 2012, by CH2M HILL biologist Melissa Fowler, and her resumé is included in Attachment DA5.2-2.

4. *Please provide any CNDDB records and field surveys forms, if applicable.*

Response: CNDDB records are provided in Attachment DA5.2-2. No field survey forms were created because there were no special-status species to document within the project area.

12. Biological Survey Results (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;

Information required to make AFC conform with regulations:

1. *Please describe in detail the methods used for botanical and wildlife surveys.*

Response: The methods that were used to conduct the supplemental botanical and wildlife surveys are provided in Attachment DA5.2-2.

2. *Please conduct a field survey in summer/fall 2012 during the blooming period for special-status plants potentially occurring in the project area, including southern tarplant (*Centromadia parryi *ssp.* australis*) which blooms May to November, using CDFG Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009). A site walk was conducted in September 2011 however appropriate field survey protocols were not followed.*

Response: The supplemental field survey was completed in July 2012 and additional information about the methods is provided in Attachment DA5.2-2. In addition, the southern tarplant (*Centromadia parryi* ssp. *australis*) was not observed within the HBGS site and there is no suitable habitat for this species within the project area. Multiple CNDDB occurrences for this species are documented within 10 miles of the project area, but the closest record is approximately 1.5 miles southeast of the project area and east of the Santa Ana River (see Figure 5.2-4c in Section 5.2, Biological Resources, in the AFC).

13. Educational Programs (Appendix B (g)(13)(F)(v))

Educational programs to enhance employee awareness during construction and operation to protect biological resources.

Information required to make AFC conform with regulations:

Please provide a discussion of educational programs to enhance employee awareness during construction and operation to protect biological resources.

Response: A site-specific Worker Environmental Awareness Program (WEAP), to educate construction workers and operators on the sensitive biological resources in the vicinity of the project area, will be prepared and administered by the designated biologist. The WEAP will include an oral, video/powerpoint, and/or written materials presentation that discusses the types of construction activities that may impact biological resources and the measures developed to avoid such impacts. The WEAP will also include appropriate contact information and procedures. The program will include information regarding encounters with wildlife and dealing with situations involving biological resources.

1. General construction measures to be implemented within the project area will be developed as part of the WEAP.
2. Provide construction monitoring by a qualified biologist to ensure compliance with the protection measures.
3. Demarcate access routes and construction areas to minimize impacts to habitat and special-status species during construction and operations.
4. Prepare standardized construction monitoring and compliance reports that analyze the effectiveness of the measures.

14. Feasible Mitigation (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.

Information required to make AFC conform with regulations:

Please provide a discussion of compliance and monitoring programs to ensure the effectiveness of impact avoidance and mitigation measures incorporated into the project.

Response: Because no suitable habitat for special-status plant species is present within the project area and no such special–status plant species were noted during the 2011 initial reconnaissance survey or during the 2012 supplemental biological survey, no preconstruction monitoring of special-status plant species on the HBEP site will be required, and no monitoring of special-status plant species will be required during operation of HBEP.

As discussed in Section 5.2.5, Mitigation Measures (p. 5.2-38), the project owner will conduct a preconstruction active nesting bird survey within 100 feet of the HBEP site, and, if determined necessary, monitoring of active nests during construction/demolition activities will be performed if it is determined that active nests will be significantly disturbed by HBEP construction or demolition activities.

In response to this CEC Staff Data Adequacy request, the project owner will also conduct a preconstruction survey for special-status bird species that may be foraging within 100 feet of the HBEP site, and if, determined necessary, will monitor for foraging special-status bird species within 100 feet of the HBEP site during construction/demolition activities.

As discussed above, a site-specific Worker Environmental Awareness Program (WEAP), to educate construction workers and operators on the sensitive biological resources in the vicinity of the project area, will be prepared and administered by the designated biologist.

15. Agency Contacts (Appendix B (g)(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.

Information required to make AFC conform with regulations:

Please provide title and address for CDFG contact Matthew Chirdon; please provide title for USFWS contact Jonathan Snyder; please provide address and email for City of Huntington Beach contact Jane James.

Response:
Matthew Chirdon
California Department of Fish and Game
Staff Environmental Scientist
3883 Ruffin Road
San Diego, CA 92123

Jonathan Snyder
US Fish and Wildlife Service
Central, Coastal, Camp Pendleton Division Chief

Jane James
City of Huntington Beach
2000 Main Street 3rd Floor
Huntington Beach, CA 92648
jjames@surfcity-hb.org

Attachment DA5.2-1
Supplemental Botanical and Wildlife Surveys for the Huntington Beach Energy Project

Supplemental Botanical and Wildlife Surveys for the Proposed Huntington Beach Energy Project

PREPARED FOR: AES Southland Development, LLC
21730 Newland Street
Huntington Beach, CA 92646

PREPARED BY: CH2M HILL

DATE: August 1, 2012

Project Overview

The Huntington Beach Energy Project (HBEP) is a natural-gas-fired, combined-cycle, air-cooled electrical generating facility rated at a nominal generating capacity of 939 megawatts (MW), which will replace, and be constructed on the site of, the existing AES Huntington Beach Generating Station, an existing and operating power plant in the city of Huntington Beach, California. The project will be constructed entirely within the existing 53-acre Huntington Beach Generating Station site. HBEP will reuse existing onsite potable water, natural gas, stormwater, process wastewater, and sanitary pipelines and electrical transmission facilities. No offsite linear developments are proposed as part of the project. See Section 2.0, Project Description, of the June 2012 HBEP Application for Certification for the complete description of the project. HBEP will have a reduced project footprint and lower visual impacts, it will help California achieve its clean energy and environmental goals, it will be more efficient by producing more energy for the same amount of fuel, and environmentally superior because it will be quieter, cleaner, and will eliminate the use of ocean water currently used by the existing Huntington Beach Generation Station, and will continue to provide critical electrical grid support.

Additional botanical and wildlife surveys were conducted to supplement the initial site biological survey that was completed in September 29, 2011. This technical memorandum summarizes these survey results, which were conducted on July 19, 2012.

Agency Coordination

Contact was initiated with the California Department of Fish and Game (CDFG) and the United States Fish and Wildlife Service (USFWS). USFWS and CDFG were contacted and were provided with a general project description and project overview for their review and guidance regarding any potential special-status species concerns or other related concerns for biological resources at HBEP. Agency personnel and contact information are provided in Table 1.

TABLE 1
Agency Contacts for Biological Resources

Issue	Agency	Contact
State listed species	California Department of Fish and Game	Matthew Chirdon Staff Environmental Scientist 3883 Ruffin Road San Diego, CA 92123 (858) 467-4284 mchirdon@dfg.ca.gov
Federally listed species	United States Fish and Wildlife Service	Jonathan Snyder U.S. Fish and Wildlife Service 6010 Hidden Valley Road, Suite 101 Carlsbad, CA 92011 (760) 431-9440 x307 jonathan_d_snyder@fws.gov

Regulatory Context

The project may be subject to the following federal regulations:

Federal Endangered Species Act (FESA). FESA, includes coordination requirements of Sections 7 and 10 and Habitat Conservation Plan (HCP) requirements of Section 9 (16 United States Code [USC] §§1531 et seq.; 50 *Code of Federal Regulations* (CFR) Part 402). Section 9 of the FESA prohibits the "take" of species federally listed as threatened or endangered. "Take" is further defined to include any harm or harassment, including significant habitat modification or degradation that could potentially kill or injure wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under Section 7 of the FESA, where a federal nexus or agency is involved. Section 10 of the FESA provides for project proponents of non-federal activities to apply for take incidental to otherwise lawful activities; this generally includes the development of an HCP (USFWS, 2012).

Migratory Bird Treaty Act (MBTA; 16 USC 703-712; 50 CFR 10). The federal MBTA prohibits the "take" of migratory birds, unless permitted (USFWS, 2012). This regulation can constrain construction activities that have the potential to affect nesting birds either through vegetation removal and land clearing, or through other construction- or operation-related disturbance.

California Endangered Species Act (CESA; California Fish and Game Code §§2050 et seq.). Section 2050 of the California Fish and Game Code prohibits any activities that would jeopardize or take a species listed as threatened or endangered within the state. Projects that have the potential to impact species listed as threatened or endangered by the state might require an Incidental Take Permit from CDFG under Section 2081 of the California Fish and Game Code (CDFG, 2012a).

California Fully Protected Wildlife Species Provisions (California Fish and Game Code §§3511, 4700, 5050, and 5515). These provisions prohibit the taking of fully protected birds, mammals, amphibians, and fish (CDFG, 2012b).

Birds of Prey Protection Provision (California Fish and Game Code §3503.5). This provision prohibits the taking of birds of prey, including any birds of the order Falconiformes or Strigiformes, and includes the nests or eggs of such birds (CDFG, 2012b).

Migratory Bird Provision (California Fish and Game Code §3513). This provision prohibits any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA (CDFG, 2012b).

Methods

Botanical Surveys

According to the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*, botanical surveys should be completed before any project-related activities may modify vegetation, such as clearing, mowing or ground-breaking activities (CDFG, 2009). In addition, protocols outlined in these guidelines are to be adhered to when:

- "Natural (or naturalized) vegetation occurs on the site, and it is unknown if special status plant species or natural communities occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
- Special status plants or natural communities have historically been identified on the project site; or
- Special status plants or natural communities occur on sites with similar physical and biological properties as the project site (CDFG, 2009)."

HBEP will be constructed entirely within the existing operating Huntington Beach Generating Station site and no natural vegetation occurs within the project area. Vegetation within the project area primarily consists of landscaping plants and non-native species that are regularly treated with herbicides and removed as necessary. The existing Huntington Beach Generating Station has been operating since 1958 and special-status plants or natural communities have not been documented within the project area (CDFG, 2012c; see Attachment 1 of this technical memorandum and Figure 5.2-4c in Section 5.2, Biological Resources, of the June 2012 HBEP Application for

Certification). In addition to the California Natural Diversity Database (CNDDB) data, no special-status plant species were observed within the project area during the September 2012 reconnaissance survey. HBEP is located within an existing developed operational industrial site that does not provide physical or biological properties available for special-status/rare plants or natural communities. Because none of the appropriate criteria outlined in CDFG's protocols were met for the project site, a general site pedestrian survey was conducted by a qualified biologist and vegetation located within the project area were recorded (see Attachment 2 for the biologist's resume). More specifically, considering the long-term industrial development of the site and the ongoing management and maintenance of the site, transects were not appropriate. The biologist surveyed around the tank containment berms, the open paved and gravel areas, and along the fence line of existing Huntington Beach Generating Station.

To document the results of the July 19, 2012, follow-on botanical survey, CH2M HILL's biologist used the applicable CNDDB RareFind as a checklist (see Attachment 3) to record any special-status plant species. The RareFind report and list were generated for all CNDDB occurrences that have been documented within 1 mile of the project area. The RareFind list for plant species is included in Attachment 3 and the complete RareFind report for these occurrences is included in Attachment 1.

Wildlife Surveys

The California Energy Commission (CEC) requested that additional surveys for the southern California saltmarsh shrew (*Sorex ornatus salicornicus*), which is a CDFG species of special concern, and nesting birds be conducted for the HBEP. The southern California saltmarsh shrew primarily inhabits salt marshes dominated by pickleweed (*Salicornia virginica*) and salt grass (Bolster, 1988). Because the existing Huntington Beach Generating Station does not contain any suitable habitat for the southern California saltmarsh shrew within the project area, a trapping grid, which is an acceptable method for surveying small mammal populations, was not established. In addition, according to the CDFG's RareFind database only two historical records for this species were documented within 10 miles of the project area. The first record was from 1933 and was collected in the Newport Lagoon, approximately 5 miles east/ southeast of HBEP. The second occurrence was obtained in 1968 in the general vicinity of Seal Beach, approximately 8.5 miles northwest of the project area (CDFG, 2012c). Because the existing Huntington Beach Generating Station has been an existing and operational power plant since 1958 and no suitable habitat is present within the project area, no further surveys were conducted for this species.

The Huntington Beach Wetlands Conservancy Coastal Marsh Complex is adjacent to the project area and a 500-foot buffer from the fence line of HBEP was surveyed for nesting birds. In addition, four observation points were established along the southeast perimeter of the HBEP site, which is adjacent to the marsh, and 10-minute observations were completed. During the 10-minute observations, areas with potential habitat, such as the marsh and perimeter fencing vegetation, were scanned for any aerial and ground activity for avian species. All birds that were observed during the nesting bird surveys and at observation points were recorded. In addition to the surveys and observations points conducted for the adjacent marsh, landscaping trees along the perimeter fencing were surveyed for nesting birds. Additional areas, which include the tank containment berms, the open paved and gravel areas, and along the fence line of existing Huntington Beach Generating Station were also surveyed for wildlife species.

To document the results of the July 19, 2012, follow-on wildlife and nesting bird surveys, CH2M HILL's biologist used the applicable CNDDB RareFind database as a checklist (see Attachment 4) to record wildlife species observed onsite and at the Huntington Beach Wetlands Conservancy Coastal Marsh Complex. The RareFind report and list were generated for all CNDDB occurrences that have been documented within 1 mile of the project area. The RareFind list for wildlife species is included in Attachment 4 and the complete RareFind report for these occurrences is included in Attachment 1 of this technical memorandum. Biologist qualifications are provided in Attachment 2.

Results

Plants that were identified during the supplemental site survey, including landscaping species, are listed in Table 2. Six native plant species were observed within the project area. As discussed above and as noted in Attachment 3, no special-status plants or natural communities are located on the HBEP site as confirmed by this follow-on survey. In addition, considering the routine weed abatement program that is implemented onsite, additional protocol-level

surveys are not recommended since this area is regularly managed. Representative site photos are provided in Attachment 5 of this technical memorandum.

TABLE 2
Plants Observed within the Project Site

Common Name	Scientific Name
Alkali weed*	*Cressa truxillensis*
Arundo	*Arundo donax*
Australian saltbush	*Atriplex semibacata*
Bindweed	*Convolvulus arvensis*
Cheeseweed	*Malva parviflora*
Common groundsel	*Senecio vulgaris*
Common sowthistle	*Sonchus oleraceus*
Five-hook	*Bassia hyssopifolia*
Horseweed	*Erigeron canadensis*
Iceplant	Carpobrotus spp.
Little horseweed*	*Conyza bonariensis*
Lollypop tree	*Myoporum laetum*
Parish's pickleweed*	*Salicornia subterminalis*
Saltgrass*	*Distichlis spicata*
Pink powderpuff	*Calliandra surinamensis*
Slenderleaf iceplant	*Mesembryanthemum nodiflorum*
Spotted spurge	*Chamaesyce maculata*
Star pine	*Araucaria heterophylla*
Telegraph weed*	*Heterotheca grandiflora*
Tocalote	*Centaurea melitensis*
Western goldenrod*	*Euthamia occidentalis*

*Native species

Wildlife species observed during the supplemental nesting bird surveys, observations points, and site survey are listed in Table 3. Only four species were observed within the project area: California ground squirrel (*Otospermophilus beecheyi*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), and western fence lizard (*Sceloporus occidentalis*); these species are often associated with disturbed or developed areas. The house finch is the only species observed within the project area that is covered under legislation; it is listed as a MBTA-protected species. However, this species is very urbanized and common and is not listed as a species of special concern. The majority of observations for this species were either individuals flying near or perching on the perimeter fencing. As discussed above and as noted in Attachment 4, no special-status wildlife species were noted on the HBEP site.

No nesting birds were observed within the Huntington Beach Wetlands Conservancy Coastal Marsh Complex or in the perimeter landscaping located around the project's fence line. In southern California, the general nesting season for most species occurs from February to July. However, considering when this survey was conducted, nesting activity was not expected to be observed at this time of year.

TABLE 3
Animal Species Observed in Project Area and Adjacent to the Project Site

Common Name	Scientific Name
American crow	*Corvus brachyrhynchos*
Barn swallow	*Hirundo rustica*
California ground squirrel*	*Otospermophilus beecheyi*
Common yellowthroat	*Geothlypis trichas*
Double-crested cormorant	*Phalacrocorax auritus*
European starling	Sturnus vulgaris
Great blue heron	Ardea herodias
Great egret	*Ardea alba*
Gull	Larus spp.
House finch*	*Carpodacus mexicanus*
House sparrow*	*Passer domesticus*
Killdeer	*Charadrius vociferus*
Mourning dove	*Zenaida macroura*
Rock pigeon	*Columba livia*
Snowy egret	*Egretta thula*
Turkey vulture	*Cathartes aura*
Western fence lizard*	*Sceloporus occidentalis*

*Species was observed within the project area.

Discussion

No special-status plant or wildlife species were identified within the project area during the September 29, 2011, biological survey or the follow-on July 19, 2012, biological survey In addition, considering the historical use of the Huntington Beach Generating Station site and the lack of suitable habitat within the project area, HBEP is not expected to have any significant impacts on special-status plant and animal species.

References

Bolster, B.C., editor. 1998. Terrestrial Mammal Species of Special Concern in California. Draft Final Report prepared by P.V. Brylski, P.W. Collins, E.D. Pierson, W.E. Rainey and T.E. Kucera. Report submitted to California Department of Fish and Game Wildlife Management Division, Nongame Bird and Mammal Conservation Program for Contract No.FG3146WM.

California Department of Fish and Game (CDFG). 2012a. California Endangered Species Act (CESA). Available online at: http://www.dfg.ca.gov/habcon/cesa/

California Department of Fish and Game (CDFG). 2012b. Laws and Regulations Directing Environmental Review and Species Take Programs. Available online at: http://www.dfg.ca.gov/wildlife/nongame/regcode.html

California Department of Fish and Game (CDFG). 2012c. California Natural Diversity Database RareFind database.

California Department of Fish and Game (CDFG). 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Available online at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf

United States Fish and Wildlife Service (USFWS). 2012. Digest of Federal Resource Laws. Available online at: http://www.fws.gov/laws/lawsdigest/resourcelaws.htm

Attachment 1
RareFind Report

Atriplex serenana var. davidsonii

Davidson's saltscale

Element Code: PDCHE041T1

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T2?	**CNPS List:** 1B.2
State: None	**State:** S2?	

Habitat Associations

General: COASTAL BLUFF SCRUB, COASTAL SCRUB.

Micro: ALKALINE SOIL. 3-250M.

Occurrence No. 16 **Map Index:** 49319 **EO Index:** 49319

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1932-07-25
Site: 1932-07-25

Record Last Updated: 2002-11-08

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.65635º / -117.95014º
UTM: Zone-11 N3724458 E411903
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 06S
Range: 10W
Section: 17 **Qtr:** XX
Meridian: S
Elevation:

Location: 2 MILES FROM THE OCEAN, SANTA ANA RIVER.

Location Detail: EXACT LOCATION UNKNOWN, MAPPED AT 2 MILES FROM THE OCEAN AT THE SANTA ANA RIVER.

Ecological:

Threat:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1932 COLLECTION BY BOOTH (#1315 UC). NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Sources

BOO32S0017 BOOTH, L. BOOTH #1315 UC #536963. 1932-07-25.

Charadrius alexandrinus nivosus

western snowy plover

Element Code: ABNNB03031

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G4T3	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: SANDY BEACHES, SALT POND LEVEES & SHORES OF LARGE ALKALI LAKES.

Micro: NEEDS SANDY, GRAVELLY OR FRIABLE SOILS FOR NESTING.

Occurrence No. 30 **Map Index:** 02422 **EO Index:** 25650

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen
Element: 1955-XX-XX
Site: 1955-XX-XX

Record Last Updated: 1993-11-30

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63836º / -117.97340º
UTM: Zone-11 N3722484 E409728
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 96.1 acres

Township: 06S
Range: 10W
Section: 19 **Qtr:** XX
Meridian: S
Elevation: 3 ft

Location: HUNTINGTON STATE BEACH, ADJACENT TO THE CITY OF HUNTINGTON BEACH.
Location Detail:
Ecological:
Threat: HABITAT UNSUITABLE DUE TO HUMAN ACTIVITY/DEVELOPMENT.
General: 21 MUSEUM EGG SETS COLLECTED BETWEEN 1907 AND 1917. ONE NEST FOUND IN 1955.
Owner/Manager: DPR-HUNTINGTON SB

Sources

PAG81R0001 PAGE, G.W. & L.E. STENZEL. THE BREEDING STATUS OF THE SNOWY PLOVER IN CALIFORNIA. WESTERN BIRDS, VOL. 12, NO. 1, PAGES 1-40. 1981-XX-XX.

Charadrius alexandrinus nivosus

western snowy plover

Element Code: ABNNB03031

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G4T3	**CDFG Status:** SC
State: None	**State:** S2	

Habitat Associations

General: SANDY BEACHES, SALT POND LEVEES & SHORES OF LARGE ALKALI LAKES.

Micro: NEEDS SANDY, GRAVELLY OR FRIABLE SOILS FOR NESTING.

Occurrence No. 118 **Map Index:** 02406 **EO Index:** 25713

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1986-04-24
Site: 1986-04-24

Record Last Updated: 1998-12-11

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.64983º / -117.98388º
UTM: Zone-11 N3723765 E408768
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 49.3 acres

Township: 06S
Range: 11W
Section: 13 **Qtr:** S
Meridian: S
Elevation: 5 ft

Location: NEWLAND MARSH, JUST NE OF PCH (HWY 1) AND BEACH BLVD (HWY 39) JCT, HUNTINGTON BEACH.

Location Detail: ALSO KNOWN AS "NEWLAND AVE MARSH."

Ecological: HABITAT WAS A 6.5 ACRE MARSH WITH NO TIDAL ACTION. BULLDOZED IN 1982 FOR WEED CONTROL, IT CONTAINS 2 SMALL PONDS, A SALTPAN, & PICKLEWEED. IN 2012 THE HUNTINGTON BEACH WETLAND CONSERVANCY IS PURCHASING THE PROP FROM BLM.

Threat: THREATS INCLUDE PROBLEMS WITH DUMPING AND HUMAN DISTURBANCE.

General: BLACK-NECKED STILTS, AMERICAM AVOCETS, KILLDEER, AND BELDINGS SAVANNAH SPARROW ALSO NEST HERE.

Owner/Manager: PVT

Sources

FWS87R0003 U.S. FISH & WILDLIFE SERVICE. A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA, 1986. 1987-01-XX.

ZEM88A0001 ZEMBAL, R. ET AL. AMERICAN BIRDS (VOL. 42, NO. 5) ARTICLE: "A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA". 1988-XX-XX.

Cicindela gabbii

western tidal-flat tiger beetle

Element Code: IICOL02080

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: INHABITS ESTUARIES AND MUDFLATS ALONG THE COAST OF SOUTHERN CALIFORNIA.

Micro: GENERALLY FOUND ON DARK-COLORED MUD IN THE LOWER ZONE; OCCASIONALLY FOUND ON DRY SALINE FLATS OF ESTUARIES.

Occurrence No. 10 **Map Index:** 02386 **EO Index:** 22682

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 2008-09-02

Quad Summary: Newport Beach (3311768/071B), Seal Beach (3311861/072A)
County Summary: Orange

Lat/Long: 33.65636º / -118.00298º
UTM: Zone-11 N3724506 E407003
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 06S
Range: 11W
Section: 14 **Qtr:** XX
Meridian: S
Elevation: 5 ft

Location: HUNTINGTON BEACH.
Location Detail:
Ecological:
Threat:
General: HISTORICAL COLLECTION LOCALITY; CONSIDERED EXTIRPATED AT THIS SITE.
Owner/Manager: DPR-BOLSA CHICA SB, UNKNOWN

Sources

NAG80R0001 NAGANO, CHRISTOPHER D. (LA COUNTY MUSEUM). "POPULATION STATUS OF THE BEETLES OF THE GENUS CICINDELA (COLEOPTERA: CICINDELIDAE) INHABITING THE MARINE SHORELINE OF SOUTHERN CALIFORNIA". 1980-XX-XX.

Cicindela latesignata latesignata

western beach tiger beetle

Element Code: IICOL02113

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4T1T2	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: MUDFLATS AND BEACHES IN COASTAL SOUTHERN CALIFORNIA.
Micro:

Occurrence No. 8 **Map Index:** 02386 **EO Index:** 60961

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 2005-04-12

Quad Summary: Newport Beach (3311768/071B), Seal Beach (3311861/072A)
County Summary: Orange

Lat/Long: 33.65636º / -118.00298º
UTM: Zone-11 N3724506 E407003
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 06S
Range: 11W
Section: 14 **Qtr:** XX
Meridian: S
Elevation: 5 ft

Location: HUNTINGTON BEACH.
Location Detail: ALSO RECORDED "NORTH OF HUNTINGTON BEACH."
Ecological:
Threat:
General: HISTORICAL LOCALITIES.
Owner/Manager: DPR-BOLSA CHICA SB, UNKNOWN

Sources

NAG82A0001 NAGANO, C.D. POPULATION STATUS OF THE TIGER BEETLES OF THE GENUS CICINDELA (COLEOPTERA: CICINDELIDAE) INHABITING THE MARINE SHORELINE OF SOUTHERN CALIFORNIA. ATALA 1980(1982). 8(2):33-42. 1982-XX-XX.

Nasturtium gambelii

Gambel's water cress

Element Code: PDBRA270V0

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CNPS List:** 1B.1
State: Threatened	**State:** S1	

Habitat Associations

General: MARSHES AND SWAMPS.

Micro: FRESHWATER AND BRACKISH MARSHES AT THE MARGINS OF LAKES AND ALONG STREAMS, IN OR JUST ABOVE THE WATER LEVEL. 5-1305M.

Occurrence No. 13 **Map Index:** 72461 **EO Index:** 73431

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen
Element: 1908-07-25
Site: 1908-07-25

Record Last Updated: 2010-04-19

Quad Summary: Seal Beach (3311861/072A), Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.65882º / -117.99974º
UTM: Zone-11 N3724776 E407306
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 06S
Range: 11W
Section: 14 **Qtr:** XX
Meridian: S
Elevation:

Location: HUNTINGTON BEACH.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS IN VICINITY OF HUNTINGTON BEACH.

Ecological:

Threat: SITE LIKELY EXTIRPATED BY DEVELOPMENT.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1908 CONDIT COLLECTION. ID OF SPECIMEN SHOULD BE CHECKED.

Owner/Manager: UNKNOWN

Sources

CON08S0009 CONDIT, I. CONDIT SN UC #455719. 1908-07-25.

ELV10U0001 ELVIN, M. TABLE OF POPULATION RECORDS FOR NASTURTIUM GAMBELII COLLATED FROM VARIOUS SOURCES. 2010-04-14.

ROBNDU0002 ROBERTS, F. A CHECKLIST OF THE VASCULAR PLANTS OF ORANGE COUNTY, CALIFORNIA. XXXX-XX-XX.

Panoquina errans

wandering (=saltmarsh) skipper

Element Code: IILEP84030

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4G5	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SALT MARSHES.

Micro: REQUIRES MOIST SALTGRASS FOR LARVAL DEVELOPMENT.

Occurrence No. 13 **Map Index:** 02406 **EO Index:** 86121

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-08-XX
Site: 2004-08-XX

Record Last Updated: 2012-02-14

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.64983º / -117.98388º
UTM: Zone-11 N3723765 E408768
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 49.3 acres

Township: 06S
Range: 11W
Section: 13 **Qtr:** S
Meridian: S
Elevation: 5 ft

Location: NEWLAND MARSH, JUST EAST OF BEACH BLVD (HWY 39) AT PCH (HWY 1), HUNTINGTON BEACH.

Location Detail: ALSO KNOWN AS NEWLAND AVE MARSH. PART OF THE HUNTINGTON BEACH WETLAND (HBW) STUDY SITE.

Ecological:

Threat:

General: OBSERVED WITHIN THE FRIGING STANDS OF DISTICHLIS SPICATA.THE LIMITED OCCURRENCE OF SALTGRASS ALONG THE MARSH FRINGE IS THE PRIMARY FACTOR LIMITING THE SKIPPER AT THE HUNTINGTON BEACH WETLANDS.

Owner/Manager: CALTRANS

Sources

MER04R0001 MERKEL & ASSOCIATES, INC. HUNTINGTON BEACH WETLANDS, HABITATS AND SENSITIVE SPECIES. 2004-08-18.

Panoquina errans

wandering (=saltmarsh) skipper

Element Code: IILEP84030

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4G5	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: SOUTHERN CALIFORNIA COASTAL SALT MARSHES.

Micro: REQUIRES MOIST SALTGRASS FOR LARVAL DEVELOPMENT.

Occurrence No. 14 **Map Index:** 02434 **EO Index:** 86122

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2004-08-XX
Site: 2004-08-XX

Record Last Updated: 2012-02-14

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63795º / -117.96793º
UTM: Zone-11 N3722434 E410234
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 98.3 acres

Township: 06S
Range: 10W
Section: 19 **Qtr:** XX
Meridian: S
Elevation: 5 ft

Location: HUNTINGTON BEACH WETLANDS NE OF PCH (HWY 1) IN THE VICINITY OF MAGNOLIA ST AND BROOKHURST ST, HUNTINGTON BEACH.

Location Detail: HUNTINGTON BEACH WETLANDS; INCLUDES "MAGNOLIA MARSH," "BROOKHURST MARSH," AND "TALBERT MARSH." MAPPED TO GENERAL MARSH AREA NE OF HWY 1.

Ecological: THESE MARSHES ARE BEING CONSIDERED FOR ACQUISITION BY THE HUNTINGTON BEACH WETLANDS CONSERVANCY FOR RESTORATION.

Threat:

General: OBSERVED WITHIN THE FRIGING STANDS OF DISTICHLIS SPICATA.THE LIMITED OCCURRENCE OF SALTGRASS ALONG THE MARSH FRINGE IS THE PRIMARY FACTOR LIMITING THE SKIPPER AT THE HUNTINGTON BEACH WETLANDS.

Owner/Manager: HUNTINGTON BEACH WETLANDS CONS

Sources

MER04R0001 MERKEL & ASSOCIATES, INC. HUNTINGTON BEACH WETLANDS, HABITATS AND SENSITIVE SPECIES. 2004-08-18.

Passerculus sandwichensis beldingi

Belding's savannah sparrow

Element Code: ABPBX99015

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T3	**CDFG Status:**
State: Endangered	**State:** S3	

Habitat Associations

General: INHABITS COASTAL SALT MARSHES, FROM SANTA BARBARA SOUTH THROUGH SAN DIEGO COUNTY.

Micro: NESTS IN SALICORNIA ON AND ABOUT MARGINS OF TIDAL FLATS.

Occurrence No. 14 **Map Index:** 02434 **EO Index:** 1564

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating

Dates Last Seen
Element: 2001-03-24
Site: 2001-03-24

Record Last Updated: 2002-09-26

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63795º / -117.96793º
UTM: Zone-11 N3722434 E410234
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 98.3 acres

Township: 06S
Range: 10W
Section: 19 **Qtr:** XX
Meridian: S
Elevation: 5 ft

Location: HUNTINGTON BEACH STRIP MARSH; EAST OF THE PACIFIC COAST HIGHWAY BETWEEN MAGNOLIA ROAD
Location Detail: AND SANTA ANA RIVER.

Ecological: 62 HA MARSH W/MINIMAL TIDAL ACTION. FENCE INSTALLED IN 1985 ALONG MAGNOLIA AVE HAS KEPT VEHICLES OUT. TALBERT CHANNEL OPENED IN 1991 RESTORED TIDAL ACTION TO A SMALL AREA. MORE TIDAL INFLUENCE NEEDED.

Threat: HUMAN AND PET TRAFFIC, AND LOCALIZED TRASH DUMPING ARE PROBLEMS.

General: 34 PRS ESTIMATED IN 1977, 47 PRS ESTIMATED IN 1986, 19 PRS ESTIMATED IN 1991, 87 PRS ESTIMATED IN 1996, 71 PRS ESTIMATED IN 2001.

Owner/Manager: HUNTINGTON BEACH CITY, ORA CO

Sources

FWS87R0003 U.S. FISH & WILDLIFE SERVICE. A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA, 1986. 1987-01-XX.

JAM91R0001 JAMES, R. & D. STADTLANDER (USFWS). A SURVEY OF THE BELDING'S SAVANNAH SPARROW (PASSERCULUS SANDWICHENSIS BELDINGI) IN CALIFORNIA, 1991. 1991-11-XX.

MAS77R0001 MASSEY, B.W. A CENSUS OF THE BREEDING POPULATION OF THE BELDING'S SAVANNAH SPARROW IN CALIFORNIA. DEPT. OF FISH & GAME. 1977-XX-XX.

ZEM02R0001 ZEMBAL, R. & S. HOFFMAN. A SURVEY OF THE BELDING'S SAVANNAH SPARROW (PASSERCULUS SANDWICHENSIS BELDINGI) IN CALIFORNIA, 2001. 2002-06-XX.

Passerculus sandwichensis beldingi

Belding's savannah sparrow

Element Code: ABPBX99015

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T3	**CDFG Status:**
State: Endangered	**State:** S3	

Habitat Associations

General: INHABITS COASTAL SALT MARSHES, FROM SANTA BARBARA SOUTH THROUGH SAN DIEGO COUNTY.

Micro: NESTS IN SALICORNIA ON AND ABOUT MARGINS OF TIDAL FLATS.

Occurrence No. 42 **Map Index:** 02406 **EO Index:** 24626

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating

Dates Last Seen
Element: 2001-04-08
Site: 2001-04-08

Record Last Updated: 2002-09-26

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.64983º / -117.98388º
UTM: Zone-11 N3723765 E408768
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 49.3 acres

Township: 06S
Range: 11W
Section: 13 **Qtr:** S
Meridian: S
Elevation: 5 ft

Location: NEWLAND AVE MARSH, JUST NE OF PCH (HWY 1) & BEACH BLVD (HWY 39) JCT, HUNTINGTON BEACH.

Location Detail: INCLUDES THE AREA ADJACENT TO BEACH BLVD TO THE NORTH OF THE FLOOD CONTROL CHANNEL & THE AREA SOUTH OF THE FLOOD CONTROL CHANNEL TO NEWLAND AVE.

Ecological: 6.5 HA MARSH WITH NO TIDAL ACTION. HAS 2 SMALL PONDS & SALTPAN. 2001: PICKLEWEED MAINTAINED BY SEEPAGE FROM FLOOD CHANNEL & RAINFALL.

Threat: BULLDOZED IN 1982 FOR WEED CONTROL. HEAVY HUMAN DISTURBANCE. RED FOX & OTHER INTRODUCED PREDATORS.

General: 24 PAIRS ESTIMATED IN 1986, 32 PAIRS ESTIMATED IN 1991. 20 PAIRS ESTIMATED IN 1996, 18 PAIRS ESTIMATED IN 2001. BLACK-NECKED STILTS, AMERICAN AVOCETS, KILLDEER, AND SNOWY PLOVER ALSO NEST HERE.

Owner/Manager: PVT

Sources

FWS87R0003 U.S. FISH & WILDLIFE SERVICE. A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA, 1986. 1987-01-XX.

JAM91R0001 JAMES, R. & D. STADTLANDER (USFWS). A SURVEY OF THE BELDING'S SAVANNAH SPARROW (PASSERCULUS SANDWICHENSIS BELDINGI) IN CALIFORNIA, 1991. 1991-11-XX.

ZEM02R0001 ZEMBAL, R. & S. HOFFMAN. A SURVEY OF THE BELDING'S SAVANNAH SPARROW (PASSERCULUS SANDWICHENSIS BELDINGI) IN CALIFORNIA, 2001. 2002-06-XX.

ZEM88A0001 ZEMBAL, R. ET AL. AMERICAN BIRDS (VOL. 42, NO. 5) ARTICLE: "A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA". 1988-XX-XX.

Rallus longirostris levipes

light-footed clapper rail

Element Code: ABNME05014

Status		NDDB Element Ranks		Other Lists	
Federal:	Endangered	**Global:**	G5T1T2	**CDFG Status:**	
State:	Endangered	**State:**	S1		

Habitat Associations

General: FOUND IN SALT MARSHES TRAVERSED BY TIDAL SLOUGHS, WHERE CORDGRASS AND PICKLEWEED ARE THE DOMINANT VEGETATION.

Micro: REQUIRES DENSE GROWTH OF EITHER PICKLEWEED OR CORDGRASS FOR NESTING OR ESCAPE COVER; FEEDS ON MOLLUSCS AND CRUSTACEANS.

Occurrence No. 31 **Map Index:** 02434 **EO Index:** 72158

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2007-06-05
Site: 2007-06-05

Record Last Updated: 2008-05-07

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63795º / -117.96793º
UTM: Zone-11 N3722434 E410234
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 98.3 acres

Township: 06S
Range: 10W
Section: 19 **Qtr:** XX
Meridian: S
Elevation: 5 ft

Location: HUNTINGTON BEACH MARSH; EAST OF THE PACIFIC COAST HIGHWAY BETWEEN MAGNOLIA ROAD AND SANTA ANA RIVER.

Location Detail: SITE ALSO KNOWN AS "SANTA ANA RIVER MARSH" AND "NEWPORT SLOUGH". RAILS OCCUPIED ONLY THE WESTERN HALF OF THE CORDGRASS MARSH IN 2006 & 2007.

Ecological: 92 ACRE SANTA ANA MARSH RESTORED AS PART OF FEDERAL FLOOD CONTROL PROJECT ON SANTA ANA RIVER. DAMPENED TIDAL INFLUENCE RE-ESTABLISHED & CORDGRASS PLANTED ALONG A NARROW EASTERN PORTION OF MARSH BETWEEN OIL FIELD & SOUTH DIKE OF THE RIVER.

Threat:

General: 4 PAIRS AND AN UNKNOWN NUMBER OF UNPAIRED RAILS DETECTED IN 2006 AND 2007. THIS IS A NEW BREEDING LOCATION.

Owner/Manager: HUNTINGTON BEACH CITY, ORA CO

Sources

ZEM07R0001 ZEMBAL, R. ET AL. STATUS AND DISTRIBUTION OF THE LIGHT-FOOTED CLAPPER RAIL IN CALIFORNIA, 2007. 2007-07-XX.

Riparia riparia

bank swallow

Element Code: ABPAU08010

Status		NDDB Element Ranks		Other Lists	
Federal:	None	**Global:**	G5	**CDFG Status:**	
State:	Threatened	**State:**	S2S3		

Habitat Associations

General: COLONIAL NESTER; NESTS PRIMARILY IN RIPARIAN AND OTHER LOWLAND HABITATS WEST OF THE DESERT.

Micro: REQUIRES VERTICAL BANKS/CLIFFS WITH FINE-TEXTURED/SANDY SOILS NEAR STREAMS, RIVERS, LAKES, OCEAN TO DIG NESTING HOLE.

Occurrence No. 101 **Map Index:** 72461 **EO Index:** 85353

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown

Dates Last Seen
Element: 1937-04-29
Site: 1937-04-29

Record Last Updated: 2011-11-18

Quad Summary: Seal Beach (3311861/072A), Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.65882º / -117.99974º
UTM: Zone-11 N3724776 E407306
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 06S
Range: 11W
Section: 14 **Qtr:** XX
Meridian: S
Elevation:

Location: HUNTINGTON BEACH.

Location Detail: LOCATIONS STATED AS HUNTINGTON BEACH OR NEAR HUNTINGTON BEACH. NESTS ALSO STATED TO OCCUR IN SAND BANK/BLUFF ALONG/NEAR OCEAN. EXACT LOCATION UNKNOWN. MAPPED TO THE COASTLINE NEAR HUNTINGTON BEACH.

Ecological: CONSIDERED EXTIRPATED AS A BREEDER IN SOUTHERN CALIFORNIA (SCH92).

Threat:

General: 6 EGG SETS COLLECTED BY ANTONIN JAY, 27 MAY 1907 (WFVZ). EGG SETS COLL BY CHAMBER, 13 MAY 1908. COLONY OBSERVED BY SHEPARDSON JUN 1908 & MAY 1909. 3 EGG SETS COLL MAY 1918 (WFVZ-SHEPARDSON). 2 EGG SETS COLL BY HALL, 19 APR 1937 (WFVZ).

Owner/Manager: UNKNOWN

Sources

CHA08S0002 CHAMBERS, W. (SANTA BARBARA MUSEUM OF NATURAL HISTORY). SBMNH# AV 24472; 5 EGGS COLLECTED, HUNTINGTON BEACH. 1908-05-13.

CHA08S0003 SLATER MUSEUM OF NATURAL HISTORY. PSM BIRD-15412; EGG SET COLLECTED BY W. L. CHAMBERS AT HUNTINGTON BEACH. ACCESSED THROUGH ORNIS. 1908-05-13.

SCH92R0001 SCHLORFF, R. (CDFG). RECOVERY PLAN: BANK SWALLOW. DFG NONGAME & MAMMAL SECTION REPORT 93.02. 1992-12-XX.

SHE09A0001 SHEPARDSON, D. NOTES ON THE NESTING OF THE BANK SWALLOW. CONDOR 11:174. 1909-XX-XX.

WFVNDS0001 WESTERN FOUNDATION OF VERTEBRATE ZOOLOGY. EGG SET DATA FOR MULTIPLE SPECIES (RECEIVED IN 1981). XXXX-XX-XX.

Southern Coastal Salt Marsh

Element Code: CTT52120CA

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	
State: None	**State:** S2.1	

Habitat Associations

General:

Micro:

Occurrence No. 22 **Map Index:** 02406 **EO Index:** 16113

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1988-02-06
Site: 1988-02-06
Record Last Updated: 1998-12-10

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.64983º / -117.98388º
UTM: Zone-11 N3723765 E408768
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 49.3 acres

Township: 06S
Range: 11W
Section: 13 **Qtr:** S
Meridian: S
Elevation: 5 ft

Location: NEWLAND AVE MARSH, JUST EAST OF PCH (HWY 1) AND BEACH BLVD (HWY 39) JUNCTION, HUNTINGTON BEACH.

Location Detail: BOUNDARY MAPPED FROM INTERPRETATION OF 1988 AERIAL PHOTOS.

Ecological: 6.5 HA MARSH W/NO TIDAL ACTION. BULLDOZED IN 1982 FOR WEED CONTROL. HAS TWO SMALL PONDS AND A SALTPAN, ALSO PICKLEWEED.

Threat: SOME PROBLEMS W/DUMPING AND HUMAN DISTURBANCE.

General: BELDING'S SAVANNAH SPARROW AND SNOWY PLOVER NEST HERE. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: PVT

Sources

FWS87R0003 U.S. FISH & WILDLIFE SERVICE. A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA, 1986. 1987-01-XX.

HOL88M0001 HOLLAND, R.F. FIELD MAPS OF LOS ANGELES RIPARIAN COMMUNITIES (SEE ALSO HOL88U0001). QUAD #3411727, 3411728, 3411438, 3411748, 3411821, 3411831, 3411841, 3411855, 3411864, 3411865, 3411866). 1988-04-XX.

ZEM88A0001 ZEMBAL, R. ET AL. AMERICAN BIRDS (VOL. 42, NO. 5) ARTICLE: "A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA". 1988-XX-XX.

Southern Coastal Salt Marsh

Element Code: CTT52120CA

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	
State: None	**State:** S2.1	

Habitat Associations

General:

Micro:

Occurrence No. 23 **Map Index:** 02434 **EO Index:** 16111

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing

Dates Last Seen
Element: 1988-02-06
Site: 1988-02-06
Record Last Updated: 1998-07-20

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63795º / -117.96793º
UTM: Zone-11 N3722434 E410234
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 98.3 acres

Township: 06S
Range: 10W
Section: 19 **Qtr:** XX
Meridian: S
Elevation: 5 ft

Location: BETWEEN HUNTINGTON BEACH CHANNEL AND PACIFIC COAST HWY (HWY 1) NEAR MOUTH OF SANTA ANA RIVER.

Location Detail: BOUNDARY MAPPED FROM INTERPRETATION OF 1988 AERIAL PHOTOS.

Ecological: 6.9 HA MARSH W/NO TIDAL ACTION BUT SOME SEEPAGE.

Threat: MODERATE HUMAN DISTURBANCE. FENCE ALONG MAGNOLIA AVE KEEPS VEHICLES OUT. MORE HABITAT COULD BE RESTORED.

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: HUNTINGTON BEACH CITY, ORA CO

Sources

FWS87R0003 U.S. FISH & WILDLIFE SERVICE. A SURVEY OF BELDING'S SAVANNAH SPARROWS IN CALIFORNIA, 1986. 1987-01-XX.

HOL88M0001 HOLLAND, R.F. FIELD MAPS OF LOS ANGELES RIPARIAN COMMUNITIES (SEE ALSO HOL88U0001). QUAD #3411727, 3411728, 3411438, 3411748, 3411821, 3411831, 3411841, 3411855, 3411864, 3411865, 3411866). 1988-04-XX.

Southern Dune Scrub

Element Code: CTT21330CA

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G1	
State: None	**State:** S1.1	

Habitat Associations

General:

Micro:

Occurrence No. 9 **Map Index:** 20136 **EO Index:** 27169

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1985-03-16
Site: 1985-03-16
Record Last Updated: 1998-07-13

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63913º / -117.97023º
UTM: Zone-11 N3722566 E410022
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 51.0 acres

Township: 06S
Range: 10W
Section: XX **Qtr:** XX
Meridian: S
Elevation: 13 ft

Location: NORTH SIDE OF PACIFIC COAST HWY FROM BROOKHURST STREET TO THE S.C.E. GENERATING PLANT.

Location Detail: LONG, LINEAR DUNE PARALLELING HIGHWAY. CONTINUOUS FOR 400 FEET, AND THEN INTERSPERSED WITH CARPOBROTUS.

Ecological: MATURE AGE STAND OF: SALIX LASIOLEPIS AND S. EXIGUA, ISOMERIS ARBOREA, PHACELIA RAMOSISSIMA, MYOPORUM LAETUM, RHUS INTEGRIFOLIA, BACCHARIS SALICIFOLIA, B. EMORYI, ARTEMISIA DOUGLASII, JUNCUS ACUTUS, ISOCOMA MENZIESII.

Threat: PROPOSED DEVELOPMENT SITE.

General: TITLE IN DISPUTE. OCCURRENCE IS TRANSITIONAL WITH SOUTHERN WILLOW SCRUB 63320. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: UNKNOWN

Sources

MAR85F0026 MARSH, K. FIELD SURVEY FORM FOR NC21330, OCC. #009 - MAP DETAIL IN ELEMENT FILE 21230 + COVER LETTER. 1985-03-16.

MAR85R0002 MARSH, K.G. SPECIES LIST FOR HUNTINGTON AND BOLSA CHICA STATE BEACHES, NC21330 & NC21230 + COVER LETTER. 1985-02-11.

Southern Foredunes

Element Code: CTT21230CA

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	
State: None	**State:** S2.1	

Habitat Associations

General:

Micro:

Occurrence No. 21 **Map Index:** 20137 **EO Index:** 26374

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1984-09-15
Site: 1984-09-15
Record Last Updated: 1998-07-13

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63682º / -117.97030º
UTM: Zone-11 N3722310 E410013
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 124.5 acres

Township: 06S
Range: 10W
Section: 13 **Qtr:** SE
Meridian: S
Elevation: 13 ft

Location: HUNTINGTON BOULEVARD, BETWEEN BEACH BOULEVARD AND THE MOUTH OF THE SANTA ANA RIVER.

Location Detail: STRIP OF LAND BETWEEN THE PARKING LOTS/ACCESS ROAD AND THE PACIFIC COAST HIGHWAY. 125 FEET WIDE BY 1.7 MILES LONG. SUBSTANTIAL WIDENING OF HABITAT NEAR THE MOUTH OF THE RIVER.

Ecological: CAMISSONIA CHEIRANTHIFOLIA, ABRONIA VILLOSA, HAPLOPAPPUS VENETUS, AMBROSIA CHAMISSONIS, CAKILE MARITIMA, CALYSTEGIA SOLDANELLA, HETEROTHECA GRANDIFLORA, BACCHARIS EMORYI & GLUTINOSA, NEMACAULIS DENUDATA, HELIOTROPIUM CURASSAVICUM.

Threat: HEAVY HUMAN IMPACTS, EQUIPMENT STORAGE, LANDSCAPE PLANTINGS AND INFRASTRUCTURE.

General: AT TIME OF SURVEY, AGE STRUCTURE NOTED AS YOUTHFUL. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: DPR-HUNTINGTON SB

Sources

MAR84F0009 MARSH, K.G. FIELD SURVEY FORM FOR KARLIN MARSH FOR NC21230 OCC. #021 - MAP DETAIL IN NC21230 ELF. 1984-09-15.

MAR85R0002 MARSH, K.G. SPECIES LIST FOR HUNTINGTON AND BOLSA CHICA STATE BEACHES, NC21330 & NC21230 + COVER LETTER. 1985-02-11.

Sternula antillarum browni

California least tern

Element Code: ABNNM08103

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G4T2T3Q	**CDFG Status:**
State: Endangered	**State:** S2S3	

Habitat Associations

General: NESTS ALONG THE COAST FROM SAN FRANCISCO BAY SOUTH TO NORTHERN BAJA CALIFORNIA.

Micro: COLONIAL BREEDER ON BARE OR SPARSELY VEGETATED, FLAT SUBSTRATES: SAND BEACHES, ALKALI FLATS, LAND FILLS, OR PAVED AREAS.

Occurrence No. 17 **Map Index:** 02441 **EO Index:** 25694

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1988-XX-XX
Site: 1988-XX-XX

Record Last Updated: 1996-01-02

Quad Summary: Newport Beach (3311768/071B)
County Summary: Orange

Lat/Long: 33.63224º / -117.96144º
UTM: Zone-11 N3721795 E410830
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 06S
Range: 10W
Section: 19 **Qtr:** XX
Meridian: S
Elevation:

Location: HUNTINGTON STATE BEACH, SW OF HWY 1 BETWEEN THE JUNCTION OF GREENVILLE BANNING CHANNEL AND BROOKHURST STREET.
Location Detail:

Ecological:

Threat: RED FOX PREDATION IS A MAJOR PROBLEM. VANDALISM, KESTREL PREDATION ALSO.

General: A NESTING AREA FOR MANY YEARS; # PRS FLUCTUATED FROM 7 IN 1974 TO >100, WITH 170 FLEDGED, IN 1981. 85 PR IN 1983; 68 PR, 20 FLEDGED IN 1984; 45 PAIRS, 42 FLEDGED IN 1985; 58 PAIRS, 9 FLEDGED IN 1987; 86 PAIRS, 43 FLEDGED IN 1988.

Owner/Manager: DPR-HUNTINGTON SB

Sources

ATW77R0001 ATWOOD, J.L. ET AL. CALIFORNIA LEAST TERN CENSUS & NESTING SURVEY, 1977, CALIFORNIA DEPARTMENT OF FISH & GAME, 1977. 1977-XX-XX.

MAS79R0002 MASSEY, B.W. & J.L. ATWOOD. APPLICATION OF ECOLOGICAL INFORMATION TO HABITAT MANAGEMENT FOR THE CALIFORNIA LEAST TERN PROGRAM REPORT NO. 1 PREPARED FOR USFWS, LAGUNA NIGEL. 1979-XX-XX.

MAS82R0001 MASSEY, B.W. & J.L. ATWOOD. APPLICATION OF ECOLOGICAL INFORMATION TO HABITAT MANAGEMENT FOR THE CALIFORNIA LEAST TERN PROGRAM REPORT NO. 4 PREPARED FOR USFWS, LAGUNA NIGEL. 1982-XX-XX.

MAS84R0001 MASSEY, B.W. & J.L. ATWOOD. APPLICATION OF ECOLOGICAL INFORMATION TO HABITAT MANAGEMENT FOR THE CALIFORNIA LEAST TERN PROGRAM REPORT NO. 6 PREPARED FOR USFWS, LAGUNA NIGEL. 1984-XX-XX.

MAS85R0001 MASSEY, B.W. & J.L. ATWOOD. ANALYSIS OF BANDED CALIFORNIA LEAST TERNS NESTING ON NORTH BEACH, CAMP PENDLETON, P.O. #MOO-85-M-7213, US MARINE CORPS. 1985-08-25.

MAS89A0001 MASSEY, B. & J. FANCHER. "RENESTING BY CALIFORNIA LEAST TERNS." JOURNAL OF FIELD ORNITHOLOGY. 1989-XX-XX.

Attachment 2
Resume of Qualified Biologist

Melissa Fowler
Small Mammal Ecologist/Wildlife Biologist

Education
M.S., Environmental Studies, Emphasis: Environmental Science, California State University, Fullerton (2010)
B.S., Biological Science, California State University, Fullerton (2005)
A.A., Liberal Studies, Fullerton College, Fullerton (2001)

Relevant Experience
Ms. Fowler is a biologist specializing in small mammal ecology, particularly desert species, and wildlife biology. She has over 9 years of experience conducting a variety of wildlife studies in a range of California habitats, including aquatic (freshwater and marine) and terrestrial ecosystems, and has worked with a wide range of species that include large carnivores, small mammals, raptors and other avian species, reptiles, marine fishes and aquatic macroinvertebrates. Ms. Fowler has conducted a variety of surveys for commercial projects including botanical surveys, wildlife surveys, habitat assessments, vegetation mapping, biological monitoring, rare plant surveys (primarily in the Mojave Desert), re-vegetation monitoring and wetland delineations. She has a scientific collecting permit for mammals and reptiles in Kern, Los Angeles, Riverside and San Bernardino Counties and the coast horned lizard in Region 5 (SC-11611).

Representative Projects
Biologist, Union Pacific Railroad, Imperial County, California. Conducted preconstruction clearance surveys for burrowing owls, habitat assessments and construction monitoring for desert pupfish.

Biologist, San Timoteo Canyon Derailment, Union Pacific Railroad, Riverside County, California. Conducted revegetation monitoring of site restoration activities for derailment affected areas, replanting of native vegetation and establishment of weed management areas were conducted in accordance with U.S. Army Corps of Engineers (USACE) (USACE #2006-01654-JPL) and State Water Resources Control Board (State Water Board) (WDID #836C343929) requirements. Prepared annual revegetation monitoring report.

Biologist, Confidential Solar Energy Client, Kern County, California. Conducted raptor migration and raptor landscape use surveys throughout the proposed wind energy site.

Biologist, Saudi Aramco Lubricating Oil Refining LUBEREF, Saudi Arabia. Prepared baseline sections for terrestrial ecology and marine ecology, impact assessments, and mitigation sections for an Environmental Impact Assessment (EIA).

Biologist, BP Iraq NV. Iraq. Prepared baseline ecology, impact assessment, and mitigation sections for an Environmental and Social Impact Assessment (ESIA). Ecology baseline included terrestrial and wetland habitats.

Biologist, Hidden Hills Solar Electric Generating System, Inyo County, California. Prepared the Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) for the Colorado River Basin Regional Water Quality Control Board (RWQCB).

Biologist, Painted Hills IV, Greyback Wind, LLC, Riverside County, California. Prepared application packages for a proposed wind energy project for a Lake and Streambed Alteration (LSA) Notification for California Department of Fish and Game (CDFG) and the CWA Section 401 WQC for the Colorado River Basin RWQCB.

Biologist, Ivanpah Solar Electric Generating System, BrightSource Energy, Inc., San Bernardino County, California. Conducted delineation surveys of ephemeral washes for a potential mitigation site in the Mojave Desert. Prepared report for delineation surveys and analyzed the suitability of confidential location as a mitigation site for a solar project.

Biologist and Task Manager, Los Angeles World Airports (LAWA). Los Angeles, California. Prepared cost estimate and met with client for Riverside Fairy Shrimp relocation project to help determine the cost effectiveness of mitigation site alternatives. Coordinated with client and subcontractors, ensured tasks are within scope of work, finalized and distributed deliverables, prepared meeting agendas and summaries.

Biologist, Rice Solar Energy Project, Rice Solar Energy, LLC, Riverside County, California. Prepared the Evaporation Pond Plan and assisted with preparing the Biological Resources Mitigation Implementation and Monitoring Plan.

Biologist, TID Almond 2 Power Plant, Turlock Irrigation District, Stanislaus County, California. Conducted construction and dewatering monitoring for the giant garter snake within areas of suitable habitat.

Biologist, Oakdale Irrigation District, Stanislaus County, California. Prepared a jurisdictional delineation of wetlands and Waters of the United States report.

Biologist, Terra-Gen Power, LLC, Kern County, California. Supported multiple projects by conducting wetland delineations, habitat assessments, vegetation mapping, condor monitoring and multiple wildlife surveys, desert tortoise and Mohave ground squirrel monitoring, geotechnical escorting, potholing monitoring, assisted with protocol southwestern willow flycatcher surveys, supported project permitting, including multiple LSAs and Section 401 Waste Discharge Requirements (WDR), and prepared technical memos.

Biologist, North Sky River Wind Energy Project, NextEra, Kern County, California. Conducted rare plants surveys along a transmission line corridor. Attended county planning meeting and participated in the renewable energy forum, which included multiple stakeholders. Assisted with biological monitoring during the construction phase.

Biologist, Confidential Solar Energy Client, Imperial County, California. Prepared and revised avian and bat protection plans for two proposed solar farms in Imperial County, California.

Biologist, Chiquita Canyon Landfill Master Plan Revision, Waste Management, Inc., Los Angeles County, California. Revised and updated the Biological Resources section of the Draft Environmental Impact Report. Conducted vegetation surveys, oak tree surveys, revegetation monitoring and updated all vegetation mapping in accordance with the expanded project boundary.

Biologist, Alpine Solar Project, NRG Solar Alpine, LLC, Los Angeles County, California. Conducted preconstruction surveys for coast horned lizards, burrowing owls and badgers, rare plants surveys and assisted with preparing the biological technical report for an additional 35-acre project.

Biologist, Beaver to Junction, Central Federal Lands Highway Division, Fishlake National Forest, Utah. Performed acoustic goshawk surveys in summer of 2010.

Biologist and Field Lead, Tehachapi Renewable Transmission Project (TRTP) – Segments 4-11 Compliance Monitoring, Southern California Edison (SCE), California. CH2M HILL is providing environmental compliance support to SCE during construction of the TRTP in accordance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). The TRTP includes construction of new and upgrade of 173 miles of transmission lines, construction of one new substation, major upgrade of one existing substation and upgrade of other ancillary facilities. When complete the TRTP will deliver up to 4300 MW of renewable energy to the Los Angeles Basin and the western Inland Empire. Provided general project support including preparing mitigation plans, conducting historical research on oil fields and obtaining abandonment details when applicable for the entire project. Field lead for preconstruction photographic documentation, coordinated with subcontractors, quality assurance/quality control of fieldwork and data, developed field protocols to streamline and standardize fieldwork and prepared task-related deliverables.

Biologist, Devers-Palo Verde No. 2 Transmission Line Project (DPV2) - Compliance Monitoring, SCE, California. CH2M HILL is providing environmental compliance support to SCE during construction of the DPV2 in accordance with the NEPA and CEQA. The DPV2 includes construction of 153 miles of new transmission lines, construction of one new substation, major upgrades of two existing substations and upgrade of other ancillary facilities. Data entry of environmental data sheets, compiled all environmental data entry into a single database, prepared summaries of surveys needed and tasks completed at proposed substation, and reviewed project-related mitigation plans.

Experience Prior to CH2M HILL

Research Assistant, California State University, Fullerton. Vertebrate Ecology and Conservation Laboratory of Dr. Paul Stapp (2009). Assisted with the completion of a long-term research project in the Mojave National Preserve. Monitoring the abundance of small mammals, and the effects of large and small herbivores and granivores on post-fire vegetation recovery.

Research Associate, Irvine Ranch Conservancy, Irvine, California (2007-2009). Established and managed the wildlife and human access monitoring project with remote cameras, supervised and directed project volunteers, trained project interns, maintained and created the project database, quality control of database, compiled data entry from various project interns, edited and contributed with preparing project-related documents, collaborated with other organizations, and coordinated and facilitated small mammal monitoring projects with consultants. Assisted with other department projects as needed, such as restoration projects.

Research Assistant, California State University, Fullerton. Vertebrate Ecology and Conservation Laboratory of Dr. Paul Stapp (2003-2006). Researched the foraging behaviors of desert rodents (*Chaetodipus penicillatus* and *C. formosus*) in response to moonlight effects and rattlesnake olfactory cues in the Mojave National Preserve, CA. Prepared and published project manuscript. Received an Undergraduate Student Research Award from the American Society of Mammalogists for this work. Assisted with developing the experimental design and site selection of a long-term monitoring project in the Mojave National Preserve investigating the effects of small and large herbivores and granivores on post-fire vegetation recovery. In addition, conducted live-trapping for field demonstrations and lab activities for Dr. Stapp's courses.

Teaching Assistant, California State University, Fullerton (2005-2006). Developed weekly lesson plans, quizzes, tests, instructional materials, presented 30- 60 minute lectures for 2 laboratory sections/week, and graded all course-related materials.

Student Assistant, Tucker Wildlife Sanctuary, Modjeska Canyon, California (2004-2005). Assisted with restoration of woodland, chaparral and riparian habitats. Cared for museum animals, such as captive desert tortoises other reptiles, amphibians, and invertebrates, maintained facilities, and led educational tours. Monitored local avian species.

Student Research Scholar. California State University, Fullerton. Southern California Ecosystems Research Program (SCERP) (2002-2005). Worked in the Mojave National Preserve researching the road effects on desert perennials, monitored water quality and measured biodiversity of macroinvertebrates in two creeks located in the Starr Ranch Sanctuary in southern Orange County, and compared the nursery function of two different habitats in the Upper Newport Bay.

Publications and Presentations

"Small mammal community structure in response to post-fire vegetation changes in the Mojave National Preserve." California State University, Fullerton (2010).

"Foraging behaviors of *Chaetodipus* spp. (pocket mice) in response to predation risk." Published in *Dimensions* (2006).

“Foraging of *Chaetodipus* pocket mice in response to rattlesnake odors” (poster). Presented at the American Society of Mammalogists in Springfield, Missouri. Co-authored with Dr. Paul Stapp (2005).

“Foraging behavior of desert rodents in response to rattlesnake olfactory cues and predation risk” (poster). Presented at the Southern California Animal Behavior annual meeting in Riverside, California. Co-authored with Dr. Paul Stapp (2005).

"Road effects on desert perennials, *Larrea Tridentata* and *Ambrosia Dumosa*, across a bajada in the eastern Mojave Desert" (poster). Presented at the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) Anaheim, California. Co-authored with Robert Rodarte, Victor Galvan, Susana Espino-Hernandez, and Maria Vega-Velez (2002).

"Anthropogenic effects on water quality and the potential impact on diversity of macroinvertebrates in southern California creeks" (poster). Presented at the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) in Anaheim, California. Co-authored with Robert Rodarte, Victor Galvan, Susana Espino-Hernandez, and Maria Vega-Velez (2002).

“Differential Habitat Use by Fishes in Upper Newport Bay: Evidence for Nursery Function.” A presentation to the local community of the Upper Newport Bay at the Marine Studies Center in Newport, California. Co-authored with Victor Galvan, Susana Espino-Hernandez, Robert Rodarte, Maria Vega-Velez, and Dr. Michael Horn (2002).

Specialized Training

- Desert Tortoise Council: Introduction to Surveying, Monitoring, and Handling Techniques Workshop (2011)
- Legends of the Fall: Exploring the Clandestine Flora of Early Fall in the Eastern Mojave Desert Workshop (2011)
- Occupational Safety and Health Administration 10-hour Construction Safety and Health certified (2010)
- Safety Coordinator - Construction
- CPR certified
- Unites States Fish and Wildlife Service, Pacific Pocket Mouse Monitoring Workshop for Marine Corps Base Camp Pendleton Pacific Pocket Mouse Working Group (2007)

References

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Attachment 3
RareFind Plant Species Checklist

19 JULY 2012

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS	OBSERVED Y/N
1 **Atriplex serenana var. davidsonii** Davidson's saltscale	PDCHE041T1			G5T2?	S2?	1B.2	N
2 **Nasturtium gambelii** Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1	N
3 **Southern Coastal Salt Marsh**	CTT52120CA			G2	S2.1		N
4 **Southern Dune Scrub**	CTT21330CA			G1	S1.1		N
5 **Southern Foredunes**	CTT21230CA			G2	S2.1		N

ADDITIONAL SPECIES:

6 SOUTHERN TARPLANT — N

CENTROMADIA PARRYI SSP. AUSTRALIS

Attachment 4
RareFind Wildlife Species Checklist

19 JULY 2012

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS	OBSERVED Y/N
1	**Charadrius alexandrinus nivosus** western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC	N
2	**Cicindela gabbii** western tidal-flat tiger beetle	IICOL02080			G4	S1		N
3	**Cicindela latesignata latesignata** western beach tiger beetle	IICOL02113			G4T1T2	S1		N
4	**Panoquina errans** wandering (=saltmarsh) skipper	IILEP84030			G4G5	S1		N
5	**Passerculus sandwichensis beldingi** Belding's savannah sparrow	ABPBX99015		Endangered	G5T3	S3		N
6	**Rallus longirostris levipes** light-footed clapper rail	ABNME05014	Endangered	Endangered	G5T1T2	S1		N
7	**Riparia riparia** bank swallow	ABPAU08010		Threatened	G5	S2S3		N
8	**Sternula antillarum browni** California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3		N

ADDITIONAL SPECIES:
9. SOUTHERN CALIFORNIA SALTMARSH SHREW — N
SOREX ORNATUS SALICORNICUS

Attachment 5
Representative Photographs

Huntington Beach Energy Project. Photo of the northwest fence line that is adjacent to the northwest fuel oil storage tank, view facing north northwest.

Huntington Beach Energy Project. Photo of the northwest fuel oil storage tank, view facing northeast.

Huntington Beach Energy Project. Photo of the northwest fuel oil storage tank, view facing southeast.

Huntington Beach Energy Project. Photo of northern fence line, view facing east northeast.

Huntington Beach Energy Project. Photo of the southern portion of the onsite parking, view facing north northeast.

Huntington Beach Energy Project. Photo of the southern portion of the onsite parking, view facing northeast.

Huntington Beach Energy Project. Photo of the northern portion of the onsite parking, view facing north.

Huntington Beach Energy Project. Photo of the northern portion of the onsite parking, view facing northeast.

Huntington Beach Energy Project. Photo of the northern fence line, view facing west.

Huntington Beach Energy Project. Photo of the northeast fuel oil storage tank owned by the City of Huntington, view facing east.

Huntington Beach Energy Project. Photo of the northeast fuel oil storage tank owned by the City of Huntington, view facing southeast.

Huntington Beach Energy Project. Photo of the eastern fuel oil storage tank area, view facing northwest.

Huntington Beach Energy Project. Photo of the eastern fuel oil storage tank area, view facing northwest.

Huntington Beach Energy Project. Photo of the eastern fuel oil storage tank area, view facing north.

Huntington Beach Energy Project. Photo of northeastern fence line, view facing northwest.

Huntington Beach Energy Project. Photo of the eastern fence line, view facing southeast.

Huntington Beach Energy Project. Photo of the eastern fence line, view facing northeast.

Huntington Beach Energy Project. Photo of the southeast fuel oil storage tank area, view facing east northeast.

Huntington Beach Energy Project. Photo of the southeast fuel oil storage tank area, view facing northwest.

Huntington Beach Energy Project. Photo of the southeast fuel oil storage tank, view facing north.

Huntington Beach Energy Project. Photo of the fence line and the adjacent Huntington Beach Wetlands Conservancy Coastal Marsh Complex, view facing southeast.

Huntington Beach Energy Project. Photo of the southern fence line, view facing southwest.

Huntington Beach Energy Project. Photo of the southern fence line, view facing southwest.

Huntington Beach Energy Project. Photo of the southernmost point of the project area, view facing northeast.

Huntington Beach Energy Project. Photo of the southwestern fence line of the project area, view facing southwest.

Huntington Beach Energy Project. Photo of the eastern portion of the project area, view facing northeast.

Attachment DA5.2-2
Appendix 5.2C Revised

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
Plant Species			
Aphanisma *Aphanisma blitoides*	Coastal dunes and coastal scrub	1B.2	No suitable habitat in the project area; only record in the vicinity is a 1934 collection from dry bluffs at Newport Beach (CDFG, 2012).
California Orcutt grass *Orcuttia californica*	Valley grasslands, vernal pools and wetland-riparian communities	FE SE 1B.1	Species was documented approximately 4.5 miles northwest of the offsite laydown area and no occurrences have been recorded within 10 miles of HBEP. No suitable habitat is found within the HBEP site.
Chaparral ragwort *Senecio aphanactis*	Foothill woodland, northern coastal scrub, coastal sage scrub	2.2	No suitable habitat within the project area or offsite laydown area. No occurrences for this species have been documented near HBEP and the nearest record is approximately 7 miles east northeast of the HBEP site.
Chaparral sand verbena *Abronia villosa* var. *aurita*	Coastal scrub and chaparral	1B.1	No suitable habitat present in the project area. Regionally this species is only known from historic collections made in 1932 along the Santa Ana River. This occurrence has been extirpated.
Cliff spurge *Euphorbia misera*	Coastal sage scrub	2.2	No suitable habitat within the project area or offsite laydown area. The closest occurrence for this species is 7 miles southeast of the HBEP site and this species has not been documented within 10 miles of the offsite laydown area.
Coast woolly-heads *Nemacaulis denudata* var. *denudata*	Coastal dunes	1B.2	No suitable habitat in the project area; nearest occurrence is in the vicinity of the Upper Newport Bay.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	Coastal marshes, playas, vernal pools and mesic grasslands	1B.1	No suitable habitat in the project area, This species is reported from Fairview Regional Park, Upper Newport Bay and the Bolsa Chica Ecological Reserve.
Coulter's saltbush *Atriplex coulteri*	Coastal scrub, coastal dunes, grassland, upper salt marsh	1B.2	No suitable habitat in the project area. Historic record of this species was from the Upper Newport Bay.
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	Coastal scrub (alkaline soil)	1B.2	No suitable habitat in the project area. Historic records only of this species along the Santa Ana River and in the vicinity of the Upper Newport Bay.
Estuary seablite *Suaeda esteroa*	Coastal salt marshes	1B.2	No suitable habitat in the project area. Only reported occurrences of this species are from the Bolsa Chica Ecological Reserve and Newport Slough, east of the Santa Ana River.
Gambel's water cress *Nasturtium gambelii*	Freshwater and brackish marshes	FE ST 1B.1	Only record in the regional vicinity is from a historic (1908) collection; this occurrence has likely been extirpated by development.

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
Los Angeles sunflower *Helianthus nuttallii* ssp. *parishii*	Coastal marshes	1A	No suitable habitat present on the HBEP site. Only regional occurrences are two historic records from 1924 and 1933; this species is considered extinct in California.
Lyon's pentachaeta *Pentachaeta lyonii*	Chaparral and valley grasslands	FE SE 1B.1	No suitable habitat within the HBEP site and the nearest occurrence record is approximately 4.5 miles northeast of the project area and approximately 6 miles southeast of the offsite laydown area.
Many-stemmed dudleya *Dudleya multicaulis*	Chaparral, coastal scrub and grasslands	1B.2	No suitable habitat in the project area. Regionally this species is known from a 1932 collection from Newport Bay; this occurrence is thought to be extirpated.
Mesa horkelia *Horkelia cuneata* var. *puberula*	Oak woodlands	1B.1	No suitable habitat present on the HBEP site. Nearest occurrence record is approximately 8.5 miles southeast of the HBEP and no records have been documented within 10 miles of the offsite laydown area.
Mud nama *Nama stenocarpum*	Marshes and vernal pools	2.2	No suitable habitat in the project area; known to occur in vernal pools in the Fairview Regional Park.
Nuttall's scrub oak *Quercus dumosa*	Chaparral and coastal sage scrub	1B.1	No suitable habitat present on the HBEP site. Nearest occurrence record is approximately 6 miles southeast of the HBEP and no records have been documented within 10 miles of the offsite laydown area.
Prostrate vernal pool navarretia *Navarretia prostrata*	Vernal pools and mesic alkaline sites in grassland and coastal scrub habitats	1B.1	No suitable habitat in the project area; known to occur in vernal pools in the Fairview Regional Park.
Parish’s brittlescale *Atriplex parishii*	Shadscale scrub, alkali sink freshwater wetlands, vernal pools and wetland-riparian habitats	1B.1	No suitable habitat is present within the project area. This species was recorded within 10 miles of the offsite laydown area (CDFG, 2012).
Salt marsh bird's-beak *Chloropyron maritimum* ssp*. maritimum*	Coastal salt marsh and coastal dunes	FE SE 1B.2	No suitable habitat in the project area; Regionally this species has been reported from the Upper Newport Bay and the Bolsa Chica Ecological Reserve.
Salt spring checkerbloom *Sidalcea neomexicana*	Creosote bush scrub, chaparral, yellow pine forest, coastal sage scrub, alkali sink and wetland-riparian	2.2	No suitable habitat present within the HBEP site and no occurrences for this species have been documented within 10 miles of the project area. This species has been recorded approximately one-half mile north of the offsite laydown area.

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
San Bernardino aster *Symphyotrichum defoliatum*	Seeps, marshes and mesic grasslands	1B.2	No suitable habitat in the project area. Only reported occurrences are from historic collections between 1896 and 1933, most likely extirpated.
Sanford's arrowhead *Sagittaria sanfordii*	Freshwater wetlands	1B.2	No suitable habitat is present within the HBEP site and this species has been documented within 5.25 miles northwest of the project area. No occurrences records for this species exist within 10 miles of the offsite laydown area.
South Coast saltscale *Atriplex pacifica*	Coastal scrub, chenopod scrub and playas	1B.2	No suitable habitat within the project area; only know occurrence is a 1932 collection from "Newport Bay".
Southern tarplant *Centromadia parryi* ssp. *australis*	Grassland and upper edges of coastal marshes, often in disturbed areas	1B.1	Possible – but unlikely given vegetation management practices on and around the site. Several reported occurrences in the regional vicinity of HBEP.
Ventura Marsh milk-vetch *Astragalus pycnostachyus* var. *lanosissimus*	Salt marsh	FE SE 1B.1	No suitable habitat present. Regional occurrences are from two historic collections from 1881 and 1882, none found in more recent surveys of suitable habitat, potentially extirpated.
Animal Species			
American badger *Taxidea taxus*	Various open habitats with friable soils and abundant small rodent prey populations	SC	No suitable habitat in the project are; only reported occurrence is from a road kill on Superior Avenue, near the intersection with the Pacific Coast Highway in Newport Beach (CDFG, 2012).
Bank swallow *Riparia riparia*	Vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, and the ocean	ST SC	Only record for this species is from 1916 (CDFG, 2012); nesting populations are considered to have been extirpated in southern California.
Belding's savanna sparrow *Passerculus sandwichensis beldingi*	Coastal salt marsh	SE	No suitable habitat on the project site, but this species is known to nest in the salt marsh habitat in the immediate vicinity of the site. Also known to occur in several of the wetland preserves in the regional vicinity of HBEP.
Big free-tailed bat *Nyctinomops macrotis*	Rugged, rocky areas in both lowland and highland habitats	SC	No suitable habitat present within the project area. Nearest occurrences is approximately 7 miles southeast of HBEP.
Black skimmer *Rynchops niger*	Nest on gravel bars and open sandy beaches	SC	No suitable nesting habitat, possible foraging habitat in open water habitats in the immediate vicinity of HBEP. The only reported nesting habitat for this species is at the Bolsa Chica Ecological Reserve.

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
Burrowing owl *Athene cunicularia*	Open grasslands and shrub lands with small mammal burrows and low growing vegetation	SC	No suitable habitat in the project area. This species is known to occur in the regional vicinity including at the Bolsa Chica Ecological Reserve and in Fairview Regional Park.
California black rail *Laterallus jamaicensis coturniculus*	Marshes and wet meadows, requires dense vegetation for nesting	ST FP	No suitable habitat in the project area. Nesting population is known to occur in the Upper Newport Bay Ecological Reserve in the regional vicinity of HBEP
California brackishwater snail *Tryonia imitator*	Coastal lagoons, estuaries and salt marshes	None	No suitable habitat in the project area; regionally this species is known to occur at the Upper Newport Bay and Bolsa Chica Ecological Reserve.
California brown pelican *Pelecanus occidentalis californicus*	Coastal marine and estuarine environments	Delisted FP	No suitable present within the HBEP site. No CNDDB occurrences have been recorded for this species within 10 miles of the project site. This species has been documented offshore approximately 6 miles southwest of the offsite laydown area.
California horned lark *Eremophila alpestris actia*	Sparsely vegetated areas in annual grasslands and oak savannah habitats	SC	No suitable habitat on the project site. No species occurrences have been recorded within 10 miles of the offsite laydown area. This species has been documented approximately 7.25 miles east southeast of the HBEP site.
California least tern *Sternula antillarum browni*	Nest in coastal areas in bare or sparely vegetated areas, sandy beaches, alkali flats landfills and paved areas	FE SE FP	No suitable habitat on the project site. This species has been reported to nest at Huntington Beach State Park and at the Bolsa Chica Ecological Reserve.
Coastal cactus wren *Campylorhynchus brunneicapillus*	Southern cactus scrub, nests in coastal cholla and coastal prickly pear	SC	No suitable habitat is present within the project area. No occurrences for this species have been recorded within 10 miles of the offsite laydown area. Species has been recorded in multiple locations approximately 8-10 miles for the HBEP site.
Coastal California gnatcatcher *Polioptila californica californica*	Coastal sage scrub	FT SC	No suitable habitat in the project area. Three reported occurrences in the regional vicinity including two areas along the Upper Newport Bay and one observation from a small patch of coastal sage scrub approximately 4 miles north-northwest of HBEP.
Blainville's horned lizard/coast horned lizard *Phrynosoma blainvillii*	Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains from sea level to 8,000 ft.	SC	No suitable habitat in the project area. No occurrences within the immediate vicinity of the project area.

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
Dorothy's El Segundo dune weevil *Trigonoscuta dorothea dorothea*	Coastal dunes	None	No suitable habitat in the project area. Only reported occurrences of this species are from the Bolsa Chica Ecological Reserve.
Ferruginous hawk *Buteo regalis*	Grassland and shrub-steppe	SC	No suitable habitat is present within the project area and this species has not been documented within 10 miles of the HBEP site. This species has been recorded approximately 2.5 miles northeast of the offsite laydown area.
Globose dune beetle *Coelus globosus*	Coastal dunes	None	No suitable habitat in the project area. Only record for this species is a 1937 museum collection from “Newport”.
Grasshopper sparrow *Ammodramus savannarum*	Prefer short to mid-height, moderately open grasslands with scattered shrubs	SC	No suitable habitat within the HBEP site and has been recorded approximately 7 miles northeast of the project area. This species has not been documented within 10 miles of the offsite laydown area.
Green turtle *Chelonia mydas*	Marine habitats with coral reefs, sea grass beds or mangroves	FT*	No suitable habitat is present within the project area and the species has not been documented within 10 miles of the HBEP site.
Hoary bat *Lasiurus cinereus*	Open habitats or habitat mosaics with access to trees for roosting	None	Possible foraging habitat over open water and wetland habitats in the immediate vicinity of the HBEP site; one collection from 1990 in Newport Beach.
Least Bell's vireo *Vireo bellii pusillus*	Riparian	FE SE SC	No suitable habitat occurs within the HBEP site and this species has not been documented within 10 miles of the offsite laydown area. This species has been observed approximately 7 miles east-southeast of the HBEP site.
Light-footed clapper rail *Rallus longirostris levipes*	Coastal salt marshes	FE SE FP	No suitable habitat in the project area, although this species has been reported from the coastal salt marsh wetlands immediately adjacent to the site and from several other wetlands preserves in the regional vicinity.
Monarch butterfly *Danaus plexippus*	Roosts in protected groves of trees with nectar and water sources nearby	None	Possible roosting habitat in landscape trees around the site. Species is known to roost in Huntington Beach central Park and at the Bolsa Chica Ecological Reserve.
Orangethroat whiptail *Aspidoscelis hyperythra*	Low desert scrub, grasslands, woodlands and pine forests	SC	No suitable habitat occurs within the HBEP site and this species has not been documented within 10 miles of the offsite laydown area. This species has been recorded in multiple locations east to southeast of the project area, nearest occurrence is approximately 6 miles from the HBEP site.

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
Osprey *Pandion haliaetus*	Ocean shores, bays, lakes and large rivers and streams	None	Potential foraging in open water habitats in the vicinity of the project; nearest reported nest location is at the Upper Newport Bay Ecological Reserve
Pacific pocket mouse *Perognathus longimembris pacificus*	Fine-grain, sandy substrates on the coastal strand, coastal dunes, river alluvium and coastal sage scrub habitats within 2.5 miles of the ocean	FE SC	No suitable habitat within the project area. This species is presumed to be extinct in the area. The Pacific pocket mouse was discovered in two general locations on the Marine Corps Base, Camp Pendleton in San Diego County and at the Dana Point Headlands (USFWS, 1998).
Red-diamond rattlesnake *Crotalus ruber*	Arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland and cultivated areas	SC	No suitable habitat occurs within the HBEP site and this species has not been documented within 10 miles of the offsite laydown area.
San Diego fairy shrimp *Branchinecta sandiegonensis*	Vernal Pools	FE	No suitable habitat present. Nearest reported occurrence is from Fairview Regional Park
Sandy beach tiger beetle *Cicindela hirticollis gravida*	Coastal sandy areas in the upper zone away from waves	None	No suitable habitat in the project area; only information is from historical records (1951 and 1955); believed to have been extirpated.
Senile tiger beetle *Cicindela senilis frosti*	Marine shorelines including coastal areas, salt marshes and lakes	None	No suitable habitat is present within the project area.
Silver-haired bat *Lasionycteris noctivagans*	Forests	None	No suitable habitat is present within the project area. This species has been recorded within 10 miles of the HBEP site.
South coast marsh vole *Microtus californicus stephensi*	Tidal marshes	SC	No suitable habitat is present within the project area. This species has been documented approximately 3.5 miles southeast of the offsite laydown area.
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	Coastal sage scrub, Riversidean alluvial fan sage scrub and desert scrubs	None	No suitable habitat is present within the project area. The only record within 10 miles of the project area was documented on the west slope of Muddy Canyon, approximately 1 mile south of Signal Peak, San Joaquin Hills (2.5 miles east of Newport Beach) (CDFG, 2012).
Southern California salt marsh shrew *Sorex ornatus salicornicus*	Coastal salt marsh	SC	No suitable habitat is present within the project area. Two historic records for this species were documented. The first record was from 1933 and was collected in the general vicinity of the Newport Lagoon. The second occurrence was obtained in 1968 in the general vicinity of Seal Beach (CDFG, 2012).

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
Tricolored blackbird *Agelaius tricolor*	Freshwater marshes, riparian scrublands and forests	SC	Species had been documented approximately one-half mile northwest of the offsite laydown area (CDFG, 2012). No suitable habitat is present within the HBEP site.
Wandering (=saltmarsh) skipper *Panoquina errans*	Coastal salt marsh	None	No suitable habitat in the project area, but this species has been observed in the coastal salt marsh wetlands immediately adjacent to the project site. This species is also known to occur at the Bolsa Chica Ecological Reserve.
Western beach tiger beetle *Cicindela latesignata latesignata*	Coastal mudflats and beaches	None	No suitable habitat in the project area; all regional occurrences are based on historical localities, all of which are considered extirpated.
Western mastiff bat *Eumops perotis californicus*	Known to roost in high buildings, forages in a variety of habitats	SC	Potential to forage over the open water and wetlands and around the site; this species has been observed in Hunting Beach Central Park.
Western pond turtle *Emys marmorata*	Permanent and intermittent freshwater habitats including marshes, streams, rivers, ponds and lakes	SC	No suitable habitat is present within the project area.
Western snowy plover *Charadrius alexandrinus nivosus*	Sandy beaches, salt pond levees and edges of large alkaline lakes	FT SC	Species is reported to utilize the coastal salt marshes in the vicinity of the site for foraging and loafing. All nesting populations in the region have been extirpated.
Western tidal-flat tiger beetle *Cicindela gabbii*	Sandy areas along estuaries and tidal flats	None	No suitable habitat in the project area; historic collections from beaches in the vicinity of the project area as well as the Bolsa Chica Ecological Reserve, but assumed to be extirpated from these localities.
Western yellow bat *Lasiurus xanthinus*	Desert regions, dry tropical forest to semi-tropical wet forests	SC	No suitable habitat is present within the project area. This species will roost in native and non-native palm trees. This species has been documented approximately 9.8 miles northwest of the HBEP site.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Riparian	Candidate SE	No suitable habitat is present within the project area and has not been documented within 10 miles of the HBEP site.
White-tailed kite *Elanus leucurus*	Agricultural fields, grasslands, marshes, savannahs and other open land or sparsely wooded areas	FP	No suitable habitat is present within the HBEP site. This species has been documented in multiple locations east to northeast of the project area. The closest occurrence is approximately 6.5 miles from the project area.

Revised Appendix 5.2C Special-Status Species in the Regional Vicinity of HBEP			
Name	**Habitat**	**Status**	**Notes**
Yellow-breasted chat *Icteria virens*	Valley foothill riparian and desert riparian habitats	SC	No suitable habitat is present within the project area and has not been documented within 10 miles of the offsite laydown area. This species has been documented in multiple locations approximately 8 miles northeast to southeast of the HBEP site.

Status Codes

FE – Federally listed as endangered
FT – Federally listed as threatened
FP – State listed as fully protected
SE – State listed as endangered
ST – State listed as threatened
SC – State Species of Concern

California Native Plant Society
1A - Plants Presumed Extinct in California
1B.1 - Plants Rare, Threatened, or Endangered in California and Elsewhere; Seriously Threatened in California
1B.2- Plants Rare, Threatened, or Endangered in California and Elsewhere; Fairly threatened in California
2.2 - Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere; Fairly threatened in California

*The green sea turtle is federally threatened species throughout its Pacific Range.

Sources:

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Calflora. 2012. Information on wild California plants for conservation, education, and application. Available online at: http://www.calflora.org/

United States Fish and Wildlife Service (USFWS). 1998. Pacific pocket mouse (*Perognathus longimembris pacificus*) Recovery Plan. Portland, OR. 112 pp.

Attachment DA5.2-3
CNDDB Lists and
How to Read RareFind 3 Reports

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Astragalus pycnostachyus var. lanosissimus Ventura Marsh milk-vetch	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
2	Athene cunicularia burrowing owl	ABNSB10010			G4	S2	SC
3	Atriplex coulteri Coulter's saltbush	PDCHE040E0			G2	S2.2	1B.2
4	Atriplex serenana var. davidsonii Davidson's saltscale	PDCHE041T1			G5T2?	S2?	1B.2
5	Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4			G4T2	S2	1B.1
6	Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
7	Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
8	Cicindela gabbii western tidal-flat tiger beetle	IICOL02080			G4	S1	
9	Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101			G5T2	S1	
10	Cicindela latesignata latesignata western beach tiger beetle	IICOL02113			G4T1T2	S1	
11	Cicindela senilis frosti senile tiger beetle	IICOL02121			G4T1	S1	
12	Danaus plexippus monarch butterfly	IILEPP2010			G5	S3	
13	Eumops perotis californicus western mastiff bat	AMACD02011			G5T4	S3?	SC
14	Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1			G4T3	S2.1	1B.1
15	Microtus californicus stephensi south coast marsh vole	AMAFF11035			G5T1T2	S1S2	SC
16	Nama stenocarpum mud nama	PDHYD0A0H0			G4G5	S1S2	2.2
17	Nasturtium gambelii Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
18	Nemacaulis denudata var. denudata coast woolly-heads	PDPGN0G011			G3G4T3?	S2.2	1B.2
19	Panoquina errans wandering (=saltmarsh) skipper	IILEP84030			G4G5	S1	
20	Passerculus sandwichensis beldingi Belding's savannah sparrow	ABPBX99015		Endangered	G5T3	S3	
21	Phrynosoma blainvillii coast horned lizard	ARACF12100			G4G5	S3S4	SC
22	Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened		G3T2	S2	SC
23	Rallus longirostris levipes light-footed clapper rail	ABNME05014	Endangered	Endangered	G5T1T2	S1	

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
25	Rynchops niger black skimmer	ABNNM14010			G5	S1S3	SC
26	Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0			G3	S3	1B.2
27	Sorex ornatus salicornicus southern California saltmarsh shrew	AMABA01104			G5T1?	S1	SC
28	Southern Coastal Salt Marsh	CTT52120CA			G2	S2.1	
29	Southern Dune Scrub	CTT21330CA			G1	S1.1	
30	Southern Foredunes	CTT21230CA			G2	S2.1	
31	Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
32	Suaeda esteroa estuary seablite	PDCHE0P0D0			G3	S2	1B.2
33	Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0			G2	S2	1B.2
34	Trigonoscuta dorothea dorothea Dorothy's El Segundo Dune weevil	IICOL51021			G1T1	S1	
35	Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3	

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Abronia villosa var. aurita chaparral sand-verbena	PDNYC010P1			G5T3T4	S2	1B.1
2	Aphanisma blitoides aphanisma	PDCHE02010			G3G4	S3	1B.2
3	Aspidoscelis hyperythra orangethroat whiptail	ARACJ02060			G5	S2	SC
4	Athene cunicularia burrowing owl	ABNSB10010			G4	S2	SC
5	Atriplex coulteri Coulter's saltbush	PDCHE040E0			G2	S2.2	1B.2
6	Atriplex pacifica South Coast saltscale	PDCHE041C0			G3G4	S2.2	1B.2
7	Atriplex serenana var. davidsonii Davidson's saltscale	PDCHE041T1			G5T2?	S2?	1B.2
8	Branchinecta sandiegonensis San Diego fairy shrimp	ICBRA03060	Endangered		G1	S1	
9	Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4			G4T2	S2	1B.1
10	Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
11	Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
12	Cicindela gabbii western tidal-flat tiger beetle	IICOL02080			G4	S1	
13	Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101			G5T2	S1	
14	Cicindela latesignata latesignata western beach tiger beetle	IICOL02113			G4T1T2	S1	
15	Coelus globosus globose dune beetle	IICOL4A010			G1	S1	
16	Danaus plexippus monarch butterfly	IILEPP2010			G5	S3	
17	Dudleya multicaulis many-stemmed dudleya	PDCRA040H0			G2	S2	1B.2
18	Elanus leucurus white-tailed kite	ABNKC06010			G5	S3	
19	Eumops perotis californicus western mastiff bat	AMACD02011			G5T4	S3?	SC
20	Helianthus nuttallii ssp. parishii Los Angeles sunflower	PDAST4N102			G5TH	SH	1A
21	Lasiurus cinereus hoary bat	AMACC05030			G5	S4?	
22	Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1			G4T3	S2.1	1B.1
23	Laterallus jamaicensis coturniculus California black rail	ABNME03041		Threatened	G4T1	S1	

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Nama stenocarpum mud nama	PDHYD0A0H0			G4G5	S1S2	2.2
25	Nasturtium gambelii Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
26	Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0			G2	S2	1B.1
27	Nemacaulis denudata var. denudata coast woolly-heads	PDPGN0G011			G3G4T3?	S2.2	1B.2
28	Nyctinomops macrotis big free-tailed bat	AMACD04020			G5	S2	SC
29	Pandion haliaetus osprey	ABNKC01010			G5	S3	
30	Panoquina errans wandering (=saltmarsh) skipper	IILEP84030			G4G5	S1	
31	Passerculus sandwichensis beldingi Belding's savannah sparrow	ABPBX99015		Endangered	G5T3	S3	
32	Phrynosoma blainvillii coast horned lizard	ARACF12100			G4G5	S3S4	SC
33	Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened		G3T2	S2	SC
34	Rallus longirostris levipes light-footed clapper rail	ABNME05014	Endangered	Endangered	G5T1T2	S1	
35	Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
36	Sorex ornatus salicornicus southern California saltmarsh shrew	AMABA01104			G5T1?	S1	SC
37	Southern Coastal Salt Marsh	CTT52120CA			G2	S2.1	
38	Southern Cottonwood Willow Riparian Forest	CTT61330CA			G3	S3.2	
39	Southern Dune Scrub	CTT21330CA			G1	S1.1	
40	Southern Foredunes	CTT21230CA			G2	S2.1	
41	Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
42	Suaeda esteroa estuary seablite	PDCHE0P0D0			G3	S2	1B.2
43	Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0			G2	S2	1B.2
44	Taxidea taxus American badger	AMAJF04010			G5	S4	SC
45	Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3	

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME
Biogeographic Data Branch
California Natural Diversity Database

How to read ***RareFind* 3** Reports

The California Natural Diversity Database (CNDDB) is a program within the Department of Fish and Game that maintains a computerized inventory of information on the location and condition of California's rare, threatened, endangered, and sensitive plants, animals, and natural communities. This information is made available, at below cost, in several formats, including as a PC-based application known as RareFind 3. This document explains how to read RareFind 3 reports generated from the RareFind 3 Reports tab in the application.

DEFINITIONS

The individual species and communities inventoried in the CNDDB are referred to as "elements." There are four categories of elements: Special Plants, Special Animals, Natural Communities, and Aquatic Communities. An "element occurrence" is a site which contains a population or stand of a sensitive element. Although the specific definition of an element occurrence differs among the various elements, with few exceptions, most occurrences can be identified by one of the following general definitions.

1. *Plants* - A population or group of populations found within 0.25 miles and not separated by significant habitat discontinuities.

2. *Animals With Limited Mobility* (most invertebrates, amphibians, reptiles, small mammals, and resident birds) - The location where a specimen was collected, or observed. This is assumed to represent a sample of a breeding population.

3. *Mobile Animals* - (migratory birds and larger mammals) - The location of breeding areas (including nesting territories, dens, and leks) or parts of the range of a mobile population. This may include roosts, overwintering areas, staging areas, etc.

4. *Mobile Aquatic Animals* - The location where a specimen was collected (taken to represent a sample of a population). It may include other sites upstream and downstream which are not separated by a major habitat discontinuity or a physical barrier.

5. *Terrestrial Natural Communities* - A documented location of a stand of vegetation or non-plant-dominated community element (e.g., alkali playa or desert dune). As with plants, nearby sites are included if they fall within 0.25 miles.

6. *Aquatic Natural Communities* - A documented location of contiguous habitat as defined by physical and biotic features.

Our computer reports consist of two parts. The **header** contains general information for each taxon, such as the common and scientific names, federal and state listing status, habitat associations, etc. The **body** contains the particular information for each occurrence.

When citing the CNDDB as an information source, use the following:

California Natural Diversity Database
Biogeographic Data Branch
Department of Fish and Game
Date (insert date information purchased (Version Date), see lower left corner of printout)

Our computer reports present data as narratives, condensed phrases, abbreviations, and a variety of codes. This enables us to maximize the amount of information given for each record. Most of the codes and abbreviations are straightforward. This handout will explain our report format, field by field. The information is the same for all RareFind reports, with the exception of that for **source codes**; their information is only given in the "Full Report with Sources" report.

- **SCIENTIFIC NAME -** The scientific (Latin) name of a plant or animal or the name of a natural community.
- **COMMON NAME -** The common name of a plant or animal. The field is blank for natural communities since it is the same as the scientific name.
- **ELEMENT CODE -** A ten-character code assigned to each element. It is used for data management purposes.
- **FEDERAL LEGAL STATUS:**

Endangered	Federally Listed Endangered
Threatened	Federally Listed Threatened
Proposed Endangered	Proposed for federal listing as Endangered
Proposed Threatened	Proposed for federal listing as Threatened
Candidate	Candidate for federal listing
None	No official federal listing status
Delisted	Delisted by the federal governement

See *Federal Register* for legal definitions of federal status

- **CALIFORNIA LEGAL STATUS:**

Endangered	California Listed Endangered
Threatened	California Listed Threatened
Rare	California Listed Rare
Candidate	Candidate for state listing; these are protected from take, just like state-listed taxa
None	No official state listing status
Delisted	Delisted by the state

- **GLOBAL RANK -** The global rank is a reflection of the overall condition (rarity and endangerment) of an element throughout its range. Some global ranks for endemic species are assigned by the CNDDB biological staff following review of all available information; other global ranks are assigned by other states, other heritage programs or by NatureServe. For a complete explanation of this ranking, please refer to Appendix A.

- **STATE RANK -** The state rank is a reflection of the condition (rarity and endangerment) of an element within the state. The state rank is assigned by the CNDDB staff. See Appendix A.

- **OTHER LISTS:**

  CDFG - Indicates whether the species is a Department of Fish and Game Species of Special Concern (**terrestrial vertebrate animals only**).

  CNPS LIST - Indicates the California Native Plant Society (CNPS) list to which the taxon is assigned **(plants only)**.

  List 1A: Plants presumed extinct in California
  List 1B.1: Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
  List 1B.2: Plants rare, threatened, or endangered in California and elsewhere, fairly threatened in California
  List 1B.3: Plants rare, threatened, or endangered in California and elsewhere, not very threatened in California
  List 2.1: Plants rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California
  List 2.2: Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California
  List 2.3: Plants rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California
  List 3.1: Plants about which we need more information; seriously threatened in California
  List 3.2: Plants about which we need more information; fairly threatened in California
  List 3.3: Plants about which we need more information; not very threatened in California
  List 4.1: Plants of limited distribution; seriously threatened in California
  List 4.2: Plants of limited distribution; fairly threatened in California
  List 4.3: Plants of limited distribution; not very threatened in California

- **HABITAT ASSOCIATIONS** - Information on the general habitat with which the element is associated, and where known, a description of the microhabitat.

- **OCCURRENCE NUMBER** – This number, together with the element code, uniquely identifies a particular location of a species or community. Occurrence numbers are assigned sequentially as the occurrence is mapped. The first location mapped for an element is OCC #1, the eighteenth location is OCC #18, etc. There may be gaps in the number sequence as occurrences are combined.

- **OCC RANK –** Occurrence rank, reflecting the condition and viability of a particular occurrence. Occurrence rank takes into account the population size, viability, habitat quality, disturbance, etc.

  - Excellent
  - Good
  - Fair
  - Poor
  - None (extirpated or possibly extirpated)
  - Unknown

- **ORIGIN** - Indicates whether this occurrence is a natural population, a transplant, a reintroduction, or a refugium.

- **PRESENCE** - Refers to the status of the taxon/stand at this site when it was last observed.

a. Presumed Extant - The most common entry. An occurrence is presumed to be still in existence until evidence to the contrary is received by the CNDDB.

b. Possibly Extirpated - Some evidence of habitat destruction or population extirpation has been received by the CNDDB for this site, but questions remain as to whether the element still exists here.

c. Extirpated - Only used when the element has been searched for but not seen for many years or when the habitat at this site is destroyed and CNDDB is notified.

- **TREND** - Indicates population trend at this site.
  a. Increasing
  b. Stable
  c. Decreasing
  d. Fluctuating
  e. Unknown

- **MAP INDEX NUMBER** - The key number linking each feature on the map overlays with its specific text report.

- **DATE ELEMENT LAST OBSERVED** - The most recent date that an observer actually saw the element at this site according to information available to the CNDDB.

- **DATE SITE LAST VISITED** - The most recent date that an observer visited the site according to information available to the CNDDB.

- **DATE RECORD LAST UPDATED**: Last date CNDDB staff updated this record.

- **QUAD SUMMARY** - The name(s) of the United States Geological Survey (USGS) 7.5 minute quadrangle(s) where the occurrence is mapped. The quad code is the 7-digit code which identifies the 7.5 minute USGS quadrangle on which the element occurrence is mapped. This code also appears on corresponding plot reports and map overlays. It is based on a 64-map grid in each 1° of latitude and longitude. The first two numbers indicate latitude; the 3rd-5th numbers indicate longitude and the final two numbers are a row-column designation, starting from the lower right hand corner of the grid.

- **COUNTIES** - The county (or counties) where the occurrence is mapped.

- **LATITUDE, LONGITUDE** - The latitude and longitude of the center point of the element occurrence location (determined by the computer).

- **UTM** - Universal Transverse Mercator coordinates. The zone and northing and easting coordinates of the center point of the element occurrence location (determined by the computer).

- **MAPPING PRECISION:**
  Specific: A circular feature with a radius of 80 meters or a specific polygon.
  Non-specific: A circular feature with a radius of 1/10, 1/5, 2/5, 3/5, 4/5, 1 mile, or 5 miles or a non-specific polygon. The sizes of the circles may indicate different confidence levels in the source data or different levels of precision describing the location in the source data.

- **SYMBOL TYPE**

Polygon - Delineates an area where the element is known to occur or, in some cases, includes habitat where the element is known to occur. Polygons can be "specific" or "non-specific," indicating our level of confidence in the source data.

Point - Indicates a circular feature with a radius of 80 meters, 1/10, 1/5, 2/5, 3/5, 4/5, 1 mile or 5 miles.

- **RADIUS** - For circular features only. See above description for **point** symbol type.

- **ELEVATION** - The elevation in feet of the element occurrence.

- **T-R-S** - The Township, Range, and Section of the element occurrence location.

- **QTR** - The half section or quarter section if known.

- **MERIDIAN** - This field contains either "M," "H," or "S." These letters refer to Mt. Diablo, Humboldt, or San Bernardino baseline and meridians, respectively. These are necessary to indicate a unique township, range, and section coordinate.

- **LOCATION** - The specific location of the element occurrence.

- **LOCATION DETAIL, ECOLOGICAL, THREAT, GENERAL, AND OWNERSHIP COMMENTS** - Site specific notes about an element's distribution, habitat, associated species, threats, population size, general comments, and ownership information.

- **SOURCE CODES** - A 10-character code assigned to any information which is used to map an occurrence. Includes: the first three letters of the contributor's last name, year of the document (or year of field visit in the case of field survey forms), one character code for type of document (F = field survey form, R = report, M = map, U = personal communication or other type of correspondence, B = book, D = digital data), and a four-character tie-breaker – assigned and used internally by the CNDDB.

- **RAREFIND VERSION DATE** - Date data were generated at CNDDB.

- **REPORT DATE** - Date report was printed.

- **EXPIRATION DATE** – Date subscription and data expire.

APPENDIX A

ELEMENT RANKING

GLOBAL RANKING

The *global rank* (G-rank) is a reflection of the overall condition of an element throughout its global range.

SPECIES OR NATURAL COMMUNITY LEVEL

G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres.
G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres.
G3 = 21-100 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres.
G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

SUBSPECIES LEVEL
Subspecies receive a **T-rank** attached to the G-rank. With the subspecies, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety. For example: *Chorizanthe robusta* var. *hartwegii*. This plant is ranked G2TI. The G-rank refers to the whole species range i.e., *Chorizanthe robusta.* The T-rank refers only to the global condition of var. *hartwegii*.

STATE RANKING

The *state rank* is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank.

S1 = Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known
S3 = 21-100 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known
S4 - Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat. NO THREAT RANK.

S5 - Demonstrably secure to ineradicable in California. NO THREAT RANK.

Notes:

1. Other considerations used when ranking a species or natural community include the pattern of distribution of the element on the landscape, fragmentation of the population/stands, and historical extent as compared to its modern range. It is important to take a bird's eye or aerial view when ranking sensitive elements rather than simply counting EOs.

2. Uncertainty about the rank of an element is expressed in two major ways:

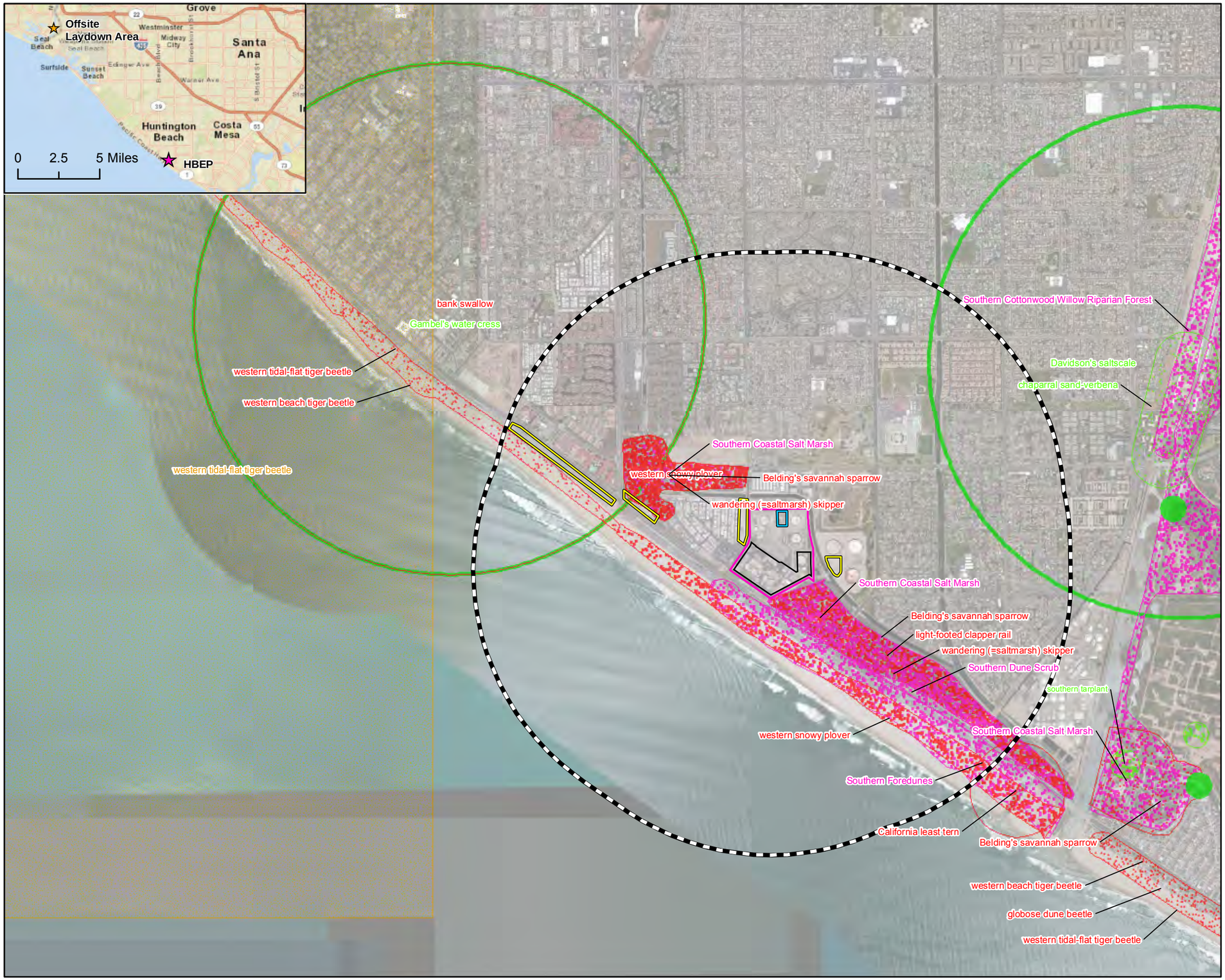
   By expressing the rank as a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3.

   By adding a ? to the rank: eg., S2? This represents more certainty than S2S3, but less than S2.

3. Other symbols

   GH All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists (SH = All California sites are historical).
   GX All sites are **extirpated**; this element is extinct in the wild (SX = All California sites are extirpated).
   GXC Extinct in the wild; exists in cultivation.
   G1Q The element is very rare, but there is a taxonomic question associated with

Attachment DA5.2-4
Figure 5.2-4cR and Figure 5.2-4dR



Legend

- AES Huntington Beach Generating Station (survey area)
- AES Huntington Beach Energy Project (survey area)
- Offsite Construction Parking (survey area)
- Onsite Construction Parking (survey area)
- 1-Mile Radius From Project Site
- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terr. Comm. (80)
- Terr. Comm. (specific)
- Terr. Comm. (non-specific)
- Terr. Comm. (circular)
- Aqu. Comm. (80)
- Aqu. Comm. (specific)
- Aqu. Comm. (non-specfic)
- Aqu. Comm. (circular)
- Sensitive EO's (Commercial only)

Source: California Department of Fish and Game, Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch, March 2012.

CNDDB version 03/2012.
Please Note: The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

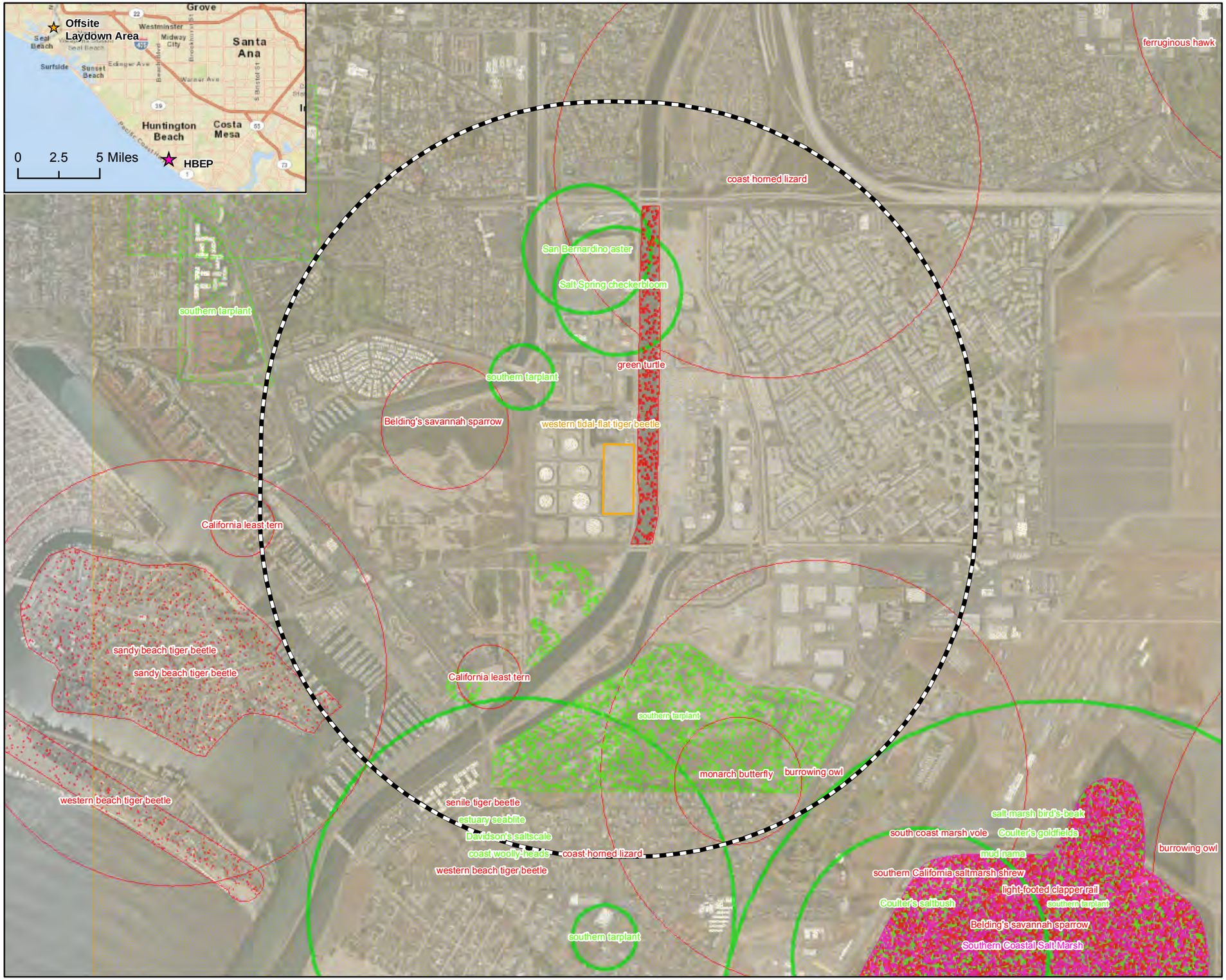
N

0 1,000 2,000 4,000
Feet
1:24,000

FIGURE 5.2-4cR
Special-Status Species
AES Huntington Beach Energy Project
Huntington Beach, California

CH2MHILL

P:\AES\MAPFILES\HUNTINGTON_BEACH\BIOLOGICAL\HUNTINGTON_SPECIAL_STATUS_POINTS_1MILE.MXD GPERDEW 8/3/2012 2:20:06 PM



Legend

- Offsite Construction Laydown Area at AGS (survey area)
- 1-Mile Radius From Project Site
- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terr. Comm. (80)
- Terr. Comm. (specific)
- Terr. Comm. (non-specific)
- Terr. Comm. (circular)
- Aqu. Comm. (80)
- Aqu. Comm. (specific)
- Aqu. Comm. (non-specfic)
- Aqu. Comm. (circular)
- Sensitive EO's (Commercial only)

Source: California Department of Fish and Game, Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch, March 2012.

CNDDB version 03/2012.
Please Note: The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

N

0 1,000 2,000 4,000
Feet

1:18,000

FIGURE 5.2-4dR
Special-Status Species
AES Huntington Beach Energy Project
Huntington Beach, California

CH2MHILL

Attachment DA5.2-5
Figure 5.2-2aR and Figure 5.2-2bR

Legend

- AES Huntington Beach Generating Station
- AES Huntington Beach Energy Project
- 250-Foot Radius From Project Site
- Freshwater Emergent Wetland

Source:
U.S. Fish and Wildlife Service, NWI (2011)

Note:
NWI data is accurate to produce medium resolution information at a scale of 1:12,000. Larger scales will not contain the same level of accuracy.

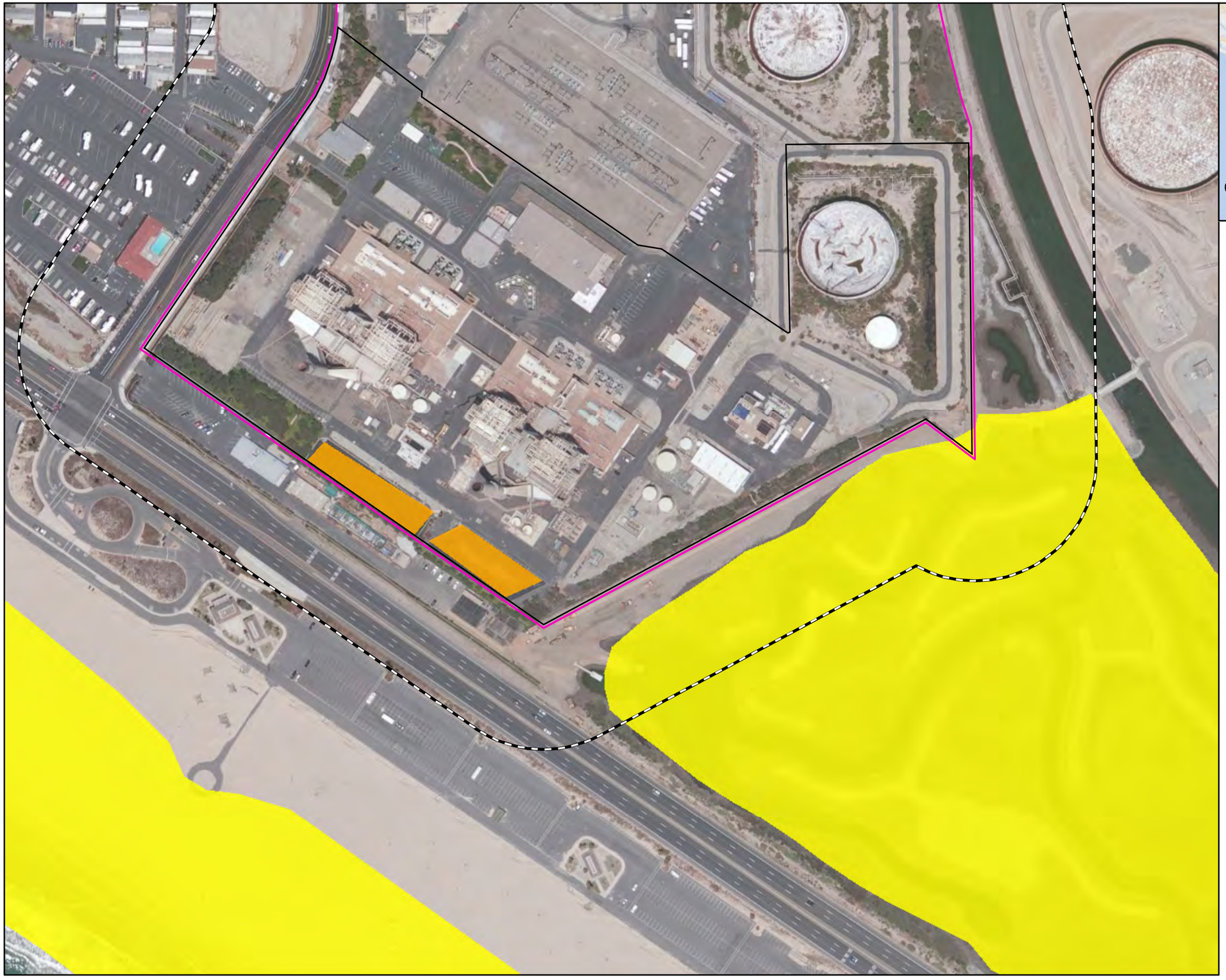
N

0 200 400
Feet
1:2,400

FIGURE 5.2-2aR
Wetland Delineation
AES Huntington Beach Energy Project
Huntington Beach, California

CH2MHILL

P:\AES\MAPFILES\HUNTINGTON_BEACH\BIOLOGICAL\HUNTINGTON_WETLAND_DELINEATION_A.MXD GPERDEW 8/3/2012 1:05:33 PM



Legend

- AES Huntington Beach Generating Station
- AES Huntington Beach Energy Project
- 250-Foot Radius From Project Site

CONUS_wet_poly

Wetland Type

- Estuarine and Marine Wetland
- Freshwater Pond

Source:
U.S. Fish and Wildlife Service, NWI (2011)

Note:
NWI data is accurate to produce medium resolution information at a scale of 1:12,000. Larger scales will not contain the same level of accuracy.

N

0 200 400
Feet
1:2,400

FIGURE 5.2-2bR
Wetland Delineation
AES Huntington Beach Energy Project
Huntington Beach, California

CH2MHILL

P:\AES\MAPFILES\HUNTINGTON_BEACH\BIOLOGICAL\HUNTINGTON_WETLAND_DELINEATION_B.MXD GPERDEW 7/30/2012 9:55:18 AM

5.3 Cultural Resources

16. Cultural Literature Search (Appendix B (g)(2)(B))

The results of a literature search to identify cultural resources within an area not less than a 1-mile radius around the project site and not less that than one-quarter (0.25) mile on each side of the linear facilities. Identify any cultural resources listed pursuant to ordinance by a city or county, or recognized by any local historical or archaeological society or museum. Literature searches to identify the above cultural resources must be completed by, or under the direction of, individuals who meet the Secretary of the Interior's Professional Standards for the technical area addressed.

Copies of California Department of Parks and Recreation (DPR) 523 forms (Title 14 CCR §4853) shall be provided for all cultural resources (ethnographic, architectural, historical, and archaeological) identified in the literature search as being 45 years or older or of exceptional importance as defined in the National Register Bulletin Guidelines, (36CFR60.4(g)). A copy of the USGS 7.5' quadrangle map of the literature search area delineating the areas of all past surveys and noting the California Historical Resources Information System (CHRIS) identifying number shall be provided. Copies also shall be provided of all technical reports whose survey coverage is wholly or partly within .25 mile of the area surveyed for the project under Section (g)(2)(C), or which report on any archaeological excavations or architectural surveys within the literature search area.

Information required to make AFC conform with regulations:

1. *The off-site laydown area was not included in the records search. Additionally, a minimum of a 0.25-mile radius surrounding the parking area west of Beach Street should have been included in the records search. Presently, there is no radius built in west of this parking area. Please conduct a records search for the off-site laydown area and obtain results for a 0.25-mile radius west of the parking area referenced here.*
2. *Studies OR880, 1629, 2585, 3316, 3317, and 2033 are within 0.25 mile of the areas surveyed for the project, but copies of these reports are not provided in Appendix 5.3C. Please obtain copies and submit them in Appendix 5.3C. Studies OR2134, 2256, and 3614 were not included in the records search and are not in the 0.25-mile radius of the areas surveyed for the project. However, if these reports describe the results of an architectural survey or archaeological excavation, copies are to be provided in Appendix 5.3C. Please confirm whether these three reports describe architectural surveys or archaeological excavations. If yes, provide copies in Appendix 5.3C.*

Response:

1. A literature search was conducted by the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) for the offsite construction laydown area on August 30, 2011. The search revealed that the laydown area has not been previously surveyed for cultural resources and no resources are previously identified within the laydown area. Six previous studies have been conducted within the 0.25-mile buffer area and two previously recorded resources are identified within the 0.25-mile buffer area. The complete results of this search are included in Attachment DA5.3-1 (filed under a pending application for confidential designation). No ground disturbance is proposed at the offsite laydown area and no impacts to cultural resources are expected.

   A literature search for the 0.25-mile radius surrounding the offsite construction worker parking area west of Beach Boulevard at the intersection of Pacific Coast Highway was conducted on July 30, 2012, at the SCCIC by CH2M HILL archaeologist John McDermott, M.A, under the direction of Natalie Lawson, M.A. Both Mr. McDermott and Ms. Lawson meet the Secretary of the Interior's Professional Standards for Archaeology. Four previous studies have been conducted in the 0.25-mile radius of this offsite construction worker parking area. These studies are: OR-1629, OR-2582, OR-3316, and OR-3317. All of these studies were previously identified in the original literature search. One archaeological site, Primary Number 30-1654, a historical dump, was identified in the 0.25-mile radius of this offsite construction worker parking area. This site was

subject to data recovery in 2005. The data recovery program for this site is reported in OR-2582, OR-3316, and OR-3317. Maps and copies of these reports and the site form are provided in Attachment DA5.3-2 (filed under a pending application for confidential designation).

2. Copies of OR-880, OR-1629, OR-2585, OR-3316, OR-3317, and OR-2033 are included in Attachment DA5.3-2. Studies OR-2134, OR-2256, and OR-3614 are archaeological survey reports, and are not located in the 0.25-mile buffer; however, because these reports were obtained by CH2MHILL for review, these reports are also included in Attachment DA5.3-2.

17. Technical Report (Appendix B (g)(2)(C))

New pedestrian archaeological surveys shall be conducted inclusive of the project site and project linear facility routes, extending to no less than 200' around the project site, substations and staging areas, and to no less than 50' to either side of the right-of-way of project linear facility routes. New historic architecture field surveys in rural areas shall be conducted inclusive of the project site and the project linear facility routes, extending no less than 0.5 mile out from the proposed plant site and from the routes of all above-ground linear facilities. New historic architecture field surveys in urban and suburban areas shall be conducted inclusive of the project site, extending no less than one parcel's distance from all proposed plant site boundaries. New historic architecture field reconnaissance ("windshield survey") in urban and suburban areas shall be conducted along the routes of all linear facilities to identify, inventory, and characterize structures and districts that appear to be older than 45 years or that are exceptionally significant, whatever their age.

Information required to make AFC conform with regulations:

1. *The historic built environment survey is not adequately reported. Figure 5.3-1 in Appendix 5.3B is unclear: Page 3-3 of Appendix 5.3B states that the historic built environment survey extended to one parcel beyond the project site boundaries, but Figure 5.3-1 appears to split a parcel. Please confirm that the survey extended to a distance of one parcel and provide a revised map depicting this. If the historic built environment survey did not extend to 1 parcel beyond the project site, complete the survey to 1 parcel beyond the project site.*
2. *The natural setting in Appendix 5.3B does not describe the biota present in the project vicinity. Biota is important to understanding previous land use and cultural resource distribution. Please use Section 5.2 of the AFC and other sources, such as Schoenherr's A Natural History of California, to describe the past and present biota of the project vicinity.*
3. *Appendix 5.3B, p. 3-1, fifth paragraph, identifies an ethnographic study area. The report does not provide a definition of the ethnographic study area and it is not referenced again in the document. If an ethnographic study was conducted, please provide the details and summarize as appropriate in Section 5.3 of the AFC.*
4. *The research design should contain information sufficient to justify the transect widths employed during the archaeological survey (see ARMR, p. 9). Indicate whether the dimensions of archaeological resources located within 1–5 miles of the project areas influenced the archaeological survey strategy and in what manner (DPR 523 forms in Appendix 5.3C and the additional records searches requested earlier in this data adequacy worksheet will provide adequate information).*

Response:

1. The historic built environment survey extended at least one parcel deep beyond the project site boundaries. There are no parcel splits and the complete parcel, one parcel deep on all sides, was included in the built environment survey. Figure 5.3-1 depicts the complete built environment survey boundary around complete parcels. Parcel boundaries have been added to this map so that the boundary of each parcel surveyed is depicted. See Attachment DA5.3-3, Parcel Map for the Built Environment Survey.

2. Section 5.2 in the AFC includes a complete description of the biology of the HBEP site, as well as the biology of the Huntington Beach area. The following summary is primarily taken from Section 5.2 of the AFC. The HBEP site lies within a region characterized by flat floodplains and terraces and very gently sloped alluvial fans with small areas of marine terraces (USDA, 1997). The HBEP site is approximately 900 feet inland from the Pacific Ocean and historically, the predominant natural plant community of the HBEP area was salt marsh and southern scrub dune (USDA, 1997). Prior to the modern era, the area would have offered not only maritime resources from the nearby littoral zone and Pacific Ocean, but also various land animals and plants.

   The climate of the HBEP site has a mean annual temperature ranging from about 53 to 72 degrees Fahrenheit and is moderated by marine influences. Mean annual precipitation is about 13 inches, with most of the rainfall occurring during the winter months between November and March.

   Southern coastal salt marsh occurs in areas subject to regular tidal flooding by salt water such as sheltered inland bays, estuaries, and lagoons. The distribution of plant species within the salt marsh is often in distinct zones based on the frequency and duration of tidal flooding. Vegetation in these areas is characterized by pickleweed with other salt tolerant species such as saltgrass (*Distichlis spicata*), alkali heath (*Frankenia salina*), alkali weed (*Cress truxilensis*), California seablite (*Suaeda californica*), marsh jaumea (*Jaumea carinosa*), and saltwort (*Batis maritima*). Open unvegetated salt pannes and tidal channels are also present in some areas. Several avian species utilize salt marsh, including the Belding's savanna sparrow's, western snowy plover, the California least tern (*Sternula antillarum browni*), the California brown pelicans, and other various water fowl. Harvest mice and shrews are found in coastal salt marsh environments, as well.

   Southern dune scrub is characterized as a dense coastal scrub community of scattered shrubs, subshrubs, and herbs that are typically less than 1 meter tall often associated with a high percentage of cover. This habitat type is drier, fairly warmer, and experiences less onshore wind when compared to central and northern dune scrub habitats. Native plants commonly found in this habitat include beach saltbush (*Atriplex leucophylla*), California croton (*Croton californicus*), California ephedra (*Ephedra californica*), mock heather (*Ericameria ericoides*), dune lupine (*Lupinus chamissonis*), desert thorn (*Lycium brevipes*), prickly pear, lemonade berry, and jojoba (*Simmondsia chinensis*) (Holland, 1986). Western snowy plover and black and silvery legless lizards occupy the undisturbed sands; other animals including occasional resting sea mammals, could also have utilized these areas.

   Holland, R.F. 1986. *Preliminary descriptions of the terrestrial natural communities of California*.

   United States Department of Agriculture (USDA), Forest Service. 1997. Ecological Subregions of California. Scott Miles and Charles Goudey (editors). Pacific Southwest Division. R5-EM-TP-005. San Francisco.

3. No additional ethnographic study was conducted for HBEP. The phrase, "ethnographic study area," which was used in the technical report, refers to an approximate 5-mile radius around the HBEP site. Archaeological site records, reports, and scholarly articles for this area were reviewed for the preparation of the ethnography section of the AFC. All ethnographic information is included in the AFC and Appendix 5.3B, the cultural resources technical report.

4. Many of the archaeological sites known in the vicinity of the HBEP site are no longer extant and are not mapped on the literature search results. A 1973 review of 29 sites known in the city of Huntington Beach, specifically located on the Huntington and Bolsa Chica mesas, noted that most of these sites were impacted or built upon. Specific site dimensions are not known for many of these sites (Ahlering, 1973), but site descriptions were reviewed to determine potential site types in the HBEP area. The review described both small and large prehistoric sites. Additional review of literature search results identified at least one midden site, which was partially destroyed, but the remaining site stretched at least 150 meters east-west.

   Transect spacing and observation strategies used during the HBEP survey were conservative and allowed for the detection of small sites (fewer than five artifacts or features). The survey methodology for prehistoric and historic archaeological resources was performed using pedestrian transects spaced at 10- to 15-meter intervals throughout the entire surveyed area. Both previous and contemporary studies have utilized a

10-meter interval methodology in the vicinity. The 10- to 15-meter interval was determined to be both appropriate and adequate to detect the presence of historical resources during the HBEP pedestrian survey.

Ahlering, Michael L. 1973. *Report of a Scientific Resources Survey and Inventory: Conducted for the City of Huntington Beach, California*.

18. Literature Search (Appendix B (g)(2)(C)(i))

The summary from Appendix B (g)(2)(A) and the literature search results from Appendix B (g)(2)(B);

Information required to make AFC conform with regulations:

The off-site laydown area was not included in the records search. Additionally, a minimum of a 0.25-mile radius surrounding the parking area west of Beach Street should have been included in the records search. Please conduct a records search for the off-site laydown area and obtain results for a 0.25-mile radius west of the parking area referenced here.

Response: See Response to #16

19. Technical Report, Attachment A, DPR Forms (Appendix B (g)(2)(C)(iii))

Copies of all new and updated DPR 523(A) forms. If a cultural resource may be impacted by the project, also include the appropriate DPR 523 detail form for each such resource;

Information required to make AFC conform with regulations:

Please include a map for each DPR 523 form associated with the Huntington Beach Generating Station (HBGS). The map may be a sketch map similar to that required on a Building, Structure or Object Record and must identify the subject element of the HBGS historic district in relation to the others. The Continuation Sheet on p. 10 of the HBGS DPR 523 form does not suffice because it shows the planned layout of the resource, not what was recorded during the historic built environment survey. Additionally, the provided sketch map is not to scale, contrary to the Instructions for Recording Historical Resources *(Office of Historic Preservation, 1995, p. 18).*

Response: To-scale maps that indicate each of the individual buildings recorded during the built environment survey are included as Attachment DA5.3-4. Recorded structures are indicated in red and labeled consistently with DPR Forms that were previously submitted as part of AFC Appendix 5.3B, Attachment A (filed under a pending application for confidential designation).

20. Cultural Resource Map (Appendix B (g)(2)(C)(iv))

A map at a scale of 1:24,000 U.S. Geological Survey quadrangle depicting the locations of all previously known and newly identified cultural resources compiled through the research required by Appendix B (g)(2)(B) and Appendix B (g)(2)(C) (ii); and

Information required to make AFC conform with regulations:

The corresponding figure uses an aerial base instead of a topographic one. Please provide this figure on a topographic quadrangle base as required by Appendix B(g)(2)(C)(iv) of the siting guidelines.

Response: An updated map of Appendix 5.3-E is included at Attachment DA5.3-5 (filed under a pending application for confidential designation). This map is on a U.S. Geological Survey topographical quadrangle map at 1:24,000.

21. Mitigation Measures (Appendix B (g)(2)(E)(i))

A discussion of measures proposed to mitigate project impacts to known cultural resources;

Information required to make AFC conform with regulations:

Without disclosing the depth of excavation required to construct the project, and a discussion of underlying stratigraphy, staff cannot assume that the mitigation measures in the AFC will reduce the severity of impacts. Please revise the mitigation measures, if needed, after the depth of excavation is determined and assessed against

stratigraphy and fill sequences at the project site. Please cite sources of information and provide exhibits (figures and tables) as needed.

Response: Excavations at the HBEP site are expected to reach depths of up to 10 feet for building foundations and onsite linear facilities. In addition, major structures (that is, the power blocks may require piles beneath the concrete foundation) and pile driving is expected to reach depths of up to 30 feet.

A geotechnical investigation of the HBEP site indicates that the fill at the site extends between 2 and 3 feet below the surface. The fill is composed of loose to medium dense silty sand and clayey sand. Alluvial and estuarine deposits were identified below the fill and extended to depths between 9 and 18 feet. These deposits consist of very soft to stiff clayey silt and silty clay intermixed with loose, silty sand and sandy silt. These deposits contained shell fragments. Below this level, marine sediments consisting of a very loose to very dense sand with silt and sand with shell fragments noted. The marine sediments extended to 75 feet below the surface (Ninyo and Moore, 2011). As discussed in Section 5.3.3.2 of the AFC, the original ground surface of the existing Huntington Beach Generating Station site was approximately level prior to plant construction with an 8 feet layer of clay situated over 200 feet of compact sand. The 8 feet of clay was removed and replaced with fill for construction. Excavation depths for the foundations of HBEP are expected to reach below the artificial fill placed as part of the construction of the existing Huntington Beach Generating Station and into the alluvial and estuarine deposits identified during the geotechnical investigation (Ninyo and Moore, 2011). Pile driving for the HBEP Power Block 1 will extend beneath the artificial fill and into the native compact sand strata. However, pile driving would not require monitoring, even though it could reach into the sand level as the nature of pile driving does not allow for the observation of the soils. No soil is brought up to the surface during pile driving and thus, this activity does not warrant monitoring. The construction of HBEP Power Block 2 will use the existing concrete foundation (to the extent feasible) for existing Huntington Beach Generating Station's Units 3 and 4, therefore, excavation within the artificial fill or pile driving into native soil will be limited for HBEP Power Block 2 construction.

Ninyo & Moore Geotechnical and Environmental Sciences Consultants (Ninyo and Moore). 2011. *Preliminary Geotechnical Evaluation, Huntington Beach Generating Station, 21730 Newland Street, Huntington Beach, California*. Prepared for Power Engineers Collaborative. December 2, 2011.

22. Agency Contact (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.

Information required to make AFC conform with regulations:

Please add the contact person for Orange County Development and Los Angeles County Department of Regional Planning.

Response:
Ruby Moldonado
Orange County Community Development
300 N. Flower St.
Santa Ana, CA 92703
Phone: (714) 667-8888

Connie Chung
Department of Regional Planning
320 W. Temple Street
Los Angeles, CA 90012
Phone: (213) 974-6411

23. Permit Schedule (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.

Information required to make AFC conform with regulations:

Please provide an estimated timetable for the Environmental Protection Agency's completion of its responsibilities under Section 106 of the National Historic Preservation Act for issuance of the Prevention of Significant Deterioration permit.

Response: As discussed in Section 5.3.7.1 of the AFC, the Applicant will submit the AFC's cultural resource assessment to the U.S. Environmental Protection Agency (EPA) with the Greenhouse Gas Prevention of Significant Deterioration (PSD) permit application. The expected schedule for the EPA to issue a draft PSD permit is within 180 days after issuing the application completeness determination letter. During this 180-day permit processing period, EPA will consult with the State Historic Preservation Officer to determine if the project will affect historic or cultural resources. The draft PSD permit application will undergo a public notice/comment period, after which EPA will address comments received during the public notice/comment period. A reasonable estimate for the public notice/comment period, EPA to response to comments, and preparation and issue the final PSD permit is 7 to 12 months.

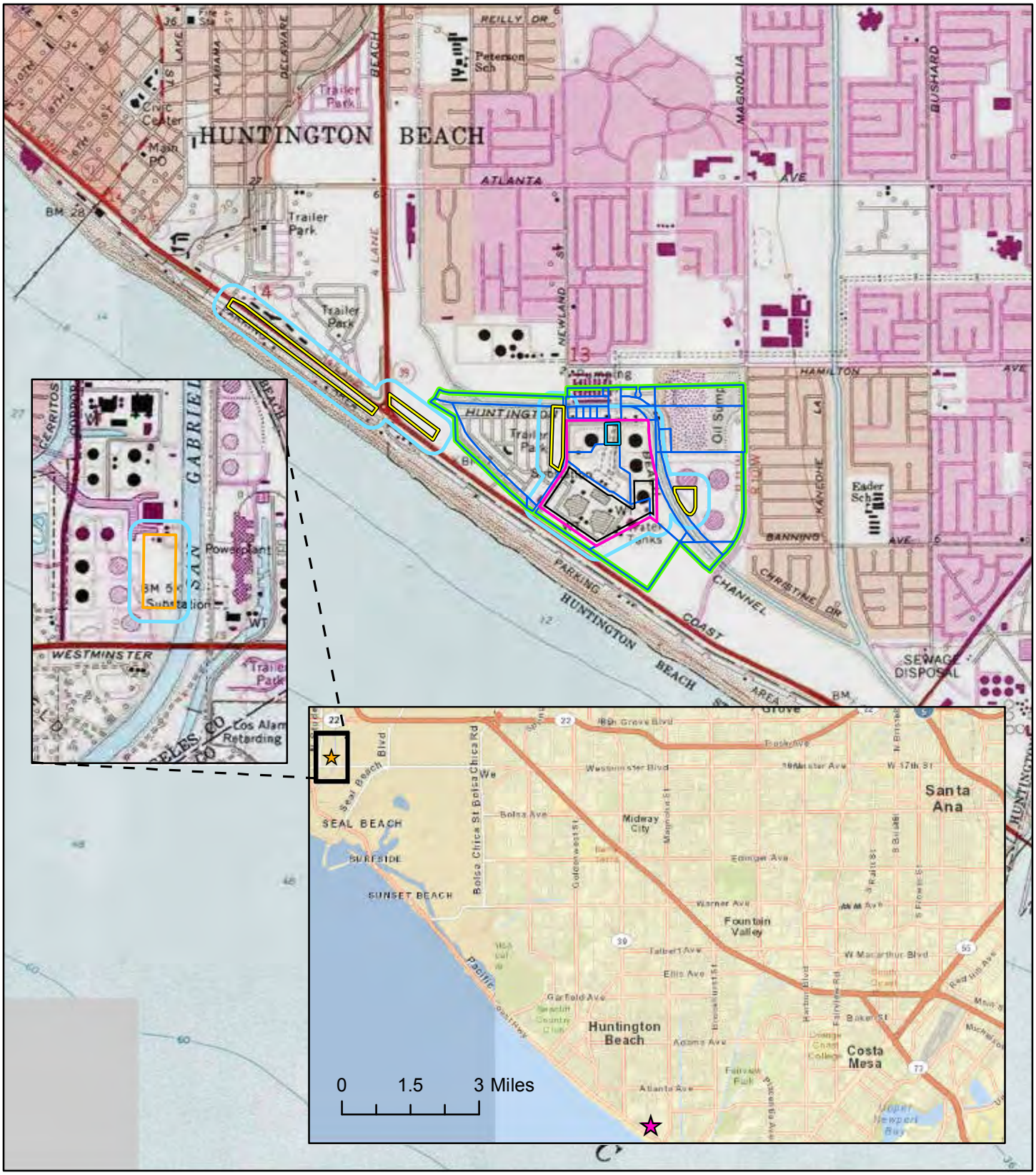
Attachment DA5.3-1
Literature Search—Confidential

This Attachment has been submitted separately under a request for confidentiality

Attachment DA5.3-2
Copies of DPR523 Forms—Confidential

This Attachment has been submitted separately under a request for confidentiality

Attachment DA5.3-3
Parcel Map for the Built Environment Survey



Township 6S,Range 11W, Section 13
Township 6S,Range 11W, Section 24
Quad Name: Newport Beach

0 0.25 0.5 Miles

N

Legend

- AES Huntington Beach Generating Station
- AES Huntington Beach Energy Project
- Offsite Construction Parking
- Onsite Construction Parking
- Offsite Construction Laydown Area at AGS
- Architectural Survey Area
- Archaeological Survey Area
- Parcels

Attachment DA5.3-3
Parcel Map for the
Built Environment Survey
AES Huntington Beach Energy Project
Huntington Beach, California

CH2MHILL

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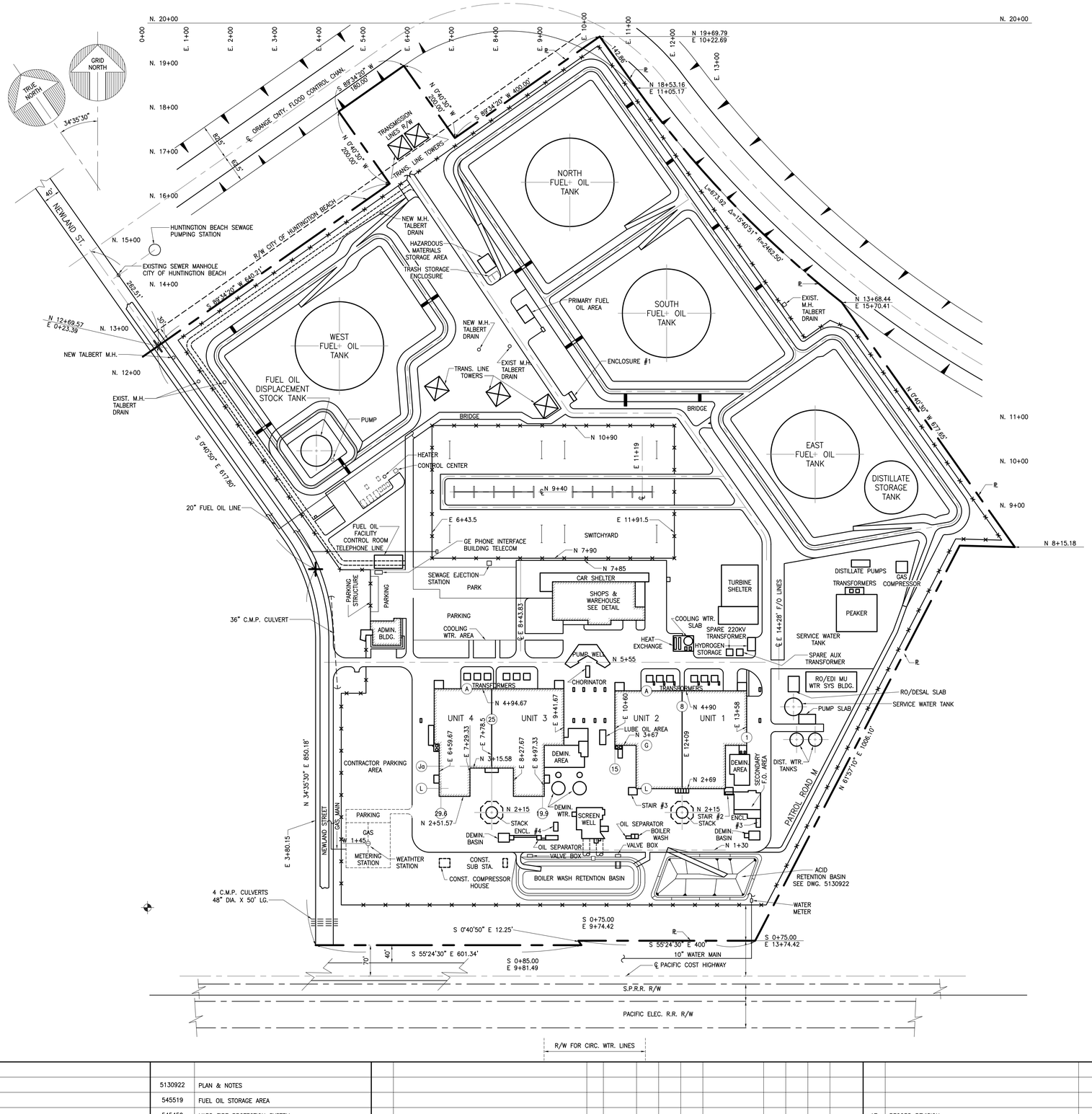
Attachment DA5.3-4
Maps of the Individual Buildings Recorded during the Built Environment Survey



NOTE:

WORK PACKAGE OF N.P.D.E.S. PROJECT SHOWN ON REVISION 13 USE THIS DRAWING FOR INFORMATION ONLY.

NOTES:

1. BEARINGS AND DISTANCES ARE TAKEN FROM SO. CAL. EDISON CO. DWG. C.F. NO. 1124.

DWG. LIST M- 23293 SH. S5
* REVISE ON CADD SYSTEM ONLY *

"UNITS 1 & 2"
"UNITS 3 & 4"

REFERENCE DRAWINGS	REFERENCE DRAWINGS
5130922	PLAN & NOTES
545519	FUEL OIL STORAGE AREA
545450	YARD FIRE PROTECTION SYSTEM
545449	GEN. PLAN UTILITIES
545440	PROPERTY FENCE PLAN UTILITIES

NO.	REVISIONS	M	DATE	P.E.	Q.A.E.	SUPV.	APPROVED	ENGR.	CK'D.	MADE	I.D.
17	RECORD REVISION		10-6-93				TRS		RV	CV ACEC	–
16	RECORD REVISION		9-23-93				TRS	JLG	JMF	IDI	–
15	RECORD REVISION – REVISED & REDRAWN		4-25-91				HB/JL			IDI	–

LOCATION: HUNTINGTON BEACH STEAM STATION

PLOT PLAN CIVIL

Southern California Edison

SHEET NO. E

SCALE: 1"=100'-0"

____ OF ____ SHTS.

09-29-93 COVALDUENA

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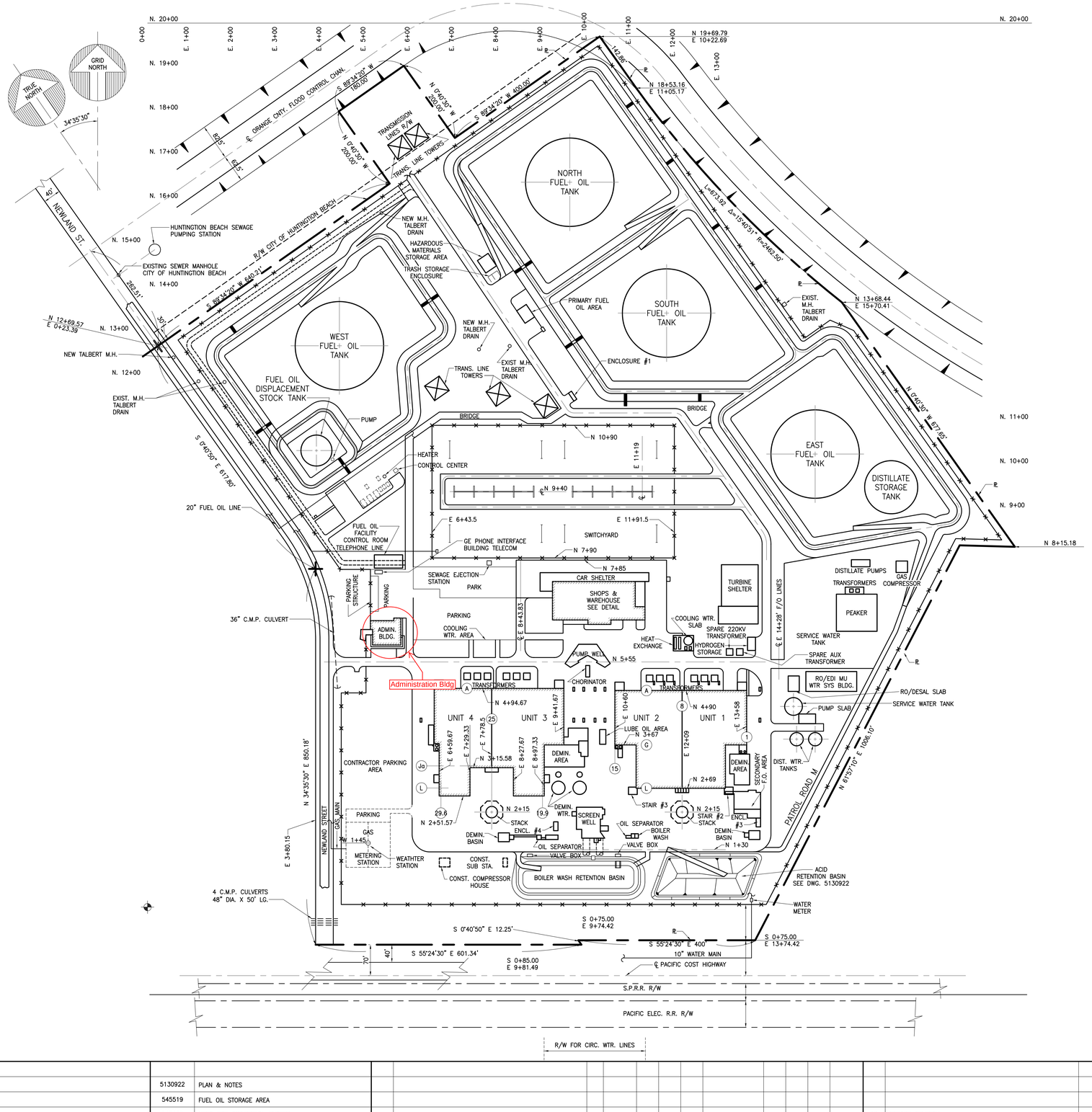
545436-17



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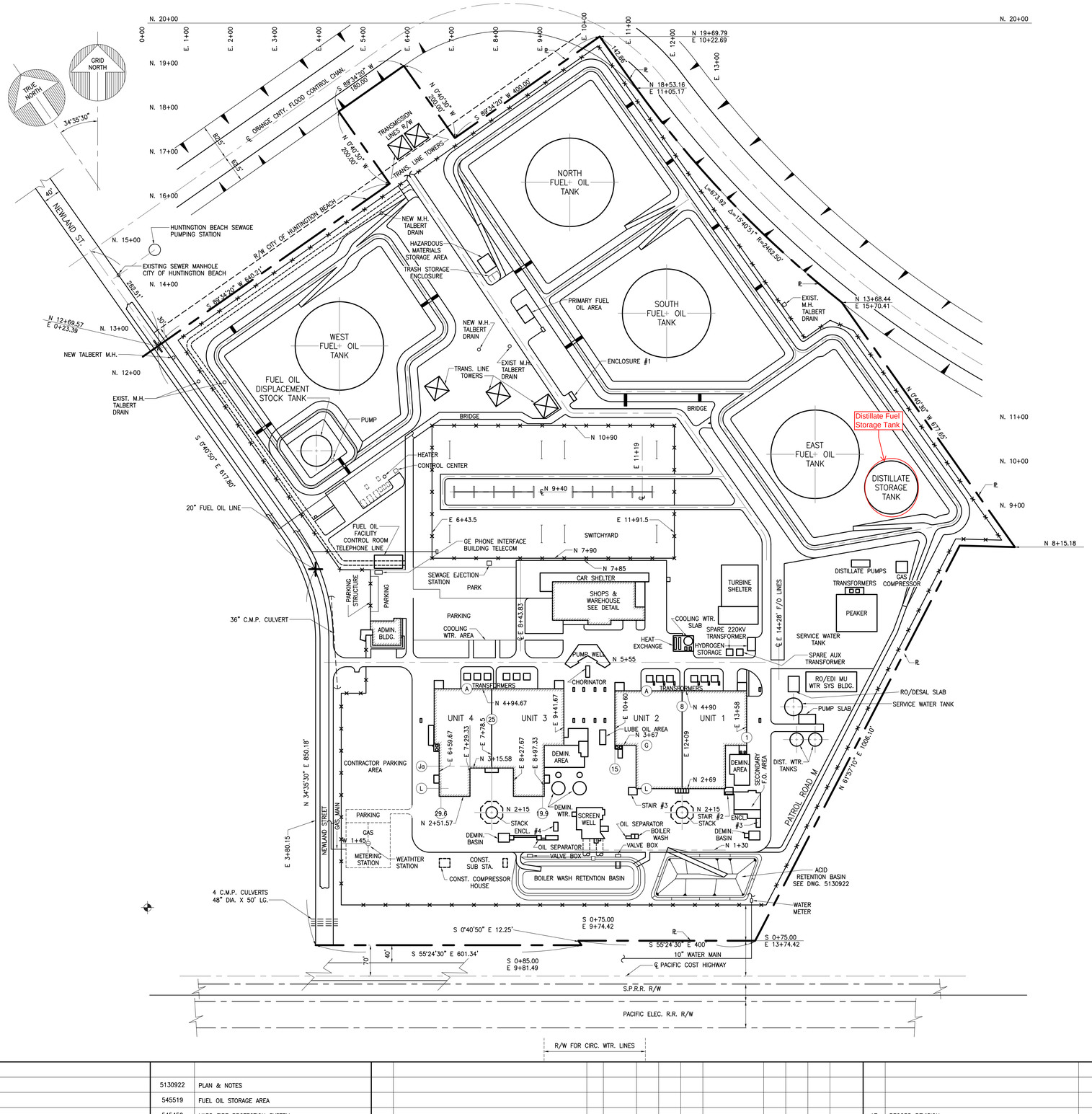

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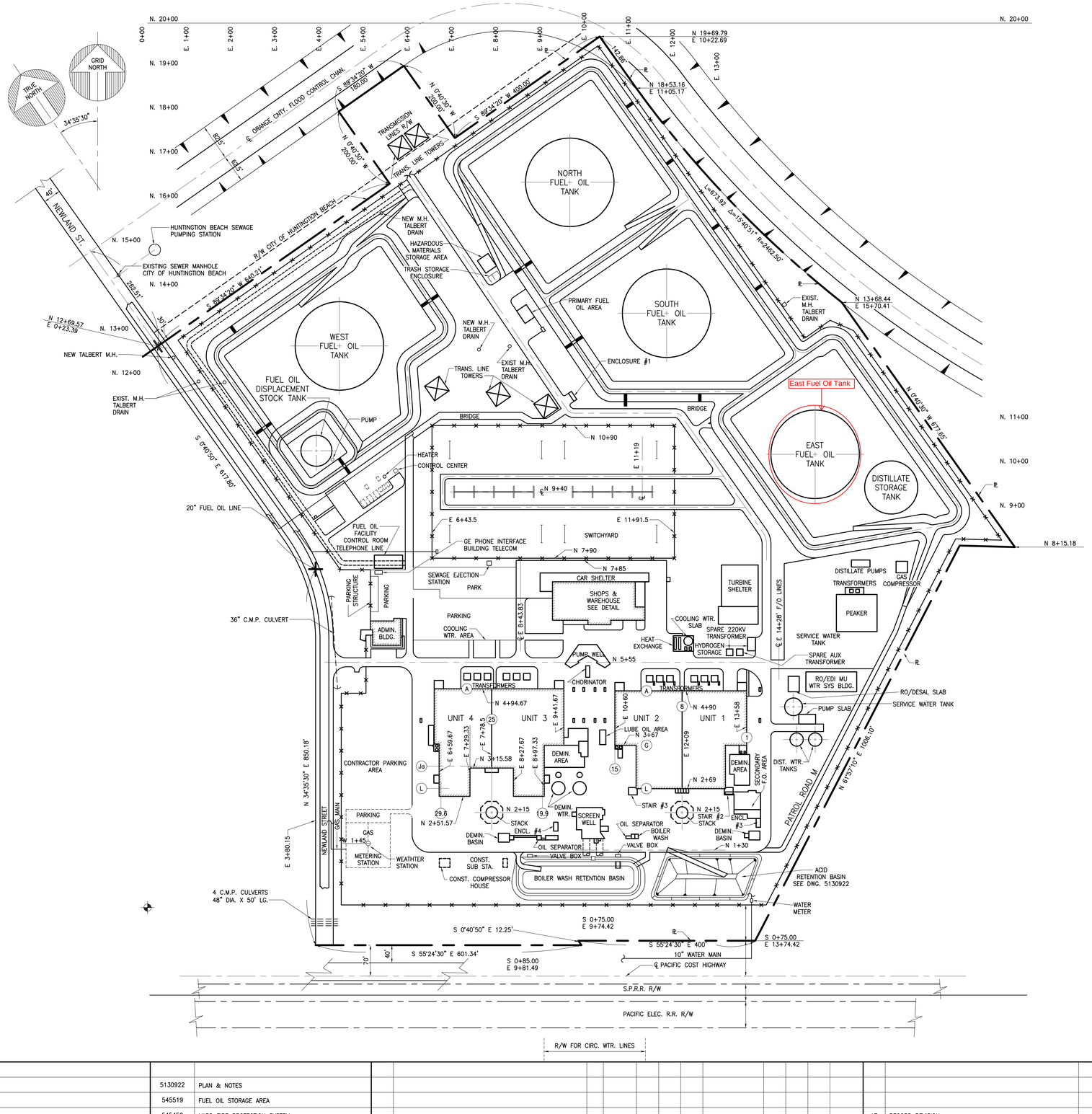

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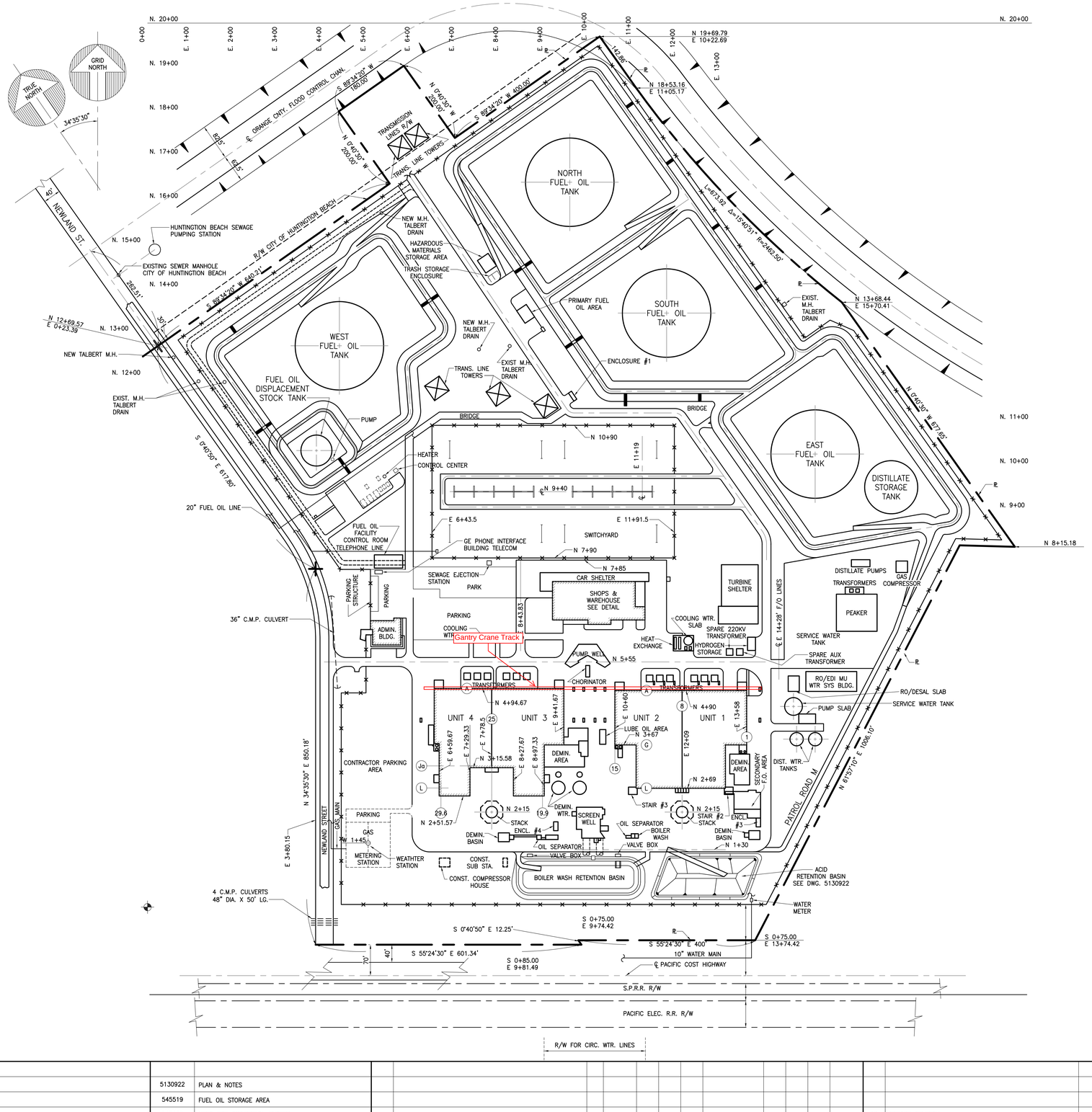

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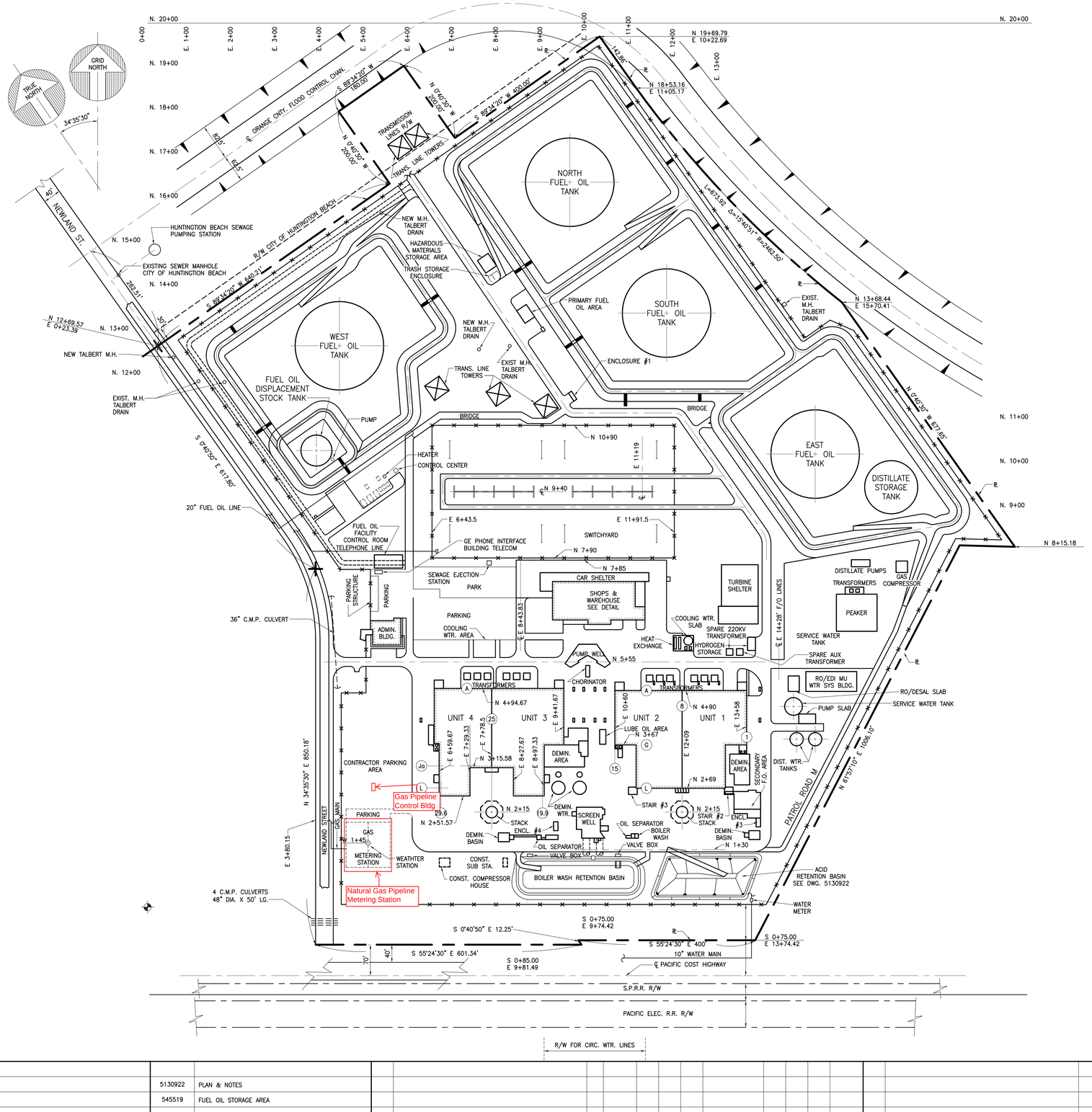

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LOCATION: HUNTINGTON BEACH STEAM STATION

PLOT PLAN CIVIL

Southern California Edison

SHEET NO. E

SCALE: 1"=100'-0"

OF SHTS.

09-29-93 COVALDUENA

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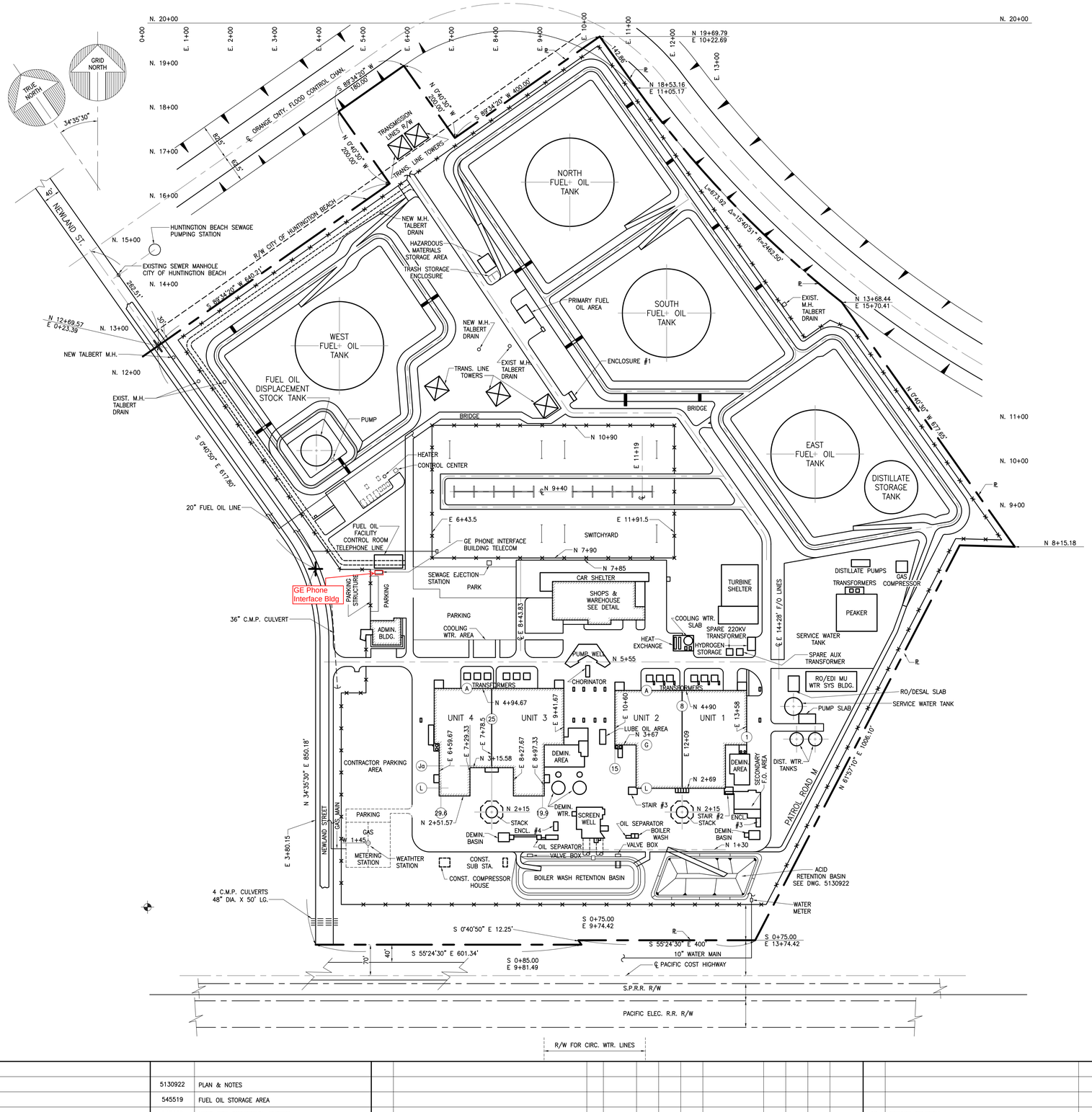

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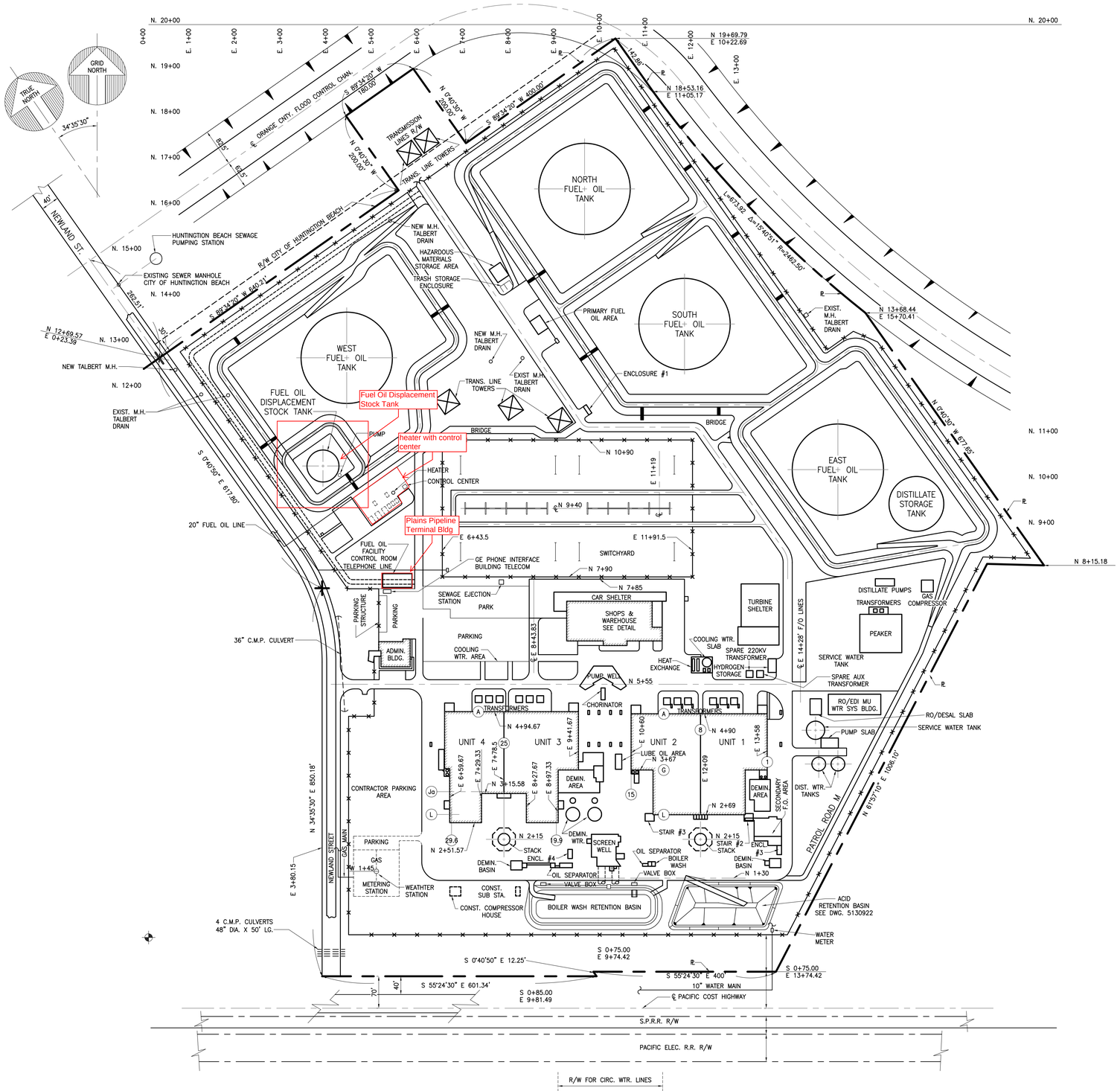

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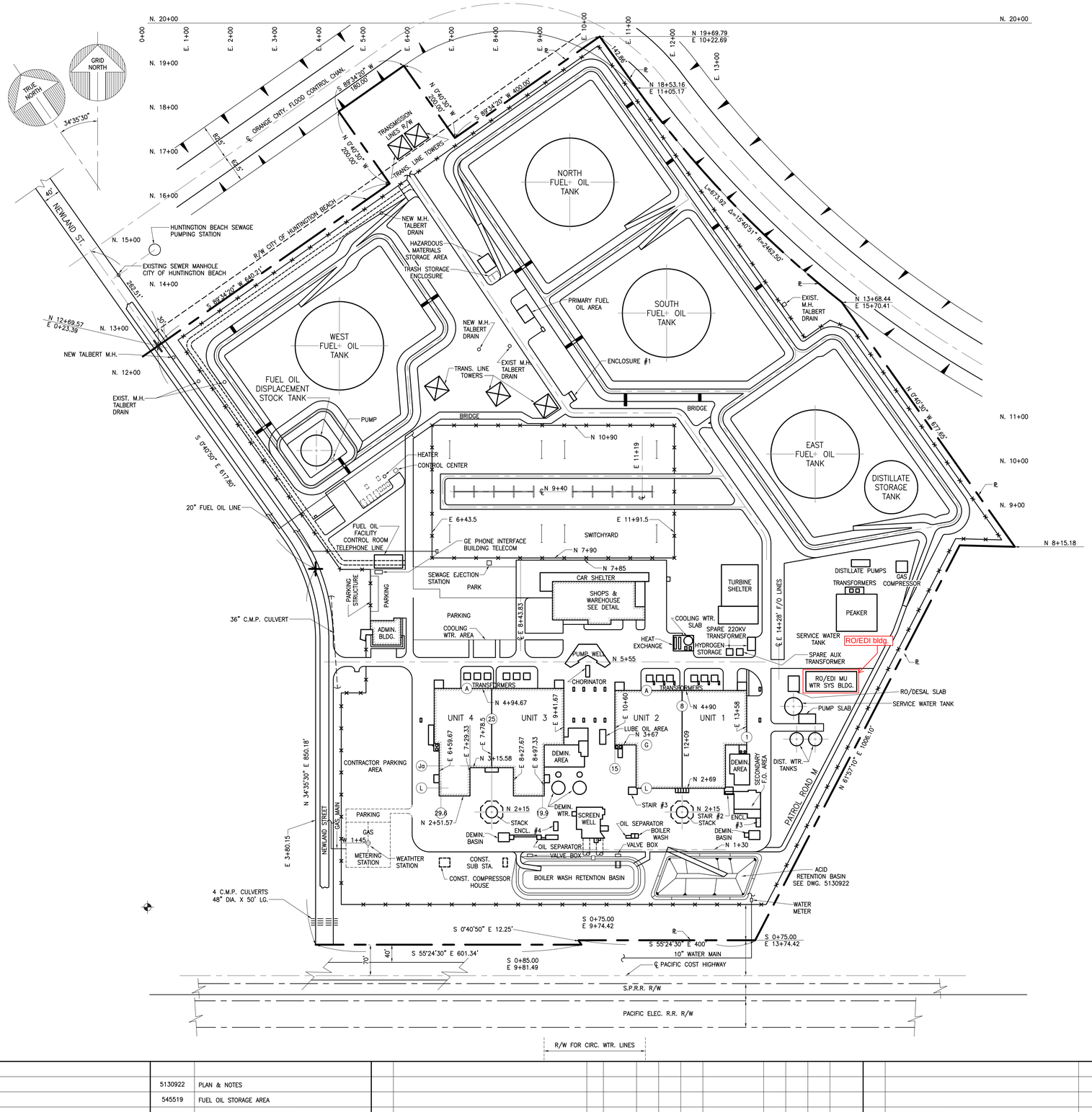

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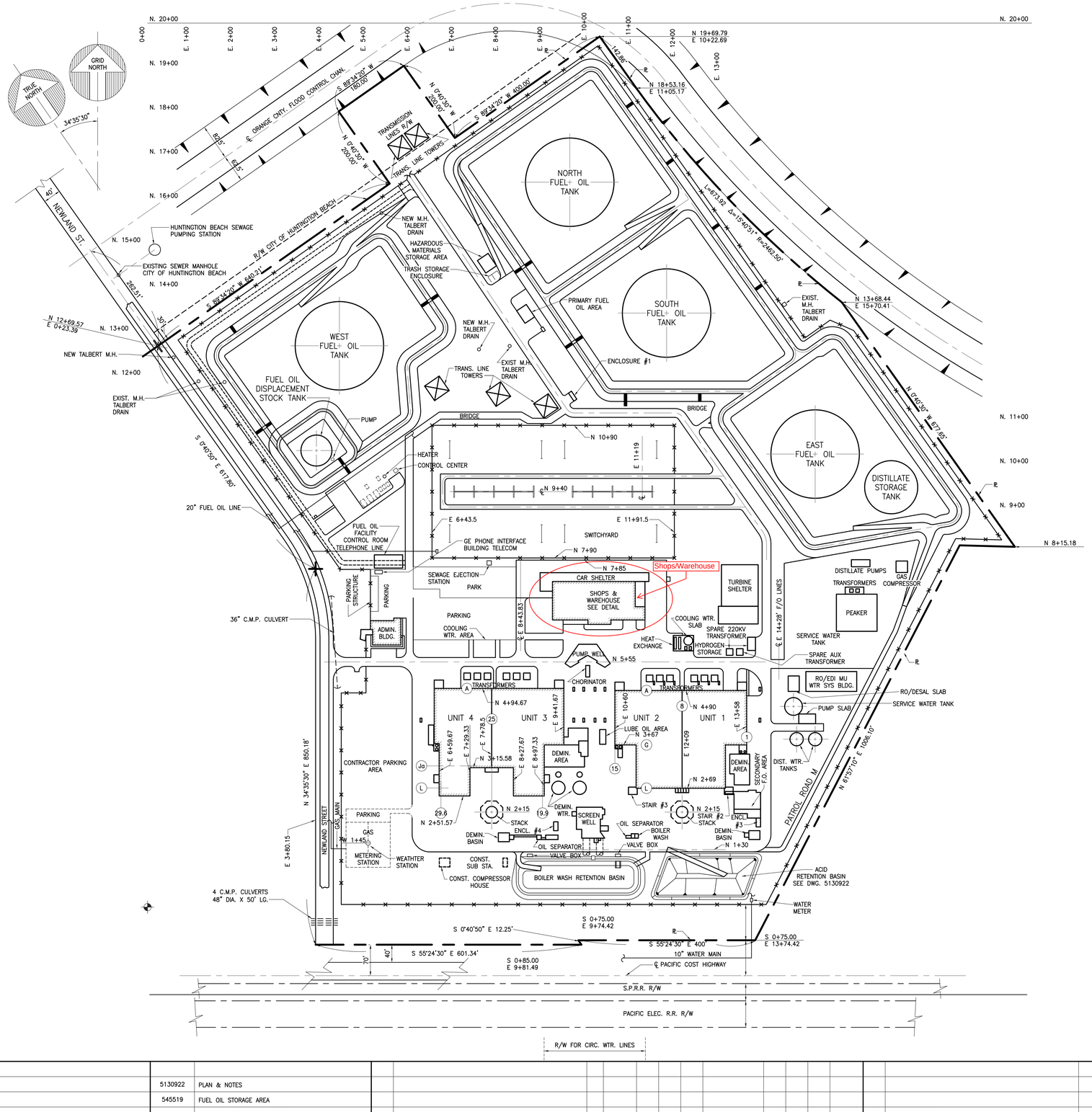

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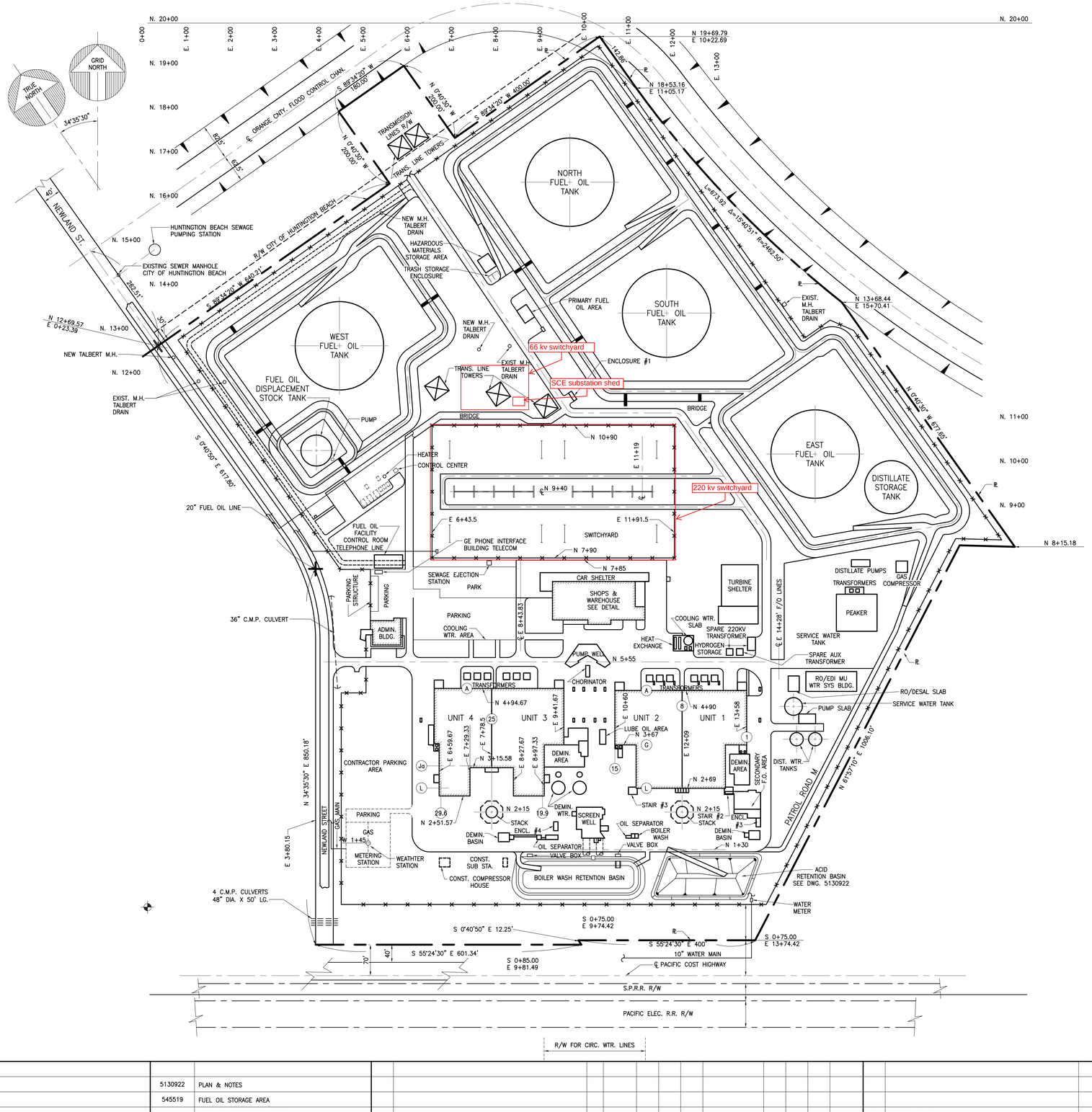

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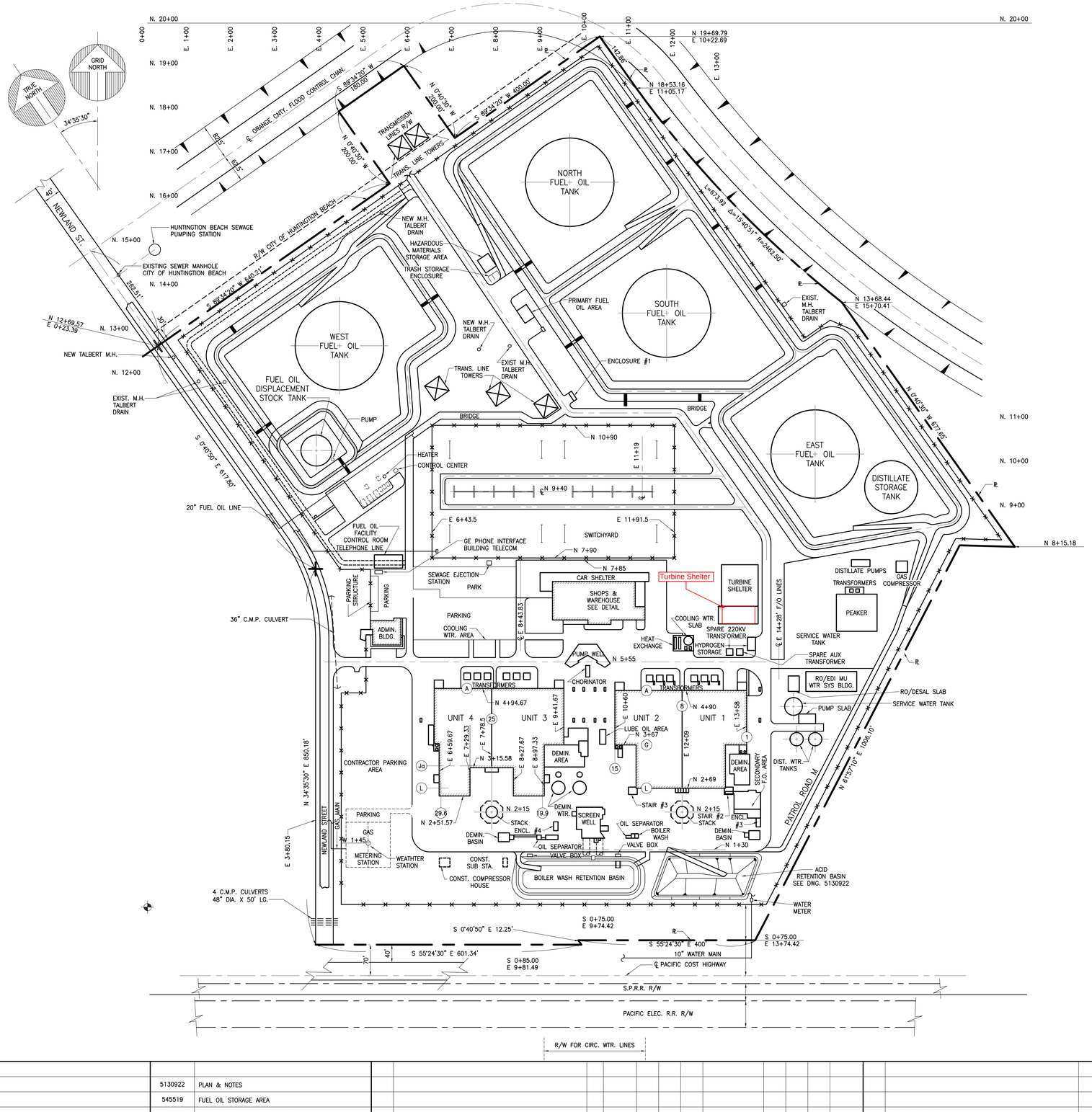

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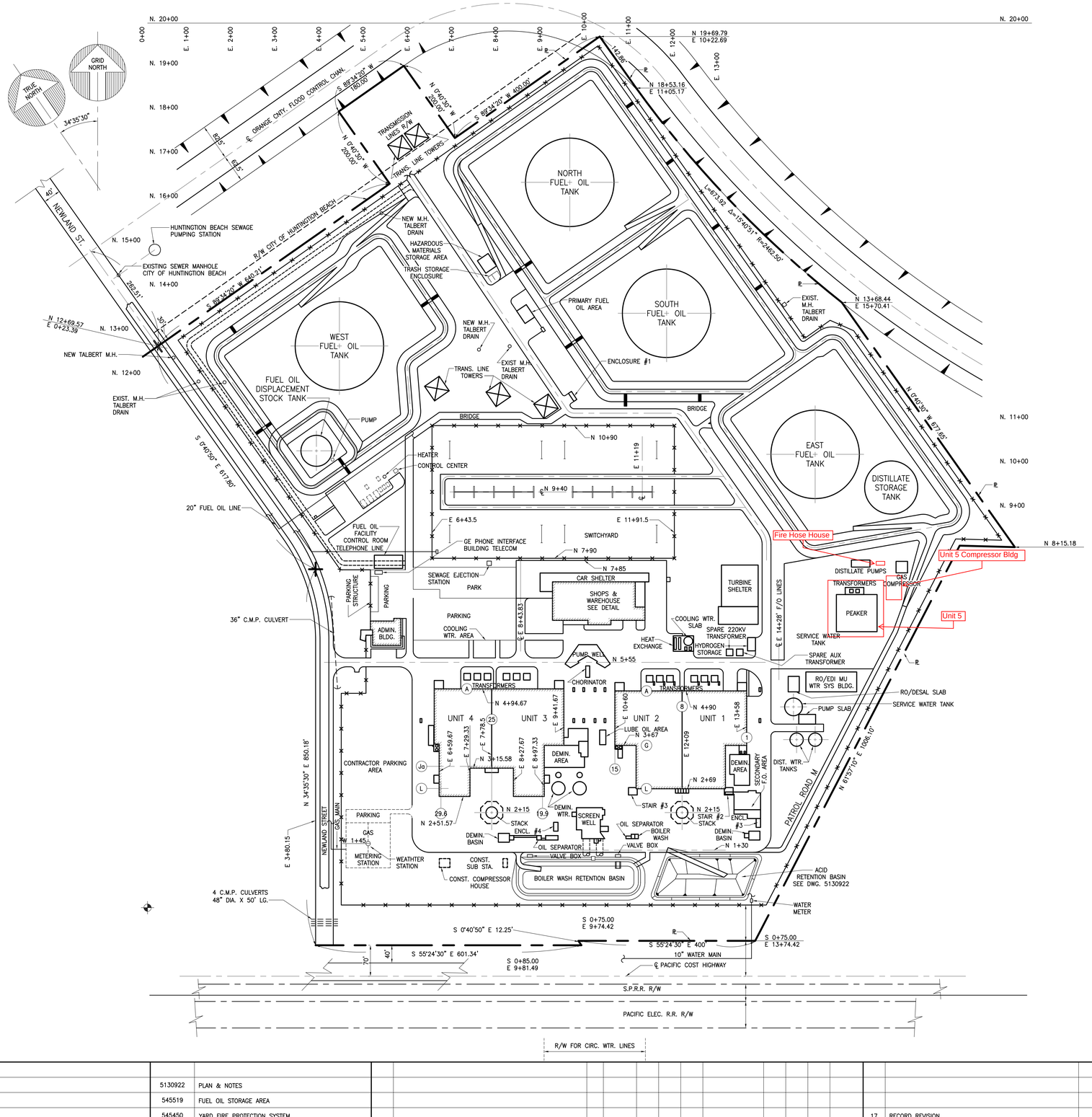

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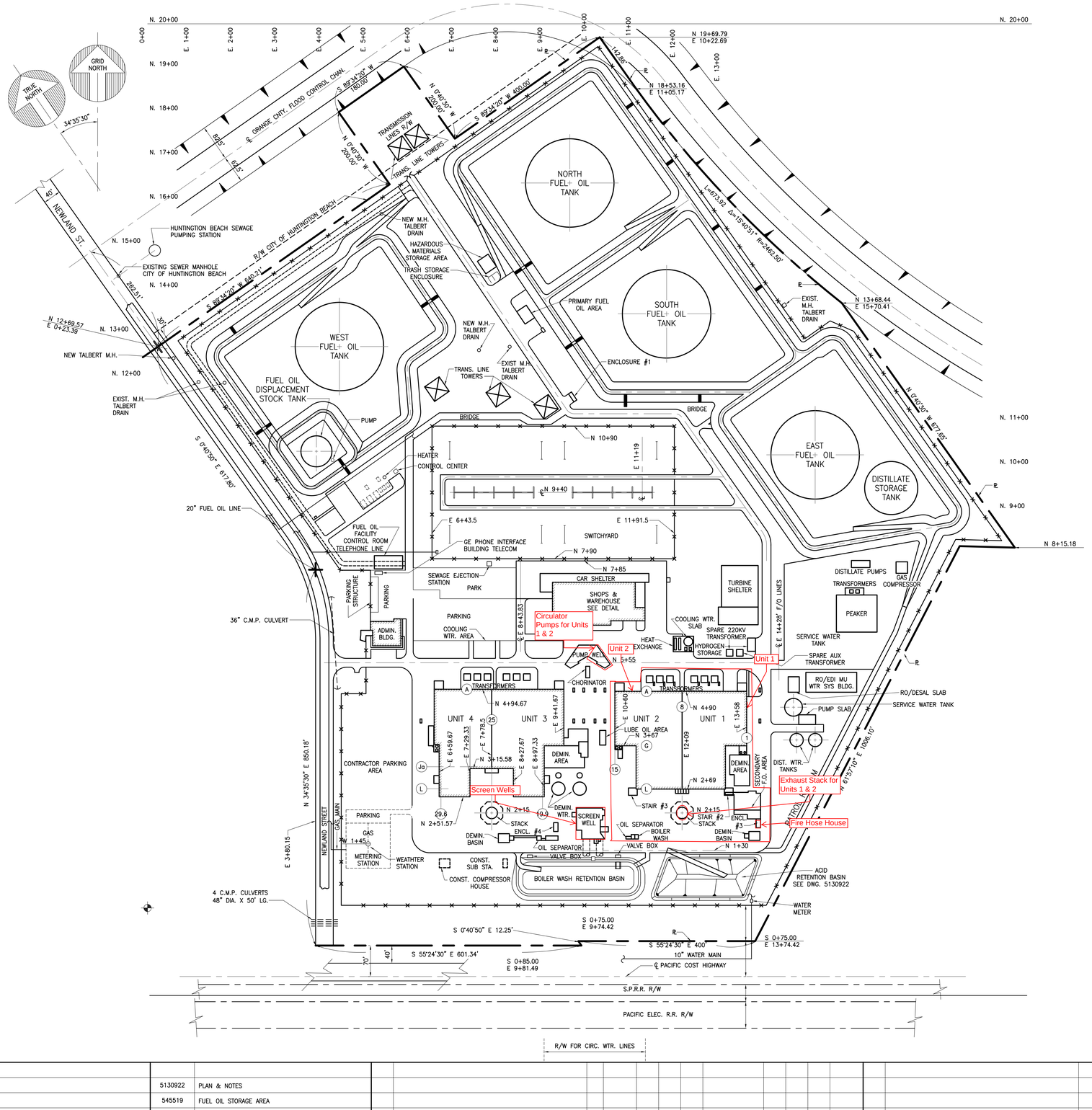

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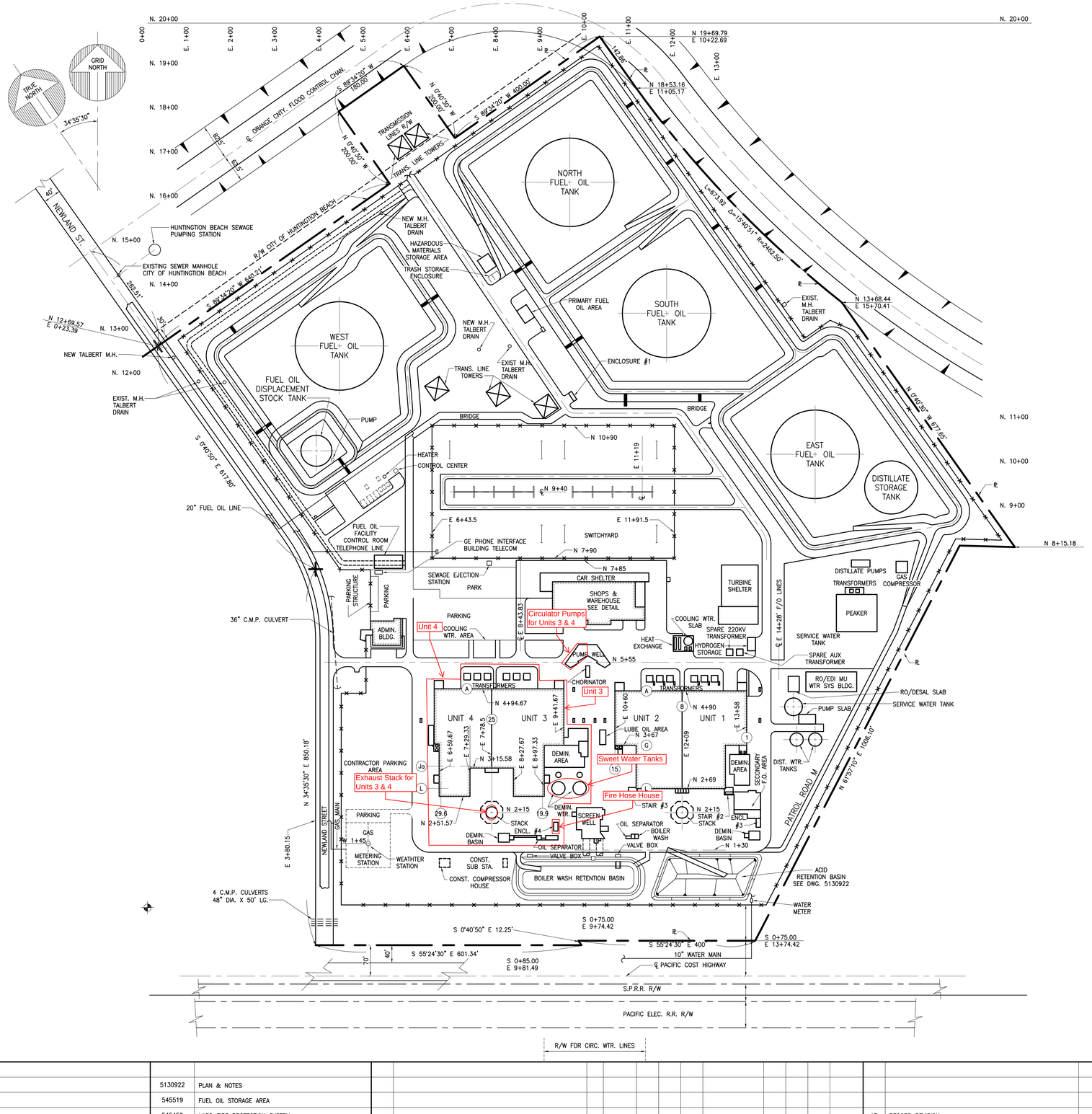

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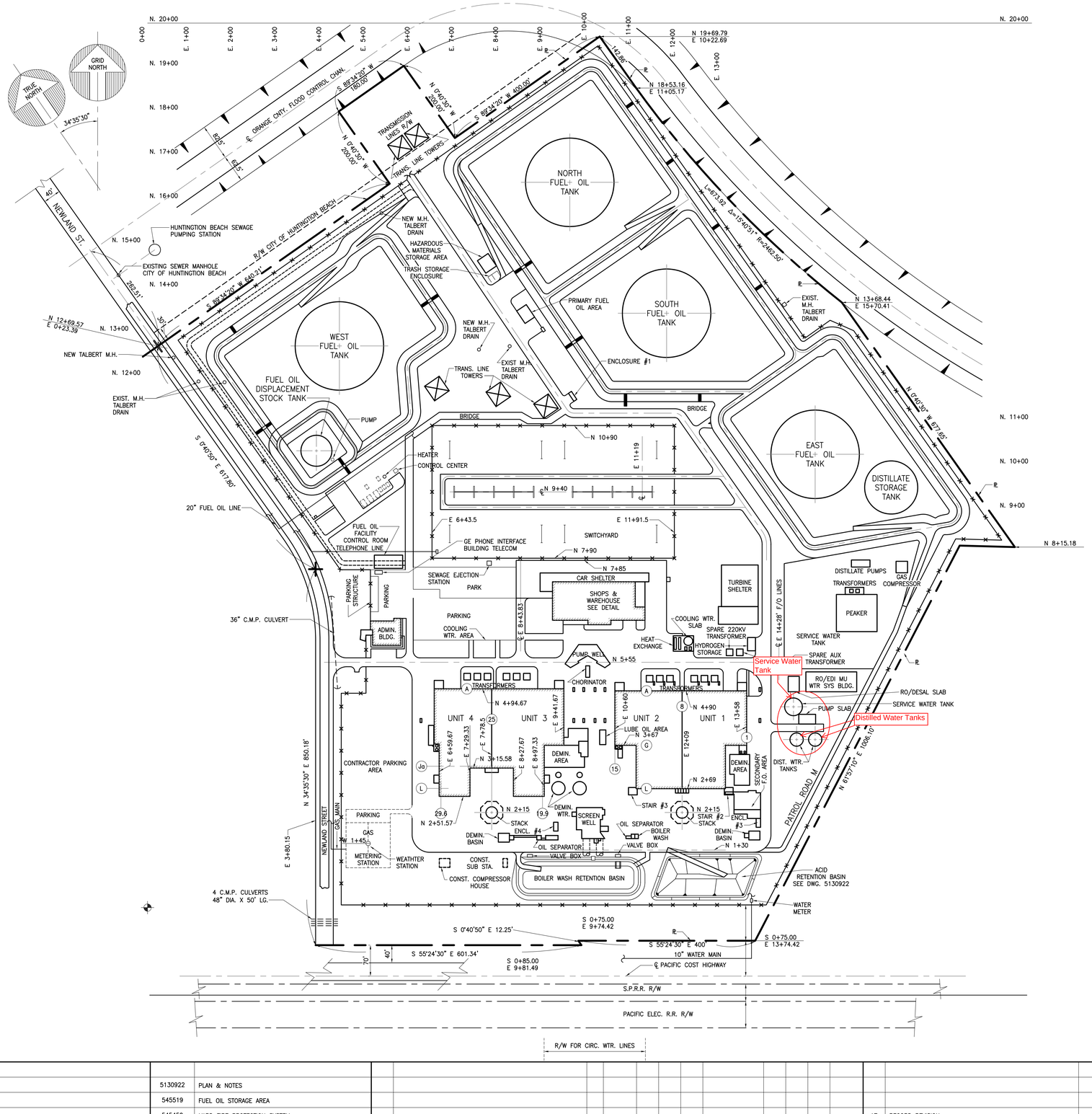

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Attachment DA5.3-5
Updated Map of Appendix 5.3E—Confidential

This Attachment has been submitted separately under a request for confidentiality

5.9 Public Health

24. Construction Health Risk Assessment (Appendix B (g)(1))

Information required to make AFC conform with regulations:

Please provide an assessment of all CEQA-related impacts, including diesel emissions that occur during construction.

Response: A screening construction health risk assessment for diesel particulate matter was conducted to assess the potential impacts associated with diesel emissions during the construction and demolition activities at HBEP. The results of the analysis are contained in the revised AFC Section 5.9, Public Health, and are here included as Attachment DA5.9-1. (Please remove the existing Section 5.9 and replace it with the attached revised Section 5.9.) In addition to the revised AFC Section 5.9, a new public health appendix, Appendix 5.9B, includes additional supporting documentation for the screening construction health risk assessment. This new appendix is included as Attachment DA5.9-2.

Section 5.9.3.3 has been revised in its entirety and is provided below for the reviewers' convenience.

5.9.3.3 Air Toxics Exposure Assessment (Construction and Demolition Impacts)

The emissions of air toxics associated with the construction of HBEP and the demolition of the existing Huntington Beach Generating Station Units 1, 2 and 5 consist primarily of combustion byproducts generated during movement of onsite construction/demolition equipment and onsite and offsite movement (vehicular miles traveled) of vehicles associated with the construction and demolition of the project. Onsite demolition activities will include the removal of the Unit 5 peaker unit, the buildings and small tanks associated with Unit 5, and a fuel oil storage tank. Demolition of Units 1 and 2 will also include an organized, top down, dismantling of the existing boiler units, generators, and stacks. The existing foundation for Units 1 and 2 will remain largely intact at the conclusion of the demolition activities and a majority of the demolition debris will be transported to an offsite location where the materials can be recycled.

The primary air toxic pollutant of concern from construction activities is diesel particulate matter (diesel PM). Due to the length of the proposed construction period, a screening health risk assessment was conducted based on the annual average emissions of diesel PM. The screening risk assessment is consistent with the health risk assessment methodology outlined in Section 5.9.3.1 and the dispersion modeling methodology outlined in Section 5.1 with the exception of the receptor locations. For the purposes of determining the potential offsite diesel PM concentrations during construction, receptors were not included in the area within the existing HBGS fence line. No receptors were included within the HBGS fence line since public access is restricted, development of the former bulk liquid storage tanks and secondary containment structures is not expected to be completed prior to the construction of the HBEP, and as a result, no individuals are expected to be routinely working or living in this area during construction of the HBEP.

The total diesel PM exhaust emissions from construction activities were averaged over the eight year construction period and spatially distributed in: i.) the area associated with the demolition of the Unit 5 peaker unit and construction of Block 1, ii.) the area associated with the construction of Block 2, and iii.) the area associated with the demolition of Units 1 and 2 and the construction of buildings 33 and 34. The incremental increases in cancer risk at the MEIR and MEIW were estimated by multiplying the predicted annual diesel PM concentration at the MEIR and MEIW by the OEHHA inhalation unit risk factor of 3.0E-04 $(\mu g/m^3)^{-1}$and adjusting the predicted results to a 9-year exposure duration to more closely reflect the exposure duration associated with construction activities (OEHHA, 2003). The predicted MEIW values were also adjusted to reflect an 8-hour day, 5 day per week, 49 week per year exposure duration (OEHHA, 2003). The non-carcinogenic (chronic) risk values were estimated by dividing the predicted annual diesel PM concentrations by the chronic reference exposure level of 5.0 $\mu g/m^3$.

Based on the analysis, the predicted incremental increases in cancer risk at the MEIR and MEIW associated with construction activities are 9.2 and 3.9 in a million, respectively. The predicted chronic health index at the MEIR and MEIW are 0.048 and 0.091, respectively. The detailed calculations for the MEIR and MEIW are included in Appendix 5.9B. The predicted incremental increase in cancer risk and chronic health index are less than the CEQA significance thresholds of 10 in a million and 1.0 defined in Section 5.9.3.1.3, respectively. Therefore, the impacts associated with the finite construction activities are less than significant.

In addition, Rule 1401 Toxic New Source Review would also apply to the any stationary equipment subject to New Source Review permitting during the construction and demolition phase. Construction and demolition impacts would also be further reduced with the implementation of the additional mitigation measures presented in Section 5.1 and the implementation of a construction fugitive dust and diesel-fueled engine control plan. The project owner will also comply with all requirements outlined in SCAQMD Rule 1403, which requires the notification and special handling of asbestos-containing materials during demolition activities.

Attachment DA5.9-1
Revised Section 5.9, Public Health

5.9 Public Health

This section describes and evaluates the public health effects of the Huntington Beach Energy Project (HBEP). Section 5.9.2 discusses the affected environment. Section 5.9.3 presents the analysis of the public health effects of the HBEP project. Section 5.9.4 evaluates any potential cumulative effects to public health, and Section 5.9.5 addresses proposed mitigation measures that would avoid or minimize any adverse impacts. Section 5.9.6 describes the laws, ordinances, regulations and standards (LORS) that apply to the project. Section 5.9.7 presents agency contacts, and Section 5.9.8 identifies the permits and permit schedule related to public health. Section 5.9.9 provides the references used to prepare this section.

5.9.1 Setting

The HBEP site is located in an industrial area of Huntington Beach at 21730 Newland Street, just north of the intersection of the Pacific Coast Highway (Highway 1) and Newland Street. The project is located on the site of the existing Huntington Beach Generating Station, an operating power plant. The HBEP site is bounded on the west by a manufactured home/recreational vehicle park, on the north by a tank farm, on the north and east by the Huntington Beach Channel and residential areas, on the southeast by the Huntington Beach Wetland Preserve / Magnolia Marsh wetlands, and to the south and southwest by the Huntington Beach State Park and the Pacific Ocean. The site is located on a gently sloping coastal plain.

HBEP is a 939-megawatt combined-cycle power plant, consisting of two power blocks. Each power block is composed of three combustion turbines with supplemental fired heat recovery steam generators (HRSG), a steam turbine generator, an air-cooled condenser, and ancillary facilities. HBEP will reuse existing onsite potable water, natural gas, stormwater, process wastewater, and sanitary pipelines and electrical transmission facilities. No offsite linear developments are proposed as part of the project.

The project will use potable water, provided by the City of Huntington Beach, for construction and operational process and sanitary uses. During operation, stormwater and process wastewater will be discharged to a retention basin and then ultimately to the Pacific Ocean via an existing outfall. Sanitary wastewater will be conveyed to the Orange County Sanitation District via the existing City of Huntington Beach sewer connection. Two 230-kilovolt (kV) transmission interconnections will connect HBEP Power Blocks 1 and 2 to the existing onsite Southern California Edison 230-kV switchyard.

HBEP construction will require the removal of the existing Huntington Beach Generating Station Units 1, 2, and 5. Demolition of Unit 5, scheduled to occur between the fourth quarter of 2014 and the end of 2015, will provide the space for the construction of HBEP Block 1. Construction of Blocks 1 and 2 are each expected to take approximately 42 and 30 months, respectively, with Block 1 construction scheduled to occur from the first quarter of 2015 through the second quarter of 2018, and Block 2 construction scheduled to occur from the first quarter of 2018 through the second quarter of 2020. Removal/demolition of existing Huntington Beach Generating Station Units 1 and 2 is scheduled to occur from the fourth quarter of 2020 through the third quarter of 2022.

Existing Huntington Beach Generating Station Units 3 and 4 were licensed through the California Energy Commission (CEC) (00-AFC-13C) and demolition of these units is authorized under that license and will proceed irrespective of the HBEP. Therefore, demolition of existing Huntington Beach Generating Station Units 3 and 4 is not part of the HBEP project definition. However, to ensure a comprehensive review of potential project impacts, the demolition of existing Huntington Beach Generating Station Units 3 and 4 is included in the cumulative impact assessment. Removal/demolition of existing Huntington Beach Generating Station Units 3 and 4 will be in advance of the construction of HBEP Block 2.

HBEP construction will require both onsite and offsite laydown and construction parking areas. Approximately 22 acres of construction laydown will be required, with approximately 6 acres at the Huntington Beach Generating Station used for a combination of laydown and construction parking, and 16 acres at the AES Alamitos Generating Station (AGS) used for construction laydown (component storage only/no assembly of components at AGS). During HBEP construction, the large components will be hauled from the construction laydown area at the AGS site to the HBEP site as they are ready for installation.

Construction worker parking for HBEP and the demolition of the existing units at the Huntington Beach Generating Station will be provided by a combination of onsite and offsite parking. A maximum of 330 parking spaces will be required during construction and demolition activities. As shown on Figure 2.3-3 in Section 2.0, Project Description, construction/demolition worker parking will be provided at the following locations:

- Approximately 1.5 acres onsite at the Huntington Beach Generating Station (approximately 130 parking stalls)
- Approximately 3 acres of existing paved/graveled parking located adjacent to HBEP across Newland Street (approximately 300 parking stalls)
- Approximately 2.5 acres of existing paved parking located at the corner of Pacific Coast Highway and Beach Boulevard (approximately 215 parking stalls)
- 225 parking stalls at the City of Huntington Beach shore parking west of the project site.
- Approximately 1.9 acres at the Plains All American Tank Farm located on Magnolia Street (approximately 170 parking stalls)

5.9.1.1 Project Overview as it Relates to Public Health

HBEP will consist of two three-on-one combined-cycle power blocks with a net capacity of 939 megawatts. Each power block will consist of three Mitsubishi Power Systems Americas 501DA combustion turbine generators (CTG), one steam turbine, and an air-cooled condenser. Each CTG will be equipped with an HRSG and will employ supplemental natural gas firing (duct firing). The turbines will use dry low NO_x (oxides of nitrogen) burners and selective catalytic reduction to limit NO_x emissions to 2 parts per million by volume (ppmv). Emissions of carbon monoxide will be limited to 2 ppmv and volatile organic compounds to 1 ppmv through the use of the best combustion practices and the use of an oxidation catalyst. Best combustion practices and burning pipeline-quality natural gas will minimize emissions of the remaining pollutants.

HBEP will retain the use of the two existing 275-horsepower diesel-fired emergency fire water pumps, which were installed during the existing Huntington Beach Generating Station's Units 3 and 4 retooling project in 2001. Because the existing fire pumps are already permitted by the South Coast Air Quality Management District (SCAQMD) and are considered part of the existing background conditions, they were not included in the public health analysis for HBEP.

This section presents the methodology and results of the human health risk assessment (HRA) that was conducted to assess the potential public health impacts and exposure associated with airborne emissions from the proposed routine operation of the HBEP. The quantities of hazardous materials proposed to be stored onsite, a description of their uses, and the potential concerns regarding these materials are presented in Section 5.5, Hazardous Materials Handling. A discussion of the potential concerns associated with electromagnetic field exposure is presented in Section 3.0, Transmission System Engineering.

5.9.2 Affected Environment

Based on the Environmental Data Resources (EDR) *Offsite Receptor Report* (EDR, 2012), approximately 353,173 residents live within a 6-mile radius of HBEP. Per California Energy Commission (CEC) siting regulation Appendix B (g)(9)(E)(i), sensitive receptors include infants and children, the elderly, the chronically ill, and any other member of the general population who is more susceptible to the effects of exposure than the population at large. Therefore, schools (public and private), daycare facilities, convalescent homes, and hospitals are of particular concern. Sensitive receptors within a 6-mile radius of the project site include:

- 275 preschool/daycare centers
- 12 nursing homes
- 81 schools
- 579 hospitals, clinics, and/or pharmacies
- 7 colleges

The EDR *Offsite Receptor Report* includes a figure and list of the sensitive receptors located within a 6-mile radius of the project site is presented in Appendix 5.9A. The nearest sensitive receptor is a daycare facility located 0.3 mile east of the project site. The nearest school is the Edison High School, located approximately 0.5 mile to the northeast of the project site. The nearest resident is approximately 250 feet west-northwest of the facility fence line along Newland Street. The nearest businesses are located along Edison Drive, just north of the project site.

Per CEC siting regulation Appendix B (g)(9)(c), a search of available health studies concerning the potentially affected populations within a 6-mile radius is required. In October 1997, the MATES II study was initiated as part of the Environmental Justice Initiatives adopted by the SCAQMD Governing Board. It consisted of a comprehensive monitoring program, an updated emissions inventory, and a modeling effort to characterize health risks associated with human exposures to ambient concentrations of toxic air contaminants (TAC) in the Southern California Air Basin (SCAB). The results of the MATES II study estimated that the excess lifetime carcinogenic risk from exposures to airborne TACs in the SCAB averages about 1,400 in 1 million (1.4×10^{-3}), meaning that an individual exposed over a 70-year lifetime would have about a 0.14 percent additional chance of contracting cancer. Estimated carcinogenic risk was found to be rather uniform across the basin. For example, risk ranged from about 1,120 in 1 million to about 1,740 in 1 million for the sites monitored.

The MATES II study showed that mobile sources (for example, cars, trucks, trains, ships, and aircraft) represent the greatest contributors to the estimated risks. About 70 percent of all carcinogenic risk is attributed to diesel particulate matter emissions; about 20 percent is attributed to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde); and about 10 percent of all risk is attributed to emissions from stationary sources (which include industries and other businesses, such as dry cleaners and chrome plating operations). Updating the findings of MATES II, SCAQMD completed the MATES III study by issuing a final report in September 2008. Similar to the earlier MATES II study, the MATES III study found that mobile sources continued to dominate cancer risk in the SCAB by accounting for an estimated 94 percent of the overall cancer risk. Diesel emissions, alone, account for 84 percent of the cancer risk. Overall, the general trend in risk exposure has been decreasing with the estimated cancer risk from exposure to airborne toxics reduced to 1,200 in 1 million. The MATES III study found that non-diesel risk has been lowered from the MATES II estimates by 50 percent.

5.9.3 Environmental Analysis

5.9.3.1 Air Toxics Exposure Assessment (Operation Impacts)

Human health risks potentially associated with hazardous substance emissions, from the proposed operation of HBEP, which includes compounds on the list of Office of Environmental Health Hazard Assessment (OEHHA) TACs and U.S. Environmental Protection Agency (EPA) hazardous air pollutants (HAP), were evaluated. The HRA was conducted in accordance with SCAQMD Rules 212 and 1401 and the following guidance:

- *Air Toxics Hot Spots Program Risk Assessment Guidelines* (OEHHA, 2003)
- Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spots” Information and Assessment Act (AB2588) (SCAQMD, 2011a)
- California Air Resources Board (ARB) *Recommended Interim Risk Management Policy for Inhalation-based Residential Cancer Risk* (ARB, 2003)
- *Guideline on Air Quality Models* (EPA, 2005)
- Huntington Beach Energy Project Dispersion Modeling Protocol (CH2M HILL, 2012)

The HRA modeling was conducted using the ARB *Hotspots Analysis Reporting Program* (HARP, Version 1.4f), along with the ARB HARP On-ramp program (Version 1.0). The HARP On-ramp tool was used to import the American Meteorological Society/EPA Regulatory Model (AERMOD) air dispersion modeling results into the HARP Risk Module.

The HRA process requires four general steps to estimate health impacts: (1) identify and quantify project-generated emissions; (2) evaluate pollutant transport (air dispersion modeling) to estimate ground-level TAC

concentrations at each receptor location; (3) assess human exposure; and (4) use a risk characterization model to estimate the potential health risk at each receptor location. The following sections describe in detail the methods used in this HRA.

5.9.3.1.1 Air Toxics Emission Calculations

Air toxics (TAC and HAP) emissions associated with the project will consist primarily of combustion byproducts produced by the six natural-gas-fired CTGs and HRSGs. TACs are compounds, designated by OEHHA as pollutants that may pose a significant health hazard. HAPs are compounds designated by EPA as pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.

Air toxics emission factors for the gas turbines were obtained from the ARB California Air Toxics Emission Factors (CATEF) emission database (ARB, 2012), with the exception of polyaromatic hydrocarbons (PAH) and formaldehyde. The PAH emission factor was based on two separate source tests (2002 and 2004) at the Delta Energy Center in Pittsburg, California (Avogadro Group, 2002 and 2004). The allowable formaldehyde emission rate was based on the maximum allowable concentration identified in New Source Performance Standards (NSPS) Part 60, Subpart KKKK for natural-gas-fired turbines.

The HRA was conducted assuming the combustion turbines would be operated 5,000 hours per turbine per year at base load without duct burner firing, 1,200 hours at base load per turbine per year with duct burner firing, and 624 startups and shutdowns (estimated 465 hours) per turbine per year. A summary of the air toxics emissions included in the HRA is presented in Table 5.9-1. The detailed emission calculations for the air toxics are provided in Appendix 5.1B.

TABLE 5.9-1
Air Toxic Emission Rates Modeled for HBEP

Pollutant[a]	Chemical Abstracts Service Registry Number	CTG/HRSG (per turbine)	
		lb/hr[b]	lb/yr[b]
Ammonia[c]	7664417	1.32E+01	8.40E+04
Acetaldehyde	75070	2.69E-01	1.34E+03
Acrolein	107028	3.72E-02	1.85E+02
Benzene	71432	2.61E-02	1.30E+02
1,3-Butadiene	106990	2.50E-04	1.24E+00
Ethyl Benzene	100414	3.52E-02	1.75E+02
Formaldehyde[d]	50000	4.32E-01	2.15E+03
Hexane	110543	5.09E-01	2.53E+03
Naphthalene	91203	3.26E-03	1.62E+01
PAHs[e]	1151	2.75E-05	1.37E-01
Propylene	115071	1.52E+00	7.53E+03
Propylene oxide	75569	9.40E-02	4.67E+02
Toluene	108883	1.40E-01	6.93E+02
Xylenes	1330207	5.13E-02	2.55E+02

[a] Emission rates based on the California Air Toxics Emission Factors (CATEF) database, unless otherwise noted (ARB, 2012).
[b] Hourly emission rates are based on a maximum turbine heat input with duct burner firing of 2,005 MMBtu/hr (high heat value). The annual emission rates are based on 5,465 hours of turbine operation with an average annual heat input of 1,403 MMBtu/hr and 1,200 hours of turbine operation with duct burner firing and an average annual heat input of 1,910 MMBtu/hr. (See Appendix 5.1B for detailed emission estimates.)
[c] Based on the operating exhaust ammonia limit of 5 ppmv @ 15% oxygen and an F-factor of 8710.
[d] Emission factor is based on the NSPS Subpart YYYY emission limit of 91 ppbv for formaldehyde.
[e] Carcinogenic PAHs only; naphthalene considered separately. Emission Factor based on two separate source tests (2002 and 2004) from the Delta Energy Center located in Pittsburg, CA (Avogadro Group, 2002; 2004).

5.9.3.1.2 Dispersion Modeling

The AERMOD dispersion model (Version 12060) was used to predict ground-level concentrations of air toxic emissions associated with HBEP. The AERMOD settings, source parameters, meteorological data, and source definition for the risk assessment were the same as the air quality impact analysis methodology (Section 5.1). A unit emission rate (1 gram/second) was used to model each source, as outlined in the HARP On-ramp program manual.

The maximum hourly impacts were predicted for the 100 degrees Fahrenheit (°F), 70 percent load case, which represents the turbine exhaust parameters associated with the maximum predicted 1-hour impact in Section 5.1. The annual impacts were predicted for the 65.8°F, 70 percent load case, which represents the average annual temperature and load scenario. Detailed modeling source parameters for HBEP are presented in Appendix 5.1C.

The discrete receptor grid spacing out to 50 kilometers was similar to the air quality impact analysis modeling methodology. In addition to the discrete receptor grid, the census block receptor locations and sensitive receptors within 6 miles of the HBEP site were also included in the HRA.

5.9.3.1.3 Risk Characterization

The results of the dispersion modeling analysis represent an intermediate product in the HRA process. The HARP On-ramp program was used to convert the AERMOD output files to a format compatible with the HARP model. The HARP model was subsequently used to determine cancer, chronic, and acute health risks.

Cancer risks were evaluated based on the annual air toxics ground-level concentrations, inhalation cancer potency, oral slope factor, frequency and duration of exposure at the receptor, and breathing rate of the exposed persons. Cancer risks were estimated using the required conservative assumption of 70-year continuous exposure duration for residential and sensitive receptors and a 40-year, 5-day week, 8-hours-per-day exposure duration for commercial/industrial receptors. In addition, for predicted cancer risks, where the inhalation pathway is the dominant pathway of cancer risks, the Derived (Adjusted) Method was used for the cancer risk evaluation, based on the *Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk* (ARB, 2003).

If a predicted Derived Adjusted cancer risk is greater than one in 1 million, the cancer burden is calculated for each census block receptor. Cancer burden is defined as the estimated increase in the occurrence of cancer cases in a population resulting from exposure to carcinogenic air contaminants. The population data for census block receptors within 6 miles of the HBEP site are based on the population information within the HARP database.

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure caused by chemicals accumulating in the body. Per CEC Siting Regulations, “a chronic exposure is one which is greater than twelve (12) percent of a lifetime of seventy (70) years.”[1] Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. Per CEC Siting Regulations, “An acute exposure is one which occurs over a time period of less than or equal to one (1) hour.”[2] To assess chronic and acute non-cancer exposures, annual and 1-hour air toxics ground-level concentrations are compared with the Reference Exposure Levels (REL) developed by OEHHA to obtain a chronic or acute hazard index. The REL is a concentration in ambient air at or below which no adverse health effects are anticipated.

OEHHA/ARB Cancer and Non-Cancer RELs. The HRA included potential health impacts from home-grown produce, dermal absorption, soil ingestion, and mother’s milk, as required by OEHHA guidelines (OEHHA, 2003). The inhalation cancer potency, oral slope factor values, and RELs used to characterize health risks associated with the modeled impacts were obtained from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (OEHHA and ARB, 2012), and are shown in Table 5.9-2.

[1] Data Adequacy Checklist, Appendix B (g)(9)(E)(iii)

[2] Data Adequacy Checklist, Appendix B (g)(9)(E)(ii)

TABLE 5.9-2
Risk Assessment Health Values for Air Toxic Substances

Compound	Inhalation Cancer Potency (mg/kg-day) $^{-1}$	Oral Cancer Slope Factor (mg/kg-day) $^{-1}$	Chronic Inhalation Reference Exposure Level (µg/m^3)	Chronic Oral Reference Exposure Level (mg/kg-day)	Acute Inhalation Reference Exposure Level (µg/m^3)
PAHs	3.90E+00	1.20E+01	—	—	—
Xylenes	—	—	7.00E+02	—	2.20E+04
Formaldehyde	2.10E-02	—	9.00E+00	—	5.50E+01
Benzene	1.00E-01	—	6.00E+01	—	1.30E+03
Acetaldehyde	1.00E-02	—	1.40E+02	—	4.70E+02
Propylene oxide	1.30E-02	—	3.00E+01	—	3.10E+03
Naphthalene	1.20E-01	—	9.00E+00	—	—
Ethyl Benzene	8.70E-03	—	2.00E+03	—	—
1,3-Butadiene	6.00E-01	—	2.00E+01	—	—
Acrolein	—	—	3.50E-01	—	2.50E+00
Toluene	—	—	3.00E+02	—	3.70E+04
Hexane	—	—	7.00E+03	—	—
Propylene	—	—	3.00E+03	—	—
NH_3	—	—	2.00E+02	—	3.20E+03

Notes:
µg/m^3 = microgram(s) per cubic meter
mg/kg-day = milligram(s) per kilogram per day
Source: OEHHA/ARB, 2012

5.9.3.1.4 Significance Criteria

Cancer Risk. Cancer risk is the probability or chance of contracting cancer over a human life span (assumed to be 70 years). Carcinogens are not assumed to have a threshold below which there is 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 (time or mass), the lower the cancer risk (that is, a linear, no-threshold model). State and local regulations in California use an excess (that is, an incremental increase from the project) cancer risk greater than 10 in 1 million as the significant impact level for public health impact assessments. For example, the 10-in-1-million risk level is 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. An excess cancer risk below one in 1 million for a project is typically considered the de minimus impact level, meaning an excess cancer risk for a project less than one in 1 million would be less than significant.

Based on SCAQMD Rule 1401 and the SCAQMD California Environmental Quality Act (CEQA) significance thresholds (SCAQMD, 2011b), a source with a maximum individual cancer risk (MICR) less than one in 1 million individuals and a project increment less than 10 in 1 million individuals would be less than significant. Individual sources with a MICR between 1 and 10 in 1 million would be required to install best available control technology for toxics (T-BACT). Therefore, the predicted health risk values for each individual source will be compared to the incremental increase in cancer risk of one in 1 million individuals per source (that is, each of the six CTGs/HRSGs) and the predicted incremental increase in cancer risk for the project will be compared to the 10 in 1 million individuals threshold.

Based on SCAQMD Rule 1401 and the SCAQMD CEQA significance thresholds (SCAQMD, 2011b), a cancer burden greater than 0.5 excess cancer cases in areas with an incremental increase greater than one in 1 million individuals is considered significant.

Non-Cancer Risk. Non-cancer health effects can be either chronic or acute. In determining potential non-cancer health risks (chronic and acute) from air toxics, it is assumed there is a dose of the air toxic substance below which there would be no impact on human health. The air concentration corresponding to this dose is called the Reference Exposure Level. Non-cancer health risks are measured in terms of a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are typically summed with the resulting totals expressed as hazard indexes for each organ system. Based on SCAQMD Rule 1401 and the SCAQMD CEQA significance thresholds (SCAQMD, 2011b), a chronic or acute hazard index of less than 1.0 for each source and the project increment, respectively, is considered to be a less-than-significant health risk.

5.9.3.1.5 Summary of Air Toxic Exposure Assessment Results

A summary of the MICR, chronic health index, and acute health index at the point of maximum impact (PMI) locations, as well as the maximum predicted public health impacts for worker, residential, and sensitive receptors, have been included in Table 5.9-3 and Table 5.9-4. In accordance with SCAQMD Rule 1401, the results in Table 5.9-3 represent the predicted risk for each individual emission unit while the results in Table 5.9-4 represent a comparison of the total predicted HBEP impact to the SCAQMD CEQA significance thresholds. The receptor grid used to evaluate the predicted impacts is included in Appendix 5.1C. Additionally, the HARP report files were also prepared and submitted to the CEC on compact disc.

As presented in Table 5.9.3, the predicted MICR at the PMI for each individual turbine is approximately 0.066 in 1 million.[3] The maximum impact is located approximately 300 meters northeast of the project boundary. The predicted MICR for the maximum exposed individual resident (MEIR), which is approximately 500 meters northeast of the project boundary, is predicted to be 0.052 in 1 million (Derived Adjusted) and the predicted MICR for the maximum exposed individual worker (MEIW), which is located approximately 300 meters northeast of the project boundary, is predicted to be 0.010 in 1 million for the individual units. The predicted MICR at the maximum exposed sensitive receptor is predicted to be 0.0045 in 1 million. Overall, the predicted MICR for the MEIR, MEIW, and the sensitive receptors are well below the individual source significance threshold of one in 1 million. Therefore, based on SCAQMD Rule 1401, the predicted incremental increase in cancer risk from each individual unit will be less than significant and T-BACT would not be required. However, while not required, the emission control technologies included in this project are considered to be T-BACT.

The maximum chronic hazard index for an individual source at the PMI is predicted to be 0.0023, which is located approximately 300 meters northeast of the project boundary. The maximum acute hazard index for an individual source at the PMI is predicted to be 0.026, which is located on the north side of the facility fence line. The predicted chronic and acute indices are well below the SCAQMD individual source significance threshold of 1.0. Therefore, the predicted impact from each individual unit will be less than significant and T-BACT will not be required. However, as previously noted, the emission control technologies included in this project are considered to be T-BACT.

[3] All cancer risk values presented represent the 70-year OEHHA Derived methodology, unless noted.

TABLE 5.9-3
Health Risk Assessment Summary: Individual Units[a]

Risk[b]	Turbine 1	Turbine 2	Turbine 3	Turbine 4	Turbine 5	Turbine 6
Derived Cancer Risk at the PMI[c] (per million)	0.066	0.066	0.066	0.065	0.065	0.065
Derived Adjusted Cancer Risk at the PMI[d] (per million)	0.052	0.052	0.052	0.052	0.052	0.052
Derived Adjusted Cancer Risk at the MEIR[d] (per million)	0.050	0.050	0.051	0.052	0.052	0.052
Derived Adjusted Highest Cancer Risk at a Sensitive Receptor [d] (per million)	0.045	0.045	0.045	0.043	0.044	0.044
Derived Cancer Risk at the MEIW (per million)	0.010	0.010	0.010	0.010	0.010	0.010
Chronic Hazard Index at the PMI	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022
Resident Chronic Hazard Index	0.0021	0.0022	0.0022	0.0022	0.0022	0.0022
Worker Chronic Hazard Index	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022
Chronic Hazard Index at Sensitive Receptor	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019
Acute Hazard Index at the PMI	0.014	0.026	0.024	0.0047	0.0046	0.0070
Resident Acute Hazard Index	0.0082	0.016	0.0064	0.0035	0.0035	0.0057
Worker Acute Hazard Index	0.014	0.026	0.024	0.0047	0.0046	0.0070
Acute Hazard Index at Sensitive Receptor	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025

[a] The results in Table 5.9-3 represent the predicted risk for each individual emission unit in accordance with SCAQMD Rule 1401.
[b] A source with a MICR less than one in 1 million individuals is considered to be less than significant. A chronic or acute hazard index less than 1.0 for each source is considered to be a less-than-significant health risk.
[c] Cancer risk values are based on the OEHHA Derived Methodology.
[d] Risk values are based on the Derived Adjusted Methodology.

A risk analysis was also performed to evaluate the potential facility-wide impacts. The potential health impacts at the PMI, the MEIR, the MEIW, and sensitive receptors resulting from HBEP operation are summarized in Table 5.9-4.

TABLE 5.9-4
Health Risk Assessment Summary: Facility[a]

Risk[b]	Receptor Number	Value
Derived Cancer Risk at the PMI[c]	10066	0.38 per million
Derived Adjusted Cancer Risk at the PMI[d]	10348	0.30 per million
Derived Adjusted Cancer Risk at the MEIR[d]	9337	0.30 per million
Highest Cancer Risk at a Sensitive Receptor[d]	2336	0.27 per million
Derived Cancer Risk at the MEIW	9337	0.059 per million
Chronic Hazard Index at the PMI	10348	0.013
Resident Chronic Hazard Index	10066	0.013
Worker Chronic Hazard Index	10348	0.013
Chronic Hazard Index at Sensitive Receptor	2336	0.011
Acute Hazard Index at the PMI	8988	0.049
Resident Acute Hazard Index	9254	0.038
Worker Acute Hazard Index	8988	0.049
Acute Hazard Index at Sensitive Receptor	3603	0.015

[a] The results in Table 5.9-4 represent the combined predicted risk for all six turbines operating simultaneously.
[b] A facility with an overall individual increase in cancer risk (MICR) less than 10 in 1 million individuals is considered to be less than significant. A facility chronic or acute hazard index less than 1.0 is considered to be a less-than-significant health risk.
[c] Cancer risk values represent the OEHHA Derived Methodology.
[d] Risk values represent the Derived Adjusted Methodology

It should be noted that the maximum impacts reported in Table 5.9-4 represent the maximum predicted impacts at one receptor from all sources combined. In contrast, the maximum impacts reported for each individual source in Table 5.9-3 may occur at different receptors. Therefore, the HBEP totals in Table 5.9-3 are not directly additive and should not be directly compared to the results presented in Table 5.9-4.

The predicted incremental increase in cancer risk at the PMI associated with HBEP is approximately 0.38 in 1 million[4] and is approximately 500 meters northeast of the project boundary. The predicted incremental increase in cancer risk at the MEIR is predicted to be 0.30 in 1 million (Derived Adjusted). The receptor location for the MEIR is about 500 meters northeast of the project boundary. The predicted incremental increase in cancer risk for the MEIW, which is located approximately 500 meters northeast of the project boundary, is predicted to be 0.059 in 1 million. The predicted incremental increase in cancer risk at the maximum exposed sensitive receptor is predicted to be 0.27 in 1 million. The predicted MICR for the MEIR, MEIW and the sensitive receptors are below the facility-wide significance threshold of 10 in 1 million. Therefore, based on SCAQMD CEQA significance thresholds, the predicted incremental increase in cancer risk associated with the project will be less than significant.

The maximum chronic hazard index increment at the PMI is predicted to be 0.013. The maximum predicted chronic impact is located approximately 500 meters northeast of the project boundary. The maximum acute hazard index at the PMI is predicted to be approximately 0.049. The maximum predicted acute impact is located

[4] All cancer risk values presented represent the 70-year OEHHA Derived methodology, unless noted.

along the north HBEP fence line. The chronic and acute index increments are below the project significance threshold of 1.0.

The predicted chronic and acute indices are well below the SCAQMD project significance threshold of 1.0. Therefore, the predicted impact from the project will be less than significant.

5.9.3.2 Uncertainty in the Public Health Impact Assessment

Sources of uncertainty in the HRA include emissions estimates, dispersion modeling, exposure characteristics, and extrapolation of toxicity data in animals to humans. Assumptions used in HRAs are designed to provide sufficient health protection to avoid underestimation of risk to the public, which may add an additional level of conservativeness in the predicted impacts. Some sources of uncertainty and conservativeness applicable to this HRA are discussed below.

The emissions were developed assuming all equipment would operate at the same time and at the maximum heat input rate. Long-term emissions were estimated assuming the turbines would operate at maximum output for 5,000 hours per year with an additional 1,200 hours per year with supplemental duct firing, plus 465 startup and shutdown events. Under normal operating conditions, the turbines would likely operate at variable loads and would be operated less than the permitted levels on an annual basis. Consequently, the emissions used for this HRA are expected to be higher than the actual quantities during normal operation.

The models used in dispersion modeling contain assumptions that tend to over-predict ground-level concentrations. For example, the modeling performed in the HRA assumed a conservation of mass (that is, all of the pollutants emitted from the sources remained in the atmosphere while being transported downwind). During the transport of pollutants from sources to receptors, none of the material was assumed to be removed through chemical reaction or to be lost at the ground surface through reaction, gravitational settling, precipitation, or turbulent impaction. In reality, these mechanisms work to reduce the level of pollutants remaining in the atmosphere.

The long-term exposure characteristics assessed in the HRA included the assumption that residents were exposed to turbine emissions continuously at the same location for 24 hours per day, 365 days per year, for 70 years. It is extremely unlikely that any person would meet this condition. The conservative exposure assumption tends to over-predict risk estimates in the HRA process.

The toxicity data used in the HRA contain uncertainties due to the extrapolation of data from animals to humans. Typically, safety factors are applied when doing the extrapolation. Furthermore, the human population is much more diverse, both genetically and culturally, than animals used for experimental exposures and bred and housed under controlled conditions; thus, the intraspecies variability among humans is expected to be much greater than in laboratory animals. With all of the uncertainty in the assumptions used to extrapolate toxicity data, significant measures are taken to ensure that sufficient health protection is built into the available health effects data.

5.9.3.3 Air Toxics Exposure Assessment (Construction and Demolition Impacts)

The emissions of air toxics associated with the construction of HBEP and the demolition of the existing Huntington Beach Generating Station Units 1, 2 and 5 consist primarily of combustion byproducts generated during movement of onsite construction/demolition equipment and onsite and offsite movement (vehicular miles traveled) of vehicles associated with the construction and demolition of the project. Onsite demolition activities will include the removal of the Unit 5 peaker unit, the buildings and small tanks associated with Unit 5, and a fuel oil storage tank. Demolition of Units 1 and 2 will also include an organized, top down, dismantling of the existing boiler units, generators, and stacks. The existing foundation for Units 1 and 2 will remain largely intact at the conclusion of the demolition activities and a majority of the demolition debris will be transported to an offsite location where the materials can be recycled.

The primary air toxic pollutant of concern from construction activities is diesel particulate matter (diesel PM). Due to the length of the proposed construction period, a screening health risk assessment was conducted based on the annual average emissions of diesel PM. The screening risk assessment is consistent with the health risk assessment methodology outlined in Section 5.9.3.1 and the dispersion modeling methodology outlined in

Section 5.1 with the exception of the receptor locations. For the purposes of determining the potential offsite diesel PM concentrations during construction, receptors were not included in the area within the existing Huntington Beach Generating Station fence line. No receptors were included within the Huntington Beach Generating Station fence line since public access is restricted, development of the former bulk liquid storage tanks and secondary containment structures is not expected to be completed prior to the construction of the HBEP, and as a result, no individuals are expected to be routinely working or living in this area during construction of the HBEP.

The total diesel PM exhaust emissions from construction activities were averaged over the eight year construction period and spatially distributed in: i.) the area associated with the demolition of the Unit 5 peaker unit and construction of Block 1, ii.) the area associated with the construction of Block 2, and iii.) the area associated with the demolition of Units 1 and 2 and the construction of buildings 33 and 34. The incremental increases in cancer risk at the MEIR and MEIW were estimated by multiplying the predicted annual diesel PM concentration at the MEIR and MEIW by the OEHHA inhalation unit risk factor of 3.0E-04 $(\mu g/m^3)^{-1}$and adjusting the predicted results to a 9-year exposure duration to more closely reflect the exposure duration associated with construction activities (OEHHA, 2003). The predicted MEIW values were also adjusted to reflect an 8-hour day, 5 day per week, 49 week per year exposure duration (OEHHA, 2003). The non-carcinogenic (chronic) risk values were estimated by dividing the predicted annual diesel PM concentrations by the chronic reference exposure level of 5.0 $\mu g/m^3$.

Based on the analysis, the predicted incremental increases in cancer risk at the MEIR and MEIW associated with construction activities are 9.2 and 3.9 in a million, respectively. The predicted chronic health index at the MEIR and MEIW are 0.048 and 0.091, respectively. The detailed calculations for the MEIR and MEIW are included in Appendix 5.9B. The predicted incremental increase in cancer risk and chronic health index are less than the CEQA significance thresholds of 10 in a million and 1.0 defined in Section 5.9.3.1.3, respectively. Therefore, the impacts associated with the finite construction activities are less than significant.

In addition, Rule 1401 Toxic New Source Review would also apply to the any stationary equipment subject to New Source Review permitting during the construction and demolition phase. Construction and demolition impacts would also be further reduced with the implementation of the additional mitigation measures presented in Section 5.1 and the implementation of a construction fugitive dust and diesel-fueled engine control plan. The project owner will also comply with all requirements outlined in SCAQMD Rule 1403, which requires the notification and special handling of asbestos-containing materials during demolition activities.

5.9.4 Cumulative Effects

As previously discussed, the MATES II and MATES III studies consisted of a comprehensive monitoring program, an updated emissions inventory, and a modeling effort to characterize health risks associated with human exposures to ambient concentrations of TACs in the SCAB. The estimated carcinogenic risk was found to be rather uniform across the basin ranging from about 1,120 in 1 million to about 1,740 in 1 million for the sites monitored. Updating the findings of MATES II, SCAQMD completed the MATES III study by issuing a final report in September 2008. Similar to the earlier MATES II study, the MATES III study found that mobile sources continued to dominate cancer risk in the SCAB by accounting for an estimated 94 percent of the overall cancer risk. Diesel emissions, alone, account for 84 percent of the cancer risk. Overall, the general trend in risk exposure has been decreasing with the estimated cancer risk from exposure to airborne toxics reduced to 1,200 in 1 million.

The maximum incremental increase in the cancer risk predicted at the PMI for the HBEP is 0.38 in 1 million. The maximum chronic and acute hazard indices are 0.013 and 0.049, respectively. These levels are well below the CEQA significance de minimus thresholds for cancer risk of 10 in 1 million, and/or the chronic and acute hazard index of 1.0. Furthermore, the results of the MATES III study indicate the cumulative background cancer risk from exposure to airborne toxics is approximately 1,200 in 1 million, with an estimated 94 percent of the overall cancer risk due to mobile sources. Therefore, stationary source emissions from the HBEP are expected to contribute to approximately less than 0.04 percent of the background risk in the vicinity of the project. While not required, T-BACT emission control technologies will also be installed as part of the project, which will reduce the TAC emissions to the extent technically feasible. The removal/demolition of the existing Huntington Beach Generating

Station Units 1, 2, and 5, and the removal/demolition of the existing Huntington Beach Generating Station Units 3 and 4 will also offset a portion of the potential impacts from the operation of HBEP Blocks 1 and 2 relative to the existing background levels. Therefore, it is concluded that HBEP will not have a significant cumulative impact.

The HBEP construction activities and the existing Huntington Beach Generating Station's demolition activity would be finite and best available emission control techniques would be used throughout the 96-month activity period to control pollutant emissions. Impacts from the demolition of existing Huntington Beach Generating Station's Units 1, 2, and 5, as well as the demolition of Units 3 and 4, would be further reduced with the implementation of the additional construction mitigation measures presented in Section 5.1 and the implementation of a construction fugitive dust and diesel-fueled engine control plan. Therefore, the cumulative impacts from construction and demolition are expected to be less than significant.

5.9.5 Mitigation Measures

5.9.5.1 Criteria Pollutants

The results of the air dispersion modeling presented in Section 5.1, Air Quality, concluded that HBEP emissions during operation will not cause or contribute to the violation of the ambient air quality standards (either National Ambient Air Quality Standards [NAAQS] or California Ambient Air Quality Standards) for those pollutants for which the area is designated as attainment. These standards are intended to protect the general public with a wide margin of safety. Therefore, HBEP is not expected to have a significant impact on public health from emissions of criteria pollutants. For those criteria pollutants (and their precursor pollutants) where the ambient air quality standards are categorized as non-attainment, mitigation will be provided to reduce the impacts to less-than-significant levels (see Section 5.1). HBEP will also include emission-control technologies necessary to meet the required emission standards specified for criteria pollutants under SCAQMD rules.

The construction activity would be finite and best available emission control techniques would be used throughout the 96-month construction activity period to control criteria pollutant emissions. Construction impacts would be further reduced with the implementation of the additional construction mitigation measures presented in Section 5.1 and the implementation of a construction fugitive dust and diesel-fueled engine control plan.

5.9.5.2 Air Toxic Substances

As presented in Section 5.9.3, the maximum incremental increase in the cancer risk predicted at the point of maximum impact, MEIR, and MEIW are 0.38, 0.30, and 0.059 in 1 million, respectively. The maximum chronic and acute hazard indices are 0.013 and 0.049, respectively. These levels are below the significance thresholds for cancer risk of 10 in 1 million, and/or the chronic and acute hazard index of 1.0. Therefore, mitigation measures are not required for air toxic emissions from HBEP.

The construction activity would be finite and best available emission control techniques would be used throughout the 96-month construction activity period to control air toxic substance emissions. Construction impacts would be further reduced with the implementation of the additional construction mitigation measures presented in Section 5.1 and the implementation of a construction fugitive dust and diesel-fueled engine control plan.

5.9.6 Laws, Ordinances, Regulations, and Standards

An overview of the relevant LORS that affect public health and the conformity of the project to each of the LORS are identified in Table 5.9-5.

TABLE 5.9-5
Laws, Ordinances, Regulations, and Standards for Public Health

LORS	Requirements/Applicability	Administering Agency	Analyses of Conformance
Federal			
Title 40 CFR, Part 63	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 categories.	SCAQMD, with EPA Region IX oversight	The estimated annual HBEP HAP emissions are less than the major source thresholds for HAPs (10 tons per year for any one pollutant or 25 tons per year for all HAPs combined). Therefore, National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations do not apply.
State			
Health and Safety Code Sections 44360 to 44366 (Air Toxics "Hot Spots" Information and Assessment Act—AB 2588)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments.	SCAQMD with oversight from ARB/OEHHA	An estimate of TAC emissions and associated risk was conducted as part of this analysis. (See Conformance description for SCAQMD Rule 1401 (Permits – Toxics New Source Review)
Health and Safety Code 25249.5 et seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)	Provides notification of Proposition 65 chemicals.	OEHHA	The project owner will comply with all signage and notification requirements.
Local			
SCAQMD Rule 1401 (Permits – Toxics New Source Review)	The purpose of this rule is to provide for the review of new and modified sources of TAC emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced.	SCAQMD	T-BACT shall be applied to any new or modified source of TACs where the source risk is a cancer risk greater than 1.0 in 1 million (10^{-6}), a chronic hazard index greater than 1.0, or an acute hazard index greater than 1.0. The predicted MICR at the MEIR and MEIW cancer risks for the project are 0.30 and 0.059 in 1 million, respectively. The maximum predicted chronic and acute hazard indices are 0.013 and 0.049, respectively. The values are less than the individual source thresholds of 1.0 in 1 million (10^{-6}). The levels are also below the Permit to Construct or Permit to Operate facility thresholds for cancer risk of 10 in 1 million and the chronic and acute hazard index of 1.0. Nevertheless, the project will employ emission controls considered to be T-BACT.
SCAQMD Rule 1403 (Permits – Asbestos Removal)	The purpose of this rule is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials.	SCAQMD	The project owner will comply with the requirements outlined in Rule 1403 prior to the removal of asbestos-containing materials.

TABLE 5.9-5
Laws, Ordinances, Regulations, and Standards for Public Health

LORS	Requirements/Applicability	Administering Agency	Analyses of Conformance
SCAQMD Rule 212(c)(3) (Permits – Public Notice)	The purpose of this rule is to establish standards for approving permits and issuing public notice.	SCAQMD	Rule 212 (c)(3) requires public notification if the MICR, based on Rule 1401, exceeds one in 1 million (1×10^{-6}), due to a project's proposed construction, modification, or relocation for facilities with more than one permitted equipment unless the applicant can show the total facility-wide MICR is below 10 in 1 million (10×10^{-6}). The total facility-wide MICR is less than one in 1 million. Therefore, public notification is not required.
SCAQMD Rule 3008 – Title V Permits (Potential to Emit Limitations)	The purpose of this rule is to exempt low-emitting facilities with actual emissions below a specific threshold from federal Title V permit requirements by limiting the facility's potential to emit.	SCAQMD	This rule shall apply to any facility which would, if it did not comply with the limitations set forth in either paragraphs (d)(1) or (d)(2) of Rule 3008, have the potential to emit air contaminants equal to or in excess of the thresholds specified in Table 2, subdivision (b) of Rule 3001 – Applicability, or for greenhouse gasses 100,000 or more tons per year CO_2e. HBEP will exceed the Title V thresholds listed in Rule 3001. As a result, HBEP will submit a Title V application as part of the permitting process

5.9.7 Agencies and Agency Contacts

Table 5.9-6 provides contact information for agencies involved with public health.

TABLE 5.9-6
Agency Contacts for Public Health

Issue	Agency Contacted	Person Contacted
Regulatory oversight	EPA Region IX	Gerardo Rios EPA Region IX 75 Hawthorne Street San Francisco, CA 94105 (415) 947-3974
Regulatory oversight	ARB	Michael Tollstrup Project Assessment Branch California Air Resources Board 2020 L Street Sacramento, CA 95814 (916) 322-6026
Permit issuance, enforcement	SCAQMD	Andrew Lee South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765 (909) 396-2643

5.9.8 Permits and Permit Schedule

Consistent with the CEC siting regulations, SCAQMD is responsible for issuing the required operating permits related to public health. Sections 5.1-9 and 5.1-11 include a summary of the SCAQMD and EPA permits required and expected issuance schedule.

5.9.9 References

Avogadro Group. 2002. *Report for Initial Toxic Air Contaminant Emission Tests, Delta Energy Center, Pittsburg, California*. Prepared for Submittal to the Bay Area Air Quality Management District and the California Energy Commission. June.

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California Air Resources Board (ARB). 2003. *Recommended Interim Risk Management Policy for Inhalation-based Residential Cancer Risk*.

CH2M HILL. 2012. Huntington Beach Energy Project Dispersion Modeling Protocol. April.

Environmental Data Resources (EDR). 2012. *Offsite Receptor Report*. March 12.

Office of Environmental Health Hazard Assessment (OEHHA) and ARB. 2012. Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. May.

OEHHA. 2003. *Air Toxics Hotspots Program Guidance Manual for Preparation of Health Risk Assessments*.

South Coast Air Quality Management District (SCAQMD). 2011a. *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act* (AB2588). June

South Coast Air Quality Management District (SCAQMD). 2011b. *SCAQMD Air Quality Significance Thresholds*. March.

South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Air Quality Handbook*. November

U.S. Environmental Protection Agency (EPA). 2005. *Guideline on Air Quality Models*, 40 CFR, Part 51, Appendix W, November.

Attachment DA5.9-2
Appendix 5.9B, Supporting Documentation for the Screening Construction Health Risk Assessment

Huntington Beach Energy Project
Table 5.9B.1
Construction Diesel PM Screening Health Risk Assessment
August 2012

Construction Duration: 96 months
Total DPM Emissions (lb/project): 7,418.52

	2005	2006	2007	Average	Receptor (meters)
Estimated Point of Maximum Impact (PMI) (μg/m3):	1.072	1.076	1.059	1.068	409,567; 3,723,196
Estimated Maximum Impact (Worker) (μg/m3):	0.453	0.449	0.435	0.445	409,136; 3,723,126
Estimated Maximum Impact (Resident) (μg/m3):	0.235	0.232	0.239	0.235	409,100; 3,723,350

*The PMI, MEIR, and MEIW values below are based on the maximum predicted concentration at each of the receptors for 2005, 2006, and 2007.

Receptor Category	Model Result (μg/m3)	Chronic Reference Exposure Level (μg/m3)	Inhalation Unit Risk (μg/m3)-1	9 year/70 year Adjustment Factor (dimensionless)	Derived Cancer Risk (x per million)	Chronic Risk (dimensionless)
Point of Maximum Impact (PMI)	1.076	5.0	3.00E-04	0.129	4.15E+01	0.215
Maximum Exposed Individual Resident (MEIR)	0.239	5.0	3.00E-04	0.129	9.22E+00	0.048

Receptor Category	Model Result (μg/m3)	Chronic Reference Exposure Level (μg/m3)	Inhalation Unit Risk (μg/m3)-1	9 year/70 year Adjustment Factor (dimensionless)	Worker Adjustment (dimensionless)	Derived Cancer Risk (x per million)	Chronic Risk (dimensionless)
Maximum Exposed Individual Worker (MEIW)	0.453	5.0	3.00E-04	0.129	0.224	3.92E+00	0.091

Worker Adjustment = (8 hours/24 hour day)*(5 days/7 day week)*(49 weeks/52 weeks per year)