8.9 Agriculture and Soils

8.9.1 Introduction

This section describes the potential environmental effects on agriculture and soils from the construction and operation of the South Bay Replacement Project (SBRP). Potential impacts are assessed for the grading and construction at the proposed SBRP site, grading construction laydown and parking areas, and for the natural gas supply, potable and make-up water supply, and sewer lines, and the demolition of the existing South Bay Power Plant (SBPP) and grading of the site after demolition of the existing SBPP.

The SBRP project consists of three phases:

- **The Construction Phase**—The first phase is the demolition of existing structures and foundations associated with the former Liquefied Natural Gas (LNG) Facility, preparation of construction lay down areas, and the construction of the SBRP. Initial operations of SBRP will include an interim interconnection to the San Diego Gas & Electric Company (SDG&E) transmission system through a new 230-kilovolt ampere (kVA) substation on approximately 0.6 acre (interconnecting to SDG&E's planned new 230-kilovolt (kV) transmission line) and an underground interconnection to the existing SDG&E South Bay 138/69 kV substation.[1]

- **The Demolition Phase**—The second phase of Project construction activities will occur after the SBRP achieves commercial operation. The construction activity during this phase will be the demolition of the existing SBPP facilities, excluding SDG&E's existing South Bay Substation which will remain in service until the new substation is constructed.

- **The New Substation Phase**—The final phase of the Project will involve the construction of the SDG&E substation on approximately 6.5 acres south of and adjacent to the SBRP site. This construction will be performed after the start up of the SBRP and demolition of SBPP. After the new SDG&E substation construction is completed and operational, and the SBRP generator leads are attached to the new facilities, SDG&E could then initiate demolition activities on the South Bay Substation, located north of the SBRP site. These demolition activities, however, are not part of the scope of this Application for Certification (AFC). They are part of a separate project of unknown timing and scope.

The reason there are two interconnect steps is to ensure that interconnection can be secured by the proposed on-line date of SBRP (2010). Also SDG&E holds certain obligations associated with a new substation as part of its Memorandum of Understanding with the City of Chula Vista, but these obligations occur after the demolition of SBPP.

Subsection 8.9.2 presents the laws, ordinances, regulations, and standards (LORS) applicable to agriculture and soils. Subsection 8.9.3 describes the existing environment that could be

[1] SDG&E was granted a Certificate of Public Convenience and Necessity (CPCN) for the Otay Mesa Power Purchase Agreement (OMPPA) Transmission Project. The CPCN is for the construction of two new 230-kV electric transmission circuits to connect SDG&E's Miguel Substation with both the Sycamore Canyon Substation and the Old Town Substation in San Diego County. The circuit to the Old Town Substation is planned to pass within approximately 100 feet of the proposed SBRP. This Project is under construction. The SBRP interconnection plan is based in part on interconnecting to this circuit.

affected, including agricultural use and soil types. Subsection 8.9.4 identifies potential environmental effects, if any, from Project development, and Subsection 8.9.5 presents mitigation measures. Subsection 8.9.6 describes the required permits and provides agency contacts. Subsection 8.9.7 provides the references used to develop this subsection.

A map of soil types is provided in Figure 8.9-1 (figures are located at the end of this subsection). Important farmland classifications are shown in Figure 8.9-2. LORS are summarized in Table 8.9-1. The soil physical and chemical characteristics are summarized in Table 8.9-2. Soil loss is discussed in Subsection 8.9.3.6 and soil loss estimates are summarized in Tables 8.9-3, 8.9-4, and 8.9-5. The effect of plant emissions on soils is presented in Subsection 8.9.4.4. Required permits are summarized in Table 8.9-6.

8.9.2 Applicable Laws, Ordinances, Regulations, and Standards

Federal, state, county, and local LORS applicable to agriculture and soils are discussed below and summarized in Table 8.9-1.

8.9.2.1 Federal

8.9.2.1.1 Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977

The Federal Water Pollution Control Act of 1972, commonly referred to as the Clean Water Act (CWA) following amendment in 1977, establishes requirements for discharges of stormwater or waste water from any point source that would affect the beneficial uses of waters of the United States. In California, discharges of wastewater and stormwater into surface waters are regulated by the State Water Resources Control Board and Regional Water Quality Control Boards under the Clean Water Act and the Porter-Cologne Water Quality Control Act. SBRP will discharge wastewater into the City of Chula Vista sanitary sewer system; SBRP will be subject to the Industrial Wastewater Permit (2466 § 7, 1991) from the City of Chula Vista. Permit details are discussed below under local regulations. Relevant National Pollutant Discharge Elimination System (NPDES) permits for stormwater quality management are discussed below under State and Local LORS.

8.9.2.1.2 USDA Engineering Standards

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), *National Engineering Handbook*, 1983, Sections 2 and 3 provide standards for soil conservation during planning, design, and construction activities. The Project would need to conform to these standards during grading and construction to limit soil erosion.

8.9.2.2 State

Among the state laws applicable to this project is the California Coastal Act. For informational purposes, this section reviews compliance of the Project with the Coastal Act, including provisions of Chapter 3 of the Coastal Act that the Applicant understands are not legally applicable to Port property. Chapter 8 of the Coastal Act governs Port properties and contains both procedural and substantive requirements that are distinct from those generally applicable to non-Port properties. (see Section 8.4 — Land Use for a discussion of this issue.) The analysis of Chapter 3 policies in this section is informational and does not address the jurisdictional issues discussed in Section 8.4 — Land Use.

8.9.2.2.1 California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) governs the regulation of water quality within California and establishes the authority of the SWRCB and the nine Regional Boards. The San Diego RWQCB established regulatory standards and objectives for water quality in the coastal watersheds of San Diego County in the *Water Quality Control Plan for the San Diego Region*, commonly referred to as the "Basin Plan" (San Diego RWQCB, 1994). The Basin Plan identifies existing and potential beneficial uses and provides numerical and narrative water quality objectives designed to protect those uses.

The California Water Code requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls. The discharge of soil into surface waters resulting from land disturbance may require filing a report of waste discharge (see Water Code Section 13260a).

TABLE 8.9-1
Laws, Ordinances, Regulations, and Standards (LORS) for Agricultural and Soil Resources

Jurisdiction	LORS	Purpose	Regulating Agency	Applicability (AFC Section Explaining Conformance)
Federal	Federal Water Pollution Control Act of 1972: Clean Water Act of 1977 (including 1987 amendments).	Regulates stormwater discharge from construction and industrial activities	RWQCB – San Diego Region under State Water Resources Control Board	Subsections 8.9.2.1 and 8.9.4.2
	Natural Resources Conservation Service (1983), National Engineering Handbook, Sections 2 and 3.	Standards for soil conservation	Natural Resources Conservation Commission	Subsections 8.9.2.1 and 8.9.5
State	Porter-Cologne Water Quality Control Act of 1972; Cal. Water Code 13260-13269: 23 CCR Chapter 9.	Regulates stormwater discharge	California Energy Commission (CEC) and the San Diego Region under State Water Resources Control Board	Subsections 8.9.2.2 and 8.9.4.2
Local	City of Chula Vista General Plan, rev. 2005	Describes local policies for agricultural and soil resources	City of Chula Vista	Subsection 8.9.2.3
	Excavation, Grading, Clearing, Grubbing and Fills Ord. 3005 § 1, 2005; Ord. 1797 § 1,1978; CVMC 15.04.015	Regulates grading, erosion and sediment control for construction projects within City limits	Planning & Building Department Planning Division City of Chula Vista	Subsection 8.9.2.3
	Encroachment Ord. 1240 § 3, Ord. 2011 § 1, 1982; Ord. 1205 § 2, 1969; prior code § 27.302; CVMC 12.40	Work along linears within public rights-of-way	Planning & Building Department Planning Division City of Chula Vista	Subsection 8.9.2.3

TABLE 8.9-1
Laws, Ordinances, Regulations, and Standards (LORS) for Agricultural and Soil Resources

Jurisdiction	LORS	Purpose	Regulating Agency	Applicability (AFC Section Explaining Conformance)
	Construction on Expansive Soils Ord. 3005 § 1, 2005; Ord. 1797 § 1, 1978; CVMC 15.04.140 and 15.04.270(B)	A special foundation design may be required where expansive soils are present	Planning & Building Department Planning Division City of Chula Vista	Subsection 8.9.2.3
	Landscaping Plans Ord. 3005 § 1, 2005; Ord. 2678 § 2, 1996; Ord. 2128 § 3, 1985; Ord. 1797 § 1, 1978; CVMC 15.04.040	Regulates onsite cover and drainage offsite	Planning & Building Department Planning Division City of Chula Vista	Subsection 8.9.2.3
	California Land Conservation (Williamson) Act of 1965	Provides financial incentives for conservation of agricultural lands	County Assessor Planning Department Planning Commission Board of Supervisors	Subsection 8.9.2.3

8.9.2.3 Local

Among the local LORS discussed in this section are certain ordinances, plans or policies of the City of Chula Vista. For informational purposes, this section reviews compliance of the Project with such requirements even though the Applicant understands that they are not applicable to the Project as a matter of law. (See Section 8.4 — Land Use for a discussion of this issue.) The analysis of City LORS in this section is informational and does not address the jurisdictional issues which are discussed in Section 8.4 — Land Use.

The City of Chula Vista has established ordinances for grading, encroachment, erosion, and sediment control (Laube, Evetovich, pers.com. 2005). These ordinances address general earthwork operations, sediment transport, and erosion control activities that can result in discharge of pollutants into stormwater systems or watercourses.

8.9.2.3.1 General Plan

The City of Chula Vista General Plan presents policies that provide for guidance and implementation of land use controls in and around the City's sphere of influence. The City General Plan was modeled to support the Draft San Diego County General Plan 2020 (San Diego County 2002).

8.9.3 Environmental Setting

The SBRP site is located on property adjacent to the southeast portion of San Diego Bay. It is surrounded to the north, east, and south by urban lands that have been developed for commercial, residential and industrial uses. Interstate 5 (I-5) also forms a portion of the eastern site boundary. An open space preserve located in and owned by the City of San Diego (formerly used for farming) is located south of the site across Palomar Street. Land

uses within the proposed SBRP site and along the proposed linears are urban areas that have been previously developed for industrial uses, including the former SBPP that will be demolished as part of this Project**.** The SBRP area is currently zoned for industrial uses.

Soil survey mapping units characterizing the types and distribution of soils within the Project area, as shown on Figure 8.9-1, are taken from: *Soil Survey of San Diego Area, California* (NRCS 1973). The electronic shape files for these mapping units were downloaded from the NRCS web site. Detailed soil descriptions were developed from the soil survey publication (NRCS 1973) and from the Official Soil Descriptions (OSD) web page (NRCS 2006).

Data for the affected environment are summarized and presented below:

- Soil types along the Project linears (water, gas, sewer) are identified in Figure 8.9-1.
- Table 8.9-2 summarizes the characteristics of each of the individual soil mapping units identified on Figure 8.9-1 in the Project vicinity including the site boundaries and the Project's linear facilities. The table summarizes slope, texture, drainage, permeability, erosion hazard, land capability classification, and fertility as an indicator of its revegetation potential.
- Figure 8.9-2 shows the "Important Farmlands" as defined by the California Department of Conservation (CDC) (CDC 2002).

TABLE 8.9-2
Soil Mapping Unit Descriptions and characteristics

Map Unit	Description
CbB	**Carlsbad gravelly loamy sand – slope class (2 – 5 %)** This small soil unit is located to the north-east of the Project site and will not be affected by site construction. TAXONOMIC CLASS: Sandy, mixed, thermic Entic Durixerepts Listed as a Farmland of Statewide Importance soil These soils formed in material weathered in place from soft ferruginous sandstone. Moderate to well drained gravelly loamy sands moderately deep over a hardpan Runoff is slow Permeability is moderately rapid above the hardpan Low shrink-swell potential Slight erosion hazard Capability unit IIIe-8 Moderate fertility Elevation ranges from sea level to 400 feet

TABLE 8.9-2
Soil Mapping Unit Descriptions and characteristics

Map Unit	Description
GoA	**Grangeville fine sandy loam - slope class (0 – 2 %)** This soil unit comprises a small area approximately 1 mile south of the site within lands designated as agricultural. TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls Listed as a Prime Farmland soil These soils are on alluvial fans and alluvial plains. Runoff is very slow Permeability is moderately rapid Moderate shrink-swell potential (expansive) Slight erosion hazard Capability unit IIw-2 High fertility. Elevation ranges from 50 to 200 feet
HrC	**Huerhuero loam – slope class (2 – 9 %)** This soil unit comprises the eastern half of the Project site and the majority of lands immediately east and north-east of the site. TAXONOMIC CLASS: Fine, montmorillonitic, thermic Haplic Natrixeralfs Listed as a Farmland of Statewide Importance soil These soils are formed in sandy marine sediments Undisturbed areas will be undulating and gently sloping with vegetation cover from tarweed, wild oats, thistles, and annual grasses and forbes. Moderate to well drained loam with clay subsoil Runoff is slow to medium Permeability is very slow High shrink-swell potential (expansive) Slight to moderate erosion hazard Tomatoes, truck crops, and flowers can be grown. Capability unit IIIe-3 Moderate to low fertility. Elevation ranges from 10 to 400 feet
HrC2	**Huerhuero loam – slope class (5 – 9 %)** This soil unit occurs generally in a north-south band to the south-east of the site. Listed as a Farmland of Statewide Importance soil These soils are similar to the HrC mapping unit with the following exception: Moderate sloping As a result of sheet erosion, has a slightly shallow effective rooting depth Capability unit IVe-3 Elevation is from sea level - 400 feet

TABLE 8.9-2
Soil Mapping Unit Descriptions and characteristics

Map Unit	Description
HuC	**Huerhuero Urban land complex – slope class (2 – 9 %)** This soil unit comprises the area immediately north of the site. These soils occur on marine terraces where urban development has altered the original formation through grading, fill, and construction. Unconsolidated sandy marine sediments comprise cut material and sandy marine sediments, clay and loam form the fill. Runoff is slow to medium Permeability is very slow High shrink-swell potential (expansive) Moderate erosion hazard Moderate to low fertility Elevation is from sea level - 400 feet
Md	**Made land - slope class (0 %)** This soil unit is located northwest of the site on San Diego Bay. Made land consists of smooth, level areas that have been filled with excavated and transported soil material, paving material, and dredged material. These soils are used for building sites. Shrink-swell potential is variable Capability unit VIIIe-1
Rm	**Rm - Riverwash- slope class (0 – 2 %)** This small soil unit is located almost 1 mile south of the site within lands designated as agricultural. These unconsolidated soils are formed in moving water and are typically sand, gravel, and coble. Fertility is low and areas are often barren, although sycamore, coast live oaks, and shrubs may grow along the banks. Excessively drained Permeability is rapid Low shrink-swell potential Capability unit VIIIw-4
SbA	**Salinas clay loam – slope class (0 – 2 %)** This small soil unit is located north of the site along a potential linear feature. TAXONOMIC CLASS: Fine-loamy, mixed, superactive, thermic Pachic Haploxerolls Listed as a Prime Farmland soil These soils are formed in alluvial fans and flood plains from sediments washed from Diablo, Linne, Las Flores, Huerhuero, and Olivenhain soils. Undisturbed areas will be undulating and gently sloping with vegetation cover annual grasses and forbs with scattered trees and shrubs. Well to moderately well drained clay loams Runoff is very slow Permeability is moderately slow Moderate shrink-swell potential (expansive) Slight erosion hazard Capability unit I-1High fertility Elevation is from 25 - 300 feet

TABLE 8.9-2
Soil Mapping Unit Descriptions and characteristics

Map Unit	Description
Tf	**Tidal flats – slope class (0 %)** This soil unit comprises the western half of the Project site. These soils are formed of marine alluvium (clays to fine sands) and are periodically covered with tidal water. Undisturbed areas are essentially barren to sparely vegetated with salt-tolerant species. High shrink-swell potential (expansive) Capability unit VIIIw-6
TuB	**Tujunga sand – slope class (0 – 2 %)** This soil unit comprises a small component of the soils to the north-east of the site along a potential linear feature. TAXONOMIC CLASS: Mixed, thermic Typic Xeropsamments Listed as a Farmland of Statewide Importance soil These soils are deep, excessively drained sands derived from granitic alluvium on flood plains and alluvial fans. Scattered oak, annual grasses, and forbes will be found in undisturbed areas. Roots easily penetrate to depths of 60 inches. Runoff is very slow to slow Permeability is very rapid Low shrink-swell potential Slight erosion hazard Capability unit IVs-4 Low fertility Elevation from sea level to 1500 feet
VbB	**Visalia gravelly sandy loam- slope class (2 – 5 %)** This soil unit is located approximately 1 mile south of the site within lands designated as agricultural. Listed as a Prime Farmland soil These soils are on alluvial fans and flood plains from granitic alluvium. This soil type is used for farming avocados, citrus, truck crops, tomatoes, flowers, and as rangeland. Moderately well drained and very deep sandy loams derived from granitic alluvium Runoff is slow Erosion hazard is slight Permeability is moderately rapid Low shrink-swell potential Capability unit IIe-1 High fertility

Notes:
Soil characteristics are based on soil mapping provided in the published soil survey (NRCS 1973) and a review of corresponding OSDs. Soil map units described above are limited to those mapped in the vicinity of the SBRP and associated linear features.

Important farmland soil designations determined from San Diego county lists (CDC, 1995)

8.9.3.1 Land Use On and Around the Project Site

As shown on Figure 8.9-2, there is a single area, approximately 45.6 acres in size, within the southern portion of the 1-mile buffer around the Project site that is designated as a Farmland of Local Importance. This agricultural land will not be directly impacted by

construction activities. There are no other mapped agricultural lands in the vicinity of the SBRP.

The SBRP site consists of 12.9 acres within a 33-acre parcel commonly referred to as the former LNG site. The Project also includes 6.5 acres for the new substation on the 33-acre former LNG site. This 33-acre parcel is located immediately adjacent and south of the existing SBPP. The existing SBPP site consists of 115 acres leased by LSP from the Port. The 115-acre SBPP site includes 6 acres for the existing SDG&E substation. The proposed gas, water, and sewer pipelines for the SBRP will be located in the existing rights-of-way of Bay Boulevard or will be located in an existing SDG&E easement that parallels Bay Boulevard.

8.9.3.2 Agricultural Use Along the Off-Site Linear Features

As shown on Figures 8.9-1 and 8.9-2, new linear features are required for the proposed SBRP that include a water supply pipeline, a sewer line, and a natural gas supply pipeline. The proposed pipelines' alignments were chosen to minimize their length and disruption of roads and existing infrastructure. These linears and their proposed corridors are in existing rights-of-way along Bay Boulevard or the SDG&E easement.

As discussed above, the natural gas pipeline will connect to an existing SDG&E high pressure gas lines located near Bay Boulevard and K Street within an existing SDG&E easement that parallels Bay Boulevard. The existing high pressure natural gas lines are located approximately 0.82 mile north of the SBRP. Water for SBRP will be obtained from the Sweetwater Water Agency via an approximate 325-foot interconnect to an existing potable water line that is located in the right-of-way in Bay Boulevard. Sanitary and industrial waste water will be discharged to an existing City of Chula Vista sewer line that is also located in a right-of-way in Bay Boulevard. The sewer line interconnection is also approximately 325 feet in length. The Project Applicant has received "will serve" letters from the Sweetwater Water Agency and the City of Chula Vista (see Appendices 18.14A and B).

The phased electrical interconnection of SBRP to the SDG&E transmission grid will occur entirely within existing developed areas. The initial SBRP interim electrical interconnection at 138-kV and 69-kV will be through underground ducts to the existing SDG&E substation located adjacent to the existing SBPP. As part of this interim interconnection, the SBRP will connect at 230-kV to SDG&E's plan new 230-kV Otay transmission line that will be located in SDG&E's easement that parallels Bay Boulevard. The SBRP 230-kV interconnect will be a 400-foot overhead transmission line and a 1,000-foot underground duct bank. The final electrical transmission interconnections will link SBRP to the SDG&E transmission grid through a relocated substation that will be located on the 6.5 acres of the 33-acre former LNG site. This 6.5-acre site is located immediately adjacent to and south of the SBRP site. The relocated SDG&E substation is part of the Project, even though it will be constructed and operated by SDG&E.

No agricultural land will be affected by the proposed linear features of the SBRP.

8.9.3.3 Soil Types Within the Study Area

Figure 8.9-1 shows the approximate extent and Table 8.9-2 summarizes the physical and chemical properties of the soil mapping units that are found in the vicinity of the proposed SBRP site and along proposed linear routes.

As shown on the figure, the SBRP site has two mapped soil units: **Tf** Tidal flats and **HrC** Huerhuero loam comprising the western and eastern portions, respectively. The **HrC** soil unit also includes the southern half of the proposed natural gas supply pipeline. This gas pipeline traverses the **HuC** Huerhuero –Urban land complex and **SbA** Salinas clay loam soil mapping units in the northern half of the alignment.

Because of the previous urban developments in the SBRP area, it is expected that actual soil conditions (i.e., materials, textures, and slopes) could vary significantly from those mapped and described in the soil survey. It is expected that the native Tidal flat soils unit may be more accurately described as **Md** Made Land, to reflect that extensive imported fill needed to provide suitable bearing surfaces for the previously developed SBPP and associated facilities. The depth of fill material at the SBRP site is estimated to be between 5 and 10 feet as indicated by cone penetrometer soundings completed for a geotechnical investigation. These materials were weaker, with a soft to firm consistency, than the underlying materials, with a stiff to hard consistency (Black and Veatch, 2006). However, it was noted, that the fill and alluvium native soils were highly variable with respect to thickness and composition.

Other soil mapping units seen within the 1-mile buffer around the SBRP site would not be directly impacted by the proposed Project.

8.9.3.4 Soil Loss and Erosion

The water erosion hazard designations for soils in the Project area are listed in Table 8.9-2. The factors that have the largest effect on soil loss include steep slopes, lack of vegetation, and erodible soils composed of large proportions of fine sands. Topographic slopes in the immediate Project area are nearly level. The water erosion hazard levels ascribed to the soil mapping units at the proposed site and along linear features (**HrC**, **Tf, HuC, SbA, TuB**) generally indicate that water erosion hazards are mostly low with ascribed soil erosion potentials ranging from slight to moderate (NRCS 1973). Nearly level topography and the use of construction best management practices (BMPs) will minimize the overall potential for soil loss from water erosion.

The soils are indicated to have moderate to low fertility so this will have to be considered with respect to the potential limitations for temporary or permanent revegetation of disturbed areas.

The potential for wind erosion on soils was not indicated for any of the soil mapping units described in the soil survey in the soil survey (NRCS 1973). However, given the sandy and loamy surface textures of the soils in this area, the soils are expected to have a high to moderate potential for wind erosion.

8.9.3.4.1 Water Erosion

Despite the relatively low potential for soil erosion in the SBRP area, an estimate of erosion by water is provided below (Table 8.9-3). This estimate of soil loss by water erosion was developed using the Revised Universal Soil Loss Equation (RUSLE2) program software downloaded from the web site at http://fargo.nserl.purdue.edu/rusle2dataweb/RUSLE2index.htm.

TABLE 8.9-3
Estimate of Soil Loss by Water Erosion Using Revised Universal Soil Loss Equation (RUSLE2)

			Estimates Using Revised Universal Soil Loss Equation[a]		
Feature (acreage to be graded out of total area)[b]	**Activity**	**Duration (months)[c]**	**Soil Loss (tons) without BMPs**	**Soil Loss (tons) with BMPs**	**Soil Loss (tons/yr) No Project**
SBRP site, switchyard, and access road (19.4 acres)	Grading	4	65.4	0.8	0.71
	Construction	24	184.2	5.1	
Laydown and Construction Parking (10 acres out of 20.2 acres)	Grading	1	8.3	0.11	0.33
North Tank Farm (20 out of 30 acres)	Grading	12.7	211.7	0.22	0.66
	Demolition	4.2	32.7	0.90	
Old SBPP Site (15 out of 20 acres)	Grading	10.9	136.3	0.16	0.50
	Demolition	20	117.5	3.25	
Existing Wastewater Treatment Plant (8 out of 10 acres)	Grading	2.5	16.7	0.09	0.26
	Demolition	3.3	10.3	0.29	
South Tank Farm (15 out of 20 acres)	Grading	1.5	18.8	0.16	0.50
	Demolition	5	29.4	0.81	
Gas Pipeline (0.4967 acre)	Grading/excavation	6	1.9	0.02	0.01
Potable and MakeUp Water Line (0.0375 acre)	Grading/excavation	8	0.25	0.0032	0.0006
Sewer Line (0.0374 acre)	Grading/excavation	8	0.25	0.0032	0.0006
Total Project Soil Loss Estimates	All activities listed above	53	833.5	12.0	3.0

Notes:

[a] Soil losses (tons/acre/year) are estimated using RUSLE2 software available on line [http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_index.htm].
The soil characteristics were estimated using specific soil types for San Diego area. The Tidal Flat (Tf) soil type was not available so a generalized RUSLE2 soil profile was used that corresponded most closely to the described soil unit.
Soil loss (R-factors) were estimated using 2-year, 6-hour point precipitation frequency amount for the nearest National Weather Service station to the SBRP site [on line at http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html].
Estimates of actual soil losses use the RUSLE2 soil loss times the duration and the affected area. The No Project Alternative estimate does not have a specific duration so loss is given as tons/year.

[b] The area for all pipelines was estimated by assuming a 5-foot wide trench times the length of the proposed linear.

[c] The estimate of project time to complete each feature is derived from the Draft Demolition Plan dated May 2006 and conversation with Randy Rose/CCI demolition estimator on May 15, 2006.

Soil loss for site specific soils and precipitation was calculated in tons/acre/year under different soil management conditions by the program using the following assumptions:

- As discussed above, the 12.9-acre SBRP site and 6.5-acre substation site is located on a portion of the 33-acre former LNG site and was previously cleared of most structures (although some foundations for the former LNG tanks remain below grade). The 19.4-acre site will be graded at the beginning of construction to ensure proper drainage. Based on proposed schedules, it was assumed that demolition of the former LNG tank foundations and soil grading as part of site preparation site will occur over a 4-month period. It is assumed that active grading for the construction parking and laydown areas will take approximately 1 month after which time, any non-paved areas will be covered, if necessary, by gravel. It is assumed that the soil for the SBRP site would be disturbed for an additional 24 months during the remainder of the SBRP construction period.
- When the SBRP achieves commercial operations, the existing SBPP and its support facilities located on the 115-acre site will be demolished. At the end of the demolition, approximately 58 acres of the 115-acre site will be graded. It is assumed that a 6-month period will be needed after grading to establish vegetation or some other temporary protective cover until the site is permanently developed apart from this project. The 6-acre existing SDG&E substation is not included in this demolition as the substation will remain in service until such time as SDG&E builds the relocated substation on the 6.5-acre site. SDG&E will be responsible for the demolition of its existing substation and that demolition is not part of this Project.
- Assuming a 5-foot width trench for all offsite linear features, the total offsite area for the approximately 0.8-mile-long natural gas supply pipeline trench plus the 325-foot+ potable and make-up water and sewer trenches is 0.8 acre. Based on the proposed schedule, it is estimated that the period of construction would be 4 months for the gas pipeline area and ¾ of a month for the much shorter water and sewer lines.
- Estimates of soil loss (in tons) were made for the site-specific soil mapping units characteristic, where available. In the case of Tidal flat soils, the estimate of soil loss was based upon a RUSLE2 generalize soil profile for low organic matter clay (with less than 50 percent clay) that most closely corresponded to the soil mapping unit textural descriptions.
- RUSLE2 rainfall erosivity conditions were estimated for the SBRP site coordinates using site specific rainfall estimates from on-line National Weather Service data (NOAA Atlas 2) at [http://hdss.nws.noaa.gov/cgi-bin/hdsc/na2.perl?qlat=33.9978 $qlon=-118.2221 & Submit=submit].
- Assumes a 100-foot slope length. Estimated soil unit slope is the midpoint of the minimum and maximum of the unit slope class.

Soil losses are estimated using the following RUSLE2 conditions:

Construction and demolition soil losses were approximated using Management as 'bare ground, smooth surface;' Contouring: None, rows up and down hill; Diversion /terracing: None; and Strips and Barriers: None.

Active grading soil losses were approximated using Management as 'bare ground, rough surface' soil conditions; Contouring: None, rows up and down hill; Diversion /terracing: None; and Strips and Barriers: None.

Construction soil losses **with implementation of construction BMPs** was approximated using Management as 'Silt fence; Contouring: Perfect, no row grade; Diversion/terracing: None; and Strips and Barriers: 2 fences, one at end of RUSLE2 slope.

A **'No Project'** soil loss estimate was also approximated using Management as 'Dense grass – not harvested; Contouring: None, rows up and down hill; Diversion /terracing: None; and Strips and Barriers: None.

It should be recognized that the estimate of accelerated soil loss by water is very conservative because of the 'worst-case' assumptions noted above. Furthermore, through development of the ECP and SWPPP for site-specific conditions, full implementation of construction BMPs to reduce soil erosion will likely reduce soil losses to near negligible levels.

Using these conservative assumptions for implementation and effectiveness of BMPs, these soil loss rates estimated for the entire Project area and construction cycle and demolition of the existing SBPP will result in approximately 12 tons of soil loss during the construction and demolition phases of the Project. Given the potential sandy conditions of imported fill, Tidal flats, or Huerhuero loam soils, BMPs to control wind erosion losses will also be required.

8.9.3.4.2 Wind Erosion

The potential for wind erosion of surface material during construction at the SBRP site and during demolition of the existing SBPP site was estimated by calculating the total suspended particulates that could be emitted from active grading activities and the wind erosion of exposed soil. The total site area and grading duration were multiplied by emission factors to estimate the total suspended particulate matter (TSP) emitted from the site. Fugitive dust from site grading was calculated using the default particulate matter less than 10 microns in equivalent diameter (PM_{10}) emission factor used in URBEMIS2002 and the ratio of fugitive TSP to PM_{10} published by the Bay Area Air Quality Management District (BAAQMD, 2005). Fugitive dust resulting from the wind erosion of exposed soil was calculated using the emission factor in AP-42 (USEPA, 1995 and in Table 11.9-4 in BAAQMD, 2005).

Mitigation measures, such as watering exposed surfaces, are used to reduce PM_{10} emissions during construction and demolition activities. The PM_{10} reduction efficiencies are taken from the South Coast Air Quality Management District (SCAQMD) CEQA Handbook (1993) and were used to estimate the effectiveness of the mitigation measures. Table 8.9-4 summarizes the mitigation measures and PM_{10} efficiencies applied to the emission calculations.

TABLE 8.9-4
Mitigation Measures for Fugitive Dust Emissions

Mitigation Measure	PM_{10} Emission Reduction Efficiency	Efficiency Applied
Water active sites at least twice daily	34-68%	50%
Enclose, cover, water twice daily, or apply non-toxic soil binders, according to manufacturer's specifications, to exposed piles (i.e., gravel, sand, dirt) with 5 percent or greater silt content	30-74%	50%

Source: SCAQMD CEQA Handbook, Table 11-4. (1993)

Table 8.9-5 summarizes the mitigated TSP predicted to be emitted from the site from grading and the wind erosion of exposed soil. Without mitigation, the maximum predicted

erosion of material from the site with implementation of mitigation measures is estimated at 191 tons over the course of the Project construction and demolition phases. This estimate is reduced to approximately 96 tons by implementing basic mitigation measures. These estimates are extremely conservative because they make use of emission rates for a generalized soil rather than for specific soil properties and assume the worst-case for blowing conditions. It is expected that actual wind erosion would be much lower because of the developed urban nature of the Project area.

TABLE 8.9-5
Estimates of Total Suspended Particulates (TSP) Emitted from Grading and Wind Erosion

Emission Source	Area in acres	Duration (months)	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading Dust				
Project Site	19.68	4	14.43	7.22
Laydown and Parking Areas	10	1	3.70	1.85
North Tank Farm	20 out of 30	16.9	61.97	30.98
Old SBPP Plant site	15 out of 20	20.0	55.00	27.50
Existing Wastewater Treatment Plant	8 out of 10	5.8	8.51	4.25
South Tank Farm	15 out of 20	6.5	17.88	8.94
Gas Pipeline	0.4967	4	0.36	0.18
Potable and Makeup Water Line	0.0375	0.75	0.005	0.003
Sewer Line	0.0374	0.75	0.005	0.003
Wind Blown Dust				
Project Site	19.68	24	7.48	3.74
Property surrounding of SBRP site	115	6	20.90	10.45
Estimated Total			190.23	95.12

Assumptions:
Assumes grading for entire SBRP site will be completed in a 4-month period.

Assumes grading for the laydown and parking areas will be completed in a 1-month period and then covered with gravel.

Assumes bare soil at half the Project site is exposed for 24 months after grading during construction phase. The bare soil on the SBPP property and associated features will be stabilized within 6 months after grading of these areas is completed.

The natural gas, water and sewer pipelines will be trenched within or adjacent to existing rights-of-way and that 5-foot wide trenches will be adequate.

Data Sources:
PM10 Emission Factor Source: URBEMIS2002 User's Guide, May 2003

PM10 to TSP Conversion Factor Source: http://www.baaqmd.gov/pmt/handbook/s12c03fr.htm

SCAQMD CEQA Handbook (1993) Table 11-4 for mitigation efficiency rates (as summarized in Table 8.9-4)

8.9.3.5 Other Significant Soil Characteristics

An important soil characteristic is the potential for encountering contaminated soils during excavation in previously developed areas. Environmental site assessment reports have been

accomplished for the former 33-acre LNG site (DE&S, 2001), and the existing SBPP site (Fluor Daniel GTI, 1998 a,b). These environmental assessment reports are included in this AFC as Appendix 8.13A. The environmental site assessment for the 33-acre former LNG site determined that based of previous use of the site, there are no known soil contaminants at the site.

The environmental assessment for the existing SBPP indicates there is some soil contamination of the 115-acre site and there is the potential for varying levels of heavy metals, petroleum product, and polychlorinated bi-phenyl (PCB) contaminants in subsurface soils. Any remediation of the existing SBPP site to address such known soil contamination is the responsibility of SDG&E and is not a part of the demolition phase of the SBRP project. The remediation measures to be undertaken by or on the behalf of SDG&E for such know soil contamination will be under the direct oversight of the California Department of Toxics Substances Control (DTSC) as the lead agency for remediation of the existing SBPP site.

Expansive clays in surface and subsurface alluvial soils is another soil characteristic that will pose possible problems for construction of foundations, roadway, parking areas, and pipelines because of the potential for soil movement due to shrink/swell characteristics during construction. In particular, the Huerhuero loam (**HrC** and **HrC2**), Huerhuero urban land complex (**HuC**), tidal flat (**Tf**), and Salinas clay loam (**SbA**) soil units could pose a problem for construction of the natural gas supply pipeline, which encounters these soils along its route from the site to the K Street connection. However, construction problems with expansive clays can be avoided by backfilling those portions of the pipeline trench with a suitable, imported fill that has a low capacity for shrink/swell. As previously noted, construction in known areas of expansive soils dictates special permitting requirements in accordance with City of Chula Vista ordinances.

Another significant soil characteristic concerning the proposed Project is the potential for shallow groundwater that could affect excavations. In particular, the **Tf** Tidal Flats and **HrC** Huerhuero loam soil units located beneath the SBRP site and along a significant portion of the pipeline alignments may have an issue with shallow groundwater that could result in complications for excavation and pipe laying. Depending on the anticipated depth of installation for these pipelines relative to the water table, it may be necessary to provide additional trench shoring or dewatering. Groundwater depths measured on the SBRP site during geotechnical investigations indicated groundwater at approximately 11 ft mean sea level (msl). This groundwater elevation corresponds to depths ranging from 0.5 to 4 feet below existing grade (Black and Veatch, 2006).

The fertility of area soils range from low to high. The SBRP site occurs on moderate to low fertility soils, with the western half comprised of tidal flats with a high salinity content. It is likely that the surface soils in the area have been highly modified from urban development. The use of salt tolerant species appropriate for the ambient conditions is recommended for revegetation. Additional soil amendments should be considered where needed to assure the success of revegetation.

Some of the soils are considered to be saline-alkali soils. Revegetation on soils that are saline-alkali should not pose any problems as long as adequate freshwater irrigation is

provided while plants are being established. The choice of plants for these areas is also important and they should have suitable salt-tolerance characteristics.

8.9.4 Potential Environmental Analysis

The following subsections describe the potential environmental effects on soils during the construction and operation phases of the Project.

The potential for impacts to soil resources were evaluated with respect to the criteria described in the Appendix G checklist of CEQA. An impact is considered potentially significant if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps for the Farmland Mapping and Monitoring Program by the California Resources Agency to non-agricultural use
- Conflict with existing zoning for agricultural use or a Williamson Act contract
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use
- Result in substantial soil erosion

8.9.4.1 Impacts on Agricultural Soils

Project construction and demolition of the existing SBPP will occur entirely on previously developed industrial lands. None of these lands are currently used for agriculture; thus, there is no impact to agricultural lands.

Agricultural lands are located approximately one mile south of the proposed SBRP facility. This direction is outside of the prevailing west to east wind direction and, therefore, no aerial deposition on the farmland is expected to originate at the SBRP facility.

8.9.4.2 Construction and Demolition Phases

Project construction and demolition activities could potentially cause increased erosion, compaction, loss of soil productivity, and disturbance of saturated soils. Soil erosion could possibly increase the sediment load within surface waters adjacent/downstream of the construction site.

Construction will result in permanent compaction under SBRP foundations and associated facilities (e.g., storage, parking, and roadway areas). The new SBRP facilities would also permanently cover bare or vegetated soil areas. The SBRP site and the area set aside for the relocated SDG&E substation will be brought to an elevation of 22 feet above mean sea level with the addition of approximately 165,000 cubic yards of imported structural fill material.

Temporary impacts for the construction parking, trailer, and laydown areas include soil compaction that will reduce the future potential for vegetative growth. The construction parking and laydown areas will either make use of existing paved access roads or the areas will be stabilized by a gravel bed covering for dust and erosion control. However, it should be noted that this temporary construction laydown and parking area will occur entirely either on the 6.5 acres set aside for the relocated SDG&E substation or on a portion of the

existing SBPP site. The construction laydown and parking areas will be in areas that are compacted and have little vegetation. These areas will be restored after construction by removing the gravel, tilling the surface layers, and implementing revegetation, if appropriate depending on the future use of the area, or other soil stabilization process.

Normally, construction of pipelines consists of trenching and stockpiling of native soil, compaction of the trench bottom, installation of the pipe followed by backfilling or replacement of the native soils, and restoration of the original ground elevation contours. In the Project area, the proposed pipeline routes mostly occur within soil units with expansive soil conditions. Where expansive soils or unsuitable fills are found within trenches for foundations or pipelines, the native fill may be replaced with an imported fill with suitable bearing and compaction characteristics that has a low capacity for shrink/swell. Any excavated soils not reused during construction at the site would be managed or removed to prevent subsequent erosion and sedimentation issues.

The total area that will be permanently developed is 12.9 acres for the SBRP, 6.5 acres for the area set aside for the relocated SDG&E substation. The temporary construction laydown and parking area is estimated to be 20 acres, which includes the 6.5 acres set aside for the relocated SDG&E substation. Demolition and grading will also occur on approximately 58 acres of the 115-acre existing SBPP site.

The construction of the SBRP's pipeline linear facilities will have no significant effect on onsite or offsite surficial soils. During construction, standard erosion and dust control methods will be implemented to avoid sedimentation in storm drains and surface waterways. The use of these methods will reduce losses of soil to wind and water erosion to a less-than-significant level.

Because the proposed SBRP does not result in any permanent impacts on lands which have not already been developed, these impacts are considered temporary and the construction of the pipeline linears will have less than significant impact on soil resources.

8.9.4.3 Operation

Operations of the SBRP will not result in impacts to the soil from erosion or compaction. Routine vehicle traffic during Project operation will be limited to paved or gravel roadways. Standard operating activities will not involve the disruption of soil unrelated to construction activities. When linear facilities need to be inspected or maintained, vehicle traffic will be minimized. Impacts to soil from Project operations will be less than significant.

8.9.4.4 Effects of Generating Facility Emissions on Soil-Vegetation Systems

There is a concern in some areas that emissions from the SBRP generating units, principally nitrogen from natural gas combustion, could have an adverse effect on soil-vegetation systems in the Project vicinity. This is principally a concern where environments that are highly sensitive to nutrients or salts, such as serpentine habitats, are downwind of the Project.

In the case of the SBRP, the dominant land use downwind of the Project is urban and there are no serpentine habitats in the Project area. The addition of small amounts of nitrogen from the SBRP to urban soil-vegetation systems in the Project area will be insignificant.

The addition of small amounts of nitrogen to agricultural areas will be less than significant within the context of fertilizers, herbicides, and pesticides typically used.

8.9.4.5 Cumulative Effects

The SBRP site is located on 12.9 acres of the former LNG site in the City of Chula Vista in San Diego County. An additional 6.5 acres will be occupied by the relocated SDG&E substation. The City's General Plan designates the site for industrial purposes and the site is currently zoned for uses consistent for the Project. The SBRP does not pose a change in land use. As discussed in above, the SBRP will have less than significant impacts to agricultural resources and less than significant soil impacts. Due to the highly urbanized nature of the City of Chula Vista and the area in the vicinity of the SBRP site and the existing SBPP site, there will be no significant cumulative impacts to agricultural resources or soils from the proposed SBRP, the relocated SDG&E substation or the demolition of the existing SBPP, and other projects in the area.

8.9.5 Mitigation Measures

Erosion control measures will be required during the construction and demolition phases of the SBRP, the relocated SDG&E substation, and the demolition of the existing SBPP site to maintain water quality, protect property from erosion damage, and prevent accelerated soil erosion or dust generation that destroys soil productivity and soil capacity. Temporary erosion control measures will be installed before construction and demolition activities begin, and will be maintained and evaluated during construction and demolition, and will be removed from the site after the completion of Project.

8.9.5.1 Temporary Erosion Control Measures

Temporary erosion control measures will be implemented before construction and demolition begins, and will be evaluated and maintained during the construction and demolition phases of the Project. These measures typically include gravel covering, revegetation, mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers. The gravel covering of construction parking and laydown areas will limit compaction from vehicle traffic and material storage. It will control water and wind erosion in these areas. Vegetation is the most efficient form of erosion control for disturbed areas exposed after construction because it keeps the soil in place and maintains the landscape over the long-term. Vegetation reduces erosion by absorbing raindrop impact energy and holding soil in place with fibrous roots. It also reduces runoff volume by decreasing erosive raindrop velocities and increasing infiltration into the soil.

Disturbed areas will be revegetated or other soil stabilization methods, as appropriate, after construction and demolition, with vehicle traffic kept out of revegetated areas. Physical stabilization, such as temporary erosion control matting, may be required depending on the time of year revegetation is performed. If required, revegetation of the area disturbed by construction of the linear facilities will be accomplished using locally prevalent, fast-growing plant species compatible with adjacent existing plant species.

During the construction and demolition phases of the Project and the related linear facilities, dust erosion control measures will be implemented to minimize the wind-blown erosion of soil from the site. Water, of a quality equal to or better than either existing surface runoff or

irrigation water, or other dust control methods will be used in construction and demolition areas to control dust.

Sediment barriers, such as straw bales, sand bags, or silt fences, will be used to slow runoff and trap sediment during the construction and demolition phases of the Project. Sediment barriers are generally placed below disturbed areas, at the base of exposed slopes, and along streets and property lines below the disturbed area. Sediment barriers are often placed around sensitive areas, such as wetlands, creeks, or storm drains, to prevent contamination by sediment-laden water.

Sediment barriers and other sedimentation control measures will be used to prevent runoff from the site during the construction and demolition phases. If used, straw bales will be properly installed (staked and keyed), then removed or used as mulch after construction/demolition. During the construction and demolition phases, temporary runoff detention basins, drainage diversions, and other large-scale sediment traps are not considered necessary due to the level topography. Any soil stockpiles will be stabilized and covered if left onsite for long periods of time, including placement of sediment barriers around the base of the stockpile. These methods can be employed during trenching operations for the water line, sewer line, and the natural gas pipeline.

8.9.5.2 Permanent Erosion Control Measures

Permanent erosion control measures on the site could include drainage and infiltration systems, detention basins, slope stabilization, and long-term revegetation or landscaping. Revegetation or landscaping would follow from planting for short-term erosion control.

A mitigation monitoring plan will be developed in conjunction with CEC staff to set performance standards and monitor the effectiveness of mitigation measures. This plan will address the timing and methods for monitoring plant establishment, as well as reporting and response requirements.

8.9.6 Permits and Agency Contacts

For informational purposes, the list of applicable permits, including permits that would be required, but for the CEC's exclusive siting jurisdiction, are shown in Table 8.9-6.

TABLE 8.9-6
Permits and Agency Contacts for SBRP Agriculture and Soils

Permit or Approval	Schedule	Agency Contact	Applicability
Approval of Grading Plan	2 – 6 months Prior to Construction	Sylvester Evetovich, Principal Engineer Chula Vista Planning & Building Dept. Land Development Section 276 Fourth Avenue Chula Vista, CA 91910 619-691-5115	Grading of site surface
Encroachment Permit	2 – 6 months Prior to Construction as part of grading plan	Sylvester Evetovich, Principal Engineer Chula Vista Planning & Building Dept. Land Development Section 276 Fourth Avenue Chula Vista, CA 91910 619-691-5115	Work in public right-of-way.

TABLE 8.9-6
Permits and Agency Contacts for SBRP Agriculture and Soils

Permit or Approval	Schedule	Agency Contact	Applicability
Driveway Construction Permit	2 – 6 months Prior to Construction as part of grading plan	Sylvester Evetovich, Principal Engineer Chula Vista Planning & Building Dept. Land Development Section 276 Fourth Avenue Chula Vista, CA 91910 619-691-5115	Driveways from City right-of-way.
Construction on Expansive Soils	2 – 6 months Prior to Construction as part of grading plan	Sylvester Evetovich, Principal Engineer Chula Vista Planning & Building Dept. Land Development Section 276 Fourth Avenue Chula Vista, CA 91910 619-691-5115	Report approval required as part of grading permit.
Landscaping Plans	2 – 6 months Prior to Construction as part of grading plan	Gary Williams, Landscape Architect Chula Vista Planning & Building Department Planning Division 276 Fourth Avenue Chula Vista, CA 91910 619-691-5098	Compliance with City landscaping manual for revegetation and site drainage. Required as part of grading permit.
Construction Activity, Stormwater and NPDES Permit	Prior to Construction	Christine Palisoc, Water Quality Engineer, SWQCB 3443 Routier Road, Suite A Sacramento, CA 95827-3003 916-255-3063 Or Ben Neill, San Diego RWQCB 858-467-2983	Regulation of stormwater discharge from site and linear facilities during construction

8.9.7 References

Black and Veatch. 2006. Geotechnical investigation for the proposed South Bay Combined Cycle Power Plant. Chula Vista, California. Prepared for Duke Energy Corporation. July

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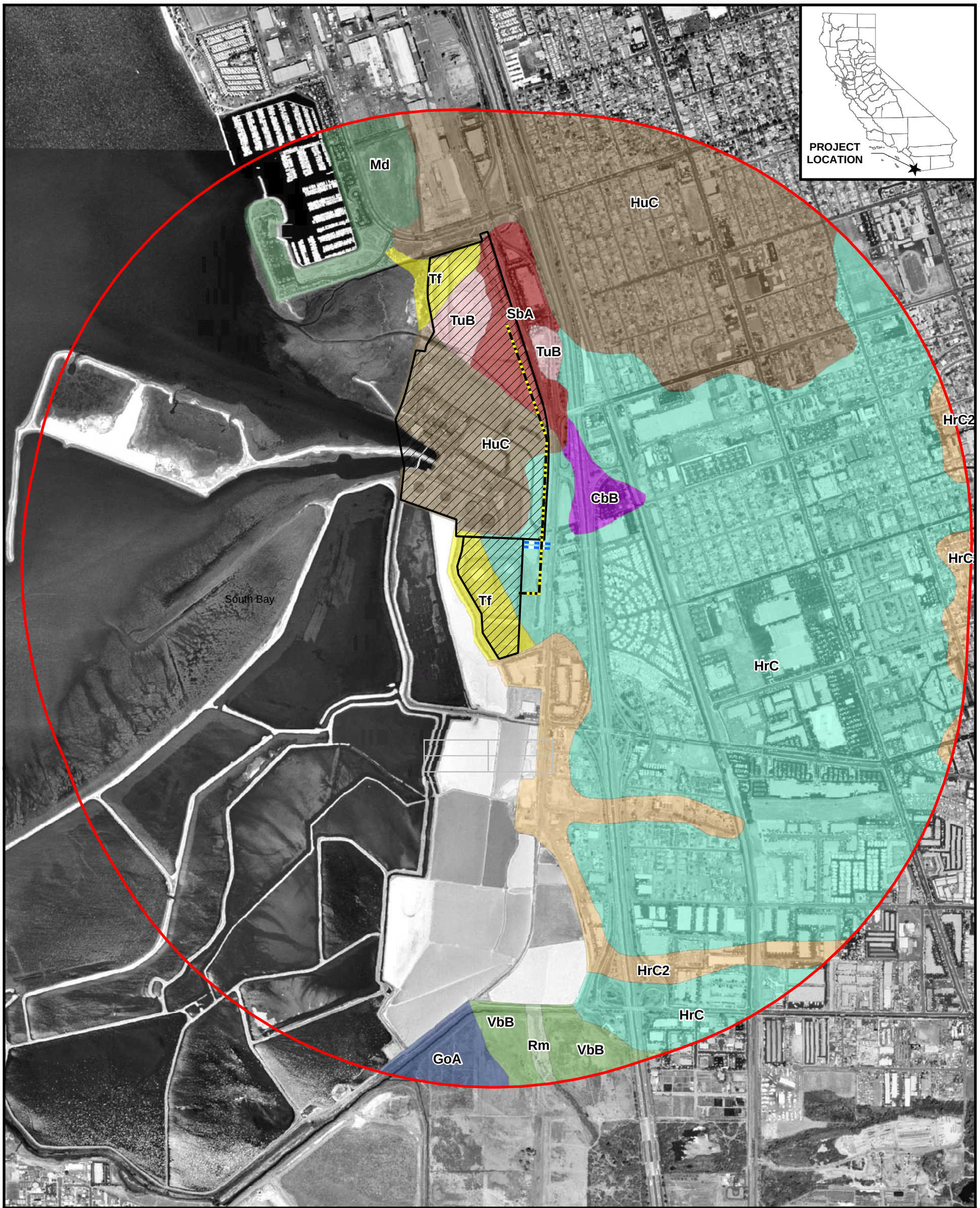

LEGEND

- GAS LINE
- POTABLE WATER AND SEWER LINE
- PROJECT LOCATION
- 1 MILE BUFFER

N

0 1,200 2,400 Feet
SCALE IS APPROXIMATE

Soil Legend

CbB	Carlsbad gravelly loamy sand – slope class (2 - 5 %)
GoA	Grangeville fine sandy loam – slope class (0 - 2 %)
HrC	Huerhuero loam – slope class (2 - 9 %)
HrC2	Huerhuero loam – slope class (5 - 9 %)
HuC	Huerhuero urban land complex – slope class (2 - 9 %)
Md	Madeland – slope class (0 %)
Rm	Riverw ash – slope class (0 -2 %)
SbA	Salinas clay loam – slope class (0 - 2 %)
Tf	Tidal flats – slope class (0 %)
TuB	Tujunga sand – slope class (0 - 2 %)
VbB	Visalia gravelly sandy loam – slope class (2 - 5 %)

SOURCE: NRCS, 2002

FIGURE 8.9-1
SOILS
SOUTH BAY REPLACEMENT PROJECT
CHULA VISTA, CALIFORNIA

CH2MHILL

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LEGEND

- GAS LINE
- POTABLE WATER AND SEWER LINE
- 1-MILE BUFFER
- PROJECT LOCATION
- D — URBAN AND BUILT UP LAND
- L — FARMLAND OF LOCAL SIGNIFICANCE
- X — OTHER LAND

Source: FMMP, 2002

0 1,250 2,500 Feet

SCALE IS APPROXIMATE

N

FIGURE 8.9-2
IMPORTANT FARMLANDS
SOUTH BAY REPLACEMENT PROJECT
CHULA VISTA, CALIFORNIA

CH2MHILL

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