SUBSECTION 8.9

Agriculture and Soils

8.9 Agriculture and Soils

8.9.1 Introduction

This subsection describes the potential environmental effects on agriculture and soils from the construction and operation of the project. Potential impacts are assessed for the proposed San Francisco Electric Reliability Project (SFERP) site and the adjacent natural gas supply and electric transmission line connections, as well as the process water supply pipeline corridor.

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 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). LORS are summarized in Table 8.9-1. The characteristics of the relevant soil types are summarized in Table 8.9-2. Soil loss is discussed in Subsection 8.9.3.4. The effect of plant emissions on soils is presented in Subsection 8.9.4.4. Required permits are summarized in Table 8.9-3.

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 LORS

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 an amendment in 1977, establishes requirements for discharges of stormwater or wastewater from any point source that would affect the beneficial uses of waters of the United States. The Clean Water Act effectively prohibits discharges of stormwater from construction sites unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The State Water Resources Control Board (SWRCB) is the permitting authority in California and has adopted a statewide general permit for stormwater discharges associated with construction activity (General Construction Permit; SWRCB, 1999) that applies to projects resulting in one or more acres of soil disturbance. Although construction of the proposed project would result in disturbance of more than one acre of soil, this permit would not apply to the proposed SFERP because the construction site would be graded to direct stormwater runoff directly to the City's combined sewer system. No stormwater would flow directly to the Bay or to a municipal separate storm sewer system.

However, stormwater discharges from the construction site to the City's combined sewer system would be subject to the requirements of the City and must be in compliance with the nine minimum controls described in the Federal Combined Sewer Overflow Control Policy (CSO Policy) and specified in the City's NPDES permit for the combined sewer system. The minimum controls include development and implementation of a pollution prevention program

that would be applicable to the SFERP. At a minimum, the City requires that the project sponsor develop and implement an erosion and sediment control plan to reduce the impact of runoff from the construction site. The erosion and sediment control plan must be reviewed and approved by the City prior to implementation, and the City will conduct period inspections to ensure compliance with the approved erosion and sediment control plan (Lee, 2004).

The CWA's primary effect on agriculture and soils within the project area consist of control of soil erosion and sedimentation during construction, including the preparation and execution of erosion and sedimentation control plans and measures for any soil disturbance during construction.

8.9.2.1.2 U.S. Department of Agriculture Engineering Standards. The U.S. Department of Agriculture (USDA), 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 LORS

8.9.2.2.1 California Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act of 1972 is the state equivalent of the federal CWA, and its effect on the SFERP would be similar. 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). The Regional Water Quality Control Board (RWQCB), which controls surface water discharges, may become involved indirectly if soil erosion threatens water quality.

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

Jurisdiction	LORS	Purpose	Regulating Agency	Applicability (AFC Subsection 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 Francisco Bay Region, under State Water Resources Control Board. USEPA may retain jurisdiction at its discretion.	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 Francisco Region, under State Water Resources Control Board	Subsections 8.9.2.2 and 8.9.4.2

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

Jurisdiction	LORS	Purpose	Regulating Agency	Applicability (AFC Subsection Explaining Conformance)
Local	Public Health Code	Hazardous waste	City and County of San Francisco	Subsections 8.9.2.3 and 8.9.4.2
	San Francisco Health Code Article 22A	Requires site history, and if necessary, soil sampling and analysis to identify hazardous wastes	San Francisco Department of Public Health; Director of the Department of Public Health	Subsections 8.9.2.3 and 8.9.4.2
	Building Code	Excavation and Grading	City and County of San Francisco	Subsection 8.9.2.3

8.9.2.3 Local LORS

The San Francisco Public Health Code (Article 22A) governs development of properties located in the filled land adjacent to San Francisco Bay with respect to hazardous waste materials that could be encountered during construction. Formerly known as the Maher Ordinance, it provides the requirements for testing and reporting for proposed developments in its area of jurisdiction.

In addition, the San Francisco Building Code (SFBC) amends the Uniform Building Code (UBC) and California Building Code (CBC) including Chapter 70, which establishes excavation, grading, and erosion control standards. It requires about 2 weeks for the Department of Building Inspection to assign an inspector to specific projects for review and approval of grading, excavation, and erosion control plans (Tham, 2003).

8.9.3 Environmental Setting

The proposed 4.5-acre SFERP site is located in southeast San Francisco within an urban area along the western shore of the San Francisco Bay (the Bay). The site is bounded on the west by an industrial property along Illinois Street, on the north by Humbolt Street, on the east by the Potrero Power Plant, and on the south by 23rd Street. Surrounding land uses are composed of mixed light and heavy industrial and commercial properties. Businesses in the surrounding area include shipping and dry dock facilities, warehouses, manufacturing, and various small commercial businesses. Historically, the SFERP site has been used for barrel manufacture (Geomatrix Consultants, Inc., 2000) and surrounding properties have been (or are currently) used for barrel manufacture, fuel storage tank facilities, steel and iron fabrication, manufactured gas plant facilities, railroad facilities, and a sugar refinery (Geomatrix Consultants, Inc., 2000).

There are no agricultural land uses within the proposed SFERP site or vicinity. The gas and electrical connections will be made to existing facilities adjacent to the SFERP site and the proposed process water pipeline will follow existing roadways and rights-of-way.

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 Mateo County,*

Eastern Part, and San Francisco County, California (NRCS, 1991). The electronic shape files for these mapping units were downloaded from the NRCS website. Detailed soil descriptions were developed from the soil survey publication (NRCS, 1991).

Data for the affected environment are summarized and presented below:

- Soil types for the project site and along the project water supply pipeline 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 depth, texture, drainage, permeability, erosion hazard rating, land capability classification, and fertility as an indicator of its revegetation potential.
- There are no soil series designated as "Prime Farmland" (or Farmland of Statewide Importance) among the soils listed in Table 8.9-2.

TABLE 8.9-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
131	Urban Land—Slope Class (0 to 5 percent typical, but may range from 0 to 30 percent) This map unit features areas where more than 85 percent of the surface is covered by paving, buildings, and other structures, typically at slopes of 0 to 5 percent. This map unit is classified as soil capability class VIII. This soil capability class corresponds to the lowest ranking suitability for field crops because soil limitations essentially preclude its use for commercial crop production. The soils at the SFERP and surrounding areas are not used for crop production. Urban soils are typically regraded, native soils with some amounts of fill. Given that the native soils likely derived from the underlying surficial geologic formations, which are mapped as serpentinized, ultramafic rock (Wagner et al., 1991), there is a potential for some of these soils to contain natural forms of asbestos.
134	Urban Land—Orthents, Reclaimed Complex—Slope Class (0 to 2 percent) This map unit includes areas that were once part of San Francisco Bay and adjacent tidal flats. It is about 65 percent urban land and 30 percent Orthents, reclaimed. Orthents consist of soils that have been filled and vary greatly in texture, including soil, gravel, concrete and asphalt rubble, solid wastes, and Bay Mud. They are very deep and can be poorly to somewhat poorly drained. The highly variable soil characteristics are related to the differences and amount of fill material used. Some areas have a permanent high water table at a depth of 30 to 60 inches because of fluctuating tides. Runoff is slow and the hazard of water erosion is low. The map unit is in capability class VIII and, as mentioned above, this soil capability class has limitations that essentially preclude its use for commercial crop production. The main limitations of these soils are a high water table, potential for subsidence and low fertility. These soil mapping units have highly variable soil properties related to the type and quality of fill used.
132	Urban Land—Orthents, Cut and Fill Complex—Slope Class (0 to 5 percent)*
133	Urban Land—Orthents, Cut and Fill Complex—Slope Class (5 to 75 percent)*

Notes:
Soil characteristics are based on soil mapping provided in the published soil survey (NRCS, 1991) and are limited to those mapped in the vicinity of the SFERP project.

* These soil units comprise the majority of the area moving westward (inland) from the SFERP area and consist primarily of urban land and Orthents (i.e., young soils) complexes, as listed below. The soils are similar to the soil mapping unit 131 in that regraded soils often derive from the in-place, native soils, which are not mapped. Because these soils are outside of the proposed SFERP area and not associated with important farmlands or wetland areas, they are not described in detail.

8.9.3.1 Agricultural Use on and around the Proposed SFERP Site

The types of land use surrounding the proposed SFERP site are presented and discussed in Subsection 8.4, Land Use. A review of the aerial photograph base map, provided in the soil survey (NRCS, 1991), confirmed that the site and surrounding areas are not used to support livestock or agricultural production. The soils mapped at the SFERP and surrounding areas are indicated to be of the soil capability subclass VIII, essentially unsuitable to commercial crop production. None of the mapped soil units in the areas are associated with prime agricultural land.

The Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (CDC) does not provide any statistics on conversion of farmland to non-agricultural uses for San Francisco County where the SFERP site is located (CDC, 2003). A review of the "Important Farmlands" mapping by the FMMP shows the project site and surrounding areas to be designated as "Urban and Built-Up Land."

8.9.3.2 Agricultural Use along the SFERP Linear Features

The proposed SFERP project will have gas and transmission line connections located adjacent to the proposed SFERP site. Similarly, potable water needs will be met with existing potable water supply lines adjacent to the site. The process water supply for the SFERP project will be pumped from a water pumping station (see Figure 8.9-1) through a conveyance pipeline that will bring the wastewater to the SFERP site where it will be treated for use in an onsite treatment plant. The process water pipeline will be constructed within the rights-of-way from the southern boundary of the SFERP site, west along 23rd Street, south along Tennessee Street, west along Cesar Chavez, and south along the Southern Pacific Railroad (SPRR) alignment to Marin Street. Therefore, the SFERP linear features will have no impact on agricultural land uses.

8.9.3.3 Soil Types within the Study Area and Prime Farmlands

Table 8.9-2 provides a description of the properties of the soil mapping units that are found in the vicinity of the proposed SFERP site and along the proposed process water route. As indicated, the soil mapping units in the project area are associated with urban land and Orthents (i.e., young soils) with wide-ranging slope classes and low capability to support commercial crop production (soil capability class VIII). The proposed SFERP project will not affect any Prime Farmlands or other important farmlands. In fact, the project will not affect any lands used for agricultural production.

8.9.3.4 Soil Loss and Erosion

The SFERP site is nearly level and is almost entirely covered with existing structures and paving. The mapped soils in the SFERP area are associated with urban land and Orthents, which have highly variable soil properties due to the different types of fill that may have been used. The soil survey provides very little specific information about these units that could be used to estimate soil loss using the Revised Universal Soil Loss Equation (RUSLE), which is typically used to quantify water-induced erosion in agricultural areas.

The map unit description for the Orthents indicated a low potential for water erosion. Given the developed nature and relatively low slopes of the site and surrounding areas, it is believed that the use of construction best management practices (BMPs) will reduce the

potential for soil loss and erosion to a negligible level. It is recognized that the revegetation potential of the site is low due to low soil fertility, so any areas not covered by structures or paving will require imported topsoil in order to establish adequate vegetation for long-term protection.

Because adequate steps will be taken as part of the design review process (specifically, the development of an erosion and sedimentation control plan [ESCP]), soil loss and erosion is not considered to be a significant problem for the proposed SFERP. For this reason, estimates of soil loss using the RUSLE were not conducted.

8.9.3.5 Other Significant Soil Characteristics

A significant soil characteristic concerning the proposed project is the potential for shallow groundwater that could affect excavations, especially in the reclaimed southern portions of the SFERP site. These areas, constructed over the former Bay, may also have subsidence issues for construction.

The underlying surficial geologic formation is mapped as a serpentinized, ultramafic rock (Wagner et al., 1991), so any native soils could have some naturally occurring asbestos materials, and would require dust control and possibly require personal protective equipment during drilling or certain earth moving construction activities. Given the industrial history of the site and surrounding properties, there is a significant possibility of encountering contaminated soil materials during drilling and excavation (see Subsection 8.13 for a detailed discussion).

8.9.4 Potential Environmental Consequences

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

The potential for impacts to agricultural and soils 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
- Impact jurisdictional wetlands
- Result in substantial soil erosion

The following subsections describe the anticipated environmental impacts on agricultural production and soils during plant construction and operation.

8.9.4.1 Impacts on Agricultural Soils or Wetland Soils

As previously indicated, the SFERP site and associated linears are located within an urban portion in the Potrero District of southeastern San Francisco. There are no current agricultural uses of the lands at the SFERP site or in the surrounding areas. The mapped soils in these areas are considered essentially unsuitable for commercial crop production. As such, the proposed SFERP will not have any impact on agricultural soils or important farmlands. For this reason, the SFERP will not affect any properties currently under a Williamson Act contract or conflict with existing zoning for agricultural use.

Based on an assessment of the soil survey information and knowledge of the site conditions, the proposed SFERP will not affect wetland soils. The only soils mapped in the SFERP area that have somewhat poorly drained conditions (indicating potential hydric soils) are those associated with the soil mapping unit (134 Urban Land—Orthents, Reclaimed Complex). While this soil unit is mapped near the southern portion of the site, the current conditions indicate that the site is almost entirely paved or covered with existing structures. There are no wetlands on the site and the soil drainage would be expected to improve moving westward (inland) along the process water pipeline linear route along 23rd Street, Tennessee Street, Cesar Chavez, and the SPRR alignment.

8.9.4.2 Construction

Construction activities can potentially impact soil resources by increasing soil erosion and soil compaction. The effect of soil erosion would be that soil lost during or after construction could increase the sediment load in surface receiving waters downstream of the construction site. The magnitude, extent, and duration of this construction-related impact depends on the erodibility of the soil (discussed above), the proximity of the construction activity to a receiving water, and the construction methods, duration, and season.

The potential for erosion associated with the soil types at the SFERP and surrounding areas is minimal. Further, by requiring the use of construction BMPs during construction, the impacts from soil erosion are expected to be less than significant. Typical BMPs are outlined in Section 8.9.5.

Construction of the proposed project would result in soil compaction during the construction of foundations, pump stations, pipelines, and paved roadway and parking areas. Soil compaction would also result from vehicle traffic along temporary access roads and in equipment staging (laydown) areas. Soil compaction increases soil density by reducing soil pore space. This, in turn, reduces the ability of the soil to absorb precipitation and transmit gases for respiration of soil microfauna. Soil compaction can result in increased runoff, erosion, and sedimentation. The incorporation of BMPs during project construction will result in less-than-significant impacts from soil compaction during construction.

Since the site and project linears will be constructed in currently developed areas that will be repaved or otherwise protected after construction, the overall anticipated effects of construction are considered to be less than significant.

Because of the SFERP site's historical industrial usage since the early 1900s, various environmental site investigations (E&E, 1996; CDM, 1997; FD-GTI, 1998; and Geomatrix Consultants, Inc., 2000) were conducted for the site and surrounding properties. The purpose of these environmental site investigations was to evaluate possible areas of soil

and/or groundwater contamination. Construction of the project will potentially involve excavation of impacted soils, primarily by heavy metals and polynuclear aromatic hydrocarbons (PAHs), and residues from a former manufactured gas plant (MGP). Management of excavated materials at the site and along the process water pipeline will be conducted in accordance with the Site Mitigation and Implementation Plan (SMIP). The SMIP document is needed to satisfy the requirements of Article 22A of the San Francisco Public Health Code, which governs development within the filled lands adjacent to San Francisco Bay.

8.9.4.3 Operation

Operation of the SFERP plant would not result in impacts to the soil from erosion or compaction. Routine vehicle traffic during plant operation will be limited to existing roads, all of which are paved, and standard operational activities should not involve the disruption of soil. Therefore, impacts to soil from project operations would 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 a generating facility, principally nitrogen (NO_x) from the combustors or drift from the cooling towers, would 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 this case, the dominant land use around the project is urban and the serpentine habitats in the project area are all developed for industrial, commercial, or residential uses. The addition of small amounts of nitrogen to the industrial and commercial areas would be insignificant because of the paucity of vegetation in these areas. Within the more vegetated residential areas, the addition of small amounts of nitrogen would be insignificant within the context of fertilizers, herbicides, and pesticides typically used by homeowners.

8.9.4.5 Cumulative Effects

As previously described, the effects on soil erosion, sedimentation, and compaction associated with the construction and operation of the SFERP are not considered to be significant. Therefore, the cumulative impacts of the proposed SFERP would be negligible. Impacts related to the excavation of contaminated soils would not be significant because all excavated materials will be handled in accordance with the SMIP, as discussed in Subsection 8.9.4.2.

8.9.5 Mitigation Measures

Erosion control measures would be required during construction to help maintain water quality, protect property from erosion damage, and prevent accelerated soil erosion or dust generation that destroys soil productivity and soil capacity.

8.9.5.1 Temporary Erosion Control Measures

Temporary erosion control measures would be implemented before construction begins, and would be evaluated and maintained during construction. These measures typically include revegetation, mulching, physical stabilization, dust suppression, berms, ditches, and

sediment barriers. These measures would be removed from the site after the completion of construction.

The process water pipeline is anticipated to be constructed within the right-of-way associated with 23rd Street, Tennessee Street, Cesar Chavez, and the SPRR alignment. Temporary erosion control might include asphalt patching until permanent paving can be completed. If required on non-paved areas disturbed by the pipeline construction, revegetation would be accomplished using locally prevalent, fast-growing plant species compatible with adjacent existing plant species.

During construction of the project and the related linear facilities, dust erosion control measures would 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 would be sprayed on the soil in construction areas to control dust during revegetation.

Sediment barriers slow runoff and trap sediment. Sediment barriers include straw bales, sand bags, straw wattles, and silt levees. They 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.

The site will be constructed on relatively level ground; therefore, it is not considered necessary to place barriers around the property boundary. However, some barriers would be placed in locations where offsite drainage could occur to prevent sediment from leaving the site. If used, sediment barriers would be properly installed (staked and keyed), then removed or used as mulch after construction. Runoff detention basins, drainage diversions, and other large-scale sediment traps are not considered necessary due to the level topography and surrounding paved areas. Any soil stockpiles, including sediment barriers around the base of the stockpiles, would be stabilized and covered if left onsite for long periods of time. These methods can also be employed during trenching operations for the recycled water supply line.

As previously mentioned, contaminated soils or bedrock material excavated during construction would be handled in accordance with the SMIP.

8.9.5.2 Permanent Erosion Control Measures

Permanent erosion control measures on the site will include graveling, paving, and drainage systems.

8.9.6 Permits and Agency Contacts

Permits required for the project, the responsible agencies, and proposed schedule are shown in Table 8.9-3. A construction permit, including a grading permit, will be obtained from the City before construction begins. Other required permits include an Industrial Wastewater Discharge Permit, as discussed in Subsection 8.14, Water Resources.

TABLE 8.9-3
Permits and Agency Contacts for SFERP Soils

Permit or Approval	Schedule	Agency Contact	Applicability
Approval of grading plan; issuance of construction and grading permits	Prior to construction	None identified CCSF Department of Public Works, Bureau of Building Inspection 1660 Mission Street, 6th floor San Francisco, CA 94103-2414 (415) 558-6087	Grading, excavation, and erosion control plan for site
Hazardous waste	Prior to construction	Mardeeta Jones CCSF Department of Public Health 101 Grove Street San Francisco, CA 94102 (415) 252-3938	Approval of Site Mitigation and Implementation Plan
Erosion and Sediment Control Plan	Prior to construction	Tommy Lee SFPUC Bureau of Environmental Regulation and Management (BERM) 3801 Third Street, Suite 600 San Francisco, CA 94124	Regulation of stormwater discharge from site and linear facilities during construction

8.9.7 References

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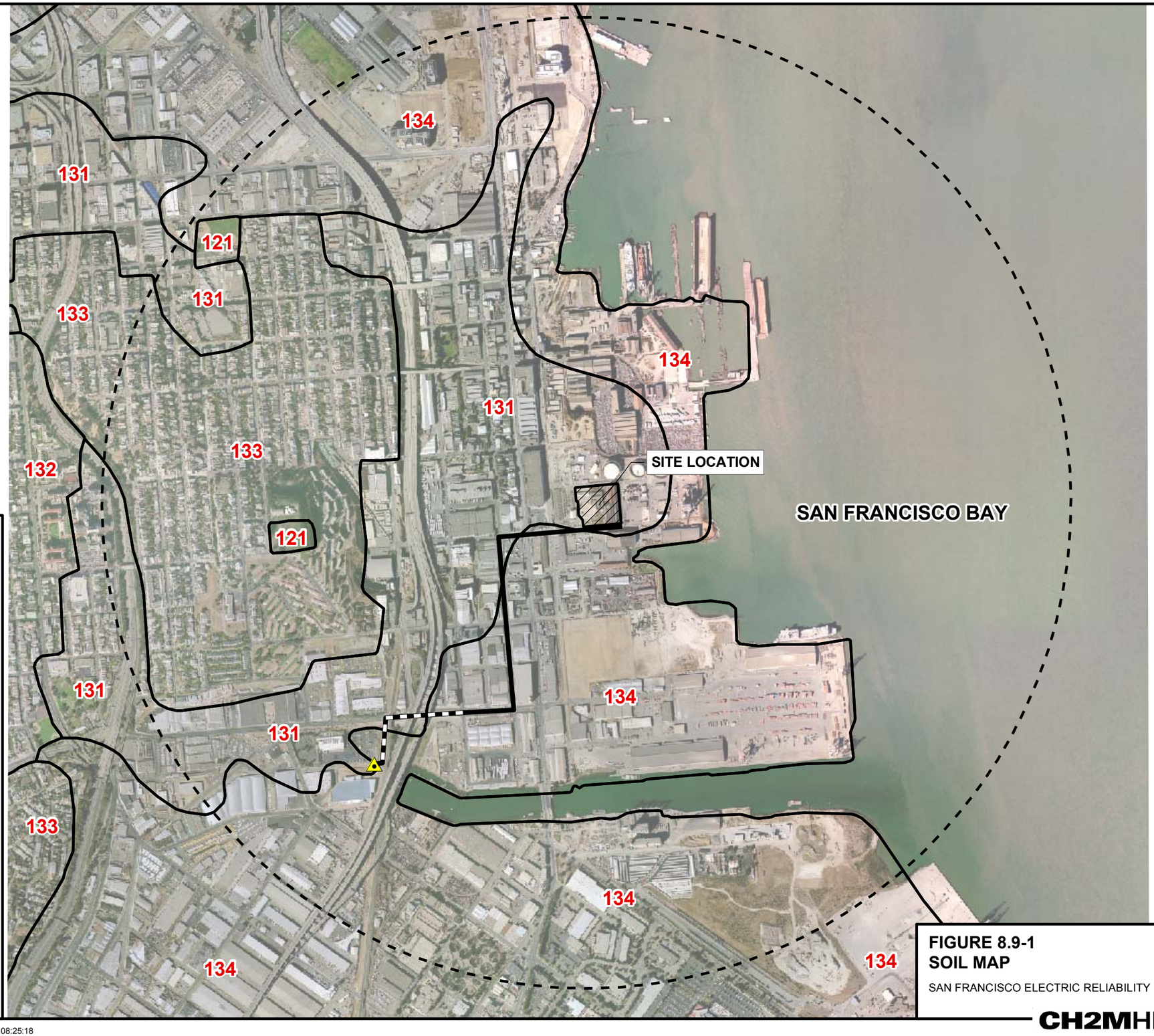

LEGEND

- 121 — Orthents, cut and fill, 0 to 15 percent slopes
- 131 — [131] - Urban land, 0 to 30 percent slopes
- 132 — [132] - Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes
- 133 — [133] - Urban land-Orthents, cut and fill complex, 5 to 75 percent slopes
- 134 — [134] - Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes
- PUMP STATION
- PROCESS WATER SUPPLY
- COLLECTION BOX
- SITE LOCATION
- 1-MILE BUFFER

N

0 1,100 Feet

Source:
1. Base map is from aerial photograph, 2002 from AIRPHOTO, USA.
2. Soil mapping units are from Natural Resource Conservation Service (NRCS), 1991.

FIGURE 8.9-1
SOIL MAP

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

CH2MHILL

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