7.9 SOILS

This section describes the environmental effects of the construction and operation of the project on soils in accordance with California Energy Commission (CEC) requirements. Impacts are assessed for the site of the proposed new generation project, water supply/waste water discharge pipeline route (referred to as the linear feature) and a satellite wastewater treatment facility. Impacts to agricultural systems are discussed in Section 7.4, Land Use and Agriculture.

Section 7.9.1 provides a description of the existing environment that may be affected. Section 7.9.2 identifies environmental impacts from development of the project, and Section 7.9.3 presents possible mitigation measures. Section 7.9.4 presents the laws, ordinances, regulations and standards (LORS) applicable to soils. Section 7.9.5 describes the agencies involved and provides agency contacts, and Section 7.9.6 describes required permits.

7.9.1 Affected Environment

Contra Costa County is in northern California east of San Francisco. Eastern Contra Costa County and the City of Antioch are approximately 35 miles east of San Francisco. The Contra Costa Power Plant (CCPP) site is approximately 114-acres and the proposed Marsh Landing Generating Station (MLGS) site encompasses approximately 27 acres on the northwestern portion of the CCPP site. All construction and operation activities will occur within the CCPP site, except the new gas supply and water supply/wastewater discharge pipelines. The gas supply pipeline will be approximately 2,100 feet long and will cross the MLGS site, the CCPP, and the adjacent PG&E property. The water supply and wastewater discharge pipelines will each be approximately 4,600 feet long from the edge of the MLGS boundary to the Delta Diablo Sanitation District (DDSD) Bridgehead Lift Station on Bridgehead Road. The project also includes a satellite wastewater treatment facility at DDSD's Bridgehead Lift Station. Construction parking, laydown and office areas totaling approximately 14 acres will all be located on the CCPP site (but outside the MLGS boundary), as shown on Figure 2.7-5. All construction parking and laydown areas are void of vegetation, previously disturbed and graded, compacted, or paved for existing industrial uses.

The CCPP site has been historically used as a power plant since 1952 and is surrounded by other industrial and commercial uses. Within one mile of the project site there are also several sites used for agricultural purposes, primarily vineyards (see Section 7.4, Land Use and Agriculture, for a more detailed discussion of land uses in the vicinity of the project).

The Natural Resources Conservation Service (NRCS) maps the locations and properties of soils. Soils surveys for Contra Costa and Sacramento Counties are available through an online mapping service, Web Soil Survey 2.0 (NRCS, 2007). Based on information gathered from NRCS, soil types at the project site and in the project vicinity are described below and shown in Figure 7.9-1.

7.9.1.1 Soil Types Affected

Soil types in the vicinity of the project site are shown on Figure 7.9-1 and described in Table 7.9-1. Following is a description of the map units identified within the site (NRCS, 2007).

Project Site, Linear Facilities and Bridgehead Lift Station

Map Unit DaC – Delhi Sand. Delhi Sands cover most of the project site and surrounding area (including the areas of the proposed water lines and treatment facility at Bridgehead Lift Station). Slopes are 2 to 9 percent. This soil type is typically associated with flood plains, terraces and alluvial fans. The soil material consists of eolian deposits derived from igneous and sedimentary rock. Roots can penetrate to a depth of 60 inches or greater and the soil is somewhat excessively well drained, available water to a

depth of 60 inches is low. There is no zone of water saturation within a depth of 72 inches, therefore the soil is not flooded, not ponded and does not meet hydric criteria. Shrink-swell potential is low. Organic matter content in the surface layer is about 1 percent.

Map Unit Ub – Urban Land. Urban Land is a miscellaneous classification used to denote areas of developed land. Such areas have little or no soil material and support little or no vegetation. The proposed gas interconnection line will be constructed through areas designated as Urban Land.

Surrounding Area

The surrounding area within a mile radius consists of a variety of soil types, most characteristic of alluvial deposits, floodplains and wetlands. In addition to Delhi Sands (described above), the following soil types are within the project vicinity.

Contra Costa County

Many of the soils found in the vicinity of the project area in Contra Costa County are hydric soils associated with the floodplains and wetlands adjacent to the San Joaquin River. Delhi Sand and Zamora Silty Clay Loam are the exceptions. The Delhi Sand is present in most of the project area.

Map Unit Fc – Fluvaquents. This soil component is commonly found on river channels and sloughs. The materials consist of sandstone and shale sediment deposits. Slopes are 0 to 2 percent. Roots can penetrate to a depth of 60 inches or greater. Water availability to a depth of 60 inches is very low. There is no zone of water saturation within a depth of 72 inches. These soils are very poorly drained and frequently flooded but not ponded. Available shrink-swell potential is low. This soil meets hydric criteria.

Map Unit Ja – Joice Muck. This soil component is found in salt marshes, consisting primarily organic material. Slopes are 0 to 1 percent. Roots can penetrate 60 inches or greater. These soils are very poorly drained, occasionally flooded and frequently ponded. The zone of water saturation is at 24 inches. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches year round is moderate. Shrink-swell potential is low. This soil meets hydric criteria.

Map Unit Se – Shima Muck. This soil is found in marshes, and consists primarily of organic material that is very poorly drained. Slopes are 0 to 1 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is rarely flooded and is not ponded. The zone of water saturation is at 36 inches year-round. This soil meets hydric criteria.

Map Unit So – Sycamore Silty Clay Loam. This soil is found on floodplains and consists of alluvium derived from sedimentary rocks that is poorly drained. Slopes are 0 to 2 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded and is not ponded. The zone of water saturation is at 50 inches year round. This soil meets hydric criteria.

Map Unit W – Water. The water is mapped as a miscellaneous area that has little or no soil material and supports little or no vegetation.

Map Unit ZaA – Zamora Silty Clay Loam. This soil is present on terraces and alluvial fans, consisting of soils derived from sedimentary rock that are well drained. Slopes are 0 to 2 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded and is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric criteria.

Sacramento County

Many of the soil types in Sacramento County in the vicinity of the project are hydric soils associated with the floodplains, marshes, and wetlands adjacent to and on the San Joaquin River. Several areas are characterized by artificial fill (denoted by Map Unit 244).

Map Unit 150 – Fluvaquents. This soil component is found on floodplains, bars, tidal marshes, and delta plains, and consists of sandstone and shale sediment deposits that are very poorly drained. Slopes are 0 to 2 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. While this soil is frequently flooded, it is not ponded. This soil meets hydric criteria.

Map Unit 155 – Gazwell Mucky Clay. This soil component is found on delta plains and backswamps, consisting of alluvium that is very poorly drained. Slopes are 0 to 2 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is rarely flooded and is not ponded. This soil meets hydric criteria.

Map Unit 177 – Medisaprists. This soil is found on delta plains and tidal marshes consisting of grassy organic material that is very poorly drained. Slopes are 0 to 2 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded but is not ponded. This soil meets hydric criteria.

Map Units 200 and 201 – Rindge Muck and Rindge Mucky Silt Loam. This soil is found on marshes and delta plains consists of grassy organic material that is very poorly drained. Slopes are 0 to 2 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is rarely flooded and is not ponded. It meets hydric criteria. It has a very slightly saline horizon within 30 inches of the soil surface.

Map Unit 244 – Xeropsamments. This soil is characteristic of valleys, floodplains and spoil piles consisting of mine spoil or earthy fill that is somewhat excessively well drained. Slopes are 1 to 15 percent. Roots can penetrate to approximately 60 inches or greater. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded and is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric criteria.

Map Unit 247 – Water. The water is mapped as a miscellaneous area that has little or no soil material and supports little or no vegetation.

7.9.1.2 Soil Contamination

As discussed further in Section 7.13, Waste Management and Appendix R, Phase 1 Environmental Site Assessment (ESA), there are areas of potential soil contamination on the project site. Soils may be contaminated underneath the fuel storage tanks, around an in-use septic tank, adjacent to areas used to store and apply paint and underneath a former construction debris pile as shown on Figure 3 of Appendix R. The Phase 1 ESA recommends additional soil sampling and remediation of contaminated soil prior to construction of the new facility. During equipment dismantling and removal, all machinery, tanks, pipelines, and appurtenances will be inspected for possible points of release. If release points are identified, further investigation will be performed to determine whether a release has occurred. If it is determined that a release did occur, the impacted area will be investigated and notifications will be made to appropriate parties. Where necessary, materials that have been impacted by the release will be collected and analyzed to determine further action. All impacted materials will be removed and disposed of in licensed landfills.

7.9.2 Environmental Consequences

Significance criteria have been selected based on California Environmental Quality Act (CEQA) Guidelines as well as performance standards adopted by responsible agencies. An impact may be considered significant from a soil standpoint if the project results in substantial soil erosion or loss of topsoil. Impacts to soil-vegetation systems and agriculture are discussed in Section 7.4, Land Use.

7.9.2.1 Construction Impacts

It is expected that the entire 27-acre project site will be disturbed by construction activities associated with the MLGS. The project area is currently used as an industrial facility and soil is currently compacted and sparsely vegetated. Existing structures (e.g., asphalt covered earthen berms, fuel oil storage tanks, various other storage buildings and piping) will be demolished during construction. The project site will then be graded to provide a level surface for the construction of the new generating units. In addition, approximately 1.7 acres at the Bridgehead Lift Station (BLS) will be disturbed to construct water treatment facilities, as discussed in Chapter 6, Water Supply. Water, wastewater and gas transmission lines will be constructed underground using open trench methods from the MLGS to the BLS and gas transmission Line 400. Each of these construction activities has the potential to affect soil resources and is discussed further below. Best management practices (BMPs) will be implemented as required by the state and local construction permits (see Sections 7.9.5 and 7.9.7) that will reduce construction impacts. Therefore impacts to soils resources from construction would be less than significant.

As described above, the areas designated for construction laydown, parking, and offices are void of vegetation, previously disturbed and graded, compacted or paved for existing industrial uses. Construction of the MLGS will involve laying 4 inches of crushed stone and would not result in impacts to soil resources through erosion.

The Revised Universal Soil Loss Equation is typically used to quantify water-induced soil loss in agricultural areas. The Revised Universal Soil Loss Equation was used to estimate the potential amount of soil erosion from the project site for construction conditions. The existing plant site is characterized as heavy industrial land. Based on an approximately three-year construction period (33 months), the estimated soil loss for the 27-acre portion of the project site and the 1.7-acre portion of the Bridgehead Lift Station is approximately 76 tons. The Revised Universal Soil Loss Equation uses the worst-case factors. During construction, the project site and the construction laydown area would be disturbed. At that time, the area would be void of vegetation/impervious cover and have the highest potential for erosion. Soil erosion would be reduced through best management practices, which include watering to suppress fugitive dust, providing straw bales and silt fences, and limiting exposed areas.

Construction of the project could result in soil compaction due to the erection of foundations and paving. Soil compaction could also result from vehicle traffic along temporary access roads and in the equipment staging area. Compaction densifies the soil, thereby reducing pore space and impeding water and gas movement through this medium, which can result in increased runoff, erosion, and sedimentation. The project area is currently used as an industrial facility and soil is currently compacted and sparsely vegetated. The incorporation of BMPs during project construction will result in less-than-significant impacts from soil compaction.

Grading associated with the plant construction will primarily remove the berms that surround the fuel oil tanks. The Site Grading Plan and Drainage Plan is shown on Figure 2.6-2. As currently estimated, approximately 80,060 cubic yards (cy) of material will be removed. The majority of this material will be reused on site and approximately 8,010 cy will be hauled off site and disposed. Keller Canyon Landfill in Pittsburg, California is the expected site for disposal of noncontaminated soil during final design of the project's drainage plan, the intention is to balance quantities of cut and fill so off site disposal will not be

necessary. The Bridgehead Lift Station site is generally flat and devoid of vegetation, and therefore construction of the wastewater treatment facility will require minimal, if any, grading and clearing.

Three pipelines will be constructed as a part of the project: a wastewater line, a recycled water line, and a gas transmission line. The water lines will be 10-inch pipelines and the gas pipeline will be 12 inches in diameter.

All the pipelines will be constructed using open trench methods. The trench is expected to be no greater than 4 feet deep and 4 feet wide. Soil will be removed from the trench and used as backfill. Disposal is expected to be minimal. All the areas designated for pipeline construction are previously disturbed industrial areas or rights-of-way. Construction of the pipelines is considered in the overall construction schedule presented in Figure 2.7-1.

Prior to construction a grading plan will be incorporated into the building permit application to either the City of Antioch or Contra Costa County for construction of the proposed facilities. The grading plan will show existing and proposed features of the site (slopes, elevation, locations of cut and fill) as well as erosion and sediment control measures to be incorporated during construction.

During construction of all project components, the potential for erosion would be greater than for existing conditions but will be managed to minimize impacts and therefore, impacts from soil erosion are expected to be less than significant.

As discussed in Section 7.14, Water Resources, the project will comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activity and will prepare a stormwater pollution prevention plan (SWPPP) prior to construction. The Erosion and Sediment Control Plan identifies erosion control measures that could be implemented during construction of the project.

7.9.2.2 Operations Impacts

Plant operations would not result in impacts to the soil from erosion or compaction. When construction is complete, the project site will either be covered with facilities or paved; therefore, there would be no potential for soil erosion. The water and gas lines will be underground and therefore would not pose soil erosion risks. Routine vehicle traffic during plant operation will be limited to existing roads, all of which are paved, and standard operational activities would not involve the disruption of soil.

7.9.2.3 Cumulative Impacts

Past and current development in the project vicinity has not resulted in a cumulatively significant impact to soils. Relevant future projects identified in Section 7.4.3 would also not be expected to result in a cumulatively significant impact to soils. By definition, the project would not therefore contribute to a cumulatively significant impact, and cumulative impacts of the project would be less than significant.

7.9.3 Mitigation Measures

This section discusses mitigation measures proposed by the Applicant that will be implemented to reduce project-related impacts to soil resources. To minimize soil erosion and sedimentation, best management practices will be used during construction activities. Temporary erosion control measures will be required during the construction period to help maintain water quality, protect the site and surrounding property from erosion damage, and prevent accelerated soil erosion or dust generation. These measures will be in place before construction begins and will be removed after completion.

SOIL-1 Temporary Erosion Control Measures

Typically, temporary erosion control measures include revegetation, slope stabilizers, dust suppression, construction of berms and ditches, and sediment barriers. Vegetation is the most efficient form of erosion control because it stabilizes the soil and maintains the landscape; however, it would not be used due to the industrial environment.

During construction of the project, dust erosion control measures will be used to minimize the windblown erosion of soil from the project site. Clean water will be sprayed on the soil in construction areas to suppress dust.

Sediment barriers, such as straw bales or silt fences, slow runoff and trap sediment. They are usually placed below the disturbed area. Sediment barriers are often placed around sensitive areas, such as wetlands or creeks, to prevent contamination by sediment-laden water. Barriers will be placed around the site boundary to prevent sediment from leaving the site. Because the project site is relatively level, standard surface erosion control techniques should be effective. Soil stockpiles generated during construction will be covered and protected from rainfall if left on site for long periods.

7.9.4 Laws, Ordinances, Regulations and Standards

The project will be constructed and operated in accordance with all LORS applicable to soil resources. Federal, state, and local LORS applicable to soils are discussed below and summarized in Table 7.9-2.

7.9.4.1 Federal

The Clean Water Act (CWA) empowers the U.S. EPA with regulation of wastewater and stormwater discharges into surface waters by using NPDES permits and pretreatment standards. At the state level, these permits are issued by the Regional Water Quality Control Board (RWQCB), but the U.S. EPA may retain jurisdiction at its discretion. The CWA's primary effect on the project site is with respect to the control of soil erosion during construction.

7.9.4.2 State

The Porter-Cologne Water Quality Control Act of 1972 is the state equivalent of the federal CWA, and its effect on the project site would be similar. The Central Valley RWQCB has jurisdiction of the project area. The California Environmental Quality Act requires an evaluation of impacts by the project if construction will cause substantial flooding, soil erosion, or sedimentation. Several plans, which include a SWPPP, a soil erosion control plan, and a construction grading plan, will be prepared in accordance with local and regional guidelines.

7.9.4.3 Local

Contra Costa County zoning code contains requirements for new development projects requiring a building permit including a Drainage Plan. The City of Antioch's zoning code also outlines requirements for building permits for new development projects including the submission and approval of a Grading Plan for new development projects.

7.9.5 Involved Agencies and Agency Contacts

Several agencies will be monitoring the project and are likely to be involved. Table 7.9-3 outlines the agencies that will be concerned with soil resource issues. The City of Antioch and Contra Costa County work together on stormwater management issues and programs including soil erosion control programs.

Contra Costa County Clean Water Program has developed stormwater management BMPs related to earthmoving activities that the City of Antioch implements.

7.9.6 Permits Required and Permit Schedule

Permits to protect soil resources are summarized in Table 7.9-4.

7.9.7 References

NRCS (Natural Resources Conservation Service). 2007. Web Soil Survey 2.0, Natural Cooperative Soil Survey. Accessed online at: http://websoilsurvey.nrcs.usda.gov/app/. Accessed December 19, 2007.

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Table 7.9-1
Soil Mapping Units – Surrounding MLGS Description and Properties

Map Symbol	Texture	Slope (%)	Unit Thickness (inches)	Drainage	USCS Classification[a]	Permeability	Wind Erodibility (tons/acre/year)[b]	Hydrologic Soil Group	Storie Index (approx.)[c]	Land Capability[d]	pH	Salinity (Mmhos per cm at 25°C)[e]	Parent Material
DaC	sand	2-9	0-60	Somewhat excessive	SW-SM	13.03937	180	A	Grade 3-Fair	6e/3s	6.1-7.8	0.0-2.0	Eolian deposits derived from igneous and sedimentary rock
Fc	variable	0-2	0-60	Very poor	–	–	–	–		8w/8w	–	–	Alluvium derived from sandstone and shale
Ja	muck	0-1	0-60	Very poor	PT	13.03937	134	D		7w/7w	4.5-6.0	16.0-48.0	Organic material
Se	muck	0-1	0-60	Very poor	PT	16.12579	134	D		4w/3w	4.5-5.5	0.0-4.0	Organic material
So	Silty clay loam	0-2	0-60	poor	CL	0.564789	0	C	Grade 3-fair	4c/1	6.6-8.4	0-2.0	Alluvium derived from sedimentary rock
Ub	–	–	–	–	–	–	–	–	–	8/8	–	–	–
W	–	–	–	–	–	–	–	–	–	–	–	–	–
ZaA	Silty clay loam	0-2	0-72	Well drained	CL	0.314249	38	B	Grade 1-excellent	4c/1	6.1-8.4	0-2.0	Alluvium derived from sedimentary rock
150	Variable	0-2	0-60	very poor	–	–		D		7w/1	–	–	Alluvium
155	Mucky clay	0-2	0-60	very poor	OH	6.262328	86	B	Grade 5-Very poor	3w/3w	4.5-6.0	0	Alluvium
177	muck	0-2	0-60	very poor	PT	13.03937	134	D		6w/-	4.5-6.5	0	Grassy organic material
200	muck	0-2	0-60	very poor	PT	13.03937	134	A		3w/3w	4.5-6.5	2.0-4.0	Grassy organic material
201	Mucky silt loam	0-2	0-60	very poor	ML	11.07004	86	A		3w/3w	4.5-7.3	2.0-4.0	Grassy organic material
244	variable	1-15	0-60	Somewhat excessive	–	–	–	A		6e/4s	–	–	Mine spoil or earthy fill

Source: USDA, Natural Resources Conservation Service, Web Soil Surveys 2.0, 2007.

Notes:

a USCS = Unified Soil Classification System

b The wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

c The Storie Index is a soil rating based on soil properties that govern a soil's potential for cultivated agriculture in California. For simplification, Storie Index ratings have been combined into six grades follows: Grade 1 (excellent), 100 to 80; grade 2 (good), 79 to 60; grade 3 (fair), 59 to 40; grade 4 (poor), 39 to 20; grade 5 (very poor), 19 to 10; and grade 6 (nonagricultural), less than 10.

d Land Capability – An indication of the suitability of soils for most kinds of field crops. Capability classes are 1 through 8. Subclasses are letters e, w, s, or c. First index refers to non-irrigated land and second index number refers to irrigated land. Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

- Class 1 soils have slight limitations that restrict their use.
- Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.
- Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
- Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
- Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
- Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

e Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils.

Table 7.9-2
Applicable Soils Laws, Ordinances, Regulations, and Standards

Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
Federal			
Clean Water Act	Federal regulation of wastewater and stormwater. Controls erosion of soil and disruption or displacement of surface soil.	U.S. EPA, RWQCB	7.9.5, 7.14.5
State			
Porter-Cologne Water Quality Act	State regulation of soil erosion during construction	RWQCB	7.9.5, 7.14.5
California Environmental Quality Act	Requires evaluation of impacts of project on soils.	CEC	7.9.5
Local			
City of Antioch Zoning Code	Requires grading plans to be shown on site plans. Approval required for building permit issuance.	City of Antioch, Engineering and Development Services Division and Building Division	7.9.5
Contra Costa County Ordinance No. 2007-01	Drainage Plan	Contra Costa County, Building Department	7.9.5

Notes:

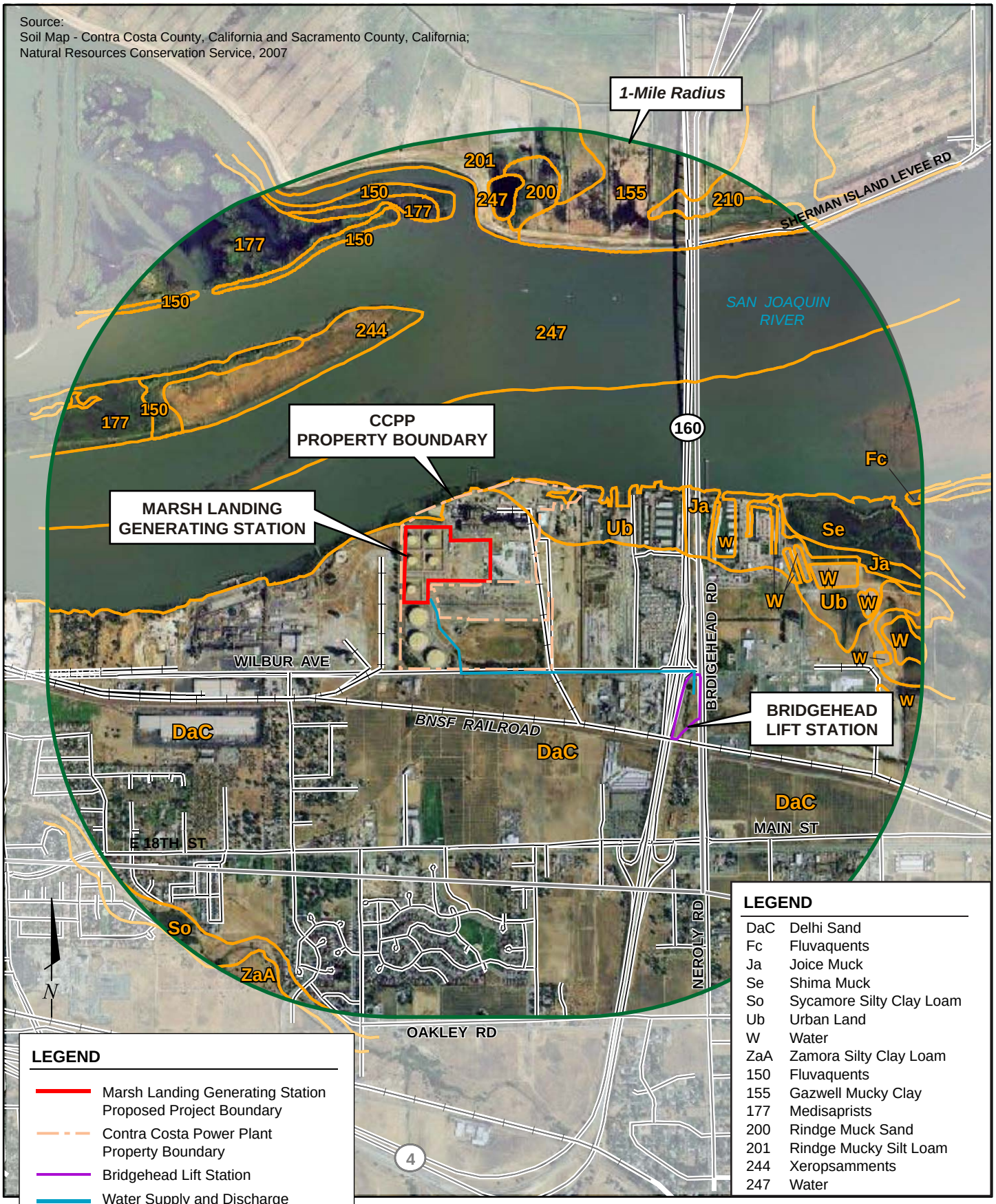
CBC = California Buildings Standards Code
CEC = California Energy Commission
RWQCB = Regional Water Quality Control Board
U.S. EPA = U.S. Environmental Protection Agency

Table 7.9-3
Involved Agencies and Agency Contacts

Issue	Agency/Address	Contact/Title	Telephone
Soil erosion	Central Valley Regional Water Quality Control Board 11020 Sun Center Drive #200, Rancho Cordova, CA 95670	Nora Clemenza	(916) 464-4647
Stormwater runoff and erosion control	Contra Costa County Clean Water Program, 255 Glacier Drive, Martinez, CA 94553	Donald Freitas, Building Official, Building and Safety Department	(925) 313-2360
Grading Plans	City of Antioch, Engineering and Development Services Division P.O. Box 5007, Antioch, CA 94531	Harold Jirousky, Engineering and Development Services Division	(925) 779-7035
Stormwater runoff and erosion control	City of Antioch, Public Works Department, Clean Water Program (NPDES)	Phil Barlow, Superintendent	(925) 779-6952

Table 7.9-4
Permits Required

Responsible Agency	Permit/Approval	Schedule
Central Valley Regional Water Quality Control Board (CVRWQCB)	General Construction Activity Storm Water Permit	At least 30 days prior to construction, Applicant must submit Notice of Intent (NOI) to CVRWQCB.
City of Antioch - Building Division – Processes Building Permits	Building Permit	Applicant must obtain a Building Permit, which includes a grading plan. Initial review of the building permit application typically takes 8 to 12 weeks.
Contra Costa County – Building Inspection Department	Building Permit including drainage plan	Applicant must obtain a Building Permit, which includes a drainage plan. Review time typically takes 2 to 4 weeks.



SOIL MAPPING UNITS IN THE VICINITY OF THE MARSH LANDING GENERATING STATION

Marsh Landing Generating Station
May 2008 — Mirant Marsh Landing, LLC
28067344 — Contra Costa County, California

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FIGURE 7.9-1

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