6.2 AGRICULTURE AND SOILS

This section presents a discussion of potential agriculture and soils issues associated with the VV2 Project. Applicable LORS and of existing conditions at the Project site and along its linear features are discussed. Baseline agriculture and soils conditions are discussed, potential environmental impacts are identified, and mitigation measures are identified to minimize soils and agricultural impacts during Project construction and operation.

6.2.1 LORS Compliance

This section summarizes the agriculture and soils-related LORS that are expected to apply to the VV2 Project. These LORS are summarized in Table 6.2-1.

Table 6.2-1
Applicable LORS

LORS	Applicability	Where Discussed in AFC
Federal:		
Farmland Protection Policy Act	The Farmland Protection Policy Act requires the assessment of the project impacts on farmlands	Sections 6.2.1 and 6.2.4
State:		
California Porter Cologne Water Quality Act	A National Pollution Discharge Elimination System (NPDES) California General Activities Construction Permit is necessary if an area greater than one acre will be disturbed. Industrial facilities (including power plants) with potential to affect storm water discharges are required to obtain an NPDES permit during operation (Industrial Storm Water General Permit)	Sections 6.2.1 and 6.2.4
Local:		
City of Victorville Grading Permit, Ordinance 1500	The City of Victorville requires a grading permit for earthmoving activities exceeding 50 cubic yards	Sections 6.2.1 and 6.2.4

6.2.1.1 Federal LORS

The Farmland Protection Policy Act of 1981 was enacted to identify and protect the nation's farmlands. There are Prime Farmlands located approximately 0.6-mile east of the VV2 plant site and also approximately 0.4 mile east of a portion of Segment 1 of the transmission line route (see Figure 6.2-1). Prime Farmland is defined as land with the best combination of physical and chemical characteristics able to sustain long term production of agricultural crops (California Department of Conservation, 1998). There are no Farmlands of Statewide Importance or Unique Farmlands within one mile of the VV2 Project. Farmland of Statewide Importance is defined as land with a good combination of physical and chemical characteristics for agricultural production, having only minor shortcomings, such as less ability to store soil moisture, compared to Prime Farmland; Unique Farmland is defined as land used for the production of the State's major crops on soils not qualifying for Prime or Statewide Importance (California Department of Conservation, 1998).

6.2.1.2 State LORS

A disturbance of greater than one acre requires a California General Permit for Storm Water Discharges Associated with Construction Activity and thus the VV2 Project will require an NPDES Permit-California General Construction Activity Storm Water Permit prior to discharge of storm water facilities (also see Section 6.17, Water Resources). A key feature of the requirements under this permit is the management of erosion and soil movement. Industrial facilities in California (such as the proposed VV2 Project), with the potential to impact storm water discharges during operations are required to obtain an NPDES Permit- Industrial Storm Water General Permit (SWRCB Order 97-03 DWQ) to ensure proper management and reduction of potential pollutants in runoff..

6.2.1.3 Local LORS

The City of Victorville requires a grading permit for earthmoving activities exceeding 50 cubic yards (Ordinance 1500).

6.2.1.4 Involved Agencies and Local Contacts

Table 6.2-2 lists the agencies and agency contacts for obtaining necessary permits.

Table 6.2-2
Agencies and Agency Contacts

Agency	Contact	Permit/Issue
Lanhontan Regional Water Quality Control Board Victorville Office 14440 Civic Drive, Suite 200 Victorville, CA 92392	Douglas Fay (760)241-6583	NPDES Permit governing Storm Water Discharges Associated with Construction Activity for any disturbance of greater than 1 acre and for industrial activities
City of Victorville Building Department 14343 Civic Drive Victorville, CA 92392	Scott Webb Assistant Planner (760) 955-5101 (Main Office)	Grading Permit for earthmoving activities exceeding 50 cubic yards

6.2.1.5 Required Permit and Permit Schedule

Table 6.2-3 identifies required soils-related permits.

Table 6.2-3
Permits Required and Permit Schedule

Permit/Approval	Schedule
California General Permit for Storm Water Discharge Associated with Construction	A Notice of Intent (NOI) will be filed 30 days prior to the start of construction activities.
California General Permit for Storm Water Discharge Associated with Industrial Activities	A Notice of Intent (NOI) will be filed the month prior to Project startup
Grading Permit	A grading plan and permit application will be filed 30 days prior to the start of construction activities.

6.2.2 Affected Environment

This subsection discusses baseline agriculture and soils conditions in the Project region and at the plant site and along Project linear facilities routes.

6.2.2.1 Regional Setting

The VV2 Project is located within the Mojave River area in the southwestern part of the Mojave Desert, in San Bernardino County, California. There are two physiographic

regions in the Mojave River Area, the San Gabriel Mountains region and the San Bernardino region. The Project is located in the San Bernardino Region. Characteristic landforms in the Mojave Desert include broad alluvial fans, old dissected terraces, playas, the Mojave River and its flood plain, and scattered mountains.

The Mojave River originates where the West Fork of the Mojave River joins the Deep Creek River. The river flows northward and then eastward past the City of Barstow. A flood plain 0.5 to 1.0-mile wide flanks the Mojave River along most of its course.

Natural resources in the Mojave River Area include soils, scenic resources, various mineral deposits, plants, and wild life communities. Major minerals extracted in this area include gold, silver, feldspar, uranium, copper, iron, tungsten, turquoise, zeolite, barite, and clay. Limestone, sand, and gravel for cement and aggregate used for road construction are found at several locations throughout the area.

Some of the oldest soils in the Mojave Desert formed during the Pleistocene. These soils are exposed on dissected terraces south of Barstow, Daggett, and Helendale, near Hodge, and on Baldy Mesa. Soils on mountainside areas are moderately steep to steep and gently sloping to moderately sloping in valleys (U.S. Department of Agriculture, 1986). Soils on the flood plains of the Mojave River are nearly level. Soils in the vicinity of the VV2 Project were formed from parent material of mixed alluvium derived from a variety of rock types, but dominated by granitic material.

Land classified as Grazing Land comprises approximately 70 percent of the agricultural resources within the boundaries of the soil survey of the Mojave River Area (California Department of Conservation, 1998). Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance occur in the vicinity of the Mojave River and make up approximately five percent of the land in the study area.

Climate in the Mojave Desert is arid and hot. Total annual precipitation in the Victorville area is about five inches (U.S. Department of Agriculture, 1986). In general, winds prevail from the west; however, there are strong, dry winds from varying directions throughout the year. Wind speeds are highest in the summer. According to the U.S. Department of Agriculture (1986) wind speeds of more that 12 miles per hours have the ability to lift and carry sand particles. Wind speeds exceeding 12 miles per hour are most common from March through June and occur on average 22 percent of the year at SCLA (formerly George Air Force Base), in Victorville (U.S. Department of Agriculture, 1986). The most erosive winds at SCLA generally come from the south and west.

Agricultural Resources. Prime Farmland, Farmland of Statewide Importance, and Unique Farmlands in the vicinity of the Project are depicted on Figure 6.2-1. (Figure 6.2-1 does not depict the southern portions of the transmission line route because there are no important agricultural lands near Segments 2 or 3 of the route.) The VV2 Project site, offsite pipeline routes, and the transmission line corridor are located on areas mapped by the State as Grazing Land and do not encroach on Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. The nearest Prime Farmland and Farmland of Statewide Importance to the Project area are approximately 0.6 mile east and 1.1 miles northeast of the plant site, respectively, and there also is an area of Prime Farmland approximately 0.4 mile east of a portion of Segment 1 of the Project transmission line route. The nearest Unique Farmland is located on the east side of the Mojave River approximately 0.4 mile east of a portion of Segment 1 of the Project transmission line route on the east side of the Mojave River.

Soils Resources. The soils at the Project site consist of very deep, moderately well to excessively drained soils on low river terraces and alluvial deposits. Surface soils typically consist of sandy loam and the substratum is sandy loam and thin strata of loamy sand, sand, and clay loam (U. S. Department of Agriculture, 1986). The soils are within the Villa-Riverwash-Victorville soil association. Specific soil types, their depths, texture, permeability, drainage, erosion potential and land capacity rating are described below and in Table 6.2-4. Figure 6.2-2 shows a soil map of the Project site.

6.2.2.2 Plant Site

The Project site is situated on the surface of a large alluvial fan. The ground surface in the region of the Project and offsite linear features generally slopes gently downward to the northeast direction at a gradient of less than two percent.

Drainage at the Project site occurs as sheet flow across the property. Much of the surface water infiltrates into the sandy alluvium. If surface runoff volumes are sufficient, storm water eventually drains into the Mojave River channel, located approximately 0.5 mile east of the VV2 Project site. Relatively small areas in the southern portion of the Project site have been previously disturbed and partially graded.

Soils at the VV2 Project site include the Bryman loamy fine sand, the Cajon sand, and the Haplargrids-Calciorthids complex. Figure 6.2-2 presents the soil types in the Project area, and Table 6.2-4 presents pertinent data concerning the soils. Both the figure and table are based on data from the U.S. Department of Agriculture's Soil Conservation Service Soil Survey of San Bernardino County (1986). The properties listed in the table include the engineering characteristics and the potential for wind and water erosion of the soil types.

The effect of power plant emissions on surrounding soil-vegetation systems is discussed in Section 6.3, Air Quality.

The Project site is underlain by Bryman loamy fine sand on the northern and western portion of the project area and by Cajon sand on the southeast. The Bryman soil is an alluvial soil that is deep and well drained. Typically the soil surface is pale brown and light yellowish brown loamy fine sand about nine inches thick. On the western portion of the Project site, the upper part of the subsoil is brown sandy loam about 3 inches thick over reddish brown sandy clay loam about 20 inches thick, followed by pink sandy loam about 14 inches thick and the lower part is light brown loamy sand about 34 inches thick. In the northeastern portion of the site, the upper part of the subsoil is reddish brown sandy clay loam about 34 inches thick and the lower part is pink sandy loam to a depth of 60 inches or more. Permeability of the soil is moderately slow but, because of the shallow slopes (10 to 13 percent) of the Bryman soils, the hazard from water erosion is considered slight to moderate. The hazard of wind erosion of disturbed areas is high. The soil is within Capability Subclass VIIe, which means it has very severe limitations that make it unsuitable for cultivation (U.S. Department of Agriculture, 1986).

The Cajon sand is an alluvial soil that is deep and excessively drained. Typically the soil surface is very pale brown sand and gravelly sand about 6 inches thick. The subsoil is very pale brown sand in the upper 19 to 36 inches and gravelly sand to a depth of 60 inches or more. Permeability of the soil is rapid and the hazard from water erosion slight to moderate. The hazard of wind erosion of disturbed areas is high. The soil is within Capability Subclass VIIe, which means it has very severe limitations that make it unsuitable for cultivation (U.S. Department of Agriculture, 1986).

A 2006 geotechnical investigation of the VV2 Project site by Kleinfelder, Inc. (see Appendix C of the AFC) investigated subsurface conditions by excavating 21 test borings from 21 to 76.5 feet below ground surface (Kleinfelder, 2006). Laboratory testing of representative soil materials was conducted to assess corrosivity characteristics of the subsurface soils. The results of Kleinfelder's corrosivity testing indicated a potential for soil corrosivity, but this issue will be addressed in the Project design process to ensure that Project structures are appropriately protected against corrosion damage.

6.2.2.3 Linear Facilities

Offsite Pipeline Routes. The offsite pipeline routes are underlain by the Bryman loamy fine sand Cajon sand, Haplargid/Calciorthids Complex, and Villa sand (Figure 6.2-2). These soils are primarily silty sands with lesser amounts of sand and clay. They are all deep soils with rapid (Cajon soils) to moderate or moderately slow permeability, a slight

(Bryman soils) to high wind erosion hazard, and a slight (Villa soils), slight or moderate (Cajon sands) and moderate or high (Haplargid/Calciorthids soils) water erosion hazard. Cut slopes and trenches are typically not considered stable unless laid back or shored. The potential for shrink-swell (expansiveness) of the series is low. The characteristics of the soil series along the Offsite Pipeline Routes are summarized in Table 6.2-3 (U.S. Department of Agriculture, 1986).

Transmission Line Route. Soil types present along the offsite transmission line route segments from the VV2 Project site to the Lugo Substation are similar to the soils present at the Project site, but they include additional soil types: Bryman sands, Cajon sands, Haplargid/Calciorthids Complex, Helendale, Hesperia, Kimberlina, and Lavic sands, and Mohave Variant soils (Figure 6.2-2). These soils are primarily silty sands with lesser amounts of sand and clay. They are all deep soils with rapid to moderate or moderately slow permeability, a moderate to high wind erosion hazard, and a slight to high water erosion hazard. Cut slopes and trenches are typically not considered stable unless laid back or shored. The potential for shrink-swell (expansiveness) of the series is low to moderate. The characteristics of the soil series along the transmission line route are summarized in Table 6.2-2 (U.S. Department of Agriculture, 1986).

6.2.3 Environmental Impacts

Significance criteria were developed based on California Environmental Quality Act (CEQA) Guidelines and evaluated using professional judgment. Impacts would be considered significant if:

- Substantially increased wind or water-induced soil erosion occurred as result of Project construction or operation,
- Substantially increased sedimentation occurred in areas adjacent to construction areas,
- Prime Farmlands, Farmlands of Statewide Importance, or Unique Farmland was lost, or
- Construction activities were to occur in areas of high erosion susceptibility and the disturbed areas were left exposed and not properly stabilized.

6.2.3.1 Agricultural Resources

Project elements do not cover or encroach on Prime Farmland, Farmlands of Statewide importance, or Unique Farmland. Thus, there would be no impacts associated with conversion or curtailment of agricultural land use. The nearest Prime Farmlands are on the east side of the Mojave River approximately 0.6 mile away from the Project site, with another area of Prime Farmlands approximately 0.4 mile east of Segment 1 of the transmission line route. The nearest Farmlands of Statewide Importance and Unique

Farmlands are approximately 1.1 mile northeast of the Project site and approximately 0.4 mile away from Segment 1 of the transmission line route, respectively. Project impacts on agricultural resources will be less than significant.

6.2.3.2 Soils Resources

Plant Site. The soils at the VV2 site are subject to wind and water erosion during construction activities. Impacts associated with soil erosion include increased soil loss and increased sediment yields downstream from the disturbed areas. As shown in Table 6.2-3, soils affected by the proposed project mainly belong to Wind Erodibility Groups 1 and 2, which are indicated as highly erodible. Without implementation of mitigation measures, potential wind and water erosion from the two groups could be relatively high per acre per year of disturbed area for most of the soils (U.S. Department of Agricultural, 1986). During construction, erosion impacts could result from disturbance or stripping of soils in the area of the proposed facilities, laydown areas, and temporary roadways. With the implementation of mitigation measures as described below (erosion control and revegetation plan and construction phase Storm Water Pollution Prevention Plan [SWPPP]), soil erosion is expected to be minor and impacts less than significant. With the implementation of the operation phase SWPPP and associated monitoring program, soil erosion would be expected to be minor during Project operation.

Offsite Pipeline Routes. Soils along the offsite pipeline routes are similar to those found at the plant site; therefore, disturbed soils along these areas are also subject to wind and water erosion during construction activities. Implementing mitigation measures will limit soil erosion during construction to minor levels. No impacts are expected during operations as the pipelines will be buried.

Transmission Line Route. During construction, disturbed soils along the transmission line route are subject to wind and water erosion and mitigation measures will be implemented to limit erosion and sedimentation, as described below in Section 6.2.4. Because the only soil disturbance during operation will be from periodic inspection and, when needed, maintenance activities, minimal erosion would be expected post-construction.

Table 6.2-3
Summary of Soil Properties

Soil Name and Map Number (Capability Class)	Depth (in)	USCS Index	Permeability (in/hr)	Soil Reaction (pH)	Shrink-Swell Potential	Erosion Factors		Wind Erodibility Group
						K	T	
Project Site								
Bryman, 105 (IIe-1 irr VIIe non)	0-9 9-43 43-60	SM SC, CL SM	2.0-6.0 0.2-0.6 2.0-6.0	7.4-8.4	Low Moderate Low	0.28 0.32 0.32	5	2
Bryman, 106 (IIe-1 irr VIIe non)	0-9 9-43 43-60	SM SC, CL SM	2.0-6.0 0.2-0.6 2.0-6.0	7.4-8.4	Low Moderate Low	0.28 0.32 0.32	5	2
Cajon, 113 (IIIe-1 irr VIIe non)	0-6 6-25 25-60	SM, SP-SM SM, SP-SM SM, SP-SM	6.0-20 6.0-20 6.0-20	7.4-8.4	Low Low Low	0.15 0.15 0.10	5	1
Cajon, 114 (VIIe non)	0-6 6-42 42-60	SM, SP-SM SM, SP-SM SM, SP-SM	6.0-20 6.0-20 6.0-20	7.4-8.4	Low Low Low	0.15 0.15 0.10	5	1

Table 6.2-3
Summary of Soil Properties

Soil Name and Map Number (Capability Class)	Depth (in)	USCS Index	Permeability (in/hr)	Soil Reaction (pH)	Shrink-Swell Potential	Erosion Factors		Wind Erodibility Group
						K	T	
Haplargids/ Calciorthids Complex, 130 (VIIe non)	Surface Sub-surface (6-20 in. thick) Lower Sub-surface (to depth in excess of 60 in.	SM, SP SC Caliche grades to SM, SP	Haplargids 0.2-2.0 Calciorthids 2.0-20	NA	NA	NA	NA	Moderate to High
Offsite Pipeline Routes								
Bryman, 105 (Iie-1 irr VIIe non)	0-9 9-43 43-60	SM SC, CL SM	2.0-6.0 0.2-0.6 2.0-6.0	7.4-8.4	Low Moderate Low	0.28 0.32 0.32	5	2
Cajon, 113 (IIIe-1 irr VIIe non)	0-6 6-25 25-60	SM, SP-SM SM, SP-SM SM, SP-SM	6.0-20 6.0-20 6.0-20	7.4-8.4	Low Low Low	0.15 0.15 0.10	5	1
Cajon, 114 (VIIe non)	0-6 6-42 42-60	SM, SP-SM SM, SP-SM	6.0-20 6.0-20 6.0-20	7.4-8.4	Low Low Low	0.15 0.15 0.10	5	1

Table 6.2-3
Summary of Soil Properties

Soil Name and Map Number (Capability Class)	Depth (in)	USCS Index	Permeability (in/hr)	Soil Reaction (pH)	Shrink-Swell Potential	Erosion Factors		Wind Erodibility Group
						K	T	
		SM, SP-SM						
Haplargids/ Calciorthids Complex, 130 (VIIe non)	Surface Sub-surface (6-20 in. thick) Lower Sub-surface (to depth in excess of 60 in.	SM, SP SC Caliche grades to SM, SP	Haplargids 0.2-2.0 Calciorthids 2.0-20	NA	NA	NA	NA	Moderate to High
Villa, 171, (IIIe-1 irr VIIe non)	0-7 7-60	SM SP-SM, SM	6.0-20 2.0-6.0	7.4-8.4	Low Low	0.24 0.24	5	2
Offsite Linear Facility Routes								
Bryman, 105 (Iie-1 irr VIIe non)	0-9 9-43 43-60	SM SC, CL SM	2.0-6.0 0.2-0.6 2.0-6.0	7.4-8.4	Low Moderate Low	0.28 0.32 0.32	5	2
Bryman, 106 (IIe-1 irr VIIe non)	0-9 9-43 43-60	SM SC, CL SM	2.0-6.0 0.2-0.6 2.0-6.0	7.4-8.4	Low Moderate Low	0.28 0.32 0.32	5	2

Table 6.2-3
Summary of Soil Properties

Soil Name and Map Number (Capability Class)	Depth (in)	USCS Index	Permeability (in/hr)	Soil Reaction (pH)	Shrink-Swell Potential	Erosion Factors		Wind Erodibility Group
						K	T	
Bryman, 107, 108 (VIIe non irr)	0-9 9-39 39-60	SM SC, CL SM, SP-SM	2.0-6.0 0.2-0.6 2.0-6.0	7.4-8.4	Low Moderate Low	0.28 0.32 0.32	5	2
Cajon, 112 (IIIe-1 irr VIIe non)	0-7 7-25 25-45 45-60	SM, SP-SM SM, SP-SM SM, SP-SM SM, SP-SM	6.0-20 6.0-20 6.0-20 6.0-20	7.4-8.4	Low Low Low	0.15 0.15 0.10 0.15	5	1
Cajon, 113 (IIIe-1 irr VIIe non)	0-6 6-25 25-60	SM, SP-SM SM, SP-SM SM, SP-SM	6.0-20 6.0-20 6.0-20	7.4-8.4	Low Low Low	0.15 0.15 0.10	5	1
Cajon, 114 (VIIe non)	0-6 6-42 42-60	SM, SP-SM SM, SP-SM SM, SP-SM	6.0-20 6.0-20 6.0-20	7.4-8.4	Low Low Low	0.15 0.15 0.10	5	1

Table 6.2-3
Summary of Soil Properties

Soil Name and Map Number (Capability Class)	Depth (in)	USCS Index	Permeability (in/hr)	Soil Reaction (pH)	Shrink-Swell Potential	Erosion Factors		Wind Erodibility Group
						K	T	
Haplargids/ Calciorthids Complex, 130 (VIIe non)	Surface Sub-surface (6-20 in. thick) Lower Sub-surface (to depth in excess of 60 in.	SM, SP SC Caliche grades to SM, SP	Haplargids 0.2-2.0 Calciorthids 2.0-20	NA	NA	NA	NA	Moderate to High
Helendale, 131, 132 (IIIe-1 irr VIIe non)	0-4 4-30 30-66 66-106	SM SM SM SM	6.0-20 2.0-6.0 2.0-6.0 6.0-20	7.4-8.4	Low Low Low Low	0.28 0.32 0.32 0.28	5	2
Hesperia, 134 (IIIe-1 irr VIIe non)	0-6 6-60	SM SM	5-10 8-18	7.4-8.4	Low Low	0.24 0.28	5	2
Kimberlina, 138 (IIIe-1 irr VIIe non)	0-7 7-60	SM SM	2.0-6.0 2.0-6.0	7.9-8.4	Low Low	0.28 0.32	5	2
Lavic, 140 (IIIe-1 irr VIIe non)	0-10 10-20 20-49 49-60	SM SM SM SM, SP-SM	2.0-6.0 2.0-6.0 0.6-2.0 6.0-20	7.4-8.4 7.9-8.4	Low Low Low	0.24 0.24 0.32 0.24	5	2

Table 6.2-3
Summary of Soil Properties

Soil Name and Map Number (Capability Class)	Depth (in)	USCS Index	Permeability (in/hr)	Soil Reaction (pH)	Shrink-Swell Potential	Erosion Factors		Wind Erodibility Group
						K	T	
Mohave, 150	0-7	SM	6.0-20	7.4-8.4	Low	0.24	5	2
(VIIe non)	7-26	SC	0.2-0.6	7.4-8.4	Moderate	0.32		
	26-60	SM	6.0-20	7.9-9.0	Low	0.24		

NA = Information not available
K is an erosion factor used to predict erosion rate by water
T is an estimate of the maximum average annual rate of erosion by wind and water in tons per acre per year
SM = Silty sand
SC = Clayey sand
CL = Lean clay
SP = Poorly graded sand
Wind Erodibility Groups:
Group 1 consists of sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.
Group 2 consists of loamy sands, loamy fine sands, and loamy fine sands. These soils are very highly erodible.
Group 3 consists of sandy loams, coarse sandy loams and fine sandy loams. These soils are highly erodible.
Land capability classes:
IIe = soils that have moderate limitations that reduce the choice of plants or that require moderate conservation practices. Soil is erodible.
IIIe = soils that have severe limitations that reduce the choice of plants or that require moderate conservation practices. Soil is erodible.
VIIe = soils that have very severe limitations that make them unsuitable for cultivation. Soil is erodible.
The –1 suffix means that the limitations are caused by slope or by an actual or potential erosion hazard.
Irr = when irrigated
Non = when not irrigated
Source: U.S. Department of Agriculture, 1986, Soil Survey of San Bernardino County, California, Mojave River Area

6.2.3.3 Cumulative Impacts

With the implementation of measures to control erosion and sedimentation, including standard, good construction practices and the mitigation measures described below, the VV2 Project would have minimal impacts on soils conditions. Other potential projects in the area will be required to comply with the same water quality-related regulatory programs (e.g., NPDES permits and grading ordinances) and will be expected to control erosion under these regulations. Thus, the Project would not contribute significantly to cumulative soils impacts in the general area that might result from other projects. The Project would have no impacts on agricultural resources, and thus would not contribute to possible cumulative impacts on agricultural resources of the area.

6.2.4 Mitigation Measures

Implementation of the mitigation measure presented below will minimize soil loss (and thus also protect water quality), from Project construction and operations phase activities.

SOIL - 1 An erosion control and revegetation plan will be developed and implemented to ensure minimum soil loss and to maintain water quality. Temporary and long-term erosion control measures will be constructed and maintained as necessary during and following construction until long-term stabilization has been established for the life of the Project. Such erosion and sedimentation control measures include but are not limited to: minimizing disturbance; wetting the roads in active construction areas, and laydown areas; controlling speed on unpaved surfaces; placing gravel in entrance ways; use of straw bales, silt fences, and earthen berms to control runoff; restoration of native plant communities by natural revegetation or by seeding and transplanting.

SOIL – 2 Conduct Project construction grading in compliance with good industry practice and City of Victorville grading permit requirements.

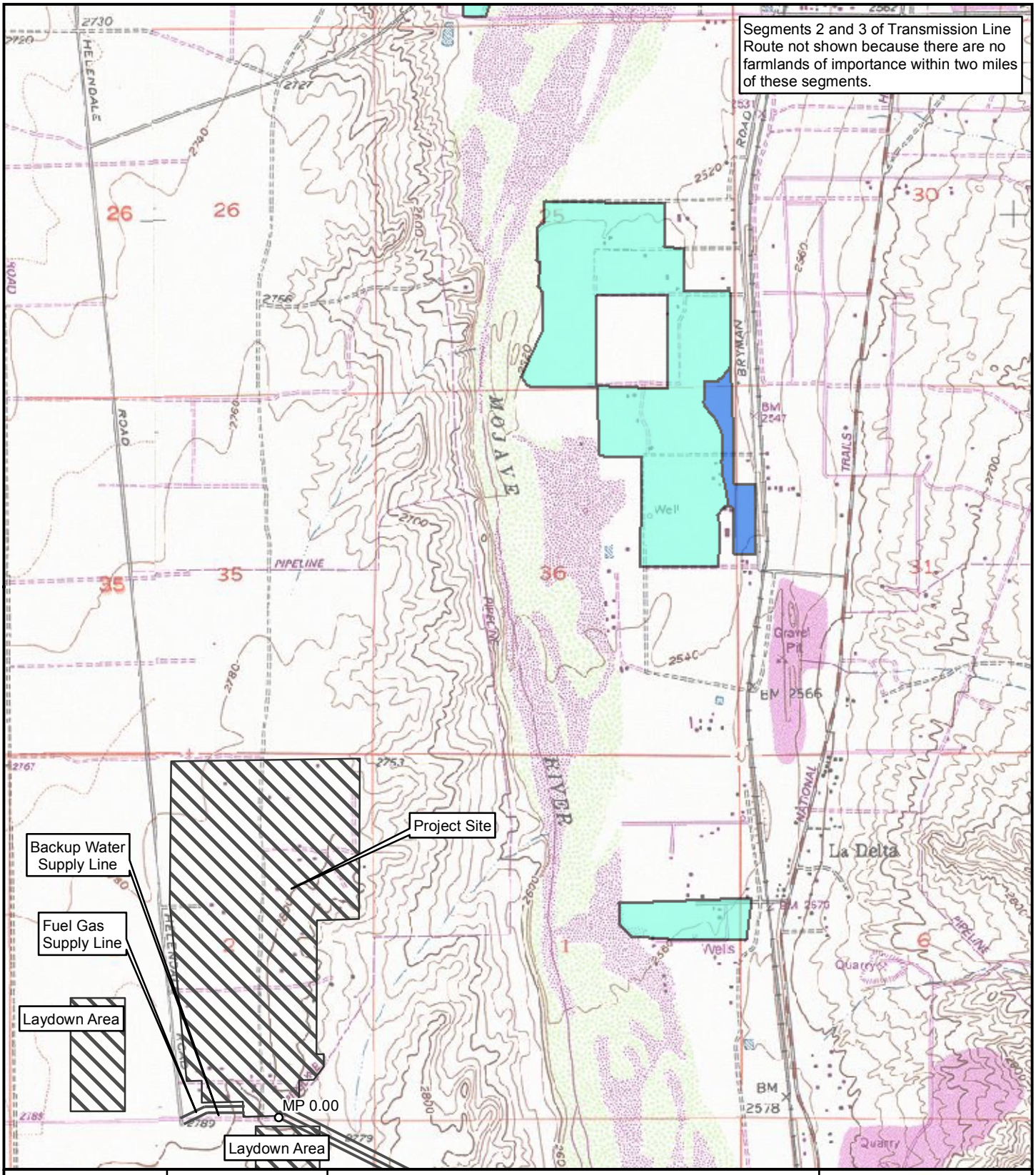
SOIL – 3 Conduct Project construction activities and operation in accordance with Stormwater Pollution Prevention Plan (SWPPP) and associated Monitoring Program approved by the CEC Compliance Project Manager (CPM). SWPPPs will be required for both construction and operation phases, and will include Best Management Practices (e.g., use of runoff control measures such as hay bales and silt fences, regular inspections of drainage control structures) to reduce erosion and sedimentation.

6.2.5 References

California Department of Conservation, 1998. San Bernardino County Important Farmlands.

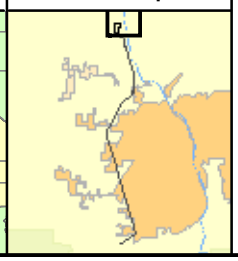
Kleinfelder, 2006. Preliminary Geotechnical Investigation Report, Victorville 2 Hybrid Power Project, City of Victorville, San Bernardino County, California.

U.S. Department of Agriculture, Soil Conservation Service, 1986. Soil Survey of San Bernardino County, California Mojave River Area.



Locus Map

Index Map



Farmland in the Project Vicinity

Legend

- Unique Farmlands
- Prime Farmlands
- Farmlands of Statewide Importance

Data: California Department of Conservation, San Bernardino County Important Farmland

Scale: 1:24,000

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

Inland Energy, Inc.

ENSR | AECOM

Mapsheet 1 of 2

Figure: 6.2-1

Date: February 2007

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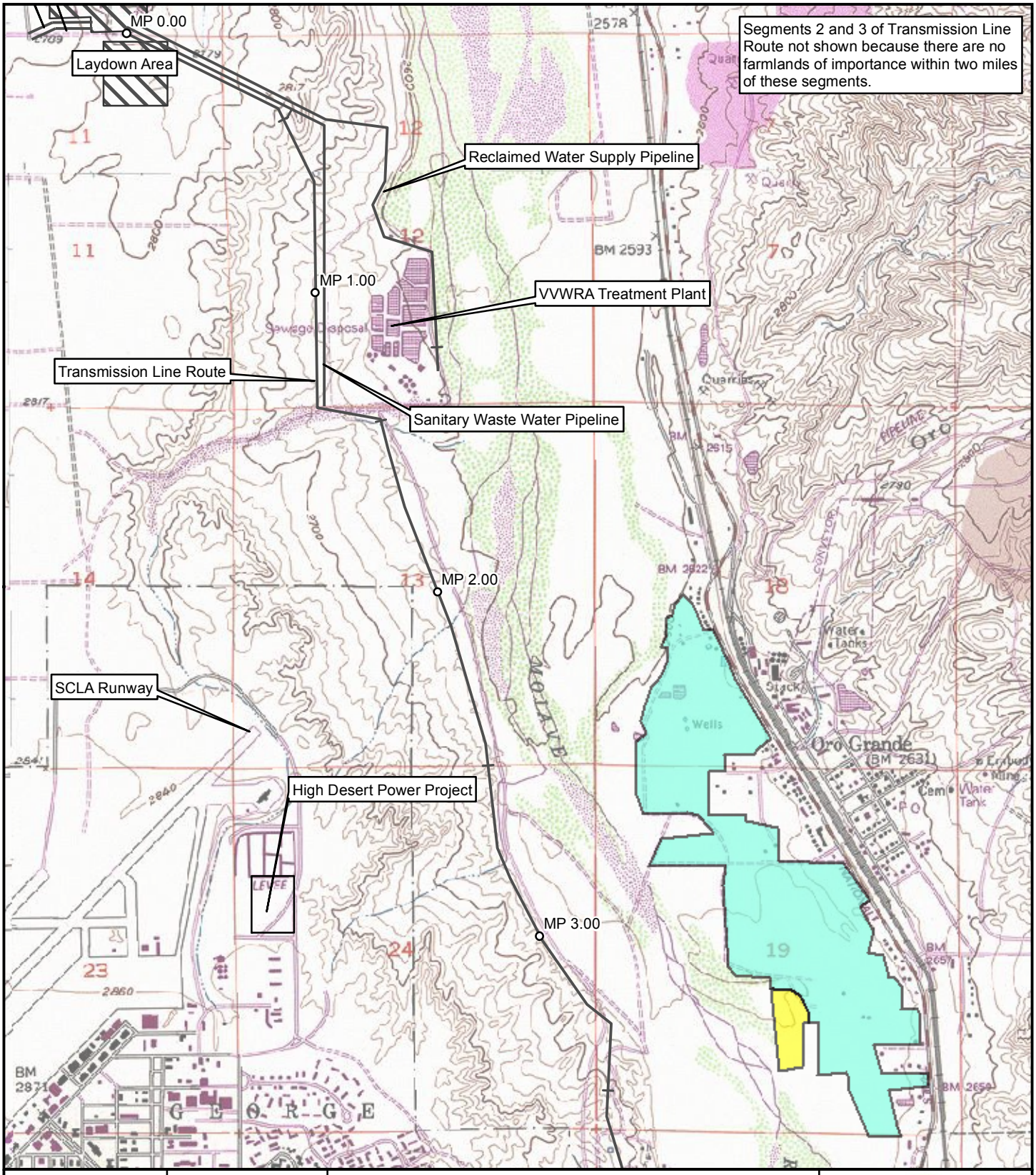
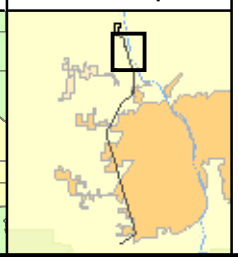


Locus Map

Index Map



Farmland in the Project Vicinity

Legend

- Unique Farmlands
- Prime Farmlands
- Farmlands of Statewide Importance

Data: California Department of Conservation, San Bernardino County Important Farmland

Scale: 1:24,000

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

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Mapsheet 2 of 2

Figure: 6.2-1

Date: February 2007

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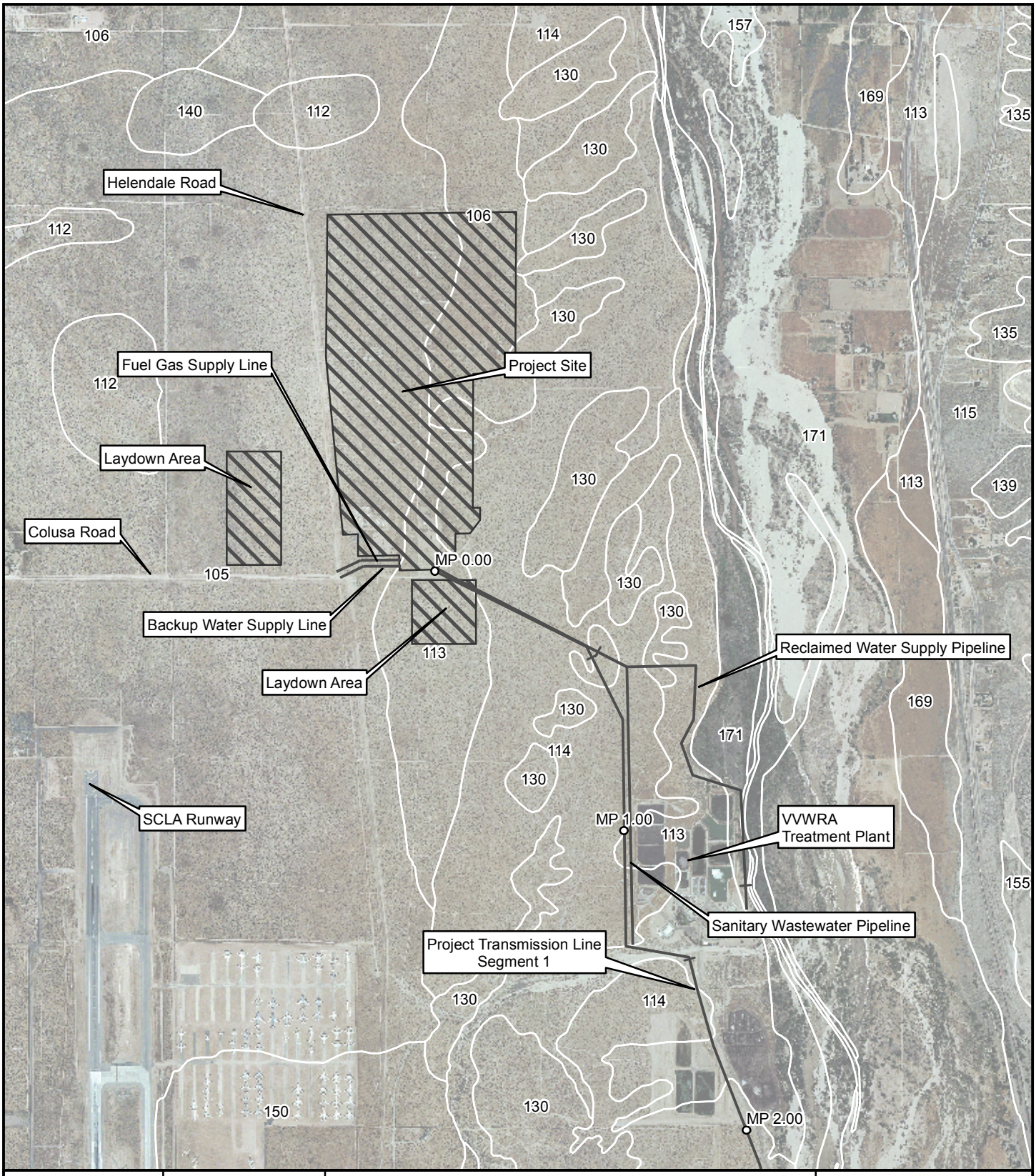
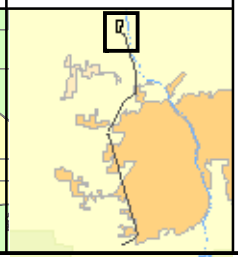


Locus Map

Index Map



Soils Map
Victorville 2 Hybrid Power Project

Legend: See Separate Sheet

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004

Data:NRCS SSURGO Soils

Scale: 1:24,000

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

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Figure: 6.2-2

Mapsheet 1 of 7

Date: February 2007

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Locus Map

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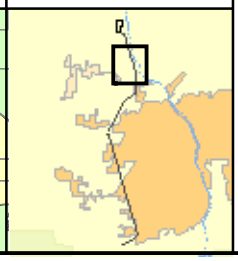

Soils Map
Victorville 2 Hybrid Power Project

Legend: See Separate Sheet

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004

Data:NRCS SSURGO Soils

Scale: 1:24,000

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

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Figure: 6.2-2

Mapsheet 2 of 7

Date: February 2007

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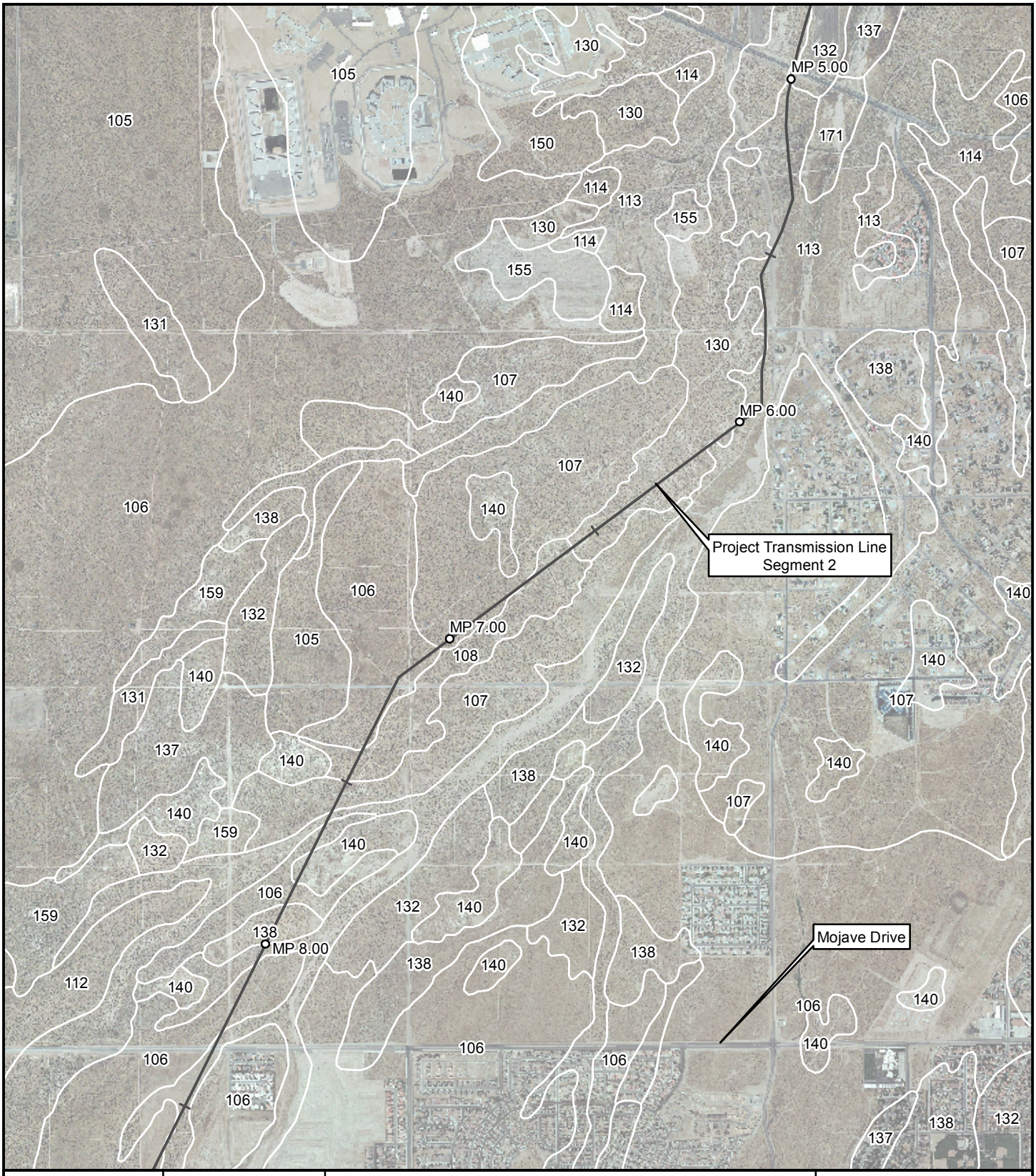

Locus Map

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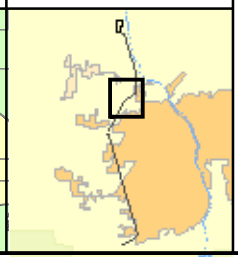

Soils Map
Victorville 2 Hybrid Power Project

Legend: See Separate Sheet

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004

Data:NRCS SSURGO Soils

Scale: 1:24,000

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

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Figure: 6.2-2

Mapsheet 3 of 7

Date: February 2007

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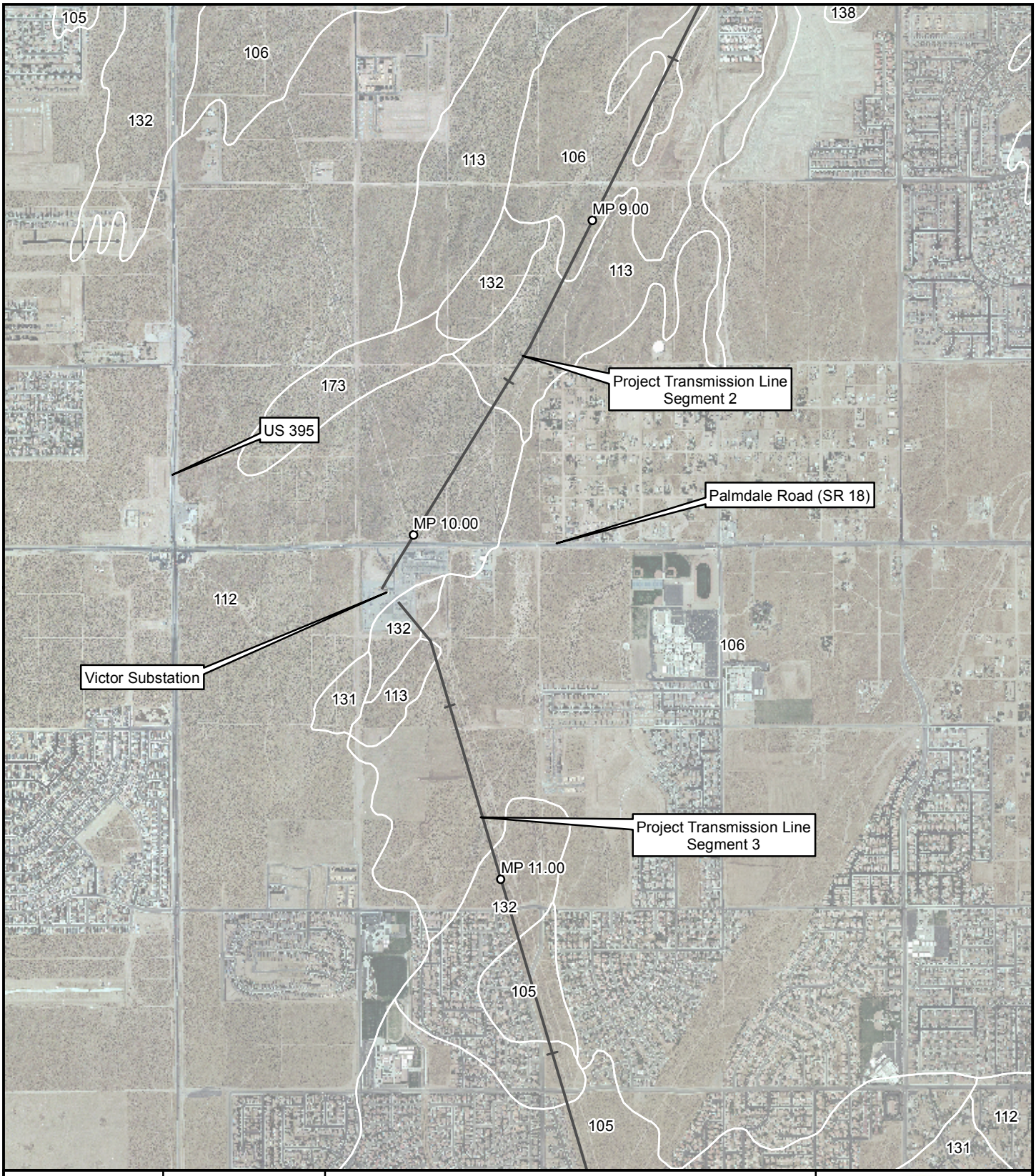

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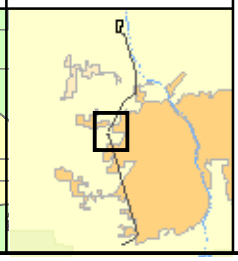

Soils Map
Victorville 2 Hybrid Power Project

Legend: See Separate Sheet

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004

Data:NRCS SSURGO Soils

Scale: 1:24,000

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Figure: 6.2-2

Mapsheet 4 of 7

Date: February 2007

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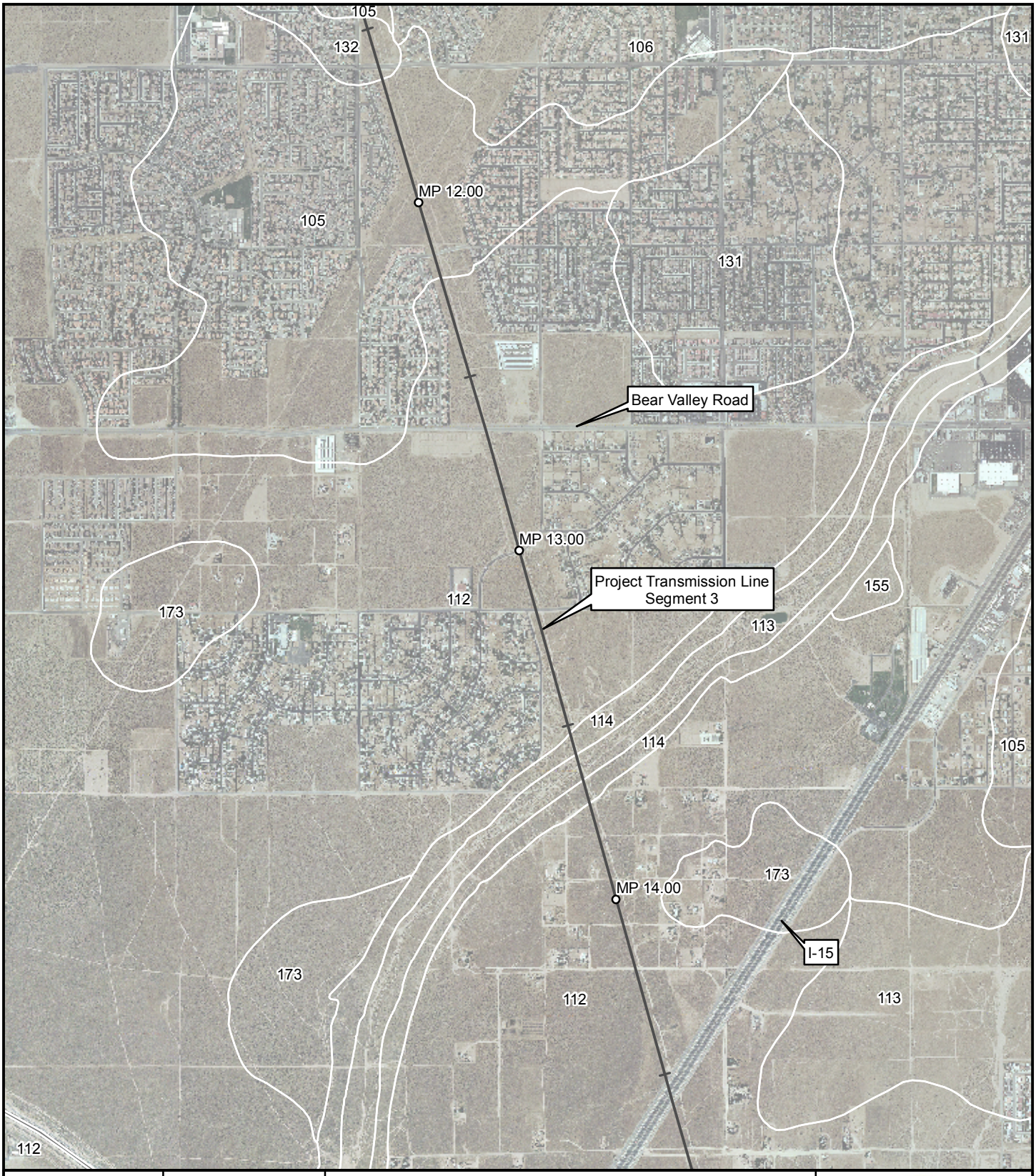

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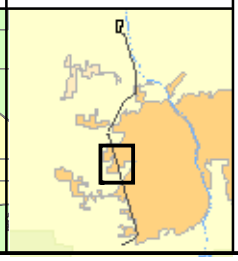

Soils Map
Victorville 2 Hybrid Power Project

Legend: See Separate Sheet

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004

Data:NRCS SSURGO Soils

Scale: 1:24,000

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Figure: 6.2-2

Mapsheet 5 of 7

Date: February 2007

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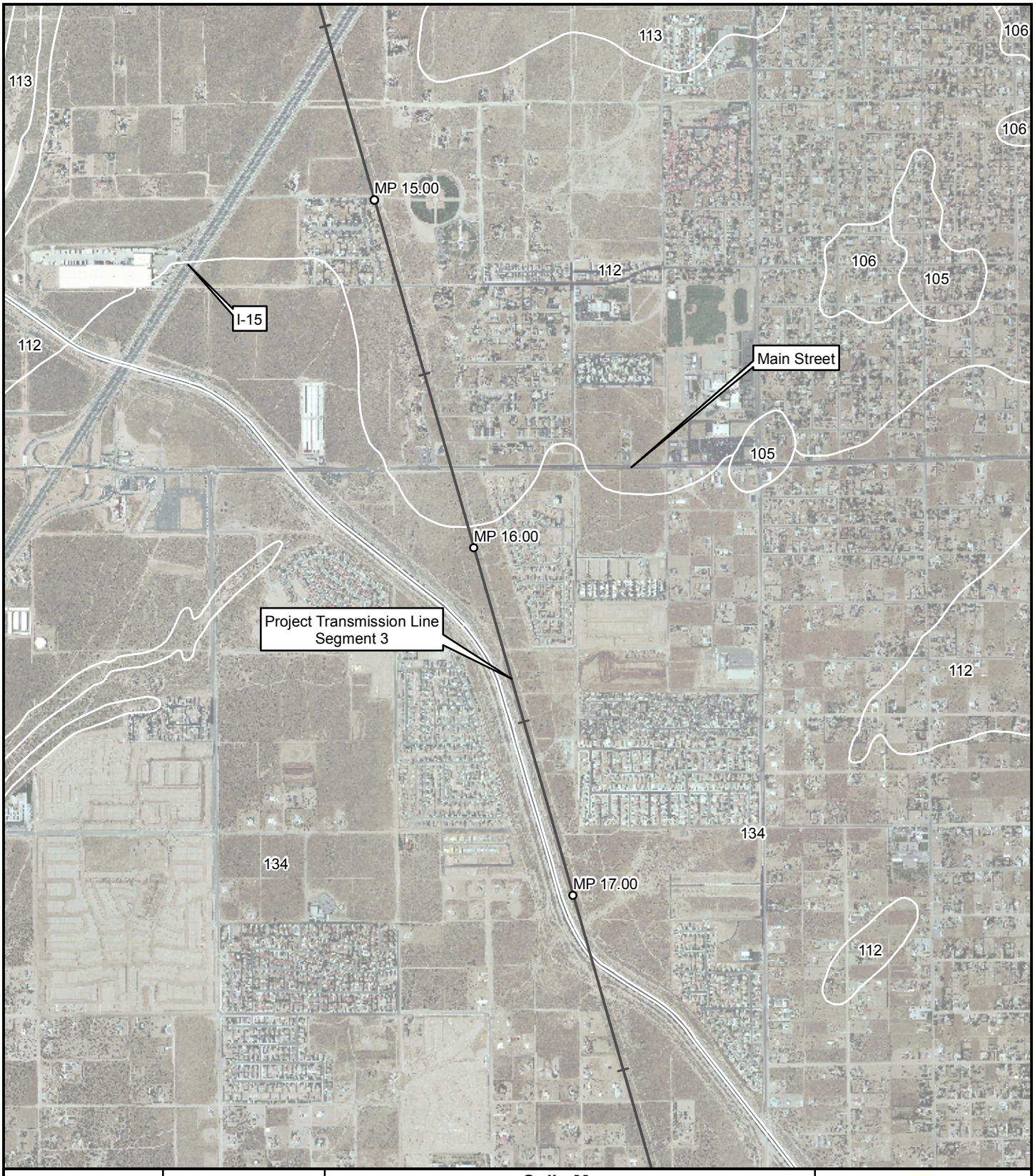
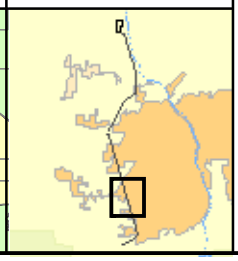


Locus Map

Index Map



Soils Map
Victorville 2 Hybrid Power Project

Legend: See Separate Sheet

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004

Data:NRCS SSURGO Soils

Scale: 1:24,000

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

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Figure: 6.2-2

Mapsheet 6 of 7

Date: February 2007

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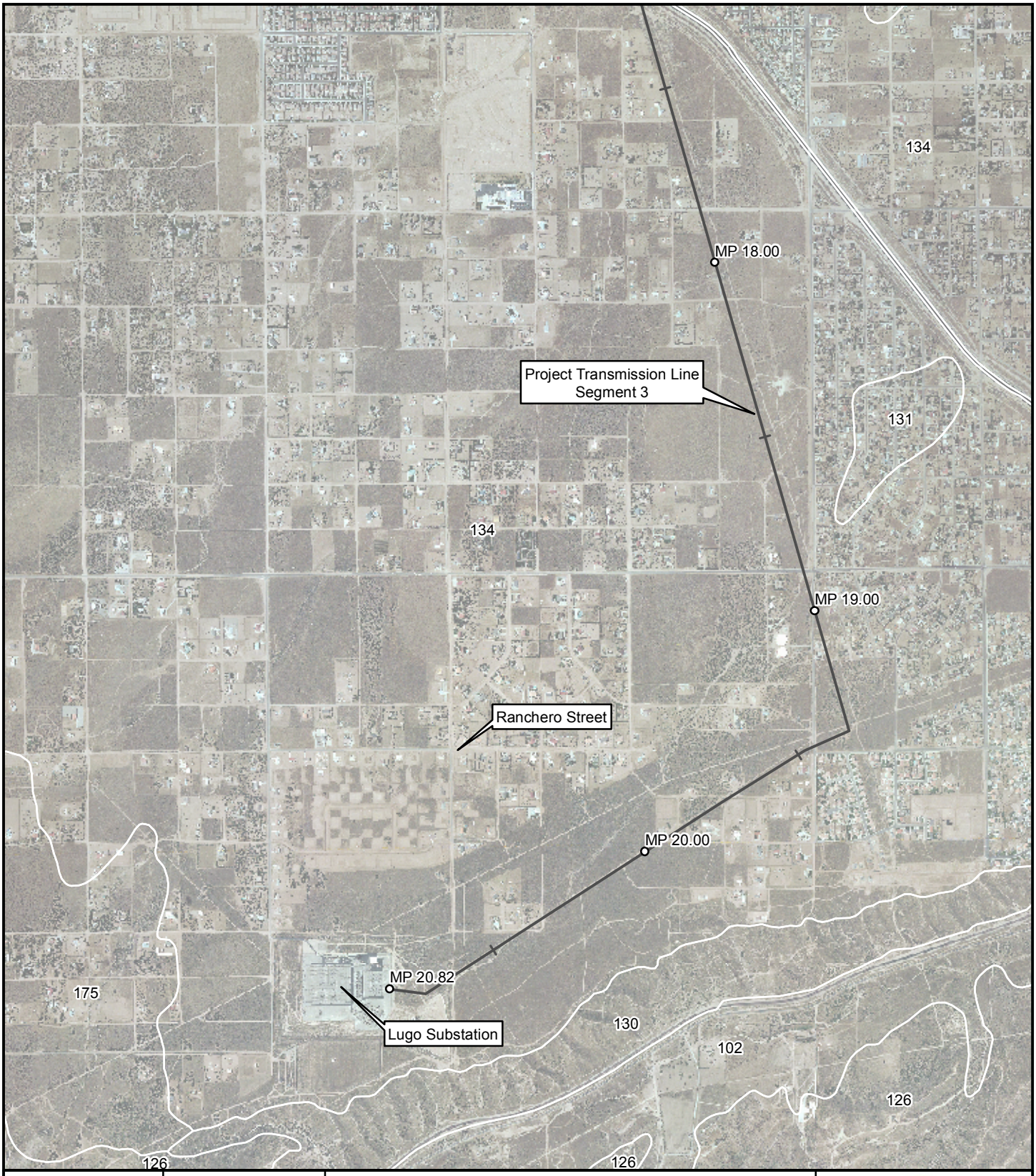

Locus Map

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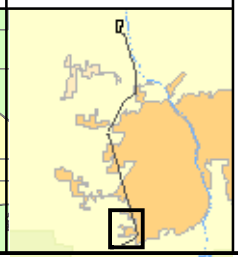

Soils Map
Victorville 2 Hybrid Power Project

Legend: See Separate Sheet

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004
Data:NRCS SSURGO Soils

Scale: 1:24,000

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

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Figure: 6.2-2
Mapsheet 7 of 7
Date: February 2007

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Figure 6.2-2 Soil Map Legend

Map symbol	Soil name
100	ARIZO GRAVELLY LOAMY SAND, 2 TO 9 PERCENT SLOPES
101	ARRASTRE-ROCK OUTCROP COMPLEX, 30 TO 50 PERCENT SLOPES*
102	AVAWATZ-OAK GLEN ASSOCIATION, GENTLY SLOPING*
103	BADLAND
104	BOUSIC CLAY
105	BRYMAN LOAMY FINE SAND, 0 TO 2 PERCENT SLOPES
106	BRYMAN LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES
107	BRYMAN LOAMY FINE SAND, 5 TO 9 PERCENT SLOPES
108	BRYMAN LOAMY FINE SAND, 9 TO 15 PERCENT SLOPES
109	BRYMAN SANDY CLAY LOAM, 0 TO 2 PERCENT SLOPES
110	BRYMAN-CAJON ASSOCIATION, ROLLING*
111	BULL TRAIL-TYPIC XERORTHENTS ASSOCIATION, MODERATELY STEEP*
112	CAJON SAND, 0 TO 2 PERCENT SLOPES
113	CAJON SAND, 2 TO 9 PERCENT SLOPES
114	CAJON SAND, 9 TO 15 PERCENT SLOPES
115	CAJON GRAVELLY SAND, 2 TO 15 PERCENT SLOPES
116	CAJON LOAMY SAND, 5 TO 9 PERCENT SLOPES
117	CAJON LOAMY SAND, LOAMY SUBSTRATUM, 0 TO 2 PERCENT SLOPES
118	CAJON-ARIZO COMPLEX, 2 TO 15 PERCENT SLOPES*
119	CAJON-WASCO, COOL COMPLEX, 2 TO 9 PERCENT SLOPES*
120	CAVE LOAM, DRY, 0 TO 2 PERCENT SLOPES
121	CRAFTON-SHEEPHEAD-ROCK OUTCROP ASSOCIATION, STEEP*
122	CUSHENBURY-CRAFTON-ROCK OUTCROP COMPLEX, 15 TO 50 PERCENT SLOPES*
123	DUNE LAND
124	FLUVENTS, OCCASIONALLY FLOODED
125	GLENDALE VARIANT SILT LOAM, SALINE-ALKALI
126	GULLIED LAND-HAPLOXERALFS ASSOCIATION
127	HALLORAN SANDY LOAM
128	HALLORAN-DUNELAND COMPLEX, 0 TO 15 PERCENT SLOPES*
129	HANFORD SANDY LOAM, COOL, 2 TO 9 PERCENT SLOPES
130	HAPLARGIDS-CALCIORTHIDS COMPLEX, 15 TO 50 PERCENT SLOPES
131	HELENDALE LOAMY SAND, 0 TO 2 PERCENT SLOPES
132	HELENDALE LOAMY SAND, 2 TO 5 PERCENT SLOPES
133	HELENDALE-BRYMAN LOAMY SANDS, 2 TO 5 PERCENT SLOPES*
134	HESPERIA LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES
135	JOSHUA LOAM, 2 TO 5 PERCENT SLOPES
136	JOSHUA LOAM, 9 TO 15 PERCENT SLOPES
137	KIMBERLINA LOAMY FINE SAND, COOL, 0 TO 2 PERCENT SLOPES
138	KIMBERLINA LOAMY FINE SAND, COOL, 2 TO 5 PERCENT SLOPES
139	KIMBERLINA GRAVELLY SANDY LOAM, COOL, 2 TO 5 PERCENT SLOPES
140	LAVIC LOAMY FINE SAND
141	LOVELACE LOAMY SAND, 5 TO 9 PERCENT SLOPES
142	LUCERNE SANDY LOAM, 0 TO 2 PERCENT SLOPES
143	LUCERNE SANDY LOAM, 2 TO 5 PERCENT SLOPES
144	MANET COARSE SAND, 2 TO 5 PERCENT SLOPES
145	MANET COBBLY COARSE SAND, 2 TO 9 PERCENT SLOPES
146	MANET LOAMY SAND, LOAMY SUBSTRATUM, 0 TO 2 PERCENT SLOPES
147	MANET FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES
148	MIRAGE SANDY LOAM, 2 TO 5 PERCENT SLOPES*
149	MIRAGE-JOSHUA COMPLEX, 2 TO 5 PERCENT SLOPES*

Figure 6.2-2 Soil Map Legend

Map symbol	Soil name
150	MOHAVE VARIANT LOAMY SAND, 0 TO 2 PERCENT SLOPES
151	NEBONA-CUDDEBACK COMPLEX, 2 TO 9 PERCENT SLOPES*
152	NOROB-HALLORAN COMPLEX, 0 TO 5 PERCENT SLOPES*
153	PETERMAN LOAM
154	PETERMAN CLAY
155	PITS
156	PLAYAS
157	RIVERWASH
158	ROCK OUTCROP-LITHIC TORRIORTHENTS COMPLEX, 15 TO 50 PERCENT SLOPES*
159	ROSAMOND LOAM, SALINE-ALKALI
160	ROSAMOND LOAM, STRONGLY SALINE-ALKALI
161	SOBOBA GRAVELLY SAND, COOL, 2 TO 9 PERCENT SLOPES
162	SPARKHULE-ROCK OUTCROP COMPLEX, 15 TO 50 PERCENT SLOPES*
163	TORRIORTHENTS-TORRIPSAMMENTS-URBAN LAND COMPLEX, 0 TO 9 PERCENT SLOPES
164	TRIGGER GRAVELLY LOAM, 5 TO 15 PERCENT SLOPES
165	TRIGGER-SPARKHULE-ROCK OUTCROP ASSOCIATION, STEEP*
166	TRIGGER-ROCK OUTCROP COMPLEX, 30 TO 50 PERCENT SLOPES*
167	TUJUNGA SAND, COOL, 2 TO 9 PERCENT SLOPES
168	TYPIC HAPLARGIDS-YERMO COMPLEX, 8 TO 30 PERCENT SLOPES*
169	VICTORVILLE SANDY LOAM
170	VICTORVILLE VARIANT SAND
171	VILLA LOAMY SAND
172	VILLA LOAMY SAND, HUMMOCKY
173	WASCO SANDY LOAM, COOL, 0 TO 2 PERCENT SLOPES
174	WASCO SANDY LOAM, COOL, 2 TO 5 PERCENT SLOPES
175	WRIGHTWOOD-BULL TRAIL ASSOCIATION, SLOPING*
176	YERMO GRAVELLY SANDY LOAM, 30 TO 50 PERCENT SLOPES
177	YERMO-KIMBERLINA, COOL, ASSOCIATION, SLOPING*
178	WATER
179	MISCELLANEOUS WATER