3.0 Project Description

This Chapter presents a detailed discussion of the proposed Aliso Canyon Turbine Replacement Project (the "Proposed Project") and has been designed to closely follow the Proponent's Environmental Assessment (PEA) Checklists as developed by the California Public Utilities Commission (CPUC). The CPUC has developed two checklists – one for underground gas storage facility projects and one for transmission and substation projects (both revised November 24, 2008). Because the Proposed Project features both gas storage and electrical facility components, Chapter 3 of this PEA was developed to meet CPUC guidelines for both gas storage and electrical projects.

The Proposed Project is the replacement of three obsolete gas turbine driven compressors (TDC) with three new electric-driven variable frequency drive (VFD) compressor trains. Related improvements include construction of a new compressor station (the "proposed Central Compressor Station"), relocation of existing office facilities and guard house, installation of a new 12 kilovolt (kV) plant power line (PPL) serving the proposed Central Compressor Station and additional work to be performed by Southern California Edison (SCE), including modifications to two existing SCE 66 kV sub-transmission lines, construction of a new dedicated electrical substation (the "proposed SCE Natural Substation"), and proposed modifications to three existing SCE substations to accommodate the new 66 kV service to the proposed Central Compressor Station.

3.1 PROJECT LOCATION

The Proposed Project location is represented on Figure 3.1-1. The proposed on-site improvements including the proposed Central Compressor Station, proposed office trailer relocation, proposed PPL, proposed SCE Natural Substation, and modification of an existing SCE 66 kV sub-transmission line which currently traverses the Storage Field. These improvements will all be located within the Storage Field property boundary in unincorporated Los Angeles County, with the possible exception of road improvements at the guard house relocation within the city of Los Angeles. Additional on-site improvements include the proposed construction of a new guard house that provides street access to the Storage Field from Sesnon Boulevard. The new guard house will be located within the Storage Field property boundary in Los Angeles County. The Storage Field is located at 12801 Tampa Avenue, in Northridge, California, north of Highway (HW) 118, and encompasses approximately 3,600 acres. The Aliso Canyon Plant Station (Plant Station) is located in the southwestern portion of the Storage Field, approximately 0.8-mile north of Sesnon Boulevard. The Plant Station site includes the existing compressor station and office trailers; it also includes previously disturbed sites proposed for the location of the proposed Central Compressor Station and proposed office trailer relocation. Access roads to the Plant Station include Sesnon Boulevard, Porter Fee Road to the north and Limekiln Canyon Road to the south.

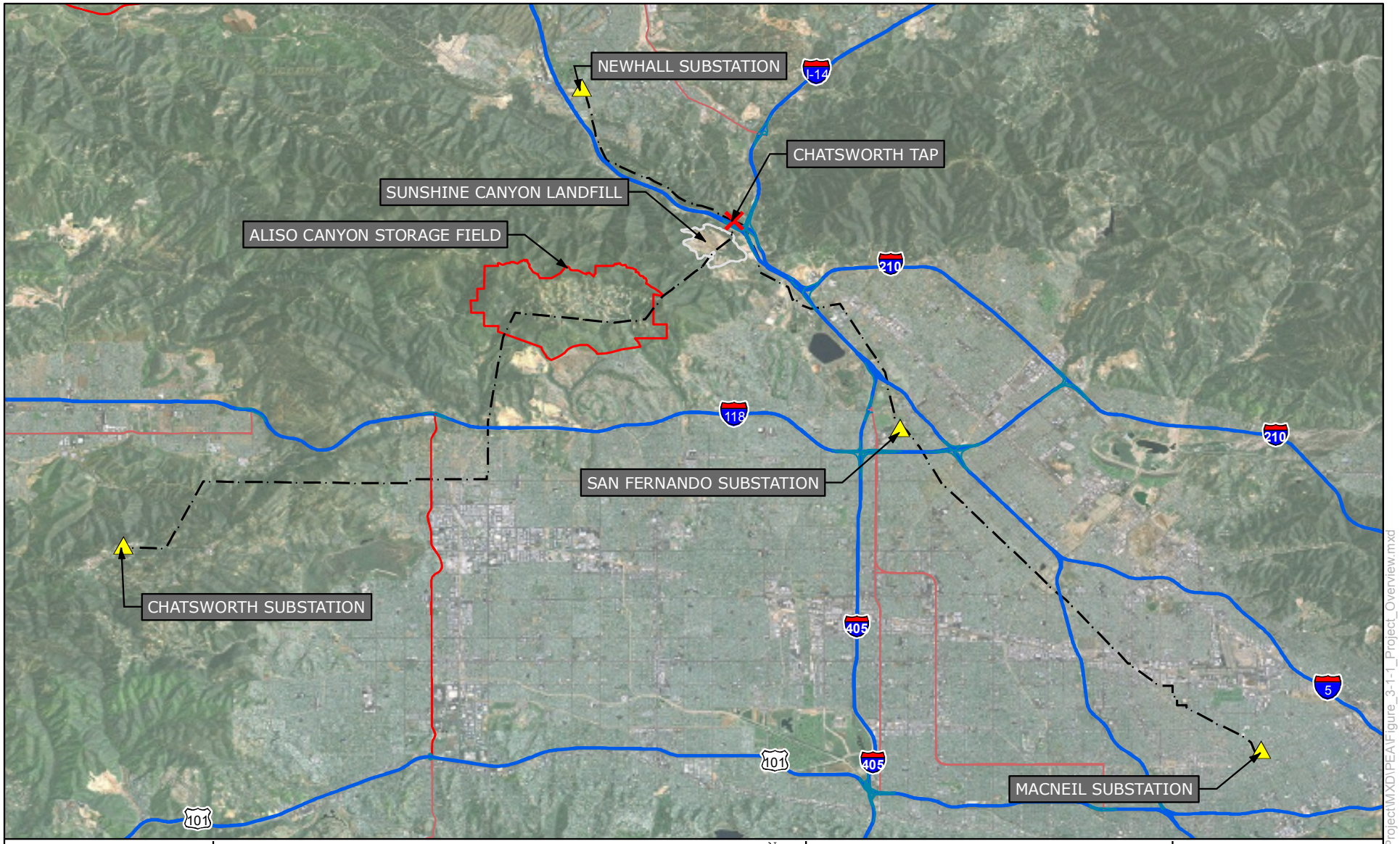
The proposed SCE 66 kV sub-transmission line modifications include improvements located both on-site and off-site; the proposed modifications will be located within the city of Santa Clarita, unincorporated Los Angeles County and the city of Los Angeles. The two existing SCE 66 kV sub-transmission lines, known as the Chatsworth-MacNeil-Newhall-San Fernando line and the MacNeil-Newhall-San Fernando line, are proposed to be re-built, or modified, originating at the Newhall Substation, located at the intersection of

Wiley Canyon Road and Lyons Avenue, in the community of Newhall in the city of Santa Clarita. The route of the proposed SCE 66 kV sub-transmission line modification will follow the existing SCE 66 kV alignment toward Interstate 5 (I-5) south to the SCE Chatsworth tap, at tap point A, located approximately 4 miles south of the Newhall Substation (see Figure 3.1-1). At the SCE Chatsworth tap (point A), the route of the proposed SCE 66 kV sub-transmission line modification will traverse in a southwesterly direction to the proposed SCE Natural Substation location. Additional off-site improvements include proposed modifications at three existing SCE substations: the Newhall, Chatsworth, and San Fernando Substations. The Newhall Substation, described above, is located within the city of Santa Clarita within Los Angeles County. The Chatsworth Substation, located near the Chatsworth Reservoir, near Valley Circle Road and Plummer Street (within Ventura County) and San Fernando Substation, located near the intersection of San Fernando Mission Boulevard and Sepulveda Boulevard, (within the community of Mission Hills) is located within the city of Los Angeles.

Existing land uses within the Proposed Project on-site components consist of natural gas storage. Existing land uses in the vicinity of the off-site electrical improvements include solid waste disposal, open space, residential, agricultural, and recreational. The overall region is characterized by canyons, hills, and mountain ranges, which provide an open space greenbelt around the perimeter of the Santa Clarita Valley (City of Santa Clarita 2008). The alignment of the proposed SCE 66 kV sub-transmission modification is located near open spaces such as the Santa Susana Mountains and associated park lands on the western side of I-5.

As shown on Figure 3.1-1, the SCE Chatsworth-MacNeil-Newhall-San Fernando 66 kV sub-transmission line segment of approximately 4,200 feet runs over the center of the Sunshine Canyon Landfill east of the Storage Field. The Sunshine Canyon Landfill is planning an expansion to accommodate ongoing landfill operations in the area. Environmental review for this expansion is being competed entirely separate of the Proposed Project, with Los Angeles County as the Lead Agency. However, the expansion will require relocation of the existing 66 kV alignment to run along the northern perimeter of the disturbed area of the landfill property boundary. SCE may be submitting a separate Permit to Construct (PTC) application to the CPUC by 2010 associated with the relocation of the line around the landfill during in which activities associated with the relocation will be analyzed; however, as of the time of this CPCN filing, SCE has been unable to confirm BFI's intended timeframe for this relocation As such, while the SoCalGas PEA is presenting the route alignment as it is proposed to be relocated under SCE's separate PTC, the SoCalGas PEA is not analyzing the relocation nor is the relocation part of the Proposed Project. If the Sunshine Canyon Landfill relocation project does not occur or if it occurs after the construction of the Proposed Project, the Proposed Project would follow the existing alignment across the landfill.

Figure 3.1-2 depicts the locations of several Proposed Project components, including the proposed Central Compressor Station, the proposed SCE Natural Substation location, the portions of the two SCE 66 kV sub-transmission lines proposed for modification (represented by the pink line on the existing alignment), and additional work to be conducted at SCE's San Fernando Substation. Figure 3.1-3 provides a detailed view of the on-site improvement locations, including the proposed Central Compressor Station, office trailer relocation, PPL alignment, guard house, and new SCE Natural Substation. The location of the proposed SCE Natural Substation is approximately 1800 feet west of the proposed Central Compressor Station site on elevated terrain between two towers of the existing SCE 66 kV alignment; the PPL is represented by the blue line in Figure 3.1-3. Figure 3.1-4 shows the existing turbine compressor and office locations, and the proposed office and Central Compressor Station.



Map Location

Legend

- Existing SCE 66 kV Alignment
- Aliso Canyon Storage Field
- Sunshine Canyon Landfill
- Existing SCE Substation
- Existing SCE Chatsworth Tap A

N
W
E
S

1 inch = 3 miles

0 3 6 Miles

Aliso Canyon PEA

Figure 3.1-1
Project Overview
Existing Gas Storage Field and
SCE 66kV Sub-transmission Facilities

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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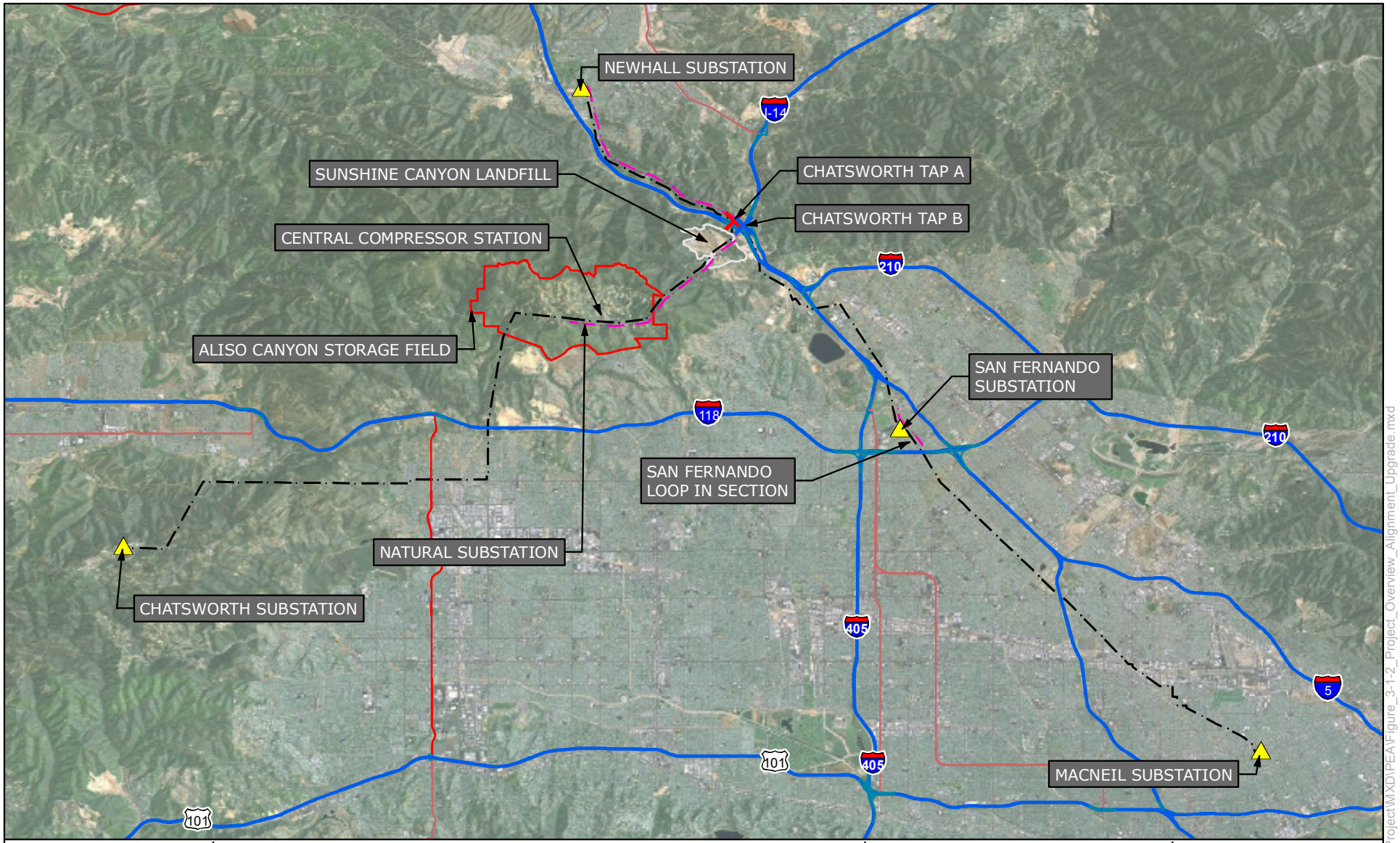

Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Aliso Canyon Storage Field
- Sunshine Canyon Landfill
- Existing Substation
- Existing SCE Chatsworth Tap A
- Proposed SCE Chatsworth Tap B

1 inch = 3 miles

0 3 6 Miles

Aliso Canyon PEA

Figure 3.1-2
Project Overview
Proposed Central Compressor Station, Trailers, SCE Substation and Sub-transmission Upgrade

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- PPL

N
W
E
S

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

Aliso Canyon PEA

Figure 3.1-3
Project Overview
Proposed Project Components within the Storage Field

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- PPL

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon PEA

Figure 3.1-4
Proposed Office Trailer Relocation

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_3-1-4_Proposed_Office_Trailer_Relocation.mxd

3.2 EXISTING GAS AND ELECTRIC SYSTEM

3.2.1 Aliso Canyon Gas Storage Field

The existing gas system within the area of the Proposed Project is the Storage Field, represented in Figure 3.1-1. The Storage Field is owned and operated by the Proponent. The Storage Field is one of the largest natural gas reservoirs in the United States. The total inventory including cushion gas is 165.5 billion cubic feet (BCF), with a working inventory is 84.0 BCF. The maximum withdrawal rate is 1.875 billion cubic feet per day (Bcfd) and the existing maximum injection rate at the end of cycle is 300 MMcfd, respectively. Oil and water recovery are by-products of gas storage operations. In 2006, the oil recovery and water production rates were recorded at 201 barrels per day and 299 barrels per day, respectively.

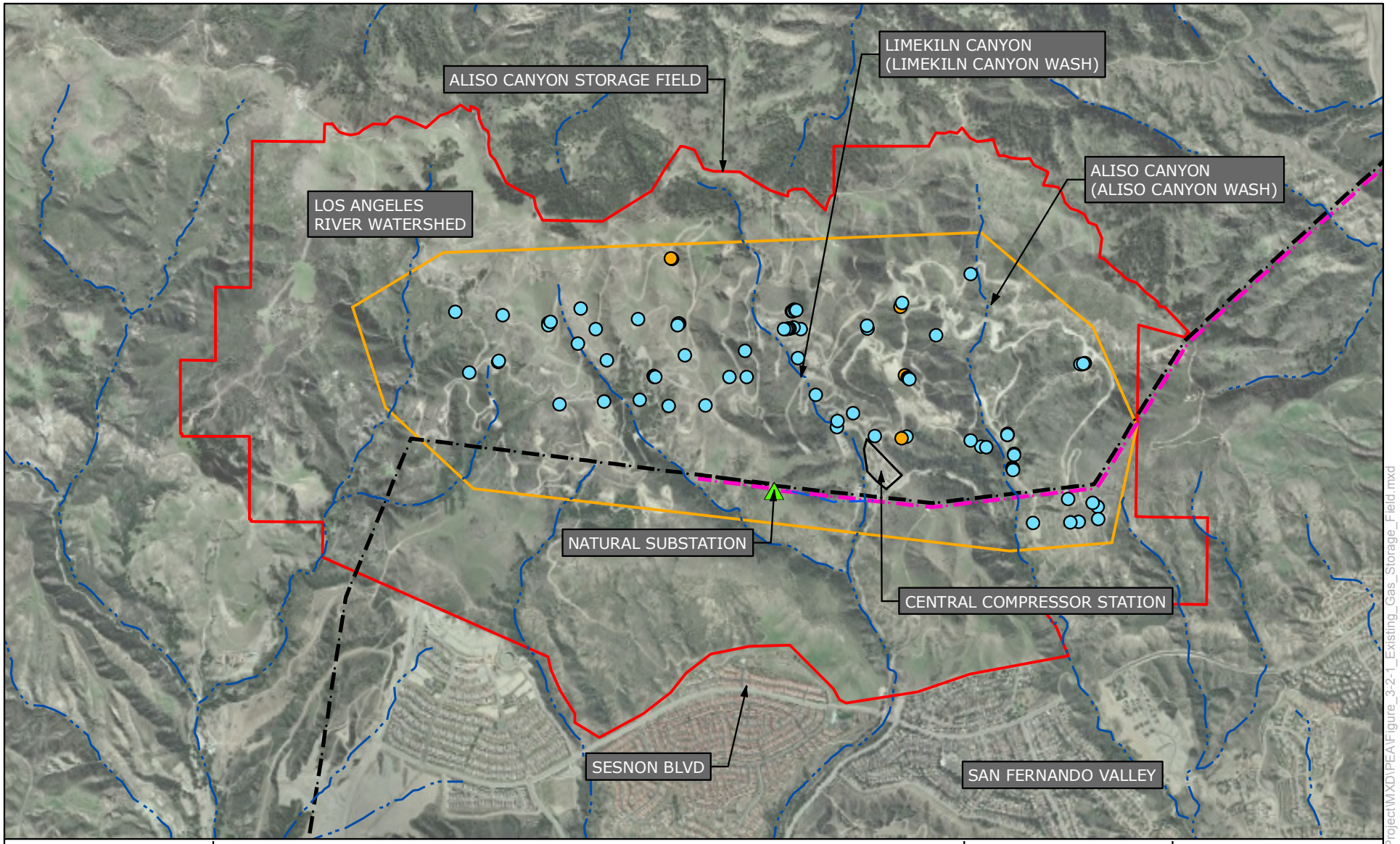
Figure 3.2-1 shows the existing Storage Field including the property boundary, the location of the existing compressor station, and the existing 66 kV sub-transmission line that SCE operates within an existing right-of-way (ROW) through the southern portion of the plant property. Also shown on Figure 3.2-1 is the location of the proposed SCE Natural Substation.

History of Oil/Gas Field

The Storage Field was discovered in 1938 with the drilling of the Tidewater Association Oil Company (currently the Getty Oil Company) Porter number 1 oil well; it was subsequently turned into a storage field in 1974. At the end of the first injection cycle (in 1974), the gas inventory was approximately 60.7 BCF at a P/Z (reservoir pressure/modified gas compressibility) value of 3,900 pounds per square inch (psia). Currently, the cumulative recovery at the Storage Field, over the 35 years of natural gas storage activities, exceeds approximately 60 million barrels of oil and 180 million cubic feet of gas.

Subsurface Reservoir Description

The overlying stratigraphy of the Storage Field is Miocene and Eocene sediment with two oil and gas producing zones, consisting of (in order of increasing depth) the Sesnon and the Frew. The existing types of rock include sandstone, siltstone and shale. The production zones of the Storage Field come from the formation structure known as the faulted anticline. The Sesnon formation consists of inter-bedded sandstone, siltstone, and shale with basal member containing lenses of conglomerate. The Frew formation is a thick conglomerate and sandstone wedge underlying the Sesnon zone, which constitutes the basal reservoir of the gas storage. Cap rock is approximately 300 feet thick, consisting primarily of shale with inter-bedded siltstone. The porosity of the formation is 22 percent and the permeability of the formation is 85 millidarcy (mD). The thickness of the upper strata, or Sesnon zone, averages approximately 150 feet. The thickness of the lower Sesnon zone ranges between 50 feet and 300 feet. The thickness of the Frew zone ranges between 0-foot and 500 feet.



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- PPL
- SCE Natural Substation Location
- Storage Field Property Boundary
- Storage Field
- Gas Storage-Injection/Withdrawal Well
- Gas-Converted to Gas Storage Well
- NHD Watercourse

1 inch = 2,500 feet

0 2,500 5,000 Feet

N W E S

Aliso Canyon PEA

Figure 3.2-1
Existing Gas Storage Field

Source: CA DOGGR 2009

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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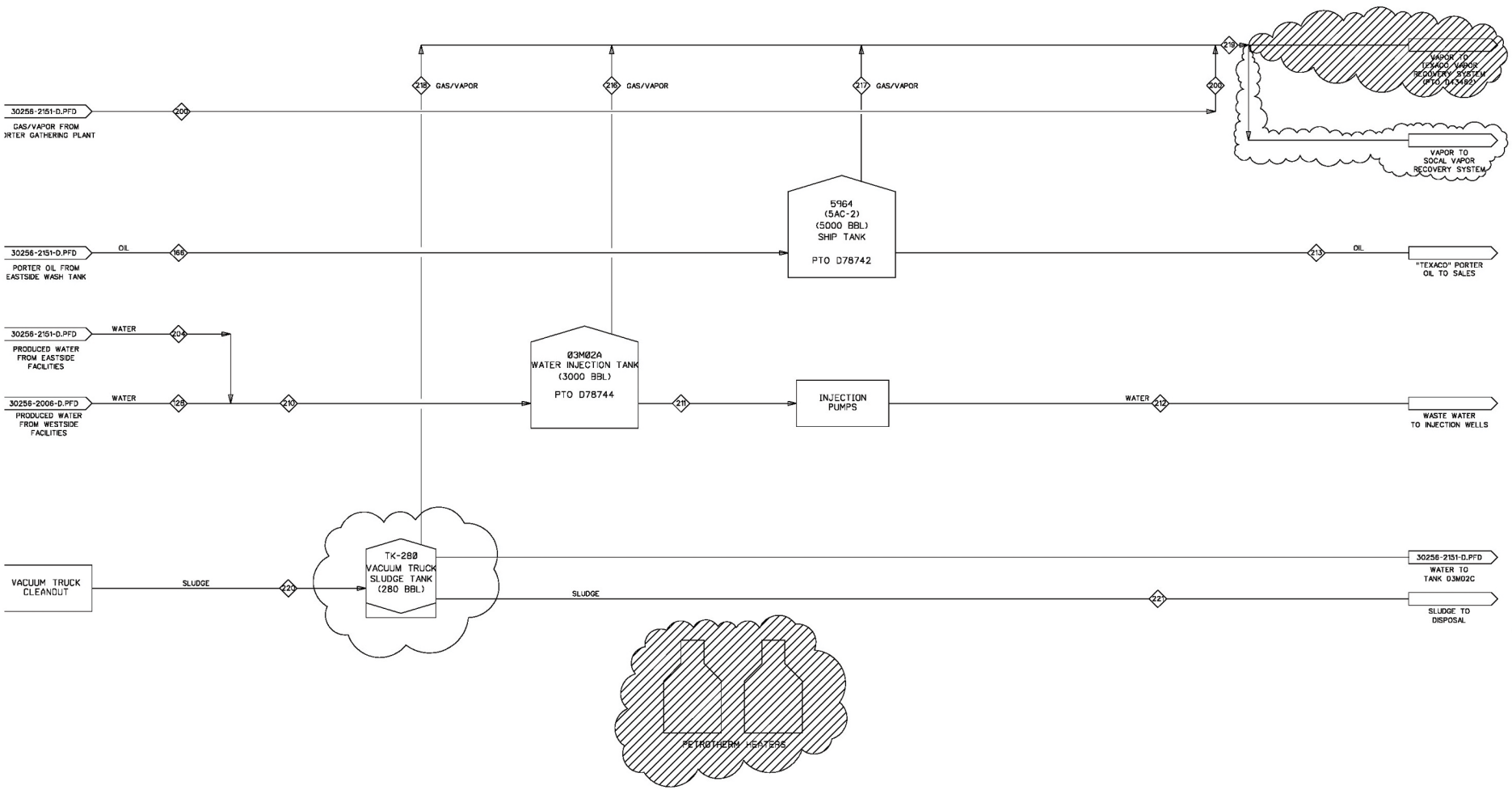
Reservoir Injection / Withdrawal Wells and Connecting Flowlines

The Storage Field has 116 injection/withdrawal wells and two observation wells. The depth of the storage zone ranges from 7,100 feet to 9,400 feet. The average depth of the wells is approximately 8,500 feet. The well sizes vary; however, most of the wells are completed with a 7-inch or 9-5/8-inch production casing. Oil and gas production comes from Miocene and Eocene sediments with two producing zones, the Sesnon and the Frew, as described above. The drive mechanism of the reservoir is a gas-cap drive. The maximum withdrawal rate of a well can be up to 80 MMcfd at high field inventory and pressure. The well sites are represented on Figure 3.2-1.

Well-Head Sites

The existing wells will not be impacted as a result of this project. There will not be any new injection/ withdrawal wells constructed. There are no abandoned wells on the project site and there are no well abandonments planned for the Proposed Project. There will not be any additional monitoring or test wells constructed as part of the Proposed Project. The existing injection/withdrawal system is depicted in the block flow diagram shown on Figure 3.2-2



Aliso Canyon PEA

Figure 3.2-2
Storage Field Injection /Withdrawl Block Flow Diagram

Southern California Gas Company
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Date: September 2009

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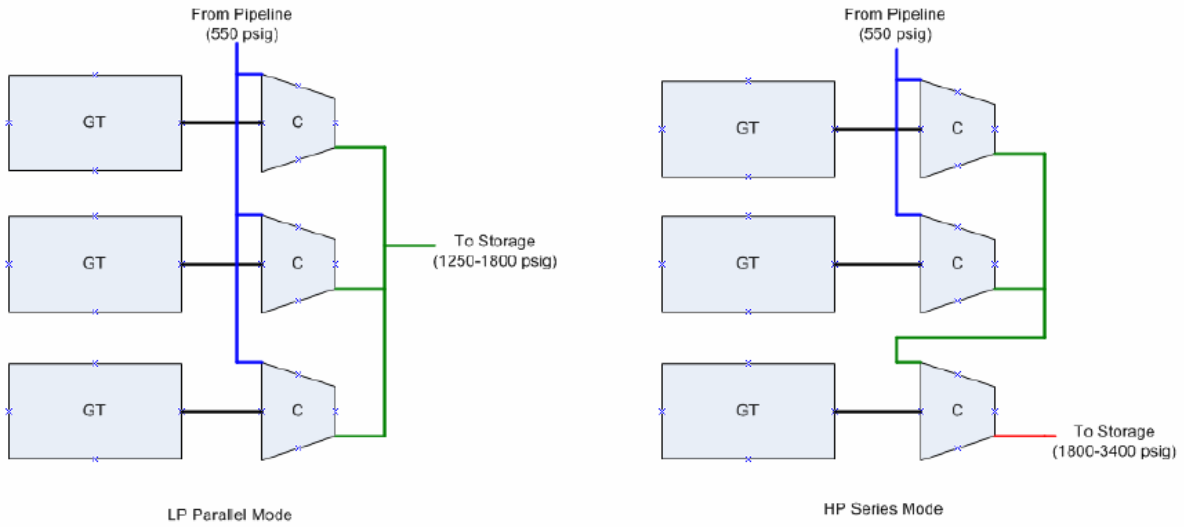
Existing Turbine-Driven Compressors

TDCs are currently used to inject pipeline gas to storage from a pipeline pressure of approximately 550 pounds per square inch (gauge) (psig) into a formation that can range in pressure from 1250 psig to 3400 psig. The compressors can be operated either with three units in parallel or with two units in parallel and one unit in series when higher-pressure operation is required. Each compressor has an inter-cooler between the stages of the casing in addition to an after-cooler. The configuration of the compression system compressors is represented on Figure 3.2-3 below.

Figure 3.2-3 Base Configuration in Parallel and Series Mode of Operation



The compressors were manufactured by Clark and are driven by GE LM-1500 gas turbines. They were installed in 1971. Current maximum discharge pressure of the TDCs is approximately 3,000 psig.

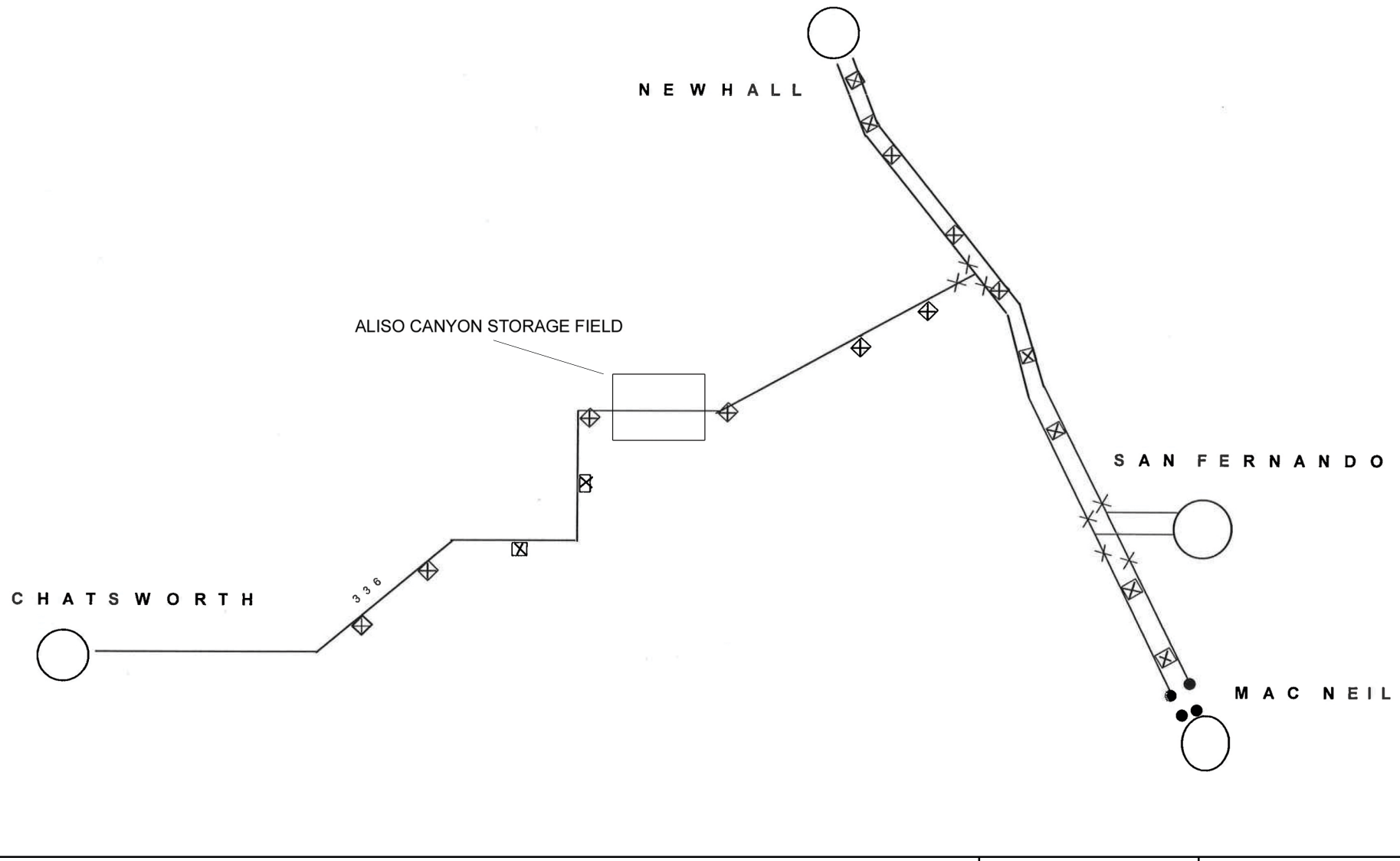
Produced Water and Other Associated Products

Produced water and crude oil are removed from the withdrawal gas stream in various field separators and slug catchers. Water, oil, and hydrocarbon condensate are also produced in the dehydration process and the compression cycle. Water, oil, and hydrocarbon condensate flow to either the Sesnon Gathering Plant or the Porter Gathering Plant. In each of the gathering plants dissolved gasses are separated through a two-stage pressure cut, and the remaining oil/water stream flows to a free water knock out (FWKO). From the FWKO the water flows to the water injection plant, and the oil flows to the heater treater. Oil from the heater treater goes to storage for eventual sale, and water from the heater treater also goes to the water injection plant.

At the water injection plant, the produced water flows through a wash tank and a surge tank. Residual oil is skimmed from the wash tank and surge tank and is sent back to the gathering plant for reprocessing. Finally, the water flows from the surge tank to the injection pumps where it is pumped into various flood and/or disposal wells. There are (6) flood wells and (2) disposal wells.

3.2.2 Electric Distribution and Transmission System

The Proponent's existing 16 kV primary metered electric service to the Storage Field is provided by a 16 kV distribution line called the SCE Gavin 16 kV circuit. Both the SCE Gavin circuit and two SCE 66 kV sub-transmission lines originate at SCE's Newhall Substation but follow separate alignments from their origination (see Figure 3.1-1). SCE has indicated that the SCE Gavin circuit, which currently provides electrical service to the field gathering plants, would not be able to meet the future energy requirements (50 megawatts) of the proposed Central Compressor Station with the addition of three new variable frequency drive (VFD) motors; and, that the SCE 66 kV sub-transmission lines could provide an adequate electrical alternative for the gas plant's energy needs. The Proposed Project would not impact the existing SCE 16 kV distribution circuit. The existing 16 kV primary metered service will be removed in accordance with SCE CPUC approved Tariff Rule 2 and 16. The existing SCE 66 kV sub-transmission facilities proposed for modification are represented on Figure 3.2-4.



Substation

Pole Switch

Line on Tower

N
W
E
S

Aliso Canyon PEA

Figure 3.2-4
Existing 66 kV Sub-transmission Alignment

Southern California Gas Company
A Sempra Energy utility

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Project: 06205-134
Date: September 2009

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3.3 PROJECT OBJECTIVES

SoCalGas provides natural gas to approximately six million customers in Southern California. SoCalGas operates four underground storage facilities to help meet peak hourly, daily and seasonal demands for all its customers. The Aliso Canyon Storage Field is SoCalGas's largest underground natural gas storage field and one of the largest in the United States. The Storage Field plays a critical role in SoCalGas's gas storage and distribution system, which generally withdraws gas from storage during the winter months and injects gas into storage during the spring and summer months. The field has 84 Bcfd of working storage inventory, 1.875 Bcfd of withdrawal capacity, and current end-of-cycle injection capacity of 300 MMcfd. Approximately 45 percent of SoCalGas's total firm injection capacity is provided by the Storage Field. The majority of the injection capacity at the Storage Field is provided by three obsolete gas TDC's providing 15,000 International Organization for Standardization (ISO) HP each. These units were installed in the 1970's and have poor efficiency due to their use of older technology.

The Proposed Project objectives are to reduce the potential for interruptions in the ability to store gas in the Storage Field by replacing the existing TDC station, designing and constructing a new electric compressor station which increases the injection capacity at the Storage Field by approximately 145 MMcfd, and utilizing recent engineering and technological advances. As storage services are a critical part of SoCalGas's hourly, daily, and seasonal supply/demand balance equation, it is imperative that the Storage Field remain highly reliable and efficient.

Another objective of the Proposed Project is to reduce air emissions associated with the existing compressors. The Proposed Project will replace all existing TDC compression equipment including the gas coolers. To improve efficiency, the Proponent plans to construct a new compressor station that will house three new VFD motors (22,000 HP each). The VFD motors will provide increased natural gas injection capabilities and upgrade natural gas service reliability. The Proposed Project objectives also include implementing the terms of a settlement agreement (SA) between SoCalGas and parties in Phase I of the 2009 Biennial Cost Allocation Proceeding in A.08-02-001. The SA was approved by the CPUC in D.08-12-020, which requires SoCalGas to replace the existing TDC station and expand the overall injection capacity at the Storage Field by approximately 145 (MMcfd). The Proposed Project objectives are detailed in Chapter 2.

3.4 PROJECT OVERVIEW

Proposed Project Component Owner/Operator

The Proposed Project components include a proposed Central Compressor Station with three new VFD motors, relocation of the existing office trailers and guard house, a proposed PPL line interconnected to the proposed Central Compressor Station, a proposed SCE Natural Substation, and related off-site modifications to two existing SCE 66 kV sub-transmission lines and three existing SCE substations. SoCalGas is the Proponent of the Proposed Project; therefore, they will work extensively with SCE to license and implement the modifications to the SCE facilities needed to provide electrical services to the Proposed Project. Table 3.4-1 below represents the various owner/operator project components.

Table 3.4-1 Proposed Project Components Owner/Operator

Project Component	Owner/Operator
Central Compressor Station	Southern California Gas Company
Office Trailer Facilities and Guard House	Southern California Gas Company
12 kV Plant Power Line (PLL)	Southern California Gas Company
On-site SCE Natural Substation	Southern California Edison Company
On-site and Off-site Modifications to 66 kV Sub-transmission Lines	Southern California Edison Company
Other Off-site SCE Substation Modifications	Southern California Edison Company

Project Components Overview

Construction of the proposed Central Compressor Station, proposed PPL, and relocation of office trailer facilities and guard house will be conducted by the Proponent. The installation of the new VFD compressor trains will not affect the existing system including the storage reservoir, wells, pressure, field lines, and other Storage Field parameters; they will be constructed to operate using the existing system without modification. The proposed Central Compressor Station will be connected to the suction, discharge and blowdown headers from the existing TDC station. Additional piping is proposed to connect the suction and discharge header at the proposed Central Compressor Station, and to connect the new compression facility to the existing emergency shutdown system; however, there are no new pipelines or wells planned as part of the Proposed Project. The TDCs will be retired in accordance with public utility retirement processes typically implemented by the Proponent. This includes maintaining the existing TDC station for at least one field cycle of tested reliable service using the VFDs in order to verify reliable and efficient operations using the new equipment.

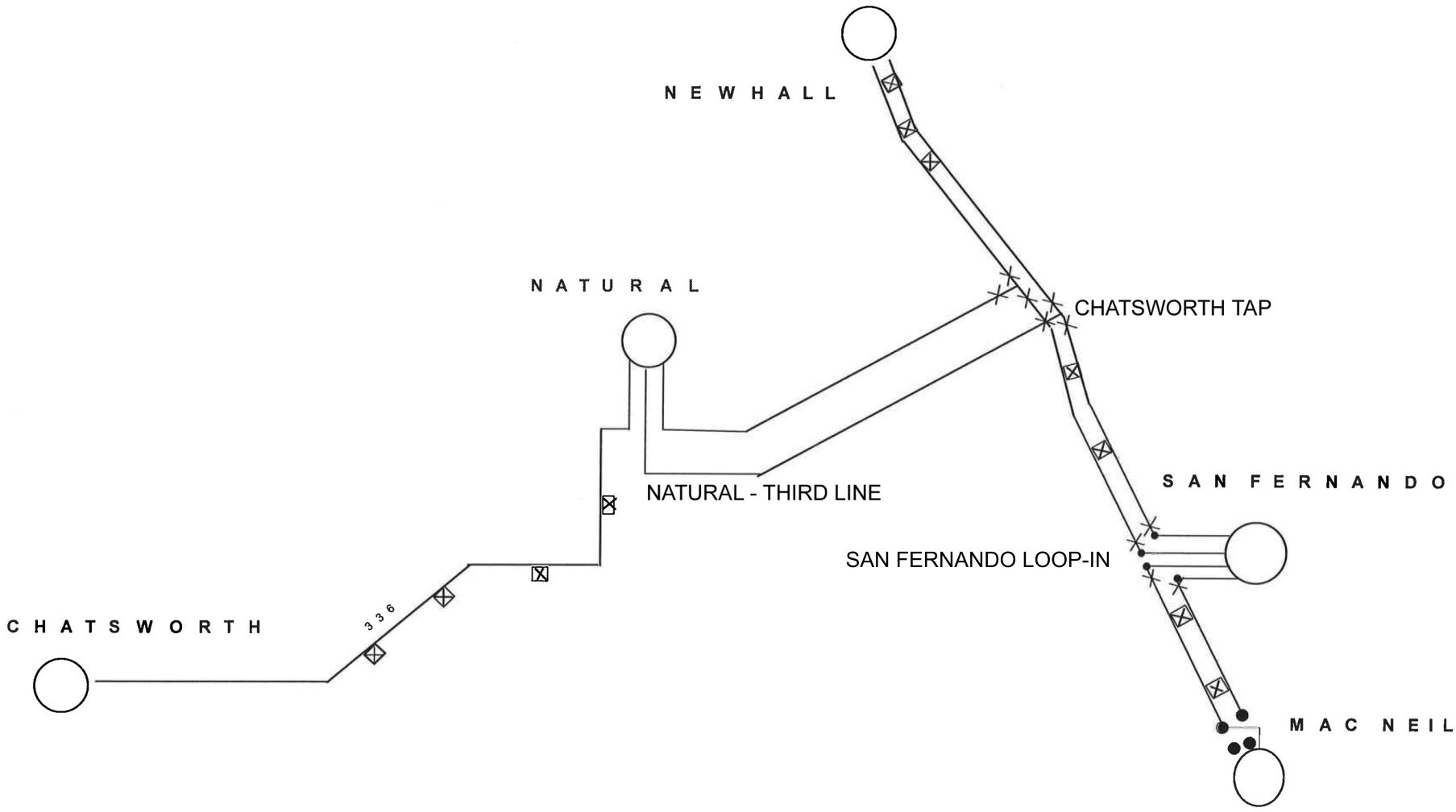
The proposed PPL will be designed to San Diego Gas and Electric (SDG&E) Standards and constructed by the Proponent with four circuits to provide three (3) phase four (4) wire electrical services to the proposed Central Compressor Station and other existing site load. The proposed PPL will be interconnected from the proposed SCE Natural Substation to the proposed Central Compressor Station. The alignment of the PPL will be determined from several available options upon final engineering and design considerations for the proposed SCE Natural Substation. The trailer facilities relocation will remove the existing office trailers from service and place new office facilities within a designated location. The guard house will be relocated approximately 500 feet north of the existing guard house along the existing access road. The existing guard house will remain in place for security and signage purposes. The guard house relocation will provide additional staging area for incoming trucks helping to reduce associated city street congestion.

The proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission line modifications, and proposed modifications at three additional SCE substations will be constructed by SCE. The proposed SCE Natural Substation will be a 112 megavolt ampere (MVA) 66/12 kV customer dedicated substation, constructed according to SCE design specifications. The proposed SCE Natural Substation will include a communication system, mechanical engineering and electrical room (MEER), substation lighting, new

poles, loop-in circuits, cables, conductors, capacitors, and transformers. SCE proposes to connect three lines to the proposed SCE Natural Substation; two lines will be created from the existing SCE Chatsworth-MacNeil-Newhall-San Fernando line (constructed by SCE). SCE will construct a loop-in section at the existing Chatsworth-MacNeil-Newhall-San Fernando 66 kV line through the proposed SCE Natural Substation, creating two new lines: the SCE Chatsworth-Natural 66 kV line and the SCE Natural-Newhall-San Fernando #1 66 kV line. In addition, SCE proposes to add a new section of line to the existing SCE MacNeil-Newhall-San Fernando line to create the new SCE Natural-Newhall-San Fernando #2 line. The existing 66 kV lines will be looped through SCE's San Fernando Substation, creating the MacNeil-San Fernando # 1 and the MacNeil-San Fernando #2 lines.

SCE plans to rebuild a portion of the towers supporting the SCE Chatsworth-MacNeil-Newhall-San Fernando 66 kV line and the SCE MacNeil-Newhall-San Fernando 66 kV existing source lines. Both lines originate at SCE's Newhall Substation rack and are supported on the same structures; SCE plans to rebuild the tower lines from the Newhall rack to the first structure south of the Chatsworth tap point A (Mile 7 – Tower 6). The existing towers and poles will be replaced with engineered tubular steel poles (TSPs) and the line will be re-conductored with 954 aluminum conductor steel reinforced (ACSR) conductors. SCE also plans to rebuild the Chatsworth tap line and add a second line, from the tap point B (Mile 7 – Tower 5) out to the first structure past the proposed SCE Natural Substation (furthest structure is Mile 12 – Tower 2), represented on Figure 3.4-1.

Off-site improvements proposed at three existing SCE substation include both construction and non-construction related activities. For the purposes of the Proposed Project, construction is defined as activities involving ground disturbance, material use or storage, and/or heavy duty equipment. Off-site improvements proposed for the San Fernando Substation include removing up to four existing LSTs and installing up to four TSPs. Up to two TSPs will be installed within the existing substation footprint, and up to two TSPs will be installed along the existing transmission alignment to the substation. In addition, two loop sections will be installed into the rack to provide a loop-in interconnection and two new positions at the San Fernando Substation. Proposed substation modifications not requiring construction includes installation of new relay equipment at the Newhall, San Fernando, and Chatsworth Substations. Relay system equipment includes current differential relaying systems, current transformer (CT) connections, and a dedicated digital communications system. The relay system and related equipment will be installed within the MEER and would not include any construction or ground disturbing activities.



Substation

Pole Switch

Line on Tower

N
W
E
S

Aliso Canyon PEA

Figure 3.4-1
Proposed SCE
66 kV Sub-trnamission
Line and Substation
Modifications

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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3.5 PROJECT COMPONENTS

This section provides additional description and detail of the components described in the previous section. A summary of project components as organized for discussion in this section is presented in Table 3.5-1.

Table 3.5-1 Summary of Project Components

3.5.1 Central Compressor Station
3.5.2 Office Trailer Facilities and Guard House
3.5.3 12 kV Plant Power Line
3.5.4 On-site SCE Natural Substation
3.5.5 On-site and Off-site SCE 66 kV Sub-transmission Line Modifications
3.5.6 Off-site SCE Substation Modifications

3.5.1 Central Compressor Station

Compressor Station Site and Surrounding Uses

The proposed Central Compressor Station will be constructed within the footprint of the existing Aliso Canyon Plant Station, which is located in the southwestern portion of the Storage Field. The Storage Field is located in Northern Los Angeles County, about 20 miles north of downtown Los Angeles and is situated within the topographic feature of Aliso Canyon. The Plant Station is situated in elevated terrain and is surrounded by hills on all sides. Residential land uses are located south of the Plant Station and Proposed Project site. Areas west, north and east of the compressor injection site are part of the Proponent's property and are mostly undeveloped, with other Proponent operations (including existing soil re-engineering sites, laydown areas, and equipment storage) located within the property. This site is within the canyon and is not observable from any neighboring area roads. The proposed Central Compressor Station will be constructed in a previously disturbed portion of the Plant Station.

The proposed Central Compressor Station will house the new VFD motors, with a total combined HP of approximately 66,000 HP. The VFD motors will be powered by electricity provided by the proposed SCE Natural Substation via the PPL. The site will be fenced and paved for access control, fire control, and maintenance purposes.

The VFD motors will provide power to the compressors, which inject pipeline (natural) gas into the ground for storage. The proposed Central Compressor Station will have a maximum injection capability of 450 MMcfd of natural gas per day at end-of-cycle. The purpose of the VFD motors is twofold: to provide enhanced natural gas service reliability; and to provide enhanced injection capabilities to cycle through the field more efficiently. The preliminary plot plan for the proposed Central Compressor Station is provided on Figure 3.5-1.

Pipelines and Interconnections with Existing Facilities

Suction for the new compressors will be taken from two existing 30-inch transmission lines (Lines 1180 and 1181) and the discharge of the compressors will connect to the existing 20-inch injection line from the existing TDCs. Liquids from the suction, interstage, and discharge separators will be sent to the existing liquid line which runs from the existing compressor station to the Porter Gathering Plant. The Emergency Shut Down vent piping will be connected to the existing vent header. All piping will be installed above grade on pipe supports or in a trench.

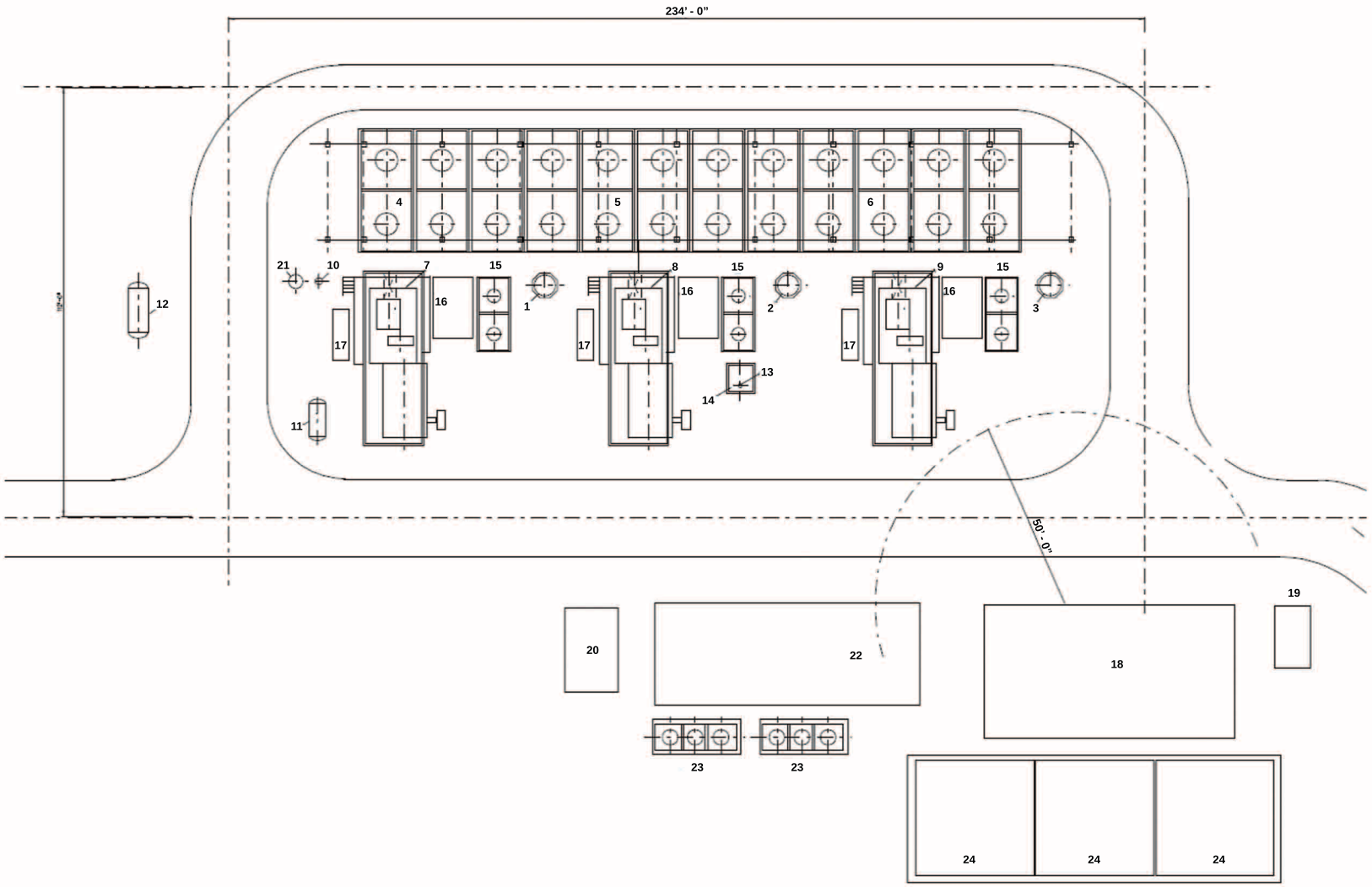
There will be no changes to the existing pipelines that transport gas to and from the Storage Field. However, additional piping will be required to connect the suction and discharge header at the proposed Central Compressor Station location, consisting of approximately 550 feet of 18-inch line for the discharge header and approximately 550 feet of 24-inch line for the suction header. Approximately 600 feet of 24-inch line would be installed to connect the proposed Central Compression Station facility to the existing emergency shutdown system. All of these would be above-grade lines.

Gas Metering and Control

The existing gas orifice meter measures injection and withdrawal to monitor the flow rate. Metering and control of the new injection compressors will be conducted using the existing metering system. The control system provided with the new compressors will be connected to the existing Supervisory Control and Data Acquisition (SCADA) system in the existing, on-site, operation office. Some key information will be transmitted to SoCalGas's existing central control room in East Los Angeles; however, remote control is not included as part of the Proposed Project at this time. Telemetry will be installed as required to allow for operation of the new compression equipment from the existing on-site control room.

Preliminary Design Details

The preliminary design details for the proposed Central Compressor Station include three VFD motor-drives. The motor drives run at about 22,000 HP each; the compressors are capable of providing over 450 MMcfd up to 3400 psig at end-of-cycle. Design specifications and architectural drawings will be developed during detailed project design. A general plot plan showing orientation of the proposed Central Compressor Station and ancillary equipment is shown on Figure 3.5-1.



Equipment Index

1. V-101A Compressor Suction Scrubber
2. V-101B Compressor Suction Scrubber
3. V-101C Compressor Suction Scrubber
4. A-101A Compressor Aftercooler
5. A-101B Compressor Aftercooler
6. A-101C Compressor Aftercooler
7. C-101A Compressor
8. C-101B Compressor
9. C-101C Compressor
10. V-301 Instrument Gas Scrubber
11. V-303 Process Liquids Drain Drum
12. V-100 Inlet Filter Drain Drum
13. P-302 Open Drain Sump Pump
14. X-302 Open Drain Sump Pump
15. A-101A/B/C Lube Oil Cooler
16. N/A Lube Oil
17. N/A Seal Gas
18. TBD High Voltage Switch Gear/480 MCC Building
19. TBD Transformer (15 kV/480 V)
20. C-307 Air Compressor
21. V 308 Instrument Gas Recovery
22. TBD VFD
23. TBD VFD Cooler
24. TBD Transformer (66 kV/13.8 kV)

Aliso Canyon PEA

Figure 3.5-1
Preliminary Central Compressor Station Plot Plan

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Project: 06205-134
Date: September 2009

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3.5.2 Trailer Facilities and Guard House

The existing office trailers utilized by SoCalGas Storage Field staff cover approximately 4,500 square feet (across multiple building structures). These temporary facilities are located to the south of the existing TDCs. A new location will be prepared and new office trailers will be placed. The proposed relocation site is represented on Figure 3.1-3 above.

The site for the proposed new trailer facilities will be cleared, graded and paved during associated site preparation activities for the proposed Central Compressor Station. Following proper soil compaction, the proposed new trailers will be delivered to the site and placed in the new location. The existing office trailers will be removed from service once the new trailers are in use. The existing trailers are standardized, modular facilities and will be hauled to appropriate waste and recycle facilities. On-site demolition would only occur if the trailers are deemed unstable for removal.

The existing guard house that currently provides vehicle entry off Sesnon Boulevard will remain in place as an access monitoring station and for locating Storage Field signage. The Proposed Project will consist of constructing a new guard house and access gate approximately 500 feet to the north of the existing guard house facility. The proposed location would allow two-lane ingress to the storage facility, allowing trucks to stage while also allowing workers and light vehicles to proceed without delivery truck check-in procedures. Placement of the new guard house further into the property will also improve traffic flow by allowing more vehicles to turn off Sesnon while waiting for admission to the Storage Field, thereby alleviating truck congestion at the Tampa/Sesnon intersection located at the facility entrance.

3.5.3 Aliso Canyon 12 kV Plant Power Line

A proposed PPL will be constructed by the Proponent and interconnected to the proposed SCE Natural Substation to provide service to the proposed Central Compressor Station. The proposed PPL will be connected to four 12 kV circuit breakers installed for dedicated service to the gas plant from the proposed SCE Natural Substation. The alignment of the PPL will be determined upon completion of final electrical and engineering evaluations of the proposed SCE Natural Substation and is represented on Figure 3.1-3. The PPL alignment, above grade or below grade, will be constructed pursuant to SDG&E design considerations which include and exceed applicable State of California General Orders (GO) 95 and 128.

Above-grade Alignment

If an above-grade alignment is chosen based on final engineering evaluation, overhead lines would be conductored on three TSPs. The TSPs would be mounted on engineered concrete foundations and 69 kV insulators would be installed to provide additional protection from the effects of pollution, fog and soot from wildfires.

Below-grade Alignment

If a below-grade alignment is chosen based on final engineering evaluation, special trenching and backfill methods would be required due to the rocky and heavily sloped terrain. Underground construction would require 6 parallel lengths of 15 kV thousand circular mils (kcmil) copper PECN-PEJ cable. Cables would be installed in multiple 5-inch reinforced concrete conduits terminating in manholes. Trench size,

configuration, encasement and backfill would require a geotechnical survey and civil engineering due to the extreme slope and the prevalence of rock. Erosion control for the completed trench would be ongoing as it would tend to channel surface and subsurface water during periods of heavy rain. Access to manholes for construction and maintenance would require significant ground disturbance. Because the purpose of the manholes is for cable installation and replacement due to failures, permanent truck access and working space around the manholes would be required. Also, retaining walls would be required to prevent eroding soil from covering manhole covers and working space.

3.5.4 On-site SCE Natural Substation

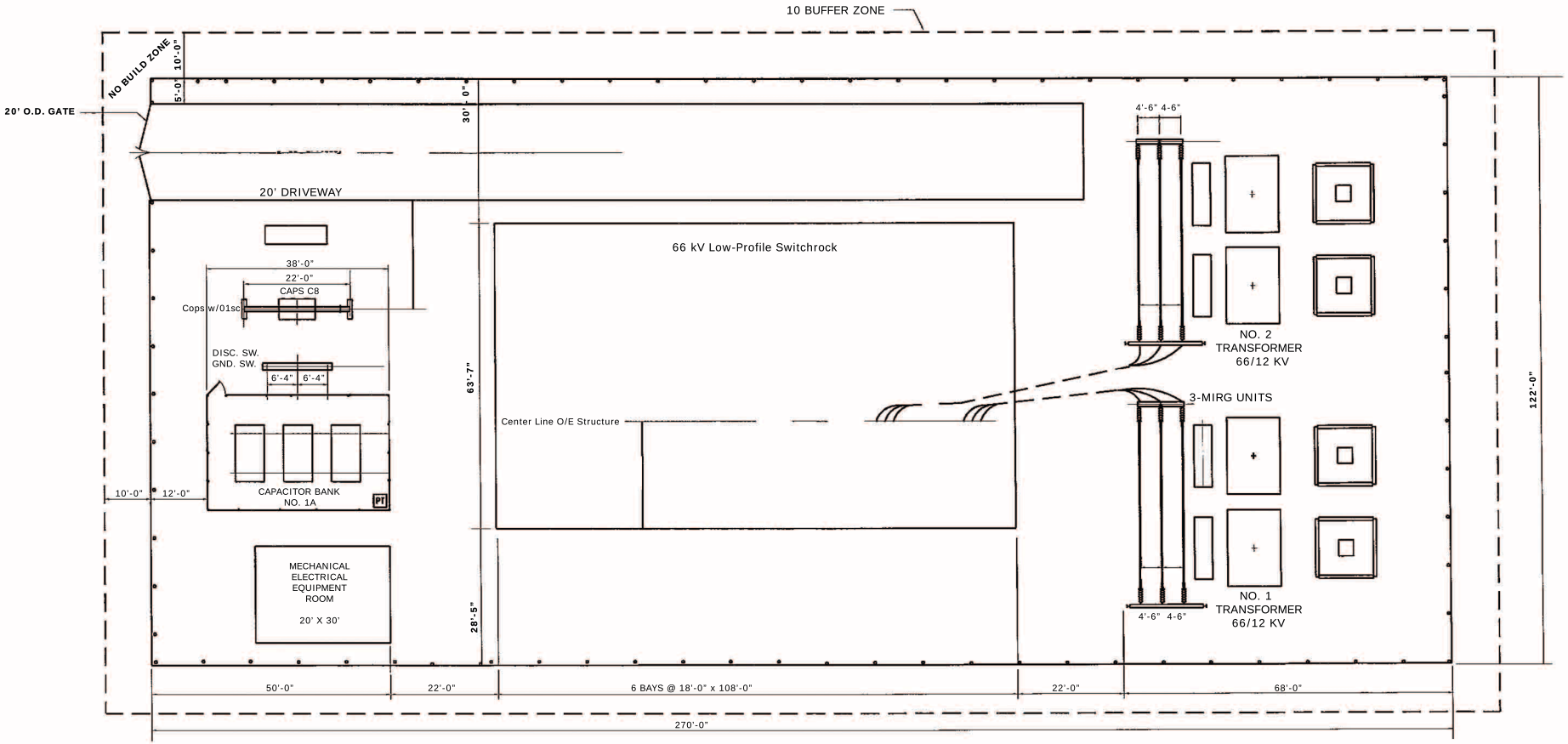
Distribution service provided via the proposed SCE Natural Substation will be a 112 MVA, 66/12 kV customer dedicated substation. The proposed SCE Natural Substation will be unstaffed and automated; the equipment will be 66 kV low-profile which limits equipment heights to 17 feet. The proposed SCE Natural Substation equipment is presented in Table 3.5-2 below.

Table 3.5-2 Proposed SCE Natural Substation Equipment
112 MVA 66/12 kV Customer Dedicated Substation

Equipment	Description
66 kV Switchrack	The 66 kilovolt (kV) switchrack will be approximately 120 feet long ('L) by (x) 65 feet wide ('W) x 17 feet high ('H). It will consist of both an operating bus and a transfer bus configuration, and will be open air. The switchrack will consist of seven positions; seven 66 kV circuit breakers, and one 66 kV capacitor bank. Each bus will be approximately 120 feet long and consist of one 1590 kcmil ACSR per phase.
12 kV Switchrack	The 12 kV low-profile switchrack will consist of twelve 9-foot wide bays accounting for seven equipped positions. At ultimate build-out, the wrap around design arrangement will allow for twenty-two positions. The 12 kV switchrack dimensions will be approximately 17'H x 108'L x 34'W.
Transformers	Transformation will consist of uo to four 28 MVA 66/12 kV transformers each equipped with a group operated isolating disconnect switch on the high and low voltage side, surge arresters and neutral current transformers. The transformer area dimensions will be approximately 15'H x 80'L x 42'W.
Capacitor Banks	One 66 kV capacitor bank will be installed. The capacitor bank enclosure dimensions will be approximately 17'H x 16'L x 13'W.
MEER (Mechanical Electrical and Engineering Room)	A pre-fabricated steel MEER will be erected and equipped with air conditioning, control and relay panels, battery and battery charger, alternative current (AC) and direct current (DC) distribution, human-machine interface (HMI) rack, communication equipment, telephone and local alarm. Control cable trenches will connect the MEER to the 66 kV switchrack, and to the 12 kV switchrack. MEER dimensions will be approximately 12'H x 36'L x 20'W.
Metering Apparatus	Each of the three new sub-transmission lines will be equipped with 66 kV revenue metering apparatus.

The proposed SCE Natural Substation facility will include typical SCE lighting structures which include fifteen 120 volt incandescent lamps rated at 120 watts. The light locations would be on the high-side switchrack, the transformer racks, and the low-side switchrack. These lights will manually turn on and off and will only be turned on during emergency work performed after dusk. The lights are typically mounted at a height of 7.5 feet. Additionally, a beacon safety light on the proposed SCE Natural Substation gate will activate when the gate is opened.

The location of the proposed SCE Natural Substation is approximately 1,800 feet west of the proposed Central Compressor Station site. The Proponent will grant SCE an easement in order to operate the proposed SCE Natural Substation equipment. The existing easement will be widened from 50 feet to approximately 150 feet for approximately 300 feet in length. Approval will be obtained from the CPUC pursuant to Section 851 of the Public Utilities Code. There will be a temporary chain-link fence constructed 10 feet from the proposed SCE Natural Substation perimeter to provide appropriate protection and security. A band of at least three strands of barbed wire will be affixed near the top of the perimeter wall inside the proposed SCE Natural Substation. The preliminary design and plot plan is presented on Figure 3.5-2 below.



Aliso Canyon PEA

Figure 3.5-2
Preliminary
Substation
Plot Plan

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Date: September 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_3-5-2_Preliminary_Substation_Plot_Plan.mxd

Telecommunications System

The proposed SCE Natural Substation will contain a telecommunications facility to connect to the SCE existing telecommunication system. Telecommunications facilities will include fiber optic cables and relay protection equipment in the MEER. SCE will provide bidirectional 64 kilobyte (kbps) digital channel(s) (C37.94) for each pilot scheme, to be used for the new 3-terminal Natural-Newhall-San Fernando 66 kV line. SCE will provide bidirectional 64 kbps digital channel(s) (C37.94) for each pilot scheme, to be used for the new 2-terminal Chatsworth-Natural 66 kV line.

3.5.5 Off-site Electric Sub-transmission Line Modifications

Sub-transmission Electrical Service

The Proposed Project plans to modify the existing two SCE 66 kV sub-transmission lines, the SCE Chatsworth-MacNeil-Newhall-San Fernando line and the SCE MacNeil-Newhall-San Fernando line, and create a third line segment to provide electrical service to the proposed SCE Natural Substation. The proposed SCE 66 kV sub-transmission line modifications, including re-conductoring and the addition of the new circuit segment from the Chatsworth Tap point to the Proposed SCE Natural Substation on the same pole line, pole removal, H-frame removal, and TSP installation, will be conducted on portions of the existing two lines, as represented on the modified alignment on Figure 3-1-1. The proposed SCE Natural Substation will provide dedicated service to the gas plant.

Poles/Towers

The Proposed Project includes pole replacement of the existing pole combination of H-frame wood and LWS structures and lattice steel towers (LSTs) with specially designed and engineered TSPs. The TSPs will range in height between 55 feet to 150 feet, with a nominal height of 85 feet, depending on site survey and engineering evaluation. Due to the terrain variation throughout the alignment, each pole will be specifically designed and engineered for each location. A typical 66 kV TSP is provided on Figure 3.5-2.

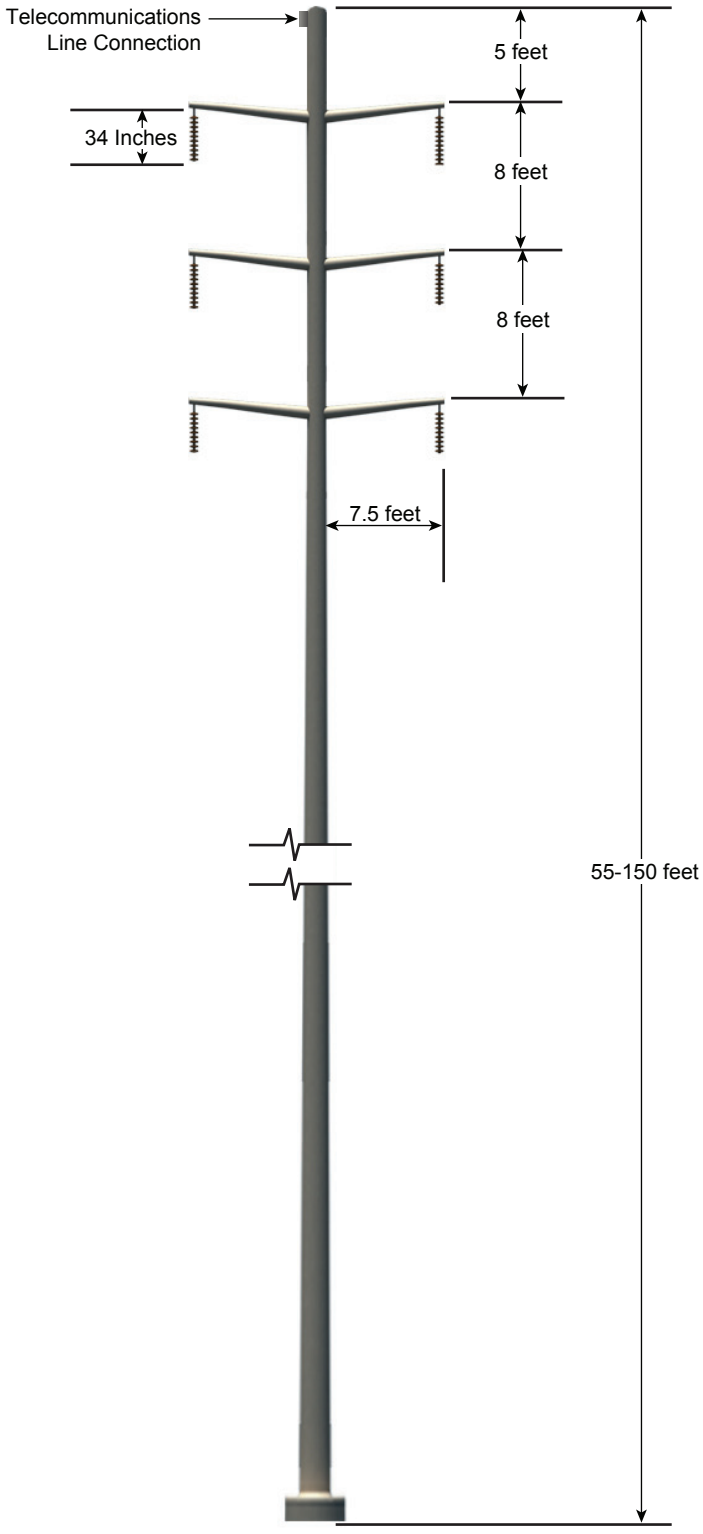
Originating at the SCE Chatsworth tap point A, between SCE's Newhall Substation and the Interstate 5 freeway crossing (see Figure 3.4-1), the sub-transmission work on the existing main-line will replace approximately 38 LSTs and wood structures with approximately 45 engineered TSPs. Additional poles may be required to maintain ground and conductor clearances. The existing double circuit 4/0 copper, 336.4 and 653.9 ACSR conductors will be replaced with double circuit 954 ASCR conductors (approximately 4.2 miles). Two new satellite controlled pole switches may be installed on the main-line. The sub-transmission work at the existing SCE Chatsworth tap line will replace approximately 22 existing LSTs and wooden and LWS H-frames with 28 engineered TSPs. The existing ACSR 336.4 conductors will be replaced with 954 ASCR conductors (approximately 20,800 linear feet). The existing SCE Chatsworth tap line, beyond (west of) tap point A, will be looped into and out of the proposed SCE Natural Substation. The new proposed SCE Chatsworth tap line segment, starting at tap point B, will be connected and extended to the proposed SCE Natural Substation. One new satellite controlled pole switch may be installed on the tap line.

The TSPs will primarily be set within existing ROWs and in the existing alignment. The approximate span length between the poles will be based on the current tower configuration. Based on known height above

ground, the proposed TSP poles and towers are not anticipated to require any angle guys because they are engineered self-supporting structures.. If any conductor or structure height reaches more than 200 feet above ground level (AGL), marker balls or lights may be installed on the TSP or line span, if conditions warrant such installation.

Telecommunications Wiring

Fiber optic cable will be installed on the new sub-transmission structures and connect to the existing SCE telecommunications system. The telecommunications system will provide remote operation of unmanned facilities such as the new Natural Substation.



Aliso Canyon PEA

Figure 3.5-3
SCE Typical Tubular Steel Pole Design

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Re-conductoring

The existing SCE 66 kV lines originating at the Newhall Substation to the proposed SCE Natural Substation and to the Chatsworth tap point A (see Figure 3.4-1) will be re-conductored onto new poles to carry the increased capacity. SCE will utilize specific equipment and methods for replacing existing overhead transmission line conductors with new ones. The old conductor may be used to pull the new conductor or a sock-line through a series of sheaves installed at the bottom of each insulator at each tower. Conventional tension-stringing equipment is grounded.

The existing double circuit 4/0 copper, 336.4 and 653.9 conductors will be replaced with double circuit 954 ASCR conductors. Each pole will have 6 conductors – 3 on each side. The 954 ACSR wire configuration is made up of 45 strands of aluminum and 7 strands of ACSR, with a diameter of 1.165 inches. The insulators are polymer insulators. This material is hydrophobic (repels water) and minimizes the accumulation of surface contaminants such as soot and dirt, which in turn reduces the potential for corona noise to be generated at the insulators. Telecommunication lines will likely be installed on the poles with the conductors.

3.5.6 Off-site Substation Modifications

In order to integrate the proposed SCE 66 kV sub-transmission system modification into the grid, SCE will be required to perform certain work at existing SCE substations.

Additional Work at San Fernando Substation

Two loop sections will be installed into the San Fernando Substation rack to provide a loop-in connection. Based on preliminary engineering, one LST inside the substation will be replaced. In addition, there are three LSTs located outside the substation that will be removed or replaced. Two of the existing LSTs are located on Bishop Alemany High School north of the substation; one is located in Brand Park south of the substation in the existing SCE ROW, all within 350 feet of the substation. Two new engineered TSPs will likely be installed within the existing substation footprint and two will likely be placed on each side of the substation, resulting in a reduction in the number of structures on the Bishop Alemany High School site. Approximately 1,000 feet of 954 ACSR conductors will be installed on the new TSPs, including new conductors needed inside the substation. SCE will install four 66 kV circuit breakers, eight sets of disconnect switches, and other associated equipment to provide the San Fernando substation with two new positions.

Additional Work at Newhall, Chatsworth, and San Fernando Substations

In order to provide adequate protection during fault conditions, new equipment will be installed at SCE's Newhall, Chatsworth, and San Fernando Substations. At SCE's Newhall Substation, SCE will replace existing primary protection with one (1) General Electric (G.E.) L90 line current differential relaying system (to be used as System A pilot protection), and one (1) Schweitzer SEL-311L line current differential relaying system (to be used as System B pilot protection). Each relaying system will require separate CT connections, and a dedicated digital communication channel. Additionally at SCE's Newhall Substation, SCE will provide one (1) Schweitzer SEL-311C relay, on the 66 kV bus tie.

At SCE's Chatsworth Substation, SCE will replace the existing primary protection with one (1) G.E. L90 line current differential relaying system (to be used as System A pilot protection), and one (1) Schweitzer SEL-311L line current differential relaying system (to be used as System B pilot protection). Each relaying system will require separate CT connections, and a dedicated digital communication channel. Additionally at Chatsworth Substation, SCE will provide one (1) Schweitzer SEL-311C relay, on the 66 kV bus tie. All of the above described construction will be conducted within the existing substation boundary.

At SCE's San Fernando Substation, for each line, SCE will replace existing and add new primary protection, to each line, with one (1) G.E. L90 line current differential relaying system (to be used as System A pilot protection), and one (1) Schweitzer SEL-311L line current differential relaying system (to be used as System B pilot protection). Each relaying system will require separate CT connections, and a dedicated digital communication channel. Additionally, each line will require a new circuit breaker which may require an extension of the existing switchrack. All of the above described construction will be conducted within the existing substation boundary.

3.6 RIGHT OF WAY REQUIREMENTS

The proposed SCE Natural Substation and portions of SCE's 66 kV sub-transmission lines fall within the Proponent ROW and located entirely within the SoCalGas Storage Field property boundary; an easement will be granted by the Proponent to SCE in order to operate the proposed SCE Natural Substation in the new location. The existing easement will be widened from 50 feet to approximately 150 feet for approximately 300 feet in length. Approval will be obtained from the CPUC pursuant to Section 851 of the California Public Utilities Commission Code. All other work will be completed primarily within the existing ROW or SoCalGas private property.

3.7 CONSTRUCTION

This section describes specific construction elements of each major Proposed Project component, including the proposed Central Compressor Station, proposed office trailer relocation, proposed guard house relocation, the proposed on-site SCE Natural Substation, proposed PPL, proposed SCE sub-transmission line modifications, and proposed off-site substation modifications. This section also describes the construction schedule, staging and access requirements, and personnel and equipment requirements.

3.7.1 Central Compressor Station

The site is on previously disturbed hillside terrain. Construction activities will include clearing and grading; construction of building and equipment foundations; ground surface preparation at access points within the equipment area; erection of structures to house the compressors and associated control equipment; installation of equipment and piping; and cleanup and restoration of the site.

Construction activities associated with the proposed Central Compressor Station will typically occur Monday through Friday, and some Saturdays, depending on weather and material delivery. A preliminary construction schedule is shown on Figure 3.7-3 below. Construction of the proposed Central Compressor Station and installation of the new compressors and auxiliary equipment is estimated to last 22 months; the total duration including engineering design and procurement is estimated to last 30 months.

Turbine Decommissioning

Due to the critical role the Storage Field plays in SoCalGas' gas storage and distribution system, the existing TDC system will remain on stand-by for at least one injection cycle after project completion of the Proposed Project. If any unforeseen problem occurs with the new equipment and a lengthy delay in restart is contemplated, the stand-by equipment may be used for whatever injection capacity it can deliver. Once operational stability of the new equipment can be resumed, the existing TDC and associated equipment will be retired under the normal accounting process for utility retirement as in the past.

Prior to dismantling the TDC systems, the turbines, gears, compressors, coolers and ancillary equipment will be offered for sale as complete units or parts. The remaining structures, inlet plenum, exhaust stack, piping, controllers, valves, etc. will be sold as scrap metal to offset removal costs. Foundations will be removed and the site will be leveled to grade. Future use of the site is unknown at this time. The Proponent recognizes that the specific terms of turbine decommissioning will be determined in the future; however the expectation is that the decommissioning process will only remove the existing equipment and demolish the existing structure to the existing site grade. It is anticipated that decommissioning activities will not result in any impacts to resource areas equal or greater than construction of the Proposed Project.

Site Preparation and Grading

Site preparation and grading activities for the proposed Central Compressor Station site, the proposed SCE Natural Substation site, the proposed office trailer site and proposed guard house site will be conducted by SoCalGas. Prior to excavation and grading activities, three to four native Coast Live Oak trees and other vegetation may need to be removed.

A geotechnical analysis was conducted to determine the impacts to the proposed Central Compressor Station site drainage, ditches and culverts. The geotechnical analysis determined the site would need approximately 50,000 cubic yards of engineered fill after excavation prior to facility construction. Excavation activities are estimated to remove 100,000 cubic yards of unsuitable fill material, which will be hauled to an onsite soils processing area for re-engineering. Figure 3.7-1 represents the soils processing site, or Porter 32, that will be utilized during construction; Porter 32 is an existing site utilized for backfill and processing activities during plant operations. An existing paved haul route will be utilized to transport excavated materials to the soils processing site. The haul route, presented on Figure 3.7-2, is approximately 1.5 miles roundtrip.

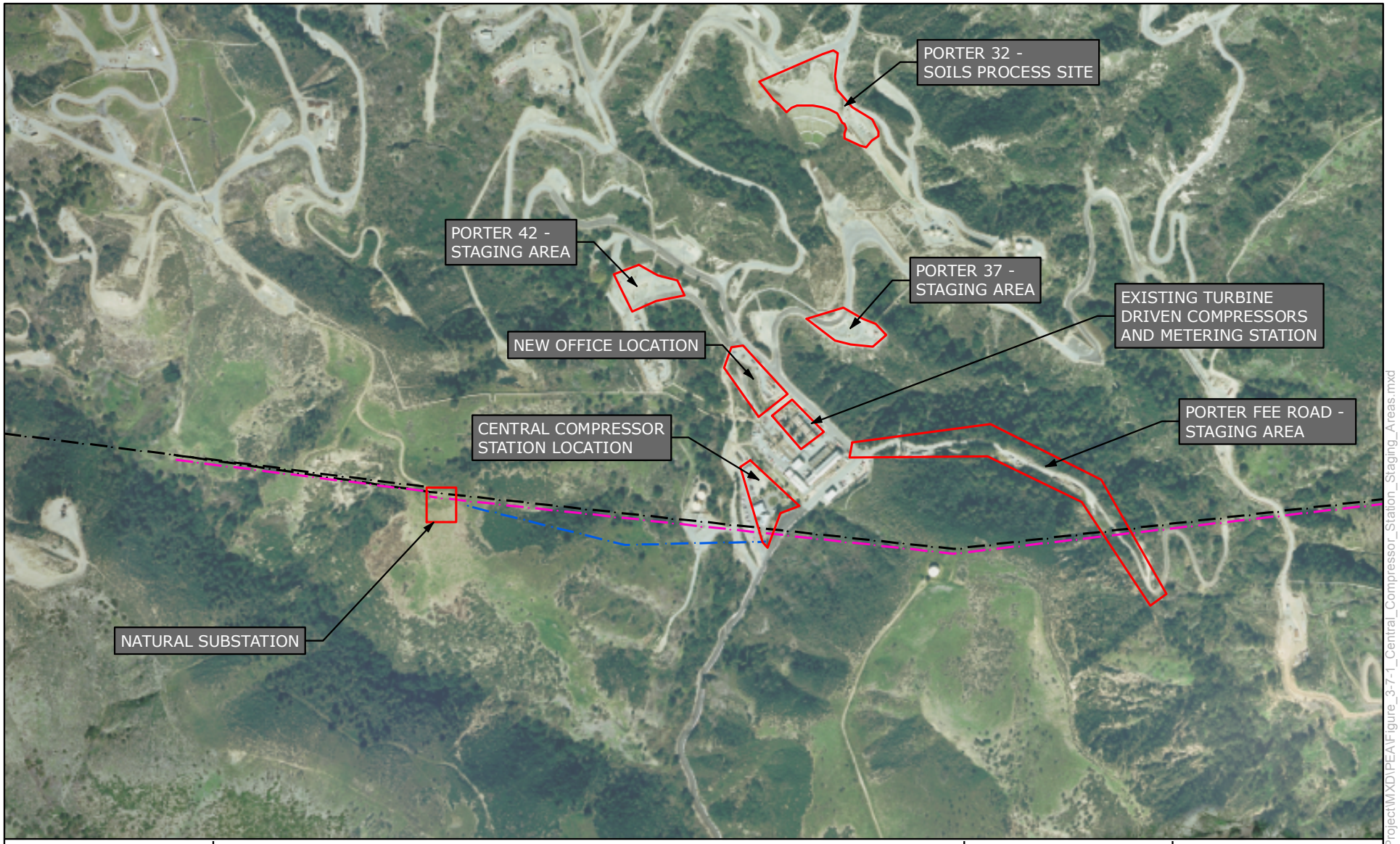
Excess excavated soil will be used on site or will be disposed of in an approved manner. No excess soil is expected to be hauled offsite as a result of the Proposed Project. The proposed Central Compressor Station building construction will begin after the VFD motors are installed on concrete foundations. After completion of construction, start-up, and testing of the equipment, the proposed Central Compressor Station site will be final graded, and disturbed areas will be graveled or paved.

Access Roads and Staging Areas

The proposed Central Compressor Station site is an existing disturbed area within the Plant Station. Existing well-maintained, paved roads will be used to access the site during construction and operation; additional access roads will not be required. Existing disturbed areas and wellhead sites will be utilized as staging areas to store equipment and materials during construction. The primary uses at the staging areas will be material and equipment storage, pipe spool fabrication, and worker reporting. Figure 3.7-1 represents the proposed staging areas, including Porter 42 (P-42), Porter 37 (P-37), and Porter Fee Road, that will be used during construction of the proposed Central Compressor Station, proposed office trailer and guard house relocation, proposed PPL, and proposed SCE Natural Substation (which are also presented on Figure 3.7-1). The proposed staging areas will not require additional security fencing due to the additional security provided by the guarded facility entrance.

Site P-42 (approximately 1-acre) and site P-37 (approximately 0.85-acre) are existing wellhead sites. The wells will be removed from service and plugged downhole during construction activities. The well laterals will be removed and steel cages will be placed over the wellheads for protection. The wells will be restored immediately after construction activity. These sites will not require brush clearance or grading due to the existing site activity. The third staging area located along Porter Fee Road (~ 0.5-acre) may require minor grading and clearance due to the lack of activity at the site. Small portable generators (50 HP) will be used as needed to provide power services to equipment in this staging area. Site P-42 and P-37 wellheads will be placed back into service following construction.

SoCalGas will conduct site clearing, grading, and paving activities at the proposed SCE Natural Substation location. In addition, the existing access road will need to be re-habilitated including grading, widening, and paving. The length of the access roads required for re-habilitation is presented on Figure 3.7-2, and further discussed in Section 3.7-3.



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- PPL

1 inch = 750 feet

0 750 1,500 Feet

N W E S

Aliso Canyon PEA

Figure 3.7-1
Central Compressor Station Staging Areas

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Map Location

Legend

Excavation/Re-engineer Haul Route

Road Upgrade (grading/paving)

1 inch = 750 feet

0 750 1,500 Feet

N W E S

Aliso Canyon PEA

Figure 3.7-2
Haul Routes and
Road Upgrades

Southern California Gas Company A Sempra Energy utility

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Project: 06205-134
Date: September 2009

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3.7.2 Trailer Facilities and Guard House

The site for the proposed office trailers is a previously disturbed site, represented on Figure 3.7-1. Prior to construction, site preparation including over excavation will be required to meet proper compaction requirements and will include an approximately 10-foot perimeter from the existing pad. There are no existing trees and only light brush on the site. The existing trailer facilities will be removed from service upon completion of site grading and preparation of the proposed office trailer location. The existing office trailers are standardized, modular facilities and will be removed and hauled off-site to a disposal and recycling facility.

The proposed guard house relocation site is represented on Figure 3.7-3. In addition to the facility relocation, a portion of the existing road will be widened, by approximately twelve feet, to provide two lanes for traffic flow. Construction will involve excavation, compaction, a retaining wall and utilities. The existing guard house will remain because of signage, security monitoring and security requirements. Associated construction activities will proceed early to allow ease of entry during construction and remedy future equipment staging and vehicle congestion at the facility entrance.

Map Location

N W E S

1 inch = 200 feet

0 200 400 Feet

Aliso Canyon PEA

Figure 3.7-3
Proposed Aliso Canyon Guard House Relocation

Southern California Gas Company A Sempra Energy utility

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Date: September 2009

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3.7.3 Aliso Canyon 12 kV Plant Power Line

The proposed PPL will be installed by the Proponent from the proposed SCE Natural Substation to the proposed Central Compressor Station. The dedicated PPL may be constructed either underground or aboveground, depending upon the final engineering evaluation of the site. If the aboveground alignment is chosen, the PPL will need three TSPs. Construction methods for both underground and aboveground distribution activities will meet SDG&E standards and comply with GO 128 and GO 95. General methods for underground construction activities are presented below. General methods for aboveground construction will be similar to the methods described in Section 3.7.4.

Underground Construction

If a below-grade alignment is chosen based on the final engineering evaluation, special trenching and backfill methods would be required due to the rocky and heavily sloped terrain. Underground construction would require multiple parallel lengths of cable. Cables would be installed in conduits terminating in manholes. Trench size, configuration, encasement and backfill would require a geotechnical survey and civil engineering due to the extreme slope and the prevalence of rock. Erosion control for the completed trench would be ongoing as it would tend to channel surface and subsurface water during periods of heavy rain. Accessing manholes for construction and maintenance would require significant ground disturbance. Also, retaining walls would be required to prevent eroding solids from covering manhole covers and working space.

3.7.4 SCE Natural Substation and SCE 66 kV Sub-transmission Facilities

Construction of the proposed SCE Natural Substation and proposed SCE 66 kV sub-transmission line modifications will include land surveys, substation site construction, replacement of existing structures, installation of new sub-transmission structures, telecommunication system installation, as well as construction support activities such as establishing a marshalling yard and rehabilitating existing access roads to TSP sites. The following sections provide more detailed information about the construction tasks that will be associated with the proposed SCE Natural Substation and proposed modifications to two SCE 66 kV sub-transmission lines.

SCE is in the preliminary design phase for the Proposed Project and plans to design the final height and locations of the TSPs after SoCalGas receives final CPUC approval. Following project approval, SCE will establish marshalling yard locations, and develop engineering drawings for the substation site grading permit application that will include perimeter wall design and landscape plans. These components are described in more detail below.

Siting

For siting, a detailed survey of the 66 kV sub-transmission source line would be conducted, additional ROW acquired, and detailed engineering designs started. A control centerline would be established, based on field survey measurements. Control monuments, consisting of 2-inch diameter iron pipes sealed with a stamped brass cap would be set at maximum intervals of approximately 2.0 miles. Visual reference points parallel and perpendicular to the control line would be established so that photogrammetric profiles of the area's topography could be compiled. Approximate structure locations would be spotted on the

profiles according to the engineering design criteria. Once approximate structure locations have been selected, exact positions would be field surveyed. During this phase of the work, site adjustments are made to avoid an environmental sensitivity or to maintain structure integrity and sustainability. Structure location approval and clearance procedures are discussed in the following section.

Survey crews would also locate spur road centerlines, grades, and soil boring locations. Final determinations of road location curvature, cuts and fills, grades and drainage, and necessary erosion controls would be made in accordance with design standards and practices and/or landowner requirements.

Substation Site Preparation and Grading

The proposed SCE Natural Substation site will be prepared by clearing existing vegetation and installing a temporary chain link fence to surround the construction site. The site will be graded in accordance with approved grading plans. The area to be enclosed by the proposed SCE Natural Substation perimeter wall will be graded to a slope that varies between 1 to 2 percent and compacted to 90 percent of the maximum dry density. The areas outside the proposed SCE Natural Substation wall that will be used as a buffer will be graded in a manner consistent with the overall site drainage design. Final site drainage will be subject to the conditions of the grading permit obtained from the city of Los Angeles/county of Los Angeles.

The proposed SCE Natural Substation grading design will incorporate Spill Prevention Control and Countermeasure (SPCC) Plan requirements due to the planned operation of oil-filled transformers at the proposed SCE Natural Substation (in accordance with 40 Code of Federal Regulations (CFR) Part 112.1 through Part 112.7). Typical SPCC features include curbs and berms designed and installed to contain spills, should they occur. These features will be part of SCE's final engineering design for the Proposed Project.

The existing access road to proposed SCE Natural Substation location will need to be graded, paved and widened to allow for material delivery and equipment transport to the site. Figure 3.7-2 above represents the length of rehabilitation work the existing access roads would require. SoCalGas would perform road work in accordance to requirements established in the grading permit. A description of construction activities typically conducted during access road rehabilitation is described below.

Below Grade Construction

After the proposed SCE Natural Substation site is graded, below grade facilities will be installed. Below grade facilities include a ground grid, trenches, equipment foundations, utilities, and the footing of the proposed SCE Natural Substation wall. The design of the ground grid will be based on soil resistivity measurements collected during a geotechnical investigation to be conducted prior to construction.

Access Roads and Spur Roads

Transmission line roads are classified into two groups: access roads and spur roads. Access roads are through roads that run between pole/tower sites along a ROW and serve as the main transportation route along line ROWs. Spur roads are roads that lead from line access roads and terminate at one or more

structure sites. New access or spur roads could be required for the Proposed Project, if additional pole locations are needed to maintain conductor and ground clearances.

This project includes construction on existing ROW. Where construction takes place on existing ROW, it is assumed that most of the existing access roads as well as spur roads would be used. However, it is also assumed that rehabilitation work would be necessary in some locations for existing roads to accommodate construction activities. This work may include:

- Re-grading and repair of existing access and spur roads. These roads would be cleared of vegetation, blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The graded road would have a minimum drivable width of 14 feet (preferably with 2 feet of shoulder on each side).

- Drainage structures such as wet crossings, water bars, overside drains and pipe culverts would be installed to allow for construction traffic usage, as well as prevent road damage due to uncontrolled water flow.

- Slides, washouts, and other slope failures would be repaired and stabilized by installing retaining walls or other means necessary to prevent future failures. The type of structure to be used would be based on specific site conditions.

If construction would take place in new ROW, new access, and spur roads would be necessary to access the transmission line structure locations. Similar to rehabilitation of existing roads, all new road alignments would first be cleared and grubbed of vegetation. Roads would be blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The graded road would have a minimum drivable width of 14 feet (preferably with 2 feet of shoulder on each side) but may be wider depending on final engineering requirements and field conditions.

Access and spur road gradients would be leveled so that any sustained grade does not exceed 12 percent. Grades of approximately 14 percent would be permitted when such grades do not exceed 40 feet in length and are located more than 50 feet from any other excessive grade or any curve. All curves would have a radius of curvature of not less than 50 feet, measured at the center line of the usable road surface. Spur roads would be an average of 100 feet long and would usually have turnaround areas near the structure locations. Longer or slightly wider spur roads may be needed in some locations. All dead-end spur roads over 500 feet long would include a Y-type or circle-type turnaround.

In addition, drainage structures (e.g., wet crossings, water bars, overside drains, pipe culverts, and energy dissipaters) would be installed along spur and access roads to allow for construction equipment usage as well as to prevent erosion from uncontrolled water flow. Slides, washouts, and other slope failures would be repaired and stabilized along the roads by installing retaining walls or other means necessary to prevent future failures. The type of mechanically stabilized earth-retaining structure to be used would be based on site-specific conditions. Final drainage design will be determined upon approval of applicable grading permits from the City of Los Angeles/County of Los Angeles.

It is anticipated that most of the roads constructed to accommodate new construction would be left in place to facilitate future access for operations and maintenance purposes. Gates would be installed where required at fenced property lines to restrict general and recreational vehicular access to road ROWs. Construction roads across areas that are not required for future maintenance access would be removed and restored after construction is completed. An example of this type of road would be a road constructed to provide access to a splice location during wire-stringing operations. Splice locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the stringing travelers located on transmission structures. Access roads to splice locations are sometimes required when a splice location is not accessible from an access or spur road.

Marshalling Yard

Construction of the Project transmission line would begin with the establishment of approximately one temporary marshalling yard located at a strategic point along the route. SCE plans to utilize SCE's existing Northern Transmission/Substation Regional Facility, located near Pardee Substation in the city of Santa Clarita, as the primary Marshalling Yard. SCE or its contractors may utilize additional construction yards as needed to optimize construction efficiency; such as existing yards within the Proponent property boundaries.

Each yard would be used as a reporting location for workers, and for vehicle and equipment parking and material storage. The yards would have offices for supervisory and clerical personnel. Normal maintenance of construction equipment would be conducted at these yards. The maximum number of workers reporting to any one yard is not expected to exceed approximately 42 workers at any one time. Each yard would be 2 to 20 acres in size, depending on land availability and intended use. Preparation of the marshalling yards would include the application of road base, depending on existing ground conditions at the yard site, and the installation of perimeter fencing.

At peak construction, most of the vehicles could occupy the yards listed. Crews would load materials onto work trucks and drive to the line position being worked. At the end of the day, they would return to the yard in their work vehicles and depart in their private vehicles. Materials stored at the marshalling yards would include:

- Construction trailers
- Construction equipment
- Steel Poles
- Conductors / Wire Reels
- OPGW cable
- Hardware
- Insulators
- Signage
- Consumables, such as fuel and joint compound
- Storm Water Pollution Prevention Plan (SWPPP) materials; such as straw wattles, gravel, and silt fences
- Portable sanitation facilities
- Waste materials for salvaging, recycling, or disposal

In addition to the primary marshalling yards, temporary secondary material staging yards would be established for short-term utilization near construction sites. Where possible, the secondary staging yards would be sited in areas of previous disturbance along the construction corridors. Final siting of these yards would depend upon availability of appropriately zoned property that is suitable for this purpose. The number and size of the secondary yards would be dependent upon a detailed ROW inspection and suggestions by the work crew. Typically, an area approximately 1 to 3 acres would be required. Once sites for secondary yards are proposed, biological and cultural resource reviews would be conducted if required before final site selection. Preparation of the secondary staging yards would include installation of perimeter fencing, the application of road base may also occur, depending on existing ground conditions at the yard site. Land disturbed at the temporary material staging areas, if any, would be restored to preconstruction conditions or to the landowner's requirements following the completion of construction for the Proposed Project.

Substation Equipment Installation

Above grade installation of proposed SCE Natural Substation facilities (i.e., buses, capacitors, circuit breakers, transformers, steel support structures, and the MEER) will commence after the below grade structures are in place. The transformers will be delivered by heavy-transport vehicles and off-loaded on-site by large cranes with support trucks. A traffic control service may be used for transformer delivery, if necessary.

Foundation Installation

The Proposed Project would require the construction of approximately 70 tubular steel poles (TSPs). Each structure would require a single drilled, poured-in-place, concrete footing that would form the structure foundation. Actual footing diameters and depths for each of the structure foundations would depend on the soil conditions and topography at each site and would be determined during final engineering.

The Proposed Project is in mostly elevated terrain and would likely take 3 days to 5 days for a single TSP foundation to be completed. In normal terrain, a single foundation for a TSP would typically be completed in 3 days.

Construction activities would begin with the survey of the 66kV sub-transmission line routes. Survey crews would stake the steel pole locations, including reference points and centerline hubs. Survey crews would also survey limits of grading for steel pole excavations.

The foundation process starts with the drilling of the holes for each structure. The holes would be drilled using truck or track-mounted excavators with various diameter augers to match the diameter requirements of the structure. TSPs typically require an excavated hole up to approximately 10 feet in diameter. The maximum depth below ground level for the TSPs is expected to be between 16 feet to 30 feet. On average, in residential areas, TSP footings will project approximately 0-2 feet above ground level and in uninhabited areas, TSP footings will project approximately 1-3 feet above ground level.

The excavated material will be distributed at each structure site, used to backfill excavations from the removal of nearby wood and LWS poles or LSTs, used at the substation site, or used in the rehabilitation

of existing access roads. Alternatively, the excavated soil may be disposed at an off-site disposal facility in accordance with all applicable laws.

Following excavation of the foundation footings, steel reinforced cages would be set, survey positioning would be verified, and concrete would then be placed. Steel reinforced cages would be assembled at laydown yards and delivered to each structure location by flatbed truck. Typically TSP structures would require 30 to 100 cubic yards of concrete delivered to each structure location.

Foundations in soft or loose soil and that extend below the groundwater level may be stabilized with drilling mud slurry. Mud slurry will be placed in the hole after drilling to prevent the sidewalls from sloughing. The concrete for the foundation is then pumped to the bottom of the hole, displacing the mud slurry. The mud slurry brought to the surface is typically collected in a pit adjacent to the foundation, and then pumped out of the pit to be reused or discarded at an off-site disposal facility in accordance with all applicable laws.

During construction, existing concrete supply facilities would be used where feasible. Concrete samples would be drawn at time of pour and tested to ensure engineered strengths were achieved. A normally specified SCE concrete mix typically takes approximately 20 working days to cure to an engineered strength. This strength is verified by controlled testing of sampled concrete. Once this strength has been achieved, crews would be permitted to commence erection of the structure. Conventional construction techniques would generally be used as described above for new footing installations using hand labor assisted by hydraulic or pneumatic equipment, or other methods.

Prior to drilling for foundations, SCE or the Contractor would contact Underground Service Alert to identify any underground utilities in the construction zone.

Tubular Steel Pole Assembly and Erection

Laydown areas would be established for the steel pole assembly process and would generally occupy an area of 200 feet by 100 feet (0.46 acre) at each TSP location. Laydown areas may require grading, leveling, or cleared of vegetation to accommodate the new structures.

Steel pole assembly would consist of hauling in TSP sections from the staging area to their designated laydown site using semi-trucks with 40-foot trailers. Rough terrain cranes would then lay the individual TSP sections on the ground at each location. While on the ground, the top section may be pre-configured with the necessary insulators and wire-stringing hardware. The steel poles could either be assembled into a complete structure or set one piece at a time by stacking and jacking them together. This would depend largely on the terrain and available equipment.

An 80-ton all-terrain or rough terrain crane would be used to position each steel pole base section on top of previously prepared foundations. When the base section is secured, the top section of the TSP would be placed above the base section. The two sections may be spot welded together for additional stability.

If existing terrain is not suitable to support crane activities, a temporary 50 feet by 50 feet (0.06 acre) crane pad will be constructed. The crane pad would be would be located transversely and set up

approximately 60 feet from the centerline of each structure. The crane would move in and out of the ROW for structure erection purposes as necessary.

Wire Stringing Activities

Wire stringing activities would be conducted in accordance with SCE specifications, which is similar to process methods detailed in IEEE Standard 524-2003, Guide to the Installation of Overhead Transmission Line Conductors.

The existing double circuit 4/0 copper, 336.4 and 653.9 conductors will be replaced with double circuit 954 ASCR conductors. Each TSP will have 6 conductors – 3 on each side. The 954 ACSR wire configuration is made up of 45 strands of aluminum and 7 strands of steel, with a diameter of 1.165 inches. The insulators are polymer insulators, which reduce noise impacts. Telecommunication lines will likely be installed on the TSPs with the conductors.

Wire stringing includes all activities associated with the installation of the conductors onto TSPs. These activities include the installation of primary conductor and OPGW or ground wire, vibration dampeners, weights, suspension and dead-end hardware assemblies. Insulators and stringing sheaves (rollers or travelers) are also attached as part of the re-conductoring efforts during wire-stringing activities. A standard wire-stringing plan includes a sequenced program of events starting with determination of wire pulls and wire pull equipment set-up positions. Advanced planning by supervision determines circuit outages, pulling times, and safety protocols needed for ensuring that safe installation of wire is accomplished.

Wire pulls are the length of any given continuous wire installation process between two selected points along the line. Wire pulls are selected, where possible, based on availability of dead-end structures at the ends of each pull, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment setups. Typically, wire pulls occur approximately every 13,000 feet on flat terrain or less in rugged terrain. Generally, pulling locations and equipment set-ups would be in direct line with the direction of the overhead conductors and established a distance approximately three times the height away from the adjacent structure. The exact locations of the pulling sites would be determined during construction.

To ensure the safety of workers and the public, safety devices such as traveling grounds, guard structures, and radio-equipped public safety roving vehicles and linemen would be in place prior to the initiation of wire-stringing activities.

The following four steps describe the wire installation activities proposed by SCE:

- Step 1: Sock Line, Threading: If a bucket truck is unable to install a lightweight sock line, a helicopter would fly the lightweight sock line from structure to structure. The sock line would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a conductor pull.

- Step 2: Pulling: The sock line would be used to pull in the conductor pulling cable. The conductor pulling cable would be attached to the conductor using a special swivel joint to prevent damage to

the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel.

For the Proposed Project, if possible, the old conductor will be transferred to the new TSPs and then used to pull in the new conductors.

- Step 3: Splicing, Sagging, and Dead-ending: After the conductor is pulled in, all midspan splicing would be performed. Once the splicing has been completed, the conductor would be sagged to proper tension and dead-ended to structures.

- Step 4: Clipping-in: After the conductor is dead-ended, the conductors would be attached to all tangent structures; a process called clipping in.

As noted in Step 1 above, the threading step of wire installation may require the use of one helicopter. On average, the helicopter would operate approximately 6 hours per day during stringing operations. The operations area of the helicopter would be limited to helicopter staging areas and are considered safe locations for landing. Final siting of staging areas for the Proposed Project would be conducted with the input of the helicopter contractor, and affected private landowners and land management agencies. The size of each staging area would be dependent upon the size and number of structures to be removed and installed. Staging areas would likely change as the work progresses along the transmission lines.

Helicopter fueling would occur at staging areas or at a local airport using the helicopter contractor's fuel truck, and would be supervised by the helicopter fuel service provider. The helicopter and fuel truck would stay overnight at a local airport or at a staging area if adequate security is in place.

The dimensions of the area needed for the stringing set-ups associated with wire installation are variable and depends upon terrain. The preferred minimum size needed for tensioning equipment set-up sites requires an area of 500 feet within the existing SCE easement by 100 feet, the preferred minimum size needed for pulling equipment set-up sites requires an area of 300 feet within the existing SCE easement by 100 feet, the preferred minimum size needed for splicing equipment set-up sites requires an area of 150 feet within the existing SCE easement by 100 feet; however, crews can work from within slightly smaller areas when space is limited. Each stringing operation would include one puller positioned at one end and one tensioner and wire reel stand truck positioned at the other end. Splicing sites would be strategically located to support the stringing operations; splicing sites include specialized support equipment such as skidders and wire crimping equipment.

The puller, tensioner, and splicing set-up locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the rollers located on each structure, and are necessary as the permanent splices that join the conductor together cannot travel through the rollers. For stringing equipment that cannot be positioned at either side of a dead-end transmission structure, field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag conductor wire to the correct tension. The puller, tensioner, and splicing set-up locations require level areas to allow for maneuvering of the equipment. When possible, these locations would be located on existing level areas and existing roads to minimize the need for grading and cleanup.

The puller, tensioner, and splicing set-up locations associated with the Proposed Project would be temporary and the land would be restored to its previous condition following completion of pulling and splicing activities. Estimates of the total land disturbance associated with this activity for the proposed

route is between 3.4 and 5.7 acres, with no permanent disturbance. The final number and locations of the puller, tensioner, and splicing sites will be determined during final engineering for the Proposed Project and the construction methods chosen by SCE or its Contractor.

Removal and Demolition of Existing Structures

The Proposed Project includes the removal of existing sub-transmission line equipment, including existing 66 kV towers and poles and associated hardware (i.e., insulators, vibration dampeners, suspension clamps, ground wire clamps, shackles, links, nuts, bolts, washers, cotter pins, insulator weights, and bond wires), as well as the subtransmission line primary conductor and ground wire. Existing 66 kV sub-transmission circuits will be transferred to the new structures to assist in the new conductoring activities where possible and the existing poles and LSTs will be removed.

The standard work practice for removing a pole is to attach a sling to the pole, using boom or crane equipment, while using a hydraulic jack at the base to vertically lift the pole until it can be lifted out of the ground. Excavation around the base of the pole is only required in the event the base of the pole has been encased in hardened soil or man-made materials (e.g., asphalt or concrete).

Once the pole is removed, the hole will be backfilled using imported fill in combination with soil that may be available as a result of excavation for the installation of TSP foundations. The backfill material will be thoroughly tamped and the filled hole will be leveled to grade.

SCE proposes to remove the existing 66kV structures through the following activities:

- Set Up: Existing access routes would be used to reach structure sites, but some rehabilitation work on these routes may be necessary before removal activities begin. In addition, grading may be necessary to establish temporary crane pads for structure removal.

- Structure Removal: For each type of structure, a crane truck or rough terrain crane will be used to support structure during removal; a crane pad of approximately 50 feet by 50 feet may be required to allow a removal crane to be set up at a distance of 60 feet from the structure center line. The crane rail would be located transversely from the structure locations.

- Footing Removal: The existing LST and H-frame footings would be removed to a depth of approximately 1-2 feet. Holes would be filled, compacted, and then the area would be smoothed to match surrounding grade.

SCE proposes to remove the existing 66kV conductor through the following activities:

- Wire Pulling Locations: Wire-pulling locations are an estimated 300 feet by 100 feet in size and would be sited no more than every 6,000 feet along the utility corridor, and would include locations at dead-end structures and turning points. It is anticipated that many of the same locations would be used for installation of the new 66kV lines. Wire-pulling equipment would be placed at these locations.

- Pulling Cable: A 3/8-inch pulling cable would replace the old conductor as it is being removed; this allows complete control of the conductor during its removal. The 3/8-inch line would then be removed under controlled conditions to minimize ground disturbance, and all wire-pulling

- Pulling Cable: A 3/8-inch pulling cable would replace the old conductor as it is being removed; this allows complete control of the conductor during its removal. The 3/8-inch line would then be removed under controlled conditions to minimize ground disturbance, and all wire-pulling equipment would be removed. Where possible, the existing conductor will be transferred to the new structures to pull in the new conductor.

- Breakaway Reels: The old conductor wire would be wound onto "breakaway" reels as it is removed. The old conductor would be transported to a marshalling yard where it would be prepared for recycling.

Energizing 66 kV Sub-transmission Lines

The final step in completing the proposed modification to two SCE 66 kV sub-transmission lines involves energizing the new conductors. The existing sub-transmission line will be de-energized in order to connect the proposed 66 kV sub-transmission source lines to the existing 66 kV sub-transmission system. Once the connections are made, the existing 66 kV sub-transmission lines will be returned to service (re-energized).

Traffic Control

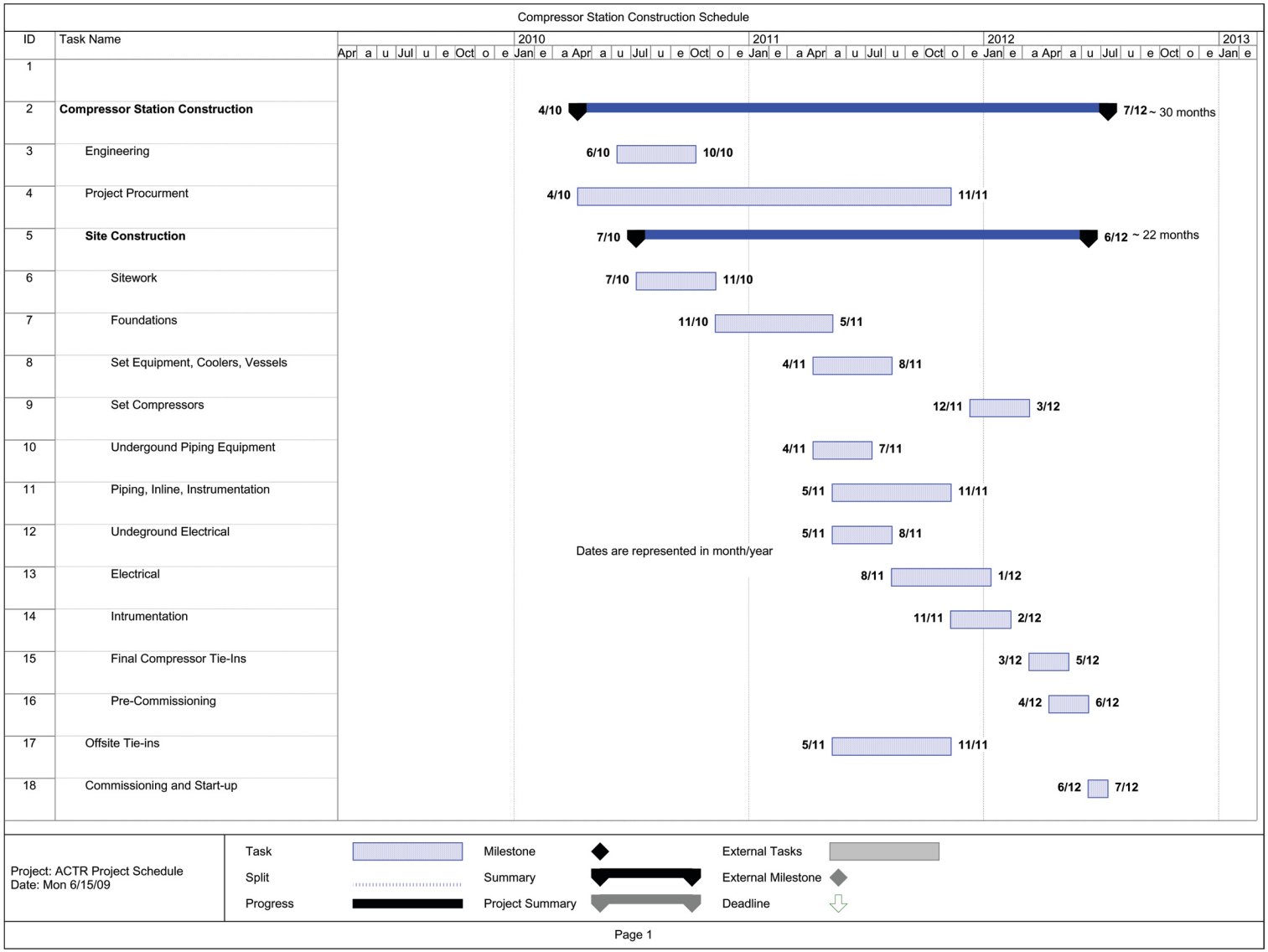
Construction activities completed within public ROWs will require the use of a traffic control service and all lane closures will be conducted in accordance with local ordinances and applicable permit conditions. These traffic control measures are typically consistent with those published in the Work Area Traffic Control Handbook (WATCH manual).

Nighttime Construction

Under normal circumstances, construction of the Proposed Project will occur during daylight hours. However, there is a possibility that some construction will occur at night, and temporary artificial illumination will be required. SCE will use lighting to protect the safety of the construction workers, but orient the lights to minimize their effect on any nearby receptors.

3.7.5 Construction Schedule and Equipment List

Construction related activities associated with the Proposed Project are anticipated to begin in June 2010. Construction will begin following receipt of the General Permit, granted by the CPUC. Once the General Permit is in place, construction of the proposed Central Compressor Station, the proposed SCE Natural Substation, and modifications to SCE's 66 kV sub-transmission lines will occur on concurrent schedules. Construction of the proposed Central Compressor Station is anticipated to last 22 months. Construction of the proposed SCE Natural Substation and sub-transmission facilities is anticipated to last 9 months, not including equipment purchasing and ordering. However, the sub-transmission line construction could take up to 15 months if delayed due to access or inclement weather.



Aliso Canyon PEA

Figure 3.7-4
Preliminary Proposed Central Compressor Station Construction Schedule

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Central Compressor Facility

The construction of the proposed Central Compressor Station is anticipated to last 22 months, the preliminary construction schedule is represented on Figure 3.7-3 above.

The estimated equipment list and duration required for construction of the proposed Central Compressor Station and other related facilities is presented in Table 3.7-1 below.

Table 3.7-1 Construction Equipment List for the Proposed Central Compressor Station

Equipment Type	Number of Equipment	Duration
Site Construction		
¾-Ton Pickup Truck	15	22 months
50-Ton Hydraulic Crane	1	12 months
30-Ton Hydraulic Crane	2	12 months
200-Ton Crawler Crane	1	12 months
6-Ton Truck	2	12 months
Forklifts	2	12 months
Backhoe/Loader	2	12 months
Water Truck (2000 gallons)	1	12 months
Grader	1	12 months
D6 Dozer	1	12 months
Dump Truck (10 yards)	1	12 months
Sheep's Foot Vibrator Compactor (10 yards)	2	12 months
Excavator	1	6 months
Front End Loader	1	6 months
Dump Truck (20 yards)	6	4 months
Dump Truck (20 yards)	12	2 months
Drill Rig (Drilling Piers)	1	6 weeks
Paver/Sealer	1	2 weeks
Total Material Delivery Truck Loads	1,050 loads	22 months

Plant Power Line (12 kV)

The estimated schedule and equipment list required for construction of the proposed PPL and other related facilities is presented in Table 3.7-2 below. The presented equipment list represents either above ground or below ground construction.

Table 3.7-2 Estimated Construction Equipment List for the Proposed 12 kV PPL

Estimated Equipment	Number of Equipment	Hours of Operation	Duration (days)
Backhoe	2	6	90
Hauler	1	4	90
Skid Steer Loader	2	4	90
Water Truck	1	6	90
Concrete Truck	1	4	90
Ditch Witch	1	6	90
Batch Plant	1	8	90
Drill Rig	2	6	90
Truck with Trailer (equipment delivery)	2	2	90
Compressor	1	2	90
Construction Fork	1	6	90
980 Loader	1	4	90
Boom Truck	1	4	90
Bucket Truck	1	4	90
Vibrating Roller	1	4	90

Trailer Facilities and Guard House Relocation

Construction activities associated with the office trailer relocation will commence with site preparation, soil compaction, and grading of the proposed new office trailer location. Four new pre-fabricated trailers will be delivered to the site and placed in the designated location. The existing office trailers will remain in place until Gas Plant staff have relocated their offices and materials into the new facilities. Once the move has completed, the existing office trailers will be hauled off-site on a semi tractor-trailer heavy duty diesel truck and delivered to an off-site SoCalGas facility or a designated recycling facility. The anticipated schedule and equipment required for removal and delivery has been included in the equipment estimates for the proposed Central Compressor Station.

Activities associated with the guard house relocation will include site preparation, grading, and road widening. The existing guard house will remain in place for additional site security. The materials and equipment required for construction will be delivered on-site and the facility would be constructed within the prepared site. The guard house relocation will be the first construction activity and will commence upon CPCN approval. The estimated schedule and equipment list required for construction of the proposed trailer facilities and guard house relocation is presented in Table 3.7-3 below.

Table 3.7-3 Estimated Construction Equipment List for the Proposed Trailer Facilities and Guard House Relocation

Equipment Type	Office Relocation		Guard House	
	Number of Equipment	Duration	Number of Equipment	Duration
¾-Ton Pickup Truck	2	2 months	2	2 months
10-Ton Hydraulic Crane	0	N/A	1	1 day
Backhoe/Loader	1	1 month	1	2 months
Water Truck (2000 gallons)	1	1 month	1	1 month
Grader	0	N/A	1	1 month
D6 Dozer	1	1 month	1	1 month
Dump Truck (10 yards)	3	1 month	3	1 month
Sheep's Foot Vibrator Compactor (10 yards)	1	1 month	1	1 month
Front End Loader	1	1 month	1	1 month
Drill Rig (Drilling Piers)	0	N/A	1	1 month
Paver/Sealer	1	1 week	1	1 week
Total Material Delivery Truck Loads	75	2 months	100	2 months

SCE Natural Substation and SCE 66 kV Sub-transmission Facilities

SCE anticipates that construction of the proposed SCE Natural Substation and proposed modifications to two SCE 66 kV sub-transmission lines will take approximately 9 -15 months, not including equipment purchasing and ordering. Construction will commence following CPUC approval, final engineering and procurement activities. However, construction of the SCE 66 kV sub-transmission line modifications could take up to 15 months if delayed due to access or inclement weather. The estimated schedule and equipment list required for construction of the proposed SCE Natural Substation is presented in Table 3.7-4. The estimated schedule and equipment list required for construction of the proposed SCE 66 kV Sub-transmission Facilities is presented in Table 3.7-5.

Table 3.7 4 SCE Natural Substation Equipment List and Construction Schedule

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Survey (2 people)	10	2-Survey Trucks	8
Grading (15 people)	90	1-Dozer 2-Loader 1-Scraper 1-Grader 1-Water Truck 2-4X4 Backhoe	4 4 3 3 2 2

Table 3.7 4 SCE Natural Substation Equipment List and Construction Schedule

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
		1-4X4 Tamper 1-Tool Truck 1-Pickup Truck, 4X4	2 2 2
Fencing (4 people)	10	1-Bobcat 1-Flatbed Truck 1-Crewcab Truck	8 2 4
Civil (10 people)	60	1-Excavator 1-Foundation Auger 2-Backhoe 1-Dump truck 1-Skip Loader 1-Water Truck 2-Bobcat Skid Steer 1-Forklift 1-17-Ton Crane 1-Tool Truck	4 6 hours/day for 15 days 3 hours/day for 15 days 3 2 3 3 3 4 2 hours/day for 45 days 3
MEER (4 people)	20	1-Carry-all Truck 1-Stake Truck	3 2
Electrical (10 people)	70	2-Scissor Lifts 2-Manlifts 1-Reach Manlift 1-15-Ton Crane 1-Tool Trailer 2-Crew Trucks	3 3 4 3 hours/day for 35 days 3 2
Wiring (5 people)	25	1-Manlift 1-Tool Trailer	4 3
Transformers (6 people)	30	1-Crane 1-Forklift 2-Crew Trucks 1-Low Bed Truck	6 hours/day for 10 days 6 2 4
Maintenance Crew Equipment Check (2 people)	30	2-Maintenance Trucks	4
Testing (2 people)	80	1-Crew Truck	6
Asphalting (6 people)	15	2-Paving Roller 1-Asphalt Paver 1-Stake Truck 1-Tractor 1-Dump Truck 2-Crew Trucks 1-Asphalt Curb Machine	4 4 4 3 3 2 3
Landscaping (6 people)	15	1-Tractor 1-Dump Truck	6 3

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
Survey (1)				**4**	**9**		**9 Miles**
1/2-Ton Pick-up Truck, 4x4	200	Gas	2		9	8	1 Mile/Day
Marshalling Yard (2)				**4**			
1-Ton Crew Cab, 4x4	300	Diesel	1		Duration of Project	2	
30-Ton Crane Truck	300	Diesel	1			2	
10,000 lb Rough Terrain Fork Lift	200	Diesel	1			5	
Truck, Semi, Tractor	350	Diesel	1			1	
R/W Clearing (3)				**5**	**0**		**0 Miles**
1-Ton Crew Cab, 4x4	300	Diesel	1		0	8	0.25 Mile/Day
Road Grader	350	Diesel	1		0	6	
Water Truck	350	Diesel	2		0	8	
Backhoe/Front Loader	350	Diesel	1		0	6	
Track Type Dozer	350	Diesel	1		0	6	
Lowboy Truck/Trailer	500	Diesel	1		0	4	
Roads & Landing Work (4)				**5**	**35**		**10 Miles & 73 Pads**
1-Ton Crew Cab, 4x4	300	Diesel	2		35	2	0.5 Miles/Day & 5 Structure Pads/Day
Road Grader	350	Diesel	1		35	4	
Water Truck	350	Diesel	2		35	8	
Backhoe/Front Loader	350	Diesel	1		35	6	
Drum Type Compactor	250	Diesel	1		35	4	
Track Type Dozer	350	Diesel	1		35	6	
Excavator	300	Diesel	1		18	6	
Lowboy Truck/Trailer	500	Diesel	1		18	2	
Guard Structure Installation (5)				**6**	**6**		**22 Structures**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		6	6	4 Structures/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	1		6	6	
Compressor Trailer	120	Diesel	1		6	6	
Auger Truck	500	Diesel	1		6	6	
Extendable Flat Bed Pole Truck	350	Diesel	1		6	6	
30-Ton Crane Truck	500	Diesel	1		6	8	
80ft. Hydraulic Man-lift/Bucket Truck	350	Diesel	1		6	4	
Remove Existing Wood Poles (6)				**6**	**2**		**12 Poles**
1-Ton Crew Cab, 4x4	300	Diesel	2		2	5	6 Poles/Day

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
10,000 lb. Rough Terrain Forklift	200	Diesel	1		2	4	
30-Ton Crane Truck	300	Diesel	2		2	6	
Compressor Trailer	120	Diesel	2		2	6	
Flat Bed Truck/ Trailer	350	Diesel	1		2	4	
Remove Existing Steel Poles (7)				**8**	**5**		**3 TSPs & 6 LWS Poles**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		5	5	2 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		5	5	
Compressor Trailer	120	Diesel	1		5	5	
80-Ton Rough Terrain Crane	350	Diesel	1		5	6	
Remove Existing Lattice Steel Towers (8)				**6**	**25**		**50 Towers**
1-Ton Crew Cab, 4x4	300	Diesel	2		25	5	2 Towers/Day
30-Ton Crane Truck	300	Diesel	2		25	6	
Compressor Trailer	120	Diesel	2		25	8	
Flat Bed Truck/Trailer	350	Diesel	1		25	8	
10,000 lb Rough Terrain Forklift	200	Diesel	1		25	4	
Remove Existing Foundations (9)				**4**	**17**		**50 Towers**
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	1		17	8	3 Towers/Day
10-cu. yd. Dump Truck	350	Diesel	1		17	4	
Backhoe/Front Loader	350	Diesel	1		17	4	
Compressor Trailer	120	Diesel	1		17	6	
Install Tubular Steel Pole Foundations (10)				**14**	**111**		**73 TSPs**
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4		111	2	0.66 TSPs/Day
30-Ton Crane Truck	300	Diesel	2		111	5	
Backhoe/Front Loader	200	Diesel	2		111	8	
Auger Truck	500	Diesel	2		75	6	
4000 gallon Water Truck	350	Diesel	2		111	4	
10-cu. yd. Dump Truck	350	Diesel	2		111	5	
10-cu. yd. Concrete Mixer Truck	425	Diesel	6		75	5	
Steel Pole Haul (11)				**4**	**25**		**73 TSPs**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	1		25	5	3 Steel Poles/Day
80-Ton Rough Terrain Crane	350	Diesel	1		25	6	

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
40' Flat Bed Truck/ Trailer	350	Diesel	2		25	8	
Steel Pole Assembly (12)				**8**	**37**		**73 TSPs**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		37	5	2 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		37	5	
Compressor Trailer	120	Diesel	1		37	5	
80-Ton Rough Terrain Crane	350	Diesel	1		37	6	
Steel Pole Erection (13)				**8**	**37**		**73 TSPs**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		37	5	2 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		37	5	
Compressor Trailer	120	Diesel	1		37	5	
80-Ton Rough Terrain Crane	350	Diesel	1		37	6	
Install Conductor & OHGW/OPGW (14)				**16**	**38**		**13 Circuit Miles**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		38	8	0.35 miles/day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4		38	8	
Wire Truck/Trailer	350	Diesel	2		26	2	
Dump Truck (Trash)	350	Diesel	1		38	2	
Bucket Truck	350	Diesel	2		38	8	
22-Ton Manitex	350	Diesel	2		38	8	
Splicing Rig	350	Diesel	1		10	2	
Splicing Lab	300	Diesel	1		10	2	
3 Drum Straw line Puller	300	Diesel	1		20	6	
Static Truck/ Tensioner	350	Diesel	1		20	6	
Guard Structure Removal (15)				**6**	**4**		**22 Structures**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		4	6	6 Structures/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		4	6	
Compressor Trailer	120	Diesel	2		4	6	
Extendable Flat Bed Pole Truck	350	Diesel	2		4	6	
30-Ton Crane Truck	500	Diesel	1		4	8	
80ft. Hydraulic Man-lift / Bucket Truck	350	Diesel	1		4	4	
Restoration (16)				**7**	**9**		**9 Miles**
1-Ton Crew Cab, 4x4	300	Diesel	2		9	2	1 Mile/Day

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
Road Grader	350	Diesel	1		9	6	
Water Truck	350	Diesel	1		9	4	
Backhoe/Front Loader	350	Diesel	1		9	6	
Drum Type Compactor	250	Diesel	1		9	6	
Track Type Dozer	350	Diesel	1		9	4	
Lowboy Truck/Trailer	300	Diesel	1		9	3	

Telecommunications System

The overhead telecommunications cable will be installed by attaching cable to the 66 kV sub-transmission poles in a manner similar to that described above for conductor stringing. A truck with a cable reel will be set up at one end of the section to be pulled, and a truck with a winch will be set up at the other end. Cable will be pulled onto the pole and permanently secured. Fiber strands in the cable from one reel will be spliced to fiber strands in the cable from the next reel to form one continuous path. One reel typically holds 20,000 feet of cable.

Construction of the telecommunication system will include installation of a fiber optic cable from the proposed SCE Natural Substation to the existing Chatsworth Substation; fiber optic cable will be installed from the proposed SCE Natural Substation to the existing Newhall Substation; fiber optic cable will be installed from the proposed SCE Natural Substation to the existing San Fernando and the Los Angeles Department of Water and Power (LADWP) Sylmar Substations.

Digital transport and channel equipment will be installed at the proposed SCE Natural Substation, and the Newhall, Chatsworth, San Fernando, and Sylmar Substations. The equipment will include lightweight transport (SONET) terminals. Digital multiplexers (channel banks) will be installed at the proposed SCE Natural Substation, and the Chatsworth, Newhall, and San Fernando Substations.

Additional Substation Modifications

In order to integrate the proposed 66 kV sub-transmission modification into the grid, SCE will be required to perform certain work at the existing SCE San Fernando, Chatsworth, and Newhall Substations. SCE proposes to upgrade the protective relay systems in each of these substations. All activities associated with upgrading the relays would occur within the existing enclosed relay rooms which are located within the exterior fences of each substation, and would not involve any ground disturbance, material usage or storage, or heavy duty equipment. The workforce has been incorporated into Table 3.7-3 provided above.

SCE will reuse the existing relay rack and the associated switches currently in place. In order to replace the relays, SCE will need to conduct an outage on portions of the existing SCE 66 kV sub-transmission

system for protection reasons. However, SCE does not anticipate dropping service to any customers in the area when the line is out of service during the relay replacement activities. During the installation of the new relays, all secondary wiring related to the removed relays will be replaced with new secondary wiring. After the new relays are installed, an SCE Test Crew will test and then energize the new relays and the modified SCE 66 kV sub-transmission lines. The removed relays, secondary wiring and related devices will be palletized and shipped to SCE's Alhambra Combined Facility Building for proper disposal.

3.8 OPERATIONS AND MAINTENANCE PROCEDURES

3.8.1 Central Compressor Station Operations

Operations Personnel and Training

All operating and inspection personnel will complete a specifically designed training for project implementation. The number of employees at the Storage Field will not significantly change based on the installation of the proposed Central Compressor Station.

General System Monitoring and Control

Modern gas facility gas control systems enhance operational efficiencies and provide for greater safety. The control room will serve as the focal point for the Proposed Project.

Central Compressor Facility Monitoring and Control System

Redundant safety systems will be installed at the proposed Central Compressor Station. Gas and fire sensors will monitor all equipment and will automatically shut down the facility if unusual conditions are detected. The facility will be staffed with a day shift only, seven days a week. Operations and maintenance personnel will be on call after the normal working hours to address any abnormal conditions.

A Proprietary Control System will be included with the installation of the VFD compressors. The compressor controls will interface the existing Storage Field SCADA-FIX Intellution control system. Additional equipment within the proposed Central Compressor Station will be monitored and controlled by Allen Bradley programmable logic controllers (PLCs), which will also interface with the FIX Intellution system. Data for process monitoring and predictive maintenance will be archived using a Process Information (PI) data historian.

Control Room

The control room includes personal computers and programmable logic controllers which provide for automation of the control and monitoring functions as well as data collection, recording, and storage. This system will provide continuous monitoring of critical system parameters and will have the capability for shutdown of either individual areas of the entire operation when specific operating conditions are extreme. The system will be connected to the graphic display monitors in the operator's console. The presence of gas in the proposed Central Compressor Station will be monitored.

Equipment Operations

From the control room, the operator will provide valve line-up and sequencing for gas movement between the proposed Central Compressor Station and the line. The operator will regularly inspect the condition and operation of the equipment and facilities prior to and during start up operations.

Facility Inspection and Survey

Annual pressure safety valve (PSV) inspections will be recorded for security and site safety. High pressure pipeline inspections and testing will be recorded every seven years.

Central Compressor Site Inspections

SoCalGas staff will develop a site-specific Compressor Maintenance Plan for the facility. The maintenance plan will include detailed requirements for site inspections, maintenance, and security procedures for the facility.

Scheduled Site Maintenance

Access roads at the proposed Central Compressor Station site are generally paved and may require moderate maintenance of V-ditches and drain boxes. As part of the facility's existing storm water BMPs, V-ditches will be cleared of debris and drain boxes will be cleared to prevent water-related issues. Vegetation around the site will be cleared and managed to maintain access.

3.8.2 SCE Natural Substation and SCE Electric Sub-transmission Line

For service continuity, routine maintenance and emergency repair will be performed at the proposed SCE Natural Substation. The proposed SCE Natural Substation will be unstaffed, and electrical equipment within the proposed SCE Natural Substation will be remotely monitored and controlled by an automated system from SCE's Regional Control Center. SCE personnel will perform routine site visits for electrical switching and maintenance purposes. Routine maintenance will include equipment testing, equipment monitoring, and repair. Routine site visits to the proposed SCE Natural Substation are typically performed three to four times per month.

The modified SCE 66 kV sub-transmission lines will be maintained in a manner consistent with CPUC GO 95 and CPUC GO 165. The sub-transmission lines may occasionally require emergency repairs which will be conducted by SCE personnel. In addition, SCE will (Leanne/Telecom insert basic language saying SCE will maintain telecom lines)

3.9 SUMMARY OF DESIGN, CONSTRUCTION, AND OPERATIONS COMPLIANCE MEASURES

This section lists several main elements of the Proposed Project Compliance Plan, and lists specific design features, construction methods, and operation procedures that will be implemented specifically for the Proposed Project. These applicant proposed measures (APMs) are intended to avoid and/or minimize potential safety risks and environmental impacts. These measures are considered part of the Project Description. These measures are referenced in various impact assessments in Chapter 4.0 *Environmental Assessment* and are summarized below.

The following plans, procedures, and BMPs will be developed as part of the comprehensive compliance plan for construction and operations:

- Emergency Response Plan (Construction and Operation)
- Site Security Plan (Construction and Operation)
- Hazardous Materials Plan (Construction and Operation)
- Grading and Drainage Plan (Construction)
- Erosion and Sediment Control (Construction)
- Management of Hydrostatic Test Water (Construction)
- Storm Water Permits (Construction and Operation)

Traffic Control Plan

A Traffic Control Plan will be developed to minimize short-term construction-related impacts on local traffic, and potential traffic safety hazards. The Plan will include measures such as installation of temporary warning signs at strategic locations near the construction site access location. The signs would be removed after construction-related activities are completed. The Plan will be developed in accordance with the WATCH Manual and could include the following measures:

- Coordination with the city of Los Angeles, the county of Los Angeles, or the city of Santa Clarita on any temporary land or road closures, if needed;
- Installation of traffic control devices as specified in the WATCH Manual;
- Provide temporary alternate routes, as necessary, to route local traffic around construction zones;
- Consult with emergency service providers and develop an Emergency Access Plan for emergency vehicle access in and adjacent to the construction zone.

Construction Staging and Designated Work Zones

Prior to ground-disturbing activities, work zones will be clearly staked and flagged. Construction work areas will be identified to ensure that:

- Construction activities, equipment, and associated activities are confined to designated work zones, and
- Areas supporting sensitive resources are avoided.

Seismic-Resistant Design Measures

The Proposed Project will be designed in accordance with CPUC General Orders and to meet applicable seismic safety standards of the California Building Code. Specific design measures may include, but are not limited to, special foundation design, and additional bracing and support of upright facilities. Project facilities and foundations will be designed to withstand changes in soil density. The proposed SCE Natural Substation would be designed consistent with the IEEE 693, Recommended Practices for

Seismic Design of Substations and the modified sub-transmission lines would be designed consistent with CPUC GO 95 to withstand seismic loading.

Additional information related to seismic design is provided in Section 4.6 Geology, Soils, and Seismicity.

Noise Control Plan

Construction will comply with applicable City of Los Angeles, County of Los Angeles, and City of Santa Clarita (local) noise regulations. Construction will typically occur during daytime hours, weekdays and some Saturdays. Specific noise control measures are discussed in Section 4.11 Noise.

Hazardous Materials Use and Storage Measures

Construction and operation of the Proposed Project will include the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. All hazardous materials will be stored, handled, and used in accordance with the applicable regulations. For all hazardous materials in use at the construction site, Material Safety Data Sheets (MSDS) will be available for routine or emergency use.

For Proposed Project activities occurring at the Storage Field site and electrical substations, the existing site-specific HMBPs, SPCC Plans and Storm Water Pollution Prevention Plans (SWPPPs) address hazardous materials and waste storage, handling and emergency procedures. For other Proposed Project locations, Worker Environmental Awareness Program (WEAP) training, standard SCE operating procedures and a site-specific SWPPP, implemented by SoCalGas, will control hazardous materials storage and use and specify protective measures, notifications, and cleanup requirements for any accidental spills or other releases of hazardous materials that could occur.

Any hazardous materials planned for use or storage at the Storage Field during construction of the proposed Central Compressor Station must be pre-approved by designated Safety Staff. Approval of any hazardous material will be determined only after full review of the MSDS for the proposed material. The storage location will be determined based on the SWPPP and facility policy. All other materials will be stored within the facility's hazardous material and hazardous waste storage area.

Fire Management Measures

The Proponent recognizes the potential for increased fire risk during summer construction activities and will develop fire management measures as part of their Construction Safety and Emergency Response Plan for use during construction and operation. The Plan will include notification procedures and emergency fire precautions, such as the following:

- All internal combustion engines, stationary and mobile, shall be equipped with spark arresters, meeting applicable regulatory standards;
- "No Smoking" signs and fire rules shall be posted on the project bulletin board at all contractor field offices and areas visible to employees during fire season;
- Equipment staging areas shall be cleared of all extraneous flammable materials;
- Installation of fire extinguishers at the proposed Central Compressor Station; and
- Employee training on use of extinguishers and communication with local fire departments.

Standard protocols that could be implemented during the Proposed Project would occur when the National Weather Service issues a Red Flag Warning. These protocol checks include measures to address smoking and fire rules, storage and parking areas, use of gasoline-powered tools, use of spark arresters on construction equipment, road closures, use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements. Trained fire suppression personnel and fire suppression equipment would be established at key locations, and the personnel and equipment would be capable of responding to a fire within 15 minutes notification. Portable communication devices (i.e. radio or mobile telephones) would be available to construction personnel. In addition, SCE participates with the California Department of Forestry and Fire Protection, California Office of Emergency Services, US Forest Service and various city and county fire agencies in the Red Flag Fire Prevention Program and complies with California Public Resources Code Sections 4292 and 4293 related to vegetation management in transmission line corridors.

Cleanup and Post-Construction Restoration Measures

During construction, water trucks may be used to minimize the quantity of airborne dust created by construction activities. Any damage to existing roads as a result of construction will be repaired once construction is complete in accordance with local agency requirements.

All areas that are temporarily disturbed by construction of the electrical components of the Proposed Project (including the marshalling yard and conductor pull sites) will be restored as close to preconstruction conditions as possible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project.

In addition, all construction materials and debris will be removed from construction areas and recycled or properly disposed of off-site. SCE will conduct a final inspection to ensure that cleanup activities are successfully completed.

Erosion and Sediment Control and Pollution Prevention During Construction

Erosion and sediment control measures are implemented during construction activities to help mitigate the amounts of soil that are displaced and transported either by storm water, wind, or other natural factor to other areas.

The following standard erosion and sediment control measures and practices will be used during and after construction to control accelerated soil erosion and sedimentation:

- Minimize site disturbance
- Perform initial cleanup.

These measures are described below and are routinely implemented in the construction industry. They have been successful for projects involving surface and subsurface disturbances similar to those proposed in connection with the Proposed Project. Section 4.8, Hydrology and Water Quality, provides additional measures related to construction staging and work zones.

Minimize Site Disturbance

The most basic way to avoid erosion is to minimize site disturbance. To minimize site disturbance, the construction contractor will be directed to:

- Remove only the vegetation that is absolutely necessary to remove; trim or mow instead of grub where feasible.
- Avoid off-road vehicle use outside the work zone;
- Avoid excessive trips along the ROW or access or public roads; and
- Instruct all personnel on storm water pollution prevention concepts to ensure that all are conscious of how their actions affect the potential for erosion and sedimentation.

Perform Initial Cleanup

The construction contractor will be directed to perform initial site cleanup immediately following construction activities. To help stabilize the site, initial site cleanup will be conducted including removal of all construction debris.

Waste Management

Construction of the Proposed Project will result in the generation of various non-hazardous waste materials, including wood, soil, vegetation, and sanitation waste (portable toilets). These materials will either be re-used at the construction site (e.g., clean soil used for backfill) or disposed at an appropriately licensed off-site facility.

Construction activities will generate utility poles and other treated wood waste. This waste will either be reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, or be disposed of in the lined portion of a Regional Water Quality Control Board (RWQCB)-certified municipal landfill.

Soil generated during excavation and grading activities that is or suspected of being contaminated with oil or other hazardous materials, or materials resulting from spill cleanups, will be characterized and disposed off-site at an appropriately licensed waste facility. There is no known contaminated soil located at any of the Proposed Project construction locations.

All hazardous and non-hazardous wastes generated during operation of the Proposed Project (e.g., waste oil and gas condensates from the compressor station) will be classified and managed in accordance with Federal and State regulations and site-specific permits.

Geotechnical Studies

A pre-engineering geotechnical study has been completed for the proposed Central Compressor Station site. The pre-engineering geotechnical study was conducted to evaluate the depth to the water table, evidence of faulting, liquefaction potential, physical properties of subsurface soil, soil resistivity, slope stability, and the presence of hazardous materials. A pre-engineering geotechnical study will be conducted for the proposed SCE Natural Substation prior to construction.

Environmental Surveys

As part of the PEA process, detailed environmental surveys have been conducted to identify sensitive biological and cultural resources in the vicinity of the Proposed Project, including the 66 kV sub-transmission alignments. Once final siting is completed, surveys will also be conducted of wire stringing locations, access roads, and marshalling yards. The information gathered from these surveys have been and will continue to be used to determine project planning and design in order to avoid sensitive resources, and identify APMs that would minimize the impact to sensitive resources from project-related activities. In addition, the results of these surveys were used and will continue to be used to determine the extent to which environmental specialist construction monitors will be required.

The following focused biological resource surveys were conducted during Spring 2009, and some surveys will occur annually until construction. More information on these sensitive species can be found in Section 4.4, Biological Resources.

- Focused plant surveys - Focused plant surveys were conducted in the spring following a winter season of adequate rainfall throughout the region for the special status plant species with potential to occur within the vicinity of the Proposed Project.

Worker Environmental Awareness Training

Prior to construction, a WEAP will be developed based on the final engineering design, the results of preconstruction surveys, and a list of mitigation measures, if any, developed by the CPUC to mitigate significant environmental effects of the Proposed Project. A presentation will be prepared by the Proponent and shown to all site workers prior to their start of work. A record of all trained personnel will be kept with the construction foreman.

In addition to the instruction for compliance with any additional site-specific biological or cultural resource protective measures and project mitigation measures that are developed after the preconstruction surveys, all construction personnel will receive the following:

- A list of phone numbers of key personnel associated with the Proposed Project (archeologist, biologist, environmental compliance coordinator, and regional spill response coordinator);
- Instruction on the South County Air Pollution Control District Fugitive Dust and Ozone Precursor Control Measures, and Portable Engine Operating Parameters;
- Direction that site vehicles must be properly muffled;
- Instruction on what typical cultural resources look like, and if discovered during construction, to suspend work in the vicinity of any find and contact the site foreman and archeologist or environmental compliance coordinator;
- Instruction on how to work near the Environmentally Sensitive Area that will be delineated by the Project Archeologist and Biologist;

- Instruction on individual responsibilities under the Clean Water Act, the project SWPPP, site-specific BMPs, hazardous materials and waste management requirements, and the location of MSDS for the project ;

- Instructions to notify the foreman and regional spill response coordinator in case of hazardous materials spills and leaks from equipment, or upon the discovery of soil or groundwater contamination;

- A copy of the truck routes to be used for material delivery; and

- Instruction that noncompliance with any laws, rules, regulations, or mitigation measures could result in being barred from participating in any remaining construction activities associated with the Proposed Project.

Construction Equipment and Personnel

Construction of the Proposed Project components including the proposed Central Compressor Station, the proposed SCE Natural Substation, proposed 66 kV sub-transmission system modification, and proposed substation modifications could occur concurrently. Construction related-activities are estimated to occur for 22 months.

Construction of the proposed Central Compressor Station will require a peak of 150 workers per day. There is insufficient parking for 150 works per day; therefore, workers will have to be brought in by commuter bus and dropped off at the construction site location.

Construction of the proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission line modifications, and proposed substation modifications will be performed by either SCE construction crews or contractors, depending on the availability of SCE construction personnel at the time of construction. If SCE transmission and telecommunications construction crews are used they will likely be based at one of SCE's local facilities. Contractor construction personnel will be managed by SCE construction management personnel.

SCE anticipates a total of approximately 42 construction personnel working on any given day. SCE anticipates that crews will work concurrently whenever possible; however, the estimated deployment and number of crew members will be dependent upon City permitting, material availability, and construction scheduling. For example, electrical equipment (such as substation MEER, wiring, and transformer) installation may occur while sub-transmission line construction proceeds. The proposed SCE Natural Substation electrical equipment installation activities may require approximately 32 personnel while the sub-transmission construction activities may require 10 personnel.

In general, construction activities will occur in accordance with accepted construction industry standards. Construction activities generally will be scheduled during daylight hours (7:00 am to 5:00 pm), Monday through Friday. If different hours or days are necessary, SCE will obtain variances from local noise ordinances, as necessary, from the jurisdiction within which the work will take place.

3.10 REQUIRED PERMITS AND PLANS

Required permits and plans for the Proposed Project are represented in the Table 3.10-1 below.

Table 3.10-1 Permit Requirements for the Proposed Central Compressor Station/Storage Field

Other Project Approvals	Issuing Agency	Purpose/ Covered Activity
1. Federal		
Clean Water Act Section 404/Rivers and Harbors Act Section 10: Nationwide Permit (NWP)	United States Army Corps of Engineers	Utility line activities in waters of the United States.
2. State		
National Pollutant Discharge Elimination System (NPDES) General Permit for Discharge of Construction Related Storm Water	State Water Resources Control Board	Management of storm water during construction.
Consultation	California Department of Fish and Game (CDFG)	Incidental Take Permit
851 Approval	California Public Utilities Commission	Prior to granting SCE an electrical easement to construct and operate the proposed SCE Natural Substation, SoCalGas will need CPUC approval with Section 851 of the Public Utilities Code.
3. Local		
Consultation	Significant Ecological Area Technical Advisory Committee (SEATAC)	Los Angeles County Proposed General Plan Update includes Significant Ecological Area (SEA) boundary changes affecting Proposed Project area (SCE is exempt from such local plan, per CPUC General Order 131-D_
Traffic Control Plan/Detour	California Department of Transportation (Caltrans) District 7, City of Santa Clarita, Los Angeles County, LA City	Traffic management for lane closures during project construction.
Building Permit	Los Angeles County	Proposed Central Compressor Station site; proposed office trailer relocation
Building Permit	City of Los Angeles – Los Angeles Municipal Code Section 91.106	Proposed guard house relocation

Table 3.10-1 Permit Requirements for the Proposed Central Compressor Station/Storage Field

Other Project Approvals	Issuing Agency	Purpose/ Covered Activity
Engineered Grading Permit Inclusive of the proposed Central Compressor Station and the proposed SCE Natural Substation	Los Angeles County Department of Public Works	An excavation that (1) is more than 2 feet (610 mm) in depth or (2) creates a cut slope greater than 5 feet (1524 mm) in height and steeper than 1 unit vertical in 2 units horizontal (50 percent slope) and exceeds 50 cubic yards (38.3 cubic meters [m^3]). The proposed Central Compressor Station and the proposed SCE Natural Substation would need separate engineered grading permits.
Trench/Excavation Permit	California Occupational Health and Safety Administration (Cal-OSHA)	Prior to construction, SCE and SoCalGas workers are required to have a trenching/excavation permit
Oak Tree Permit	City of Santa Clarita and Los Angeles County	Agency notification and authorization if impacts to oaks of a certain size (6-inch diameter at breast height [DBH] – City; 8-inch DBH - County) are anticipated, whether through removal of an entire tree, trimming of branches, or conducting construction activities within the drip lines of the trees.