DOCKETED

Docket Number:	08-AFC-09C
Project Title:	Palmdale Hybrid Power Project - Compliance
TN #:	204459
Document Title:	Palmdale Energy, LLC's Petition for Amendment
Description:	N/A
Filer:	Marie Fleming
Organization:	Galati | Blek LLP
Submitter Role:	Applicant Consultant
Submission Date:	4/30/2015 1:55:21 PM
Docketed Date:	4/30/2015

PETITION TO AMEND

PALMDALE ENERGY PROJECT

08-AFC-9C

Submitted to the:

California Energy Commission

Submitted by:

PALMDALE ENERGY, LLC

Prepared by:

GALATI | BLEK LLP

APRIL 2015

GALATI | BLEK LLP

455 Capitol Mall Suite 315
Sacramento CA 95814
Tel •916.441.6575

April 30, 2015

Eric Veerkamp
Compliance Project Manager
Siting, Transmission and Environmental Protection Division
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814-5512

Subject: **PALMDALE ENERGY, LLC'S PETITION FOR AMENDMENT**
PALMDALE HYBRID POWER PROJECT
DOCKET NO. (08-AFC-9C)

Dear Mr. Veerkamp,

On behalf of Palmdale Energy, LLC, GalatiBlek LLP hereby submits Palmdale Energy LLC's Petition for Amendment (Petition) for the Palmdale Hybrid Power Project (08-AFC-9C) to eliminate solar components and replace the combustion turbine technology with fast-start flexible technology. The Petition also requests the project name be changed from Palmdale Hybrid Power Project to Palmdale Energy Project.

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit Palmdale Energy, LLC's Petition on behalf of Palmdale Energy, LLC.

Sincerely,

Scott A. Galati
Counsel to Palmdale Energy, LLC

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APPENDICES

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Section 1 INTRODUCTION

1.1 INTRODUCTION TO PETITION

Palmdale Energy, LLC (Palmdale Energy), a solely owned subsidiary of Summit Power Project Holdings, LLC, files this Petition For Amendment (Petition) with the California Energy Commission (Commission) to modify the Palmdale Hybrid Power Project (PHPP) by eliminating the solar energy component and reconfiguring the two on one combined cycle power block configuration to incorporate new gas turbine technology to meet pending need for "Flexible Resources" to support integration of renewable energy. This section describes the procedural background of the PHPP and the authority for the Commission to process this Petition. The purpose and need for the Petition and the benefits from the project after modification are also described in this section.

Section 2 of the Petition provides a complete new project description.

Sections 3, 4, 5 and 6 contain analysis of the proposed modifications comparing the potential environmental impacts from the proposed new configuration to the potential environmental impacts of the original project as approved in the Commission Final Decision. These sections also include an update of laws, ordinances, regulations or standards, if any, applicable to the modified project. Where appropriate each technical section proposes modifications to the Conditions of Certification contained in the Final Decision.

Section 7 contains an analysis demonstrating that the modifications do not increase any potential effects on nearby property owners.

1.2 FINAL DECISION BACKGROUND

On August 4, 2008, the City of Palmdale filed an Application For Certification (AFC) with the Commission to construct and operate a nominal 570 megawatt (MW) hybrid of natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment to be developed on an approximately 333-acre site. The combined-cycle equipment would have utilized two natural gas-fired combustion turbine generators (CTG), two heat recovery steam generators (HRSG), and one steam turbine generator (STG). The solar thermal equipment was planned to use arrays of parabolic collectors to heat a high-temperature working fluid. The hot working fluid would have been used to boil water to generate steam. The combined-cycle equipment was to be integrated thermally with the solar equipment at the HRSG and both utilize the single STG.

The Commission issued a Final Decision approving the PHPP on August 10, 2011 (Order No. 11-0810-09, the "Final Decision", 08-AFC-9). The Final Decision also approved two alternative generation tie-line routes.

1.3 CHANGE IN OWNERSHIP AND PROJECT NAME

The current owner of the Project is Palmdale Energy, LLC (Palmdale Energy). Palmdale Energy is a wholly owned subsidiary of Summit Power Projects Holdings, LLC (SPPH). SPPH is owned by Summit Power Group, LLC a long standing developer of energy projects in the US. On April 30, 2015, Palmdale Energy closed with the City of Palmdale for the purchase of all rights, licenses, permits, options, etc. in existence. On April 30, 2015, Palmdale Energy filed a Petition for Change in Ownership with the CEC.

Palmdale Energy also requests that the PHPP name be changed to Palmdale Energy Project (PEP).

For convenience, the term "Approved Project" refers to the PHPP as described in the Final Decision. The term "Modified Project" refers to the PEP as proposed in this Petition.

1.4 SUMMARY OF PROJECT MODIFICATIONS

The project modifications proposed by this amendment include:

- Replacement of the General Electric gas turbines with new Siemens SGT6-5000Fs to meet pending need for "Flexible Resources" to support integration of renewable energy.
- Elimination of the solar components of the Approved Project.
- Elimination of Brine Concentrator/Crystallizer systems.
- Replacement of the wet cooling tower with an Air Cooled Condenser (ACC).
- Reduction of the site from 333 acres to 50 acres.
- Reduction of the construction laydown and parking area from 50 acres to 20 acres.
- Reorientation of the power block with the HRSG stacks now on the east and the combustion turbine inlets to the west.
- Relocation of the site access road connection to East Avenue M to a point further east on East Avenue M.

- Relocation of the point where the 230 kV transmission line turns south to the generating facility from East Avenue M to a point further west on East Avenue M.
- Addition of three 230 kV transmission line towers along the south side of East Avenue M north of the project site and extension of the generation tie-line westerly approximately 1,800 feet along the south side of East Avenue M.
- Addition of a waste stream consisting of combustion turbine evaporative cooler blowdown, water treatment system reject, and plant drains.
- Reduction in the length of the Approved Project sewer pipeline which will now interconnect with an existing City of Palmdale sewer pipeline along the south side of East Avenue M.
- Change in the water steam cycle chemistry control system from a phosphate based system to an all volatile system.
- Possible change from a CO2 based fire suppression system for some components to an FM200 based system.

The project modifications proposed by this amendment do not include modifications to any of the Approved linear routes beyond the immediate vicinity of the Modified Project site.

1.5 PURPOSE AND NEED FOR AMENDMENT

Palmdale Energy is acquiring the site in order to develop fast-start flexible generation to meet the changing California power demands, specifically to assist in the integration of renewable energy generated in California. This change in technology could not have been anticipated during the original permitting process because at the time of the original licensing the PHPP was owned by the City of Palmdale whose objectives for the project were different. Palmdale Energy was not part of the original proceedings.

The Final Decision identified that the City of Palmdale's original project objectives were to:

- Provide an efficient, reliable, and environmentally sound power generating facility to meet future electrical power needs of the rapidly growing City of Palmdale and surrounding area, as well as provide additional generating capacity for the region and California;
- Locate the facility within the boundaries of the City of Palmdale and under City ownership and control. The City can, thereby, increase its level of assurance that

residential, commercial, and industrial power needs in the City can be met, while at the same time supplying power to the regional grid;

- Use solar technology to generate a portion of the facility's power output and thereby support the State of California's goal of increasing the percentage of renewable energy in the state's electricity mix;

- Integrate the solar component of the project and its combined-cycle component in a way that maximizes the synergies between the two technologies to increase project efficiency; and

- Site the facility in a location zoned and planned for industrial use in an industrial area and with ready access both to adequate supplies of non-potable water to meet the facility's process water needs and to a natural gas pipeline that can supply the Project without requiring significant modifications to the regional gas supply system. [1]

The revised project objectives are as follows:

- Provide an efficient, flexible, reliable and environmentally sound power generating facility to meet future electrical power needs of California.

- Provide daily fast start and fast ramping capabilities needed to provide Flexible Capacity that is required manage the integration of intermittent resources.

- Locate the facility within the boundaries of the City of Palmdale to provide economic development and tax revenue to the City and surrounding areas.

- Site the facility in a location zoned and planned for industrial use in an industrial area and with ready access both to adequate supplies of non-potable water to meet the facility's process water needs and to a natural gas pipeline that can supply the Project without requiring significant modifications to the regional gas supply system.

- Design the Palmdale Energy Project to minimize water usage as much as practical.

- Utilize the existing CAISO Large Generator Interconnection Agreement.

The CAISO electric grid is undergoing significant transformation. The State of California has adopted renewable portfolio standards for electric utilities requiring that 33 percent

[1] Final Decision, Page 3-6 and 3-7.

of retail electric sales be served by renewable energy sources by 2020, which represents approximately 20,000 megawatts of capacity from new variable energy resources. Current estimates are by 2024 there may be 25,000 megawatts of capacity from variable energy resources. In addition, 12,079 megawatts of once through cooling resources will likely retire over the next eight years rather than meet environmental regulations. Further, California is currently examining policies to achieve 12,000 megawatts of distributed generation.

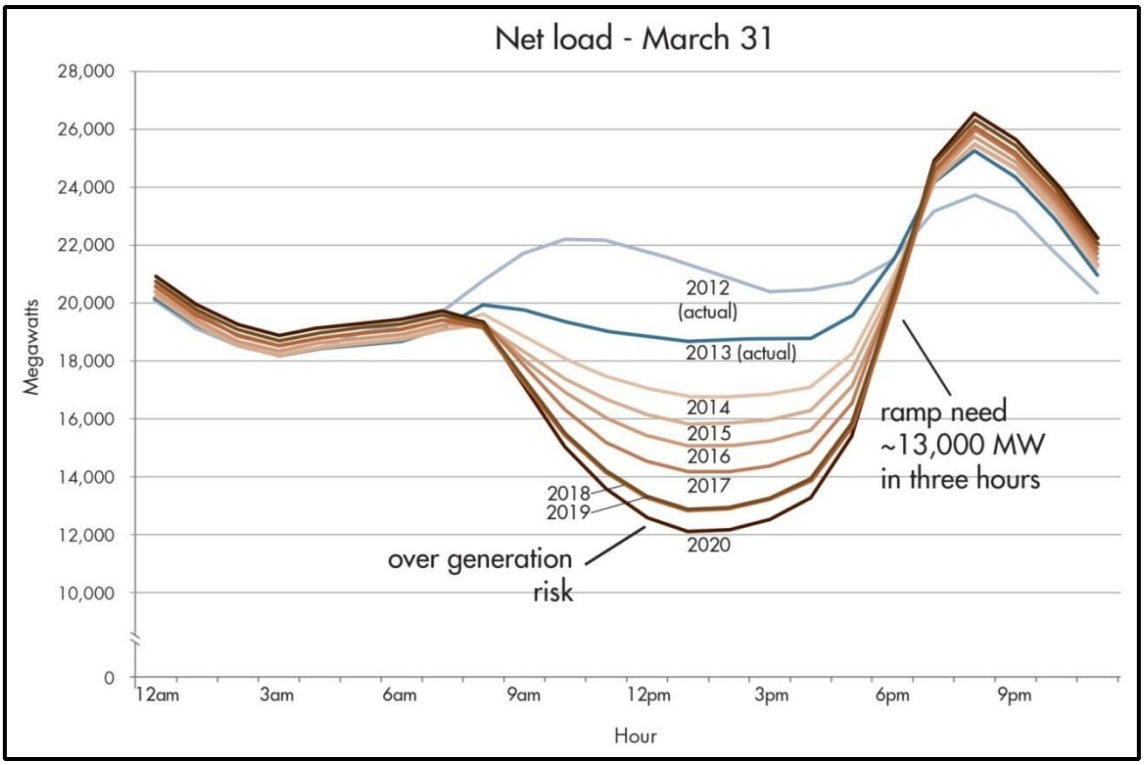
CAISO studies[2] show that to reliably operate the grid with this heightened level of uncertainty and variability, the CAISO will have an increased need for resources that can ramp up and down quickly and start and shut down potentially multiple times per day, *i.e.,* flexible capacity. At the same time, the once-through-cooling retirements[3] will reduce the number of existing resources that are available to provide the flexibility necessary to manage the increased variability and maintain day-to-day reliability.

Figure 1-1, commonly referred to as the "duck chart", uses net load curves to illustrate the steepening net load ramps expected over the next six years during the spring season. The duck chart shows the system requirement to supply an additional 13,000 MW of upward ramping capability, all within approximately three hours, to replace the electricity lost by solar power as the sun sets. The duck chart illustrates the larger ramping needs, as evidenced by the "fattening of the duck" as more renewables come on line and the multiple ramps each day.

[2] See Integration of Renewable Resources: Transmission and operating issues and recommendations for integrating renewable resources on the California CAISO-controlled Grid (November 2007). The CAISO has conducted numerous other studies regarding the impact of the integration of renewable resources. *See, e.g.*, August 31, 2010; and CAISO studies conducted as part of the CPUC 2010 Long Term Planning Process proceeding.

[3] *See* Once Through Cooling Water Policy, Adoption and Amendments.

Figure 1-1



On May 4, 2010, the California State Water Board adopted the "Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling." The once-through cooling policy applies to the 19 existing power plants that withdraw water from California's oceans and bays for use in a single-pass cooling system, also known as once-through cooling. Thirteen conventional thermal generators (representing about 17,500 MW) and California's nuclear generators must retrofit, repower, or retire by 2020 and 2024, respectively, to comply with the once-through cooling policy. The unavailability of these resources will significantly limit the CAISO's access to the flexible capacity necessary to integrate renewable resources reliably.

The CAISO has begun to conduct an annual flexible capacity technical study to determine the flexible capacity needed to help ensure the ISO system reliability as provided in ISO tariff section 40.10.1. On April 8, 2015 the CAISO issued the draft 2016 Flexibly Capacity Needs Assessment. The study concluded that System-wide flexible capacity range from 7,244 MW in June to 12,817 MW in December[4] in 2016 and will continue to grow in 2017 and beyond.

[4] See http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleCapacityNeedsTechnicalStudyProcess.aspx

The ISO also looks at the type of flexible capacity resource needed. The most valuable category is base flexible capacity, which is made up of units can that have the capability to start frequently (at least twice per day) and operate through both the morning and evening peaks (operate for a minimum of 6 hours each day). The minimum amount of flexible capacity needed from the "base flexibility" category is 87 percent of the total amount of flexible capacity in the summer months (May – September) and 54 percent of the total amount of flexible capacity for the non-summer months (October – April). The PEP is being designed to serve this need for base flexibility resource.

1.6 PROJECT AMENDMENT BENEFITS

The project site received a Commission Final Decision in 2011. The modifications proposed in this Petition provide an opportunity to modify the project to meet the new regional demand without the need to permit a new site.

In addition, as described in this Petition, the Modified Project will substantially reduce the original footprint avoiding significant environmental impacts. The use of a fully permitted site (as reconfigured), with an approved LGIA, is a responsible approach to helping California achieve its regional demand and to further integrate renewable resources.

Specifically, the Modified Project reduces the project footprint (excluding linears) from up to 333 acres to approximately 50 acres (additional 20 acres for temporary construction laydown and parking) and provides the following environmental benefits:

- Reduces permanent habitat impacts from 333 acres to 50 acres.
- Reduces temporary habitat impacts from 50 acres to 20 acres (construction laydown and parking areas)
- Reduces operational water use from 4,125 acre feet per year (AFY) to approximately 320 AFY primarily by replacing the wet cooling tower with an ACC.
- Elimination of onsite waste treatment associated with the Brine Concentrator/Crystallizer system.
- Reduces water use during construction from 807 acre feet to less than 100 acre feet.
- Reduces mass grading of 283 acres as a result of elimination of the solar field.
- Eliminates grading across the solar field thereby reducing direct and indirect impacts to washes.

- Eliminates the use of 260,000 gallons of Therminol.
- Eliminates the potential glint and glare impacts from the solar reflectors and other visual impacts from the 250 acres of the solar field.
- Eliminates the visual plume which occurs with a “wet” cooling tower.
- Reduces the visual impact to viewers be elimination of the large south field
- Reduces construction emissions.
- Reduces traffic impacts due to the smaller peak and average construction labor force.
- Eliminates the need to install a one-mile, sanitary wastewater pipeline from the PEP plant site to the intersection of 10th St East and East Ave L.

1.7 SCOPE OF ANALYSIS

Palmdale Energy requests the Commission to process this Petition in accordance with Section 1769 of its regulations and the well-established principles of practice the Commission has followed when processing other petitions for amendment. This Petition has been prepared in accordance with those principles, focusing on comparing the modifications proposed herein for the Modified Project to those of the Approved Project as described in the Final Decision.

Section 2 DESCRIPTION OF PROJECT AMENDMENT

This section provides a description of the modifications to the Approved Project that are proposed by Palmdale Energy. The Final Decision describes the PHPP as a hybrid combined cycle project. Under the Modified Project, the solar components and associated Therminol will be eliminated, the size of the site will be reduced and the PEP will be reconfigured to incorporate fast start flexible gas turbines with an Air Cooled Condenser (ACC). For completeness purposes, this section contains a summary of the proposed changes and a complete description of the Modified Project.

2.1 SUMMARY OF PROJECT MODIFICATIONS

The project modifications proposed by this amendment include:

- Replacement of the General Electric gas turbines with new Siemens SGT6-5000Fs to meet pending need for “Flexible Resources” to support integration of renewable energy.
- Elimination of the solar components of the Approved Project.
- Elimination of Brine Concentrator/Crystallizer systems.
- Replacement of the wet cooling tower with an Air Cooled Condenser (ACC).
- Reduction of the site from 333 acres to 50 acres.
- Reduction of the construction laydown and parking area from 50 acres to 20 acres.
- Reorientation of the power block with the HRSG stacks now on the east and the combustion turbine inlets to the west.
- Relocation of the site access road connection to East Avenue M to a point further east on East Avenue M.
- Relocation of the point where the 230 kV transmission line turns south to the generating facility from East Avenue M to a point further west on East Avenue M.
- Addition of three 230 kV transmission line towers along the south side of East Avenue M north of the project site and extension of the generation tie-line westerly approximately 1,800 feet along the south side of East Avenue M.
- Addition of a waste stream consisting of combustion turbine evaporative cooler blowdown, water treatment system reject, and plant drains.
- Reduction in the length of the Approved Project sewer pipeline which will now interconnect with an existing City of Palmdale sewer pipeline along the south side of East Avenue M.
- Change in the water steam cycle chemistry control system from a phosphate based system to an all volatile system.
- Possible change from a CO2 based fire suppression system for some components to an FM200 based system.

The project modifications proposed by this amendment do not include modifications to any of the linear facilities beyond the immediate vicinity of the Modified Project site.

2.2 INTRODUCTION AND OVERVIEW OF PEP

Palmdale Energy proposes to construct, own, and operate the Palmdale Energy Project (PEP or Project). The PEP consists of a natural gas-fired combined-cycle generating equipment to be developed on an approximately 50-acre site in the northern portions of the City of Palmdale (City). The combined-cycle equipment utilizes two Siemens SGT6-5000F natural gas-fired combustion turbine generators (CTG), two heat recovery steam generators (HRSG), and one steam turbine generator (STG).

The Modified Project will have a nominal electrical output of 645 MW at average annual conditions and commercial operation is planned for summer 2019/summer 2020. The Modified Project will be fueled with natural gas delivered via a new natural gas pipeline. The Southern California Gas Company (SCG) will design and construct the approximately 8.7-mile pipeline in existing street rights-of-way (ROW) within the City of Palmdale (see Figure 2-1 at the end of this section of the Petition, as are all figures in the section). This Petition does not propose any changes to the natural gas pipeline or route contained in the Final Decision for the Approved Project.

The PEP plant site is located south of East Avenue M in the northernmost areas of the City of Palmdale. The 50-acre plant site was formerly part of an approximately 600-acre City-owned property that is bounded by Sierra Highway to the west, East Avenue M (Columbia Way) to the north, and U.S. Air Force Plant 42 on the south and east. Air Force Plant 42 is a Government Owned Contractor Operated (GOCO) facility for the production, engineering, final assembly and flight testing of high performance aircraft. Under a Joint-Use Agreement with the U.S. Air Force, Los Angeles World Airport (LAWA) currently operates a passenger terminal on Air Force Plant 42 as LA/Palmdale Regional Airport.[5]

The proposed interconnection point for the PEP with the Southern California Edison (SCE) electrical transmission system is at SCE's existing Vincent Substation south of Palmdale. This Petition proposes a minor modification to one of the approved generation tie-line routes by extending westerly approximately 1,800 feet along the south side of East Avenue M to accommodate the change in the switchyard location. See Figure 2-1. No other modifications to the generation tie-line or routes contained in the Final Decision for the Approved Project are proposed.

[5] To commemorate the City of Palmdale's rich aviation history and culture, some city streets are identified by both a geographic name (e.g. East Avenue M) and a historic name (e.g., Columbia Way). Thus, East Avenue M is also sometimes referred to as Columbia Way, and 10th Street East is also called Challenger Way, in both cases commemorating the fact that all six of America's Space Shuttles were manufactured at Air Force Plant 42.

Reclaimed water for the Modified Project's uses will be supplied from the City of Palmdale Water Reclamation Plant (PWRP) or the City of Lancaster Advanced Waste Water Treatment Plant (AWWTP) both which are operated by the Sanitation Districts of Los Angeles County through one of the following options:

1. Trucking water from the PWRP to the Plant until the Modified Project is connected to a reclaimed water pipeline.

2. Interconnection to the existing reclaimed water pipeline located at near the intersection of Sierra Highway and East Avenue M which is along the is proposed, reclaimed water pipeline route see (see Figure 2-1).

3. Through the construction of a new 7.4 mile reclaimed water pipeline which would connect the PWPP and AWWTP. The pipeline will be installed in existing City street ROWs primarily within the City of Palmdale, although a small portion of the pipeline in the immediate area of the PWRP is in unincorporated Los Angeles County (see Figure 2-1).

This Petition does not propose modifications to the recycled water pipeline or route contained in the Final Decision for the Approved Project.

In addition to the reserve volume of water provided by onsite tank storage, the Modified Project will have a backup water source in the event of a more extended outage in the PWPP by having water supplied by the AWWTP.

During Project operations, potable water for drinking, sanitary uses, safety showers, etc. will be obtained from the Los Angeles County Waterworks District No. 40. LA County Waterworks District No. 40 has a potable water pipeline along East Avenue M that currently terminates a short distance west of the plant site's northern border. A 1.0-mile pipeline along East Avenue M will be constructed to connect the PEP to the existing pipeline (see Figure 2-1). Portable sanitary facilities and bottled water will be used during Project construction. This Petition does not propose any modifications to the water pipeline or route contained in the Final Decision for the Approved Project.

Process blowdowns and sanitary wastewater will be disposed by connecting City of Palmdale sewer system. Since the time of issuance of the Final License, the City of Palmdale has constructed an 18-inch sewer line that runs along the south side of East Avenue M. The Modified Project will connect to this existing sewer line at the point that the sewer line intercepts the Modified Project access road, approximately 0.25 miles north of the plant site (see Figure 2-1). The sewer line, although owned by the City of Palmdale delivers waste to the same location for treatment as the Approved Project.

2.3 LOCATION OF FACILITIES

The PEP address is 950 E Ave M, Palmdale, California, 93550. As shown on Figure 2-1, the Project site is located on an approximately 50-acre parcel west of the northwest corner of U.S. Air Force Plant 42, and east of the intersection of Sierra Highway and East Avenue M. The 50-acre power plant site is currently vacant and undeveloped land owned by the City of Palmdale. Palmdale Energy has an option to purchase the 50 acre parcel from the City of Palmdale.

The plant site and most linear facilities routes are entirely within the City of Palmdale. Most of Segment 1 of the transmission line is within the City of Palmdale; the remainder of Segment 1 and all of Segment 2 are in unincorporated Los Angeles County. Similarly, a small portion of the reclaimed water supply pipeline is in unincorporated Los Angeles County with the remainder in the City of Palmdale. The transmission line and various pipeline easements are either along City-controlled parcels, land owned by the applicable utility (e.g., SCG and SCE), or are on land that the City intends to purchase.

2.4 SITE DESCRIPTION

The following paragraphs describe the PEP power plant site.

2.4.1 Existing Site Condition

The PEP plant site is located in an industrial area of the City of Palmdale. The site is currently vacant and undeveloped. The site is largely flat, with elevations ranging from approximately 2,500 feet to 2,505 feet above sea level.

The legal description of the plant site is as follows: a portion of Section 1, Township 6 North, Range 12 West, (San Bernardino Base and Meridian), located within the north of the City of Palmdale. The assessor's parcel numbers that comprise the plant site and 20 acre laydown and parking area are provided in Table 2-1. See Figure 2-2 for the parcel map that includes the 50-acre parcel and adjacent parcel for the 20 acre laydown and parking area proposed for the Modified Project. Updated Ownership information for the properties surrounding the plant site and along the linear facilities routes is provided in Appendix 7-A to this Petition.[6]

[6] Ownership information provided by City of Palmdale in April, 2015.

Table 2-1
PEP Plant Site Parcels- Assessor's Parcel Numbers (APN)

Parcel 1 of Parcel Map No. 070999 in the City of Palmdale, County of Los Angeles, State of California, per map recorded in Book 380 pages 77-79 of Parcel Maps in the Office of the County Recorder of Said County	***Parcel 2 of Parcel Map No. 070999 in the City of Palmdale, County of Los Angeles, State of California, per map recorded in Book 380 pages 77-79 of Parcel Maps in the Office of the County Recorder of Said County***

2.4.2 Site Surveys

Detailed land and topographic surveys were performed to establish site boundaries, to understand grading requirements and to establish a baseline drainage plan. A preliminary geotechnical report of the PEP plant site was performed to evaluate general subsurface conditions, seismicity and other geologic hazards and to provide recommendations for design and construction of the foundations for Project structures. A copy of this report for the Approved Project was included as Appendix B to the Approved Project's AFC.

In general, the study found the plant site geo-technically feasible for construction of the proposed electrical generating facilities. Supplementary geotechnical investigations will be performed to support detailed design.

2.5 GENERATING FACILITY DESCRIPTION

The following sections describe the PEP site arrangement and the processes, systems and equipment that constitute the proposed power plant. All Project facilities will be designed, constructed and operated in accordance with applicable laws, ordinances, regulations and standards (LORS).

2.5.1 Site Arrangement

Figure 2-3 shows the layout of Project facilities including:

- Plant site and laydown area,
- The site access road to Avenue M.,
- The project's 230 kV switchyard

Figure 2-4 is a general arrangement of the Modified Project's power block. As shown on Figure 2-4, major components of the Modified Project include:

- Two CTGs each with a HRSG,
- One STG,
- One Air Cooled Condenser,
- A 230-kV switchyard,
- An operations building that incorporates control, warehouse, maintenance, and administrative functions, and
- A gas metering station.

Figure 2-5a is an elevation drawing looking north and Figure 2-5b is an elevation drawing looking west. Equipment dimensions are provided in Appendix 2-A.

2.5.2 Process Description

This section describes the power generation process and thermodynamic cycle employed by the Project. The power plant consists of:

- Two CTGs equipped with dry low NO_X combustors and evaporative inlet air coolers,
- Two HRSGs equipped with duct burners, and
- One STG

The CTGs and duct burners are fueled exclusively with pipeline natural gas. The duct burners provide additional heat, which enable the HRSGs to produce more steam in order to obtain peaking output from the STG.

At full load, each CTG generates approximately 220 MW (gross) at average ambient conditions with the evaporative coolers in service. Heat from the CTG exhausts is used in the HRSGs to generate steam and to reheat steam. With the CTGs at full load and the evaporative coolers in service and the duct burners out-of-service, the HRSGs produce sufficient steam for operation of the STG at an output of 232 MW (gross) at average ambient conditions, which results in an overall plant output of approximately 672 MW (gross).

With the CTGs at full load and the duct burners in-service, the HRSGs produce sufficient steam for operation of the STG at its peaking output of 276.2 MW (gross) at average ambient conditions, which results in an overall plant gross output of approximately 699.4 MW (net).

The PEP's interconnect agreement limits plant net output to 570 MW (more correctly 570 MW at the point of interconnection but this discussion will use net plant output for simplicity). Plant net output would exceed 570 MW without the evaporative coolers or duct burners in service at temperatures below approximately 96°F. Additionally, plant output would exceed 570 MW at any temperature with the evaporative coolers in service and/or the duct burners in service. At ambient conditions during which the plant could exceed 570 MW without evaporative cooling and duct firing, the PEP plant net output will be limited to 570 MW by controlling fuel flow to the combustion turbines through the plant control system.

At all ambient conditions, a plant net output of 570 MW can be achieved without the use of duct burners, assuming the evaporative coolers can be put into service with both gas turbines operating. However there are likely be conditions where the plant is operated with one gas turbine off-line and the duct burners can provide additional capacity.

Overall, annual availability of the PEP is expected to be in the range of 90 to 95 percent. The plant's capacity factor will depend on the provisions of bilateral power sales contracts, as well as market prices for electricity, ancillary services, and natural gas. The design of the Modified Project provides for operating flexibility (the ability to rapidly start up, shut down, turn down and provide peaking output), so operations may be readily adapted to changing market conditions and provide the flexible capacity necessary to integrate intermittent resources in the CAISO.

The "Flex 30" fast start plant concept offered by Siemens Energy, the supplier of the Modified Project's combustion equipment, allows for faster starting of the gas turbines by mitigating the restrictions of former HRSG designs. Traditionally, the CTGs are brought to full load slowly to limit combined stresses in the high-pressure steam drum of the HRSG, due to the exhaust temperature of the CTGs. The new Siemens design incorporates their "drum plus" concept for the HP steam drum which reduces startup limits imposed by traditional HP drums. Additional equipment to support the fast start plant includes an auxiliary boiler, which will supply sealing steam and allow startup of the steam turbine, shortly after the gas turbines.

A heat balance diagram corresponding to base load operation of the PEP is shown in Figure 2-6a. This base load heat balance is based on average ambient conditions of 64°F/40% relative humidity, evaporative coolers in-service, and duct burners out-of-service. A heat balance at the same conditions but with the evaporative coolers in-service is provided as Figure 2-6b. A heat balance diagram corresponding to peak load operation of the facility is shown in Figure 2-6c This peak load heat balance is based on the same average ambient conditions as the base load heat balance, with evaporative

coolers in service, and duct burners in service providing the STG with extra steam for peaking output.

The following provides a brief description of the combined-cycle equipment's thermodynamic cycle (a combination of the Brayton and Rankine cycles):

- Air flows through the inlet air filter, evaporative cooler, and associated inlet air ductwork of each CTG and is then compressed in the CTG compressor.
- Compressed air exiting the compressor flows to the CTG combustors.
- Natural gas fuel is then injected into the combustors and ignited. The hot combustion gases expand through the CTG's turbine to drive the entire CTG, including the compressor and the electric generator which share a common shaft with the turbine.
- The hot combustion gases exit the turbine and enter the HRSG dedicated to that CTG. Duct burners installed in each HRSG further heat the CTG exhausts at times when peaking output is desired.
- In the HRSGs, heat from the CTG exhausts is transferred to water pumped into the HRSG pressure parts (economizers, evaporators, etc.).
- The water is converted to superheated steam and is delivered to the STG at three pressures, high pressure (HP), intermediate pressure (IP), and low pressure (LP). Note: The use of multiple steam delivery pressures provides an increase in cycle efficiency.
- HP steam from the HRSG is admitted to the HP section of the STG, the steam expands through the HP section to drive the STG, and exits the HP section as 'cold reheat' steam.
- Cold reheat steam is combined with IP steam from the HRSG and delivered to the HRSG reheater.
- Hot reheat steam leaving the reheater is admitted to the IP section of the STG and expands through the IP and LP sections to further drive the STG.
- LP steam from the HRSG is admitted to the LP section of the STG and expands through the LP section to also further drive the STG.
- Steam leaving the LP section of the STG enters an air cooled condenser, gives up its latent heat to atmosphere, and is condensed to liquid.

- The condensate then pumped back to the condensate/feed system for feed to the HRSGs.

2.5.3 Energy Conversion Facilities Description

This section describes the major energy conversion components of the proposed PEP including the CTGs, HRSGs, and STG.

2.5.3.1 Combustion Turbine-Generators (CTG)

Thermal energy is produced in each of the two Siemens SGT6-5000F CTGs through the combustion of natural gas. The thermal energy is then converted into mechanical energy by the CTG turbine that drives the CTG compressor and electric generator. The CTGs proposed for the PEP employ 'F' technology and are supplied by Siemens Energy. Each CTG consists of a heavy duty, single shaft, combustion turbine-generator and associated auxiliary equipment. The CTGs are equipped with dry low NO_X combustors designed for natural gas. Procurement of the CTGs is based on functional performance criteria, including the following:

- Air emissions at the gas turbine exhaust shall not exceed specified levels.
- Noise emissions shall not exceed specified near-field and property line levels.
- Each CTG shall be capable of operating at 50 percent to 100 percent load, while meeting specified air emissions performance criteria.
- Each CTG shall be capable of a specified number of startups per year.

The CTGs are equipped with accessories required to provide efficient, safe and reliable operation, including the following:

- Inlet air filters and on-line filter cleaning system,
- Evaporative inlet air coolers,
- On-line and off-line compressor wash system,
- Fire detection and protection system,
- Lubrication oil system including oil coolers and filters,
- Generator coolers,
- Starting system, auxiliary power system, and control system, and

- Metal acoustical enclosures designed for outdoor service.

2.5.3.2 Heat Recovery Steam Generators (HRSG) and Steam Cycle

In the combined-cycle configuration, each gas turbine will exhaust to a dedicated HRSG. Each of the two trains will consist of one CTG and one HRSG. Both CTG-HRSG trains will feed steam into a common STG (a standard 2-on-1 configuration).

Each HRSG is a horizontal, natural circulation type unit with three pressure levels of steam generation and reheat loop. High-pressure steam at 1902 pounds per square inch gage (psig) and 1,050°F is produced in the HRSG and flows to the steam turbine throttle inlet (average annual conditions - evaporative coolers on, no duct firing). The exhausted cold reheat steam is mixed with intermediate pressure steam and reintroduced into the HRSG through the reheat loop. The hot reheat steam flows to the intermediate-pressure section of the STG and then to the low-pressure section of the STG. Low-pressure steam from the HRSG also flows to the low-pressure section of the STG. The STG drives an electric generator to produce electricity. The STG exhaust steam is condensed in the air cooled condenser.

Siemens "Flex 30". As noted earlier, the PEP is designed with Siemens Flex 30, which will allow the CTG to reach base load more quickly, reducing startup emissions. Since emission rates are higher during startup, than during normal steady-state operations, the Flex 30 design will facilitate the Modified Project's compliance with air emission requirements.

To facilitate the Flex 30 approach, the HRSG design will be modified. Typical HRSG designs limit the CTG start rate, due to the exhaust temperature heating the steam drum too quickly. This limitation is caused by thermal stress limitations on the high-pressure steam drum due to the shell thickness. To avoid this limitation, Siemens will incorporate a "drum plus" design for the high pressure steam drum. This allows a smaller pressure vessel for the high pressure drum which results in shorter warm up time for the thick walled drum.

2.5.3.3 Auxiliary Boiler

Another limiting factor for startup of combined-cycle equipment is the ability to draw a vacuum on the condenser, which is necessary to commence STG startup. The PEP will use an auxiliary boiler to facilitate rapid startup by providing STG sealing steam prior to CTG startup, thereby allowing the condenser vacuum to be established and the condenser be in a condition ready to accept steam as soon as it is needed. This also avoids the need to vent considerable steam to the atmosphere while waiting for

condenser vacuum to be established following CTG start and the beginning of steam generation within the HRSG.

2.5.3.4 Steam Turbine-Generator (STG)

Steam from the HRSGs is sent to the STG. The steam expands through the STG turbine blades to drive the steam turbine, which in turn drives the generator. The PEP's STG is a "reheat" type and is equipped with accessories required to provide efficient, safe, and reliable operation, including the following:

- Governor system,
- Steam admission system,
- Gland seal system,
- Lubrication oil system including oil coolers and filters,
- Generator coolers, and
- Metal acoustical enclosures designed for outdoor service.

2.5.3.5 Electrical System Description

This section describes the major electrical systems and equipment proposed for the PEP. Almost all of the power produced will be delivered to the regional grid through the Modified Project's interconnection with the SCE transmission system. A small amount of the Modified Project's output will be used on-site for plant auxiliaries such as pumps, control systems and general facility loads including lighting and heating-ventilation-air conditioning (HVAC). Some of the power needed for on-site uses will be converted from alternating current (AC) to direct current (DC) for power plant control systems and emergency backup systems. The descriptions of the major electrical systems and equipment provided in the following subsections reflect AC power unless otherwise noted. One-line diagrams of the major electrical systems are presented in Figures 3-1a and 3-1b.

2.5.3.6 Major Electrical Equipment and Systems

A small amount of the Modified Project's electric power output will be used onsite to power auxiliaries and general facility loads. Power will be generated by the two CTGs and one STG at 18 kV and stepped up by three fan-cooled generator step-up transformers to 230 kV for transmission to the grid. Auxiliary power will be back-fed through two of the step-up transformers. Once the CTGs are running, they will supply

the plant auxiliary power. Surge arresters will be provided at the high-voltage bushings to protect the transformers from surges on the 230-kV system, caused by lightning strikes or other system disturbances. The transformers will be set on concrete pads within berms designed to contain the non-PCB transformer oil in the event of a leak or spill. Fire protection systems will be provided. The high-voltage side of the step- up transformers will be connected to 230-kV circuit breakers, then to overhead lines that extend off-site to connect with SCE's regional transmission system at the Vincent Substation.

2.5.3.7 Grounding

The electrical system is susceptible to ground faults, lightning strikes and switching surges that result in high voltage potential hazards to site personnel and electrical equipment. The station grounding system provides an adequate path to permit the dissipation of current created by these events. The station- grounding grid will be designed for adequate capacity to dissipate heat from ground current under the most severe conditions in areas of high ground fault current concentration. The grid spacing will maintain safe step voltage gradients.

Bare conductors will be installed below-grade in an engineered grid pattern. Each junction of the grid will be bonded together by an exothermic weld or compression connection. Ground resistivity readings will be used to determine the necessary numbers of ground rods and grid spacing to ensure safe step and touch potentials under severe fault conditions. Grounding stingers will be brought from the ground grid to connect to building steel and non-energized metallic parts of electrical equipment.

2.5.3.8 Electrical Generation

Power is generated at 18 kV by the two CTGs and STG, and then is stepped up to 230 kV for delivery to the power plant's interconnection with the regional grid. Each of the Modified Project's three generators is connected by 18-kV bus to an 18/230-kV oil-filled, step-up transformer dedicated to the generator. Each step-up transformer rests on a concrete pad designed to contain the transformer oil in the event of a leak or spill. The 230-kV side of each step-up transformer is connected by overhead conductors to a breaker and one-half 230-kV switchyard at the plant site.

2.5.3.9 Electrical System for Plant Auxiliaries

Power for plant auxiliaries is supplied at 4160V from two auxiliary transformers. The 18-kV bus of each CTG is provided with a tap connection to an 18-kV/4160-V oil-filled, step-down, auxiliary transformer. The 4160V side of each transformer is connected to 4160V switchgear. Each CTG is provided with an 18-kV generator breaker located

between the generator and the tap connection. This configuration allows power for plant auxiliaries to be supplied from the plant switchyard regardless of whether the CTGs and STG are online or offline. The auxiliary transformers rest on concrete pads designed to contain the transformer oil in the event of a leak or spill.

The 4160V switchgear distributes power to the plant's 4160V motors, to the CTG starting system and to the 4160/480V transformers. The low voltage side of the 4160/480V transformers is connected to 480V switchgear. The 480V switchgear distributes power to the plant's large 480V loads and to 480V motor control centers (MCCs). The MCCs distribute power to the plant's intermediate 480V loads and to power panels serving small 480V loads. The MCCs also distribute power to 480/277V isolation transformers serving 277V single-phase loads and to 480/208/120 transformers serving 208V and 120V loads.

2.5.3.10 DC Power Supply System

The plant's DC power supply system consists of a 125VDC battery, a 125VDC battery charger, metering, ground detectors and distribution panels and is distributed amongst the two CTG's. In addition, a similar DC power supply system is provided as part of each CTG's auxiliary power system. Under normal operating conditions, the battery charger supplies DC power to the DC loads. The battery charger receives 480V, three-phase AC power from the electrical system serving plant auxiliaries. The battery charger continuously charges the battery bank, while supplying DC power to the DC loads. Under abnormal or emergency conditions when AC power is not available, the battery bank supplies DC power to the DC loads. The battery bank is sized to power the DC loads for a sufficient amount of time to provide for safe and damage-free shut down of the power plant. Recharging the battery bank occurs whenever AC power becomes available.

The DC power supply system provides power for critical control circuits, power for control of the 4160V and 480V switchgear and power for DC emergency backup systems. Emergency backup systems include DC lighting and DC lubes oil and seal oil pumps for the CTGs and STG.

2.5.3.11 Essential Service AC Systems

An essential service AC system (120V, single-phase) provides power to essential instrumentation, critical equipment loads, safety systems and equipment protection systems that require uninterruptible AC power. The essential service AC system and the DC power supply system are both designed to ensure that critical safety and equipment protection control circuits are always energized and able to function in the event of unit trip or loss of AC power.

The essential service AC system consists of an inverter, a solid-state transfer switch, a manual bypass switch, an alternate AC source transformer and voltage regulator and AC panel boards. The DC power supply system is the normal source of power to the essential service AC system. Power flows from the DC power supply system through the inverter to the AC panel boards. The solid-state transfer switch continuously monitors both the inverter output and the alternate AC source. Upon loss of the inverter output and without interruption of power, the transfer switch automatically transfers essential service AC loads from the inverter output to the alternate AC source. The manual bypass switch enables isolation of the inverter and transfer switch for testing and maintenance without interruption of power to the essential service AC loads.

2.5.3.12 Emergency Generator

The emergency diesel generator will supply electrical power to the power plant critical services in the event of a total power outage of the switchyard and the plant. The plant critical services will include battery chargers, turning gear, lubricating oil systems, DCS/PLC controls and critical lighting.

The generator will be designed, tested, rated, assembled and installed in accordance with all the applicable standards of ANSI, NEC, ISO, U.L., IEEE and NEMA. The equipment shall meet the requirements of NEC and all applicable codes and regulation.

The generator will be Standby rated at 1500 KVA, 1,800 RPM, at 0.8 power factor, 480VAC, 3 phase, 4 wire, 60 hertz, 480/277VAC, wyes connected to a high resistance grounded system, including radiator fan and all parasitic loads. The diesel generator will have auto-sync capabilities.

The emergency diesel generator will be installed in a dedicated area in the combined-cycle area of the plant site and will include the following major components:

- Diesel Engine,
- Governor,
- Lubricating System,
- Generator,
- Exciter,
- Voltage Regulator,
- Remote Synchronizing Panel, including protective relaying and metering,

- Generator Mounted Control Panel,
- Cooling System,
- Fuel System - Fuel Piping and 24 hours Fuel Tank,
- Exhaust System,
- Starting System including Batteries and Batteries Charger, and
- Weather Protective Enclosure.

Emergency Generator Operation Description. The plant critical or essential auxiliary electric loads will be served by the normal plant auxiliary power system at 480V or less, except when the normal source of power is interrupted or in the case of complete power shutdown at the plant. The emergency generator power system and the critical equipment system will be designed and arranged such that in the event of failure of the normal auxiliary power, the emergency diesel generator will be automatically connected within 10 seconds to the essential loads and the switching devices (time delay or non-automatic) that are supplying the critical/essential loads.

When the normal plant auxiliary power source is restored, and after a time delay, the automatic transfer switch will disconnect the emergency power source and connect the load to the normal power source. The emergency diesel generator will be periodically tested to confirm it's mechanical, electrical and control equipment integrity. The emergency generator system will be synchronized with the normal auxiliary power system from time to time to test its total output power into the system.

2.5.4 Plant Auxiliary Systems and Process Descriptions

The following subsections describe the various plant auxiliary systems (fuel supply, water supply, water treatment, cooling systems, air emissions control, waste management, etc.) associated with the PEP.

2.5.4.1 Fuel Supply and Use

The CTGs and duct burners are designed to burn natural gas. The fuel requirement for base load operation at average ambient conditions is approximately 4442.8x10^6 Btu/hr. (HHV). The fuel requirement for peaking operation at average ambient conditions is approximately 4848.4x10^6 Btu/hr (HHV).

The Modified Project will be fueled with natural gas delivered via a new 20-inch gas pipeline to be installed by Southern California Gas. No modifications to the natural gas pipeline route of the Approved Project are being proposed in the Petition. Natural gas

for the duct burner systems branches off and is regulated to a lower pressure. Safety pressure relief valves are provided downstream of pressure regulation valves. The CTG systems include a natural gas preheater and flow modulation equipment. The duct burner systems also have flow modulation equipment. Table 2-4 shows the typical composition of the natural gas that will fuel the PEP.

Table 2-4
Typical Natural Gas Composition

Component	Molar % Average
Methane, CH_4	95.358
Ethane, C_2H_6	2.978
Propane, C_3H_8	0.197
Butane, C_4H_{10}	0.025
Pentane, C_5H_{12}	0.000
Hexane, C_6H_{14}	0.011
Carbon Dioxide, CO_2	0.998
Nitrogen, N_2	0.393
Isobutane, CH10	0.023
Isopentane, C5H12	0.003
Total	100.00
Specific Gravity	0.583
BTU (Higher Heating Value)	1027
Natural Gas Ratio (HHV/LHV)	1.109

(Source: SCE 2014 Gas Composition from SoCal Gas)

2.5.4.2 Water Supply and Use

The PEP's various water uses include makeup for the HRSGs, makeup for the CTG evaporative coolers, service water, potable water and fire protection water. A water balance diagram corresponding to base load operation of the power plant at the average ambient conditions of 64°F and 40 percent relative humidity is presented in Figure 2-7a. A similar diagram at the average ambient conditions with the evaporative coolers on is presented in Figure 2-7b, while Figure 2-7c is a water balance diagram at average annual conditions at base load with the evaporative coolers in service and the duct burners on.

Water Requirements. Figures 2-7a, 2-7b, and 2-7c provide estimated flow rates in gallons per minute (gpm). The estimated daily rate requirements for the power plant's various water uses are presented in Table 2-5. The estimated maximum annual process water requirements are also presented in Table 2-5, based on an upper bound 95 percent capacity factor. Equipment sizing will be consistent with peak daily rates to ensure adequate design margin.

The peak daily process water usage is estimated at approximately 385,500 gallons per day and the estimated annual process water use is 320 acre feet (AF).

Table 2-5
Daily and Annual Water Uses

Water Use	Average Daily Rate (gpm)	Peak Daily Rate (gpm)	Estimated Maximum Annual Use (Acre-Feet)
Process water	198	268	320
Potable water	2.2	3.8	3.6

Primary Water Source and Quality. PEP process water needs will be met by use of reclaimed water supplied by the PWPP. The small quantity of potable water required by the Modified Project (for human use for drinking, toilets, washing, etc.) will be provided by the Los Angeles County Waterworks District No. 40. Both agencies have provided Will Serve Letters, which are provided in the original AFC Appendix E. An onsite raw water storage tank with a capacity of 1,000,000 gallons will hold 800,000 gallons of reclaimed water for plant operations (sufficient to cover a week interruption of water supply to the facility), plus 200,000 gallons of reclaimed water dedicated to the plant's fire protection water system. As described in the AFC and analyzed for the Approved Project, the anticipated quality of reclaimed water that will be supplied by the PWRP is shown in Table 2-6. The PWRP currently treats water to produce tertiary-treated (reclaimed) water. The information provided in Table 2-6 is from the PWRP Quarterly Water Recycling Monitoring Report for the Fourth Quarter of 2014

Table 2-6
Expected Palmdale Water Reclamation Plant Reclaimed Water Quality Data

Water Quality Parameter	Average Concentration
Total Dissolved Solids	~548 mg/l
Residual Chlorine	3.86 – 4.06 mg/l
Turbidity	0.45 – 0.63 NTU
Ammonia as Nitrogen	2.10 – 4.42 mg/l
Nitrate as Nitrogen	2.21 – 5.10 mg/l
From Palmdale Reclamation Plant Water Recycling Monitoring Report – 4th Quarter 2014	

Backup Water Source. In the same manner as the Approved Project, in addition to the reserve volume of water provided by onsite tank storage, the Modified Project will have a backup water source in the event of a more extended outage in the City of Palmdale's reclaimed water supply system. This backup source will also be reclaimed water using a planned regional reclaimed water backbone system, linking the City of Palmdale with the City of Lancaster which will allow the Lancaster treatment plant to also provide reclaimed water to the Modified Project.

Water Treatment. The base load and peak-load water-balance diagrams presented in Figures 2-7a, 2-7b, and 2-7c show the power plant's various water uses and water treatment processes. The HRSG makeup, and CTG evaporative cooler makeup (described in the following subsections) all require onsite treatment; the treatment varies according to the quality required for each of these uses. The service water, potable water and fire protection water does not require onsite treatment other than treatment with a biocide. The following paragraphs describe the PEP's water treatment processes.

The raw water used as feed water for the CTG inlet air evaporative coolers may be blended with demineralized water based on final engineering design.

HRSG Makeup Water. Makeup water for the HRSGs must meet stringent specifications for suspended and dissolved solids. To meet these specifications, water from the raw water storage tank is processed through a demineralizer process. Demineralization is accomplished through a module with a single train system. The number of modules and capacity of the demineralizer system is determined based on start-up and operating demineralized water requirements. The demineralization process may include multi-media or membrane filtration and micron cartridge type filtration, reverse osmosis, and/or electrode ionization. Periodically media filters are backwashed. The micron filter cartridges are changed periodically. Demineralized product water is stored in a 265,000-gallon demineralized water storage tank. The RO concentrate is directed to the municipal sewer system.

Additional conditioning of the condensate and feedwater circulating in the steam cycle is provided by means of an all volatile chemical feed system. The chemical feed system includes the necessary feed tanks and two full-capacity metering pumps.

A steam cycle sampling and analysis system monitors the water quality at various points in the plant's steam cycle. The water quality data is used to guide adjustments in water treatment processes and to determine the need for other corrective operational or maintenance measures. Steam and water samples are routed to a sample panel where steam samples are condensed and the pressure and temperature of all samples are reduced as necessary. The samples are then directed to automatic analyzers for continuous monitoring of conductivity and pH. All monitored values are indicated at the

sample panel and critical values are transmitted to the plant control room. Grab samples are periodically obtained at the sample panel for chemical analyses that provide information on a range of water quality parameters.

2.5.4.3 Cooling Systems

The power plant includes two cooling systems; 1) the steam cycle heat rejection system (e.g., air cooled condenser) and 2) the lube oil cooling systems (equipment cooling), each of which is discussed below:

Steam Cycle Heat Rejection System. The heat rejection from the steam cycle will be via an air cooled condenser (ACC). The ACC is a direct cooling system where the steam exhaust from the low pressure turbine section is condensed inside air-cooled finned tubes. The ACC is made of modules arranged in parallel rows. Each module contains a number of finned tube bundles. An axial flow fan located in each module forces the cooling air across the heat exchange area of the fin tubes. The heat rejection system will include the ACC, the supporting structure, steam ducting from the LP turbine interface, auxiliaries such as the condensate and drain pumps, condensate and duct drain tanks, the air evacuation pumps, and related piping works and instrumentation.

Closed Cooling Water System. The closed cooling water system is filled with a coolant such as a mixture of glycol and water. This coolant is pumped in a closed loop for the purpose of cooling equipment including - the CTG and STG lubrication oil coolers, the CTG and STG generator coolers, the air compressor aftercoolers, the steam cycle sample coolers, etc. The coolant picks up heat from the various equipment items being cooled and then the coolant itself is then cooled by a fin-fan cooler

2.5.4.4 Waste Generation and Management

Project wastes include wastewater, non-hazardous solid waste, hazardous solid waste, and hazardous liquid waste. Wastes generated by the PEP will be collected, managed and disposed in accordance with applicable LORS.

Wastewater. The base load and peak load water balance diagrams show the power plant's wastewater streams and the disposition of wastewater. Plant Wastewater will be collected and discharged off site into the City of Palmdale sewer system.

Wastewater sources for processing include the following:

- HRSG Blowdown,
- CTG Evaporative Cooler Blowdown,

- Demineralization System Wastewater,
- Chemical Feed Area Drains,
- General Plant Drains, and
- Sanitary wastewater.

The Modified Project's sanitary system collects wastewater from sanitary facilities such as sinks and toilets. The Modified Project's sanitary wastewater system will be sized to accommodate the needs of a small work force (23 people for 24/7 operations).

Preliminary engineering indicates a six to twelve inch line will be sufficient to handle the plant wastewater streams for interconnection to the City of Palmdale sewer system.

Non-Hazardous Solid Waste. The operation and maintenance of the PEP will generate non- hazardous solid wastes typical of power generation facilities. These wastes include scrap metal, insulation material, paper, glass, empty containers, plastics and other miscellaneous solid wastes. These materials will be disposed of by means of contracted refuse collection and recycling services.

Hazardous Solid and Liquid Waste. Hazardous wastes will be generated during Project construction and operation. Most of the hazardous wastes during the construction phase (e.g., paint and primer, thinners, solvents) will be recycled. Hazardous solid and liquid waste streams generated during PEP operations include spent SCR catalyst; used hydraulic fluids, oils, greases, filters, etc.; spent cleaning solutions and spent batteries. To the extent possible, operation phase hazardous wastes will be recycled.

2.5.4.5 Hazardous Materials Management

There will be a variety of hazardous materials used and stored during construction and operation of the PEP. Section 4.3 of this Petition provides and updated list of hazardous materials for use in Appendix A to Condition of Certification **HAZ-1.**

All hazardous materials will be stored onsite in storage tanks or vessels that are specifically designed for the characteristics of the materials to be stored. The storage facilities will include the needed secondary containment in case of tank/vessel failure.

Hazardous materials that will be used during construction include gasoline, diesel fuel, oil, lubricants and small quantities of solvents and paints. During operation, hazardous materials that will be stored and used onsite include aqueous ammonia for the SCR

system (aqueous ammonia is a dilute solution of less than 20 percent ammonia, with the balance water). A 30,000-gallon carbon steel aqueous ammonia storage tank will be provided with a containment basin draining to a covered collection sump. The collection sump will be sized to contain the entire contents of the storage tank.

Carbon steel tanks also will be used to store lube oil and diesel fuel (largest tank is 2,200 gallons). Secondary containment will be provided for the tank.

A variety of safety-related plans and programs will be developed and implemented to ensure safe handling, storage, and use of hazardous materials (e.g., Risk Management Program and Hazardous Material Business Plan). Plant personnel will be supplied with appropriate personal protective equipment (PPE) and will be properly trained in the use of PPE. Additional training will include the handling, use and cleanup of hazardous materials used at the facility, as well as procedures to be followed in the event of a leak or spill. Adequate supplies of appropriate cleanup materials will be stored onsite.

2.5.4.6 Air Emissions Control and Monitoring

Air emissions from the combustion of natural gas in the CTGs and duct burners are controlled by state-of- the-art systems. Emissions that are controlled include nitrogen oxides (NO_X), carbon monoxide (CO), volatile organic compounds (VOC), fine particulate matter (PM10) and sulfur dioxide (SO_2). Continuous emissions monitoring is performed to ensure that the control systems perform correctly and to provide compliance documentation. All emissions values stated in the following subsections are based on parts per million by volume, dry basis (ppmvd) corrected to 15 percent oxygen (O_2). A summary of emission rates from the combined-cycle equipment is shown in Table 2-7. A brief description of planned air emissions control methods is provided in the following paragraphs.

Table 2-7
Combined-Cycle Emission Rates

Pollutant	Load Range % of GT Base	Ambient Temperature Range ºF	Duct Burner Status	Emission Rate
NO_X Emissions, ppmvd, Ref. 15 % O_2	50 to 100	18-108	Off	2 ppmvd
NO_X Emissions, ppmvd, Ref. 15 % O_2	Base	18-108	On	2 ppmvd
NH_3 Emissions, ppmvd, Ref. 15 % O_2	50 to 100	18-108	Off	5 ppmvd
NH_3 Emissions, ppmvd, Ref. 15 % O_2	Base	18-108	On	5 ppmvd
CO Emissions, ppmvd, Ref. 15 % O_2	50 to 100	18-108	Off	2 ppmvd
CO Emissions, ppmvd, Ref. 15 % O_2	Base	18-108	On	2 ppmvd
VOC Emissions, ppmvdRef.15% O_2 as CH_4	50 to 100	18-108	Off	1 ppmvd
VOCEmissions, ppmvdRef.15% O_2 as CH_4	Base	18-108	On	2 ppmvd
Total PM10 lb/hr per Stack	50 to 100	18-108	Off	10 lb/hr
Total PM10 lb/hr per Stack	Base	18-108	On	12 lb/hr

Nitrogen Oxides Emissions Control. Stack emissions of NO_X will be controlled by use of dry low-NO_X (DLN) combustors in the CTGs followed by selective catalytic reduction (SCR) in the HRSGs. The DLN combustors control NO_X emissions at the CTG exhausts by pre-mixing fuel and air immediately prior to combustion. Pre-mixing inhibits NO_X formation by minimizing both the flame temperature and the concentration of oxygen at the flame front.

The SCR process uses aqueous ammonia (NH_4OH) as a reagent. Stack emissions of ammonia, referred to as 'ammonia slip,' are up to 5 ppmvd. The SCR system includes a catalyst bed located within each HRSG, an ammonia storage system and an

ammonia injection system. The catalyst bed is located in a temperature zone of the HRSG where the catalyst is most effective over the range of loads at which the plant will operate. The ammonia injection grid is located upstream of the catalyst bed.

A 30,000-gallon aqueous ammonia storage tank located on the PEP plant site will provide sufficient capacity for more than 5 days of continuous operation.

Other Criteria Pollutant Emissions Control. An oxidation catalyst located within each HRSG controls stack emissions of CO. The oxidation catalyst also reduces stack emissions of VOC.

Fine particulate (particulate matter smaller than 10 microns in size, referred to as PM10) emissions are controlled by inlet air filtration and by the use of natural gas fuel, which contains essentially zero particulate matter. Stack emissions of PM10 consist primarily of hydrocarbon particles formed during combustion. Sulfur dioxide emissions are controlled by the use of natural gas fuel, which contains only trace quantities of sulfur.

Continuous Emissions Monitoring System (CEMS). The Modified Project's CEMS will be in a self-enclosed, climate controlled enclosure and will sample, analyze and record NO_X, CO, and O_2 concentrations in the stack exhaust. The CEMS will generate a log of emissions data for compliance documentation and activate an alarm in the plant control room when stack emissions exceed specified limits.

2.5.4.7 Fire Protection

Fire protection systems are provided to limit personnel injury, property loss, and Project downtime resulting from a fire. The systems include a fire protection water system, FM200 or CO2 fire suppression systems for the CTGs and portable fire extinguishers.

The PEP's fire protection water system will be supplied from a dedicated 200,000-gallon portion of the 1,000,000-gallon raw water storage tank located on the Modified Project site. One diesel-driven fire pump, with a capacity of 500 gallons per minute will deliver water to the fire protection water-piping network. A second electric motor-driven pump (a small capacity jockey pump) will maintain pressure in the piping network. If the jockey pump is unable to maintain a set operating pressure in the piping network, the fire pump starts automatically.

The piping network will be configured in a loop so that a piping failure can be isolated with shutoff valves without interrupting the supply of water to a majority of the loop. The piping network will supply fire hydrants located at intervals throughout the power plant site, a sprinkler deluge system at each unit transformer and a sprinkler system in the operations building.

The FM200 or CO2 fire suppression system provided for each CTG will include a storage tank, piping and nozzles, fire detection sensors and a control system. Upon detection and automated confirmation of the existence of a fire, the control system will automatically shut down the CTG, turn off ventilation fans, close ventilation openings and release FM200 or CO2. The FM200 or CO2 fire suppression systems will cover the turbine and accessory equipment enclosures of each CTG. Portable fire extinguishers of appropriate sizes and types will be located throughout the plant site.

2.5.4.8 Plant Auxiliary Systems

The following plant auxiliary systems control, protect and support the Modified Project and its operation.

Distributed Control System. The Distributed Control System (DCS) provides control, monitoring, alarm and data storage functions for power plant systems. These include:

- Control of the CTGs, STG, HRSGs and balance-of-plant systems in a coordinated manner,
- Monitoring of operating parameters from plant systems and equipment,
- Visual display of the associated operating data to control operators and technician
- Detection of abnormal operating parameters and parameter trends and provision of visual and audible alarms to apprise control operators of such conditions, and
- Storage and retrieval of historical operating data.

The DCS is a Siemens expandable microprocessor-based system. Redundant capability is provided for critical DCS components, such that no single component failure will cause a plant outage. The DCS consists of the following major components:

- Flat Panel-based control operator interface (redundant),
- Flat Panel-based control technician work station,
- Multi-function and expandable processors (redundant),
- Input/output processors (redundant for critical control parameters),
- Field sensors and distributed processors (redundant for critical control parameters),
- Historical data archive, and

- Printers, data highways, data links, control cabling and cable trays.

The DCS is linked to the control systems furnished with the Siemens CTG and STG scope of supply. These data links provide CTG and STG control, monitoring, alarm and data storage functions via the Flat Panel based control operator interface and control technician workstation of the DCS. The DCS will provide Automatic Generation Control (AGC) and Remote Interface Gateway (switchyard control) for CAISO.

Lighting System. The Modified Project's lighting system will provide operations and maintenance personnel with illumination in both normal and emergency conditions. The system will consist primarily of AC lighting, but will include DC lighting for activities or emergency egress required during an outage of the plant's AC electrical system. The lighting system also will provide AC convenience outlets for portable lamps and tools. Lighting will be designed to provide the minimum illumination needed to achieve safety and security objectives and will be shielded and oriented to focus illumination on the desired areas and minimize additional nighttime illumination in the site vicinity.

Cathodic and Freeze Protection Systems. Cathodic protection systems protect against electrochemical corrosion of underground metal piping and structures. Underground metal structures of the Modified Project will have cathodic protection.

Freeze protection systems are not needed for the combined-cycle equipment because of the infrequency and short duration of below-freezing ambient temperatures at the Modified Project site.

Service Air and Instrument Air Systems. The service air system supplies compressed air to hose connections located at intervals throughout the power plant. Compressors deliver compressed air at a regulated pressure to the service air-piping network.

The instrument air system provides dry, filtered air to pneumatic operators and devices throughout the power plant. Air from the service air system is dried, filtered, and pressure regulated prior to delivery to the instrument air-piping network.

2.5.5 Project Civil/Structural Features

The following subsections describe civil/structural features of the Modified Project, as illustrated in the Figures 2-3 and 2-4. The power plant will be designed in conformance with California Building Code seismic criteria.

2.5.5.1 CTGs, HRSGs, STG, and Associated Equipment

The CTGs, HRSGs, STG, and air cooled condenser will be located outdoors and supported on reinforced concrete mat foundations. The STG foundation will include a reinforced concrete pedestal that supports the STG above the piping to the air cooled condenser. The three step-up transformers and two auxiliary transformers also will be supported on reinforced concrete mat foundations. Balance-of-plant (BOP) mechanical and electrical equipment will be supported on individual reinforced concrete pads. BOP components/materials include piping, valves, cables, switches, etc. that are not included with major equipment and are generally installed or erected onsite.

2.5.5.2 HRSG Stacks

Each of the two HRSGs will have with a self-supporting steel stack. The stacks will be 22 feet in diameter and no more than 145 feet tall. The stacks include sampling ports, ladders, platforms, and electrical grounding.

2.5.5.3 Buildings

The Project operations building will incorporate control, maintenance and administrative functions. The design and construction of the operations building will be consistent with normal building standards. Other onsite "buildings" will include a number of pre-engineered enclosures or structures for mechanical and electrical equipment (e.g., fire pump building, water treatment sample analysis building, and switchyard module). Building columns are supported on reinforced concrete mat foundations or individual spread footings and the structures rest on reinforced concrete slabs. The total square footage of the various Project buildings and pre-engineered enclosures is approximately 33,000 square feet.

2.5.5.4 Water Storage Tanks

There will be a number of covered water tanks onsite including a 1,000,000-gallon raw water storage tank for short-term makeup water supply, with a portion (200,000 gallons) dedicated to the plant's fire protection water system. There also will be a 265,000-gallon storage tank for storage of demineralized water. Water storage tanks will be vertical, cylindrical, field-erected steel tanks supported on foundations consisting of either a reinforced concrete mat or a reinforced concrete ring wall with an interior bearing layer of compacted sand supporting the tank bottom.

2.5.5.5 Roads and Fencing

As noted earlier, the PEP site is located west of the Air Force Plant 42 and south of East Avenue M. The main access to the site during construction and operation will be via a 100' wide easement connecting the 50 acre project site to East Avenue M.

The roads in Project site will be paved with asphalt, where there will be a paved parking lot and roads encircling the turbine-generator and HRSG areas. In total, the power block and switchyard will be approximately 15 acres with approximately two and a half acres of paved area. The asphalt paved roads will have two 12-foot wide lanes and a 5-foot wide shoulder on each side. Unpaved ground surfaces in and around the main equipment area of the power block will be covered with crushed stone or gravel.

The PEP plant site will be secured with eight-foot tall security fencing, with barbed wire or razor wire on top. Fencing will enclose the entire site including the storm water basin. Additionally, desert-style landscaping is expected to be used to enhance the facility's appearance. The plant site's eastern fence line and southern fence lines will not receive landscaping in order to accommodate the security requirements of Air Force Plant 42. The remaining perimeter will include aesthetic landscaping. The landscaping will be limited to drought-tolerant plants; the central element will be Joshua trees presently occupying the plant site that will be transplanted to locations along the site perimeter

Controlled access gates will be located at the site entrance. Within the site, chain-link security fencing will be provided around the switchyard. Access to the PEP plant site will be controlled through a security gate located on the west side of the proposed power block at the entrance drive.

2.5.5.6 Site Drainage

Existing site topography shows an average slope of less than one percent toward the north to northeast. There are no drainage ditches or storm drains onsite. Site drainage currently flows towards the north and northeast,

Palmdale Energy, will update the drainage, erosion and sediment control plan (DESCP) to address only the 50 acre project site and 20 acre temporary laydown area with the proposed equipment when additional details of the project civil works are known. The plan will comply with the intent of the Approved Project's DESCP with necessary modifications to recognize the much smaller area to be addressed by the plan. No storm water runoff discharge will leave the Project site. The Draft DESCP and Preliminary Grading Plans will be submitted under separate cover in June 2015.

The PEP will employ a comprehensive system of management controls, including site-specific Best Management Practices (BMP), to minimize storm water contact with contaminants and thus minimize pollutants in storm water. These management controls, which will be described in the Project's Storm Water Pollution Prevention Plans (SWPPP) and Drainage Erosion and Sediment Control Plan (DESCP), include:

- Employee Training Program,
- Erosion and Sediment Control,
- Good Housekeeping Programs,
- Preventive Maintenance Programs,
- Structural BMPs,
- Temporary containments during maintenance activities
- Permanent secondary containment structures at chemical storage and process areas
- Materials, Equipment and Vehicle Management Practices,
- Spill Prevention and Response Programs, and
- Inspection Programs.

The Modified Project's power block area will be graded to allow for a balanced distribution of material, so there is not a requirement to truck large quantities of earth materials to or from the site. The cut and fill grading necessary to create suitable conditions for Project construction will result in an elevation of approximately 2,500 feet amsl. Current estimates are that offsite import or export of soil will not be required.

Adjustments will be made to provide engineered fill as required for stabilization under equipment and structure foundations per the Project geotechnical report. Only soil materials approved by a geotechnical engineer for structural fill will be used. Additionally, specialized granular materials may need to be imported to the proposed site for road base and possible use below foundations.

2.5.5.7 Earthwork

As noted earlier, existing site elevations range from approximately 2,500 feet amsl to 2,505 amsl and the site generally slopes an average of approximately one percent toward the north to northeast. Mass grading of the site will occur at the beginning of the

Project construction phase. The power block area, approximately 15 acres, will be on elevated fill area to avoid flooding during any major rainfall event. Earthwork associated will also include a stormwater retention basin, equipment foundations, and underground systems. Current estimates are that no import of soil from offsite locations or export of soil from the plant site will be required.

2.5.6 Pipeline Facilities Description

The following sections describe the PEP's pipeline facilities and routes.

2.5.6.1 Fuel Gas Supply Line

SCG will construct an 8.7-mile, 20-inch fuel gas supply line to serve the Modified Project in the same manner as the described in the Final Decision for the Approved Project. The pipeline will originate at the SCG facility on East Ave S and terminate at the PEP plant site, as shown on Figure 2-1. The route is completely within the City of Palmdale. It will be installed in existing street ROWs and is mostly within developed areas. This Petition does not modify the natural gas pipeline or route.

2.5.6.2 Reclaimed Water Supply Line

The City of Palmdale will install a 7.4-mile, 14-inch reclaimed water line from the PWRP to the PEP plant site to provide water for power plant process makeup, as shown on Figure 2-1. All but a small section of the route near the PWRP is within the City of Palmdale. It will be routed in existing city street ROWs and is within developed areas. This Petition does no modify the reclaimed water supply line route.

2.5.6.3 Sanitary Wastewater Disposal Line

Since the time of issuance of the Final License, the City of Palmdale constructed an 18-inch sewer pipeline along the south side of East Avenue M. The Modified Project will now interconnect with this sewer pipeline instead of the pipeline that was located along Avenue L. The Modified Project will install a 0.25-mile, six to twelve-inch sanitary wastewater pipeline from the PEP plant site to a connection point at the intersection the project access road and East Avenue M, as shown on Figure 2-1.

2.5.7 Project Construction

The planned PEP construction schedule will last 25 months, with the construction workforce for the combined cycle component and laterals peaking at 706 during Month 11 of the construction schedule; over the entire construction period, there will be an average workforce of approximately 339. A high level project construction schedule is provided as Figure 2-8. The on-site workforce will consist of laborers, craftsmen,

supervisory personnel, support personnel, and construction management personnel. An estimate of the construction workforce by month over the entire construction period for the Modified Project including a comparison to the workforce estimated for the Approved Project is provided in Appendix 6-C of this Petition.

A 20-acre temporary construction laydown and parking area will be provided, as shown on Figure 2-1. The temporary construction laydown and parking area will be restored after use. The construction sequence for power plant construction includes the following general steps:

- Site Preparation: this includes detailed construction surveys, grading, and preparation of drainage features.
- Foundations: this includes excavations for large equipment (CTGs, STG, HRSG, etc.). This work will begin in the combined-cycle equipment area.
- Major Equipment Installation: once the foundations are complete the larger equipment will be installed.
- Balance of Plant (BOP): with the major equipment in place, the remaining fieldwork will involve piping, electrical, and smaller component installations.
- Testing and Commissioning: testing of subsystems will be done as they are completed. Major equipment will be tested once all supporting subsystems are installed and tested.

Construction of the Project transmission system will begin in the third month of the overall construction schedule with work on Segment 2, which extends between the Pearblossom and Vincent Substations to the south of the plant site. Transmission line construction then will proceed northward to Segment 1. Construction of the various Project pipelines will begin in the third month of the construction schedule.

Equipment and materials will be delivered to the Project site by truck; large components (e.g., CTG) will be brought to the Palmdale area by rail and brought to the site by special transporter trucks designed for large loads. Construction will typically take place between the hours of 6 am and 6 pm, Monday through Friday.

2.5.8 Facility Operation

The Modified Project will have a small workforce during operation. Actual power plant operations will be controlled by three to five individuals during each operating shift. Additional maintenance and supervisory personnel will be present during the day shift

and as required by specific operations or maintenance activities, during evening and night shifts. The Modified Project is expected to employ 23 full-time personnel.

The power plant will be operated up to 7 days per week, 24 hours per day. When the plant is not operating, personnel will be present as necessary for maintenance, to prepare the plant for startup, and/or for site security. Section 3.0 discusses facility closure, both temporary and permanent at the end of the Project's operational life.

2.6 TRANSMISSION SYSTEM DESCRIPTION

This Petition does not modify the majority of the Approved Project's alternative transmission lines and routes. The only modification proposed is near the Modified Project site to account for a new location of the project switchyard as shown on Figure 2-1. The modifications consist of added 1,800 linear feet and three new poles along Avenue M in order to continue the route southerly across the easement to the location of the new switchyard. The poles will be identical to those for the Approved Project.

SCE (under the direction of the California Independent System Operator or CAISO), completed a System Impact Study (SIS) pursuant to an Interconnection System Impact Study Agreement. In December 2012 the CAISO determined that there was Approved Project would have full deliverability status. SCE and the CAISO executed a Large Generator Interconnection Agreement (LGIA) in March 2013 and the LGIA is in suspension to allow for permit amendments.

2.7 ALTERNATIVE TECHNOLOGIES CONSIDERED

2.7.1 Modified Project Objectives

Palmdale Energy evaluated several different technologies to meet the Modified Project Objectives which are summarized as follows:

- Provide an efficient, flexible, reliable and environmentally sound power generating facility to meet future electrical power needs of California.
- Provide daily fast start and fast ramping capabilities needed to provide Flexible Capacity that is required manage the integration of intermittent resources.
- Locate the facility within the boundaries of the City of Palmdale to provide economic development and tax revenue to the City and surrounding areas.
- Site the facility in a location zoned and planned for industrial use in an industrial area and with ready access both to adequate supplies of non-potable water to meet the facility's process water needs and to a natural gas pipeline that can

supply the Project without requiring significant modifications to the regional gas supply system.

- Design the Palmdale Energy Project to minimize water usage as much as practical.
- Utilize the existing CAISO Large Generator Interconnection Agreement.

2.7.2 Technologies Evaluated

2.7.2.1 Solar Hybrid

The Approved Project included solar thermal equipment that proposed to utilizes arrays of parabolic collectors to heat a high-temperature working fluid. The hot working fluid would then be used to boil water to generate steam and the steam would be injected into the HRSG drums/piping systems. The combined-cycle equipment is integrated thermally with the solar equipment at the HRSG and both utilize the single gas turbine.

A solar hybrid project's economics are dependent on having the combined cycle plant operating at base load when the solar generated steam is available to supplement natural gas fuel, otherwise there is no way to generate power with the solar portion of the plant and the economic value of that energy is lost. This will not generally be the case with in a flexible capacity resource which will typically operate the meet the ramping and peak load requirements in the morning and late afternoon thus helping to integrate the ramp up and ramp down of solar generation.

In addition, solar thermal trough technology is not cost effective with PV solar technology today. Five years ago PV and concentrating solar had similar costs but PV panels have become more efficient and cost effective. While there were many combined cycle hybrid projects proposed in the last 10 years, only one large scale project has been built in the US at FP&L's Martin Energy Center.

After review, it is determined that a solar hybrid is not cost effective and consistent with the Project Objectives to be a flexible capacity resource.

2.7.2.2 Wet Cooling

The original licensed project proposed wet cooling which would have required approximately 4000 acre feet of water annually. A dry cooling system uses an air-cooled condenser (ACC) to condense steam. The dry cooling system reduces water consumption by more nearly 90 percent. The cost of the ACC system is higher that a wet cooling tower but the cost is partially offset by lower capital cost for water treatment

and the elimination of zero liquid discharge (ZLD) system. Wet cooled systems have higher efficiency at high temperatures than an ACC.

The wet cooled system requires a ZLD systems that is not as well suited for low load factor plants such as a flexible capacity plant which may only operate for 3-6 hours on some days. While the original plant would have used a reclaimed waste water source, this use of reclaimed water by the Power Plant would have prevented other long-term beneficial uses of the reclaimed water for irrigation, ground water recharge or other industrial/commercial businesses.

After review, dry cooling was a better alternative than wet cooling in light of the current water supply issues in California and wet cooling did not meet the objective to minimize water usage.

2.7.2.3 Frame Peaking Units

Simple Cycle "Frame" Gas Turbine peaking units can provide the daily fast start and fast ramping capabilities needed to provide Flexible Capacity and are lower cost to install than a combined cycle plant. Frame units are much less efficient however, resulting in approximately 40 percent higher fuel consumption and greenhouse gas emissions than a combined cycle plant. Because simple cycle "frame" gas turbines have much higher exhaust temperatures they have the potential to produce a much higher velocity thermal plume. Based on a screening analysis using Spillane methodology it was determined that plume vertical velocities of 4.3 m/s extended beyond 3500 ft-agl.

After review of Frame Peaking unit, it was concluded that the lower gas turbine efficiencies in combination with the potential for significant thermal plume impacts to the near-by Palmdale Regional Airport, would not be the best technology alternative at the Palmdale Energy Project Site .

2.7.2.4 Aero Derivative Peaking Units

Palmdale Energy also evaluated the use of aero-derivate type simple cycle gas turbine generators (General Electric LMS 100's) at the Palmdale Energy Site. We excluded this technology as an option due to the:

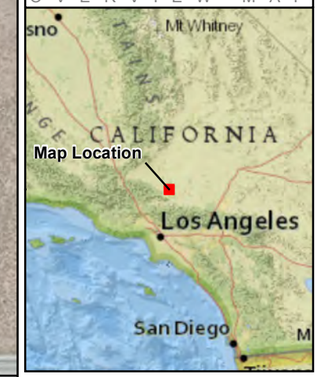
- high capital cost/MW (nearly the same as an equivalent size combined cycle project)
- Higher fuel use (lower efficiency than a combined cycle plant)
- Higher greenhouse gas emissions

- Higher water use because of water injection and intercooling than the air cooled combined cycle project.

Sierra Highway
Valley Line Road
East Avenue
L-12
3rd Street East
4th Street East
5th Street East
6th Street East
7th Street East
East Avenue
L-12
8th Street East
10th Street East - Challenger Way
20th Street East
East Avenue M - Columbia Way
East Avenue M - Columbia Way
100-ft ROW
for Road, Overhead Transmission,
Water Sewer and Waste Water Supply
30-ft ROW
Emergency Access
50-ft ROW
for Underground Transmission
East Avenue M12
Valley Line Road
LA/Palmdale Regional Airport

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp., AECOM (2015)

OVERVIEW MAP



- Natural Gas Supply Pipeline (Previously Approved)
- Potable Water Line (Previously Approved)
- Reclaimed Water Supply Pipeline (Previously Approved)
- Sanitary Wastewater Pipeline (Previously Approved)
- Transmission Line Segment 1 (Previously Approved)
- Transmission Line Segment 1 Extension (Not Approved)
- Current Project Boundaries
- Right-of-way (100 feet)
- Right-of-way (50 feet)
- Right-of-way (30 feet)
- New Project - Temporary Laydown/Parking
- New Project Boundaries

NORTH

0 750

Feet

Scale1:9,000

1 inch = 750 feet

Palmdale Energy Project

Site Plan

Date: 4/27/2015 Project: 60343963

AECOM

FIGURE 2-1

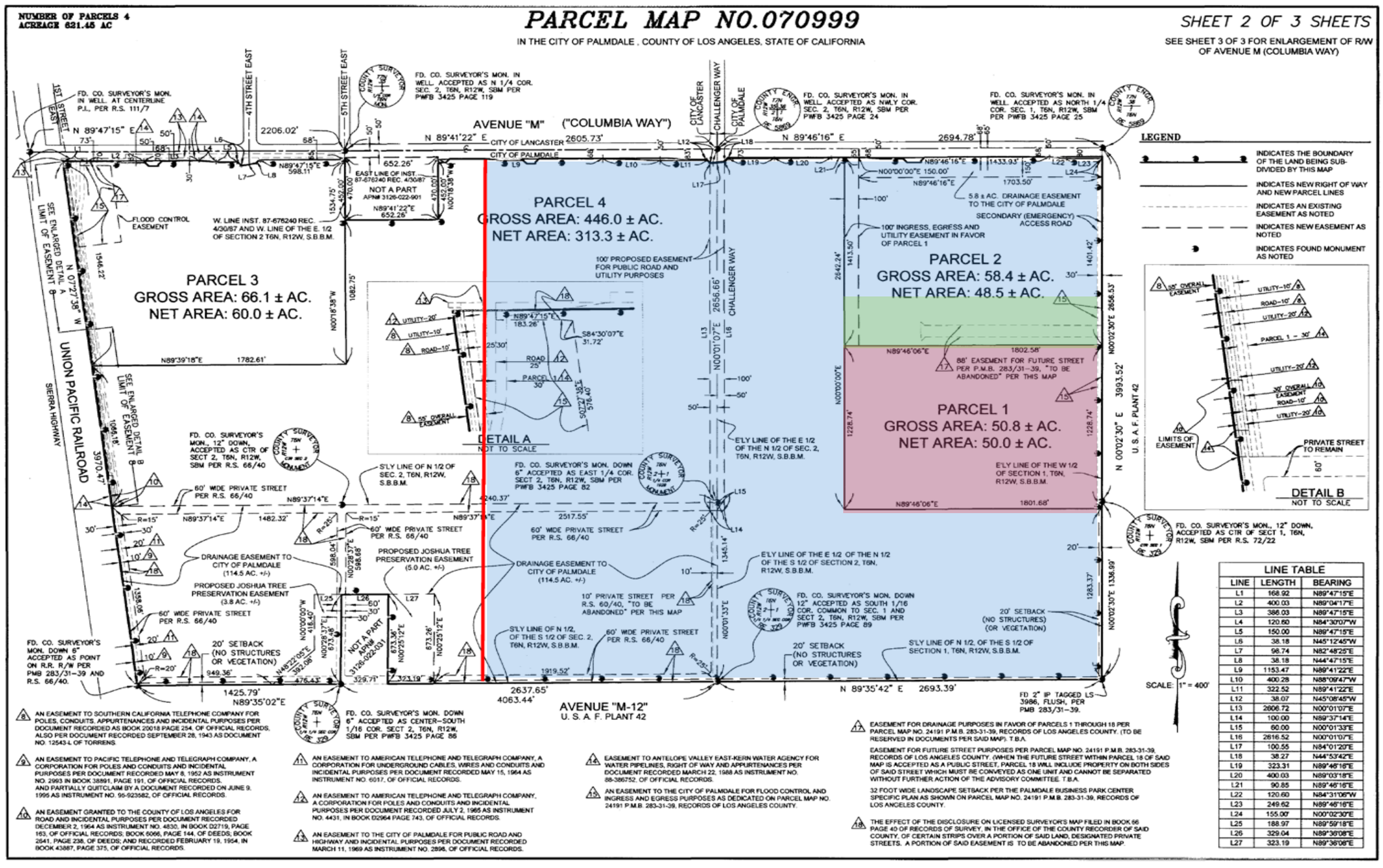
NUMBER OF PARCELS 4
ACREAGE 621.45 AC

PARCEL MAP NO.070999

IN THE CITY OF PALMDALE , COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

SHEET 2 OF 3 SHEETS

SEE SHEET 3 OF 3 FOR ENLARGEMENT OF R/W OF AVENUE M (COLUMBIA WAY)



LEGEND

- INDICATES THE BOUNDARY OF THE LAND BEING SUB-DIVIDED BY THIS MAP
- INDICATES NEW RIGHT OF WAY AND NEW PARCEL LINES
- INDICATES AN EXISTING EASEMENT AS NOTED
- INDICATES NEW EASEMENT AS NOTED
- INDICATES FOUND MONUMENT AS NOTED

LINE TABLE

LINE	LENGTH	BEARING
L1	168.92	N89°47'15"E
L2	400.03	N89°04'17"E
L3	386.03	N89°47'15"E
L4	120.60	N84°30'07"W
L5	150.00	N89°47'15"E
L6	38.18	N45°12'45"W
L7	98.74	N82°48'25"E
L8	38.18	N44°47'15"E
L9	1153.47	N89°41'22"E
L10	400.28	N88°09'47"W
L11	322.52	N89°41'22"E
L12	38.07	N45°08'45"W
L13	2606.72	N00°01'07"E
L14	100.00	N89°37'14"E
L15	60.00	N00°01'33"E
L16	2616.52	N00°01'07"E
L17	100.55	N84°01'20"E
L18	38.27	N44°53'42"E
L19	323.31	N89°46'16"E
L20	400.03	N89°03'18"E
L21	90.85	N89°46'16"E
L22	120.60	N84°31'06"W
L23	249.62	N89°46'16"E
L24	155.00'	N00°02'30"E
L25	188.97	N89°59'18"E
L26	329.04	N89°39'08"E
L27	323.19	N89°36'08"E

(8) AN EASEMENT TO SOUTHERN CALIFORNIA TELEPHONE COMPANY FOR POLES, CONDUITS, APPURTENANCES AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED AS BOOK 20018 PAGE 254, OF OFFICIAL RECORDS, ALSO PER DOCUMENT RECORDED SEPTEMBER 28, 1943 AS DOCUMENT NO. 12543-L OF TORRENS.

(9) AN EASEMENT TO PACIFIC TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION FOR POLES AND CONDUITS AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED MAY 8, 1952 AS INSTRUMENT NO. 2993 IN BOOK 38891, PAGE 191, OF OFFICIAL RECORDS. AND PARTIALLY QUITCLAIM BY A DOCUMENT RECORDED ON JUNE 9, 1995 AS INSTRUMENT NO. 95-923582, OF OFFICIAL RECORDS.

(10) AN EASEMENT GRANTED TO THE COUNTY OF LOS ANGELES FOR ROAD AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED DECEMBER 2, 1964 AS INSTRUMENT NO. 4830, IN BOOK D2719, PAGE 163, OF OFFICIAL RECORDS; BOOK 6066, PAGE 144, OF DEEDS; BOOK 2841, PAGE 238, OF DEEDS; AND RECORDED FEBRUARY 19, 1954, IN BOOK 43887, PAGE 375, OF OFFICIAL RECORDS.

(11) AN EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION FOR UNDERGROUND CABLES, WIRES AND CONDUITS AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED MAY 15, 1964 AS INSTRUMENT NO. 6017, OF OFFICIAL RECORDS.

(12) AN EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION FOR POLES AND CONDUITS AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED JULY 2, 1965 AS INSTRUMENT NO. 4431, IN BOOK D2964 PAGE 743, OF OFFICIAL RECORDS.

(13) AN EASEMENT TO THE CITY OF PALMDALE FOR PUBLIC ROAD AND HIGHWAY AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED MARCH 11, 1969 AS INSTRUMENT NO. 2898, OF OFFICIAL RECORDS.

(14) EASEMENT TO ANTELOPE VALLEY EAST-KERN WATER AGENCY FOR WATER PIPELINES, RIGHT OF WAY AND APPURTENANCES PER DOCUMENT RECORDED MARCH 22, 1988 AS INSTRUMENT NO. 88-386752, OF OFFICIAL RECORDS.

(15) AN EASEMENT TO THE CITY OF PALMDALE FOR FLOOD CONTROL AND INGRESS AND EGRESS PURPOSES AS DEDICATED ON PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY.

(17) EASEMENT FOR DRAINAGE PURPOSES IN FAVOR OF PARCELS 1 THROUGH 18 PER PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. (TO BE RESERVED IN DOCUMENTS PER SAID MAP). T.B.A.

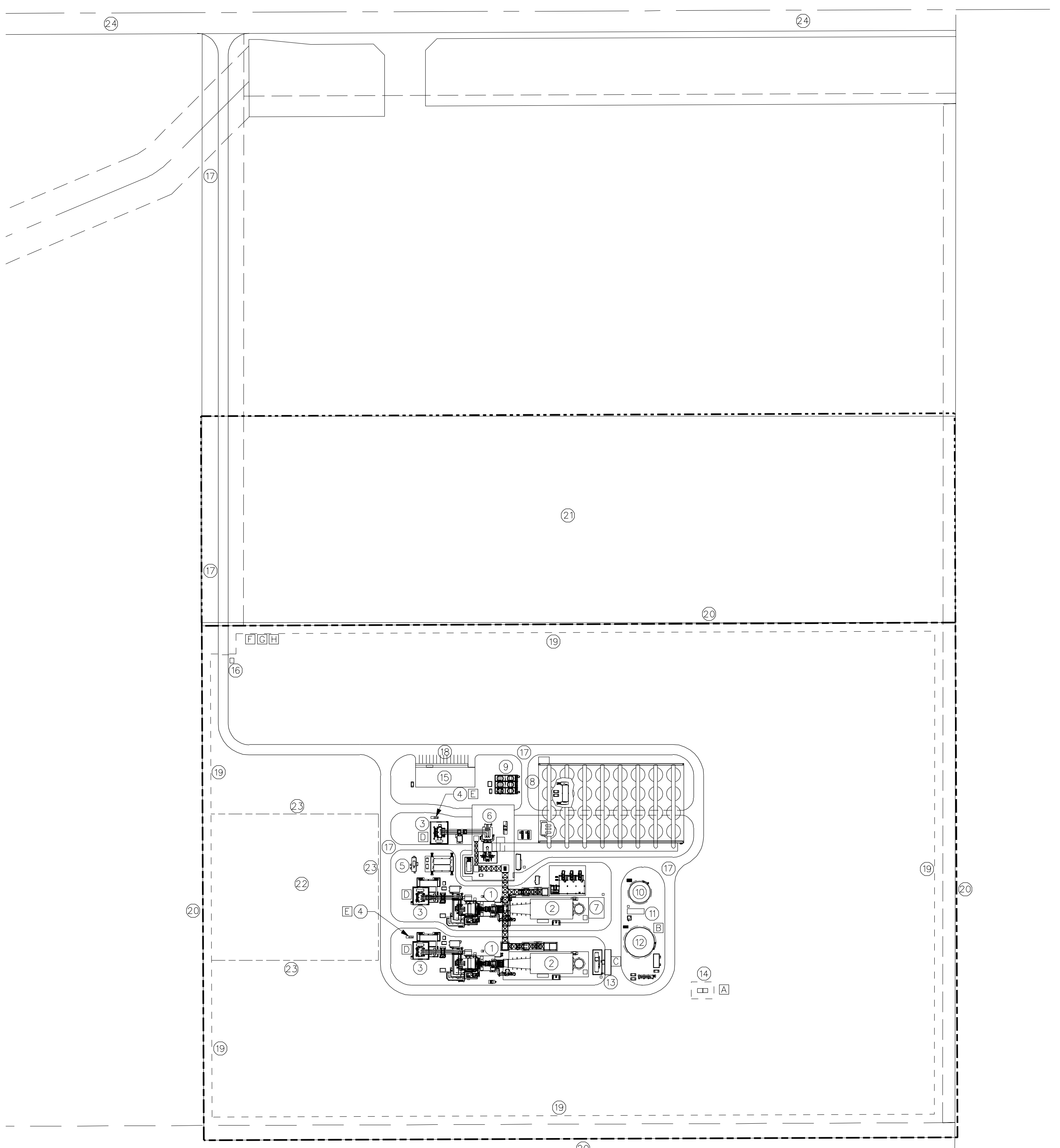
EASEMENT FOR FUTURE STREET PURPOSES PER PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. (WHEN THE FUTURE STREET WITHIN PARCEL 18 OF SAID MAP IS ACCEPTED AS A PUBLIC STREET, PARCEL 18 WILL INCLUDE PROPERTY ON BOTH SIDES OF SAID STREET WHICH MUST BE CONVEYED AS ONE UNIT AND CANNOT BE SEPARATED WITHOUT FURTHER ACTION OF THE ADVISORY COMMITTEE. T.B.A.

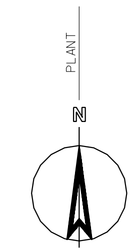
32 FOOT WIDE LANDSCAPE SETBACK PER THE PALMDALE BUSINESS PARK CENTER SPECIFIC PLAN AS SHOWN ON PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY.

(18) THE EFFECT OF THE DISCLOSURE ON LICENSED SURVEYOR'S MAP FILED IN BOOK 66 PAGE 40 OF RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, OF CERTAIN STRIPS OVER A PORTION OF SAID LAND, DESIGNATED PRIVATE STREETS. A PORTION OF SAID EASEMENT IS TO BE ABANDONED PER THIS MAP.

Blue/Green/Red = Current Project Boundaries **Red** = New Project Boundaries **Green** = Temporary Laydown/Parking – New Project

FIGURE 2-2 PARCEL MAP - SITE AND LAYDOWN





NOTES

1. THE EQUIPMENT SHOWN IS REPRESENTATIVE INFORMATION. THIS DESIGN IS SUBJECT TO CHANGE AT THE DISCRETION OF SIEMENS ENERGY, INC.
2. REFERENCE DRAWING GH99050101 FOR POWER ISLAND EQUIPMENT IDENTIFICATION.
3. REFERENCE DRAWING GH99060101 FOR FACILITY PLOT PLAN EQUIPMENT IDENTIFICATION.

LEGEND

1	UMB	GAS TURBINE ENCLOSURE
2	UHA	HEAT RECOVERY STEAM GENERATOR
3	BAT	GENERATOR STEP UP TRANSFORMER
4	UBH	OIL/WATER SEPERATOR
5	XKA	EMERGENCY DIESEL GENERATOR
6	MA/MKA	STEAM TURBINE & GENERATOR
7	UHB	AUXILIARY BOILER
8	URC	AIR COOLED CONDENSER
9	URB	CLOSED COOLING WATER FIN FAN COOLER
10	UGC	DEMIN. WATER STORAGE TANK
11	UGD	WATER TREATMENT MODULES
12	UGA/UGF	RAW/FIRE WATER STORAGE TANK
13	UYX	AMMONIA STORAGE/UNLOADING
14	EKD/EKE	FUEL GAS REGULATION/CONDITIONING/METERING
15	UCA/UST/UYC	ADMIN./CONTROL RM. WAREHOUSE BUILDING
16	UYE	GUARD HOUSE
17	UZA	ROAD
18	UZD	PARKING AREA
19	UZJ	FENCE & GATES
20		PROPERTY BOUNDARY
21		20 ACRE LAYDOWN AREA
22		SWITCHYARD (BY OTHERS)
23		SWITCHYARD FENCE (BY OTHERS)
24		EXISTING ROAD

TERMINAL POINTS

A	FUEL GAS SUPPLY
B	RAW WATER SUPPLY
C	AMMONIA SUPPLY
D	HV POWER
E	OILY WATER (MANUAL DISCHARGE)
F	POTABLE WATER
G	SANITARY SEWER
H	TEMPORARY CONSTRUCTION POWER

0 10 25 50 75 100
SCALE IN METERS

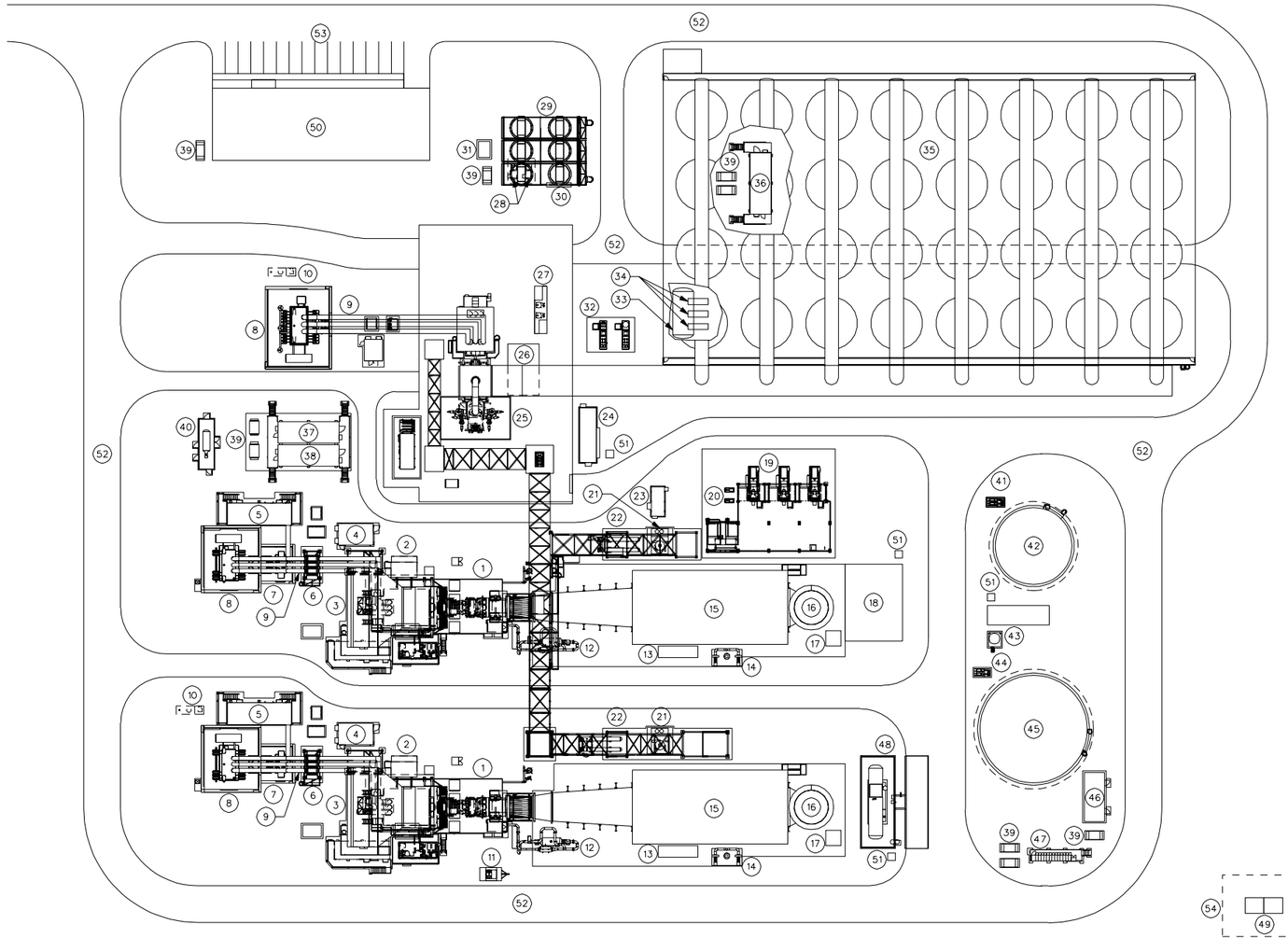
0 25 50 125 250 500
SCALE IN FEET

CONCEPTUAL

Original	Original-No.	Orig.-PC
Project: SUMMIT POWER – PALMDALE		PKZ/PC: US1327
	Date / Name	Scale
Drawn	15 / 04 / 13	D. STULLENBURGER
Coord.	15 / 04 / 13	A. IQBAL
Checked	15 / 04 / 13	G. SARODE
Title: GENERAL ARRANGEMENT SITE PLAN SCC6–5000F 2 X 1 W/ AIR COOLED CONDENSER HEAVY DUCT FIRING		Reg.No. A-3363-02
SIEMENS Energy, Inc.	Dept. ORL PLCI	UNID	Rev. 01
GH99110101	Application	Page-No. 1 of 1
Designed with: Intergraph	GH99110101_R1.dgn	Supersedes

Rev.	Date	Coord.	Checked	Details of Revision

FIGURE 2-3 PLOT PLAN



PLANT N

NOTES

1. THE EQUIPMENT SHOWN IS REPRESENTATIVE INFORMATION. THIS DESIGN IS SUBJECT TO CHANGE AT THE DISCRETION OF SIEMENS ENERGY, INC.
2. ROTOR AIR COOLER (ITEM 12) CANNOT BE MOVED DUE TO PRE-ENGINEERED PIPING. MOVING THE UNIT WILL IMPACT COOLER PIPING STRESSES AND LOADS.
3. CLOSED COOLING WATER FIN FAN COOLER (ITEM 29) IS FOR COOLING BALANCE OF PLANT EQUIPMENT AND STEAM TURBINE GENERATOR ONLY.
4. REFERENCE DRAWING GH99050101 FOR POWER ISLAND EQUIPMENT IDENTIFICATION.

LEGEND

1	UMB	GAS TURBINE ENCLOSURE
2	MKJ	GENERATOR AIR INLET FILTER
3	MBL	GAS TURBINE AIR INLET FILTER
4	CJT	SEE/SFC PACKAGE
5	UBA03-04	MV SWITCHGEAR
6	BAC	GENERATOR CIRCUIT BREAKER
7	BBT	AUXILIARY TRANSFORMER
8	BAT	GENERATOR STEP UP TRANSFORMER
9	BAA	ISOPHASE BUS DUCT
10	UBH	OIL/WATER SEPERATOR
11	MBY	MOBILE COMPRESSOR WASH SKID
12	MBH	ROTOR AIR COOLER
13	EKT	DUCT FIRING SKID
14	HSK	SCR SKID
15	UHA	HEAT RECOVERY STEAM GENERATOR
16	UHN	HRSG EXHAUST STACK
17	CFE	CONTINUOUS EMISSIONS MONITORING
18	UHB	AUXILIARY BOILER
19	LAC	BOILER FEED WATER PUMPS
20	LCN	CONDENSATE RECIRC. PUMP
21	UHW	BOILER BLOWDOWN
22	EKC	FUEL GAS PREHEATER
23	QU	SAMPLING CONTAINER
24	USV	LABORATORY CONTAINER
25	UMA/MKA02	STEAM TURBINE ENCLOSURE & GENERATOR
26	MAL	DRAIN PIT
27	SCA	AIR COMPRESSOR SKID
28	PGB	CLOSED COOLING WATER PUMPS
29	URB	CLOSED COOLING WATER FIN FAN COOLER
30	URX	SURGE TANK
31	UBA05	CCW FIN FAN MOTOR CONTROL CENTER
32	MAJ	VACUUM PUMPS
33	ULC	CONDENSATE RETURN TANK
34	LCB	CONDENSATE EXTRACTION PUMPS
35	URC	AIR COOLED CONDENSER
36	UBA06	ACC POWER CONTROL CENTER
37	UBA07	STEAM TURBINE POWER CONTROL CENTER
38	UBA08	BALANCE OF PLANT POWER CONTROL CENTER
39	BFT	LV TRANSFORMER
40	XKA	EMERGENCY DIESEL GENERATOR
41	UGX	DEMIN. WATER FORWARDING PUMPS
42	UGC	DEMIN. WATER STORAGE TANK
43	UGD/GCB	WATER TREATMENT MODULE/MULTI-MEDIA FILTER
44	GAF	RAW WATER FORWARDING PUMPS
45	UGA/UGF	RAW/FIRE WATER STORAGE TANK
46	USG	FIRE WATER PUMPS
47	UBA09	WATER TREATMENT AREA MCC
48	UTR	AMMONIA STORAGE/UNLOADING
49	EKE	FUEL GAS CONDITIONING/METERING
50	UCA/UST/UYC	ADMIN./CONTROL RM. WAREHOUSE BUILDING
51	UYX	SAFETY SHOWER & EYE WASH
52	UZA	ROAD
53	UZD	PARKING AREA
54	UZJ	FENCE & GATES

0 5 10 20 30 50
SCALE IN METERS

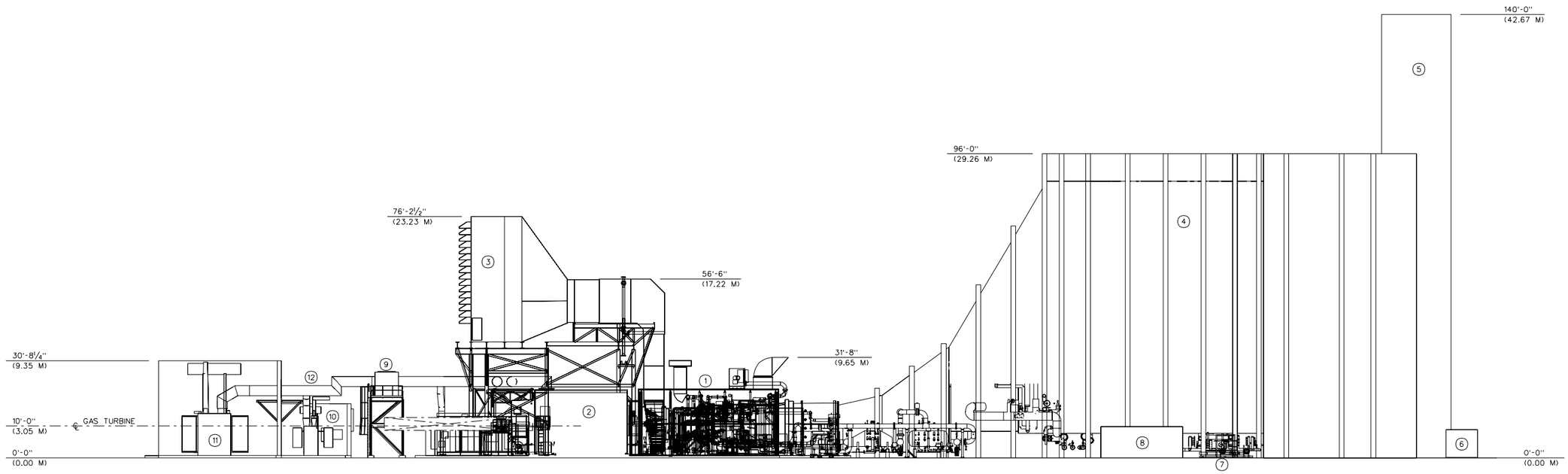
0 10 20 50 100 200
SCALE IN FEET

CONCEPTUAL

Origins		Original-No.			Orig.-PC
Project	SUMMIT POWER – PALMDALE			PK2PC	US1327
	Date	Name	Scale		UNOCC Type
Drawn	15 / 04 / 13	D. STULLENBARGER	Title		Contents Code
Coord.	15 / 04 / 13	A. IQBAL	GENERAL ARRANGEMENT		
Checked	15 / 04 / 13	G. BARDE	FACILITY PLOT PLAN		
Dept.			SCC6-5000F 2 X 1 W/AIR COOLED CONDENSER		Reg.No. A-3363-02
SIEMENS Energy, Inc.			HEAVY DUCT FIRING		Rev. 01 Version
			Dept. ORL PLCI	UNO	
GH99100101				Application	Page-No. 1 of 1
Designed with: Intergraph	GH99100101_R1.dgn		Supersedes		

Rev.	Date	Coord.	Checked	Details of Revision

FIGURE 2-4 GENERAL ARRANGEMENT



LEGEND

1	UMB	GAS TURBINE ENCLOSURE
2	MKA01/02	GAS TURBINE GENERATOR
3	MBL	TURBINE AIR INLET FILTER
4	UHA	HEAT RECOVERY STEAM GENERATOR
5	UHN	HRSG EXHAUST STACK
6	CFE	CONTINUOUS EMISSIONS MONITORING
7	HSK	SCR SKID
8	UHN	DUCT FIRING SKID
9	BAC	GENERATOR CIRCUIT BREAKER
10	BBT	AUXILIARY TRANSFORMER
11	BAT	GENERATOR STEP UP TRANSFORMER
12	BAA	ISOPHASE BUS DUCT

NOTES

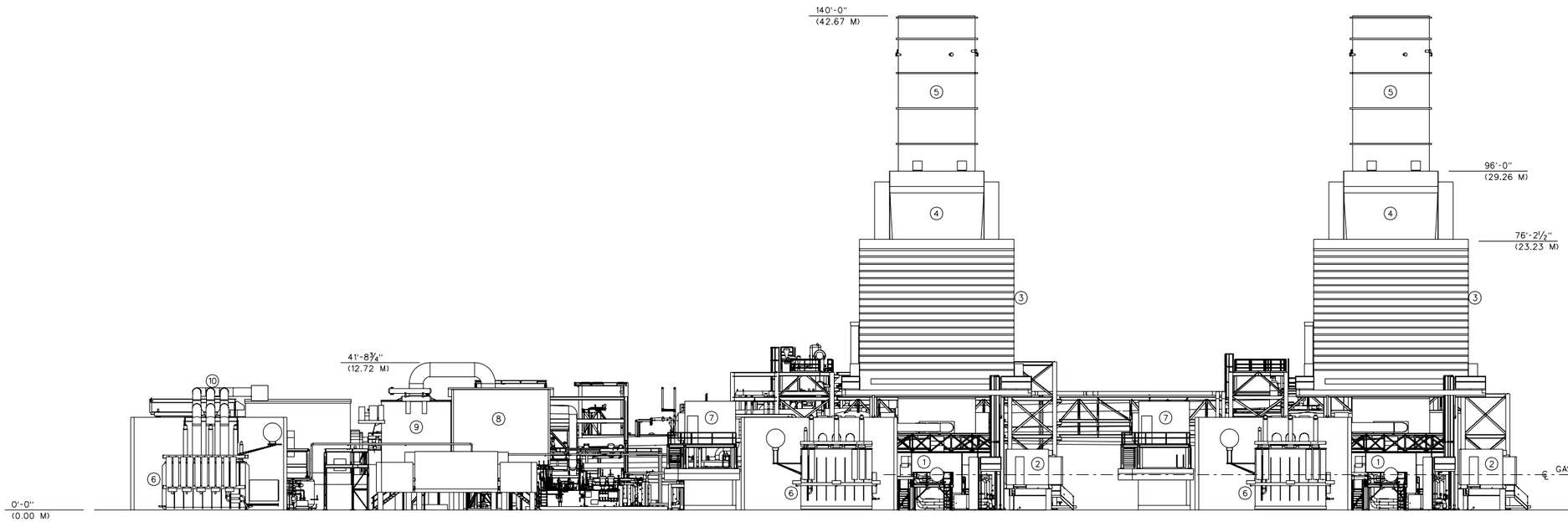
1. THE EQUIPMENT SHOWN IS REPRESENTATIVE INFORMATION. THIS DESIGN IS SUBJECT TO CHANGE AT THE DISCRETION OF SIEMENS ENERGY, INC.
2. ALL DIMENSIONS SHOWN ARE IN FEET AND INCHES (METERS).

CONCEPTUAL

Original		Original-No.		Orig.-PC
Project	SUMMIT POWER – PALMDALE			PK2PC US1327
	Date	Name	Scale	UNICC Type
Drawn	16 / 04 / 15	D. STULLENBURGER	Title	Contents Code
Coord.	16 / 04 / 15	A. IOBAL	GENERAL ARRANGEMENT	
Checked	16 / 04 / 15	G. BAYODE	GAS TURBINE ELEVATION	
			SCC6-5000F 2 X 1 W/AIR COOLED CONDENSER	
Dept.			HEAVY DUCT FIRING	Reg No. A-336-3-02
SIEMENS Energy, Inc.	Dept. ORL PLCI	UNO		Rev. 01 / Version
			Application	Page-No. 1 of 1
GH99080101				
Designed with: inergraph	GH99080101_R1.dgn		Supersedes	

Rev.	Date	Coord.	Checked	Details of Revision

FIGURE 2-5a ELEVATION LOOKING NORTH



LEGEND

1	MKA01/02	GAS TURBINE GENERATOR
2	UBA01-02	GAS TURBINE PCC
3	MBL	TURBINE AIR INLET FILTER
4	UHA	HEAT RECOVERY STEAM GENERATOR
5	UHN	HRSG EXHAUST STACK
6	BAT	GENERATOR STEP UP TRANSFORMER
7	UBA03-04	MEDIUM VOLTAGE SWITCHGEAR
8	UMA	HP/IP STEAM TURBINE ENCLOSURE
9	MAC	LP STEAM TURBINE
10	UAA	ISOPHASE BUS DUCT

NOTES

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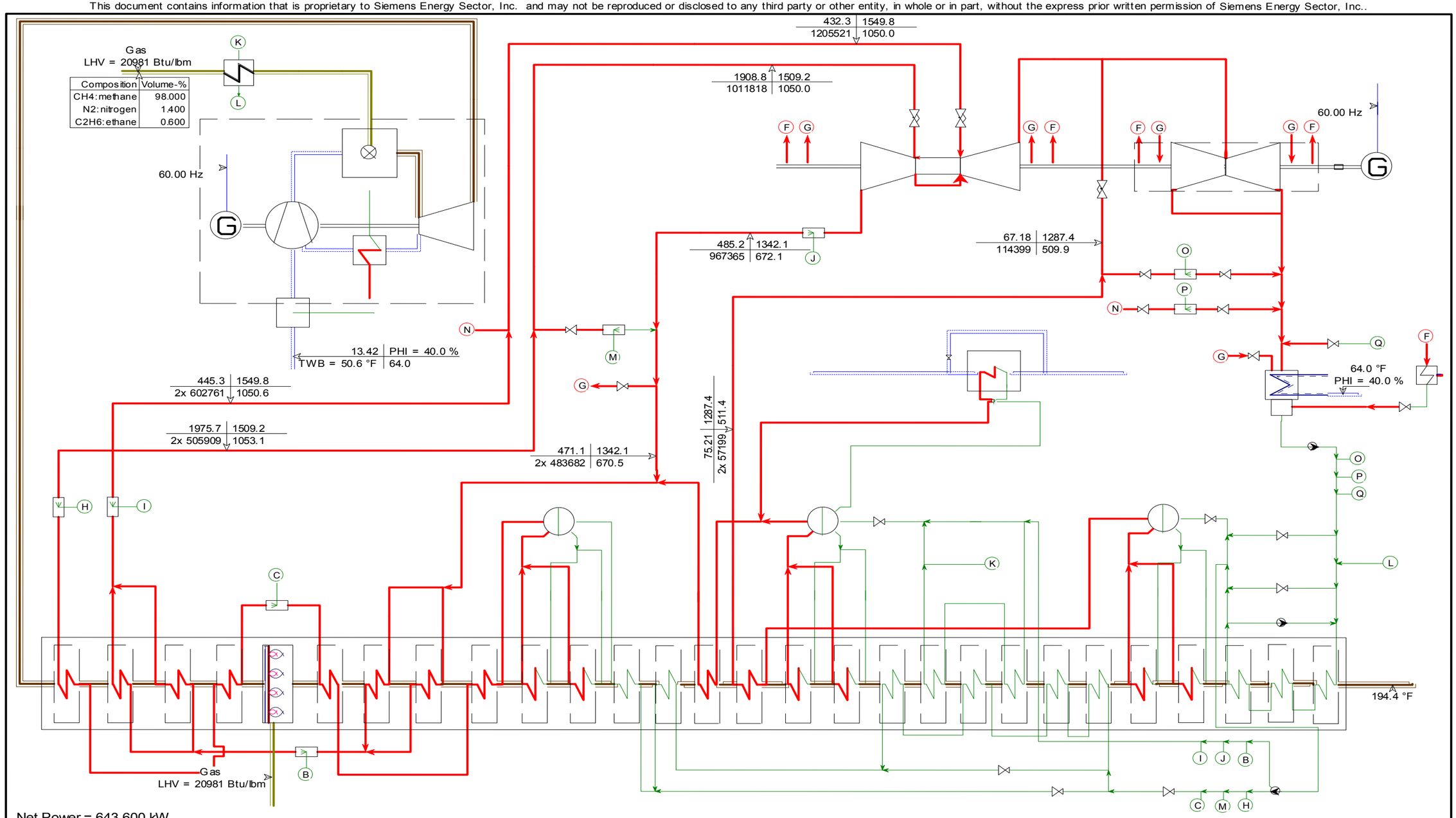
CONCEPTUAL

Rev.	Date	Coord.	Checked	Details of Revision

Project: SUMMIT POWER – PALMDALE
PKGPC: US1327
Drawn: 15/01/28 D. STULLENBURGER
Coord.: 15/01/28 A. IQBAL
Checked: 15/01/28 G. BARDE
Title: GENERAL ARRANGEMENT
POWER BLOCK ELEVATION
SCC6-5000F 2 X 1 W/AIR COOLED CONDENSER
HEAVY DUCT FIRING
Reg No. A-3363-02
Dept.: ORL PLGI
Rev.: 01
GH99120101
Page-No.: 1 of 1
Designed with: Intergraph
GH99120101_R1.dgn

FIGURE 2-5b ELEVATION LOOKING WEST



Net Power = 643,600 kW
Net Heat Rate = 6,110 Btu/kWhr
Gross GT Power = 428,500 kW
Gross ST Power = 231,800 kW
Aux Loads = 16,700 kW

Working Sheet

psia | Btu/lbm
lbm/h | °F (X)
all pressures are absolute
pressure..psia
temperature..°F
enthalpy..Btu/lbm
mass flow..lbm/h
atmospheric humidity..%

Water/Steam Property Functions: IAPWS-IF97

Summit Palmdale
SCC6-5000F 2x1 ACC

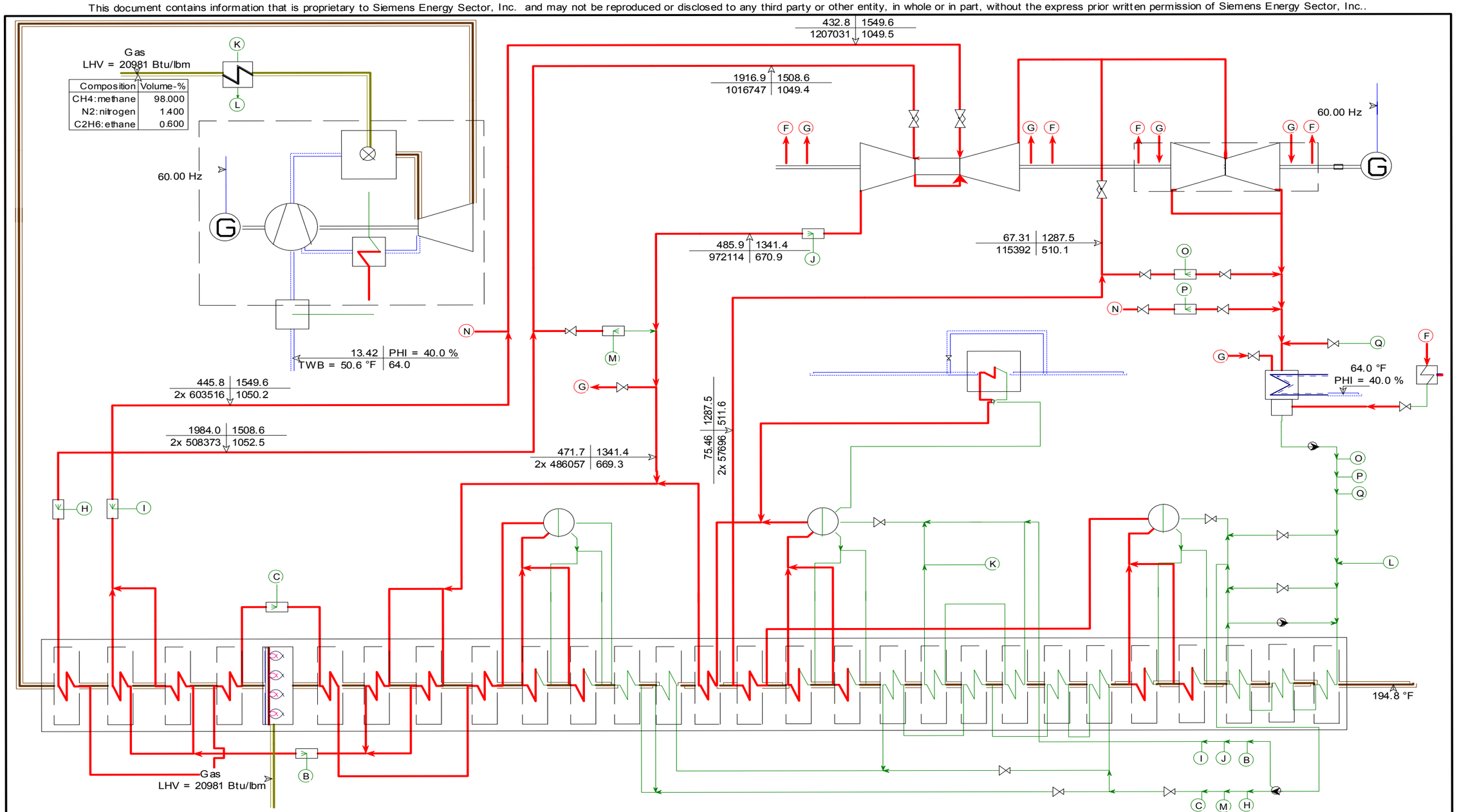
Case 10: 64/40-FG-OFF-100-2x1

Heat Flow Diagram
No. US1327 -PG ES EN ORL PTEC- G
Orlando, 2015-Apr-16 JJ

SEI
PG ES EN ORL PTEC

JOB IDENTIFICATION : Lp.019; JACKS01J; 2015-Apr-16 21:37:03 UTC; v 2.23.1

FIGURE 2-6a HEAT BALANCE DIAGRAM



Net Power = 656,300 kW
Net Heat Rate = 6,100 Btu/kWhr
Gross GT Power = 440,700 kW
Gross ST Power = 232,300 kW
Aux Loads = 16,700 kW

Working Sheet

psia	Btu/lbm
lbm/h	°F (X)

all pressures are absolute
pressure..psia
temperature..°F
enthalpy..Btu/lbm
mass flow..lbm/h
atmospheric humidity..%

Water/Steam Property Functions: IAPWS-IF97

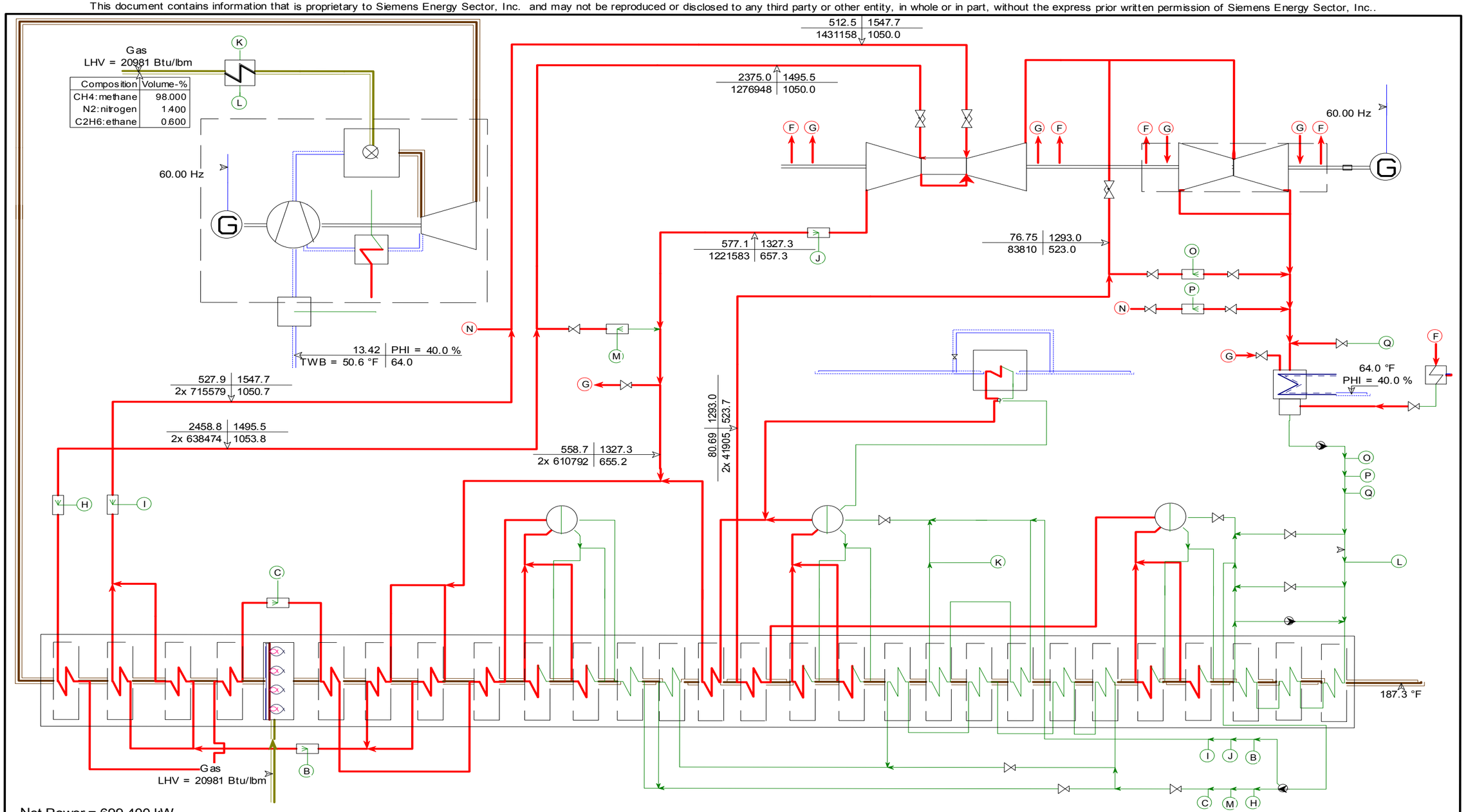
Summit Palmdale
SCC6-5000F 2x1 ACC
Case 11: 64/40-FG-ON-100-2x1

Heat Flow Diagram
No.US1327 -PG ES EN ORL PTEC- G
Orlando, 2015-Apr-15 JJ

SEI
PG ES EN ORL PTEC

JOB IDENTIFICATION : Lp.020; JACKS01J; 2015-Apr-15 13:44:23 UTC; v 2.23.1

FIGURE 2-6b HEAT BALANCE DIAGRAM



Net Power = 699,400 kW
Net Heat Rate = 6,210 Btu/kWhr
Gross GT Power = 440,700 kW
Gross ST Power = 276,200 kW
Aux Loads = 17,500 kW

Working Sheet

psia | Btu/lbm
lbm/h | °F (X)
all pressures are absolute
pressure..psia
temperature..°F
enthalpy..Btu/lbm
mass flow..lbm/h
atmospheric humidity..%

Water/Steam Property Functions: IAPWS-IF97

Summit Palmdale

SCC6-5000F 2x1 ACC

Case 12: 64/40-FG-ON-100-2x1-DB

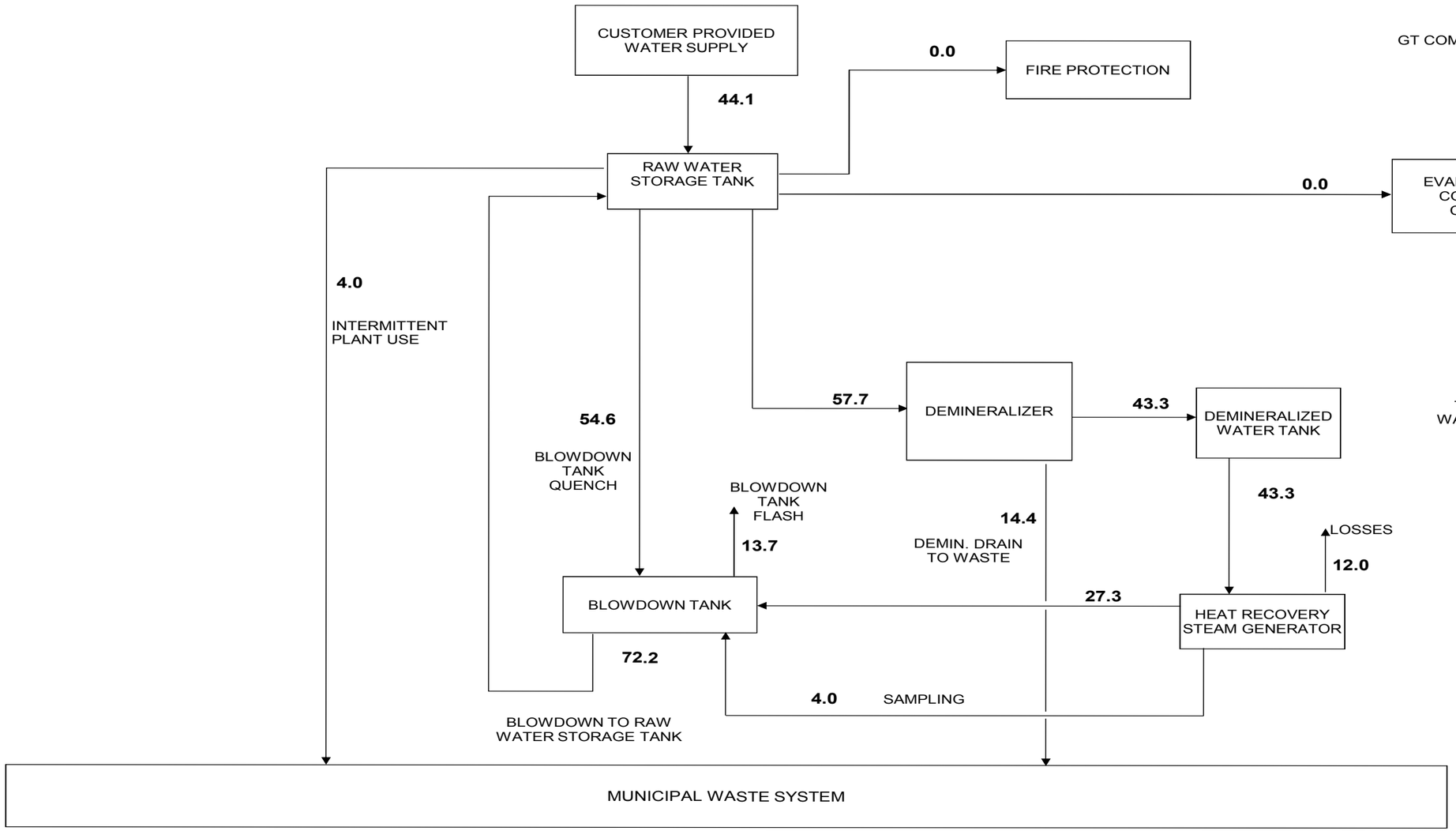
Heat Flow Diagram

No.US1327 -PG ES EN ORL PTEC- G
Orlando, 2015-Apr-15 JJ

SEI
PG ES EN ORL PTEC

JOB IDENTIFICATION : Lp.021; JACKS01J; 2015-Apr-15 13:45:44 UTC; v 2.23.1

FIGURE 2-6c HEAT BALANCE DIAGRAM

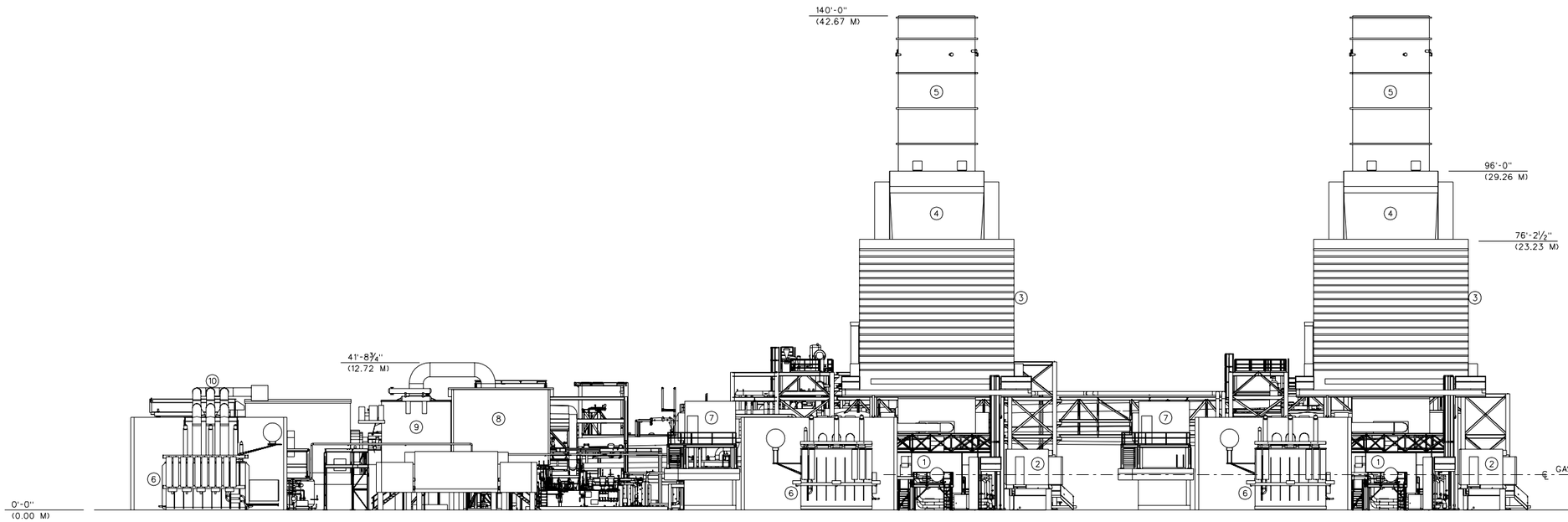


Notes:
1. Data is preliminary, and may change upon plant design, quality of water treatment, and plant operation.
2. Values are for information only, and do not represent guaranteed values.
3. Values are for steady - state conditions only and so are not accurate for non-normal operating conditions such as transients, start-up/shut down, steam blows, fire suppression, etc.
4. Siemens scope is not defined, and does not include consumption for other systems outside of Siemens scope of supply.
5. Water Balance is based upon the customer water supply meets the Siemens Water Quality Specification.
6. Units are gpm.

PRELIMINARY USE ONLY
SCOPE NOT DEFINED

	Project : Summit Palmdale
DATE : 4/15/2015	SIEMENS Siemens Energy Inc. *A Siemens Company*
ENGINEER : Middleton	WATER BALANCE DIAGRAM
APPROVED BY : A Planeta	Case 10: 64/40-FG-OFF-100-2x1
LOCATION : ORL	
CUST NO.	PAGE 1 OF 1

FIGURE 2-7a WATER BALANCE DIAGRAM



LEGEND

1	MKA01/02	GAS TURBINE GENERATOR
2	UBA01-02	GAS TURBINE PCC
3	MBL	TURBINE AIR INLET FILTER
4	UHA	HEAT RECOVERY STEAM GENERATOR
5	UHN	HRSG EXHAUST STACK
6	BAT	GENERATOR STEP UP TRANSFORMER
7	UBA03-04	MEDIUM VOLTAGE SWITCHGEAR
8	UMA	HP/IP STEAM TURBINE ENCLOSURE
9	MAC	LP STEAM TURBINE
10	UAA	ISOPHASE BUS DUCT

NOTES

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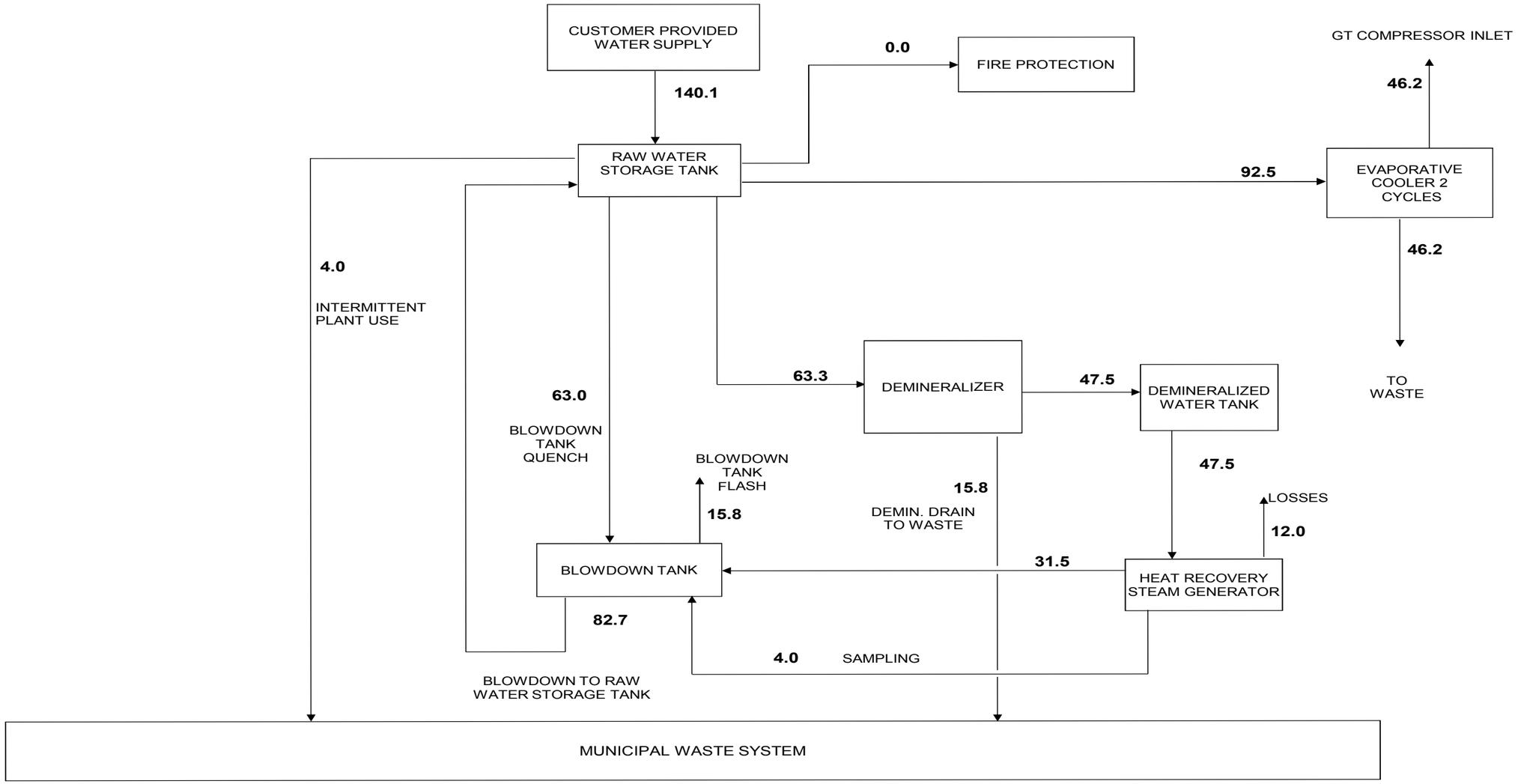
2. ALL DIMENSIONS SHOWN ARE IN FEET AND INCHES (METERS).

CONCEPTUAL

Origine	Original-No.		Orig.-PC
Project: SUMMIT POWER – PALMDALE			PKZPC: US1327
Date / Name	Scale		UNOCC Type
Drawn 16/04/28 D. STULLENBURGER	Title: GENERAL ARRANGEMENT POWER BLOCK ELEVATION SCC6-5000F 2 X 1 W/AIR COOLED CONDENSER HEAVY DUCT FIRING		Contents Code
Coord. 16/04/28 A. IQBAL			
Checked 16/04/28 G. BARDE			Reg.No. A-3363-02
Dept.	Dept. ORL PLGI	UNO	Rev. 01 / Version
SIEMENS Energy, Inc.	GH99120101	Application	Page-No. 1 of 1
Designed with: Intergraph	GH99120101_R1.dgn	Supersedes	

Rev.	Date	Coord.	Checked	Details of Revision

FIGURE 2-7b WATER BALANCE DIAGRAM



Notes:
1. Data is preliminary, and may change upon plant design, quality of water treatment, and plant operation.
2. Values are for information only, and do not represent guaranteed values.
3. Values are for steady - state conditions only and so are not accurate for non-normal operating conditions such as transients, start-up/shut down, steam blows, fire suppression, etc.
4. Siemens scope is not defined, and does not include consumption for other systems outside of Siemens scope of supply.
5. Water Balance is based upon the customer water supply meets the Siemens Water Quality Specification.
6. Units are gpm.

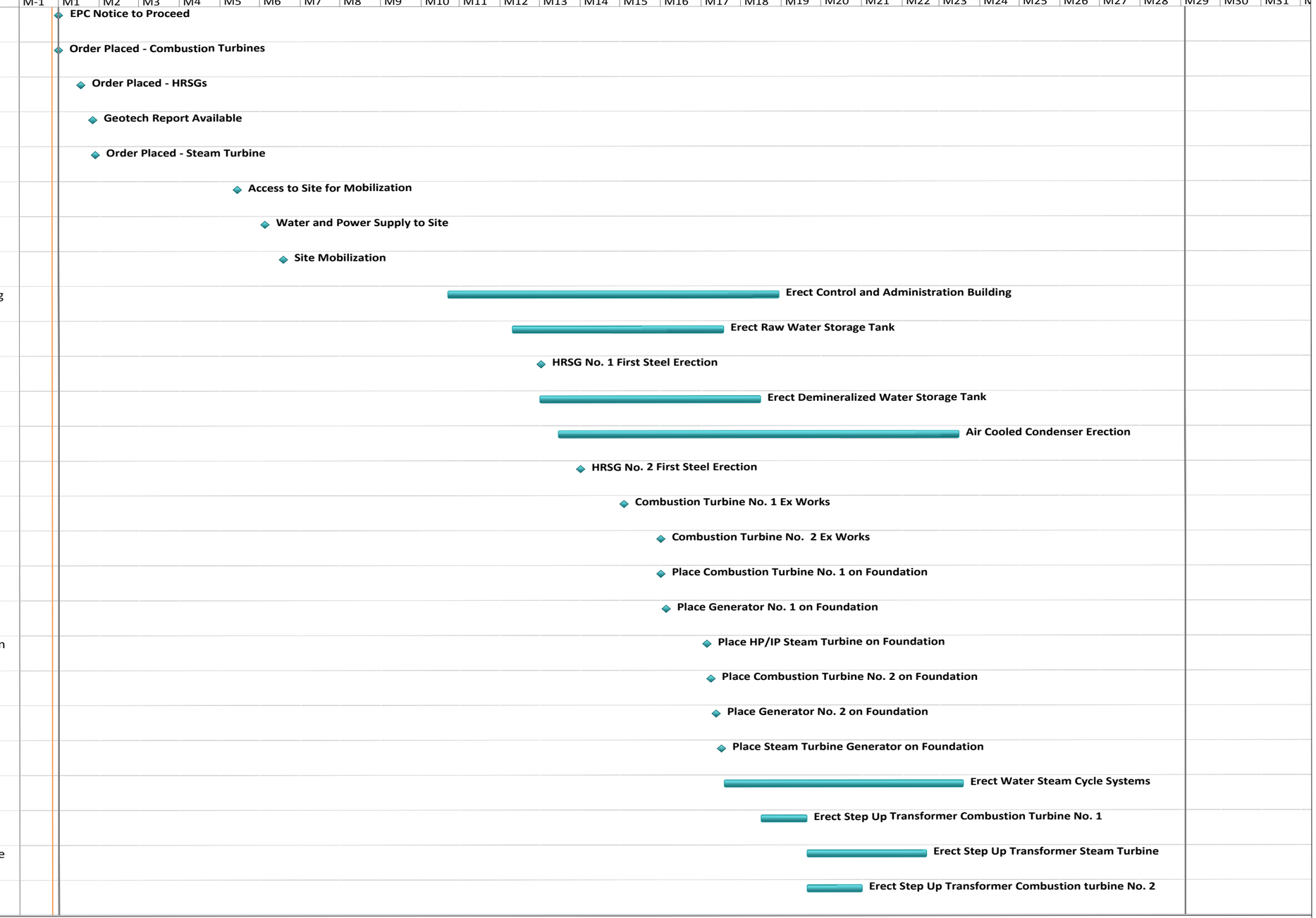
PRELIMINARY USE ONLY
SCOPE NOT DEFINED

	Project : Summit Palmdale
DATE : 4/15/2015	SIEMENS Siemens Energy Inc. *A Siemens Company*
ENGINEER : Middleton	WATER BALANCE DIAGRAM
APPROVED BY : A Planeta	Case 12: 64/40-FG-ON-100-2x1-DB
LOCATION : ORL	
CUST NO.	PAGE 1 OF 1

FIGURE 2-7c WATER BALANCE DIAGRAM

Palmdale EnergyProject
Preliminmary Construction Schedule

ID	Task Name
1	EPC Notice to Proceed
2	Order Placed - Combustion Turbines
3	Order Placed - HRSGs
4	Geotech Report Available
5	Order Placed - Steam Turbine
6	Access to Site for Mobilization
7	Water and Power Supply to Site
8	Site Mobilization
9	Erect Control and Administration Building
10	Erect Raw Water Storage Tank
11	HRSG No. 1 First Steel Erection
12	Erect Demineralized Water Storage Tank
13	Air Cooled Condenser Erection
14	HRSG No. 2 First Steel Erection
15	Combustion Turbine No. 1 Ex Works
16	Combustion Turbine No. 2 Ex Works
17	Place Combustion Turbine No. 1 on Foundation
18	Place Generator No. 1 on Foundation
19	Place HP/IP Steam Turbine on Foundation
20	Place Combustion Turbine No. 2 on Foundation
21	Place Generator No. 2 on Foundation
22	Place Steam Turbine Generator on Foundation
23	Erect Water Steam Cycle Systems
24	Erect Step Up Transformer Combustion Turbine No. 1
25	Erect Step Up Transformer Steam Turbine
26	Erect Step Up Transformer Combustion turbine No. 2



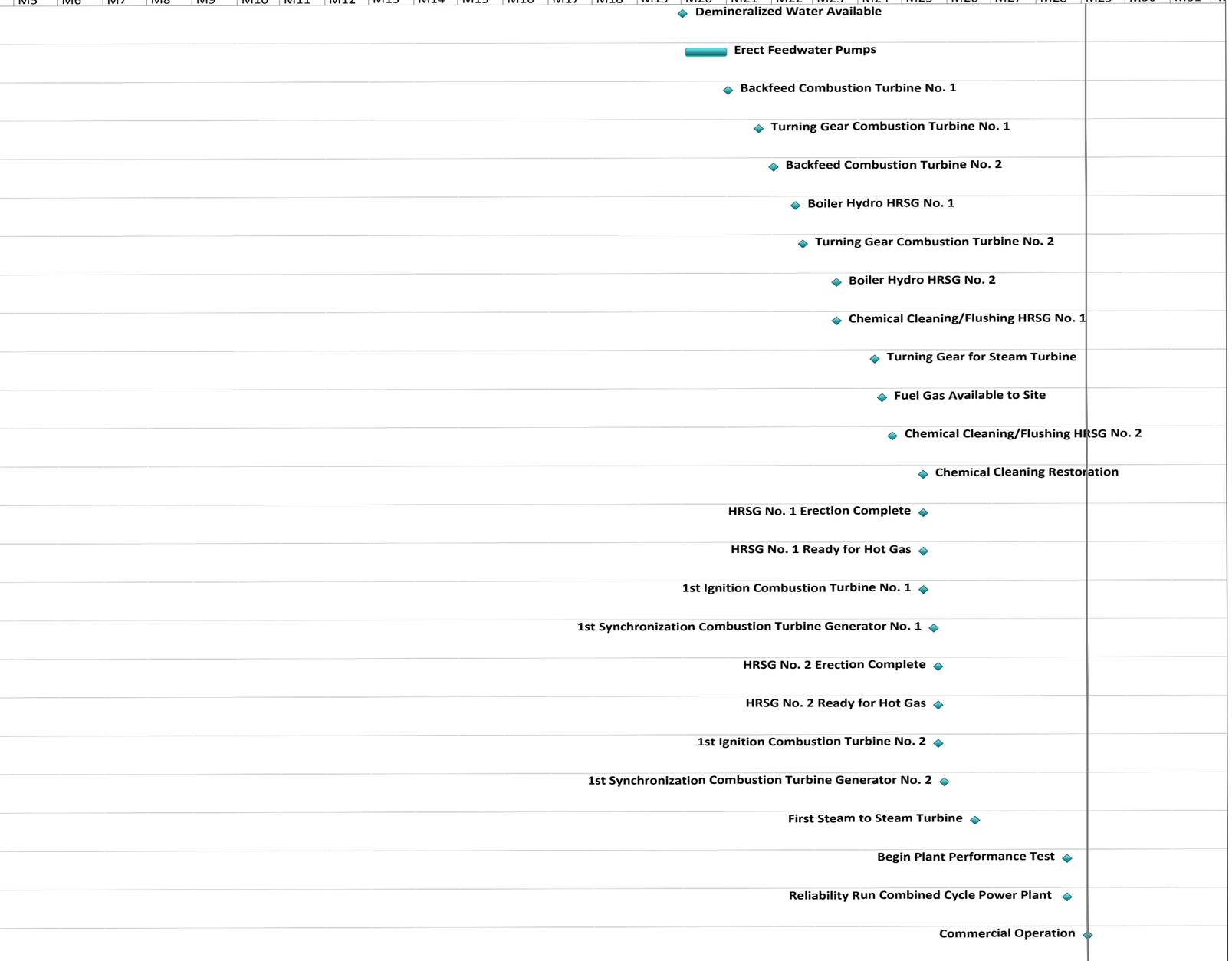
Palmdale Energy Project
Date: 4/26/15

Milestone ◆ Activity

FIGURE 2-8 PRELIMINARY CONSTRUCTION SCHEDULE

Palmdale EnergyProject
Preliminmary Construction Schedule

ID	Task Name
27	Demineralized Water Available
28	Erect Feedwater Pumps
29	Backfeed Combustion Turbine No. 1
30	Turning Gear Combustion Turbine No. 1
31	Backfeed Combustion Turbine No. 2
32	Boiler Hydro HRSG No. 1
33	Turning Gear Combustion Turbine No. 2
34	Boiler Hydro HRSG No. 2
35	Chemical Cleaning/Flushing HRSG No. 1
36	Turning Gear for Steam Turbine
37	Fuel Gas Available to Site
38	Chemical Cleaning/Flushing HRSG No. 2
39	Chemical Cleaning Restoration
40	HRSG No. 1 Erection Complete
41	HRSG No. 1 Ready for Hot Gas
42	1st Ignition Combustion Turbine No. 1
43	1st Synchronization Combustion Turbine Generator No. 1
44	HRSG No. 2 Erection Complete
45	HRSG No. 2 Ready for Hot Gas
46	1st Ignition Combustion Turbine No. 2
47	1st Synchronization Combustion Turbine Generator No. 2
48	First Steam to Steam Turbine
49	Begin Plant Performance Test
50	Reliability Run Combined Cycle Power Plant
51	Commercial Operation



Palmdale Energy Project
Date: 4/26/15

Milestone ◆ Activity

FIGURE 2-8 PRELIMINARY CONSTRUCTION SCHEDULE (CONT.)

Section 3 ENGINEERING ANALYSIS

The following sections provide a description of the modifications proposed to the PPP as they may affect the assumptions, rationale, and Conditions of Certification in the Final Decision for the areas of 3.1 Facility Design, Efficiency and Reliability, 3.2 Transmission System Engineering, and 3.3 Transmission Line Safety and Nuisance.

3.1 FACILITY DESIGN, RELIABILITY AND EFFICIENCY

This section outlines the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Final Decision for the Approved Project.

3.1.1 Facility Design

A description of the Modified Project is provided in Section 2.0 of this Petition.

The PEP will be designed to maximize safe construction and operation and will comply with the existing Conditions of Certification for the Approved Project. Potential hazards that could affect the facility include earthquake, flood, and fire. The Modified Project will be designed in accordance with all applicable codes regarding these hazards. Facility operators will be trained in safe operation, maintenance, and emergency response procedures to minimize the risk of personal injury and damage to the facility*.*

3.1.1.1 Natural Hazards

The principal natural hazard associated with the project site is earthquakes. As required by the Decision for the Approved Project, the Modified Project structures will be designed to meet the seismic requirements of California Code of Regulations Title 24 and the 2010 California Building Standards Code (CBC). Potential seismic hazards will be mitigated by implementing the 2010 CBC construction guidelines.

3.1.1.2 Emergency Systems and Safety Precautions

This subsection discusses the fire protection systems, emergency medical services, and safety precautions to be used by project personnel.

3.1.1.2.1 Fire Protection Systems

The project will rely on both onsite fire protection systems and local fire protection services.

3.1.1.2.1.1 Onsite Fire Protection Systems

The fire protection systems are designed to protect personnel as well as to limit property loss and plant downtime from fire. The Modified Project's fire protection features are described in Section 2.5.4.7 of this Petition.

3.1.1.2.1.2 Local Fire Protection Services

Appropriate plant personnel will be trained as a hazardous materials response team and one or more spill response kits will be available on-site. In the event of a large incident involving hazardous materials, backup support will be provided by the Los Angeles County Fire Department Fire Station 129, which has a hazmat response unit located in Lancaster at 42110 6th Street West (about 1.8 miles away) and could respond within 0.1 hours.

3.1.1.2.2 Personnel Safety Program

PEP will operate in compliance with federal and state occupational safety and health program requirements. Compliance with these programs will minimize project effects on employee safety.

3.1.2 Facility Reliability

This subsection discusses the expected facility availability, equipment redundancy, fuel availability, water availability, and project quality control measures.

3.1.2.1 Facility Availability

The expected facility availability is greater than 95%. Combined cycle plants with similar Siemens combustion turbines have consistently achieved greater 95% availability when operated and maintained in accordance with Siemens specifications. Palmdale Energy will contract with Siemens or a fully qualified operations and maintenance provider to operate and maintain the plant.

3.1.2.2 Redundancy of Critical Components

The following subsection identifies equipment redundancy as it applies to project availability. A summary of equipment redundancy is shown in Table 3.1-1.

Table 3.1-1
Major Equipment Redundancy

Description	Number	Note
Boiler Feed water Pumps	Three	3x50% on plant basis
Unit Auxiliary Transformers	Two	One per GT but limited ability to supply other GT.
Vacuum Pumps	Two	Hybrid air evacuation system with 2x20% vacuum pumps and 2x100% holding ejectors
Condensate Pumps	Three	3x50% on plant basis
Demin Water Forwarding Pumps	Two	2x100%
Raw Water Forwarding Pumps	Two	2x100%
Fire Water Pumps	Two	100% capacity electric pump and 100% capacity diesel powered pump
GT Lube Oil Pumps	Two	2x100% AC Pumps
ST Lube Oil Pumps	Two	2x100% AC Pumps
DCS	Various	Redundant for critical components, no single failure will cause a plant outage
Combustion Turbines	Two	Generating facility can operate with one CT out of service

3.1.2.2.1 Distributed Control System

The Approved Project and Modified Project would use DCS systems provided by the turbine manufacturers, GE and Siemens, respectively. The systems are functionally equivalent though not identical systems.

3.1.2.3 Fuel Availability

Natural gas will be delivered via pipeline as described previously in Section 2.3 of this Petition.

3.1.2.4 Water Availability

Water availability is as described in previously in Section 2.2 of this petition.

3.1.2.5 Project Quality Control

3.1.2.5.1 Project Stages

For quality assurance planning purposes, the project activities have been divided into the following nine stages that apply to specific periods of time during the project:

1. **Conceptual Design Criteria.** Activities such as definition of requirements and engineering analyses.

2. **Detail Design.** Activities such as the preparation of calculations, drawings, and lists needed to describe, illustrate, or define systems, structures, or components.

3. **Procurement Specification Preparation.** Activities necessary to compile and document the contractual, technical, and quality provisions for procurement specifications for plant systems, components, or services.

4. **Manufacturer's Control and Surveillance.** Activities necessary to ensure that the manufacturers conform to the provisions of the procurement specifications.

5. **Manufacturer Data Review.** Activities required to review manufacturers' drawings, data, instructions, procedures, plans, and other documents to ensure coordination of plant systems and components, and conformance to procurement specifications.

6. **Receipt Inspection.** Inspection and review of product at the time of delivery to the construction site.

7. **Construction/Installation.** Inspection and review of storage, installation, cleaning, and initial testing of systems or components at the facility.

8. **System/Component Testing.** Actual operation of generating facility components in a system in a controlled manner to ensure that the performance of systems and components conform to specified requirements.

9. **Plant Operation.** Operation of the facility's systems and equipment by operations personnel according to manufacturer's recommendations and instructions.

As the project progresses, the design, procurement, fabrication, erection, and checkout of the facility system will progress through the nine stages defined above.

3.1.2.5.2 Quality Control Records

The following quality control records will be maintained for review and reference:

- Project instructions manuals
- Design calculations
- Project design manual
- Quality assurance audit reports
- Conformance to construction records drawings
- Procurement specifications (contract issues, change orders, etc.)
- Purchase orders and change orders
- Project correspondence

For procured component purchase orders, a list of qualified suppliers and subcontractors will be developed. Before contracts are awarded, the subcontractors' capabilities will be evaluated. The evaluation will consider suppliers and subcontractors' personnel, production capability, past performance, and quality assurance program.

During construction, field activities are accomplished during the last four stages of the project: receipt inspection, construction/installation, system/component testing, and plant operations. The construction contractor will be contractually responsible for performing the work in accordance with the quality requirements specified by contract.

The subcontractors' quality compliance will be surveyed through inspections, audits, and administration of independent testing contracts.

A plant operation and maintenance program, typical of a project this size, will be implemented by the applicant to control operation and maintenance quality. A specific program for this project will be defined and implemented during initial plant startup.

3.1.3 Power Plant Efficiency

The combined cycle configuration proposed for Palmdale Energy is inherently highly efficient and with the Siemens Flex-Plant 30 features the plant is able to reach the desired plant output more quickly and is well matched for efficient power as a flexible capacity resource as well as a base load resource. With the fast start capabilities of the Siemens design, the combustion turbines can be at base load within fifteen minutes for most startups; this improves the plants overall efficiency with respect to combined cycle plants without the fast start capability.

As the project will be provided with two combustion turbines, it will have the flexibility to be able to provide highly efficient power at loads of approximately fifty percent of base loads. With the plant's inlet evaporative cooling system and duct firing capability, additional operational benefits are realized.

Net plant heat rates at annual average conditions with the evaporative coolers and duct burners in and out of service are provided in Figures 2.6-a through 22.6.c. At base load with the evaporative coolers in service, the net plant heat rate is 6100 Btu/kWh (LHV), this compares favorably with the installed fleet of gas fired generation in California.

3.1.4 Compliance with LORS

The Commission Decision concluded that, with implementation of the Conditions, the Approved Project would comply with all applicable LORS. No LORS have been identified that are uniquely applicable to the PEP. In fact, some of the LORS that would have been applicable to the Approved Project, such as those associated with the design of the facility components using HTF, would no longer be applicable to the Modified Project. As with the Approved Project, the Modified Project would comply with all applicable LORS.

3.1.5 Conditions of Certification

The Conditions of Certification consistently refer to the 2007 CBC. A global replacement is required to reflect that the 2010 CBC will be applicable to the PPP.

Condition of Certification **GEN-2** contains a table of major structures associated with the Approved Project. The table should be modified as follows:

Equipment/System	Quantity (Plant)
Raw and Fire Water Storage Tank Foundation and Connections	1
Demineralized Water Tank Foundation and Connections	1
Combustion Turbine Wash Drain Tank Foundation and Connections	2
Closed Cooling Water Fin-Fan Coolers Foundation and Connections	1
Air Cooled Condenser Foundations and Connections	1
Condensate Return Tank Foundations and Connections	1
Fire Pump Module Foundation and Connections	1
Admin/Control Building Warehouse Foundation and Connections	1
Water Treatment Module Foundation and Connections	1
Water Treatment Module Area MCC	1
Sampling Container Foundations and Connections	1
Laboratory Container Foundations and Connections	1
STG Power Control Center Foundation and Connections	1
Cycle Chemical Feed Module Foundation and Connections	1
Ammonia Storage Foundation and Connections	1
HRSG Structure, Foundation and Connections	2
CEMS Foundation and Connections	2
Combustion Turbine Generator Foundation and Connections	2
Combustion Turbine Inlet Air Filter Foundation and Connections	2
Fuel Gas Filter/separator Foundation and Connections	2
Fuel Gas Pre-heater Foundation and Connections	2
Rotor Air Cooler Foundations and Connections	2
CT Lube Oil Skid and Coolers Foundations and Connections	2
Auxiliary Transformer Foundation and Connections	2
Generator Step-Up Transformer Foundations and Connections	3
Oil/water Separator Foundation and Connections	1
Emergency Shutdown Generator Foundation and Connections	1
CT Electrical Package	2
MV Switchgear Module Foundation and Connections	2
BOP Power Control Center	1
Air Cooled Condenser Power Control Center	1
Switchyard Module Foundation and Connections	1
Steam Turbine Lube Oil Skid Foundation and Connections	1
Steam Turbine Generator Foundation and Connections	1
Steam Turbine Generator Enclosure/Building Foundations and Connections	1
Generator Circuit Breakers	2
Auxiliary Boiler Foundations and Connections	1

Condition of Certification **ELEC-1** refers to 13.8 kV systems. The Modified Project will use Siemens equipment and therefore references to 13.8 kV voltages should be replaced with 18 kV.

No other modifications to the Conditions of Certification contained in the Final Decision sections addressing Facility Design, Efficiency or Reliability are required for the PEP.

3.2 TRANSMISSION SYSTEM ENGINEERING

This section outlines the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Final Decision for the Approved Project.

3.2.1 Relevant Modifications to Project Description

The only modifications to the Approved alternative generation tie-line routes are the addition of approximately 1,800 feet of conductor and three transmission poles along the south side of Avenue M to allow for interconnection with the new project switchyard location. See Figure 2-1. No other modifications to the alternative generation tie-line routes are proposed by this Petition.

Since the Modified Project is replacing the generation equipment, new preliminary single line diagrams are provided at this end of Section 3 of this Petition. Figure 3.1a shows the single-line diagram for the new project switchyard and Figure 3.1b shows a single-line diagram for the power block.

Palmdale Energy has conducted an internal review and determined that the proposed technology change will not constitute a “material modification” to the LGIA (as that term is defined by the interconnection policies and procedures of the California Independent System Operator (CAISO)). Palmdale Energy will submit the results of its analysis to CAISO for concurrence and expects CAISO to concur with the conclusion that the technology change does not constitute a “material modification” by June 30, 2015.

Because the Modified Project will limit its output to the terms of its LGIA the new technology, although capable of additional output, will not exceed the requested interconnection capacity, there will be no change to the downstream transmission system upgrades identified in the previous CAISO studies, upon which the LGIA was based.

3.2.2 Compliance with LORS

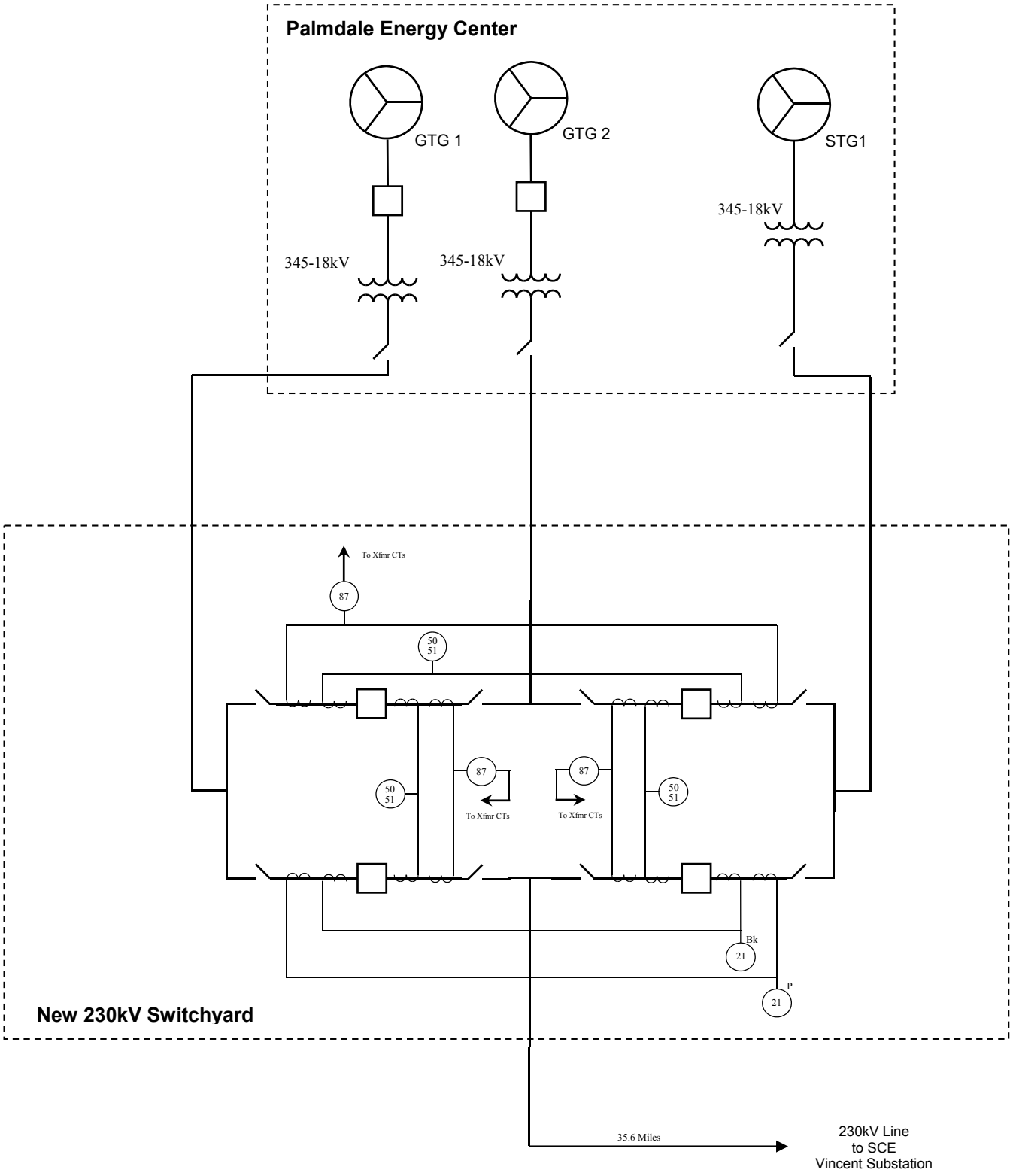
The Modified Project will comply with all transmission system engineering related laws, ordinances, regulations and standards. This will be ensured by enforcement of the existing Conditions of Certification which do not require modification.

3.2.3 Proposed Modifications to Conditions of Certification

No modifications of Conditions of Certification contained in the Final Decision are proposed to accommodate the Modified Project.

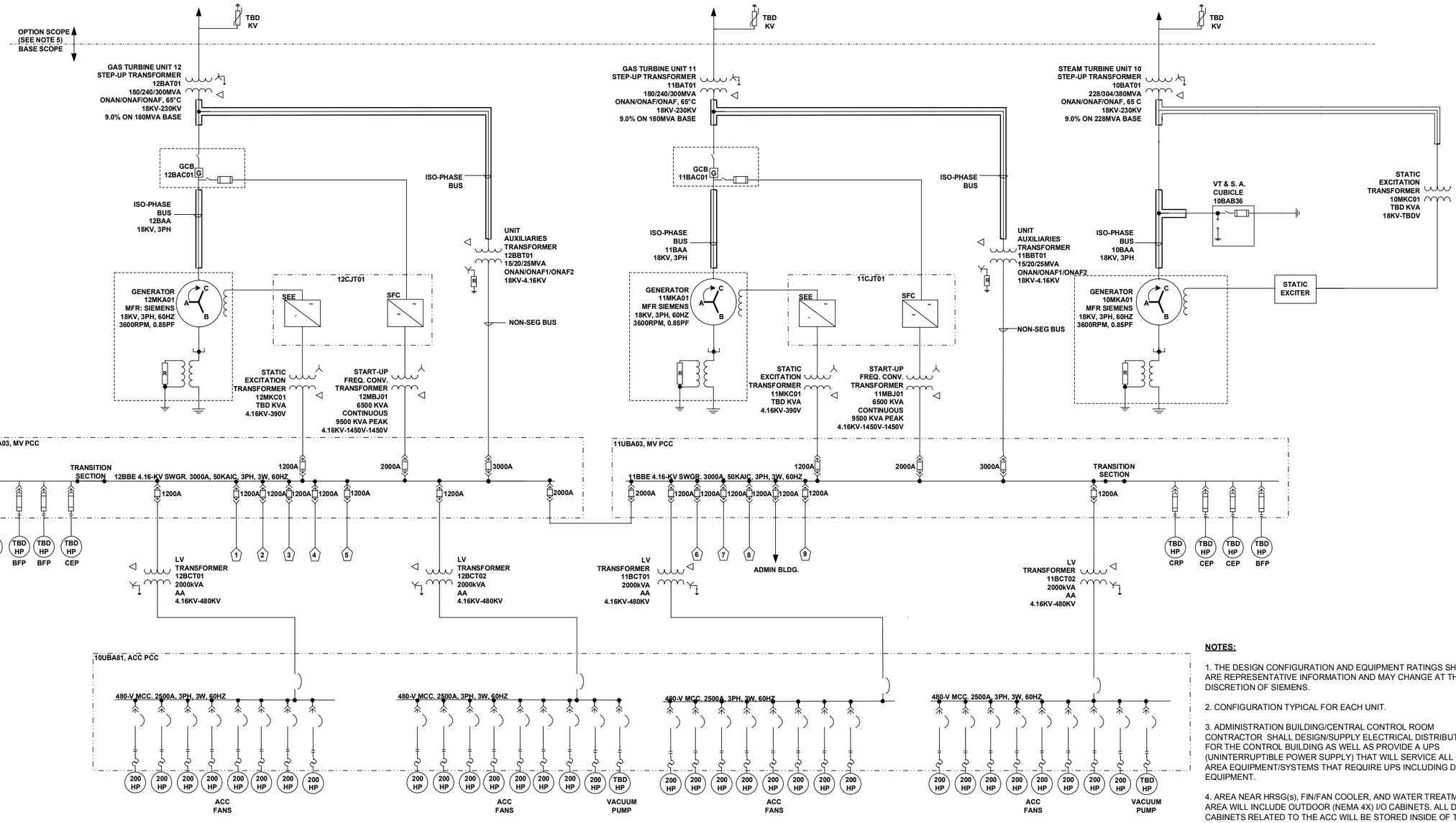
3.3 TRANSMISSION LINE SAFETY AND NUISANCE

There will be no changes to the Commission's assumptions, analysis, rationale or Conditions of Certification as a result of the Modified Project to the technical area of Transmission Line Safety and Nuisance because the characteristics of the Approved Transmission Line are not changing.



SUMMIT POWER	DATE: 04/25/15 REV: A	**SUMMIT POWER** **Palmdale Energy Center** **ONE-LINE**	DWG NO **A01**

FIGURE 3-1a SINGLE-LINE DIAGRAM, SWITCHYARD



NOTES:

1. THE DESIGN CONFIGURATION AND EQUIPMENT RATINGS SHOWN ARE REPRESENTATIVE INFORMATION AND MAY CHANGE AT THE DISCRETION OF SIEMENS.

2. CONFIGURATION TYPICAL FOR EACH UNIT.

3. ADMINISTRATION BUILDING/CENTRAL CONTROL ROOM CONTRACTOR SHALL DESIGN/SUPPLY ELECTRICAL DISTRIBUTION FOR THE CONTROL BUILDING AS WELL AS PROVIDE A UPS (UNINTERRUPTIBLE POWER SUPPLY) THAT WILL SERVICE ALL CCR AREA EQUIPMENT/SYSTEMS THAT REQUIRE UPS INCLUDING DCS CCR EQUIPMENT.

4. AREA NEAR HRSG(s), FIN/FAN COOLER, AND WATER TREATMENT AREA WILL INCLUDE OUTDOOR (NEMA 4X) I/O CABINETS. ALL DCS CABINETS RELATED TO THE ACC WILL BE STORED INSIDE OF THE ACC POWER CONTROL CENTER.

5. SWITCHYARD SCOPE SHALL INCLUDE SURGE ARRESTERS FOR 345KV STEP-UP TRANSFORMERS. CONNECTION FROM TRANSFOMRERS TO SWITCHYARD IS ASSUMED TO BE OPEN AIR CONDUCTORS.

Project	Date	Revision
SUMMIT PALMDALE – US1327 – SCC6-5000F 2x1 SLD	2015-04-10	1

SIEMENS

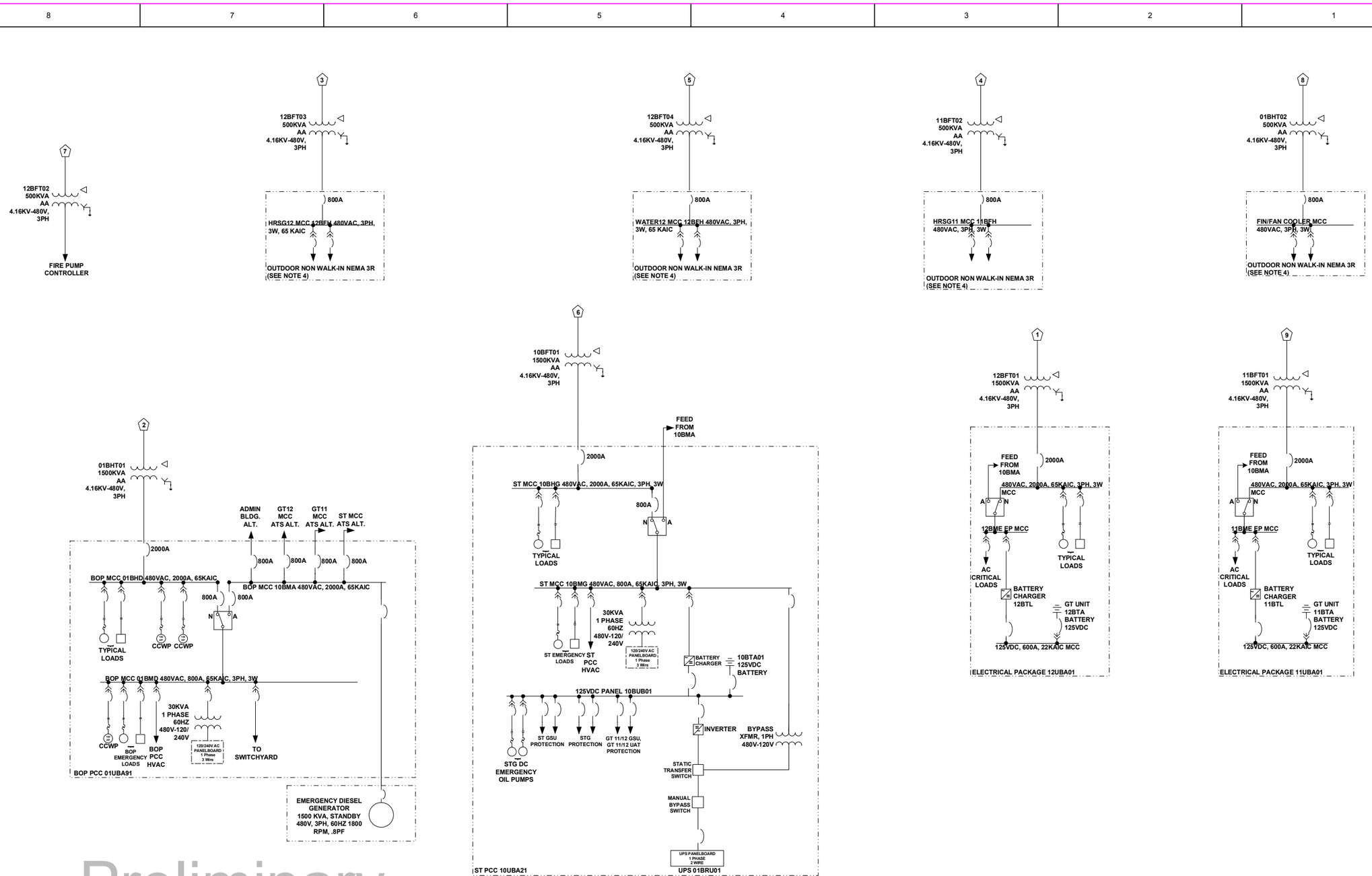
Siemens Energy, Inc.

Revision History

1: Initial Release

Page 1

FIGURE 3-1b SINGLE-LINE DIAGRAM, POWER BLOCK



Preliminary

SIEMENS Siemens Energy, Inc.	Revision History: 1: Initial Release	Project: SUMMIT PALMDALE – US1327 – SCC6-5000F 2x1 SLD	Date: 2015-04-10 / Revision: 1 / Page: 2

FIGURE 3-1b SINGLE-LINE DIAGRAM, POWER BLOCK (CONT.)

Section 4 PUBLIC HEALTH AND SAFETY

The following sections provide a description of the modifications proposed to the PHPP as they may affect the assumptions, rationale, and Conditions of Certification in the Final Decision for the following technical areas: 4.1 Air Quality, Greenhouse Gas Emissions, and Public Health; 4.2 Worker Health and Safety/Fire Protection; 4.3 Hazardous Materials Management; and 4.4 Waste Management.

4.1 AIR QUALITY, GREENHOUSE GASES AND PUBLIC HEALTH

This section will be submitted under separate cover once air quality modeling is completed. The supplement is anticipated to be docketed in May 2015.

4.2 WORKER SAFETY/FIRE PROTECTION

This section discusses the reduction in impacts to worker safety and fire protection for the Modified Project.

4.2.1 Project Changes Related to Worker Safety and Fire Protection

4.2.2 Changes in Environmental Impacts

4.2.2.1 Worker Safety

The relative risks to worker health and safety for all aspects of the Modified Project are similar to the Approved Project, except for the reduced risk due to the elimination of Therminol.

4.2.2.1.1 Construction

For the vast majority of construction activities, the relative risks to worker health and safety are the same as those identified and analyzed by the Commission in the Final Decision. Palmdale Energy and its EPC contractor will employ a comprehensive set of plans and procedures to ensure that all workers adhere to LORS and follow all safety management procedures to mitigate these and other construction related risks. The Conditions of Certification for the Approved Project already incorporate these safety management procedures, plans and LORS and, therefore, will mitigate this and other risks to workers during construction to less than significant levels.

4.2.2.1.2 Operation

With the elimination of Therminol workers no longer have to implement safety measures related to the transportation, storage, use and management of these highly combustible materials. Therefore, the potential impacts to workers during facility operation are less than for the Approved Project.

4.2.2.2 Fire Protection

As described in the Final Decision for the Approved Project, local fire protection services would be provided by Los Angeles County Fire Department. With the elimination of Therminol, the risk of fire is reduced. Therefore, fire-related impacts to the local fire department from the Modified Project are similar or less than those for the Approved Project.

4.2.3 Changes in LORS Conformance and Other Permits

In the Final Decision, the Commission concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified.

4.2.4 Conditions of Certification

No modifications of Conditions of Certification contained in the Final Decision are proposed to accommodate the Modified Project.

4.3 HAZARDOUS MATERIALS MANAGEMENT

As described in detail below, impacts of the Modified Project to hazardous materials management are expected to be less than or equal to those of the Approved Project and will remain less than significant.

4.3.1 Project Changes Related to Hazardous Materials Management

The Modified Project proposes to eliminate the use of solar trough. The most relevant modifications are that the Modified Project eliminates the storage and use, transportation, and on-site storage of 260,000 of gallons of Therminol, the HTF utilized by the solar trough technology. Therminol was used by the Approved Project throughout the solar field, is flammable and its uses, transport, storage and management and potential for leaks was the focus of the Hazardous Materials analysis during Licensing of the Approved Project. Since the Therminol has been eliminated the Modified Project no longer has Land Treatment Units to handle and contain soil contaminated by spills or leaks of Therminol throughout the solar field.

Hazardous materials used during construction will be the same for the Modified Project as for the Approved Project.

4.3.2 Changes in Environmental Impacts

4.3.2.1 Construction

The types and amounts of hazardous materials to be used during construction for the Modified Project are the same in type and amount as the hazardous materials as contemplated for the Approved Project. Therefore, the Modified Project's impacts to public health and safety associated with the use of hazardous materials during construction would be similar to the impacts from the Approved Project and would remain less than significant.

4.3.2.2 Operations

The types of hazardous materials that would be used during operation under the Modified Project would be less than those assumed for the Approved Project because the HTF would be completely eliminated.

4.3.3 Compliance with LORS

In the Commission Final Decision, the Commission concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified.

4.3.4 Conditions of Certification

Condition of Certification **HAZ-1** includes a list of the types and quantities of hazardous materials the Modified Project would be allowed to use (Appendix A). The current list in Appendix A should be replaced with the list below.

Hazardous Materials Appendix A
Hazardous Materials Proposed for Use at the PEP

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	Federal Reportable
Acetylene	74-86-2	Welding gas	Health: moderate toxicity Physical: toxic	800 cubic feet	NA
Aqueous Ammonia <20% solution	7664-41-7	NO_X Emissions Control	Health: high toxicity Physical: corrosive, irritant	30,000 gallons	100 pounds
Boiler Water Treatment Chemicals; may include: Carbohydrazide Diethylhydroxylamine Sodium bisulfite Sodium metabisulfite Sodium sulfite Morpholine, Cyclohexamine, Diethylaminoethanol Aminomethylpropanol Methoxypropylamine	Various 497-18-7 3710-84-7 7631-90-5 7681-57-4 7757-83-7 110-91-8 108-91-8 100-37-8 124-68-5 5332-73-0	Oxygen scavenger and neutralizing amine for boiler water treatment.	Health: low to moderate toxicity Physical: varies by ingredient, may be flammable, combustible, and/or corrosive	660 gallons	NA except for Sodium bisulfite: 5,000 pounds
Calcium Oxide (Lime)	1305-78-8	pH Adjustment	Health: low toxicity	4,000 pounds	NA

Carbon Dioxide/ FM200 agent	124-38-9	Fire suppression	Health: low toxicity Physical: non-flammable gas	24 tons	NA
Diesel Fuel	68476-34-6	Emergency Diesel generator fuel, fire-water pump engine	Health: low toxicity Physical: combustible liquid	2,180 gallons (generator), 300 gallons (fire-water pump engine)	NA
Hydraulic Fluid	None		Health: low to moderate toxicity Physical: Class IIIB combustible liquid	500 gallons in equipment, 110 gallons in storage	NA
Lubrication Oil	64742-65-0	Lubricate rotating equipment	Health: low toxicity	21,000 gallons in equipment, 440 gallons in storage	NA
Mineral Insulation Oil	8042-47-5		Health: low toxicity	65,000 gallons	NA
NALCO Tri-Act 1800 Cyclohexlyamine (5 – 10%) Monoehtonolamine (10 – 30%) Methoxyproplyamnie (10 – 30%)	108-91-8 141-43-5 5332-73-0	Water Treatment Chemical	Health: high toxicity Physical: corrosive, Class II combustible liquid	Plastic Totes, 2 x 400 gallons	NA
NALCO Elimin-Ox Carbohydazide (5 – 10%)	497-18-7	Water Treatment	Health: moderate toxicity Physical: sensitizer	Plastic Totes, 2 x 400 gallons	NA
NALCO Permacare ® PC-7408 Sodium Bisulfite	7631-90-5	Water Treatment Chemical	Health: low toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	5,000 pounds
Natural Gas (methane)	74-82-8	Fuel for the CTGs	Health: low toxicity Physical: flammable gas	400 pounds in equipment and piping	NA
Oxygen	7782-44-7	Welding gas	Health: low toxicity Physical: oxidizer	800 cubic feet	NA
Sodium Hydroxide (50%)	1310-73-2	pH control	Health: high toxicity Physical: corrosive	7,500 gallons	1,000 pounds
Sodium Hypochlorite (12.5%)	7681-52-9	biocide	Health: high toxicity Physical: poison-b, corrosive	2,500 gallons	100 pounds
Caustic Soda (50% wt)		Water Treatment		220 gallons	

Inhibitor (Hypersperse or equivalent)		Water Treatment		220 gallons	
PermaClean PC77		Water Treatment		220 gallons	
PermaClean PC98		Water Treatment		220 gallons	
PermaClean PC11		Water Treatment		220 gallons	
Perma Treat PC-191T		Water Treatment		220 gallons	
Hydrochloric Acid (33%)		Water Treatment		220 gallons	

Conditions of Certification **HAZ-2, HAZ-7, and HAZ-9** should be modified as follows to remove the requirements pertaining to the handling and storing of Therminol, which has been eliminated.

HAZ-2 The project owner shall provide a Business Plan, ~~a Spill Prevention, Control, and Countermeasure Plan (SPCC), a Process Safety Management Plan (PSMP~~) and a Risk Management Plan (RMP) to the Health Hazardous Materials Division of the Los Angeles County Fire Department and the CPM for review. After receiving comments from the Health Hazardous Materials Division of the Los Angeles County Fire Department and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final plans shall then be provided to the Health Hazardous Materials Division of the Los Angeles County Fire Department for information and to the CPM for approval.

Verification: At least 30 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Business Plan to the CPM for approval.

At least 30 days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the CUPA for information and to the CPM for approval.

~~At least 30 days prior to delivery of Therminol to the site, the project owner shall provide the final PSM Plan and SPCC Plan to the CUPA for information and to the CPM for approval.~~

~~**HAZ-7** The project owner shall place an adequate number of isolation valves in the Heat transfer Fluid (HTF) pipe loops so as to be able to isolate a solar panel loop in the event of a leak of fluid such that the volume of a total loss of HTF from that isolated loop will not exceed 1,250 gallons. These valves shall be capable of being actuated manually and remotely. The engineering design drawings showing the number, location, and type of isolation valves shall be provided to the CPM for review and approval prior to the commencement of the solar array construction.~~

~~**Verification**: At least 60 days prior to the commencement of solar array construction, the project owner shall provide the design drawings as described above to the CPM for review and approval.~~

HAZ-9 The project owner shall prepare a site-specific Security Plan for the operational phase and shall submit it to the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described as below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least eight feet high around the Power Block ~~and Solar Field~~ and meet the requirements specified in Condition of Certification **BIO-11**;

2. Main entrance security gate, either hand operable or motorized;

3. Evacuation procedures;

4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;

5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;

6. a. A statement (refer to sample, attachment "A") signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;

   b. A statement(s) (refer to sample, attachment "B") signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner) that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractor personnel that visit the project site.

7. Site access controls for employees, contractors, vendors, and visitors;

8. A statement(s) (refer to sample, attachment "C") signed by the owners or authorized representative of ~~Therminol, hydrogen~~, 93 percent sulfuric acid, and aqueous ammonia transport vendors certifying that they have prepared and implemented security plans in conformity with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

9. Closed Circuit TV (CCTV) monitoring system able to pan, tilt, and zoom (PTZ), recordable, and viewable in the power plant control room and security station (if

separate from the control room) providing a view of the main entrance gate, the entrance to the control room, and the ammonia storage tank but angled and physically restricted so as to not view or record any activity at Air Force Plant 42; and

10. Additional measures to ensure adequate perimeter security consisting of either:

    1. a. Security guard(s) present 24 hours per day, seven days per week, or

    2. b. Power plant personnel on-site 24 hours per day, seven days per week and:

        ~~1)~~ The ~~northern and western sections of the~~ perimeter fence ~~around the solar array~~ shall be viewable by the CCTV system;

        ~~2) have perimeter breach detectors or on-site motion detectors for all fence lines. The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power plant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with appropriate law enforcement agencies and the applicant.~~

Verification: At least 30 days prior to the initial receipt of hazardous materials on-site, the project owner shall notify the CPM that a site-specific Operations Site Security Plan is available for review and approval. In the Annual Compliance Report, the project owner shall include a

statement that all current project employee and appropriate contractor background investigations have been performed, and updated certification statements are appended to the Operations Security Plan. In the Annual Compliance Report, the project owner shall include a statement that the Operations Security Plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

4.4 WASTE MANAGEMENT

This section describes the changes proposed by the Modified Project that may affect the analysis, conclusions or Conditions of Certification of the Final Decision for the Approved Project.

4.4.1 Project Changes Related to Waste Management

The changes proposed by the Modified Project relevant to waste management are the elimination of the wastes associated with the solar field's use of Therminol, the elimination of the cooling tower and its associated sludge, and the reduction in the length of the sanitary sewer pipeline.

4.4.2 Changes in Environmental Impacts

4.4.2.1 Construction

The types and quantities of wastes generated and the management methods for such wastes during construction of the Modified Project would be consistent with the wastes and management methods contemplated for the Approved Project. For both the Approved Project and the Modified Project, solid waste, non-recyclable waste, and hazardous and non-hazardous waste would be treated in a similar manner. Therefore, the Modified Project's waste management impacts would be less than or equal to impacts under the Approved Project and would be less than significant.

4.4.2.2 Operations

The types of wastes generated and the management methods for such wastes during operation of the Modified Project would be consistent with the wastes and management methods contemplated for the Approved Project, with the exception that waste associated with the use of Therminol and cooling tower sludge will be eliminated. Therefore, the Modified Project's waste management impacts from operation are anticipated to be less than or equal to the impacts under the Approved Project and would continue to be less than significant.

4.4.3 Changes in LORS Conformance and Other Permits

In the Final Decision the Commission concluded that, with the implementation of the Condition of Certification, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified. The Modified Project

would no longer be required to comply with LORS which address the delivery, storage, handling and disposal of Therminol-related wastes.

4.4.4 Changes in Conditions of Certification

Condition of Certification **WASTE-11** should be deleted because it is only applicable to the use of Therminol, which has been eliminated. Condition of Certification **WASTE-12** should also be deleted because it is only applicable to cooling tower sludge which has been eliminated with removal of the cooling tower and replacement with an Air Cooled Condenser.

Section 5 ENVIRONMENTAL ANALYSIS

The following sections provide a description of the modifications proposed to the PHPP as they may affect the assumptions, rationale, and Conditions of Certification in the Final Decision. In general, all of the impacts related to ground disturbing activities are reduced because the overall footprint of the Modified Project encompasses less acreage than the Approved Project.

The overall footprint of the facility is entirely within the boundaries of the Approved Project except for extending one of the Approved generation tie-line routes approximately 1,800 feet along East Avenue M.

The Modification will reduce the amount of water consumed during operations to approximately 7% of the amount of the Approved Project.

The following sections evaluate these and other reduction in impacts.

5.1 BIOLOGICAL RESOURCES

The following paragraphs describe the characteristics of the Modified Project that could affect biological resources in a different manner than the Approved Project.

5.1.1 Project Changes Related to Biological Resources

The primary modification related to biological resources includes the elimination of the solar field and reduction of the on-site project footprint from 333 acres (and 50-acre temporary construction laydown and parking area) to 50 acres (and a 20-acre temporary construction laydown and parking area). Additionally, all of the solar components have been eliminated.

5.1.2 Changes in Environmental Impacts

5.1.2.1 Construction

The Final Decision classified the Approved Project site and linears by habitat type and fully evaluated all impacts of construction to biological resources. The primary change to that analysis involves reduction of impacted acreages.

The Final Decision concluded at Finding 2, page 7.1-33:

> 2. The project has the potential to result in significant impacts on the desert tortoise, Mohave ground squirrel, burrowing owl, arroyo toad, Swainson's hawk, Joshua tree woodland, and other common and special-status animal and plant species.

The Final Decision found that with the implementation of the Conditions of Certification biological resources impacts would be mitigated to less than significant levels and would comply with applicable LORS.[7] The Final Decision, at page 7.1-33, outlined the following habitat mitigation strategy to determine habitat compensation requirements and security amounts:

> 3. The habitat mitigation strategy of 2:1 ratio for the power plant site and 3:1 ratio for the linear facilities, requiring the acquisition and maintenance of at least 665 acres, is adequate to compensate for the permanent loss of habitat for Swainson's hawk, desert tortoise, and Mohave ground squirrel caused by construction and operation of the project.

[7] Final Decision, 7.1-34.

The 665 acres of habitat compensation for Mohave Ground Squirrel (MGS) was based on a site acreage with suitable habitat of 299.7 acres. This was multiplied by the 2 to represent the 2:1 habitat compensation ratio for a total of 599.4 acres required habitat compensation for the plant site

The transmission facilities were estimated to disturb 21.84 acres. This was multiplied by 3 to represent the 3:1 habitat compensation for linear facilities for a total of 65.5 acres for the transmission line.

Table 5.1-1 provides the disturbance acreages calculations for the Modified Project.

Table 5.1-1
On-Site Disturbance Acreage Calculations

Site	50.8 acres
Access Road and Utility	3.2 acres
Emergency Access Road	0.97 acres
Less 45 foot set- back (50-5 for fence)	-5.47 acres
Total acres	49.5

For calculating on-site habitat compensation requirements we have rounded the total disturbance of 49.5 acres up to 50 acres.

The temporary construction laydown and parking area for the Modified Project would be restored and therefore is not included in the habitat compensation requirements for the Modified Project.

The 1,800 foot extension of the transmission line along Avenue M would involve three additional transmission poles for a total disturbance of approximately 0.25 acres. Therefore the total permanent disturbance for the Modified Project would be 72.09 acres.

Using the same ratios outlined in the Final Decision for MGS would require 100 acres MGS habitat compensation for the site and 66.25 acres for the linear facilities (3 times 0.25 acres equals 0.75 acres added to the 65.5 acres).

Therefore, the total MGS habitat compensation mitigation for the Modified Project would be reduced from 665 acres to 166.25 acres (100 plus 66.25).

The Final Decision used a 2:1 ratio for Swainson Hawk calculations. Therefore, the total Swainson Hawk habitat compensation mitigation for the Modified Project would be reduced from 610 acres to 144.2 acres (72.1 acres times 2).

The Final Decision contained Tables 4a and 4b to calculate security requirements for the habitat mitigation. The tables are modified below with the new security amounts based on the revised disturbance and mitigation amounts. In addition a column has been added to the tables so that Staff can review the calculation methods used.

Biological Resources Table 4a
Swainson's Hawk Compensation Cost Estimate[1]

	Task	Cost per Acre	Cost
1.	Land Acquisition ~~305~~ **721** acres at 2:1 ratio=**144.2**~~610~~ acres	$10,000 per acre[2]	**$1,442,000**
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]	**$9,000**
3.	Appraisal	$5000 per parcel	**$15,000**
4.	Initial site work - clean-up, enhancement, restoration	$250 per acre[4]	**$36,050**
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	**$15,000**
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel	**$15,000**
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)	**$144,200**
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels.	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)	**$253,071**
	SUBTOTAL *- Acquisition & Initial Site Work*	***~~$8,116,050.00~~***	***$1,929,321***
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	**$209,090**
	SUBTOTAL *- Acquisition, Initial Site Work, & LTMM*	***~~$9,000,550.00~~***	***$2,138,411***
	NFWF Fees		
10.	Establish the project specific account	n/a (presumes establishment of Mohave ground squirrel account for project)	
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	**$64,153**
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	**$2,091**

13.	Call for and Process Pre-Proposal Modified RFP	n/a (presumes establishment of Mohave ground	
	***TOTAL** for deposit in REAT-NFWF Project Specific Account*	~~***$9,252,876.50***~~	***$2,204,655***

1. Estimates prepared in consultation with CDFG. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by CDFG for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project- specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note:
3. regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
4. For the purposes of determining costs, an average parcel is 60 acres (based on input from DFG).
5. Based on information from CDFG.
6. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition. (Ex. 300, p. 4.2-55.)

Biological Resources Table 4b

Mohave Ground Squirrel Compensation Cost Estimate[1]

	Task	**Cost per acre**	**Cost**
1.	Land Acquisition (total of ~~665~~ **166.25** acres) 2:1 ratio on power plant site 3:1 on transmission line	$10,000 per acre[2]	**$1,662,500**
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]	**$9,000**
3.	Appraisal	$5000 per parcel	**$15,000**
4.	Initial site work - clean-up, enhancement, restoration	$250 per acre[4]	**$41,563**
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	**$15,000**
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel	**$15,000**
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)	**$166,250**

8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)	**$291,769**
	SUBTOTAL *- Acquisition & Initial Site Work*	***$8,847,825.00***	***$2,216,172***
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	**$240,990**
	SUBTOTAL *- Acquisition, Initial Site Work, & LTMM*	***$9,812,075.00***	***$2,457,162***
	NFWF Fees		
10.	Establish the project specific account	$12,000	$**12,000**
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	**$73,715**
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	**$2,410**
13.	Call for and Process Pre-Proposal Modified RFP	$30,000	**$30,000**
	TOTAL *for deposit in REAT-NFWF*	***$10,141,152***	***$2,575,287***

1. Estimates prepared in consultation with CDFG. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by CDFG for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from CDFG).
4. Based on information from CDFG.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition. (Ex. 300, p. 4.2-63)

5.1.2.2 Operations

The primary change in operational impacts for the Modified Project is the avoidance of potential bird collisions with the solar mirrors and associated components, which have been eliminated.

5.1.3 Changes in LORS Conformance and Other Permits

In the Final Decision the Commission concluded that, with the implementation of the Condition of Certification, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified.

5.1.4 Changes in Conditions of Certification

The recommended modifications to the Conditions of Certification reflect elimination of the solar thermal components and the reduction in impact acreages.

Condition of Certification **BIO-14** requires payment of a fee to REAT Regional Raven Management Program. The amount of the fee is based solely on the permanently disturbed acreages. The modification reduces the total disturbance acreage on-site of 333 acres to 50 acres. Therefore the total fee included in Item 2. of the condition should be reduced by 283 acres as follows.

> 2. Contribute to the REAT Regional Raven Management Program. The project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the REAT Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre (~~458.5~~ **72.25** acres) of permanent disturbance fee ~~$48,142.50~~.**7,586.25**

Condition of Certification BIO-17 should be revised to reflect the security amounts and habitat compensation acreages shown in Table 4a.

Condition of Certification BIO-20 should be revised to reflect the security amounts and habitat compensation acreages shown in Table 4b.

Condition of Certification BIO-24 requires monitoring of birds in order to mitigate impacts associated with collisions with solar components. With the elimination of the solar components this condition should be deleted.

Condition of Certification BIO-25 requires a closure plan and was included in the Final Decision consistent with other solar applications before the Commission. With the elimination of the mass grading for the solar component of the Approved Project, the existing compliance and closure requirements implemented by the Commission for similar types of natural gas projects is sufficient to ensure impacts to biological

resources are mitigated from closure and decommissioning of the Modified Project. Therefore Condition of Certification **BIO-25** should be deleted.

5.2 SOIL AND WATER RESOURCES

The following paragraphs describe the characteristics of the Modified Project that could affect soil and water resources in a different manner than the Approved Project.

5.2.1 Project Changes Related to Water Resources

5.2.2 Changes in Environmental Impacts

The Final Decision concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS, and would not result in any unmitigated and significant direct, indirect or cumulative adverse impacts related to soils and water resources.

The Final Decision addressed three areas within the context of water resources. Those areas are: 1) potential storm water impacts related to flooding/drainage, erosion and sedimentation; 2) water supply and use, including groundwater; and 3) groundwater quality. As described below, in all cases the Modified Project results in less potential impacts than the Approved Project.

5.2.3 Storm Water: Flooding, Erosion and Sedimentation

The Modified Project results in less potential impact than the Approved Project as the project site plus temporary laydown area has been reduced from 377 acres to 70 acres.

5.2.4 Water Supply and Use

Because of the use of an air cooled condenser instead of a cooling tower for process cooling, the makeup water requirement for the Modified Project has been reduced by more than 90% and the Modified Project results in less potential impacts than the Approved Project.

5.2.5 Wastewater

5.2.5.1 Sanitary Wastewater

The sanitary wastewater impacts of the Modified Project are the same as the impacts of the Approved Project.

5.2.5.2 Construction Wastewater

Wastewater generated during construction would consist of similar types and quantities as in the Approved Project.

5.2.5.3 Process Wastewater

The Modified Project will have a small process wastewater stream that is directed to the municipal water treatment system. The Approved Project had a zero liquid discharge system that while it did not have a process wastewater stream did require solids from its wastewater stream to be removed from the project site.

5.2.6 Soil Resources

With respect to soil resources the primary modification is the reduction in grading of 283 acres reflecting the reduction in the on-site project footprint from 333 acres to 50 acres. Therefore, the only change in environmental impact to soil resources is a reduction in the potential soil loss due to grading activities, and therefore the Modified Project's soil loss calculations will be substantially less than those anticipated for the Approved Project.

5.2.7 Compliance with LORS

In the Commission Final Decision, the Commission concluded that, with the implementation of the Conditions, the Approved Project would comply with all applicable LORS. The same conclusion can be made for the Modified Project as there are neither changed circumstances nor new LORS applicable to the Modified Project since the Final Decision.

5.2.8 Conditions of Certification

Condition of Certification **SOIL&WATER-7** should be deleted to reflect that the Modified Project eliminates the Zero Liquid Discharge system.

5.3 CULTURAL RESOURCES

This section describes and compares the potential impacts to cultural resources between the Modified Project and the Approved Project. As demonstrated below, the Modified Project's potential environmental impacts are less than those identified in the Commission Final Decision for the Approved Project.

5.3.1 Summary of Project Changes Related to Cultural Resources

The only modification proposed in the Modified Project related to cultural resources is the reduction in the project footprint from 333 acres to 50 acres (and a 20-acre temporary construction laydown and parking area).

5.3.2 Changes in Environmental Impacts

The reduction in project footprint will reduce the amount of grading on site by 263 acres. The only additional area of minor disturbance is the installation of three transmission poles along the south side of East Avenue M to accommodate an approximately 1,800 foot extension of one of the Approved generation tie-line routes. This modification is necessary to accommodate the change in the project switchyard. However these poles will be installed in the existing right of way of East Avenue M.

5.3.3 Changes in LORS

There are no new LORS that would affect the Commission's findings that the Approved Project would comply with cultural-resource related LORS.

5.3.4 Changes in Conditions of Certification

No modifications to the Approved Conditions of Certification are warranted for the Modified Project.

5.4 GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This section describes the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Final Decision for the Approved Project as it relates to geological and paleontological resources.

5.4.1 Summary of Project Changes

The only modification proposed in this Petition that is relevant to geological and paleontological resources is the reduction in project footprint of the Modified Project.

5.4.2 Changes in Environmental Impacts

The reduction in project footprint and elimination of the solar field reduces mass grading substantially. Therefore, the potential to discover paleontological resources for the Modified Project is substantially less than the Approved Project.

5.4.3 Compliance With LORS

There are no differences in the LORS analysis between the Modified Project and the Approved Project. LORS relating to the design of the Modified Project as contained in the Final Decision would ensure the Modified Project is designed to minimize impacts to and from geologic hazards.

Similarly, there are no specific LORS designed to protect paleontological resources that would be applicable to the Modified Project in a manner different than would be applicable to the Approved Project.

5.4.4 Changes in Conditions of Certification

No changes to Conditions of Certification in the areas of Geological or Paleontological Resources are necessary for the Modified Project.

Section 6 LOCAL IMPACT ANALYSIS

The following sections provide a description of the modifications proposed to the Approved Project as they may affect the assumptions, rationale, and Conditions of Certification in the Final Decision for the technical areas of Land Use, Socioeconomics, and Noise.

6.1 LAND USE

As described in below impacts of the Modified Project to land use are expected to remain the same as those of the Approved Project.

6.1.1 Summary of Project Changes Related to Land Use

The only change relevant to land use is the parcel split that was performed by the City of Palmdale to create a new parcel encompassing 50 acres for the Modified Project. Figure 2-2 provides the parcel map and Appendix 6-A provides formal documentation that the City of Palmdale has officially approved the parcel split. There are no other modifications that would require further analysis in Land Use for the Modified Project.

6.2 SOCIECONOMICS

As described below, the impacts of the Modified Project to socioeconomics are expected to remain the same as those of the Approved Project.

6.2.1 Summary of Project Changes Related to Socioeconomics

The only changes proposed by the Modified Project that are relevant to socioeconomics are (a) a reduction in operations workforce, from 36 to 23 employees, and (b) a reduction in the number of workers during construction, from an average of approximately 367 daily construction workers with a peak workforce of 767 workers for the Approved Project to an average of approximately 339 daily construction workers with a peak workforce of 706 workers for the Modified Project.

6.2.2 Changes in Environmental Impacts

The only change in socioeconomic analysis results from a reduction in operations and construction workforce. The anticipated construction schedule is reduced (27 months for the Approved Project and 25 months for the Modified Project).

While the Modified Project reduces the estimated number of operation and construction personnel the project will still produce a beneficial economic impact to the community by creating a significant number of new jobs for skilled and unskilled workers.

New census data is currently being compiled and an analysis of whether there are new or different environmental justice communities requiring new analysis will be submitted under separate cover in May 2015.

A summary of the Modified Project's total economic impacts from construction and operation is presented in Table 6.2-1. The economic benefits associated with anticipated construction payrolls, local purchases of materials and supplies and sales tax revenues generated by expenditures will be equal to or greater than the Approved Project. Therefore, the Modified Project will still have a beneficial effect on the local and regional economy.

Socioeconomics Table 6.2-1
Economic Impacts

Fiscal Benefits	
Estimated annual property taxes	$5-6 million
State and local sales taxes: Construction	$34 million
State and local sales taxes: Operation	$88,000 would be generated annually or approximately $2.6 million for the nominal 30-year operating life of the project.
School Impact Fee	Exempt
Non-Fiscal Benefits	
Total capital costs	$723 million
Construction payroll	$132 million
Annual Operations and Maintenance	
Construction materials and supplies annual during construction	$21 million
Operations and maintenance supplies annual during operation.	$1.1 million
Direct, Indirect, and Induced Benefits	
Estimated Direct	
Construction	339 jobs (average per month for 25 months)
Operation	23 full-time positions
Estimated Indirect	
Construction Jobs	864
Construction Income	$131,000,000
Operation Jobs	41 workers
Operation Income	N/A
Estimated Induced	
Construction Jobs	939
Construction Income	$123,000,000
Operation Jobs	39 workers
Operation Income	N/A

6.2.3 Changes in LORS Conformance and Other Permits

There are no changes to LORS that would be applicable to the Modified Project. Therefore, the analysis contained in the Final Decision should remain unchanged for the Modified Project.

6.2.4 Changes in Conditions of Certification

There were no Conditions of Certification in the area of Socioeconomics. Consequently, no changes or additions to the Conditions of Certification are necessary for the Modified Project.

6.3 TRAFFIC AND TRANSPORTATION

As described below, the impacts of the Modified Project to Traffic and Transportation are expected to remain the same or less than those of the Approved Project.

6.3.1 Summary of Project Changes Related to Traffic and Transportation

The changes to Traffic and Transportation result from the Modified Project's reduction in the operations workforce, from 36 to 23 employees, and the reduction in the number of workers during construction. The Approved Project has an average of approximately 367 daily construction workers with a peak workforce of 767 workers. The Modified Project has a reduced construction workforce of an average of approximately 339 daily construction workers with a peak workforce of 706 workers. In addition, the Modified Project will not construct the solar components. All other assumptions concerning truck traffic and deliveries for the Approved Project are valid for evaluating the Modified Project.

6.3.2 Changes in Environmental Impacts

6.3.2.1 Construction

The traffic and transportation-related impacts from construction workers commuting to and from the site and identified in the Final Decision for the Approved Project were ultimately mitigated by the incorporation of Condition of Certification **TRANS-1**. At Page 8.2-7 of the Final Decision the Commission concluded:

> Condition of Certification **TRANS-1** will reduce the project's impacts on local roads to a less than significant level by: requiring construction workers to avoid using SR-14 on and off ramps to East Avenue M and the intersection of Sierra Highway and East Avenue M during peak traffic periods; limiting heavy equipment and building materials to off peak periods (9:30 a.m. to 3:30 p.m.); and developing traffic diversion plans to ensure access during temporary lane/road closures. (Ex. 300, p. 4.10-12.)

Therefore, in order to assess whether such mitigation would continue to be effective, a comparison was made of the existing traffic counts for the same roadways used for evaluation of the Approved Project and new traffic counts for the same roadways recently provided by the City of Palmdale. Figure 6.3-1 shows updated 24-hour Bi Directional Lane Volume Counts for roadways within the vicinity of the Modified Project.

The Final Decision included the following table at Page 8.2-6:

Traffic and Transportation Table 1
Project Construction and 2011 Roadway Segment Characteristics

Roadway Segment	Roadway Classification/ Lanes	Projected Construction Traffic	Existing ADT	Capacity	2011 Estimated ADT	Capacity
SR-14 South of Ave M	Arterial/6	536	99,000	132,000	126,675	132,000
Ave M Sierra Hwy To 10th St W	Arterial/4	1534	21,800	36,000	26,500	36,000
Ave M 10th St to 20th St	Arterial/4	1534	14,010	36,000	17,950	36,000

ADT = Average daily traffic Source: Ex. 300, p. 4.10-11.

Relying on this table, the Commission at Page 8.2-5 concluded:

> **Traffic and Transportation Table 1** shows background traffic volumes for SR- 4 and projects 536 construction related traffic trips on SR-14 south of Avenue M. Peak construction is likely to occur during 2011 or later. **Traffic and Transportation Table 1** shows that construction related traffic would not cause traffic volumes to exceed the design capacity of SR-14 or Avenue M. As noted earlier, Avenue M (accessed by SR-14 or Sierra Highway) would be the most direct route to the PHPP site. The evidence forecasts that Avenue M would incur 1,534 peak construction related trips. This represents about a 4 percent increase to the overall traffic volume capacity for this road (36,000 per day). Some construction workforce traffic could use other routes, such as Sierra Highway, because the worker trip might originate in Palmdale or Lancaster. Sierra Highway currently operates at 83 percent of capacity (25,000 ADT). (Ex. 300, p. 4.10-10.)

According to the current traffic counts provided by the City of Palmdale (Figure 6.3-1 and Appendix 6-B) the Average Daily Traffic (ADT) for East Avenue M from Sierra Highway to 10th Street the ADT is currently 19,618. This traffic volume is below the Existing ADT (21,800) and the 2011 predicted ADT(26,500) for the same segment that was the basis for evaluating impacts for the Approved Project. Since the Modified Project actually will reduce construction traffic volumes slightly due to lower average and peak workers from the Approved Project and the baseline traffic conditions have not increased since the time of the Final Decision, the Modified Project will not result in greater impacts to this segment of East Avenue M.

With respect to SR-14, Condition of Certification **TRANS-1** already restricts its use in the vicinity of the project site during peak times during construction. This restriction will continue to reduce the impacts on SR-14 from the Modified Project to an acceptable level.

Truck traffic during construction is estimated to be less for the Modified Project than for the Approved Project because of the elimination of all deliveries associated with construction the solar components.

6.3.2.2 Operation

6.3.2.2.1 Glint and Glare

The primary impacts identified from operation of the Approved Project were to air traffic at the nearby airport. All of the glint and glare-related impacts from the solar components are eliminated by the Modified Project.

6.3.2.2.2 Air Traffic Obstructions

Palmdale Energy, is refiling for FAA Determinations of No Hazard from its stacks, Air Cooled Condenser and construction cranes. Copies of Form 7460 will be submitted under separate cover in May 2015.

6.3.2.2.3 Thermal Plumes

Palmdale Energy commissioned a Thermal Plume Modeling Analysis to be conducted to evaluate the potential for thermal plumes from the Modified Project stacks to impact air traffic. A report containing the modeling techniques and results will be submitted under separate cover in May 2015, but the preliminary results are that the thermal plume with a velocity of 4.3 m/s could potentially rise to levels ranging from 694 to 1,276 feet above ground level. The preliminary results in a slight increase in plume height. However, the worst case predicted plume height is well below the 1,500 feet level provided in Condition of Certification **TRANS-4** which would mitigate the potential impact by warning and notifying pilots through a Notice to Airmen (NOTAM) to avoid overflying the Modified Project at heights below 1,500 feet.

6.3.3 Changes in LORS Conformance and Other Permits

There are no changes to LORS that would be applicable to the Modified Project. Therefore, the analysis contained in the Final Decision should remain unchanged for the Modified Project.

6.3.4 Changes in Conditions of Certification

Palmdale Energy proposes the following modifications be made to the Conditions of Certification to reflect the elimination of the solar components, elimination of the zero liquid discharge system, and replacement of the wet cooling tower with an ACC.

TRANS-2 The project owner shall obtain Determinations of No Hazard to Navigable Airspace from the FAA for U.S. Air Force Plant 42 regarding the project's transmission towers, **Air Cooled Condenser** ~~cooling tower, clarified water tank, crystallizer~~, and construction crane that would penetrate the Plant's airspace.

Verification: At least 90 days prior to the construction,, the project owner shall provide the CPM copies of the FAA Determinations of No Hazard to Navigable Airspace regarding the project structures identified above and the project owner must comply with specific recommendations contained in the FAA determinations.

TRANS-4 Pilot Notification and Awareness

The project owner shall initiate the following actions to ensure pilots are aware of the project location and potential hazards to aviation:

a) Submit a letter to the FAA requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the **PEP**~~PHPP~~ and recommending avoidance of overflight of the project site below 1,500 feet AGL. The letter shall also request that the NOTAM be maintained in active status until all navigational charts and Airport Facility Directories (AFDs) have been updated.

b) Submit a letter to the FAA requesting a power plant depiction symbol be placed at the **PEP** ~~PHPP~~ site location on the Los Angeles Sectional Chart with a notice to "avoid overflight below 1,500 feet AGL".

c) Submit a request to and coordinate with the USAF Plant Commander to add a new remark to the Automated Surface Observing System (ASOS) identifying the location of the **PEP** ~~PHPP~~ and advising pilots to avoid direct overflight below 1,500 feet AGL as they approach or depart the airport.

d) Request that TRACON (SOCAL) and/or the Los Angeles Air Traffic Control Center submit aerodrome remarks describing the location of the **PEP** ~~PHPP~~ plant and advising against direct overflight below 1,500 feet AGL to:

1) FAA AeroNav Services, formerly the FAA National Aeronautical Charting Office (Airport/Facility Directory)
2) Jeppesen Sanderson Inc. (JeppGuide Airport Directory, Western Region)
3) Airguide Publications (Flight Guide, Western States)

e) Install one, non-blinking red aviation obstruction light on each of the project's two, 145-foot tall HRSG stacks, both ends of the 135~~48~~-foot tall ~~cooling tower~~ **Air Cooled Condenser**~~,~~ and at each corner of the power block area.

Verification: Within 30 days following the start of construction, the project owner shall submit draft language for the letters of request to the FAA (including SOCAL TRACON) and Air Force Plant 42 to the CPM for review and approval.

At least 60 days prior to the start of operations, the project owner shall submit the required letters of request to the FAA and request that TRACON (SOCAL) submit aerodrome remarks to the listed agencies. The project owner shall submit copies of these requests to the CPM. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt.

If the project owner does not receive a response from any of the above agencies within 45 days of the request (or by 15 days prior to the start of operations) the project owner shall follow up with a letter to the respective agency/ies to confirm implementation of the request. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt.

The project owner shall contact the CPM within 72 hours if notified that any or all of the requested notices cannot be implemented.[8] Should this occur, the project owner shall appeal such a determination, consistent with any established appeal process and in consultation with the CPM. A final decision from the jurisdictional agency denying the request, as a result of the appeal process, shall release the project owner from any additional action related to that request and shall be deemed compliance with that portion of this Condition of Certification.

Conditions of Certification **TRANS-8** and **TRANS-9** should be deleted to reflect elimination of the glint and glare causing solar components from the Modified Project.

[8] The Energy Commission does not have the authority to compel issuance of a NOTAM or require the FAA or Byron Airport to publish the location of or remarks regarding the project in any aviation chart or guide, or add that information to the Byron Airport ASOS.

6.4 NOISE AND VIBRATION

Palmdale Energy is currently performing a noise analysis which will be submitted under separate cover in June 2015.

6.5 VISUAL RESOURCES

This section describes the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Final Decision for the Approved Project as it relates noise and vibration.

6.5.1 Summary of Project Changes

The primary changes proposed by the Modified Project that affect visual resources include:

- the elimination of the solar thermal components; and
- the reconfiguration of the power block to accommodate the new equipment including the elimination of the large brine concentrator/crystallizer used in the zero liquid discharge system and the replacement of the wet cooled tower with an Air Cooled Condenser.

6.5.2 Changes in Environmental Impacts

6.5.2.1 Elimination of Solar Components

The removal of solar components eliminates all glint and glare impacts associated with the mirrors, including those impacts associated with the potential effects on nearby air traffic.

The Final Decision evaluated several KOPs and for most of them the primary feature creating a visual impact was the solar mirrors of the Approved Project which were approved to be constructed very near roadways. With the elimination of the mirrors, the Modified Project will appear more distant than the Approved Project for these KOPs.

6.5.2.2 Reconfiguration of the Power Block

The Modified Project will essentially flip the layout of the power block by 180 degrees in the same portion of the Approved site. However, with the new Siemen's equipment the zero liquid discharge system including its tall brine concentrator/crystallizer will be eliminated. In addition the wet cooling tower will be replaced with an ACC which has a slightly larger footprint. The wet cooling tower for the Approved Project was 300 feet long x 100 feet wide x 60 feet tall. The ACC will be 350 feet long x 190 feet wide x 135 feet tall and will present a more dominant visual appearance than the wet cooling tower.

However, the large visual plume from the cooling tower will be eliminated with the use of the ACC.

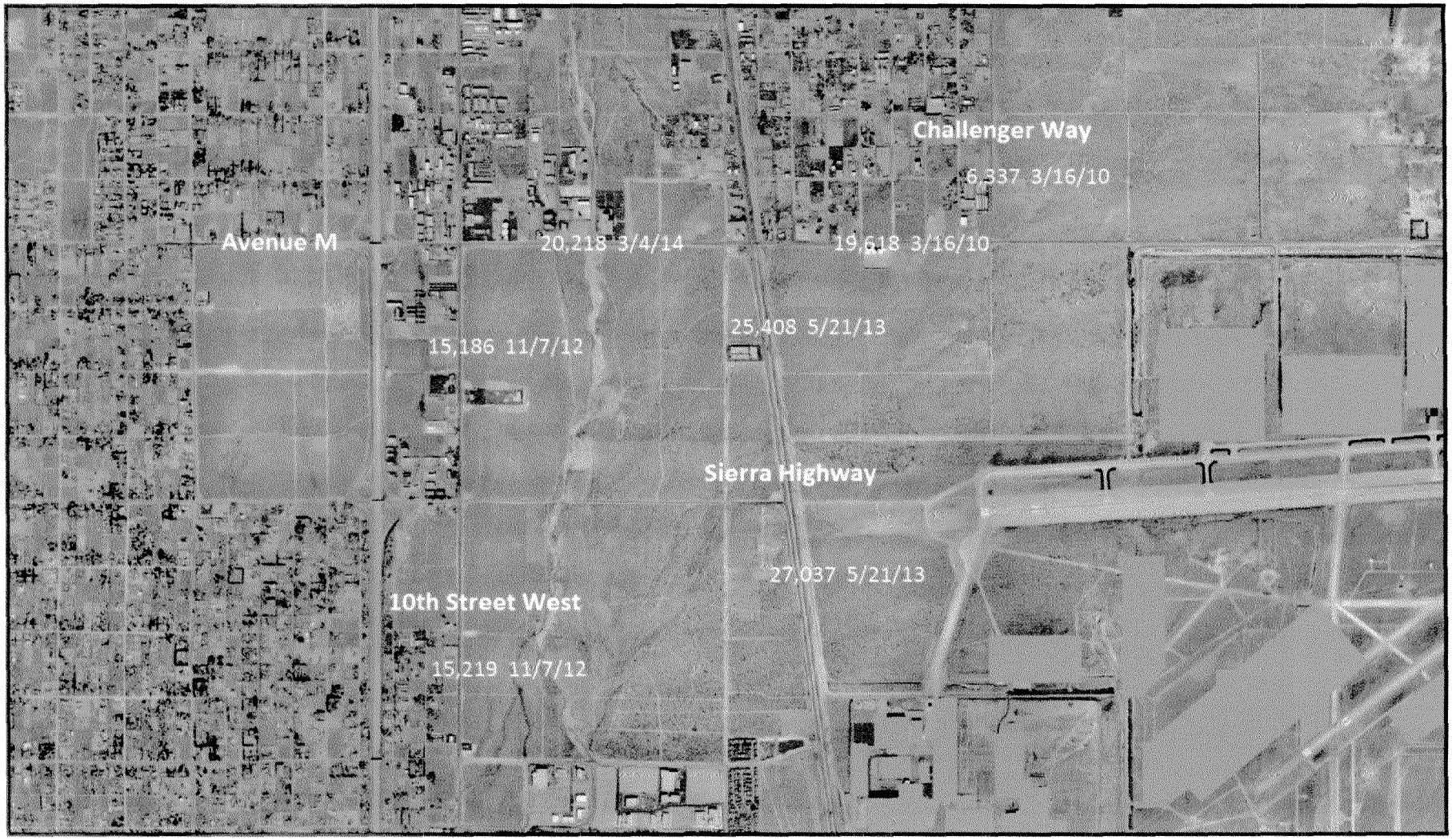
The only KOP analyzed in the Final Decision that is not dominated by the solar array and where the power block can be clearly viewed is KOP 4. To graphically represent the change in the view, Palmdale Energy has commissioned a revision to the visual simulation from KOP-4 to show the features of the Modified Project. While the ACC will be a larger structure, the view from KOP-4 with the Modified Project will be less intrusive than the view from KOP-4 with the Approved Project because that view is dominated by the large visual plume, which would be eliminated by the Modified Project. Therefore, the Modified Project does not create any additional visual impact than the Approved Project.

6.5.3 Compliance With LORS

There are no changes to LORS that would be applicable to the Modified Project. Therefore, the analysis contained in the Final Decision should remain unchanged for the Modified Project.

6.5.4 Changes in Conditions of Certification

With the elimination of the solar components and the associated construction activities that would have taken place along the roadways, we proposed deletion of Condition of Certification **VIS-1,** as it is no longer necessary to mitigate the impact of construction activities of the solar field.



PALMDALE
a place to call home

City of Palmdale
24 Hour Bi-Directional Lane Volume Counts

2436 ft 0 2436 ft

N W E S

Printed 04/22/2015

FIGURE 6.3-1
24-HOUR BI-DIRECTIONAL LANE VOLUME COUNTS

Section 7 POTENTIAL EFFECTS ON PROPERTY OWNERS

The Commission's Power Plant Siting Regulations require a Petition For Amendment to include 1) a discussion of how the modification affects the public; 2) a list of property owners potentially affected by the modification; and 3) a discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.

An updated property owner list was obtained from the City of Palmdale in April 2015 and reflects the latest ownership information. The list is very large and is provided electronically as Appendix 7-A of this Petition. Almost all of the property owners are located along the linear features which are not being modified by this Petition. Potential effects on property owners have therefore been addressed during the proceedings for the Approved Project. The previous sections of this Petition contain analyses of environmental impacts for the Modified Project.

Section 8 UPDATED CUMULATIVE SCENARIO

At a prefilling meeting with CEC Staff, Palmdale Energy was asked to provide an update of the cumulative projects in the region. Palmdale Energy has requested information from the surrounding local jurisdictions and will file a list of current projects contemplated within the City of Palmdale, the City of Lancaster and the North Antelope Valley region of Los Angeles County that could contribute to cumulative impacts of the Modified Project. The updated cumulative scenario will be filed in May 2015.

APPENDICES

APPENDIX 2-A

EQUIPMENT DIMENSIONS

Appendix 2-A
Equipment Dimensions

Equipment/System	Height (ft)	Length East-West (ft)	Depth North-South (ft)	Diameter (ft)
Raw and Fire Water Storage Tank	30	n/a	n/a	50
Demineralized Water Tank	30	n/a	n/a	78
Closed Cooling Water Fin-Fan Coolers	30	55	45	n/a
Fire Pump Module	16	14	33	n/a
Admin/Control Building Warehouse	25	140	48	n/a
Water Treatment Module	14	40	12	n/a
Sampling Container	15	10	18	n/a
Laboratory Container	15	36	12	n/a
STG Power Control Center	17	40	12	n/a
Cycle Chemical Feed Module	10	36	10	n/a
Ammonia Storage (Horizontal Tank)	20	n/a	50	9
HRSG Structure	96	150	48	n/a
HRSG Stack	140	n/a	n/a	22
Combustion Turbine Enclosures	31	45	36	n/a
Combustion Turbine Generator Enclosures	21	25	33	n/a
Combustion Turbine Inlet Air Filters	68	55	51	n/a
CT Lube Oil Skid and Coolers	36	27	11	n/a
GT Generator Step-Up Transformer	30	20	28	n/a
ST Generator Step-Up Transformer	34	28	40	n/a
Emergency Shutdown Generator	17	10	32	n/a
MV Switchgear Module	12	40	15	n/a
BOP Power Control Center	17	40	12	n/a
Air Cooled Condenser	135	350	180	n/a
Switchyard Module				n/a
Steam Turbine Generator	28	249	29	n/a
Steam Turbine Generator Enclosure HP-IP	32	45	28	n/a
LP Steam Turbine - with Crossover Pipe	44	22	20	n/a
Startup Frequency Converters	12	24	14	n/a
Generator Circuit Breakers	26			n/a
Auxiliary Boiler	20	38	50	n/a

APPENDIX 6-A

PARCEL SPLIT DOCUMENTATION

380/77

BOOK 380 PAGE 77

T.P.M. 070999

SHEET 1 OF 3 SHEETS

DEC 1 0 2014

PARCEL MAP NO. 070999

12/10/2014
20141338356

IN THE CITY OF PALMDALE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, BEING A MERGER AND RE-SUBDIVISION OF ALL OF PARCEL MAP NO. 24191, AS PER MAP RECORDED IN BOOK 283 PAGES 31-39 OF PARCEL MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY

TENTATIVE MAP EXPIRES 11-26-2016
ELIAS CHAIJ L.S. 8908

FILED
AT REQUEST OF
City of Palmdale
06 MIN PAST 11 AM
IN BOOK 380
AT PAGE 77-79
OF PARCEL MAPS
LOS ANGELES COUNTY, CA.
Registrar-Recorder/County Clerk
BY L. Galvan Deputy
D.A. FEE Code 20 $3.00
FEE $ 14.00

4 PARCELS

621.45 ACRES

OWNER'S STATEMENT

WE HEREBY STATE THAT WE ARE THE OWNERS OF OR ARE INTERESTED IN THE LANDS INCLUDED WITHIN THE SUBDIVISION SHOWN ON THIS MAP WITHIN THE DISTINCTIVE BORDER LINES, AND WE CONSENT TO THE PREPARATION AND FILING OF SAID MAP AND SUBDIVISION.

WE HEREBY DEDICATE TO THE PUBLIC USE ALL STREETS, HIGHWAYS, AND OTHER PUBLIC WAYS SHOWN ON SAID MAP.

WE HEREBY DEDICATE TO THE CITY OF PALMDALE THE EASEMENTS FOR PUBLIC UTILITY, PEDESTRIAN ACCESS PURPOSES SO DESIGNATED ON SAID MAP AND ALL USES INCIDENT THERETO, INCLUDING THE RIGHT TO MAINTAIN THE IMPROVEMENTS.

WE FURTHER STATE THAT, EXCEPT AS SHOWN ON THIS MAP, WE KNOW OF NO EASEMENT OR STRUCTURE EXISTING WITHIN THE EASEMENTS HEREIN OFFERED FOR DEDICATION TO THE PUBLIC, OTHER THAN PUBLICLY OWNED WATER LINES, SEWERS, OR STORM DRAINS, THAT WE WILL GRANT NO RIGHT OR INTEREST WITHIN THE BOUNDARIES OF SAID EASEMENTS OFFERED TO THE PUBLIC, EXCEPT WHERE SUCH RIGHT OR INTEREST IS EXPRESSLY MADE SUBJECT TO SAID EASEMENTS.

AS A DEDICATION TO PUBLIC USE, WHILE ALL OF AVENUE M (COLUMBIA WAY) WITHIN OR ADJACENT TO THIS SUBDIVISION REMAINS A PUBLIC STREET, WE HEREBY ABANDON ALL RIGHTS OF DIRECT INGRESS AND EGRESS FROM ABUTTING LOTS 1, 2 AND 4 TO THE SAID STREETS. IF ANY PORTION OF SAID STREETS WITHIN OR ADJACENT TO THIS SUBDIVISION IS VACATED, SUCH VACATION TERMINATES THE ABOVE DEDICATION AS TO THE PART VACATED.

CITY OF PALMDALE, (A MUNICIPAL CORPORATION ORGANIZED UNDER THE LAWS OF THE STATE OF CALIFORNIA)

09.08.2014 David Childs
DATE DAVID CHILDS, CITY MANAGER

NOTARY ACKNOWLEDGMENT

STATE OF CALIFORNIA }
COUNTY OF Los Angeles }

ON Sept. 8, 2014 BEFORE ME, Rebecca J. Smith, Notary Public

PERSONALLY APPEARED David Childs
WHO PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME IN HIS AUTHORIZED CAPACITY AND THAT BY HIS SIGNATURE ON THE INSTRUMENT THE PERSON OR THE ENTITY UPON BEHALF OF WHICH THE PERSON ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT

WITNESS MY HAND
SIGNATURE
PRINT NAME: Rebecca J. Smith

MY PRINCIPAL PLACE OF BUSINESS IS IN LOS ANGELES COUNTY
MY COMMISSION NUMBER: 2010419
MY COMMISSION EXPIRES: March 8, 2017

ENGINEER'S STATEMENT

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND IS BASED UPON A FIELD SURVEY IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF THE CITY OF PALMDALE, ON APRIL 23, 2013. I HEREBY STATE THAT THIS FINAL MAP SUBSTANTIALLY CONFORMS TO THE CONDITIONALLY APPROVED TENTATIVE MAP, THAT THE MONUMENTS OF THE CHARACTER AND LOCATIONS SHOWN HEREON ARE IN PLACE OR WILL BE IN PLACE WITHIN TWENTY-FOUR MONTHS FROM THE FILING DATE OF THIS MAP; THAT SAID MONUMENTS ARE SUFFICIENT TO ENABLE THE SURVEY TO BE RETRACED AND THAT TIE NOTES TO ALL CENTERLINE MONUMENTS SHOWN AS "TO BE SET" WILL BE ON FILE IN THE OFFICE OF THE CITY ENGINEER WITHIN TWENTY-FOUR MONTHS FROM THE FILING DATE SHOWN HEREON.

ELIAS CHAIJ LS 8908 — 8/19/14 DATE

PROFESSIONAL LAND SURVEYOR — ELIAS CHAIJ — L.S. 8908 — Exp: 9-30-14 — STATE OF CALIFORNIA

CITY SURVEYORS STATEMENT

I HEREBY STATE THAT I HAVE EXAMINED THIS MAP, THAT IT CONFORMS SUBSTANTIALLY TO THE TENTATIVE MAP AND ALL APPROVED ALTERATIONS THEREOF; THAT ALL PROVISIONS OF APPLICABLE SATE LAW AND SUBDIVISION ORDINANCE OF THE CITY OF PALMDALE APPLICABLE AT THE TIME OF THE APPROVAL OF THE TENTATIVE MAP HAVE BEEN COMPLIED WITH; AND THAT I AM SATISFIED THAT THIS MAP IS TECHNICALLY CORRECT.

8/26/14 DATE

MICHAEL J. MISCHEL, LS 7758
CITY SURVEYOR, CITY OF PALMDALE
REGISTRATION EXPIRES: 12/31/15

LICENSED LAND SURVEYOR — MICHAEL J. MISCHEL — Exp. 12-31-2015 — L 7758 — STATE OF CALIFORNIA

CITY CLERK'S STATEMENT

I, REBECCA J. SMITH, CITY CLERK OF THE CITY OF PALMDALE, DO HEREBY STATE THAT THIS MAP WAS PRESENTED FOR APPROVAL TO THE PALMDALE COUNCIL AT A REGULAR MEETING THEREOF, HELD ON FEBRUARY 5TH , 2014, AND THAT THEREUPON SAID COUNCIL DID, BY AND ORDER DULY PASSED AND ENTERED, APPROVE SAID MAP, AND ACCEPTED ON BEHALF OF THE PUBLIC, THE OFFER OF DEDICATION FOR STREETS, HIGHWAYS AND OTHER PUBLIC WAYS ALONG AVENUE M AS SHOWN ON THIS MAP, SAID COUNCIL DID ALSO ACCEPT THE OFFER OF DEDICATION OF DRAINAGE BASINS SO DEDICATED ON SAID MAP AND ALL USES INCIDENT THERETO.

SAID COUNCIL DID ALSO ACCEPT THE ABANDONMENT OF THE EASEMENTS FOR PUBLIC ROAD AND HIGHWAY PURPOSES FOR THE STREETS: GREEN TREE PARKWAY WEST, GREEN TREE PARKWAY EAST, WEDGE WAY, SWING PATH DRIVE, ACE WAY, SHOT MAKERS WAY AND CHALLENGER WAY, AS SHOWN ON PARCEL MAP No. 24191 RECORDED IN BOOK 283 PAGES 31 THRU 39 OF PARCEL MAPS OFFICIAL RECORDS LA COUNTY, AND A 20 FT WIDE EASEMENT RECORDED IN BOOK 7388, PAGE 75, OFFICIAL RECORDS OF LOS ANGELES COUNTY

9/8/2014 DATE

REBECCA J. SMITH
CITY CLERK - CITY OF PALMDALE

SPECIAL ASSESSMENTS STATEMENT

I HEREBY CERTIFY THAT ALL SPECIAL ASSESSMENTS LEVIED UNDER THE JURISDICTION OF THE CITY OF PALMDALE TO WHICH THE LAND INCLUDED IN THE WITHIN SUBDIVISION OR ANY PART THEREOF IS SUBJECT, AND WHICH MAY BE PAID IN FULL, HAVE BEEN PAID IN FULL.

9/8/2014 DATE

REBECCA J. SMITH
CITY CLERK - CITY OF PALMDALE

ABANDONMENT NOTE

PURSUANT TO SECTION 66499.20 1/2 OF THE SUBDIVISION MAP ACT, THE FILLING OF THIS MAP CONSTITUTES ABANDONMENT OF EASEMENTS FOR PUBLIC ROAD AND HIGHWAY PURPOSES AND PORTION OF THE STREET DEDICATION PER PARCEL MAP 24191 RECORDED IN THE COUNTY OF LOS ANGELES, BOOK 283, PAGES 31 & 39, AND A 20' WIDE EASEMENT FILED IN BOOK 7388 PAGE 74 OF RECORDS. THESE ABANDONMENT ARE NOT SHOWN ON THIS MAP.

AN EASEMENT TO THE CITY OF PALMDALE FOR FLOOD CONTROL AND INGRESS AND EGRESS PURPOSES AS DEDICATED ON PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. A PORTION OF SAID EASEMENT IS "TO BE ABANDONED" PER THIS MAP.

AN EASEMENT TO THE CITY OF PALMDALE FOR INGRESS AND EGRESS AND PUBLIC UTILITY PURPOSES, AND INCIDENTAL PURPOSES AS DEDICATED ON PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. "TO BE ABANDONED" PER THIS MAP.

EASEMENT FOR DRAINAGE PURPOSES IN FAVOR OF PARCELS 1 THROUGH 18 PER PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. (TO BE RESERVED IN DOCUMENTS PER SAID MAP). "TO BE ABANDONED" PER THIS MAP.

EASEMENT FOR FUTURE STREET PURPOSES PER PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. (WHEN THE FUTURE STREET WITHIN PARCEL 18 OF SAID MAP IS ACCEPTED AS A PUBLIC STREET, PARCEL 18 WILL INCLUDE PROPERTY ON BOTH SIDES OF SAID STREET WHICH MUST BE CONVEYED AS ONE UNIT AND CANNOT BE SEPARATED WITHOUT FURTHER ACTION OF THE ADVISORY COMMITTEE. "TO BE ABANDONED" PER THIS MAP.

THE EFFECT OF THE DISCLOSURE ON LICENSED SURVEYOR'S MAP FILED IN BOOK 66 PAGE 40 OF RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, OF CERTAIN STRIPS OVER A PORTION OF SAID LAND, DESIGNATED PRIVATE STREETS. A PORTION OF SAID EASEMENT IS "TO BE ABANDONED" PER THIS MAP.

BASIS OF BEARINGS NOTE

THE BEARINGS SHOWN ARE BASED UPON THE BEARING OF NORTH 89°46'16" EAST ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 6 NORTH, RANGE 12 WEST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON PARCEL MAP NO. 24191 FILED IN BOOK 283 PAGES 31 TO 39, OF PARCEL MAPS, RECORDS OF SAID COUNTY, AND SHOWN AS NORTH 89°46'07" EAST ON THIS SURVEY.

SOILS REPORT NOTE

IN ACCORDANCE WITH THE PROVISION OF SECTION 66434.5 OF THE SUBDIVISION MAP ACT, A SOILS REPORT WAS PREPARED BY PACIFIC SOILS ENGINEERS, INC. AND IS ON FILE IN THE OFFICE OF THE CITY ENGINEER.

SIGNATURE OMISSION NOTES

THE SIGNATURE OF UNITED STATES OF AMERICA, HOLDER OF RIGHT OF WAY FOR DITCHES OR CANALS, AND/OR MINERALS AS RESERVED IN PATENTS RECORDED IN BOOK 15 PAGE 60 AND IN BOOK 23 PAGE 292 BOTH OF PATENTS HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF THE COUNTY OF LOS ANGELES, A MUNICIPAL CORPORATION, EASEMENT HOLDER FOR ROAD PURPOSES RECORDED DECEMBER 2, 1964, AS INSTRUMENT NO. 4830, IN BOOK D2719 PAGE 163 OF OFFICIAL RECORDS; IN BOOK 6066, PAGE 144 OF DEEDS; IN BOOK 2641 PAGE 238 OF DEEDS; AND FEBRUARY 19, 1954 IN BOOK 43887 PAGE 375 OF OFFICIAL RECORDS, HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF SOUTHERN CALIFORNIA TELEPHONE COMPANY, A CORPORATION EASEMENT HOLDER FOR POLES AND CONDUITS, PURPOSES, ORIGINALLY RECORDED MAY 25, 1943, IN BOOK 20018 PAGE 254 OF OFFICIAL RECORDS AND RECORDED SEPTEMBER 28, 1943 AS INSTRUMENT NO. 12543-L OF TORRENS OF OFFICIAL RECORDS, HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF PACIFIC TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION EASEMENT HOLDER FOR POLES AND CONDUITS, PURPOSES, RECORDED MAY 8, 1952 AS INSTRUMENT NO. 2993, IN BOOK 38891 PAGE 191, OFFICIAL RECORDS, HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION EASEMENT HOLDER FOR UNDERGROUND CABLES, WIRES AND CONDUIT PURPOSES, RECORDED MAY 15, 1964 AS INSTRUMENT NO. 6017, OF OFFICIAL RECORDS, HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF ANTELOPE VALLEY EAST-KERN WATER AGENCY, EASEMENT HOLDER FOR INGRESS, EGRESS, PIPELINES AND OTHER INCIDENTAL PURPOSES, RECORDED MARCH 22, 1988 AS INSTRUMENTS NO. 88-386752, OF OFFICIAL RECORDS HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF THE CITY OF PALMDALE, EASEMENT HOLDER FOR PUBLIC ROADS AND HIGHWAYS PURPOSES, RECORDED MARCH 11, 1969 AS INSTRUMENTS NO. 2898, HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION EASEMENT HOLDER FOR POLES AND CONDUITS PURPOSES, RECORDED JULY 2, 1965, AS INSTRUMENT NO. 4431, BOOK D2964 PAGE 743, OF OFFICIAL RECORDS, HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF THE CITY OF PALMDALE, A MUNICIPAL CORPORATION, EASEMENT HOLDER PURSUANT TO THE DEDICATION FOR FLOOD CONTROL, INGRESS, EGRESS, AND OTHER INCIDENTAL PURPOSES, RECORDED, IN PARCEL MAP NO 24191, IN BOOK 283 PAGES 31 THROUGH 39 INCLUSIVE OF PARCEL MAPS HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (a)(3)(A)(i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

THE SIGNATURE OF CARL LARSEN AND INDA LARSEN, HUSBAND AND WIFE AS JOINT TENANTS AND GLEN J. BLAKE JR. AND KATHLEEN M. BAKER, OWNER OF OIL, HYDROCARBON, GAS AND MINERAL RIGHTS BY DOCUMENT RECORDED MARCH 3, 1957 AS INSTRUMENT NO. 1448 IN BOOK 53833 PAGE 249 OF OFFICIAL RECORDS HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436, SUBSECTION (a)(3)(C) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

SIGNATURE OMISSION NOTES (CONTINUED)

THE SIGNATURE OF MARY K. DAVIDSON EASEMENT HOLDER FOR PUBLIC ROADS PURPOSES, RECORDED IN BOOK 7388 PAGE 74 OF DEEDS, HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436, SUBSECTION (a)(3)(A) (i-viii) OF THE SUBDIVISION MAP ACT, THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE, AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY.

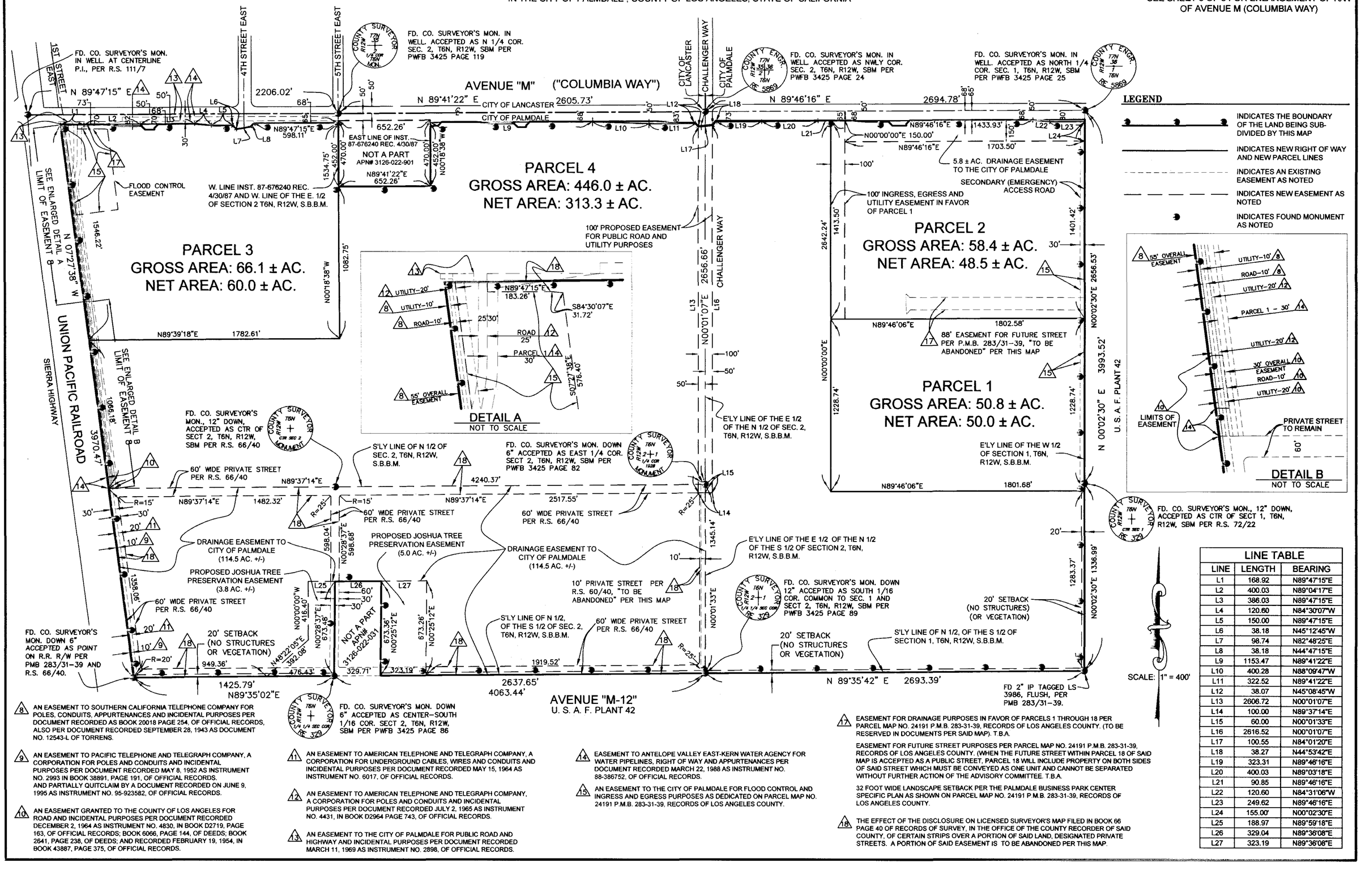
NUMBER OF PARCELS 4
ACREAGE 621.45 AC

PARCEL MAP NO.070999

IN THE CITY OF PALMDALE , COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

SHEET 2 OF 3 SHEETS

SEE SHEET 3 OF 3 FOR ENLARGEMENT OF R/W OF AVENUE M (COLUMBIA WAY)



LEGEND

- INDICATES THE BOUNDARY OF THE LAND BEING SUB-DIVIDED BY THIS MAP
- INDICATES NEW RIGHT OF WAY AND NEW PARCEL LINES
- INDICATES AN EXISTING EASEMENT AS NOTED
- INDICATES NEW EASEMENT AS NOTED
- INDICATES FOUND MONUMENT AS NOTED

LINE TABLE		
LINE	LENGTH	BEARING
L1	168.92	N89°47'15"E
L2	400.03	N89°04'17"E
L3	386.03	N89°47'15"E
L4	120.60	N84°30'07"W
L5	150.00	N89°47'15"E
L6	38.18	N45°12'45"W
L7	98.74	N82°48'25"E
L8	38.18	N44°47'15"E
L9	1153.47	N89°41'22"E
L10	400.28	N88°09'47"W
L11	322.52	N89°41'22"E
L12	38.07	N45°08'45"W
L13	2606.72	N00°01'07"E
L14	100.60	N89°37'14"E
L15	60.00	N00°01'33"E
L16	2616.52	N00°01'07"E
L17	100.55	N84°01'20"E
L18	38.27	N44°53'42"E
L19	323.31	N89°46'16"E
L20	400.03	N89°03'18"E
L21	90.85	N89°46'16"E
L22	120.60	N84°31'06"W
L23	249.62	N89°46'16"E
L24	155.00'	N00°02'30"E
L25	188.97	N89°59'18"E
L26	329.04	N89°36'08"E
L27	323.19	N89°36'08"E

8 AN EASEMENT TO SOUTHERN CALIFORNIA TELEPHONE COMPANY FOR POLES, CONDUITS, APPURTENANCES AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED AS BOOK 20018 PAGE 254, OF OFFICIAL RECORDS, ALSO PER DOCUMENT RECORDED SEPTEMBER 28, 1943 AS DOCUMENT NO. 12543-L OF TORRENS.

9 AN EASEMENT TO PACIFIC TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION FOR POLES AND CONDUITS AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED MAY 8, 1952 AS INSTRUMENT NO. 2993 IN BOOK 38891, PAGE 191, OF OFFICIAL RECORDS. AND PARTIALLY QUITCLAIM BY A DOCUMENT RECORDED ON JUNE 9, 1995 AS INSTRUMENT NO. 95-923582, OF OFFICIAL RECORDS.

10 AN EASEMENT GRANTED TO THE COUNTY OF LOS ANGELES FOR ROAD AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED DECEMBER 2, 1964 AS INSTRUMENT NO. 4830, IN BOOK D2719, PAGE 163, OF OFFICIAL RECORDS; BOOK 6066, PAGE 144, OF DEEDS; BOOK 2641, PAGE 238, OF DEEDS; AND RECORDED FEBRUARY 19, 1954, IN BOOK 43887, PAGE 375, OF OFFICIAL RECORDS.

11 AN EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION FOR UNDERGROUND CABLES, WIRES AND CONDUITS AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED MAY 15, 1964 AS INSTRUMENT NO. 6017, OF OFFICIAL RECORDS.

12 AN EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION FOR POLES AND CONDUITS AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED JULY 2, 1965 AS INSTRUMENT NO. 4431, IN BOOK D2964 PAGE 743, OF OFFICIAL RECORDS.

13 AN EASEMENT TO THE CITY OF PALMDALE FOR PUBLIC ROAD AND HIGHWAY AND INCIDENTAL PURPOSES PER DOCUMENT RECORDED MARCH 11, 1969 AS INSTRUMENT NO. 2898, OF OFFICIAL RECORDS.

14 EASEMENT TO ANTELOPE VALLEY EAST-KERN WATER AGENCY FOR WATER PIPELINES, RIGHT OF WAY AND APPURTENANCES PER DOCUMENT RECORDED MARCH 22, 1988 AS INSTRUMENT NO. 88-386752, OF OFFICIAL RECORDS.

15 AN EASEMENT TO THE CITY OF PALMDALE FOR FLOOD CONTROL AND INGRESS AND EGRESS PURPOSES AS DEDICATED ON PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY.

17 EASEMENT FOR DRAINAGE PURPOSES IN FAVOR OF PARCELS 1 THROUGH 18 PER PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. (TO BE RESERVED IN DOCUMENTS PER SAID MAP). T.B.A.

EASEMENT FOR FUTURE STREET PURPOSES PER PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY. (WHEN THE FUTURE STREET WITHIN PARCEL 18 OF SAID MAP IS ACCEPTED AS A PUBLIC STREET, PARCEL 18 WILL INCLUDE PROPERTY ON BOTH SIDES OF SAID STREET WHICH MUST BE CONVEYED AS ONE UNIT AND CANNOT BE SEPARATED WITHOUT FURTHER ACTION OF THE ADVISORY COMMITTEE. T.B.A.

32 FOOT WIDE LANDSCAPE SETBACK PER THE PALMDALE BUSINESS PARK CENTER SPECIFIC PLAN AS SHOWN ON PARCEL MAP NO. 24191 P.M.B. 283-31-39, RECORDS OF LOS ANGELES COUNTY.

18 THE EFFECT OF THE DISCLOSURE ON LICENSED SURVEYOR'S MAP FILED IN BOOK 66 PAGE 40 OF RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, OF CERTAIN STRIPS OVER A PORTION OF SAID LAND, DESIGNATED PRIVATE STREETS. A PORTION OF SAID EASEMENT IS TO BE ABANDONED PER THIS MAP.

380/79

BOOK 380 PAGE 79

PARCEL MAP NO.070999

IN THE CITY OF PALMDALE , COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

SHEET 3 OF 3 SHEETS

I HEREBY CERTIFY THAT ALL CERTIFICATES HAVE BEEN FILED AND DEPOSITS HAVE BEEN MADE THAT ARE REQUIRED UNDER THE PROVISIONS OF SECTIONS 66492 AND 66493 OF THE SUBDIVISION MAP ACT.

EXECUTIVE OFFICER, BOARD OF SUPERVISORS OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

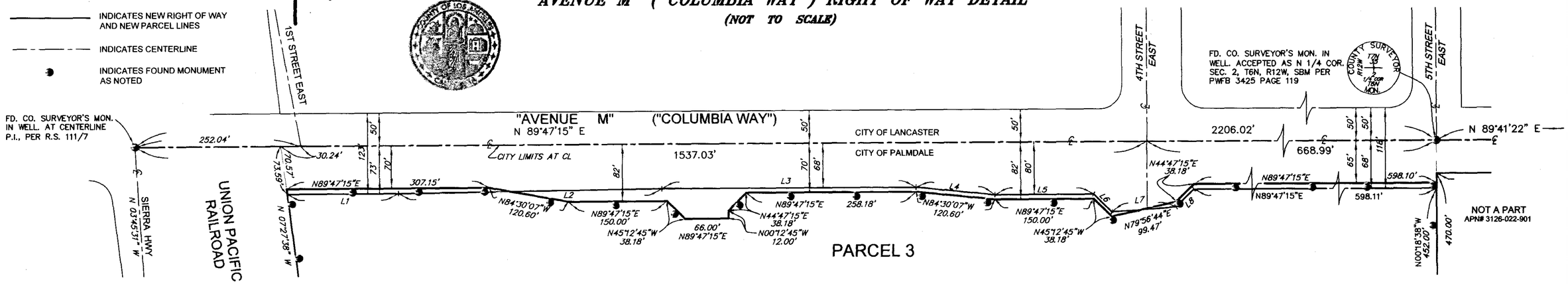
BY _____ DEPUTY 12-10-14 DATE

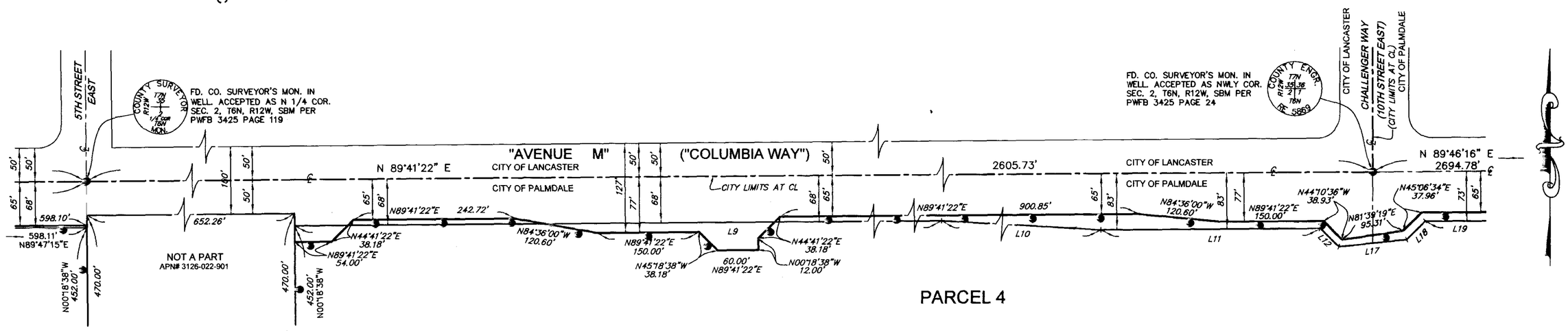
LEGEND

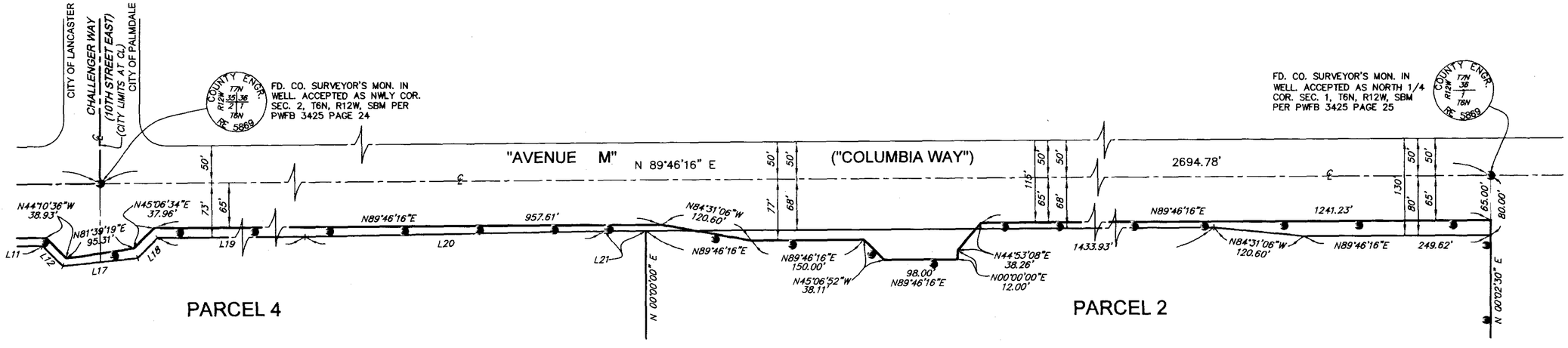
- INDICATES THE BOUNDARY OF THE LAND BEING SUB-DIVIDED BY THIS MAP
- INDICATES NEW RIGHT OF WAY AND NEW PARCEL LINES
- INDICATES CENTERLINE
- INDICATES FOUND MONUMENT AS NOTED

"AVENUE M" ("COLUMBIA WAY") RIGHT OF WAY DETAIL

(NOT TO SCALE)







LINE TABLE		
LINE	LENGTH	BEARING
L1	168.92	N89°47'15"E
L2	400.03	N89°04'17"E
L3	386.03	N89°47'15"E
L4	120.60	N84°30'07"W
L5	150.00	N89°47'15"E
L6	38.18	N45°12'45"W
L7	98.74	N82°48'25"E
L8	38.18	N44°47'15"E
L9	1153.47	N89°41'22"E
L10	400.28	N88°09'47"W
L11	322.52	N89°41'22"E
L12	38.07	N45°08'45"W
L17	100.55	N84°01'20"E
L18	38.27	N44°53'42"E
L19	323.31	N89°46'16"E
L20	400.03	N89°03'18"E
L21	90.85	N89°46'16"E

APPENDIX 6-B

CONSTRUCTION WORKER ESTIMATES

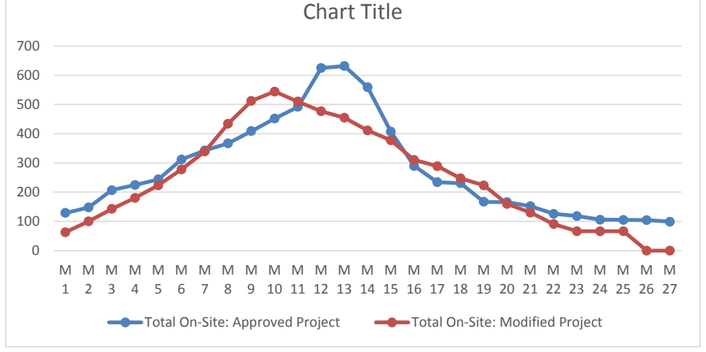
Table 5.11-12 PHPP Construction Workforce by Skill																											
Manpower by Trade/Project Element	**M 1**	**M 2**	**M 3**	**M 4**	**M 5**	**M 6**	**M 7**	**M 8**	**M 9**	**M 10**	**M 11**	**M 12**	**M 13**	**M 14**	**M 15**	**M 16**	**M 17**	**M 18**	**M 19**	**M 20**	**M 21**	**M 22**	**M 23**	**M 24**	**M 25**	**M 26**	**M 27**
Approved Proj Construction: Combined-Cycle Component																											
Subtotal	*129*	*148*	*167*	*185*	*204*	*252*	*263*	*267*	*269*	*272*	*272*	*285*	*272*	*259*	*227*	*210*	*184*	*181*	*167*	*166*	*152*	*126*	*118*	*106*	*105*	*104*	*99*
Approved Proj Construction: Solar Component																											
	0	0	40	40	40	60	80	100	140	180	220	340	360	300	180	80	50	50	0	0	0	0	0	0	0	0	0
Total On-Site: Approved Project	129	148	207	225	244	312	343	367	409	452	492	625	632	559	407	290	234	231	167	166	152	126	118	106	105	104	99

Monthly Ave - Approved Project: CC+Solar 276
Monthly Max- Approved Project: CC + Solar 632

Monthly Average - Modified Project 248
Monthly Maximum - ModifiedProject 544

PEP Construction Workforce by Skill																											
Manpower by Trade/Project Element	**M 1**	**M 2**	**M 3**	**M 4**	**M 5**	**M 6**	**M 7**	**M 8**	**M 9**	**M 10**	**M 11**	**M 12**	**M 13**	**M 14**	**M 15**	**M 16**	**M 17**	**M 18**	**M 19**	**M 20**	**M 21**	**M 22**	**M 23**	**M 24**	**M 25**	**M 26**	**M 27**
Construction - Combined-Cycle Component																											
Total On-Site: Modified Project	*63*	*100*	*143*	*180*	*224*	*278*	*339*	*434*	*513*	*544*	*510*	*477*	*455*	*411*	*377*	*310*	*289*	*247*	*224*	*160*	*130*	*91*	*66*	*66*	*66*	*0*	*0*

	M 1	**M 2**	**M 3**	**M 4**	**M 5**	**M 6**	**M 7**	**M 8**	**M 9**	**M 10**	**M 11**	**M 12**	**M 13**	**M 14**	**M 15**	**M 16**	**M 17**	**M 18**	**M 19**	**M 20**	**M 21**	**M 22**	**M 23**	**M 24**	**M 25**	**M 26**	**M 27**
Total On-Site: Approved Project	129	148	207	225	244	312	343	367	409	452	492	625	632	559	407	290	234	231	167	166	152	126	118	106	105	104	99
Total On-Site: Modified Project	*63*	*100*	*143*	*180*	*224*	*278*	*339*	*434*	*513*	*544*	*510*	*477*	*455*	*411*	*377*	*310*	*289*	*247*	*224*	*160*	*130*	*91*	*66*	*66*	*66*	*0*	*0*



APPENDIX 6-C

UPDATED TRAFFIC COUNTS

City of Palmdale
Vehicle Volume Counts

Site Code: 000000004265
Station ID: 4265
Avenue M
6th Street West
Date Start: 03-Mar-14

Weather: Clear and Dry
Counted By: JF & VH
Board #: 4265
Location: AVE M E/O 6TH ST W

Start Time	03-Mar-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	77	74	81	57	82	65	73	60	127	85	99	68	90	68
01:00	*	*	54	59	51	71	55	66	57	54	98	56	73	39	65	58
02:00	*	*	31	120	45	119	46	132	32	122	72	43	55	45	47	97
03:00	*	*	18	41	30	53	34	40	39	34	38	30	54	28	36	38
04:00	*	*	83	79	97	70	70	67	78	77	51	36	56	32	72	60
05:00	*	*	390	223	384	196	376	211	232	185	81	51	57	52	253	153
06:00	*	*	474	294	492	310	475	316	403	249	87	96	67	62	333	221
07:00	*	*	577	462	625	435	582	447	529	391	147	230	150	126	435	348
08:00	*	*	**830**	**710**	**897**	694	**880**	686	**877**	**676**	321	326	158	148	**660**	540
09:00	*	*	658	607	544	664	632	625	595	580	318	311	263	173	502	493
10:00	*	*	404	665	431	564	363	564	406	555	329	345	272	237	368	488
11:00	*	*	434	668	471	**727**	430	**734**	457	622	**383**	**375**	**273**	**276**	408	**567**
12:00 PM	*	*	459	711	506	855	443	758	506	779	349	406	276	**317**	423	638
01:00	*	*	590	598	620	585	649	558	655	591	**393**	**419**	274	272	530	504
02:00	*	*	635	606	**639**	622	**715**	650	**695**	679	341	412	279	260	**551**	538
03:00	*	*	**680**	762	624	798	651	723	622	795	373	372	**330**	262	547	619
04:00	**625**	1105	587	984	585	1145	627	1096	599	783	361	359	281	256	524	818
05:00	550	**1138**	582	**1178**	579	**1194**	624	**1183**	553	**849**	378	373	289	189	508	**872**
06:00	541	681	552	718	595	726	611	722	500	539	356	287	286	150	492	546
07:00	392	414	441	473	449	420	421	429	439	407	276	200	243	149	380	356
08:00	251	253	323	281	277	263	347	273	312	212	270	163	242	141	289	227
09:00	270	187	266	184	270	195	270	279	276	173	210	121	219	96	254	176
10:00	242	100	213	129	272	142	233	140	264	158	231	96	141	64	228	118
11:00	135	82	138	96	131	100	133	113	167	137	162	110	91	45	137	98
Lane	3006	3960	9496	10722	9695	11005	9749	10877	9366	9707	5752	5302	4528	3487	8132	8641
Day	6966		20218		20700		20626		19073		11054		8015		16773	
AM Peak			08:00	08:00	08:00	11:00	08:00	11:00	08:00	08:00	11:00	11:00	11:00	11:00	08:00	11:00
Vol.			830	710	897	727	880	734	877	676	383	375	273	276	660	567
PM Peak	16:00	17:00	15:00	17:00	14:00	17:00	14:00	17:00	14:00	17:00	13:00	13:00	15:00	12:00	14:00	17:00
Vol.	625	1138	680	1178	639	1194	715	1183	695	849	393	419	330	317	551	872

City of Palmdale
Vehicle Volume Counts

Site Code: 000000004265
Station ID: 4265
Avenue M
6th Street West
Date Start: 03-Mar-14

Weather: Clear and Dry
Counted By: JF & VH
Board #: 4265
Location: AVE M E/O 6TH ST W

Start Time	10-Mar-14 EB	10-Mar-14 WB	Tue EB	Tue WB	Wed EB	Wed WB	Thu EB	Thu WB	Fri EB	Fri WB	Sat EB	Sat WB	Sun EB	Sun WB	Week Average EB	Week Average WB
12:00 AM	41	25	*	*	*	*	*	*	*	*	*	*	*	*	41	25
01:00	34	23	*	*	*	*	*	*	*	*	*	*	*	*	34	23
02:00	25	23	*	*	*	*	*	*	*	*	*	*	*	*	25	23
03:00	86	52	*	*	*	*	*	*	*	*	*	*	*	*	86	52
04:00	386	133	*	*	*	*	*	*	*	*	*	*	*	*	386	133
05:00	429	181	*	*	*	*	*	*	*	*	*	*	*	*	429	181
06:00	533	255	*	*	*	*	*	*	*	*	*	*	*	*	533	255
07:00	824	409	*	*	*	*	*	*	*	*	*	*	*	*	824	409
08:00	639	331	*	*	*	*	*	*	*	*	*	*	*	*	639	331
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12:00 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lane	2997	1432	0	0	0	0	0	0	0	0	0	0	0	0	2997	1432
Day	4429		0		0		0		0		0		0		4429	
AM Peak	07:00	07:00													07:00	07:00
Vol.	824	409													824	409
PM Peak																
Vol.																
Comb. Total	11395		20218		20700		20626		19073		11054		8015		21202	
ADT	Not Calculated															

City of Palmdale
Vehicle Volume Counts

Site Code: 000000004261
Station ID: 4261
Avenue M
Challenger Way
Date Start: 15-Mar-10

Weather: Clear and Dry
Counted By: JF and VH
Board #: 4261
Location: AVE M W/O CHALLENGER WY

Start Time	15-Mar-10		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	157	71	137	67	157	74	146	74	52	76	59	86	118	75
01:00	*	*	33	32	36	28	38	45	42	39	44	63	37	50	38	43
02:00	*	*	63	63	69	58	55	63	58	43	42	51	29	44	53	54
03:00	*	*	155	352	156	324	162	348	163	181	53	115	29	79	120	233
04:00	*	*	350	422	351	410	350	400	295	190	114	80	72	51	255	259
05:00	*	*	497	536	496	565	532	559	490	355	222	111	132	75	395	367
06:00	*	*	**845**	**577**	**836**	**593**	**887**	**576**	753	351	341	192	150	108	**635**	**400**
07:00	*	*	786	399	732	327	760	409	**805**	334	453	195	245	193	630	310
08:00	*	*	578	297	576	277	602	286	566	293	457	267	330	208	518	271
09:00	*	*	501	286	457	266	498	314	528	337	470	315	411	187	478	284
10:00	*	*	560	386	527	371	603	392	540	389	465	324	363	**232**	510	349
11:00	*	*	490	491	557	438	515	450	535	**394**	**485**	**404**	**463**	210	508	398
12:00 PM	*	*	576	447	564	423	516	427	605	456	**474**	433	**412**	245	524	405
01:00	*	*	588	554	582	500	631	537	579	488	460	407	383	229	537	452
02:00	**1007**	506	**1011**	575	**993**	543	**967**	581	**687**	539	471	416	391	288	**790**	493
03:00	923	654	946	601	891	604	898	653	646	566	404	413	367	**325**	725	545
04:00	729	**675**	799	**668**	706	**698**	790	**731**	541	**672**	375	**447**	324	317	609	**601**
05:00	518	512	535	593	548	631	471	600	434	545	321	374	288	320	445	511
06:00	370	435	362	485	375	439	379	505	415	516	282	348	337	312	360	434
07:00	240	386	268	414	287	429	315	466	271	424	230	316	236	291	264	389
08:00	176	318	194	363	202	338	224	408	181	413	214	330	177	278	195	350
09:00	117	228	106	238	144	315	144	237	188	314	151	264	115	186	138	255
10:00	86	145	78	132	86	144	65	142	117	199	139	205	80	135	93	157
11:00	57	81	75	83	69	84	74	82	68	123	67	131	50	79	66	95
Lane	4223	3940	10553	9065	10377	8872	10633	9285	9653	8235	6786	6277	5480	4528	9004	7730
Day	8163		19618		19249		19918		17888		13063		10008		16734	
AM Peak			06:00	06:00	06:00	06:00	06:00	06:00	07:00	11:00	11:00	11:00	11:00	10:00	06:00	06:00
Vol.			845	577	836	593	887	576	805	394	485	404	463	232	635	400
PM Peak	14:00	16:00	14:00	16:00	14:00	16:00	14:00	16:00	14:00	16:00	12:00	16:00	12:00	15:00	14:00	16:00
Vol.	1007	675	1011	668	993	698	967	731	687	672	474	447	412	325	790	601

City of Palmdale
Vehicle Volume Counts

Site Code: 000000004261
Station ID: 4261
Avenue M
Challenger Way
Date Start: 15-Mar-10

Weather: Clear and Dry
Counted By: JF and VH
Board #: 4261
Location: AVE M W/O CHALLENGER WY

Start Time	22-Mar-10		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	51	46	146	40	149	72	*	*	*	*	*	*	*	*	115	53
01:00	27	36	29	41	39	36	*	*	*	*	*	*	*	*	32	38
02:00	64	66	50	54	56	66	*	*	*	*	*	*	*	*	57	62
03:00	156	371	162	362	175	361	*	*	*	*	*	*	*	*	164	365
04:00	358	401	359	452	352	413	*	*	*	*	*	*	*	*	356	422
05:00	483	477	481	489	499	473	*	*	*	*	*	*	*	*	488	480
06:00	696	445	774	427	820	384	*	*	*	*	*	*	*	*	763	419
07:00	728	284	704	255	741	224	*	*	*	*	*	*	*	*	724	254
08:00	532	219	543	219	546	202	*	*	*	*	*	*	*	*	540	213
09:00	506	213	509	206	491	185	*	*	*	*	*	*	*	*	502	201
10:00	529	238	590	222	520	175	*	*	*	*	*	*	*	*	546	212
11:00	461	271	452	263	519	249	*	*	*	*	*	*	*	*	477	261
12:00 PM	551	290	542	230	566	233	*	*	*	*	*	*	*	*	553	251
01:00	549	314	578	299	*	*	*	*	*	*	*	*	*	*	564	306
02:00	953	366	911	308	*	*	*	*	*	*	*	*	*	*	932	337
03:00	828	463	801	328	*	*	*	*	*	*	*	*	*	*	814	396
04:00	701	502	769	408	*	*	*	*	*	*	*	*	*	*	735	455
05:00	469	454	516	364	*	*	*	*	*	*	*	*	*	*	492	409
06:00	322	417	333	395	*	*	*	*	*	*	*	*	*	*	328	406
07:00	217	317	266	330	*	*	*	*	*	*	*	*	*	*	242	324
08:00	156	272	205	308	*	*	*	*	*	*	*	*	*	*	180	290
09:00	121	204	127	212	*	*	*	*	*	*	*	*	*	*	124	208
10:00	76	126	83	126	*	*	*	*	*	*	*	*	*	*	80	126
11:00	61	82	82	85	*	*	*	*	*	*	*	*	*	*	72	84
Lane	9595	6874	10012	6423	5473	3073	0	0	0	0	0	0	0	0	9880	6572
Day	16469		16435		8546		0		0		0		0		16452	
AM Peak	07:00	05:00	06:00	05:00	06:00	05:00									06:00	05:00
Vol.	728	477	774	489	820	473									763	480
PM Peak	14:00	16:00	14:00	16:00	12:00	12:00									14:00	16:00
Vol.	953	502	911	408	566	233									932	455

Comb. Total	24632	36053	27795	19918	17888	13063	10008	33186
ADT	Not Calculated							

City of Palmdale
Vehicle Volume Counts

Site Code: 000000005557
Station ID: 5557
Challenger Way
Avenue M
Date Start: 15-Mar-10

Weather: Clear and Dry
Counted By: JF and VH
Board #: 5557
Location: CHALLENGER WY N/O AVE M

Start	15-Mar-10		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	19	34	13	32	15	25	19	35	27	32	26	42	20	33
01:00	*	*	27	24	22	18	22	14	26	10	27	29	23	19	24	19
02:00	*	*	11	8	9	10	15	4	13	7	20	18	15	18	14	11
03:00	*	*	29	9	39	5	37	12	31	12	18	12	16	15	28	11
04:00	*	*	92	17	84	17	89	20	74	23	28	14	12	17	63	18
05:00	*	*	146	56	128	62	141	56	112	60	41	29	30	18	100	47
06:00	*	*	146	113	151	124	157	126	142	128	86	53	51	26	122	95
07:00	*	*	**228**	**220**	**203**	**235**	**205**	**220**	214	**213**	126	81	87	37	177	**168**
08:00	*	*	202	141	171	124	199	124	196	129	185	91	114	70	178	113
09:00	*	*	170	144	141	125	193	142	186	141	175	118	165	81	172	125
10:00	*	*	157	142	150	140	163	181	175	150	199	**166**	**168**	**101**	169	147
11:00	*	*	169	162	173	148	193	169	**218**	173	**208**	149	154	99	**186**	150
12:00 PM	*	*	154	164	177	162	161	169	189	161	182	153	**199**	111	177	153
01:00	*	*	186	175	175	154	185	168	206	204	**199**	179	166	151	186	172
02:00	*	*	165	263	157	255	164	233	174	252	180	180	153	153	166	223
03:00	196	308	190	289	210	307	183	278	199	267	152	**210**	140	164	181	260
04:00	**204**	**332**	**216**	**308**	201	**319**	**217**	**341**	**259**	275	165	188	146	**168**	**201**	**276**
05:00	186	254	185	261	**218**	285	200	255	197	**278**	154	188	135	149	182	239
06:00	148	189	184	247	153	217	177	231	180	246	139	158	135	162	159	207
07:00	115	165	112	173	115	161	128	170	155	209	119	140	119	134	123	165
08:00	85	151	89	137	109	155	106	179	102	155	104	117	95	135	99	147
09:00	71	88	105	105	95	118	97	131	106	153	85	123	83	92	92	116
10:00	46	66	41	56	50	84	57	82	86	104	56	92	47	63	55	78
11:00	17	41	29	37	35	45	19	42	35	69	47	78	32	45	31	51
Lane	1068	1594	3052	3285	2979	3302	3123	3372	3294	3454	2722	2598	2311	2070	2905	3024
Day	2662		6337		6281		6495		6748		5320		4381		5929	
AM Peak			07:00	07:00	07:00	07:00	07:00	07:00	11:00	07:00	11:00	10:00	10:00	10:00	11:00	07:00
Vol.			228	220	203	235	205	220	218	213	208	166	168	101	186	168
PM Peak	16:00	16:00	16:00	16:00	17:00	16:00	16:00	16:00	16:00	17:00	13:00	15:00	12:00	16:00	16:00	16:00
Vol.	204	332	216	308	218	319	217	341	259	278	199	210	199	168	201	276

City of Palmdale
Vehicle Volume Counts

Site Code: 000000005557
Station ID: 5557
Challenger Way
Avenue M
Date Start: 15-Mar-10

Weather: Clear and Dry
Counted By: JF and VH
Board #: 5557
Location: CHALLENGER WY N/O AVE M

Start Time	22-Mar-10 SB	22-Mar-10 NB	Tue SB	Tue NB	Wed SB	Wed NB	Thu SB	Thu NB	Fri SB	Fri NB	Sat SB	Sat NB	Sun SB	Sun NB	Week Average SB	Week Average NB
12:00 AM	19	22	*	*	*	*	*	*	*	*	*	*	*	*	19	22
01:00	4	15	*	*	*	*	*	*	*	*	*	*	*	*	4	15
02:00	14	6	*	*	*	*	*	*	*	*	*	*	*	*	14	6
03:00	41	10	*	*	*	*	*	*	*	*	*	*	*	*	41	10
04:00	92	14	*	*	*	*	*	*	*	*	*	*	*	*	92	14
05:00	126	40	*	*	*	*	*	*	*	*	*	*	*	*	126	40
06:00	145	105	*	*	*	*	*	*	*	*	*	*	*	*	145	105
07:00	190	195	*	*	*	*	*	*	*	*	*	*	*	*	190	195
08:00	172	129	*	*	*	*	*	*	*	*	*	*	*	*	172	129
09:00	155	133	*	*	*	*	*	*	*	*	*	*	*	*	155	133
10:00	152	154	*	*	*	*	*	*	*	*	*	*	*	*	152	154
11:00	167	165	*	*	*	*	*	*	*	*	*	*	*	*	167	165
12:00 PM	205	162	*	*	*	*	*	*	*	*	*	*	*	*	205	162
01:00	186	166	*	*	*	*	*	*	*	*	*	*	*	*	186	166
02:00	185	210	*	*	*	*	*	*	*	*	*	*	*	*	185	210
03:00	165	298	*	*	*	*	*	*	*	*	*	*	*	*	165	298
04:00	189	349	*	*	*	*	*	*	*	*	*	*	*	*	189	349
05:00	167	267	*	*	*	*	*	*	*	*	*	*	*	*	167	267
06:00	124	209	*	*	*	*	*	*	*	*	*	*	*	*	124	209
07:00	117	142	*	*	*	*	*	*	*	*	*	*	*	*	117	142
08:00	83	96	*	*	*	*	*	*	*	*	*	*	*	*	83	96
09:00	71	101	*	*	*	*	*	*	*	*	*	*	*	*	71	101
10:00	44	61	*	*	*	*	*	*	*	*	*	*	*	*	44	61
11:00	26	38	*	*	*	*	*	*	*	*	*	*	*	*	26	38
Lane	2839	3087	0	0	0	0	0	0	0	0	0	0	0	0	2839	3087
Day	5926		0		0		0		0		0		0		5926	
AM Peak	07:00	07:00													07:00	07:00
Vol.	190	195													190	195
PM Peak	12:00	16:00													12:00	16:00
Vol.	205	349													205	349

Comb. Total	8588	6337	6281	6495	6748	5320	4381	11855
ADT	Not Calculated							

City of Palmdale
Vehicle Volume Counts

Weather: Clear and Dry
Counted By: JF & VH
Board #: 17928
Location: SIERRA HWY N/O AVE O

Site Code: 17928
Station ID: 17928
Sierra Highway
Avenue O
Date Start: 20-May-13

Start	20-May-13		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	102	69	108	85	0	199	*	*	*	*	*	*	70	118
01:00	*	*	84	81	71	64	0	139	*	*	*	*	*	*	52	95
02:00	*	*	39	42	49	43	0	101	*	*	*	*	*	*	29	62
03:00	*	*	56	52	99	64	0	125	*	*	*	*	*	*	52	80
04:00	*	*	127	137	152	138	0	261	*	*	*	*	*	*	93	179
05:00	*	*	262	436	284	447	0	644	*	*	*	*	*	*	182	509
06:00	*	*	490	579	454	579	0	990	*	*	*	*	*	*	315	716
07:00	*	*	878	685	**797**	755	0	1515	*	*	*	*	*	*	**558**	985
08:00	*	*	**1000**	**772**	0	**1781**	0	**1804**	*	*	*	*	*	*	333	**1452**
09:00	*	*	823	698	0	1465	*	*	*	*	*	*	*	*	412	1082
10:00	*	*	730	712	0	1417	*	*	*	*	*	*	*	*	365	1064
11:00	*	*	687	756	0	1502	*	*	*	*	*	*	*	*	344	1129
12:00 PM	*	*	733	862	**1**	1639	*	*	*	*	*	*	*	*	367	1250
01:00	*	*	837	772	0	1646	*	*	*	*	*	*	*	*	418	1209
02:00	*	*	913	858	0	1855	*	*	*	*	*	*	*	*	456	1356
03:00	*	*	1106	**1114**	0	2147	*	*	*	*	*	*	*	*	553	**1630**
04:00	**1214**	964	**1179**	1057	0	**2231**	*	*	*	*	*	*	*	*	**798**	1417
05:00	1084	**1026**	1071	1059	0	2181	*	*	*	*	*	*	*	*	718	1422
06:00	779	690	788	717	0	1634	*	*	*	*	*	*	*	*	522	1014
07:00	515	527	607	551	0	1159	*	*	*	*	*	*	*	*	374	746
08:00	406	422	461	478	0	840	*	*	*	*	*	*	*	*	289	580
09:00	309	320	347	360	0	814	*	*	*	*	*	*	*	*	219	498
10:00	255	243	263	293	0	531	*	*	*	*	*	*	*	*	173	356
11:00	176	157	159	155	0	326	*	*	*	*	*	*	*	*	112	213
Lane	4738	4349	13742	13295	2015	25343	0	5778	0	0	0	0	0	0	7804	19162
Day	9087		27037		27358		5778		0		0		0		26966	
AM Peak			08:00	08:00	07:00	08:00		08:00							07:00	08:00
Vol.			1000	772	797	1781		1804							558	1452
PM Peak	16:00	17:00	16:00	15:00	12:00	16:00									16:00	15:00
Vol.	1214	1026	1179	1114	1	2231									798	1630

Comb. Total	9087	27037	27358	5778	0	0	0	26966
ADT	Not Calculated							

City of Palmdale
Vehicle Volume Counts

Weather: Clear and Dry
Counted By: JF & VH
Board #: 17926
Location: SIERRA HWY S/O AVE M

Site Code: 17926
Station ID: 17926
Sierra Highway
Avenue M
Date Start: 20-May-13

Start Time	20-May-13 NB	20-May-13 SB	Tue NB	Tue SB	Wed NB	Wed SB	Thu NB	Thu SB	Fri NB	Fri SB	Sat NB	Sat SB	Sun NB	Sun SB	Week Average NB	Week Average SB
12:00 AM	*	*	104	80	103	87	92	90	*	*	*	*	*	*	100	86
01:00	*	*	67	80	56	62	69	64	*	*	*	*	*	*	64	69
02:00	*	*	38	39	47	47	52	49	*	*	*	*	*	*	46	45
03:00	*	*	63	52	106	57	72	54	*	*	*	*	*	*	80	54
04:00	*	*	164	148	189	152	160	134	*	*	*	*	*	*	171	145
05:00	*	*	323	359	337	369	295	342	*	*	*	*	*	*	318	357
06:00	*	*	549	454	522	445	487	424	*	*	*	*	*	*	519	441
07:00	*	*	895	650	842	679	804	656	*	*	*	*	*	*	847	662
08:00	*	*	**912**	757	**940**	732	**883**	**732**	*	*	*	*	*	*	**912**	740
09:00	*	*	726	668	686	702	*	*	*	*	*	*	*	*	706	685
10:00	*	*	689	723	643	709	*	*	*	*	*	*	*	*	666	716
11:00	*	*	656	**765**	569	**774**	*	*	*	*	*	*	*	*	612	**770**
12:00 PM	*	*	707	818	616	833	*	*	*	*	*	*	*	*	662	826
01:00	*	*	753	763	578	859	*	*	*	*	*	*	*	*	666	811
02:00	*	*	817	854	664	903	*	*	*	*	*	*	*	*	740	878
03:00	*	*	914	**1102**	736	**1093**	*	*	*	*	*	*	*	*	825	**1098**
04:00	**1033**	1031	**963**	1079	**745**	1092	*	*	*	*	*	*	*	*	**914**	1067
05:00	953	**1064**	877	1047	732	1038	*	*	*	*	*	*	*	*	854	1050
06:00	658	681	664	701	643	755	*	*	*	*	*	*	*	*	655	712
07:00	491	480	543	518	504	502	*	*	*	*	*	*	*	*	513	500
08:00	372	409	416	471	393	406	*	*	*	*	*	*	*	*	394	429
09:00	303	305	335	323	326	406	*	*	*	*	*	*	*	*	321	345
10:00	235	233	241	264	230	239	*	*	*	*	*	*	*	*	235	245
11:00	174	135	146	131	159	143	*	*	*	*	*	*	*	*	160	136
Lane	4219	4338	12562	12846	11366	13084	2914	2545	0	0	0	0	0	0	11980	12867
Day	8557		25408		24450		5459		0		0		0		24847	
AM Peak			08:00	11:00	08:00	11:00	08:00	08:00							08:00	11:00
Vol.			912	765	940	774	883	732							912	770
PM Peak	16:00	17:00	16:00	15:00	16:00	15:00									16:00	15:00
Vol.	1033	1064	963	1102	745	1093									914	1098

Comb. Total	8557	25408	24450	5459	0	0	0	24847

ADT Not Calculated

City of Palmdale
Vehicle Volume Counts

Site Code: 14055
Station ID: 14055
10th Street West
Avenue M
Date Start: 06-Nov-12

Weather: Clear and Dry
Counted By: JF and VH
Board #: 14055
Location: NB 10TH ST W S/O AVE M

Start Time	Mon 05-Nov-12	Tue 06-Nov-12	Wed 07-Nov-12	Thu 08-Nov-12	Fri 09-Nov-12	Average Day	Sat 10-Nov-12	Sun 11-Nov-12	Week Average
12:00 AM	*	*	227	209	*	218	*	*	218
01:00	*	*	189	206	*	198	*	*	198
02:00	*	*	117	111	*	114	*	*	114
03:00	*	*	54	48	*	51	*	*	51
04:00	*	*	58	46	*	52	*	*	52
05:00	*	*	16	17	*	16	*	*	16
06:00	*	*	11	6	*	8	*	*	8
07:00	*	*	15	17	*	16	*	*	16
08:00	*	*	32	42	*	37	*	*	37
09:00	*	*	75	62	*	68	*	*	68
10:00	*	*	157	154	*	156	*	*	156
11:00	*	*	**393**	**363**	*	**378**	*	*	**378**
12:00 PM	*	*	413	**405**	*	409	*	*	409
01:00	*	*	467	330	*	398	*	*	398
02:00	*	*	463	*	*	463	*	*	463
03:00	*	584	492	*	*	538	*	*	538
04:00	*	618	673	*	*	646	*	*	646
05:00	*	**669**	**750**	*	*	**710**	*	*	**710**
06:00	*	602	667	*	*	634	*	*	634
07:00	*	568	689	*	*	628	*	*	628
08:00	*	606	688	*	*	647	*	*	647
09:00	*	571	620	*	*	596	*	*	596
10:00	*	444	449	*	*	446	*	*	446
11:00	*	323	350	*	*	336	*	*	336
Day Total	0	4985	8065	2016	0	7763	0	0	7763
% Avg. WkDay	0.0%	64.2%	103.9%	26.0%	0.0%				
% Avg. Week	0.0%	64.2%	103.9%	26.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak			11:00	11:00		11:00			11:00
Vol.			393	363		378			378
PM Peak		17:00	17:00	12:00		17:00			17:00
Vol.		669	750	405		710			710
Grand Total	0	4985	8065	2016	0	7763	0	0	7763

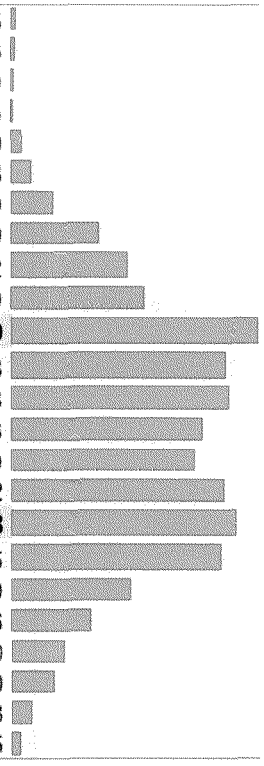
ADT Not Calculated

City of Palmdale
Vehicle Volume Counts

Site Code: 000000004263
Station ID: 4263
10th Street West
Avenue M
Date Start: 06-Nov-12

Weather: Clear and Dry
Counted By: JF and VH
Board #: 4263
Location: SB 10TH ST W S/O AVE M

Start Time	Mon 05-Nov-12	Tue 06-Nov-12	Wed 07-Nov-12	Thu 08-Nov-12	Fri 09-Nov-12	Average Day	Sat 10-Nov-12	Sun 11-Nov-12	Week Average
12:00 AM	*	*	17	14	*	16	*	*	16
01:00	*	*	13	13	*	13	*	*	13
02:00	*	*	11	9	*	10	*	*	10
03:00	*	*	9	8	*	8	*	*	8
04:00	*	*	40	19	*	30	*	*	30
05:00	*	*	58	57	*	58	*	*	58
06:00	*	*	125	115	*	120	*	*	120
07:00	*	*	269	230	*	250	*	*	250
08:00	*	*	315	**348**	*	332	*	*	332
09:00	*	*	443	315	*	379	*	*	379
10:00	*	*	**699**	*	*	**699**	*	*	**699**
11:00	*	**633**	584	*	*	608	*	*	608
12:00 PM	*	620	615	*	*	618	*	*	618
01:00	*	526	560	*	*	543	*	*	543
02:00	*	521	519	*	*	520	*	*	520
03:00	*	575	628	*	*	602	*	*	602
04:00	*	**655**	621	*	*	**638**	*	*	**638**
05:00	*	550	**640**	*	*	595	*	*	595
06:00	*	341	338	*	*	340	*	*	340
07:00	*	206	246	*	*	226	*	*	226
08:00	*	147	152	*	*	150	*	*	150
09:00	*	113	127	*	*	120	*	*	120
10:00	*	52	63	*	*	58	*	*	58
11:00	*	21	29	*	*	25	*	*	25
Day Total	0	4960	7121	1128	0	6958	0	0	6958
% Avg. WkDay	0.0%	71.3%	102.3%	16.2%	0.0%				
% Avg. Week	0.0%	71.3%	102.3%	16.2%	0.0%	100.0%	0.0%	0.0%	
AM Peak		11:00	10:00	08:00		10:00			10:00
Vol.		633	699	348		699			699
PM Peak		16:00	17:00			16:00			16:00
Vol.		655	640			638			638
Grand Total	0	4960	7121	1128	0	6958	0	0	6958
ADT		Not Calculated							



City of Palmdale
Vehicle Volume Counts

Weather: Clear and Dry
Counted By: JF and VH
Board #: 16403
Location: NB 10TH ST W N/O AVE O

Site Code: 16403
Station ID: 16403
10th Street West
Avenue O
Date Start: 06-Nov-12

Start Time	Mon 05-Nov-12	Tue 06-Nov-12	Wed 07-Nov-12	Thu 08-Nov-12	Fri 09-Nov-12	Average Day	Sat 10-Nov-12	Sun 11-Nov-12	Week Average
12:00 AM	*	*	300	282	*	291	*	*	291
01:00	*	*	213	245	*	229	*	*	229
02:00	*	*	137	125	*	131	*	*	131
03:00	*	*	64	58	*	61	*	*	61
04:00	*	*	64	52	*	58	*	*	58
05:00	*	*	22	21	*	22	*	*	22
06:00	*	*	7	7	*	7	*	*	7
07:00	*	*	17	22	*	20	*	*	20
08:00	*	*	33	40	*	36	*	*	36
09:00	*	*	66	59	*	62	*	*	62
10:00	*	*	150	165	*	158	*	*	158
11:00	*	*	**376**	**361**	*	**368**	*	*	**368**
12:00 PM	*	*	365	**383**	*	374	*	*	374
01:00	*	*	401	*	*	401	*	*	401
02:00	*	*	480	*	*	480	*	*	480
03:00	*	616	508	*	*	562	*	*	562
04:00	*	681	681	*	*	681	*	*	681
05:00	*	**801**	**753**	*	*	**777**	*	*	**777**
06:00	*	688	688	*	*	688	*	*	688
07:00	*	622	674	*	*	648	*	*	648
08:00	*	669	698	*	*	684	*	*	684
09:00	*	651	663	*	*	657	*	*	657
10:00	*	498	547	*	*	522	*	*	522
11:00	*	401	402	*	*	402	*	*	402
Day Total	0	5627	8309	1820	0	8319	0	0	8319
% Avg. WkDay	0.0%	67.6%	99.9%	21.9%	0.0%				
% Avg. Week	0.0%	67.6%	99.9%	21.9%	0.0%	100.0%	0.0%	0.0%	
AM Peak			11:00	11:00		11:00			11:00
Vol.			376	361		368			368
PM Peak		17:00	17:00	12:00		17:00			17:00
Vol.		801	753	383		777			777
Grand Total	0	5627	8309	1820	0	8319	0	0	8319
ADT	Not Calculated								

City of Palmdale
Vehicle Volume Counts

Weather: Clear and Dry
Counted By: JF and VH
Board #: 14053
Location: SB 10TH ST W N/O AVE O

Site Code: 14053
Station ID: 14053
10th Street West
Avenue O
Date Start: 06-Nov-12

Start Time	Mon 05-Nov-12	Tue 06-Nov-12	Wed 07-Nov-12	Thu 08-Nov-12	Fri 09-Nov-12	Average Day	Sat 10-Nov-12	Sun 11-Nov-12	Week Average
12:00 AM	*	*	187	172	*	180	*	*	180
01:00	*	*	122	129	*	126	*	*	126
02:00	*	*	83	90	*	86	*	*	86
03:00	*	*	27	33	*	30	*	*	30
04:00	*	*	25	23	*	24	*	*	24
05:00	*	*	15	15	*	15	*	*	15
06:00	*	*	11	11	*	11	*	*	11
07:00	*	*	10	9	*	10	*	*	10
08:00	*	*	48	30	*	39	*	*	39
09:00	*	*	53	61	*	57	*	*	57
10:00	*	*	136	114	*	125	*	*	125
11:00	*	*	**214**	**215**	*	**214**	*	*	**214**
12:00 PM	*	*	323	350	*	336	*	*	336
01:00	*	*	404	**358**	*	381	*	*	381
02:00	*	*	348	*	*	348	*	*	348
03:00	*	684	621	*	*	652	*	*	652
04:00	*	**698**	644	*	*	**671**	*	*	**671**
05:00	*	534	562	*	*	548	*	*	548
06:00	*	550	493	*	*	522	*	*	522
07:00	*	576	573	*	*	574	*	*	574
08:00	*	660	631	*	*	646	*	*	646
09:00	*	630	**674**	*	*	652	*	*	652
10:00	*	412	428	*	*	420	*	*	420
11:00	*	265	278	*	*	272	*	*	272
Day Total	0	5009	6910	1610	0	6939	0	0	6939
% Avg. WkDay	0.0%	72.2%	99.6%	23.2%	0.0%				
% Avg. Week	0.0%	72.2%	99.6%	23.2%	0.0%	100.0%	0.0%	0.0%	
AM Peak			11:00	11:00		11:00			11:00
Vol.			214	215		214			214
PM Peak		16:00	21:00	13:00		16:00			16:00
Vol.		698	674	358		671			671
Grand Total	0	5009	6910	1610	0	6939	0	0	6939
ADT		Not Calculated							

APPENDIX 7-A

LIST OF PROPERTY OWNERS

SUBMITTED ELECTRONICALLY ON COMPACT DISK