Calico Solar

May 9, 2010

DOCKET
08-AFC-13C
DATE MAY 02 2011
RECD. MAY 02 2011

Craig Hoffman
Compliance Project Manager
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814

Subject: Calico Solar 08-AFC-13C
Applicant's Response to CEC Data Requests Set 1 (1-37)

Dear Mr. Hoffman:

Calico Solar hereby submits the Applicant's Response to CEC Data Requests Set 1 (1-37). I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge.

Sincerely,

Daniel J. O'Shea
On behalf of Calico Solar, LLC

CALICO SOLAR

Applicant's Response to CEC Data Requests Set 1 (1-37)

05.09.11

CALICO SOLAR PROJECT

08-AFC-13C

Submitted by:
Calico Solar, LLC
Calico Solar

TECHNICAL AREA: AIR QUALITY

Data Request 1. Please indicate why the substation cannot be used to serve the electricity needs during the entire project construction period. When is the project expected to first get power from the local utility?

Response: The SCE Pisgah substation is a major facility configured to service high voltage transmission system requirements and is not equipped to serve local retail loads such as the Calico Solar Project.

The Project approved by the Energy Commission on December 1, 2010 contemplated the use of temporary generators for the initial construction activities because SCE informed the development team of the Approved Project that the current local distribution system was incapable of providing the needs of the Project by the then-anticipated mobilization date. SCE has preliminarily informed Calico that they will be able to support the proposed site mobilization date for the Modified Project. Calico will continue to work with SCE to determine when and how much power SCE can supply to the power to the modified Project during construction. Based upon current discussions, we expect SCE's determination to be favorable.

Even if SCE is able to provide power for construction activities of the Modified Project, temporary portable generators would still be necessary to support construction activities which will be taking place concurrently throughout the site. If temporary generators are not used during the entire construction period, a temporary alternating current distribution system would have to be constructed throughout the entire 4,613 acre site. This is impractical.

When the on-site substation is energized and the SCE 230 kV interconnection is completed at the Pisgah substation, the Modified Project will utilize SCE power for operational power, back-fed through a station service transformer for operational power. Portable diesel generators will be utilized if SCE service becomes temporarily unavailable.

TECHNICAL AREA: AIR QUALITY

Data Request 2. Please provide updated construction-related diesel-fueled electrical power information, specifically including the number and size of diesel generator engines, the tier level of each diesel engine driving the temporary generators, operation schedule, locations of use and emissions estimates.

Response: It is anticipated that up to five Tier IV 250 kW onsite portable diesel generators will be used during the Modified Project's construction. Annual emissions were calculated for the Modified Project using a maximum use of 16 hours per day, 26 days per month. This conservative estimate was used to present a worst-case scenario. The location and use of each portable diesel generator will vary because the generators will be moved around the site as Modified Project construction extends across the site.

TECHNICAL AREA: AIR QUALITY

Data Request 3. Please determine whether the local air district will require permits for these temporary generators. Please identify if the PERP registration is sufficient for the use of portable generators.

Response: The regulations regarding PERP registration are unclear whether or not movement of temporary generators around the 4,613 acre Modified Project site as construction progresses would constitute movement of engine location compliant with PERP registration. The Applicant is sending a letter to the air district requesting an opinion addressing this uncertainty. Should the air district opine that the anticipated use of the temporary generators would not qualify for PERP registration, the Applicant will apply for a permit from the air district.

TECHNICAL AREA: AIR QUALITY

Data Request 4. PERP allows equipment to be onsite for a maximum of 12 months. What would the applicant do if there is a need to use this equipment beyond 12 months due to a delay in getting electricity from the local utility?

Response: Please see the response to Data Request 3. The Applicant believes that moving the temporary generators around the 4,613 acre site would constitute a new location consistent with PERP regulations. Calico believes that it is highly improbable that a generator would need to be used in a single location for more than 12 months. As discussed in the response to Data Request 1, the need for the temporary generators is necessitated by the size and scale of the project and would remain even after receipt of electricity from a local utility.

TECHNICAL AREA: AIR QUALITY

Data Request 5. Please provide information on refueling this equipment, including origin of fuel, frequency of delivery and any on-site fuel storage.

Response: Diesel fuel is expected to be delivered to the Modified Project approximately twice per month, but potentially up to 5 times a month during maximum usage, from a local supplier in the vicinity of Barstow, Ca. When delivered, fuel will be stored in the diesel fuel storage tank located within the main services complex. Fuel for the intermediate transfer to on-site portable diesel generators will be temporarily stored in on-site fuel delivery trucks. Calico anticipates that each on-site portable diesel generator will be refueled no more than once per day and that each portable generator will have a fuel tank capacity of approximately 350 gallons.

TECHNICAL AREA: AIR QUALITY

Data Request 6. Please determine whether the local air district needs to approve the use of the emergency diesel generator during construction phase and modify the district permit accordingly.

Response: The emergency generator will not be used for construction-related activities. It will provide back-up power during operation of the Modified Project and complete regularly-scheduled testing, as permitted by the air district.

To avoid confusion, the Applicant withdraws suggested changes to Conditions of Certification AQ-1 through AQ-15 proposed in the Petition to Amend as the permit from the air district requires no changes.

TECHNICAL AREA: AIR QUALITY

Data Request 7. Please provide the operation schedule and emissions estimates of this engine during the construction phase.

Response: The operation schedule and emissions estimates remain unchanged from those permitted in the Approved Project and described in the Petition to Amend for the Modified Project.

TECHNICAL AREA: AIR QUALITY

Data Request 8. Please provide the rationale for the following emission estimates:

a. For the onsite security vehicles used in construction phase, fugitive dust emissions (PM10 and PM2.5) show significant increases while the combustion emissions are similar.

b. For onsite portable generators used in construction phase, CO shows a significant increase while other pollutants show decreases.

c. For onsite construction equipment used in construction phase, daily maximum emissions of every pollutant show decreases while annual combustion emissions increase except for CO.

d. For onsite "other delivery trucks" used in construction phase, daily maximum emissions of every pollutant show decreases while annual combustion emissions increase.

e. For onsite Maintenance & Security Vehicles and Equipment used in operation phase, PM10, PM2.5 and SOx show significant increases while other pollutants show decreases.

Response:

a. The fugitive dust emission calculations presented in the Petition to Amend were updated to use the new EPA AP-42 Section 13.2.1 Paved Roads Equation 2 (Jan. 2011 version). The new EPA AP-42 paved road equation provides higher emission factors than the old equation. For the security vehicles the new emission factors are approximately 5 times higher. Therefore, the fugitive dust emissions from the security vehicles show significant increases while the combustion emissions remain similar.

b. In the Petition to Amend, five Tier IV 250kW PERP generators will be used during construction. The previous generator configuration was one Tier III 75kW and one Tier III 500kW. This is equal a total generating power change from 575kW to 750kW. The EPA Off-road Compression-Ignition Diesel Engine Standards for a Tier IV engine versus a Tier III engine are a lot more stringent for NO_x, PM and VOC, although remain the same for CO, for the same size rated engines. For example, a 250kW diesel generator has 0.2 g/kW/hr limit in Tier III and 0.02 g/kW/hr limit in Tier IV for PM

but has the same 3.5 g/kW/hr limits in both Tiers for CO. Therefore, even though the power generation capacity increased from 575kW to 750kW, the total emissions for PM, NOx, and VOC have significant decreases due to more stringent emission limits.

c. The daily maximum emissions were determined by comparing the daily emissions calculated for each month during the entire construction phase. Based on the revised construction schedule of the Modified Project, it was determined that the peak monthly emissions occurred in month 7. Although the emissions from the peak month 6 in the analysis for the Approved Project compared to the peak month 7 in the Petition to Amend show decreases, it does not mean this trend will remain the same among other months when the annual emissions are calculated. Case 1, discussed below in Response 8e, illustrates a generic project where the revised equipment schedule caused the peak monthly emissions (of a generic pollutant) to decrease although, the annual emissions increased.

   Due to the refinements in the construction schedule for the Modified Project, the peak monthly emissions decrease, although many other month emissions increase, causing the total annual emissions to increase.

   The reason why the annual combustion emissions increase for all pollutants except CO, is due to the magnitude of emission increases or decreases from different types of vehicle and equipment. Case 2, presented in Response 8e, further illustrates this situation.

d. The rationale for the daily decrease in “other delivery trucks” emissions while the annual emission increase is the same as presented in Response 8c.

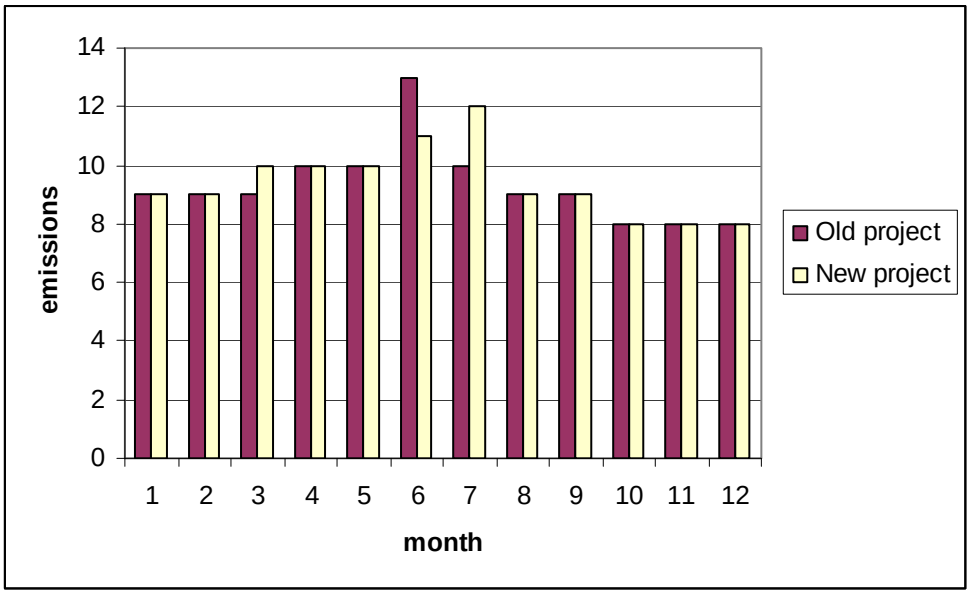
e. The emission increases of PM_{10} and $PM_{2.5}$ from the onsite Maintenance & Security Vehicles and Equipment used in operation phase, are due to the same reason stated in Response 8a, the new EPA AP-42 paved road equation provides higher emission factors than the old equation.

   The reason the emissions decrease for NO_2, VOC, and CO but increase for SO_2, is because there is a different emission profile for the different type of equipment. Due to project refinements the types and numbers of vehicles used during operations have been updated. Comparing the new added equipment and vehicles (e.g. PV Module Washing Truck, Skid-Steer Loader, and Four Wheel ATV) with the reduced equipment and vehicles (SunCatcher

Washing Vehicle, Forklift, etc.), the total emissions have increases of SO2 but decreases of the other pollutants.

Case 1 Illustration:

Month	Emissions	
	Old Project	Revised Project
1	9	9
2	9	9
3	9	10
4	10	10
5	10	10
6	13	11
7	10	12
8	9	9
9	9	9
10	8	8
11	8	8
12	8	8
Annual Total	112	113
Peak	13	12

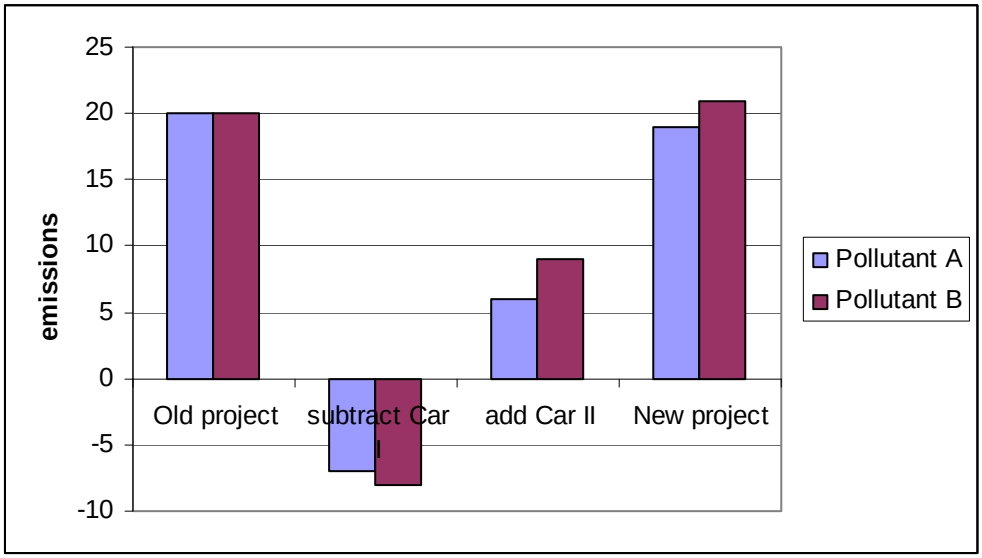


Case 2 below illustrates a generic project looking at emissions before and after project refinements. If one type of vehicle is replaced with another, in this case, the emissions of pollutant A decrease while the emissions of pollutant B increase. In the case of the Modified Project, many adjustments were made to the vehicle types and schedules,

therefore causing many opportunities for pollutant increases or decreases. The total pollutant emissions are based on many variables, therefore an increase in one pollutant does not automatically signify an increase in another pollutant.

Case 2 Illustration:

	Emissions	
	Pollutant A	Pollutant B
Old Project	20	20
Subtract Car I	-7	-8
Add Car II	6	9
Revised Project	19	21



TECHNICAL AREA: AIR QUALITY

Data Request 9. Please evaluate whether the modified total construction emissions will exceed General Conformity applicability thresholds (NOX – 100 tons/year, PM10 – 70 tons/year).

Response: The project site is located in the MDAQMD jurisdictional area which is currently designated as moderate nonattainment area for both federal 8-hour ozone and 24-hour PM_{10} standards. Therefore, the applicable General Conformity De Minimis thresholds should be 100 tons/year for NO_x and 100 tons/year for PM_{10} based on the regulations under 40 CFR Part 51, Subpart W; 40 CFR Part 93, Subpart B.

By comparing the total onsite and offsite construction emissions submitted to CEC in the Petition to Amend, the Modified Project construction emissions are 71.94 ton/year for NO_x and 72.18 ton/year for PM_{10}, which are both below the general conformity thresholds of 100 tons per year.

TECHNICAL AREA: AIR QUALITY

Data Request 10. Please provide a revised modeling analysis to show that the temporary portable generators, the emergency generator, along with the other construction emission sources, would not cause exceedances of applicable air quality standards.

Response: Previous modeling analyses have been conducted for the construction phase of the Modified Project to ensure the impacts from the construction related emissions are less than significant. For every pollutant and averaging time, except short-term NOx, the emissions used in the analysis for the Approved Project were higher. Therefore even lower concentrations would be expected from the lower emissions, so it was determined that new analyses would not be necessary. Per the guidance of CEC staff, it was determined that since the short-term NOx emissions previously modeled were lower, new modeling should be conducted to show compliance with the California 1-hr NO_2 standard.

The modeling analysis was conducted to reflect the updated NOx emissions, the new construction phasing and the plot plan included in the Petition to Amend. The results of this modeling analysis show the maximum predicted 1-hour NO2 concentration was 53.95 µg/m^3. The total concentration including the background concentration of 163.6 µg/m^3, was 217.51 µg/m^3. Therefore, the project complies with the California 1-hr NO_2 standard of 339 µg/m^3 or 0.18 ppm.

Modeling files are available on compact disc.

TECHNICAL AREA: BIOLOGICAL RESOURCES

Data Request 11. Please provide a detailed analysis of how the impacts to state waters were calculated for the amended project. Include information on any additional impacts to state waters that will result from straight-line placement of PV arrays.

Response: In determining the waters of the state disturbance, the proposed facilities of the Modified Project were positioned across the established Waters of the State boundaries and area calculations were performed utilizing computer assisted drafting technologies.

The Modified Project's direct impacts to state waters were calculated as follows:

- The impacts from the Modified Project's access roads were determined by utilizing a width of permanent disturbance for each type of project access. The main site access and secondary site access road utilized a width of 100 feet, the access roads a width of 14 feet, and the SunCatcher maintenance roads, perimeter access roads and unimproved module access points a width of 10 feet.
- The PV module layout has been designed to leave a 10 foot wide corridor where the existing ground will remain unchanged and a 20.5 foot wide cleared corridor for the installation of modules and their associated unimproved module access points.
- Removing the impacts of the unimproved module access points, the impacts to the state waters for the PV module rows have been calculated utilizing a corridor of 10.5 feet wide. This calculation includes two rows of 5.25 foot wide PV modules
- The main service complex, inverter pads, temporary laydown/storage yard, temporary assembly buildings, substation and proposed water line impacts were calculated using the outer limits of construction.

These impacts to the state waters were calculated for improvements within the Modified Project boundary of 4,613 acres and include 90.2 acres of impacts to waters of the state.

Additional indirect impacts to the state waters from the placement of the straight-line PV arrays are expected to be minimal because the roadways will be designed to accommodate existing flows and to maintain existing drainage patterns. A more comprehensive analysis will be provided when the infiltration report is completed.

TECHNICAL AREA: BIOLOGICAL RESOURCES

Data Request 12. Please provide information on the potential for unimproved roads within PV arrays to impact state waters through increased erosion due to vegetation management (mowing). If erosion or other impacts to ephemeral washes from unimproved access roads are not expected, please explain why.

Response: The potential for unimproved roads within PV arrays to impact state waters through increased erosion due to vegetation management (mowing and other vegetation management strategies) are anticipated to be minimal. The brush trimming down to three inches as proposed by the Modified Project will leave the root structure of the plant intact. Vegetation is expected to recover after one or two good rainfall seasons. It is anticipated that additional trimming (for maintenance purposes) will occur infrequently, thus vegetation will be allowed to grow back and provide erosion control function.

Vegetation is spaced around the Modified Project site at intervals of approximately 15-20 feet. Due to the relative sparsity of vegetation onsite, vehicles conducting operational activities on the unimproved module access points and expected to be able to largely avoid driving over existing vegetation since the vegetation is spaced at intervals that are greater than a vehicle's width.

Further, erosion and other impacts to ephemeral washes from use of unimproved access roads are expected to be unsubstantial because the all-terrain vehicles (ATVs) or small trucks used for washing and maintenance of the PV arrays will only be accessing the areas up to four times a year. Any erosion resulting from the ATVs crossing washes would be highly localized and the impacts from using the unimproved access roads on a quarterly basis would create a minimal footprint. Additional detail will be provided in the infiltration report provided in response to Data Request 14.

Given the sensitivity of desert habitats to disturbance and the slow rate of natural recovery, the best management option is to limit the extent and intensity of impacts as much as possible (Lovich, J.E., and Bainbridge, D., 1999). Quarterly use of the access points is consistent with this management recommendation.

TECHNICAL AREA: BIOLOGICAL RESOURCES

Data Request 13. Please provide information regarding the amended project's impacts to state waters as specified in the following: http://www.waterboards.ca.gov/lahontan/water_issues/programs/clean_water_act_401/docs/401instructions2app.pdf.

Response: Like the Approved Project, the Modified Project will not impact any waters of the U.S. and therefore no Clean Water Act Section 401 Water Quality Certification is required. As with the Approved Project, however, the Modified Project will result in direct impacts to waters of the state and the Project is currently preparing a revised Report of Waste Discharge (ROWD) that will describe the impacts to waters of the state as required in the form referenced in this request. Calico anticipates submitting the revised ROWD to the Regional Water Quality Control Board and the CEC on or before May 31, 2011, as descried in the Applicant's Letter Regarding Data Request Set 1 filed May 5, 2011.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 14. Please provide the hydrology, hydraulic and sediment transport/scour studies for the Modified Project.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5, 2011, the response to Data Request 14 is not yet available.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 15. Please provide revised grading and drainage plans that are specific to the Modified Project.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5, 2011, the response to Data Request 15 is not yet available.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 16. Please revise Tables 4.5-1 and 4.5-2 to include Approved Project values.

Response: Per your request, below are revised versions of Tables 4.5-1 and 4.5-2 that now include Approved Project values.

Due to the fact the December 1, 2010 Decision did not include approximate disturbance acreages for the Approved Project, we provide these values from the Supplemental Staff Assessment, July 2010 as the "SSA - 850 MW Project" and calculated these values from engineering designs for the Approved Project.

Table 4.5-1 (Revised)
Approximate Disturbance Acreages

Project Component	SSA - 850 MW Project	Approved Project	Modified Project
Total Project Acreage	6,215	4,613	4,613
Main Services Complex, parking and services	17	17	20
Substation	13.8	13.8	15.5
PV Technology and Unimproved Module Access Points	NA	NA	1,984.8
SunCatchers and SunCatcher Maintenance Roads	3,300	2,618.3	482.8
Transformers, hydrogen and inverters	50	50	7.4
Main Access Road, unpaved access roads and boundary fence	685.6	169.6	272
Total Disturbed Area	4,066.4	2,868.7	2,782.5
Percentage Disturbed	65%	62%	60%

Due to the fact the December 1, 2010 Decision did not include the correct values for the operational water usage rates for the Approved Project, these values were taken from the Supplemental Staff Assessment, July 2010. We also note that we revised the values from the Petition to Amend for potable water use and hydrogen production plant to correct a calculation error and provided the revised totals for the Modified Project.

Table 4.5-2 (Revised)
Operation Water Usage Rates for the Modified Project

	Approved Project[1]			Modified Project		
Water Use	Daily Average (gallons per minute)	Daily Maximum (gallons per minute)	Annual Usage (acre feet)	Daily Average (gallons per minute)	Daily Maximum (gallons per minute)	Annual Usage (acre feet)
Equipment Water Requirements						
SunCatcher Mirror Washing	9.3	25.0	10.3	1.6	5.7	2.2
PV (photovoltaic) Module Washing	NA	NA	NA	4.2	14.9	5.8
Water Treatment System Discharge						
Brine to Evaporation Ponds	4.7	14.1	5.2	2.3	12.8	3.9
Potable Water Use						
For Drinking and Sanitary Water Requirements	1.6	1.9	2.2	1.1	1.6	1.7
Dust Control						
Well Water for Dust control During Operations	1.5	28.6	2.5	4.5	15.8	6.1
Hydrogen Production Plant						
Water to Produce Hydrogen for SunCatchers	0.1	0.2	0.2	0.02	0.1	0.03
Totals	17.3	69.8	20.4	13.72	50.9	19.73

[1]The information for the Approved Project is from Soil & Water Table 5, Operations Water Usage Rates, in the Supplemental Staff Assessment, July 2010, which analyzed the 850MW project.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 17. Please provide a table, similar to that discussed above, indicating construction water use.

Response: Due to the fact the December 1, 2010 Decision did not include these values for the Approved Project, the construction water usage rates for the Approved Project were taken from the Supplemental Staff Assessment, July 2010.

	Approved[1] Project – Estimated Volume of Water Required		Modified Project – Estimated Volume of Water Required	
Month of Construction	Millions of Gallons	Acre Feet	Millions of Gallons	Acre Feet
1	3,278,200	10.06	3,030,414	9.3
2	3,278,200	10.06	3,030,414	9.3
3	3,369,775	10.34	3,291,095	10.1
4	3,811,595	11.70	3,291,095	10.1
5	3,915,144	12.02	3,291,095	10.1
6	3,915,144	12.02	3,291,095	10.1
7	3,823,569	11.73	3,291,095	10.1
8	3,823,569	11.73	3,291,095	10.1
9	3,823,569	11.73	3,291,095	10.1
10	3,823,569	11.73	3,291,095	10.1
11	3,823,569	11.73	3,291,095	10.1
12	3,823,569	11.73	3,291,095	10.1
1st year total	44,509,472	136.58	38,971,780	119.6
13	3,823,569	11.73	3,291,095	10.1
14	3,549,820	10.89	3,291,095	10.1
15	3,549,820	10.89	3,291,095	10.1
16	3,549,820	10.89	3,291,095	10.1
17	3,549,820	10.89	3,291,095	10.1
18	3,108,000	9.54	3,291,095	10.1
19	3,108,000	9.54	3,291,095	10.1
20	3,108,000	9.54	3,291,095	10.1
21	3,108,000	9.54	3,291,095	10.1

(Continued)

	Approved[1] Project – Estimated Volume of Water Required		Modified Project – Estimated Volume of Water Required	
Month of Construction	Millions of Gallons	Acre Feet	Millions of Gallons	Acre Feet
22	3,108,000	9.54	3,649,531	11.2
23	3,359,073	10.31	3,649,531	11.2
24	3,359,075	10.31	3,649,531	11.2
2nd year total	40,280,997	123.61	40,568,450	124.5
25	3,400,702	10.44	3,649,531	11.2
26	3,916,160	12.02	3,649,531	11.2
27	0	0.00	3,649,531	11.2
28	0	0.00	3,291,095	10.1
29	0	0.00	3,291,095	10.1
30	0	0.00	3,291,095	10.1
31	0	0.00	3,291,095	10.1
32	0	0.00	3,291,095	10.1
33	4,045,919	12.42	3,291,095	10.1
34	4,045,921	12.42	3,291,095	10.1
35	4,004,928	12.29	3,714,701	11.4
36	4,004,300	12.29	3,714,701	11.4
3rd year total	23,417,930	71.88	41,415,662	127.1
37	4,004,302	12.29	3,779,872	11.6
38	4,004,304	12.29	3,926,505	12.05
39	4,004,306	12.29	3,926,505	12.05
40	4,004,307	12.29	3,926,505	12.05
41	4,004,309	12.29	3,926,505	12.05
42	4,004,311	12.29	3,926,505	12.05
43	3,753,242	11.52	3,926,505	12.05
44	3,753,243	11.52	3,926,505	12.05
45	3,753,245	11.52	3,926,505	12.05
46	3,753,247	11.52	3,926,505	12.05
47	3,753,249	11.52	3,926,505	12.05
48	3,623,493	11.12	3,926,505	12.05
4th year total	46,415,558	142.46	46,971,422	144.2

(Continued)

	Approved[1] Project – Estimated Volume of Water Required		Modified Project – Estimated Volume of Water Required	
Month of Construction	Millions of Gallons	Acre Feet	Millions of Gallons	Acre Feet
49	3,623,495	11.12	NA	NA
50	3,623,497	11.12	NA	NA
51	3,623,499	11.12	NA	NA
52	3,623,501	11.12	NA	NA
53	3,623,503	11.12	NA	NA
54	3,623,504	11.12	NA	NA
55	3,623,506	11.12	NA	NA
56	3,108,052	9.54	NA	NA
57	3,108,054	9.54	NA	NA
58	3,108,056	9.54	NA	NA
59	3,108,056	9.54	NA	NA
60	3,108,056	9.54	NA	NA
5th Year Total	40,904,779	125.54	NA	NA
Construction Total	195,528,736	600.07	167,927,313	515

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 18. Please provide an analysis of the potential for soil erosion and the increased potential for infiltration along the barren soil roads of the Modified Project.

Response: Analysis beyond that presented in the response to Data Request 12 is not available. The Modified Project will meet or exceed the same performance standards for both infiltration and soil erosion set forth in the Approved Project. An analysis for the potential for soil erosion and the increased potential for infiltration along the unimproved module access points will be included in the study prepared in response to Data Requests 14 and 21.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 19. Please provide the construction design of the water line from the well head to the main services complex.

Response: Horizontal plan views of waterline from the connection to the existing well to the Main Service Complex and details of the typical trenching and thrust blocking have been included (please see attachment SWR-1).

The preliminary design drawings of the connection to the existing well are provided as attachment SWR-2.

SWR-1

LEGEND:

- PROPOSED WATER LINE
- ACCESS ROAD
- PHASE I TYPICAL TRACKER ROW (24 MODULES)
- TUG — EXISTING TELEPHONE LINE
- POH — EXISTING OVERHEAD POWER
- GAS — EXISTING GAS LINE
- PV MODULE SETBACK
- EXISTING GATE VALVE
- E — EXISTING ELECTRIC BOX
- W — EXISTING WATER METER
- W — EXISTING WELL
- T — EXISTING TELEPHONE BOX
- EXISTING POST
- EXISTING GUY WIRE
- EXISTING RIGHT-OF-WAY
- SECTION LINE
- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- EXISTING WATER OF THE STATE
- ENVIRONMENTALLY SENSITIVE AREA

** NORTH/SOUTH WATER LINE IS DRAWN WITH THE INTENTION THAT IT WILL BE INSTALLED DOWN UNIMPROVED MODULE ACCESS POINTS FOR FUTURE ACCESS AND MAINTENANCE **

0' 100' 200' 300'

NOT FOR CONSTRUCTION

20101055-10WMF01.dwg

Date: 05/09/11 Sheet: 1 OF 5

Westwood

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Revisions:
-
-

Designed: ADC
Checked: ADC
Drawn: DJW
Record Drawing by/date:

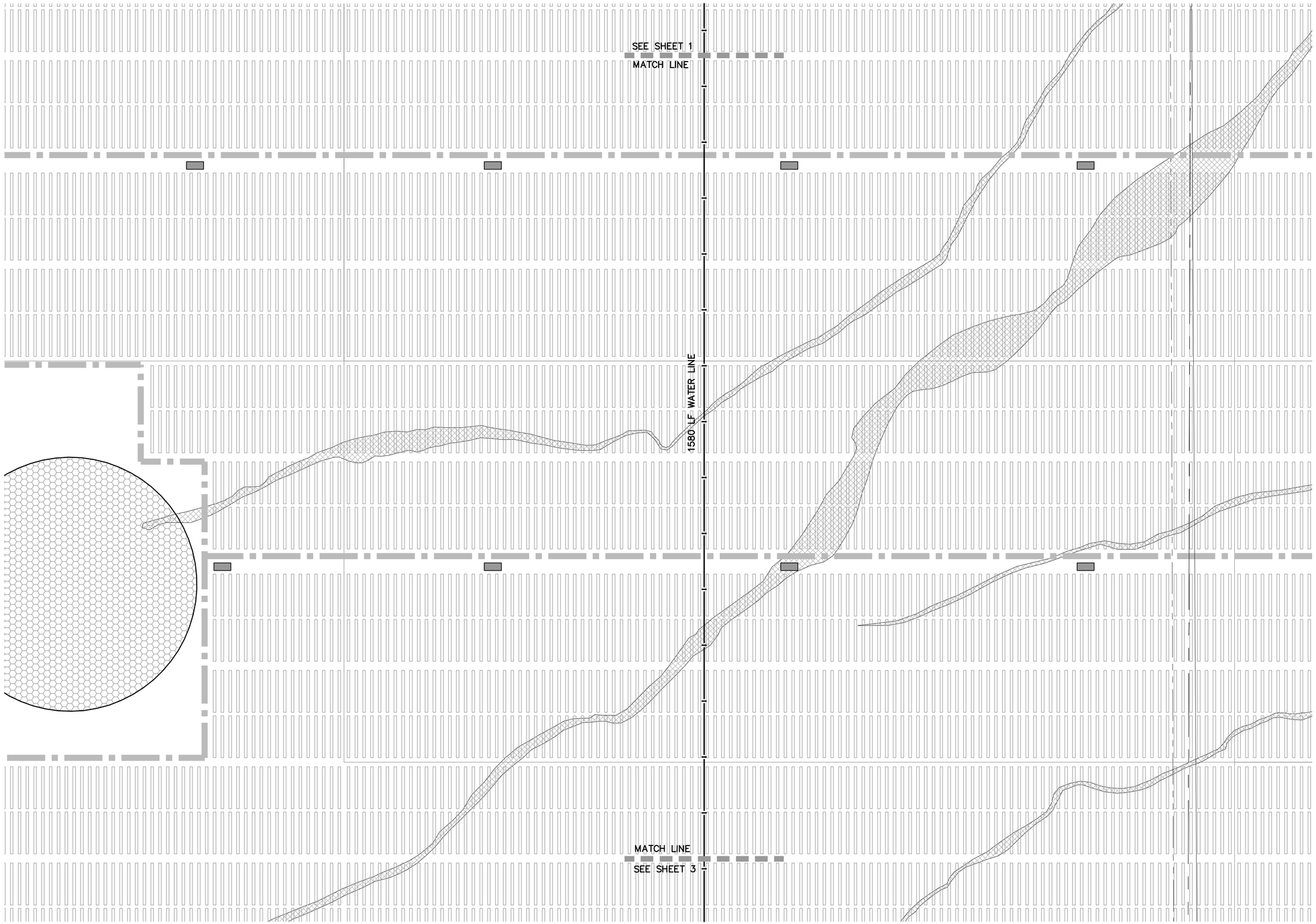
Prepared for:

kRoad
2600 10th Street
Suite 635
Berkeley, CA 94710

Calico Solar

San Bernardino County, California

WATER LINE PLAN



LEGEND:

- PROPOSED WATER LINE
- ACCESS ROAD
- PHASE I TYPICAL TRACKER ROW (24 MODULES)
- TUG — EXISTING TELEPHONE LINE
- POH — EXISTING OVERHEAD POWER
- GAS — EXISTING GAS LINE
- PV MODULE SETBACK
- EXISTING GATE VALVE
- E — EXISTING ELECTRIC BOX
- W — EXISTING WATER METER
- W — EXISTING WELL
- T — EXISTING TELEPHONE BOX
- EXISTING POST
- EXISTING GUY WIRE
- EXISTING RIGHT-OF-WAY
- SECTION LINE
- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- EXISTING WATER OF THE STATE
- ENVIRONMENTALLY SENSITIVE AREA

** NORTH/SOUTH WATER LINE IS DRAWN WITH THE INTENTION THAT IT WILL BE INSTALLED DOWN UNIMPROVED MODULE ACCESS POINTS FOR FUTURE ACCESS AND MAINTENANCE **

N

0' 100' 200' 300'

NOT FOR CONSTRUCTION

20101055-10WMF01.dwg

Date: 05/09/11 Sheet: 2 OF 5

Calico Solar

San Bernardino County, California

WATER LINE PLAN

Westwood

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

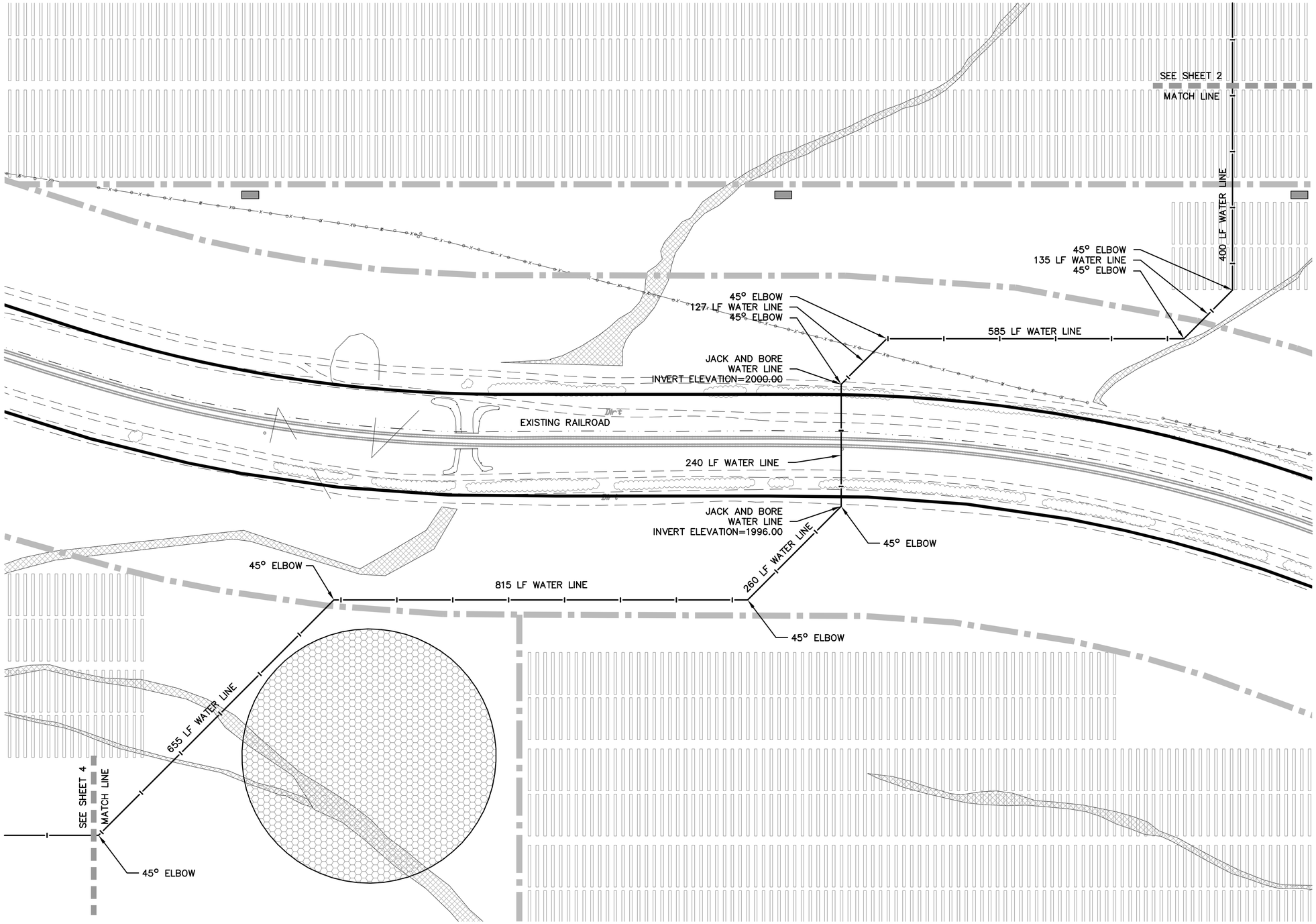
www.westwoodps.com

Revisions:
-
-

Designed:	ADC
Checked:	ADC
Drawn:	DJW
Record Drawing by/date:	

Prepared for:

kRoad
2600 10th Street
Suite 635
Berkeley, CA 94710



LEGEND:

- PROPOSED WATER LINE
- ACCESS ROAD
- PHASE I TYPICAL TRACKER ROW (24 MODULES)
- TUG — EXISTING TELEPHONE LINE
- POH — EXISTING OVERHEAD POWER
- GAS — EXISTING GAS LINE
- PV MODULE SETBACK
- EXISTING GATE VALVE
- E — EXISTING ELECTRIC BOX
- W — EXISTING WATER METER
- W — EXISTING WELL
- T — EXISTING TELEPHONE BOX
- EXISTING POST
- EXISTING GUY WIRE
- EXISTING RIGHT-OF-WAY
- SECTION LINE
- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- EXISTING WATER OF THE STATE
- ENVIRONMENTALLY SENSITIVE AREA

** NORTH/SOUTH WATER LINE IS DRAWN WITH THE INTENTION THAT IT WILL BE INSTALLED DOWN UNIMPROVED MODULE ACCESS POINTS FOR FUTURE ACCESS AND MAINTENANCE **

0' 100' 200' 300'

NOT FOR CONSTRUCTION

20101055-10WMF01.dwg

Date: 05/09/11 Sheet: 3 OF 5

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Revisions:
-
-

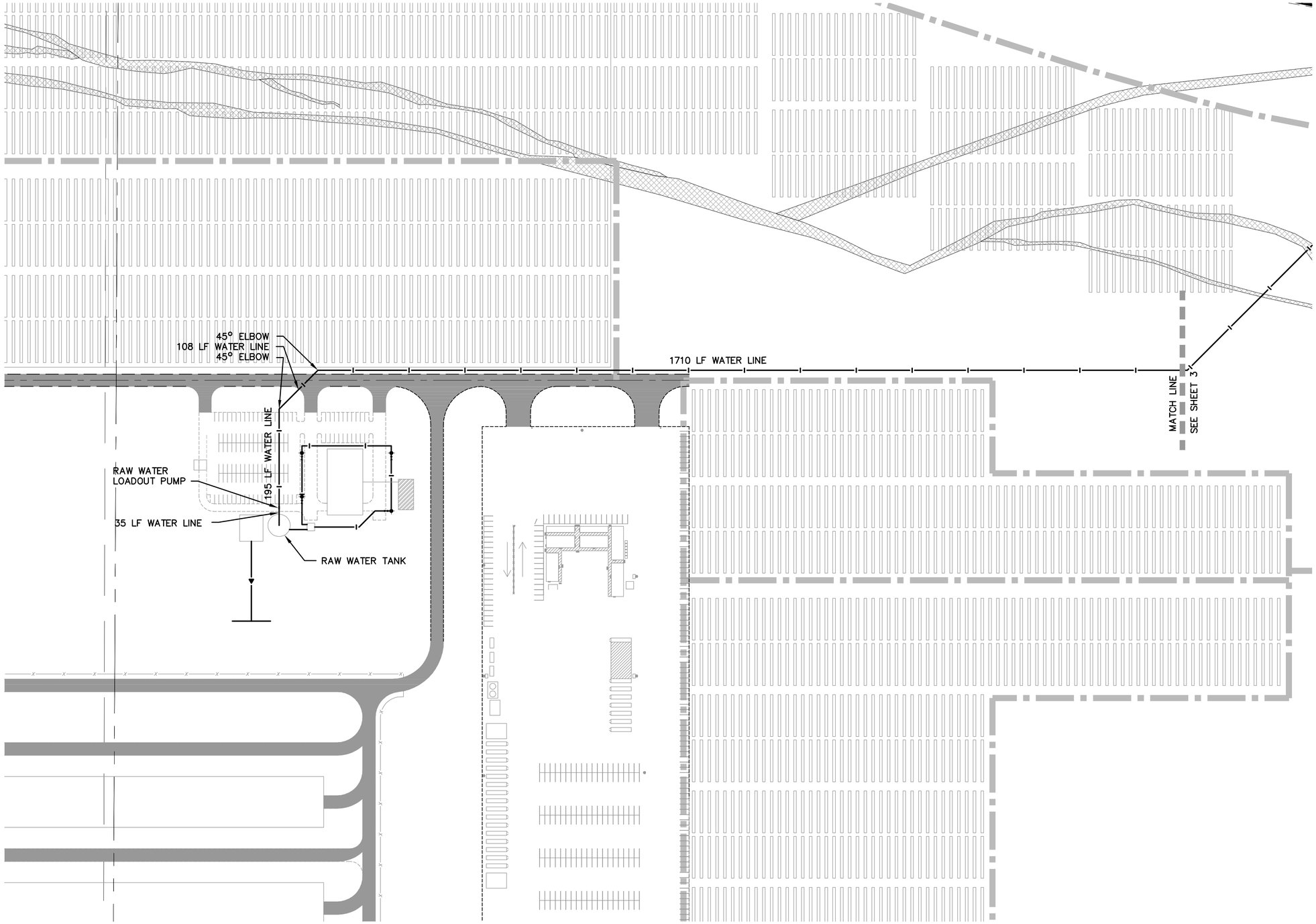
Designed: ADC
Checked: ADC
Drawn: DJW
Record Drawing by/date:

Prepared for:

kRoad
2600 10th Street
Suite 635
Berkeley, CA 94710

Calico Solar
San Bernardino County, California

WATER LINE PLAN



LEGEND:

- PROPOSED WATER LINE
- ACCESS ROAD
- PHASE I TYPICAL TRACKER ROW (24 MODULES)
- TUG — EXISTING TELEPHONE LINE
- POH — EXISTING OVERHEAD POWER
- GAS — EXISTING GAS LINE
- PV MODULE SETBACK
- EXISTING GATE VALVE
- E — EXISTING ELECTRIC BOX
- W — EXISTING WATER METER
- W — EXISTING WELL
- T — EXISTING TELEPHONE BOX
- EXISTING POST
- EXISTING GUY WIRE
- EXISTING RIGHT-OF-WAY
- SECTION LINE
- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- EXISTING WATER OF THE STATE
- ENVIRONMENTALLY SENSITIVE AREA

** NORTH/SOUTH WATER LINE IS DRAWN WITH THE INTENTION THAT IT WILL BE INSTALLED DOWN UNIMPROVED MODULE ACCESS POINTS FOR FUTURE ACCESS AND MAINTENANCE **

N

0' 100' 200' 300'

NOT FOR CONSTRUCTION

20101055-10WMF01.dwg

Date: 05/09/11 Sheet: 4 OF 5

Calico Solar

San Bernardino County, California

WATER LINE PLAN

Westwood

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

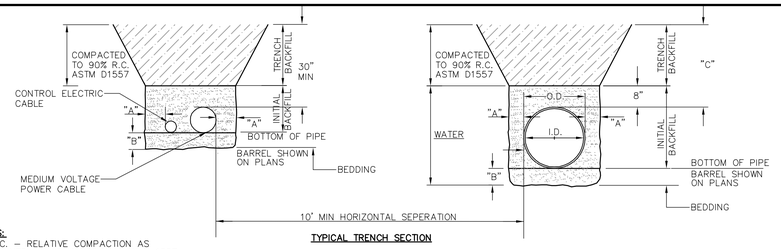
www.westwoodps.com

Revisions:
-
-

Designed: ADC
Checked: ADC
Drawn: DJW
Record Drawing by/date:

Prepared for:

kRoad
2600 10th Street
Suite 635
Berkeley, CA 94710



TYPICAL TRENCH SECTION

NOTES:

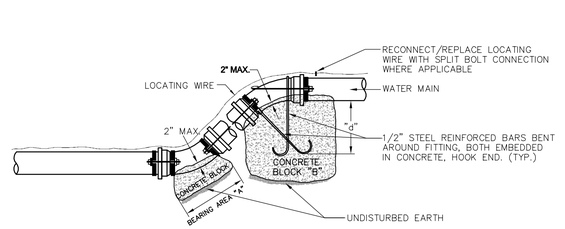
1. R.C. – RELATIVE COMPACTION AS DETERMINED BY ASTM DESIGNATION D 1557 OR 698.
2. NO SOLID BLOCKING PERMISSIBLE BENEATH PIPE.
3. JETTING BACKFILL IS NOT PERMITTED.
4. PIPE BEDDING AND PIPE ZONE BACKFILL MATERIAL SHALL HAVE A SAND EQUIVALENCY GREATER OR EQUAL TO 30. SELECT MATERIAL FROM EXCAVATION MAY BE USED IF MATERIAL IS FREE OF LARGE DIAMETER AGGREGATE AND DEBRIS. APPROVAL FROM INSPECTOR IS REQUIRED.
5. PIPE BEDDING AND BACKFILL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF 90% PER ASTM DESIGNATION D 1557 OR 698.

TABLE A		
DIMENSION NAME	PIPE DIAMETER (INCHES)	DIMENSION (INCHES)
A (MIN. TRENCH CLEARENCE)	≤12 >12	8 10
B (MIN. BEDDING BELOW PIPE)	≤12 >12	3 6

TABLE B		
DIMENSION NAME	STANDARD INSTALLATION	RAILROAD TRACKS CROSSING
C INSTALLATION DEPTH	>36"	>48"

** DETAIL NOT DRAWN TO SCALE **

TYPICAL TRENCH SECTION	LAST REVISED: 05/09/11

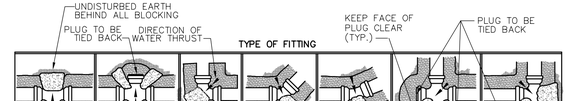


SIZE IN PIPE	4–6"	8"	12"
MINIMUM DEPTH "d"	6"	8"	20"
YDS. CONCRETE NECESSARY TO PROVIDE WEIGHT, BLOCK "B"	0.8	1–1/3	3
BEARING AREA "A" SQ. FT.	2	3	6.5

NOTE:

1. RESTRAINED JOINTS MAY BE USED IN LIEU OF CONCRETE BLOCKING WITH THE APPROVAL OF THE ENGINEER.

CHANGES IN MAIN ELEVATION, 6" – 12"



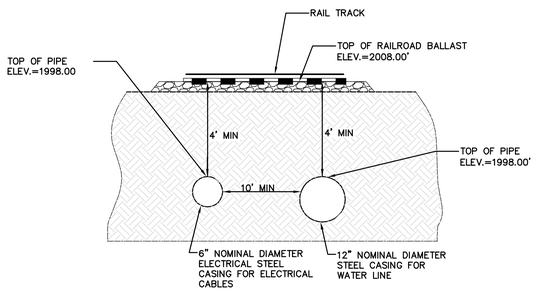
TEE OR DEAD END		CROSS AND PLUG		90° ELBOW		45° ELBOW		22 1/2° ELBOW		CROSS AND PLUGS		TEE AND PLUG	
MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA
4–6"	2	4–6"	3	4–6"	3	4–6"	2	4–6"	1	4–6"	3	4–6"	3
8"	3.5	8"	5	8"	5	8"	3	8"	1.5	8"	5	8"	5
12"	8	12"	11.5	12"	11.5	12"	5	12"	3.5	12"	11.5	12"	11.5

NOTES:

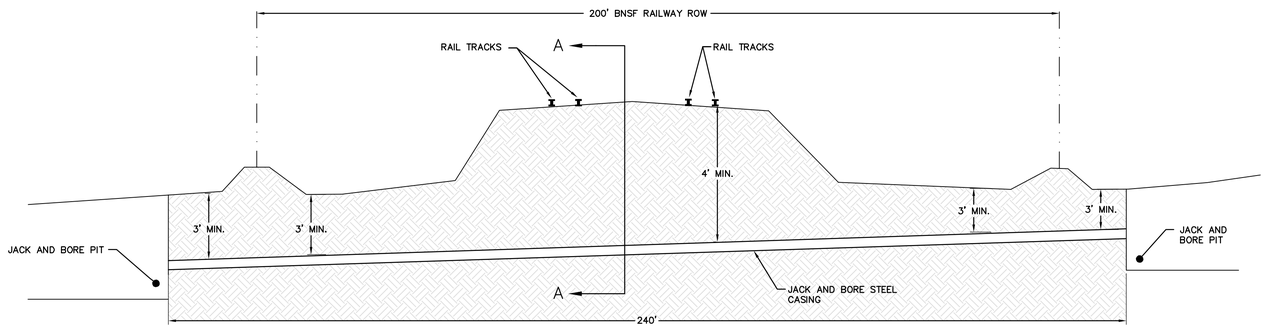
1. ABOVE BEARING AREAS BASED ON 150 PSI SERVICE PRESSURE AND 2000 PSF SOIL BEARING CAPACITY. WHERE SOIL CONDITIONS REQUIRE ADJUSTMENT OF ALLOWABLE BEARING PRESSURE, IN THE OPINION OF THE ENGINEER, REQUIRED BLOCKING AREAS WILL BE ADJUSTED.
2. USE CLASS "D" CONCRETE FOR BLOCKING. SEE STANDARD SPECS.
3. VERTICAL AND HORIZONTAL CHANGES IN DIRECTION REQUIRE BLOCKING AS SHOWN ABOVE.
4. CONCRETE THRUST BLOCKING SHALL NOT COMPLETELY INUNDATE FITTING.
5. RESTRAINED JOINTS MAY BE USED IN LIEU OF CONCRETE BLOCKING WITH THE APPROVAL OF THE ENGINEER.

** DETAIL NOT DRAWN TO SCALE **

TYPICAL THRUST BLOCK DETAIL	LAST REVISED: 05/09/11



JACK AND BORE DETAIL SECTION "A–A"



NOTES:

1. PROVIDE SPACERS THROUGHOUT STEEL CROSSING TO SUPPORT INSTALLED UULITIES.
2. CASING PIPE SHALL BE CENTERED WITHIN CASING
3. ENDS OF CASING SHALL BE PLUGGED
4. CASING SHALL BE FILLED WITH PRESSER BLOWN SAND

** DETAIL NOT DRAWN TO SCALE **
LENGTHS NOTED ARE ACCURATE

JACK AND BORE BELOW BNSF RAILWAY	LAST REVISED: 05/09/11

NOT FOR CONSTRUCTION

20101055–10WMF01.dwg

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Revisions:

Designed: ADC
Checked: ADC
Drawn: DJW
Record Drawing by/date:

Prepared for:

kRoad
2600 10th Street
Suite 635
Berkeley, CA 94710

Calico Solar
San Bernardino County, California

Date: 05/09/11 Sheet: 5 OF 5

WATER LINE DETAILS

SWR-2

CALICO SOLAR
SAN BERNARDINO COUNTY, CALIFORNIA
CALICO WELL #3

ISSUED PRELIMINARY DESIGN
MAY 9, 2011

PROJECT TEAM
WESTWOOD PROFESSIONAL SERVICES
PROJECT MANAGER: AUGUST CHRISTENSEN, PE (952) 906-7430
SEBESTA BLOMBERG AND ASSOCIATES:
PROJECT MANAGER: MIKE SVENSK, PE (651) 634-7338
MECHANICAL: GREG INMAN, PE (312) 268-5850
ELECTRICAL: STUART RAUVOLA, PE (651) 634-7262
STRUCTURAL: BILL ZERFAS, PE (651) 634-7359

GENERAL DRAWINGS

G-1 TITLE SHEET

MECHANICAL DRAWINGS

M-1 MECHANICAL - CALICO WELL #3 WATER FLOW DIAGRAM

SEBESTA BLOMBERG
877.706.6858 sebesta.com

Calico Solar

Westwood

NOT FOR CONSTRUCTION

A ISSUED PRELIMINARY DESIGN 05/09/2011
Revision: Date:

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of California

Date: Reg. No.:

Project No.:
Checked By: M.C. SVENSK
Designed By: M.C. SVENSK
Drawn By: M.C. SVENSK
Date: 05/05/2011
Scale: NONE

Project Title

CALICO SOLAR
SAN BERNARDINO COUNT
CALIFORNIA

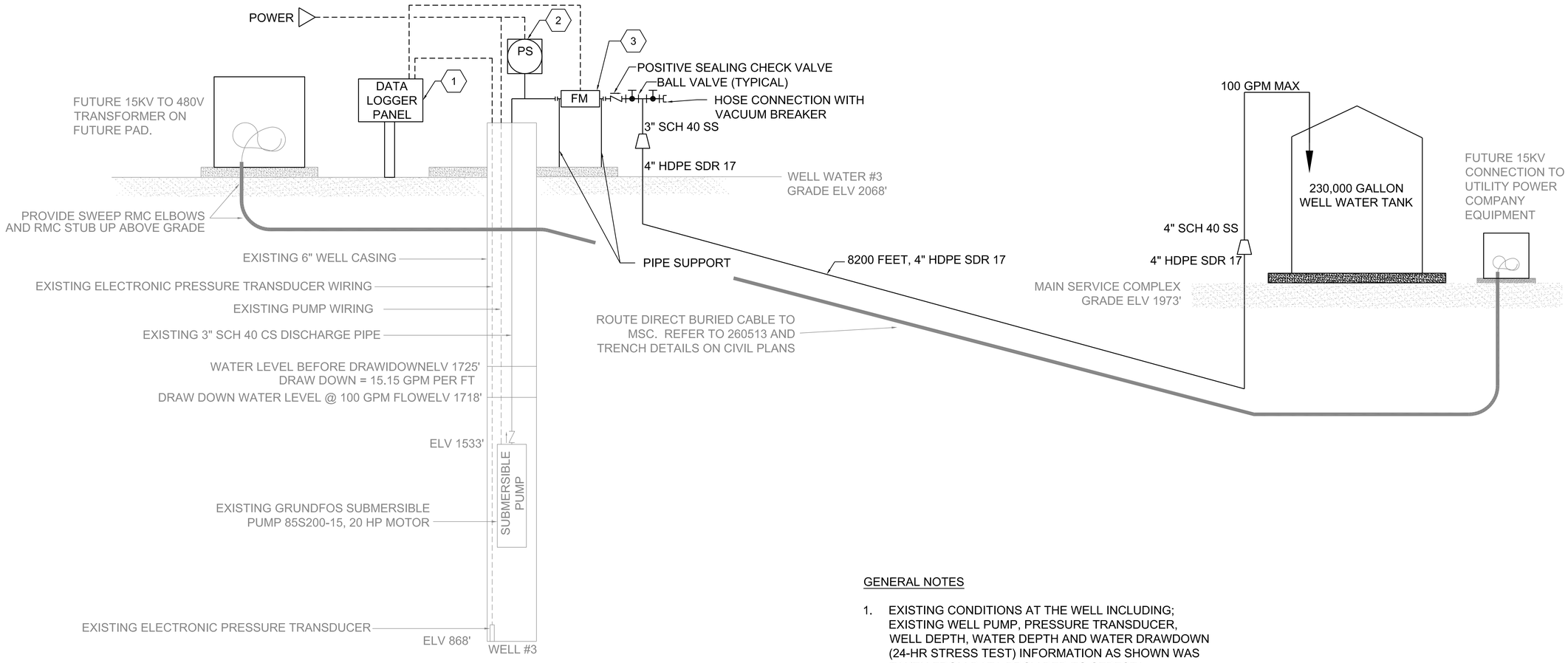
Sheet Title

CALICO WELL #3
TITLE SHEET

Sheet No.

G-1

Plot Date: 2011-05-09 File Location: Z:\Projects\MPLS\Project 20599860.00 Westwood _ Barstow Calif _ Calico Solar Pv\CAD\G1.dwg



1 / M1 WELL #3 PUMPING STATION FLOW DIAGRAM
SCALE: NONE

GENERAL NOTES

1. EXISTING CONDITIONS AT THE WELL INCLUDING; EXISTING WELL PUMP, PRESSURE TRANSDUCER, WELL DEPTH, WATER DEPTH AND WATER DRAWDOWN (24-HR STRESS TEST) INFORMATION AS SHOWN WAS TAKEN FROM DATA PROVIDED TO SEBESTA BLOMBERG IN SEPTEMBER 2010.

2. LENGTH OF WELL WATER PIPE BASED ON WESTWOOD CIVIL PLAN SHOWING ROUTING OF WELL WATER LINE FROM WELL #3 TO MAIN SERVICE COMPLEX WELL WATER TANK.

KEYED NOTES

1. SOLAR AND/OR BATTERY OPERATED DATA LOGGER CAPABLE OF RECORDING GROUNDWATER DEPTH, PUMPING RATES AND CUMULATIVE GROUNDWATER USAGE.
2. WEATHER PROOF DIAPHRAGM OPERATED PRESSURE SWITCH, CAPABLE OF 25 TO 200 PSIG ADJUTABLE OPERATING RANGE WITH LOCAL DISPLAY.
3. BATTERY OPERATED WATER FLOW METER RATED FOR 0 TO 150 GPM FLOW.

SEBESTA BLOMBERG
877.706.6858 sebesta.com

Calico Solar
Westwood

NOT FOR CONSTRUCTION

1 PRELIMINARY DESIGN	05/09/2011
Revision:	Date:

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of California.

Date: _____ Reg. No.: _____

Project No.:
Checked By: M.C.SVENSK
Designed By: M.C.SVENSK
Drawn By: M.C.SVENSK
Date: 05/05/2011
Scale: NONE

Project Title
CALICO SOLAR
SAN BERNARDINO COUNT
CALIFORNIA

CLIENT PROJECT No.

Sheet Title
CALICO WELL #3
WATER FLOW DIAGRAM

Sheet No.
M1

Plot Date: 2011-05-09 File Location: Z:\Projects\MPLS\Project 2\595960.00 Westwood _ Barstow Calif _ Calico Solar FICADWM\M1.dwg

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 20. Please provide a letter of authorization from BNSF indicating their approval of the water line crossing the railroad right of way.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5th, 2011, the response to Data Request 20 is not yet available.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 21. Please provide a draft DESCP specific to the Modified Project that ensures protection of water quality and soil resources of the project site and all linear facilities for both the construction and operation phases of the project. This plan shall address all elements required in a DESCP by the Approved Project. The draft plan shall be consistent with the grading and drainage plan and may incorporate by reference any storm water pollution prevention plan developed in conjunction with any WDR.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5th, 2011, the response to Data Request 21 is not yet available.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 22.

Presented here for your use, as needed, are the elements of the final DESCP that you will ultimately be required to provide:

a. Vicinity Map – A map shall be provided indicating the location of all project elements with depictions of all significant geographic features to include watercourses, washes, irrigation and drainage canals, and sensitive areas.

b. Site Delineation – The site and all project elements shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.

c. Watercourses and Critical Areas – The DESCP shall show the location of all nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site.

d. Drainage – The DESCP shall provide a topographic site map showing all existing, interim, and proposed drainage systems, drainage area boundaries and watershed sizes in acres, and the hydraulic analysis to support the selection of best management practices (BMPs) to divert off-site drainage around or through the site and laydown areas. Spot elevations shall be required where relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet in flat terrain.

e. Clearing and Grading – The plan shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography

f. shall be illustrated. The DESCP shall include a statement of the quantities of material excavated or filled for each element of the project (for example, project site, transmission corridors, and pipeline corridors), whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there will be no clearing and/or grading conducted for each element of the project.

g. Project Schedule – The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each project element for each phase of construction.

h. Best Management Practices – The DESCP shall show the location, timing, and maintenance schedule of all erosion and sediment control BMPs to be used prior to initial grading, during project element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include postconstruction maintenance of treatment control BMPs applied to disturbed areas following construction.

i. Erosion Control Drawings - The erosion control drawings and narrative shall be designed and sealed by a professional engineer or erosion control specialist.

Response: As clarified with the CEC during a phone call on April 15, 2011, the information contained in Data Request 22 is not a data request but rather guidance on the information to be included in the Final DESCP. No response is required.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 23. Please provide the design of the wastewater recycling system.

Response: General Design:

The proposed "wastewater recycling system" for the Modified Project is an industrial treatment process that consists of two unit operations: solids removal by clarification and chemical treatment by adsorptive media for removal of possible petroleum hydrocarbon contaminants. Possible solids are expected to be comprised of soil or dust that accumulate on vehicles or on the O&M Building floor and then are washed into the wastewater recycling system for treatment prior to disposal. Possible petroleum hydrocarbons are expected to results from leaks or drips from maintenance vehicles or equipment onto the floor of the O&M Building or washed from vehicles in the designated vehicle wash area. Employees would be instructed to use best management practices to rinse petroleum hydrocarbons while located within the O&M Building; as such, the amount of petroleum hydrocarbons anticipated to drain from lavatories and emergency eyewash/shower station(s) that drain the O&M building are expected to be minimal and the treatment processes within the septic facilities are anticipated be adequate to treat the de minimus quantities of petroleum waste contributed from these fixtures. The system will be designed to meet relevant water quality standards for wastewaters that are discharged to the ground via on-site waste water disposal systems (e.g. septic facilities that may contain a septic holding system and leach field).

The preliminary site plan layout is presented in attachment SWR-3 (also provided as the response to Data Request No. 24). A preliminary schematic diagram for the wastewater recycling system process is provided as attachment SWR-4.

Description of Preliminary Treatment System Sizing:

The basis of design for the addition of clarification and adsorption to the process water generated from vehicle washing (contained vehicle wash area floor drain) and expected maintenance activities (maintenance facility floor drains) is to remove solids and reduce the concentration of possible petroleum hydrocarbon contamination to acceptable levels prior to discharge into the septic facilities. Wastewater will be generated from the vehicle wash area and during periodic washdown of the O&M Building floor. Washwater from the floor and wash area will gravity-flow to a reservoir, proposed to be installed below ground. Wastewater from the reservoir will be transferred to the clarifiedr unit, and pumped through the adsorption media unit. The independently treated industrial wastewater,

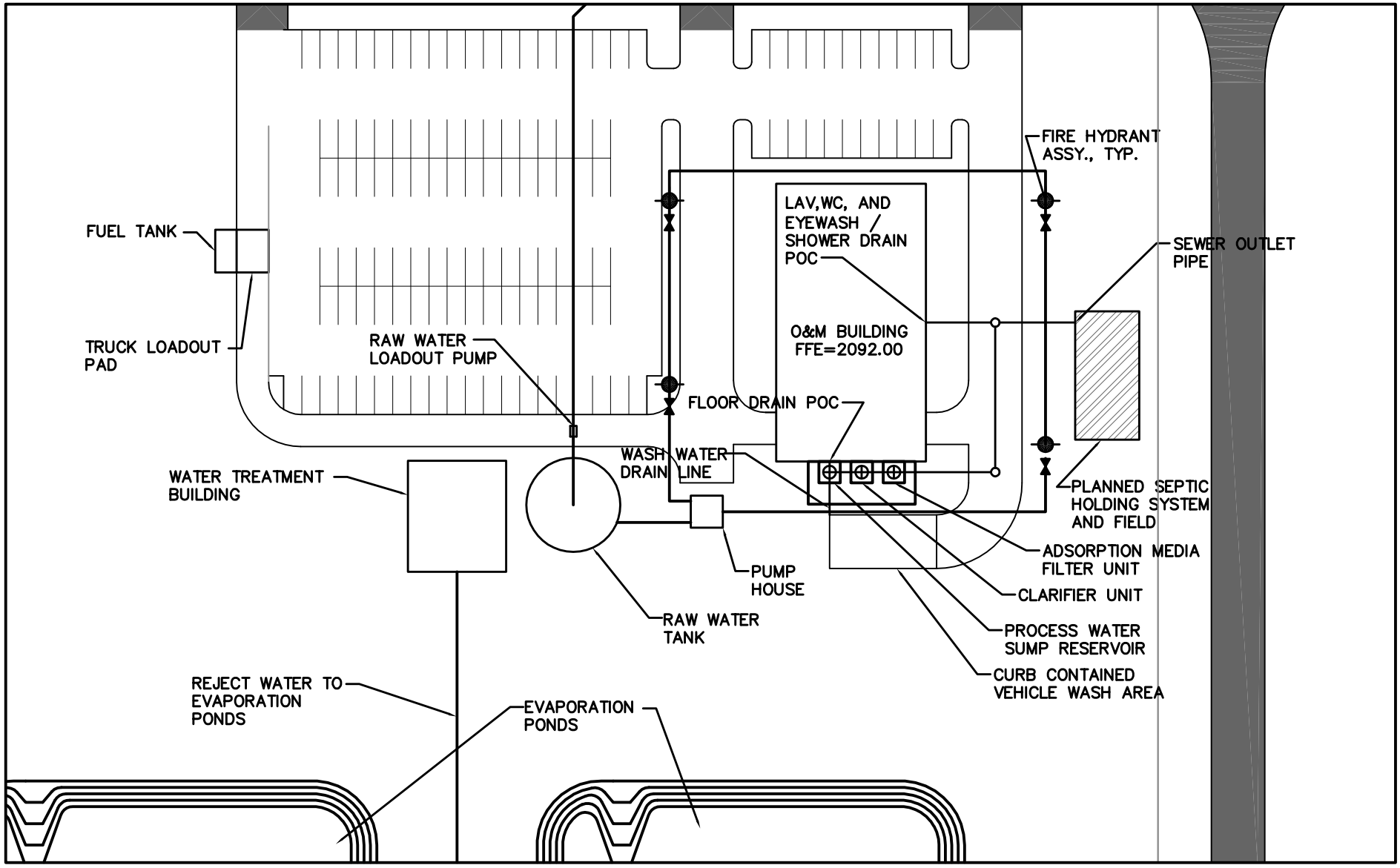
will join with the wastewater generated from the other facility potable water sources within the facility (i.e. water closets, emergency eyewash / shower, and lavatories). All waste water entering the septic system will be collected in a septic holding system where waste will gravity drain to the septic leach field where biological and biochemical oxygen demanding constituents will be effectively treated via anerobic degradation, evapotranspiration and dehydration of the waste contaminants and transformation into inert materials.. The septage accumulated within the septic holding system will be removed and hauled off site by an approved septage hauler to deliver the waste to a County approved septage receiving treatment facility.

The clarifier and adsorption media, likely granular activated carbon (GAC), will be sized and selected during detailed design. Key design criteria will include flow (instantaneous and total), constituents, concentration, and discharge criteria. Sizing will be based on industry standard techniques considering residence time and efficiency. Periodic monitoring will be performed to document the performance of the wastewater recycling system in achieving the discharge criteria. Monitoring is expected to include periodic sampling of the influent and effluent stream and analysis for comparison to performance criteria.

Description of Design Criteria for Wastewater Treatment:

The design will follow the standards of the San Bernardino Department of Public Health, Division of Environmental Health Services as specified in the document “On-Site Waste Water Disposal System, Soil Percolation (PERC) Test Report Standards: Suitability of Lots and Soils for Use of Leachlines or Seepage Pits” dated August 1992, or the most current version at the time ofthe final design plan. This document cites in Attachment B – Lahonton Region that septic systems shall conform to current criteria as stated in the “Regional Board Guidelines for Implementation of Criteria for Individual Waste Disposal Systems,” which is Appendix C of the Lahonton Regional Water Quality Control Board’s Basin Plan. The Guidelines state that “individual waste disposal systems” require “secondary level treatment (of wastewater) …for all “wastewater discharges from … industrial … developments with wastewater discharge volumes exceeding … 500 gal/day/acre.” Since the site has the potential to exceed this volumetric flow rate on peak days, the site will include the proposed industrial process water treatment system (i.e. wastewater recycling system) and septic facilities. The Basin Plan Appendix C does not provide any specific water quality objectives, however, other parts of the Basin Plan specify that groundwater shall meet specific constituent objectives. From our investigation, none of the listed constituents are anticipated to be utilized in the proposed maintenance facilities and thus are not considered further.

SWR-3



CALICO SOLAR

URS

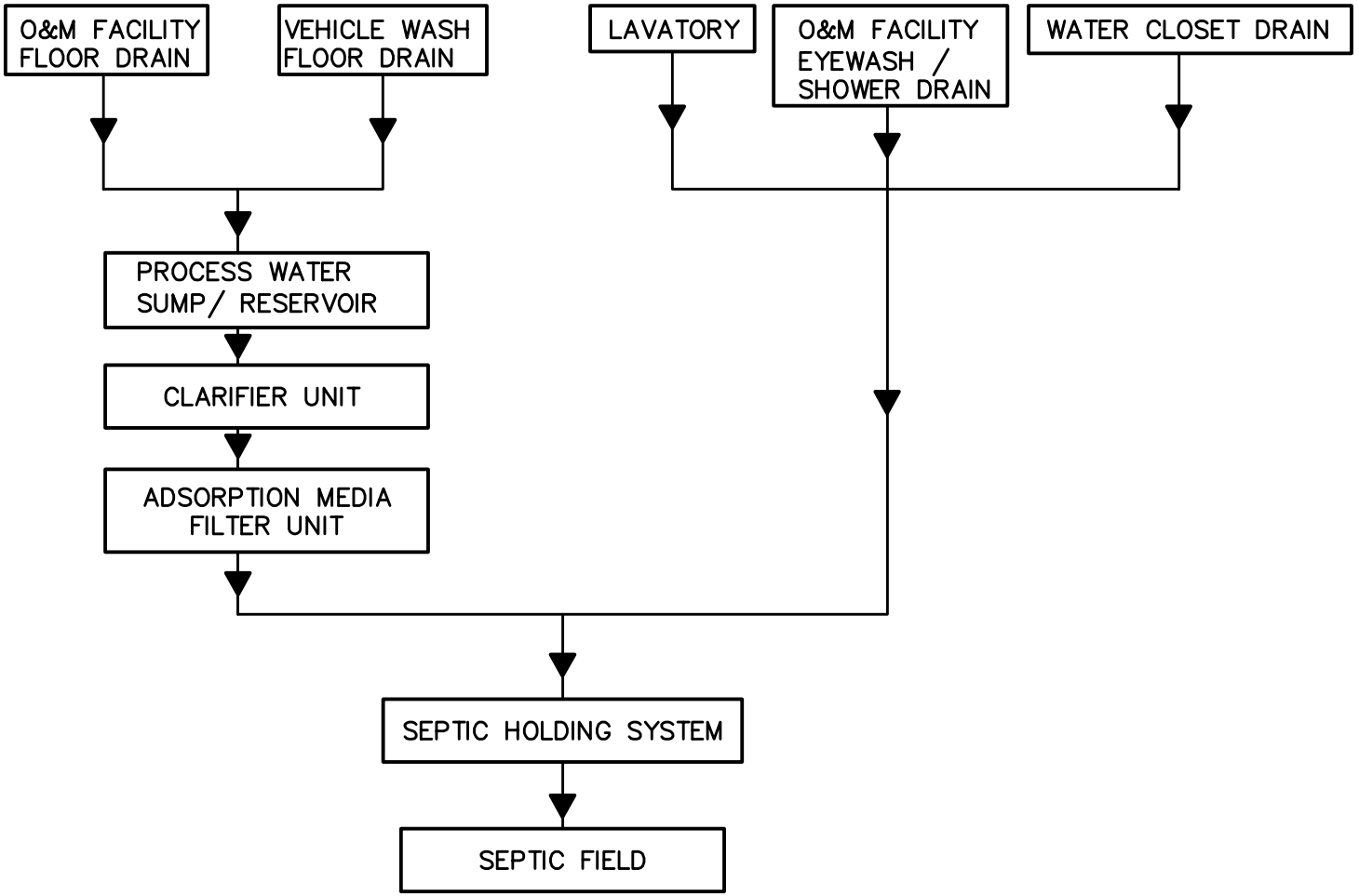
URS CORPORATION
4225 EXECUTIVE SQUARE, SUITE 1600
LA JOLLA, CA 92037

EXHIBIT A

DATA REQUEST 23 &24

SWR-4

CALICO SOLAR MAINTENANCE FACILITIES
WASTEWATER TREATMENT PROCESS DIAGRAM



CALICO SOLAR

URS CORPORATION
4225 EXECUTIVE SQUARE, SUITE 1600
LA JOLLA, CA 92037

EXHIBIT B

DATA REQUEST 23

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 24. Please provide a map indicating the proposed location of the wastewater recycling system.

Response: Please see attachment SWR-3 (located behind the response to Data Request 23) and the details contained in the response to Data Request 23.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 25. Please describe the waste expected to be generated by the wastewater recycling system and provide the method of disposal of the collected waste.

Response: Please see the details contained in the response to Data Request 23.

TECHNICAL AREA: SOIL AND WATER RESOURCES

Data Request 26. Please provide an updated ROWD that is specific to the Modified Project.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5th and response to Data Request13, 2011, the response to Data Request 26 is expected to be completed on or before May 31, 2011.

TECHNICAL AREA: SOIL AND WATER RESOURCES

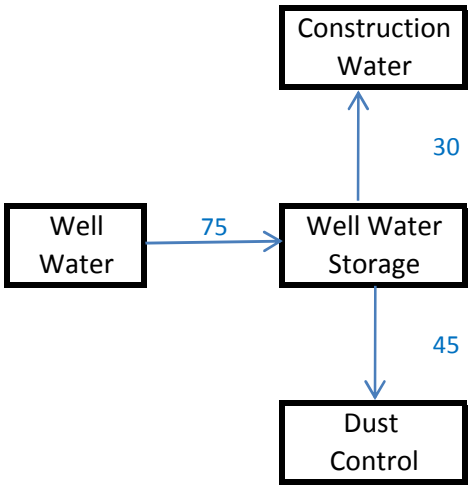
Data Request 27. Please revise the Construction Water Balances provided in Appendix D to be specific to construction of the Modified Project. If these revisions result in a change in expected construction water use, please revise construction and operation water use tables accordingly.

Response: Revised construction and operation water balances are provided as attachments SWR-5 and SWR-6, respectively. The values in the water balances are consistent with the values presented in the tables provided in response to Data Requests 16 and 17.

SWR-5

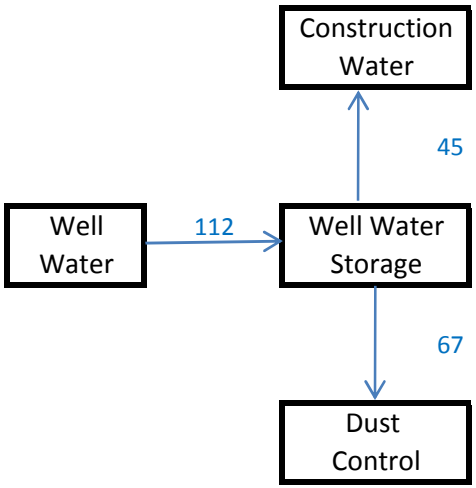
WATER BALANCE FLOW DIAGRAM
ANNUAL AVERAGE DURING CONSTRUCTION

Note: All numbers are in gals/minute.



WATER BALANCE FLOW DIAGRAM
SUMMER PEAK DURING CONSTRUCTION

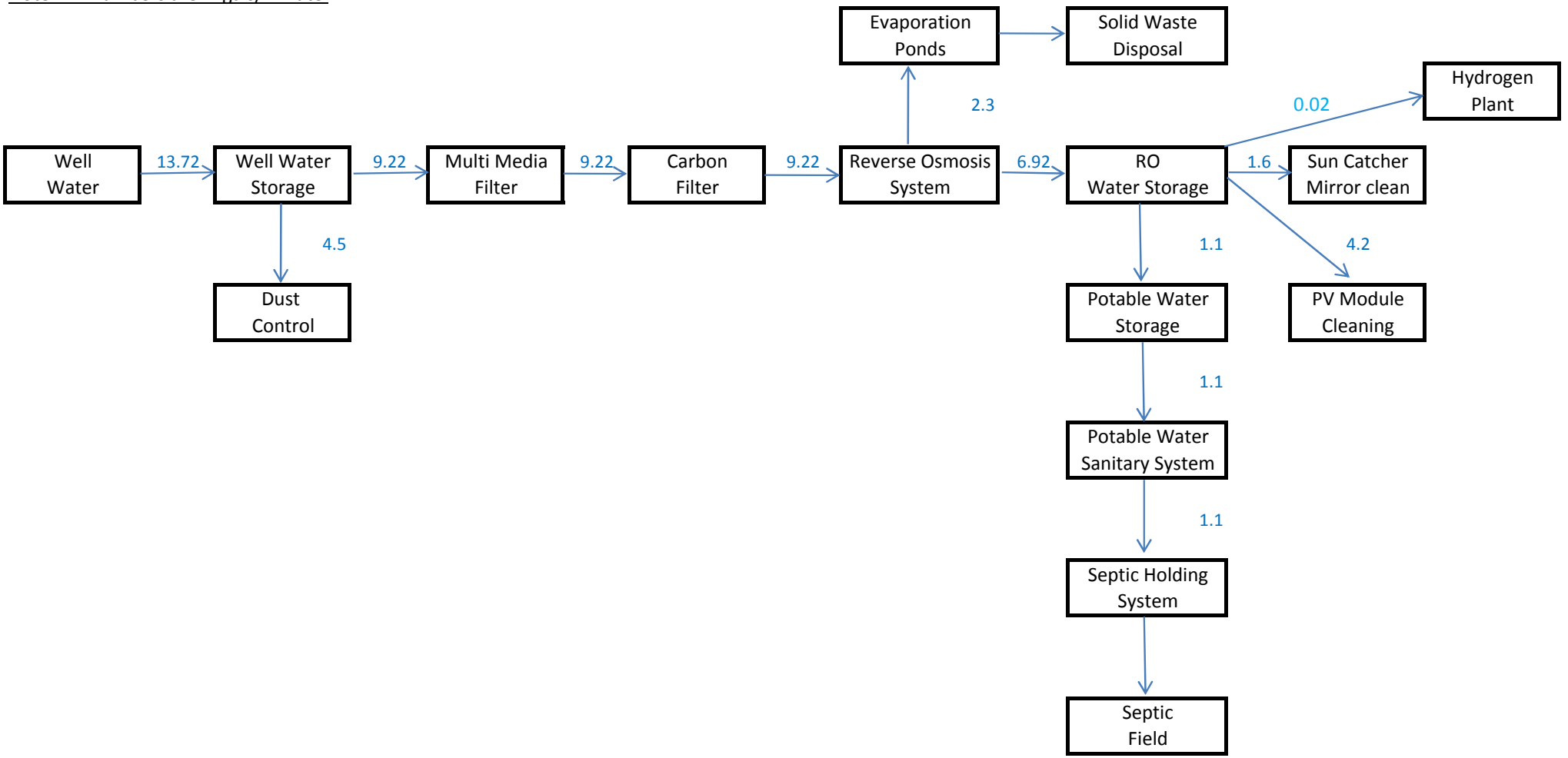
Note: All numbers are in gals/minute.



SWR-6

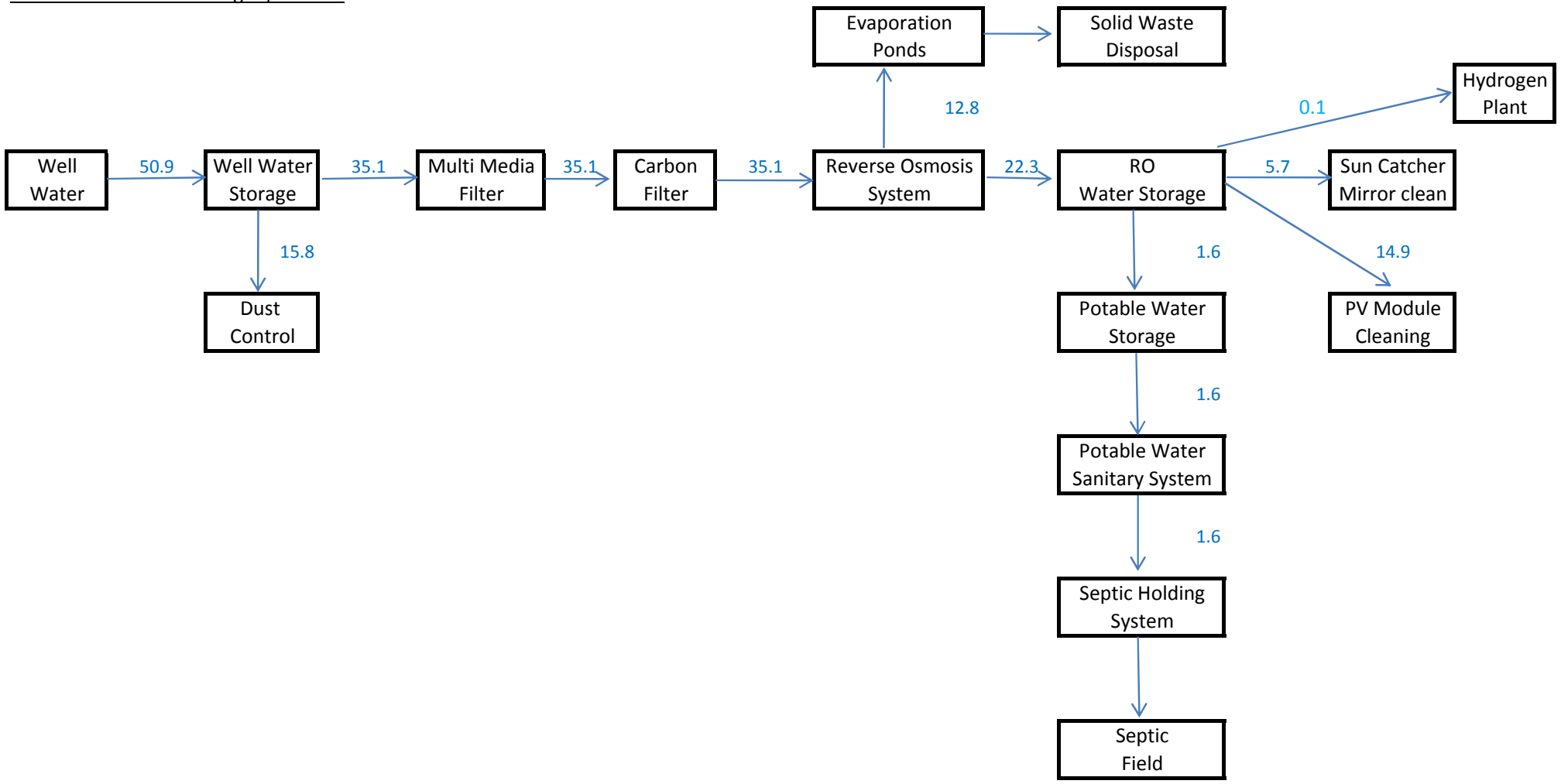
WATER BALANCE FLOW DIAGRAM
ANNUAL AVERAGE POST CONSTRUCTION

Note: All numbers are in gals/minute.



WATER BALANCE FLOW DIAGRAM
SUMMER PEAK POST CONSTRUCTION

Note: All numbers are in gals/minute.



TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 28. Please provide a detailed quantitative glint and glare analysis of the project's potential to cause different levels of glare impact (hazard, disability, and nuisance) to motorists, train engineers, on-site workers, and viewers at the six key observation points (KOPs) identified in the Visual Resources section of the Petition to Amend. The analysis should cover both the PV and Suncatcher technologies, and should consider both tracking and off-axis positions of the PV and Suncatcher technologies.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5th, 2011, the response to Data Request 26 is not yet available.

TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 29. Please describe:

a. the maximum potential brightness (luminance) of diffuse and specular reflections from the PV and Suncatcher technologies in candela per square meter;

b. the hours in which the reflecting surfaces of a PV module and Suncatcher mirror could be visible to an off-site viewer on the ground, and the proportion of surface visible in the course of the day;

c. any available anecdotal information on glare effects of the Kramer Junction and existing SEGS projects, including photographs of off-site diffuse or spread glare, and images of the heated HCEs, as seen from public roads/viewpoints;

d. the potential for specular and diffuse reflections, retinal burn, flash blindness, veiling reflections and distracting glare to affect BNSF train operators, on-site workers, motorists on I-40 and National Trails Highway (formerly Route 66) and any other roads with views of the project site, and viewers at the six KOPs. Include conditions under which impacts could occur as well as safe distances (setbacks) from the PV and Suncatcher technologies. Include descriptions and/or graphics that characterize how reflected light from the project would appear to the viewing public, and in particular, to BNSF train engineers and motorists on highways and other public roads from which views of the project site are possible, and

e. recommended mitigation measures for reducing glint and glare impacts.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5th, 2011, the response to Data Request 26 is not yet available.

TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 30. Please work with BNSF Railroad to analyze any glint and glare impacts to train signals and train engineers. The analysis should consider:

a. the distance between the tracks and signal lights and the PV and SunCatcher technologies;

b. the approximate height of the train engineer's eyes;

c. the height of the signal heights;

d. glint and glare effects (specifically, veiling reflections) on both the color and the contrast of the signal lights;

e. potential for flash blindness and retinal burn of the train engineer;

f. potential for distracting glare to the train engineer, and

g. general potential consequences of any glint and flare impacts to the train engineer (either directly or via the signal light), e.g., train collisions, etc.

Response: As discussed in the Applicant's Letter Regarding Data Requests Set 1 (1-37) filed May 5th, 2011, the response to Data Request 26 is not yet available.

TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 31. Please include:

a. general dimensions of the bridge, including width, length, and height;

b. general construction materials to be used in the bridge, and

c. number of lanes of the bridge and the width of each lane.

Response: Conceptual design for the bridge includes the following:

a. The bridge will be approximately 35 feet wide, approximately 270 feet in total length and approximately 24 feet from the top of the railroad tracks to the lowest point of the bridge.

b. The bridge superstructure will utilize precast, pre-stressed concrete bridge girders and the concrete deck will be constructed with the use of stay-in-place steel deck forms. This method of construction will not require the use of concrete formwork over the railroad tracks.

c. The bridge will contain two lanes, each approximately 12 feet wide, with an approximately 4 foot shoulder on each side.

Final design of the bridge will be done in compliance with all applicable LORS.

TECHNICAL AREA: TRANSMISSION SYSTEM ENGINEERING

Data Request 32. Please provide revised phase two electrical one line diagrams with Photo Voltac Groups.

a. 1.5 MW solar group electrical one line diagram sheet 1 and 2 with collector bus voltage, current carrying capacity of the conductors, Breaker, Transformer and Capacitor bank sizes.

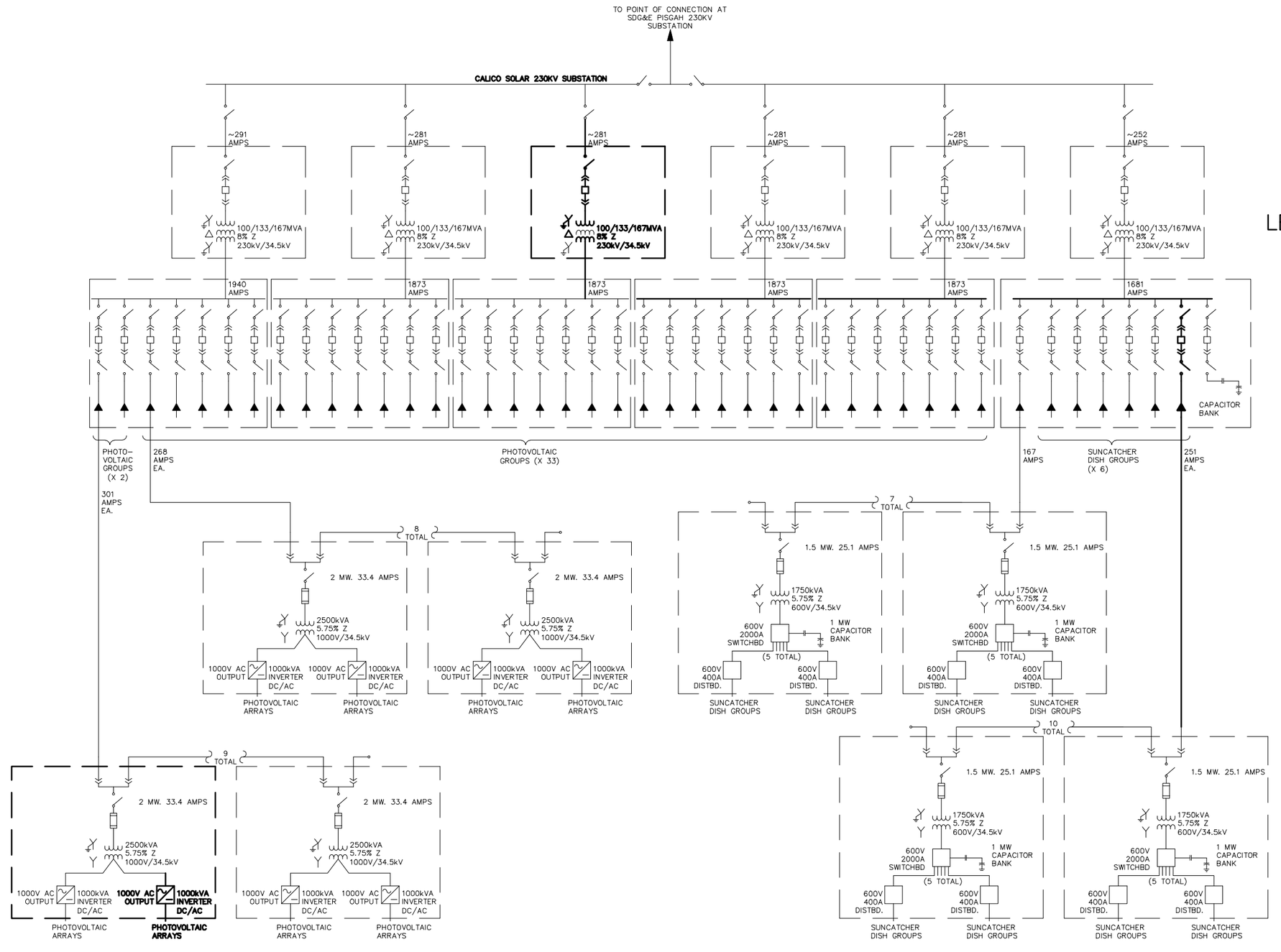
b. 9 MW, 18 MW feeder group general arrangements.

c. 51 MW feeder group general arrangements.

d. 750 MW solar two substation one line diagram sheet 1, 2, 3 with revised capacitor bank MVar allocation.

Response: As clarified with the CEC on May 4, 2011, the one-line diagram and associated information contained in attachment TRANS-1 is sufficient to respond to Data Request 32.

TRANS-1



SCHEMATIC SINGLE LINE DIAGRAM FOR 663.5 MW DESIGN

URS
4225 EXUTIVE SQUARE, SUITE 1600
LA JOLLA, CA 92037
(tel) 858-812-6292 (fax) 858-812-6293

REVISIONS:

SYM	DESCRIPTION	BY	DATE

CLIENT:

663.5 MW DESIGN FOR CALICO SOLAR

SAN BERNARDINO COUNTY, CA

Date Issued:

Drawn By:	JT
Checked By:	
Approved By:	
Date Drawn:	2011-03-24
Scale:	

Sheet Title:

SCHEMATIC SINGLE LINE DIAGRAM

Figure 7

SHEET __ OF __

TECHNICAL AREA: VISUAL RESOURCES

Data Request 33. The discussion under Section 4.13.2.3, "Glint and Glare," concludes that "impacts from glint and glare are expected to be less significant than those associated with the Approved Project."

a. Staff requests that this discussion be expanded to substantiate the analysis, including a citation(s) and reference(s) for applicable completed studies addressing the same or similar technologies.

b. Staff also requests that the discussion and conclusion at the bottom of page 4.13-5 be rewritten using standard CEQA terminology. In other words, please revise the discussion to clearly state the impact conclusion (e.g., potentially significant impact), and refer to applicable conditions of certification that would reduce the impact to a less-than-significant level. Include evidence to support the conclusion.

Response:

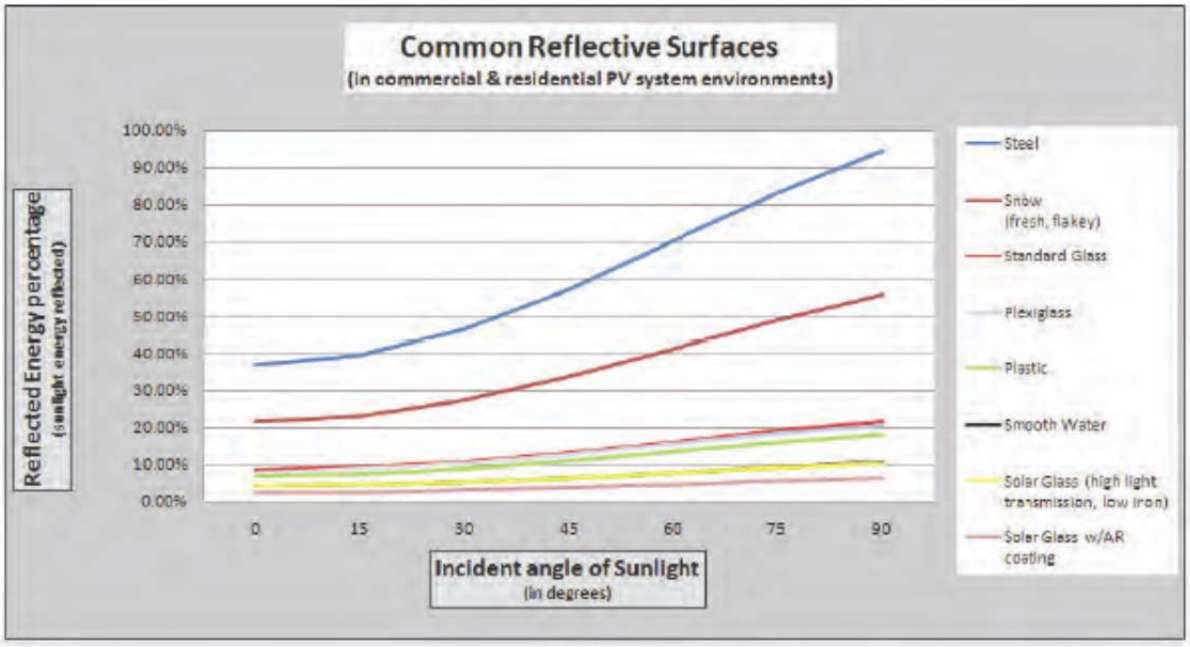
a. Most solar glass sheets (the glass layer that covers the PV modules) are typically tempered glass that is treated with an anti-reflective or diffusion coating that further diffuses (scatters) the intensity of glint and glare produced (County of Kern, 2010). In general, because the concept of efficient PV solar power is to absorb as much light as possible, standard PV modules produce less glint and glare than standard window glass (Powers Engineers, 2010). As is shown in the SunPower Corporation charts that are presented below, the reflected energy percentage of solar glass is far lower than steel, snow, standard glass, plexiglass, plastic, and smooth water. Conversely, the intent of the mirrors contained within SunCatchers is to reflect as much light as possible. A glint and glare study was performed specifically for SunCatcher technology (Powers Engineers, 2010). The study cited glint and glare concern from energy reflecting from the mirrored surfaces rather than the other SunCatcher components, implicitly indicating a lower potential for glint and glare from the steel components of the SunCatcher than the mirrors. As represented by the charts below, PV glass has a lower reflected energy percentage than steel. Therefore, it is expected that glint and glare from PV technology would be lower than from SunCatcher. Because the Modified Project employs PV technology throughout the site, specifically in areas closest to viewers, impacts from glint

and glare under the Modified Project will be reduced.

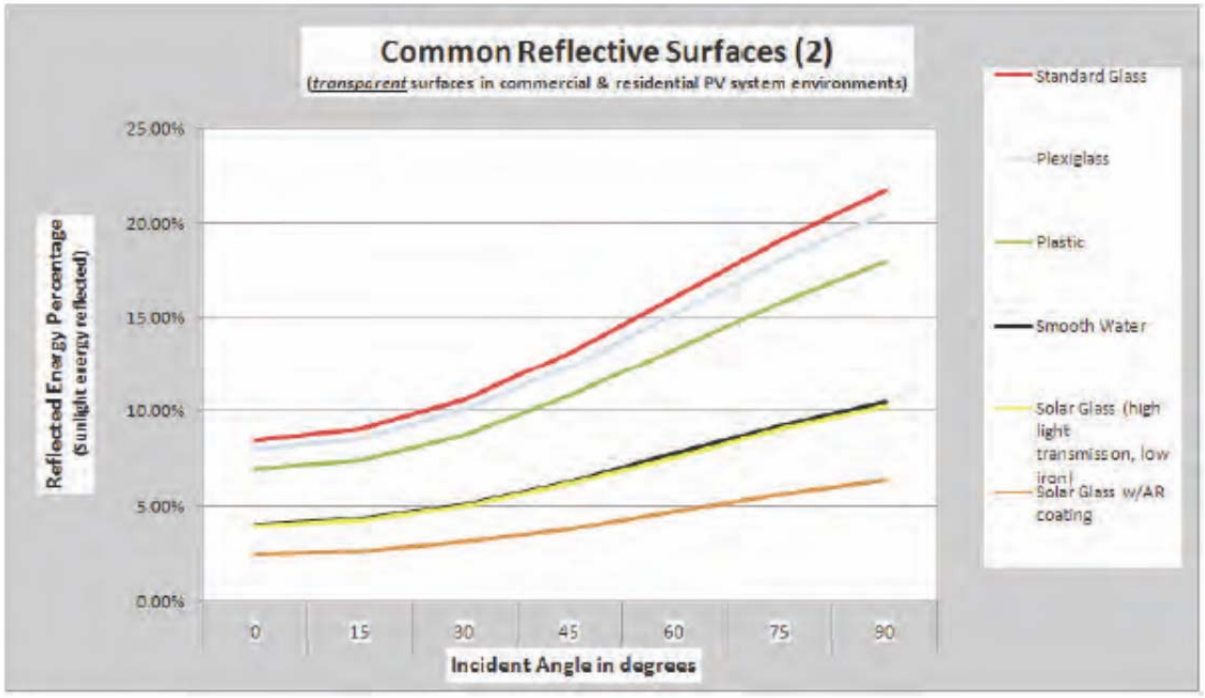
b. The addition of PV modules into the Modified Project would not only reduce glint and glare, but would also reduce the size and dominance of the Project features as compared to the Approved Project. Therefore, the overall visual impact of the Modified Project is anticipated to be less than the Approved Project. However, t size and visual character of the Modified Project would not change, and therefore, significant impacts to visual resources would remain. The Modified Project would not result in any new or more sever impacts requiring additional mitigation. We request to delete Section 4.13.5 (Changes in Propose Mitigation) in its entirety and replace it with the following language, which better reflects the impact conclusion:

4.13.5 Changes in Proposed Mitigation

Since there would be no additional impacts to visual resources under the Modified Project, and no regulatory changes that affect visual resources, no changes in the proposed mitigation measures under the Modified Project are anticipated.



Graph 1 - Common Spectral Surfaces
Source: SunPower



Graph 2 - Common Spectral Surfaces with Highly Spectral Surfaces Removed
Source: SunPower

TECHNICAL AREA: VISUAL RESOURCES

Data Request 34. Staff requests that Table 4.13-1, "Visual Resources Significant Project Structures," of the Petition to Amend be reviewed and corrected as necessary. Staff has identified several mistakes in columns identifying length, width, height, and change in quantity for some project structures. Please also describe whether mistakes in stated dimensions could have affected 3D modeling of the photosimulations for the project.

Response: Revised tables 4.13-1 and 2-1 are presented as attachment VIS-1. The photo simulations were created using detailed design files for the Modified Project and are unaffected by the typographical errors inadvertently presented in Table 4.13-1 of the Petition to Amend.

VIS-1

Revised Table 4.13-1
Significant Project Structures

Description	Permitted Qty	Modified Qty	Length (feet)	Width (feet)	Height (feet)	Change
SunCatcher power generating system	26,540	4,020	38 diameter		40	Quantity Reduced
PV Tracker Blocks	--	2,140	280	170	9	Added
2 MW inverter pads	--	282	33.5	15	9	Added
Modules	--	1,951,680	6.4	3.3	0.17	Added
Main Services Complex administration building	1	1	60	70	17	Relocated
Main Services Complex maintenance building	1	1	70	70	17	Relocated
SunCatcher assembly building (temporary)	2	2	1,000	100	78	Relocated
On-site substation (excluding dead-end structure)	1	1	15.5 acres		5 to 30	Relocated
230 kV dead-end structure	1	1	--	100	90	Specified
Well water storage tank and fire water 230,000 gallons	1	1	40 diameter		25[1]	None
Demineralized water tank, 17,500 gallons[1]	2	2	18 diameter		10	None
Potable Water Tank, 5,000 gallons	1	1	10 diameter[1]		10[1]	None
230 kV transmission line towers, double circuit with upswept arms	12 to 15	0 to 3	--	32	90 to 110	Quantity Reduced
Bridge over railroad	1	1	270	35	24[2]	Specified

Notes:

1: The Commission Decision reflected discrepancies in these numbers. These numbers have been correct here for consistency.

2: Measured from the top of railroad track to lowest point of the bridge

A = ampere (amp), BIL = basic impulse level, gpd = gallon per day, HP = horsepower, Hz = hertz, INT = international, kA = kilo amps, kV = kilovolt, kVA = kilovolt amps, Kvar = kilo amp reactive, kW = kilowatt, kWe = kilowatt-electric, MVA = megavolt amps, MVAR = megavolt amp reactive, MW = megawatts, V = volts, VAR = volt amp reactive, W = watts

Revised Table 2-1
Significant Structures and Equipment

Description	Permitted Qty	Modified Qty	Length (feet)	Width (feet)	Height (feet)	Change
SunCatcher power generating system	26,540	4,020	38 diameter		40	Quantity Reduced
Main Services Complex administration building	1	1	60	70	17	Relocated
PV Tracker Blocks	--	2,140	280	170	9	Added
2 MW Inverter Pads	--	282	33.5	15	9	Added
Modules	--	1,951,680	6.4	3.3	0.17	Added
Main Services Complex maintenance building	1	1	70	70	17	Relocated
SunCatcher assembly building (temporary)	2	2	1,000	100	78	Relocated
Well water storage tank and Fire Water 230,000 gallons	1	1	40 diameter		25[1]	None
Demineralized water tank, 17,500 gallons[1]	2	2	18 diameter		10	None
Potable Water Tank, 5,000 gallons	1	1	10 diameter		10[1]	None
230 kV transmission line towers, double circuit with upswept arms	12 to 15	0 to 3	--	32	90 to 110	Quantity Reduced
Generator collection sub-panel; distribution panel, 42 circuit, 400-A, 600 V, with circuit breakers in a weatherproof enclosure	2,212[1]	335	1	2.67	5	Quantity Reduced
Generator collection power center, 2,000-A distribution panels with five 400-A circuit breakers and 1200A circuit breaker for 1 MVar capacitor bank	443[4]	67	2.5	3.33	7.5	Quantity Reduced
Collector group GSU transformer, 1,750 kVA, 575 V to 34.5 kV, with taps	443[1]	67	6.67	7.5	6.67	Quantity Reduced
Power Factor correction capacitor, 600 V, 1,000 kVAR, switched in five, each 200 kVAR steps	443[1]	67	2.5	6.67	7.5	Quantity Reduced

Revised Table 2-1
Significant Structures and Equipment

Description	Permitted Qty	Modified Qty	Length (feet)	Width (feet)	Height (feet)	Change
Open bus switch rack, 35 kV, 7 bay with seven 35 kV, 600-A, 40 kVA INT, circuit breakers, insulators, switches, and bus work (1 bay for SunCatchers and 6 for PV)	6	1	05	20	30	Quantity Reduced
Shunt capacitor bank, 34.5 kV, 90 MVAR switched in six each 15 MVAR steps	6	1	15	8	20	Quantity Reduced
DVAR compensation system in coordination with shunt capacitor banks – size to be determined by studies	1	1	60	12	16	None
Disconnect switch, 35 kV, 3,000 A, 200 kV BIL, group-operated	6	1	3	11	16	Quantity Reduced
Power transformer, three phase, 100/133/167 MVA, 230/132.8-34.5/19.9 kV, 750 kV BIL, oil filled	6	6	15	35	23	None
Power circuit breaker, 242 kV, 2000A, 40 kA interrupting capacity	7	6	12	20	16	Quantity Reduced
Coupling capacitor voltage transformer for metering, 242 kV, 900 kV BIL, 60 Hertz, Potential Transformer ratio 1,200/2,000:1	6	1	1	1	25	Quantity Reduced
Disconnect switch, 242 kV, 1000 A	9	2	10	25	25	Quantity Reduced
230 kV dead-end structure	1	1	--	100	90	Specified
Bridge over railroad	1	1	270	35	24[2]	Specified

Notes:

1 = The Commission Decision reflected discrepancies in these numbers. These numbers have been corrected here for consistency.

2 = Measured from the top of railroad track to lowest point of the bridge

A = ampere (amp), BIL = basic impulse level, DVAR = Dynamic VAR, gpd = gallon per day, generator step-up unit (GSU), HP = horsepower, Hz = hertz, INT = international, kA = kilo amps, kV = kilovolt, kVA = kilovolt amps, Kvar = kilo amp reactive, kW = kilowatt, kWe = kilowatt-electric, MVA = megavolt amps, MVAR = megavolt amp reactive, MW = megawatts, QTY = quantity, V = volts, VAR = volt amp reactive, W = watts, -- = not applicable

TECHNICAL AREA: VISUAL RESOURCES

Data Request 35. Please describe the permanent bridge that is proposed to be constructed over the BNSF railroad tracks, and add the bridge to Table 4.13-1 of the Visual Resources section of the Petition to Amend. Please identify any necessary lighting for the bridge structure.

Response: Please see the response to Data Request 31 for a description of the bridge and attachment VIS-1 (located behind the response to Data Request 34) for the requested revision to Table 4.13-1.

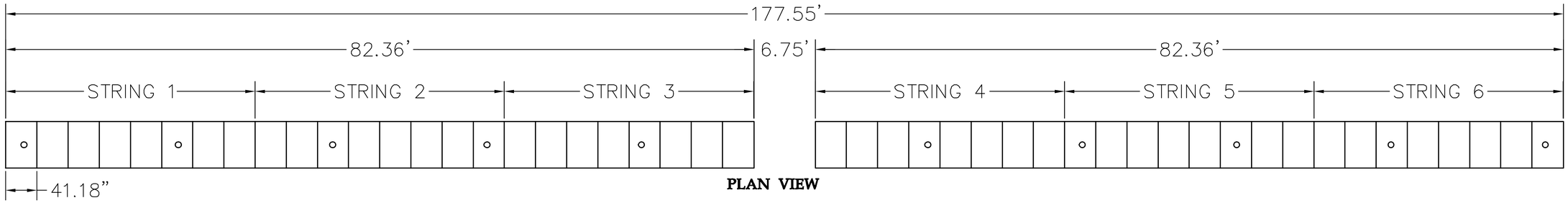
BNSF Grade Separation Guidelines states that lighting shall be provided for all overhead structures exceeding 80 feet in width or special circumstances. The proposed bridge is less than 80 feet in width and the special circumstances are not expected to apply. No other regulations requiring lighting for the bridge have been identified.

TECHNICAL AREA: VISUAL RESOURCES

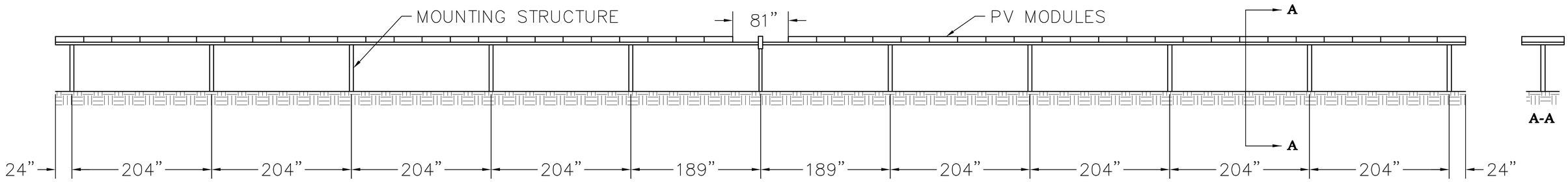
Data Request 36. Please provide a scaled elevation drawing of a PV module and row of modules in front and side view with mounting structures. The drawing shall provide more detail than is shown in Figure 2-4 in the Project Description of the Petition to Amend. Please include a representative view of PV modules at maximum tilt, as well as representative photographs of the same or similar PV modules.

Response: Please see the included 2011-04-29 TYPICAL PV ROW provided as attachment VIS-2.

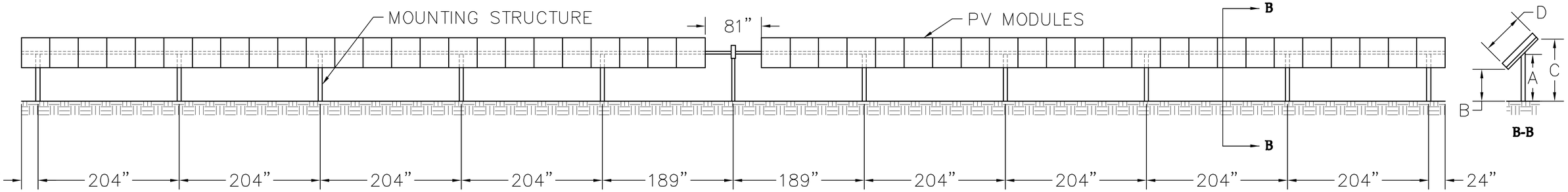
VIS-2



PLAN VIEW



MODULES ORIENTED AT HORIZONTAL PLANE
SECTION VIEW



MODULES ORIENTED AT 45° TO THE HORIZONTAL PLANE
SECTION VIEW

Varying Post Heights			
A	B	C	D
5'	3.06'	6.75'	5.1'
6'	4.06'	7.75'	5.1'
7'	5.06'	8.75'	5.1'
8'	6.06'	9.75'	5.1'

0' 6' 12' 18'

20101055-10DTF02.dwg

SIMILAR PV MODULE SYSTEMS

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344
PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150
www.westwoodps.com

Revisions:

Designed: ADC
Checked: ADC
Drawn: DJW
Record Drawing by/date:

Prepared for:

kRoad
2600 10th Street
Suite 635
Berkeley, CA 94710

Calico Solar
San Bernardino County, California

Date: 04/29/2011 Sheet: 1 OF 1

TYPICAL PV ROW

TECHNICAL AREA: VISUAL RESOURCES

Data Request 37. Staff requests information on camera settings used to photograph the project site for the existing and simulated views of the project site. Please identify the camera type, lens setting/length, and horizontal angle of view. In other words, please provide all "camera match" data. Staff is requesting this information to verify that the 6-inch by 8-inch photo simulations are at life size scale, as specified in the Energy Commission's data adequacy regulations. The requested information shall be included on all of the figures in the Visual Resources section showing photo simulations of the project. Please identify the camera location (i.e., coordinates) for each KOP.

Response: The camera type, lens setting/length (focal length), and horizontal angle of view are consistent throughout the simulations produced. All photographs were taken with a Nikon CoolPix S9 camera, using a focal length of 38mm and a horizontal angle of view at 55.95 degrees. The table below denotes the coordinates of each KOP. The simulations provided in the Petition to Amend are included as attachment VIS-3 and have been updated to reflect this information. Each simulation was scaled to be life size when held approximately 18 inches from the viewer's eye.

	Latitude (DDM)	Longitude (DDM)
KOP 1	116° 27.306' W	34° 47.223' N
KOP 2	116° 24.037' W	34° 50.371' N
KOP 3	116° 21.323' W	34° 46.867' N
KOP 4	116° 22.514' W	34° 46.455' N
KOP 5	116° 25.156' W	34° 47.037' N
KOP 6	116° 23.718' W	34° 46.754' N

DDM = degree decimal minutes

VIS-3

Coordinates of KOP: 116°27.306' W 34° 47.223'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

EXISTING VIEW OF PROJECT FROM KOP 1
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-3
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°27.306' W 34° 47.223'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF APPROVED PROJECT FROM KOP 1
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-4
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°27.306'W 34°47.223'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF MODIFIED PROJECT FROM KOP 1
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 02-24-11	FIG. NO: 4.13-5
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°24.037' W 34° 50.371'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

EXISTING VIEW OF PROJECT FROM KOP 2
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-7
		PM: WM	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°24.037' W 34° 50.371'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF APPROVED PROJECT FROM KOP 2
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 3-12-11	FIG. NO: 4.13-9
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°24.037' W 34° 50.371'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF MODIFIED PROJECT FROM KOP 2
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 02-24-11	FIG. NO: 4.13-9
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°21.323' W 34° 46.867'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

EXISTING VIEW OF PROJECT FROM KOP 3
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-11
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°21.323' W, 34°46.867' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF APPROVED PROJECT FROM KOP 3
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-12
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°21.323' W, 34°46.867' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF APPROVED PROJECT FROM KOP 3
CALICO SOLAR PROJECT

URS	NO SCALE	CREATED BY: CLB	DATE: 02-24-11	FIG. NO: 4.13-13
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°22.514' W 34° 46.455'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

EXISTING VIEW OF PROJECT FROM KOP 4
CALICO SOLAR PROJECT

URS	NO SCALE	CREATED BY: CLB	DATE: 02-24-11	FIG. NO: 4.13-15
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116° 22.514' W, 34°46.455' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF APPROVED PROJECT FROM KOP 4
CALICO SOLAR

URS	NO SCALE	CREATED BY: CL	DATE: 02-24-11	FIG. NO: 4.13-16
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116° 22.514' W, 34°46.455' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF MODIFIED PROJECT FROM KOP 4
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 02-24-11	FIG. NO: 4.13-17
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°25.156'W 34°47.037'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

EXISTING VIEW OF PROJECT FROM KOP 5
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-19
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116° 25.156' W, 34°47.037' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF APPROVED PROJECT FROM KOP 5
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-20
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116° 25.156' W, 34°47.037' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF MODIFIED PROJECT FROM KOP 5
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 02-24-11	FIG. NO: 4.13-21
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116°23.718'W 34°46.754'N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

EXISTING VIEW OF PROJECT FROM KOP 6
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-23
		PM: AL	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116° 23.718' W, 34°46.754' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF APPROVED PROJECT FROM KOP 6
CALICO SOLAR

URS	NO SCALE	CREATED BY: CLB	DATE: 03-12-11	FIG. NO: 4.13-24
		PM: WM	PROJ. NO: 27651022.01000	

Coordinates of KOP: 116° 23.718' W, 34°46.754' N
Camera Type: Nikon CoolPix S9
Lens Setting (Focal Length): 38 mm
Horizontal Angle of View: 55.95 Degrees

SIMULATED VIEW OF MODIFIED PROJECT FROM KOP 6
CALICO SOLAR PROJECT

URS	NO SCALE	CREATED BY: CLB	DATE: 02-24-11	FIG. NO: 4.13-25
		PM: AL	PROJ. NO: 27651022.01000	

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

FOR THE CALICO SOLAR PROJECT AMENDMENT

Docket No. 08-AFC-13C
PROOF OF SERVICE
(Revised 5/9/2011)

APPLICANT
Calico Solar, LLC
Daniel J. O'Shea
Managing Director
2600 10th Street, Suite 635
Berkeley, CA 94710
dano@kroadpower.com

CONSULTANT
URS Corporation
Angela Leiba
AFC Project Manager
4225 Executive Square, #1600
La Jolla, CA 92037
angela_leiba@URSCorp.com

APPLICANT'S COUNSEL
Allan J. Thompson
Attorney at Law
21 C Orinda Way #314
Orinda, CA 94563
allanori@comcast.net

Bingham McCutchen, LLP
Ella Foley Gannon, Partner
Three Embarcadero Center
San Francisco, CA 94111
e-mail service preferred
ella.gannon@bingham.com

INTERVENORS
Society for the Conservation of Bighorn Sheep
Bob Burke & Gary Thomas
P.O. Box 1407
Yermo, CA 92398
e-mail service preferred
cameracoordinator@sheepsociety.com

Basin and Range Watch
Laura Cunningham &
Kevin Emmerich
P.O. Box 70
Beatty, NV 89003
e-mail service preferred
atomictoadranch@netzero.net

California Unions for Reliable Energy (CURE)
c/o: Tanya A. Gulesserian,
Marc D. Joseph
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard,
Ste. 1000
South San Francisco, CA 94080
e-mail service preferred
tgulesserian@adamsbroadwell.com

Patrick C. Jackson
600 Darwood Avenue
San Dimas, CA 91773
e-mail service preferred
ochsjack@earthlink.net

Sierra Club
c/o Gloria D. Smith,
Travis Ritchie
85 Second Street, Second floor
San Francisco, CA 94105
e-mail service preferred
gloria.smith@sierraclub.org
travis.ritchie@sierraclub.org

Newberry Community Service District
c/o Wayne W. Weierbach
P.O. Box 206
Newberry Springs, CA 92365
e-mail service preferred
newberryCSD@gmail.com

*Defenders of Wildlife
Kim Delfino, California Program Director
1303 J Street, Suite 270
Sacramento, California 95814
e-mail service preferred
kdelfino@defenders.org

*Defenders of Wildlife
Jeff Aardahl, California Representative
46600 Old State Highway, Unit 13
Gualala, California 95445
e-mail service preferred
jaardahl@defenders.org

INTERESTED AGENCIES/ENTITIES/PERSONS
California ISO
e-recipient@caiso.com

BLM – Nevada State Office
Jim Stobaugh
P.O. Box 12000
Reno, NV 89520
jim_stobaugh@blm.gov

Bureau of Land Management
Rich Rotte, Project Manager
Barstow Field Office
2601 Barstow Road
Barstow, CA 92311
richard_rotte@blm.gov

INTERESTED
AGENCIES/ENTITIES/PERSONS
CONT.

California Department of
Fish & Game
Becky Jones
36431 41st Street East
Palmdale, CA 93552
dfgpalm@adelphia.net

County of San Bernardino
Ruth E. Stringer,
County Counsel
Bart W. Brizzee,
Deputy County Counsel
385 N. Arrowhead Avenue, 4th Floor
San Bernardino, CA 92415
bbrizzee@cc.sbcounty.gov

BNSF Railroad
Cynthia Lea Burch
Steven A. Lamb
Anne Alexander
Katten Muchin Rosenman LLP
2029 Century Park East, Suite 2600
Los Angeles, CA 90067-3012
Cynthia.burch@kattenlaw.com
Steven.lamb@kattenlaw.com
Anne.alexander@kattenlaw.com

ENERGY COMMISSION
KAREN DOUGLAS
Commissioner and Presiding Member
kldougla@energy.state.ca.us

Galen Lemei
Adviser to Commissioner Douglas
glemei@energy.state.ca.us

ROBERT B. WEISENMILLER
Chairman and Associate Member
rweisenm@energy.state.ca.us

Eileen Allen
Adviser to Chairman Weisenmiller
eallen@energy.state.ca.us

Kourtney Vaccaro
Hearing Officer
kvaccaro@energy.state.ca.us

Kerry Willis
Staff Counsel
e-mail service preferred
kwillis@energy.state.ca.us

Stephen Adams
Co-Staff Counsel
e-mail service preferred
Sadams@energy.state.ca.us

Craig Hoffman
Project Manager
e-mail service preferred
choffman@energy.state.ca.us

Jennifer Jennings
Public Adviser
e-mail service preferred
publicadviser@energy.state.ca.us

DECLARATION OF SERVICE

I, Corinne Lytle declare that on May 9, 2011, I served by U.S. mail and filed copies of the attached Applicant's Response to CEC Data Requests Set 1 (1-37), dated, May 9, 2011. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [www.energy.ca.gov/sitingcases/calicosolar/compliance/index.html].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

_X_ sent electronically to all email addresses on the Proof of Service list;

___ by personal delivery;

_X_ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

_X_ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-13C
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Original Signed By
Corinne Lytle Bonine