

**Meeting of the Central Valley Flood Protection Board
May 26, 2011**

Staff Report – Encroachment Permit

**City of Gridley
East Gridley Road Solar Array Project, Butte County**

1.0 – ITEM

Consider approval of Permit No. 18649 (Attachment B)

2.0 – APPLICANT

City of Gridley

3.0 – LOCATION

The project is located south of East Gridley Road, and north of the City of Gridley wastewater treatment plant on the left (east) overflow area of the Feather River Designated Floodway.

(Feather River, Butte County, see Attachment A)

4.0 – DESCRIPTION

The applicant proposes to remove a walnut orchard and install a 750 kilowatt direct current (KW DC) solar array system on approximately 7.7 acres; to include approximately 5,000 linear feet of underground cables; approximately 2,500 linear feet of chain link fence; and an access and facility perimeter road.

5.0 – PROJECT ANALYSIS

The proposed solar array project will supplement (1.6 million kwh) the electrical needs of the waste water treatment plant for the City of Gridley. Approximately 7.7-acres of Walnut trees will be removed from the City owned property to allow for the installation of the solar array system. Only about 40% of the property is inside of the Feather River Designated Floodway. The photovoltaic solar panels will be single-axis solar trackers

and will rotate east to west around the horizontal center axis of the panel following the sun. The proposed solar panels will be mounted atop steel posts driven into the ground 5 to 10 feet below grade depending on the soil conditions at the site. The lowest rotation point for any of the solar panels will be a minimum of two-feet above the Feather River design water surface elevation of 98.4-feet NGVD. The installation of the solar array network is designed to meet the structural requirements of the California Building Code and Title 23 standards.

Approximately 5,000 linear-feet of underground cables will be required to connect the solar panels together and to route the produced power to inverters that will convert the direct current to alternating current and then on to the existing electrical grid. All of the cables will be buried a minimum 2-feet below the existing ground level as per Title 23 standards (Section 123 (c) (1)).

Approximately 2,500 linear-feet of chain link fence will be installed around the proposed solar array network for security purposes. Fence posts will be a break-away design to ensure that the security fence does not create an obstruction or debris-catching obstacle to the passage of floodwaters (Title 23, Section 107 (b)). The City of Gridley has developed a Flood Protection Procedure that details when they will open all gates to the facility during a high water event to ensure that Feather River flood flows will pass unimpeded. The Flood Protection Procedure will be attached to the permit as Exhibit C.

A 20-foot wide, 3,000-foot long access and perimeter road around the site will be constructed by placing and compacting 8-inches of aggregate base rock. The project site is relatively flat and fill will not be necessary for road construction. The aggregate will not unduly impede the free flow of water in the floodway and therefore is compliant with Title 23 (Section 107).

5.1 – Hydraulic Analysis

The solar panels will be mounted on steel poles 2-feet above the design flood water surface elevation (98.4' NGVD29). The hydraulic area blocked by the poles will be less than the walnut trees that will be removed to accommodate the project, therefore a hydraulic analysis is not required.

5.2 – Geotechnical Analysis

A geotechnical analysis is not required for this project because there are no levees involved.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- California Department of Water Resources, Sutter Maintenance Yard endorsed this project on February 18, 2011 with comments. The comments will be incorporated into the permit as Exhibit A.
- The U.S. Army Corps of Engineers 208.10 comment letter has not yet been received for this application. Upon receipt of a favorable letter and review by Board staff the letter will be incorporated into the permit as Exhibit B.

7.0 – CEQA ANALYSIS

Board staff has prepared the following CEQA findings:

The Board, as a responsible agency under CEQA, has reviewed Initial Study/Mitigated Negative Declaration (SCH Number: 2010082046, August 2010) and Mitigation Monitoring, and Reporting Program for the East Gridley Road Solar Array Project prepared by the lead agency, the City of Gridley. These documents, including project design, may be viewed or downloaded from the Central Valley Flood Protection Board website at <http://www.cvfpb.ca.gov/meetings/2011/5-26-2011.cfm> under a link for this agenda item. These documents are also available for review in hard copy at the Board and the City of Gridley Planning offices.

The City of Gridley has determined that the project would not have a significant effect on the environment and adopted Resolution No. 2010-R-041 on October 4, 2010 and filed a Notice of Determination on October 11, 2010 with the State Clearinghouse. Board staff finds that although the proposed project could have a potentially significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. The project proponent has incorporated mandatory mitigation measures into the project plans to avoid identified impacts or to mitigate such impacts to a point where no significant impacts will occur. These mitigation measures are included in the project proponent's Mitigation Monitoring and Reporting Program and address impacts to air quality, biological resources, cultural resources, and hydrology and water quality. The description of the mitigation measures are further described in the adopted Mitigation Monitoring and Reporting Program.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

Effects from the proposed project on the State Plan of Flood Control will be insignificant.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

There will be no effects from reasonable projected future events on the proposed project.

9.0 – STAFF RECOMMENDATION

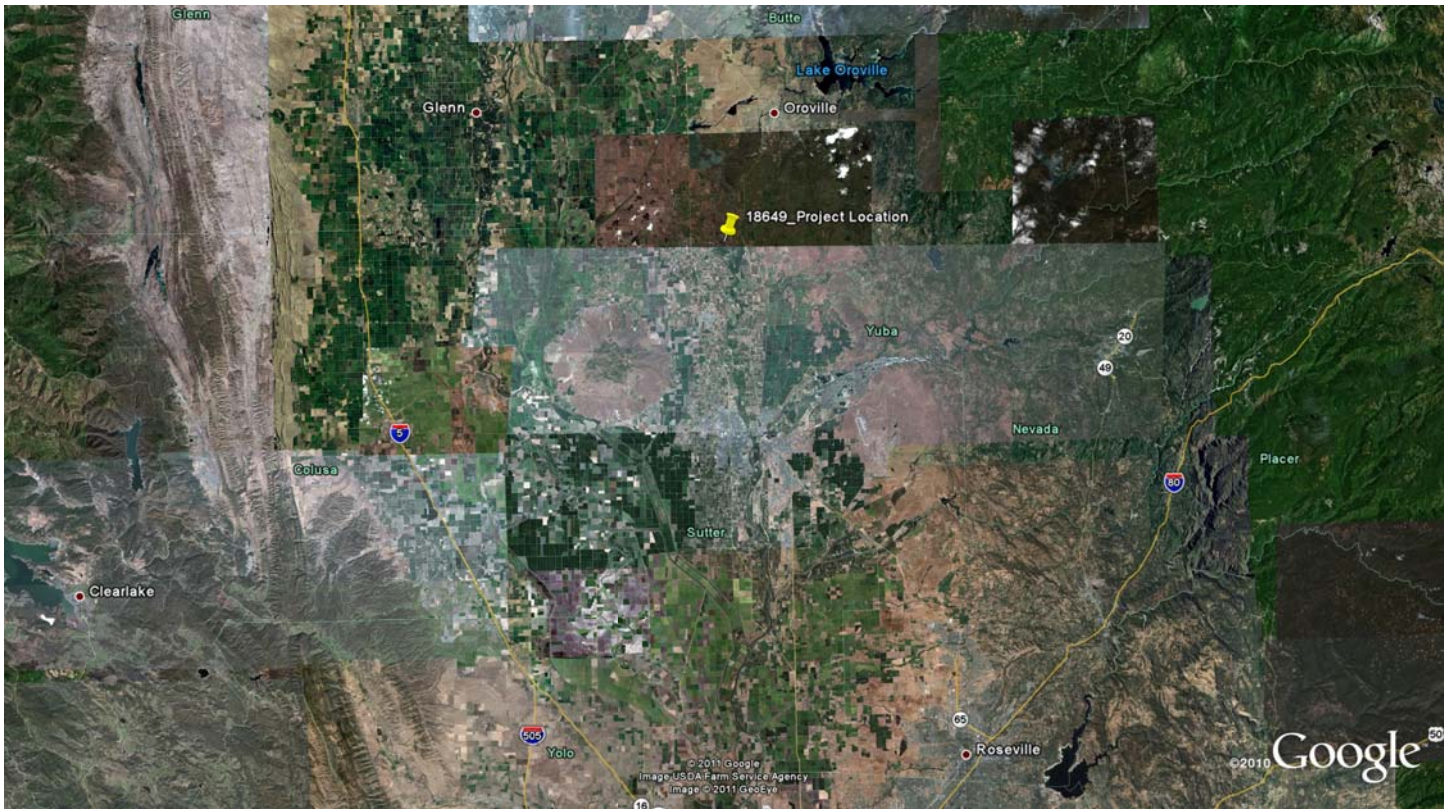
Staff recommends that the Board adopt the CEQA Findings, approve Permit No. 18649 conditioned upon receipt of a USACE 208.10 letter of determination confirming that the Corps has no objection to the project, and direct the Executive Officer to take necessary actions to execute the permit and to file a Notice of Determination with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

- A. Location Maps and Photos
- B. Draft Permit No. 18649
- C. Design Drawings

Design Review:	Gary W. Lemon P.E.
Environmental Review:	James Herota
Document Review:	Mitra Emami P.E., Len Marino P.E.

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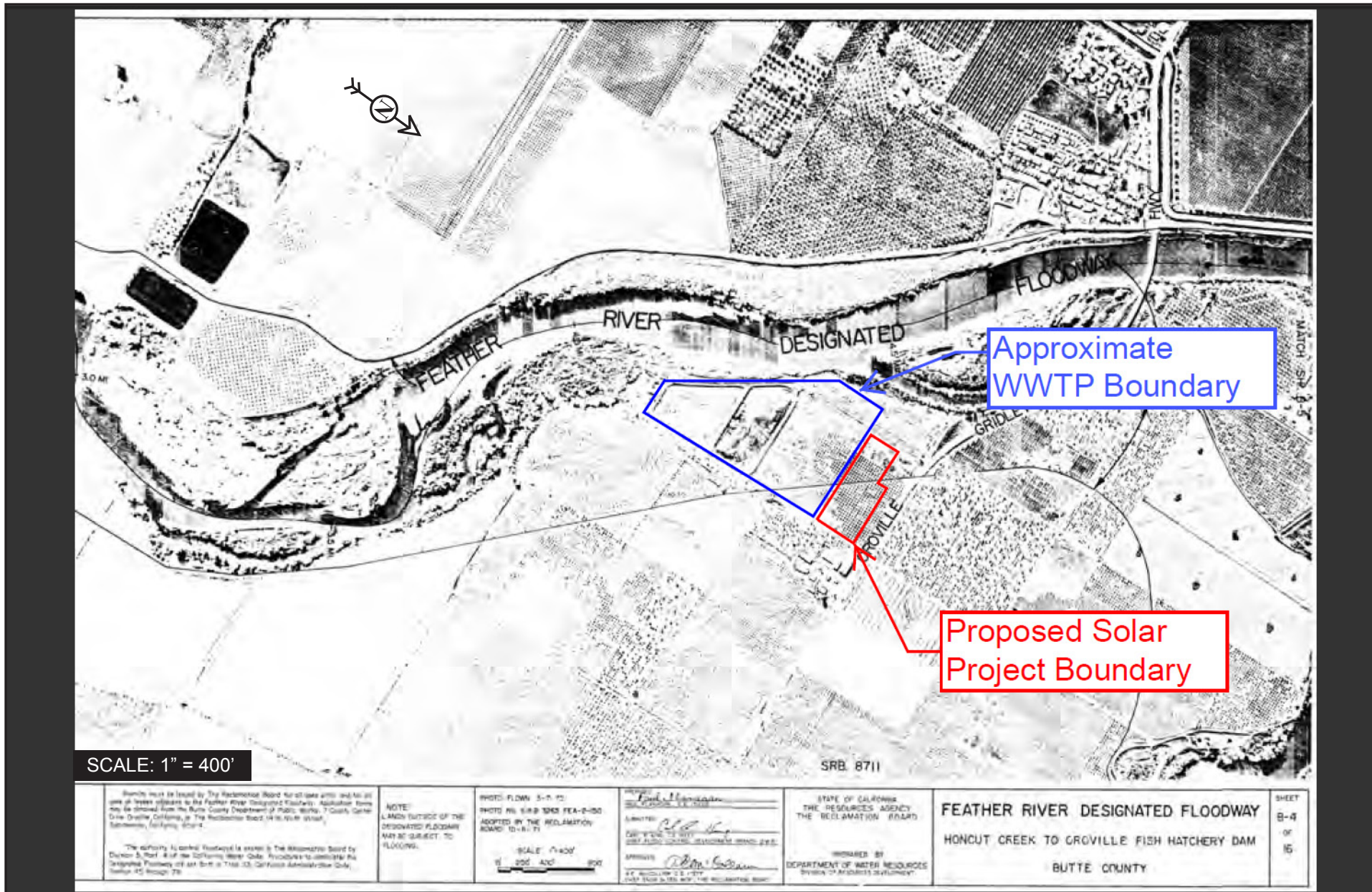
Regional Map

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Figure 3.0-1
Project Location







Existing orchard, looking East.



Existing orchard, near access road.

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18649 BD

This Permit is issued to:

City of Gridley
685 Kentucky Street
Gridley, California 96948

To: (1) Remove a walnut orchard on approximately 7.7 acres; (2) Install a 750 kilowatt direct current (KW DC) solar array system on approximately 7.7 acres; (3) Install approximately 5,000 linear feet of underground cables (various diameters), buried at minimum 24-inch below the ground, connecting to each proposed panel; (4) Install approximately 2,500 linear feet of chain link fence around the proposed solar array system; (5) Install a site access and facility perimeter road approximately 3,000 linear feet in total length and 20 ft roadway width. Road construction detail will consist of 8-inches of aggregate base rock compacted to 90% relative compaction. The project is located east of the Feather River, south of East Gridley Road, and north of the City of Gridley wastewater treatment plant (Section 4, T17N, R3E, MDB&M, Sutter Maintenance Yard, Feather River, Butte County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any

other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18649 BD

THIRTEEN: The permittee should contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

FOURTEEN: The Central Valley Flood Protection Board and the Department of Water Resources shall not be held liable for damages to the permitted encroachment(s) resulting from releases of water from reservoirs, flood fight, operation, maintenance, inspection, or emergency repair.

FIFTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion

SIXTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's

approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

SEVENTEEN: No construction work of any kind shall be done during the flood season from November 1st to April 15th without prior approval of the Central Valley Flood Protection Board.

EIGHTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

NINETEEN: The permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

TWENTY: All cleared trees and brush shall be completely burned or removed from the Feather River Designated Floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1st to April 15th.

TWENTY-ONE: Stockpiled material, temporary buildings, or equipment shall not remain in the Feather River Designated Floodway during the flood season from November 1st to April 15th.

TWENTY-TWO: All features of the solar array system shall be properly anchored to prevent floatation into the floodway in the event of high water.

TWENTY-THREE: The cables within the overflow area shall be buried with a minimum of 2- feet of cover.

TWENTY-FOUR: Backfill material for excavations shall be placed in 4- to 6-inch layers and compacted to at least the density of the adjacent, firm, undisturbed material.

TWENTY-FIVE: The perimeter fence shall be removed from the Feather River Designated Floodway if the "breakaway" sections of the fence do not break away during a flood event.

TWENTY-SIX: All debris generated by this project shall be disposed of outside the Feather River Designated Floodway.

TWENTY-SEVEN: Debris that may accumulate on the perimeter fence or on the solar panels shall be cleared off and disposed of outside of the Feather River Designated Floodway after each period of high water.

TWENTY-EIGHT: If the permitted encroachment(s) result in any adverse hydraulic impact or if the flows being conveyed in an overland release result in scouring the permittee shall provide appropriate mitigation acceptable to the Central Valley Flood Protection Board.

TWENTY-NINE: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of

the Department of Water Resources or any other agency responsible for maintenance.

THIRTY: The permitted encroachment(s) shall not interfere with operation and maintenance of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

THIRTY-ONE: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

THIRTY-TWO: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

THIRTY-THREE: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

THIRTY-FOUR: The permittee shall comply with all conditions set forth by the California Department of Water Resources Sutter Maintenance Yard, which is attached to this permit as Exhibit A and is incorporated by reference.

THIRTY-FIVE: The permittee shall comply with all conditions set forth in the letter from the Department of the Army dated May XX, 2011, which is attached to this permit as Exhibit B and is incorporated by reference.

THIRTY-SIX: The applicant shall implement the submitted Flood Protection Procedure, attached to this permit as Exhibit C, when the water surface elevation at the Feather River Near Gridley (GRL) gauge is scheduled to reach 95.0-feet as per the California Data Exchange Center website @ <http://cdec.water.ca.gov>. In addition, this office shall be notified when there has been a change to the contact information.

**City of Gridley
Application for a Central Valley Flood Protection Board
Encroachment Permit**

Conditions From:

California Department of Water Resources - Sutter Maintenance Yard

1. In the event of inundation by flood waters, and to mitigate potential blockage of flood waters, the site will be checked for debris build-up around the fence, gates, or poles and any debris present will be removed by the permittee, consistent with maintaining flood water flows.
2. In the event of debris deposition, due to flood waters, the site will be monitored for scouring and any scouring will be repaired by the permittee.

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City of Gridley Solar Power Generation Facility at WWTP

March 2010

Page 1 of 1

Purpose:

The Solar Power Generation Facility at the Wastewater Treatment Plant (WWTP) is surrounded by a chain link security fence. The fence consists of breakaway chain link fence sections and gates that are to be opened prior to a flood in order to allow flood waters to pass unimpeded. City staff shall implement the following procedure when flooding at the site is expected or imminent:

Flood Watch:

City WWTP personnel shall visually monitor the Feather River and stay tuned to National Oceanic and Atmospheric Administration (NOAA) radio and other commercial radio, internet, or television for information regarding the weather and its potential effects on flooding of the area. City staff shall check National Weather Service (NWS) local information for flood watches and warnings at least once per day when the potential for heavy rainfall, large releases at upstream dams, or high snowmelt is anticipated. Monitoring frequency shall increase to twice per day minimum if a Flood Watch is issued for the Feather River in the area of the WWTP. Upon issuance of a Flood Warning by the NWS (or sooner if warranted) City personnel will promptly open all gates in the solar panel security fence in order to avoid blockage of the Feather River floodway.

Alvin Davis, the City Public Works Director, shall take lead responsibility for monitoring flood conditions and initiating gate opening. Monitoring will be concurrent with monitoring already conducted as part of operations of the adjacent WWTP, also potentially affected by Feather River floods. Contact information for Alvin Davis and Tim Hill, WWTP Operator, is listed in the following table.

Contact	e-mail	Contact Numbers	Address
Alvin Davis, Public Works Director	adavis@gridley.ca.us	C: (530) 370-8013 P: (530) 846-2298	685 Kentucky Street Gridley, CA 95948
Tim Hill, Wastewater Treatment Plant Operator	None	P: (530) 518-2989	1098 East Gridley Rd, Gridley, CA 95948

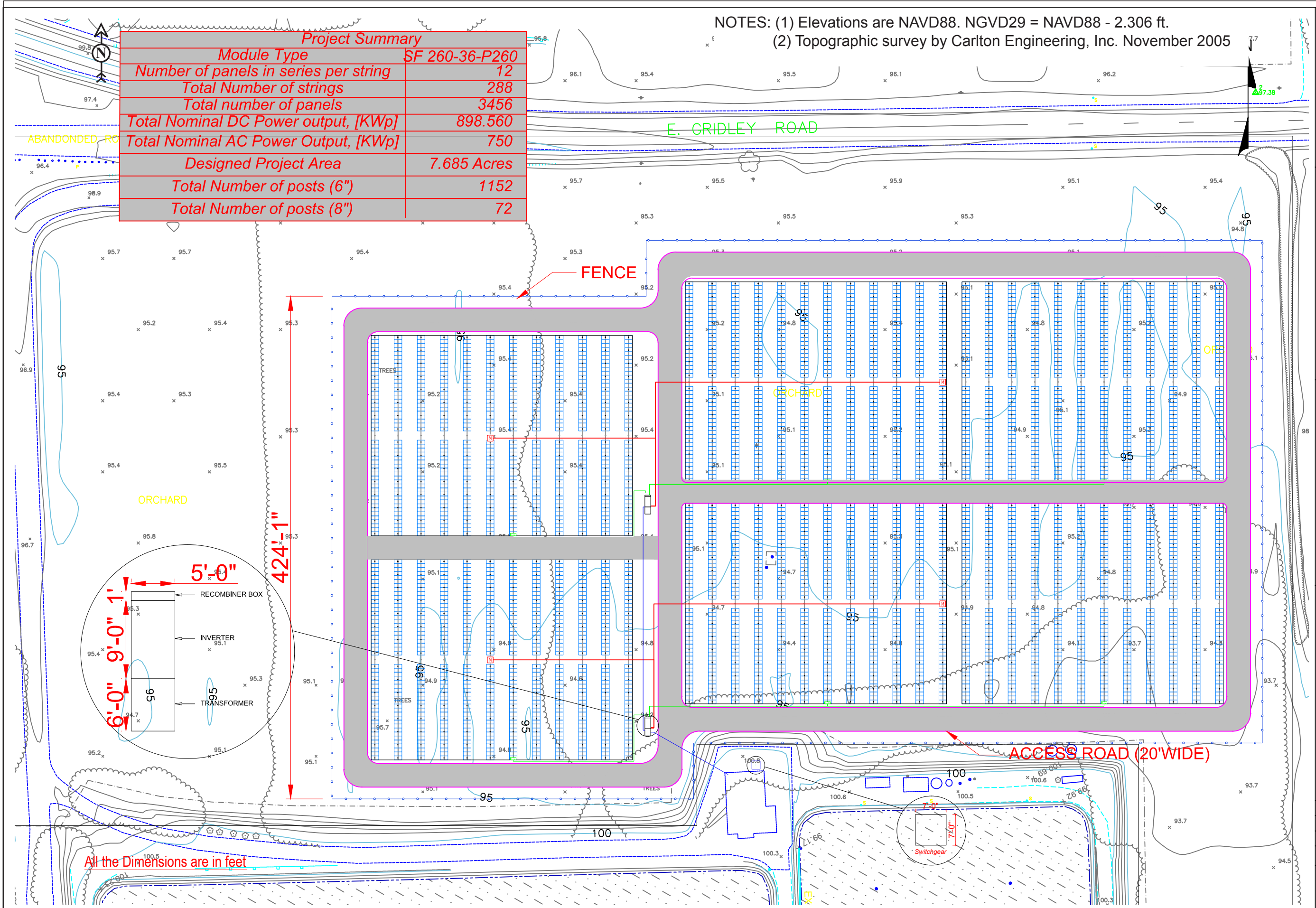
EXHIBIT 7

Gridley Wastewater Treatment Plant Solar Project
FLOOD PROTECTION PROCEDURE

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NOTES: (1) Elevations are NAVD88. NGVD29 = NAVD88 - 2.306 ft.
 (2) Topographic survey by Carlton Engineering, Inc. November 2005

Project Summary	
Module Type	SF 260-36-P260
Number of panels in series per string	12
Total Number of strings	288
Total number of panels	3456
Total Nominal DC Power output, [KWp]	898.560
Total Nominal AC Power Output, [KWp]	750
Designed Project Area	7.685 Acres
Total Number of posts (6")	1152
Total Number of posts (8")	72



All the Dimensions are in feet

Gridley Wastewater Treatment Plant Solar Project

GRIDLEY_WWTP_SITE
 GRIDLEY_CA_95948
 PROJECT_LAYOUT

REV	DESCRIPTION	DATE	DB	CB
A	Project Layout with Contour Lines			

DATE DRAWN	02/09/2011
DRAWN BY	V.M.
CHECKED BY	
SCALE	

3030 Rocky Point Dr. W. Suite 250
 Tampa, FL 33607

Gridley WWTP Embedment Details



Gridley Wastewater Treatment Plant Solar Project

GRIDLEY_WWTP

EMBEDMENT_DETAILS

REV	DESCRIPTION	DATE	DB	CB
A	Post Embedment for Gridley Project			

DATE DRAWN	02/09/2011
DRAWN BY	V.M.
CHECKED BY	
SCALE	NTS

SHEET 3 of 5

