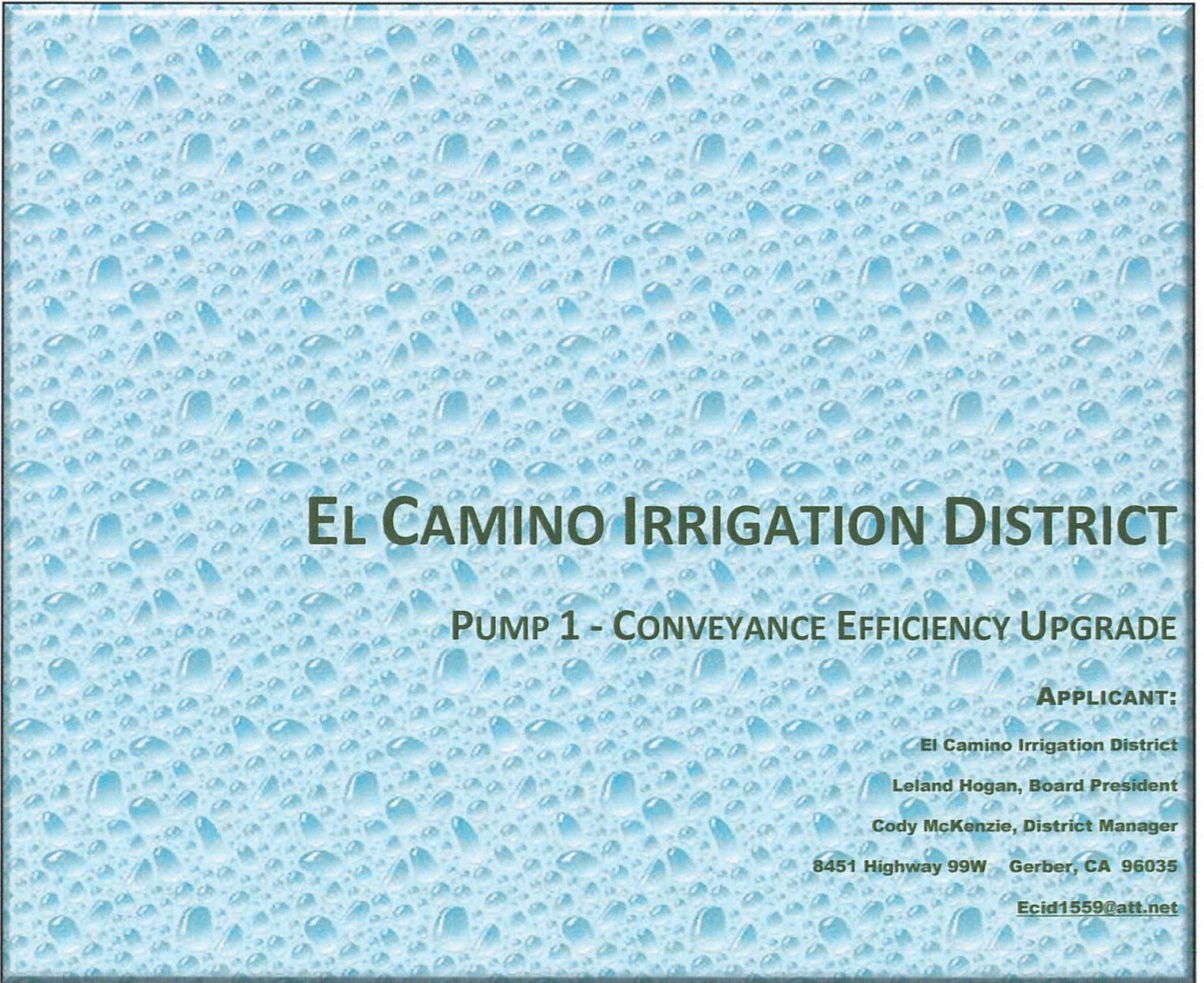
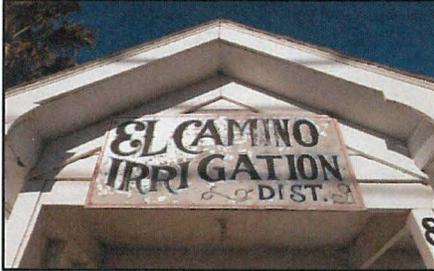


WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS

FY 2017 FUNDING OPPORTUNITY ANNOUNCEMENT #: BOR-DO-F011



EL CAMINO IRRIGATION DISTRICT

PUMP 1 - CONVEYANCE EFFICIENCY UPGRADE

APPLICANT:

El Camino Irrigation District

Leland Hogan, Board President

Cody McKenzie, District Manager

8451 Highway 99W Gerber, CA 96035

Ecid1559@att.net

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Technical Proposal

Executive Summary

Date: April 15, 2017

Applicant Name: El Camino Irrigation District

City: Gerber **State:** California

County: Tehama County

Contact: Cody McKenzie - District Manager office: (530)385-1559 email: ecid1559@att.net

Project Summary

The goals of this project are to improve conservation of water resources and to increase energy efficiency. By updating aging infrastructure with newer, proven technologies we can move toward meeting our sustainability benchmarks. Project funds will be specifically used to update pipelines, hub gates, and flow measurement capabilities.

Estimated completion date of project is September 30, 2019. (based upon funding date provided.)

Background Data

On February 2, 1927, El Camino Irrigation District (ECID) purchased the wells, distribution system, water rights and easements from California Tehama Land Corporation. Water rights purchased from California Tehama Land Corporation bear post-1914 rights bearing permit number 1278 on file with the Division of Water Rights of the State Water Resources Control Board in Sacramento. The water rights of ECID were adjudicated on December 16, 1969 in the case of El Camino Irrigation District vs. J. Sharer.

Water supplies are acquired from the ground by 23 of ECID's 31 irrigation wells, all of which use Pacific Gas and Electric Company power. Pumped groundwater is distributed throughout the boundaries of the district via a network of buried concrete pipelines. Water is directed to individual landowners using a series of hub gates and/or surges. The District owns and maintains approximately sixty-six miles of buried pipeline. Of this sixty-six miles, roughly five miles has been replaced with PVC. All district owned pipelines are routed through private lands within fifteen foot easements. Easements are recorded on the original deed. The vast majority of district delivered water is used for agriculture. Crops within the district boundaries are very diverse, ranging from irrigated pasture for livestock, to almond and walnut orchards, stone fruit orchards, row crops and aquaculture. ECID provides service to 7,450 acres of land. Currently, land within the boundaries of ECID is split into 705 parcels, owned by 518 individuals or

corporations. The irrigation water delivered by the district is utilized for flood irrigation and drip and micro-sprinklers.

See County map.

Project Description

The need to properly manage groundwater has become a top priority. California is implementing legislation that requires agencies to address conservation of groundwater resources. It is estimated that over 1,100 acre feet of water is being wasted each year due to the antiquated conveyance system within this water district. Added to the waste is the energy used to pump water from the ground that never makes it to the customer. These unnecessary losses are costly to the district, consumer and the state. Improving infrastructure is an important step toward the sustainability goals of the state and district.

At this time, ECID would like to replace 2,020 feet of original concrete mainline on the pump 1 system. (see project area map) The areas to be replaced were chosen because of the proximity to the pump station. It is believed/assumed that eliminating the leaks closest to the pump will benefit the most users. The pipelines to be replaced are located to the north, south and east of ECID's pump station 1 and are indicated by the purple lines on the map. Pipeline that has already been replaced is represented by the blue lines and the remainder of the pump 1 network is represented by the yellow lines.

In addition to the pipe being updated ECID proposes to replace all hub gates, customer valves, and air vents associated with the new pipelines. New gates will ensure that water is directed to the correct pipeline and prevent loss to leaks in failing peripheral pipe.

Finally, in an effort to improve water measurement capabilities ECID is proposing the installation of a permanent, direct read flow meter. This piece of equipment will provide vital project management data as well as accurate billing information for district customers.

This project is to be completed utilizing ECID employees along with volunteer work and financial contributions by individual landowners. ECID will provide oversight on the portions of the work that are to be performed by landowners as well as its own crew.

Segments of line beginning at the pump and running south and running east will be installed by the landowner (Miller property). Work will be completed using an excavator for digging, a dozer for backfill. A loader and an end dump truck will be utilized to move old pipe to a local recycling plant. New overflow valves will replace existing valves and will be connected to mainline as per engineering detail. New hub gates will be installed to each segment of pipe where it leaves the Miller property. One of these three gates will be provided by landowner. Air vents will be installed on each of these segments near each gate (on the pump side) to allow air to escape

when the gates are closed. These portions of the project are expected to be completed within one year of funding.

The remaining portions of line (Burson property to Faria property) will be installed by ECID personnel using a backhoe for excavation and backfill. An end dump truck will be hired to haul old concrete pipe to the recycling plant. ECID can only support one repair crew; therefore, work will be performed as schedule permits. See Implementation Plan. (pg. 6)

E.1.1. Evaluation Criterion A—Planning Efforts Supporting the Project (35 points) *Up to 35 points may be awarded based on the extent to which the proposed on-the-ground project is supported by an applicant’s existing water management plan, water conservation plan, System Optimization Review (SOR), or identified as part of another planning effort led by the applicant. Describe how your project is supported by an existing planning effort.*

• **Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?** ECID has identified five projects that are of top priority within the district. Past grant proposals have been applied for using projects from this list. Projects are ranked based on criteria that would prove most beneficial to the district and individual landowners.

ECID cooperates with multiple agencies regarding groundwater management. In 1995, ECID adopted and filed a Groundwater Management Plan with the California Department of Water Resources per the requirements of AB3030. In 2013, a Memorandum of Understanding regarding groundwater basin management was made and entered into between ECID and Tehama County Flood Control and Water Conservation District. In 2016, a larger scale version of the proposed project was accepted by the Northern Sacramento Valley Integrated Regional Water Management (NSV IRWM) Board. Integrated Regional Water Management is a collaborative effort to manage all aspects of water resources in a region. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions.

• **Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.** The Pump 1 project consistently ranks near the top in the categories that determine priority. These categories include water wasted, potential energy savings, number of users affected, hours used per season and dollars lost. Landowner support and participation is also a significant factor in the selection of this project.

E.1.2. Evaluation Criterion B—Project Benefits (35 points) *Up to 35 points may be awarded upon evaluation of the benefits that are expected to result from implementing the proposed project. This criterion considers a variety of project benefits, including improving the management of water supplies, the significance of the anticipated water management benefits, the public benefits of the project, and any expected environmental benefits.*

• **Describe the expected benefits and outcomes of implementing the proposed project.** Two techniques are used to measure the output of Pump 1. The first utilizes a Collins Tube to determine flow at the discharge pipe. This measurement can then be compared to measurements at a weir box located at the far end of the pipeline network. These comparisons show how much water is actually making it to the end of the line. Typical results indicate an average loss of 31 miner's inches¹ (MI).

Goal: It is our intent to improve the overall performance of this system by five (5) MI. This will equate to a savings of 34.6 acre feet annually.

Our records show that pump one ran for a total of 3,350.1 hours during this particular irrigation season. Using the equation below we can calculate the acre foot savings if we can improve the system by just five (5) MI.

$$\text{Equation: } \frac{\text{MI (lost)} \times \text{gallons per hour}^* \times \text{hours pumped}}{\text{gallons per acre foot}}$$

**gallons per hour is a constant = one miner's inch × 60 minutes*

$$\frac{5 \times 673.2 \times 3350}{325851}$$

o What are the benefits to the applicant's water supply delivery system? By upgrading from the century-old concrete pipe to PVC, the delivery system will become much more reliable and reduce the amount of time and money associated with reoccurring repairs. This project alone will not solve all of the water loss on the system, but it is a good starting point. ECID is a small district that has the potential to conserve a large amount of water with relatively little cost. If it were possible to update every pipeline in the district at the same time, an estimated 1,108-acre ft. of water and 228,336 kW of power would be conserved each year.

o If other benefits are expected explain those as well. Consider the following:

- Extent to which the proposed project improves overall water supply reliability Groundwater basins are very dynamic. According to the United States Geologic Survey (USGS), groundwater

¹ In California 1 miner's inch = 11.22gpm

can be tied to all other bodies of water. Reduced groundwater levels can result in decreased flows in lakes and streams. Changes in groundwater-surface water exchange can result in water quality issues. Decreased groundwater flow to surface waters can affect aquatic ecosystems that rely on a continuous supply of groundwater to sustain aquatic habitats and stream flow. Reduced heads in aquifers can result in land subsidence. Considering the interconnected nature of our water resources we can see that the benefits of sustainability are far reaching.

- The expected scope of positive impact from the proposed project (e.g., local, sub-basin, basin) Reduction of unnecessary pumping will increase the positive interaction of groundwater and surface water features within the basin and sub basin. In times of drought, a healthy aquifer may provide in stream flows to the nearby river. When normal rainfall occurs, less surface water would be needed for recharge of the aquifer. No matter what the climatic scenario, more water in storage is a positive situation for the local basin.

Efforts to sustain or improve the groundwater supply by the irrigation district also benefits local domestic users. While ECID holds the rights to all of the groundwater within its borders, the district does not charge for water utilized for domestic use. Domestic users within the district are totally dependent on groundwater through private wells, as there is no other source. Groundwater occurs in two zones (confined and unconfined) beneath ECID. The unconfined zone provides most of the water to the domestic user. Because portions of this zone are also used for irrigation, there is some seasonal fluctuation in water levels. This fluctuation may have an impact on domestic use. This project is one step toward ensuring reliable water supplies for domestic and irrigation users.

- Extent to which the proposed project will increase collaboration and information sharing among water managers in the region California has recently passed legislation known as the Sustainable Groundwater Management Act (SGMA). This act requires local agencies to adopt groundwater management plans that will protect against drought and climate change, and contribute to reliable water supplies regardless of weather patterns. El Camino Irrigation District holds a seat on the board of directors and is committed to implementing sustainable measures as it depends 100% on groundwater for its annual water supply.

- Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism) ECID is located in central Tehama County and has been classified by the Department of Water Resources (DWR) as a disadvantaged community (DAC). Financial resources are limited, yet the district faces many challenges in regards to its infrastructure. With support from federal, state and local agencies, we can begin to implement strategies that will immediately save water and energy. Increasing efficiency translates to economic benefit for the small farmers within the DAC.

E.1.3. Evaluation Criterion C—Project Implementation (15 points)

*Up to **15 points** may be awarded based upon the extent to which the applicant is capable of proceeding with the proposed project upon entering into a financial assistance agreement. Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.*

• Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Fall 2017 (contingent upon funding and environmental clearance)

Miller Property

- Excavation and installation of 740 feet of 12" 80 psi PVC on the south portion of the Miller property. Existing pipe will be bypassed and left in the ground. Miller to take possession of the abandon line for private use.
- 340 feet of Miller's south pipeline will be fitted with eleven (11), 8" overflow valves spaced every thirty feet.
- Installation of three (3) hub gates. (1 of 3 to be provided by Miller)
- Install one (1) air vent
- Removal of 460 feet of 12" concrete pipe that is the east line on the Miller property
- Install 460 feet of 12" 80 psi PVC
- 300 feet of the east line will be fitted with ten (10) 8-inch overflow valves.
- Dispose of concrete pipe at local recycling plant.

All work above is to be performed by landowner with ECID supervision. Landowner has projected that the work listed above will be completed in year one.

Pump 1 Site

- Remove existing discharge equipment
- Install new discharge pipe with flow meter
- Install one (1), 10-inch air vent
- Install one (1) 12-inch hub gate

Start Burson Property

Spring 2018

Finish Burson Property

- Starting at the west end of proposed replacement, ECID will begin excavation and disposal of the first 460 feet of concrete pipe located on the Burson property
- Install 460 feet of 12" 80 psi PVC
- Installation of three (3), 8-inch overflow valves
- Installation of two (2), 10-inch overflow valves
- Install one (1) air vent

Fall 2018

Barison and Faria Properties

- ECID will begin excavation and disposal of the final 360 feet of concrete pipe to be replaced.
 - Install 360 feet of 12" 80 psi PVC
 - Install one (1) air vent
 - Install one (2) 12-inch overflow valves
- Describe any permits that will be required, along with the process for obtaining such permits. N/A
- Identify and describe any engineering or design work performed specifically in support of the proposed project. N/A
- Describe any new policies or administrative actions required to implement the project. N/A

E.1.4. Evaluation Criterion D—Nexus to Reclamation (15 points)

Up to 15 points may be awarded based on the extent that the proposal demonstrates a nexus between the proposed project and a Reclamation project or activity. Describe the nexus between the proposed project and a Reclamation project or activity, including:

- **How is the proposed project connected to a Reclamation project or activity?** A healthy aquifer will increase the likelihood of groundwater contributions to in stream flows of the Sacramento River. This intrusion, especially in drought conditions provides a positive effect on Reclamation activities downstream. The river is located 3.5 miles east of the heart of ECID.

- **Will the project help Reclamation meet trust responsibilities to any tribe(s)?** N/A
- **Does the applicant receive Reclamation project water?** No
- **Is the project on Reclamation project lands or involving Reclamation facilities?** No
- **Is the project in the same basin as a Reclamation project or activity?** Central Valley Project, basin 5-21.50
- **Will the proposed work contribute water to a basin where a Reclamation project is located?**
As alluded to in Criterion B, groundwater contributes to streams in most physiographic and climatic settings. A direct effect of the project will result in conserved water remaining in the aquifer. Here, it will be allowed to flow naturally and provide positive results for other objectives within the basin.

Environmental and Cultural Resource Compliance

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], water, air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

Impacts to the environment will be those associated with re-piping existing irrigation lines. All of the proposed work sites are next to roads or in cultivated fields. Projects of this nature have had minimal impact in the past.

- *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by the activities associated with the proposed project?*

ECID is not aware of any issues concerning threatened or endangered species in the proposed work area.

- *Are there any wetlands or other surface waters inside the project boundaries that potentially fall under the Clean Water Act (CWA) jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have?*

ECID is not aware of, and does not anticipate any issues concerning the CWA.

- *When was the water delivery system constructed?*

Construction of the ECID system began in the early 1920's.

- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

All features of the system will essentially remain the same. Upgrading materials and equipment is intended to increase efficiency, not change the function of the system.

- *Are there any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resource specialist at your local Reclamation office or the State Historical Preservation Office can assist in answering this question.*

No structures will be affected by this project.

- *Are there any known archeological sites in the proposed project area?*

ECID is not aware of any archeological sites in the proposed project area.

- *Will the proposed project have a disproportionately high and adverse affect on low income or minority populations?*

No. ECID anticipates this project will have a positive effect on the low-income community within the district.

- *Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?*

ECID is not aware of any sacred sites within the district and does not foresee any limitation caused by the project.

- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in our area?*

The project will not change the status of the current species in the area.

Budget Narrative Format

Salaries and Wages ECID personnel salaries and wages are calculated using actual fully burdened hourly payroll rates. The included Table "Rates for FY 2017" details each rate associated with each employee or position, including a breakdown of wage and fringe rates. Landowner labor used as matching funds was calculated using comparable prevailing wage rates as the landowner is a commercial contractor using his personal business equipment and staff in completion of his portion of the matching funds.

Materials and Supplies Actual quotes from local material and equipment suppliers were used to calculate all budgeted material and supply costs.

Environmental and Regulatory Compliance Costs An estimate from an Environmental compliance provider and an estimate from BOR for their portion were used to calculate these costs.

Reporting Reporting will be performed by ECID in house, and the associated reporting costs are included in both the indirect cost percentage below and the match hours performed by ECID staff.

Other

Indirect Costs Indirect administrative costs are calculated at the 10% rate allowed in the grant language

Contingency Costs, Travel, Fringe Benefits, Equipment No costs are anticipated for these categories.

Total Costs See table 1

Funding Plan and Letters of Commitment

- *How will you make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g. reserve account, tax revenue, and/or assessments).*

ECID will attempt to fulfill all of its obligation to the project with money collected through assessments. The district does have a reserve account to draw from if the budget does not allow for assessment dollars. The private landowners who are contributing to this project will provide funds as required by Reclamation at the necessary time.

- *Describe any cost incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:*
 - *The project expenditure amount*
 - *Whether the expenditure is or will be in the form of in-kind services or donations.*
 - *The date of the cost incurrence*
 - *How the expenditure benefits the project*

Reclamation is the only Federal funding source and there are no other funding requests pending.

Table 1.- Summary of Non-Federal and Federal Funding Sources

Funding Sources	Amount
Non-Federal Entities	
1. El Camino Irrigation District*	\$28,452.55
2. Harold and Stacy Miller	\$3,719.04
3. Harold and Stacy Miller*	\$7,983.75
4. Jerry and Charlene Burson	\$618.77
5. Diego Barison	\$166.46
6. Lloyd Faria	\$166.46
Non-Federal Subtotal	\$41,107.03
Other Federal Entities	\$0.00
Requested Reclamation Funding	\$31,135.30

Official Resolution No. 2017-2

El Camino Irrigation District

Whereas, The El Camino Irrigation District must maintain, provide for, and service the Water System,

Whereas, The District desires to conserve water and manage its water supply more efficiently and is in need of new piping,

Whereas, The District desires to obtain grant funding from the Bureau of Reclamation through the WaterSMART: Water and Energy Efficiency Grant Program for FY 2017.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors, agrees and authorizes that:

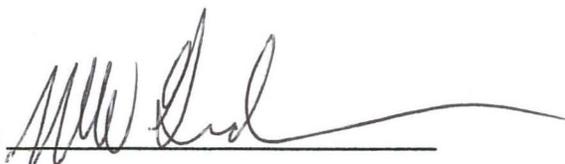
1. The WaterSMART Grant proposal prepared by Cody McKenzie, District Manager, has been reviewed by the Board of Directors and supports the contents therein;
2. The El Camino Irrigation District is capable of providing the amount of funding/contribution specified in the funding plan; and
3. If selected for a WaterSMART: Water and Energy Efficiency Grant, the District will work with the Bureau of Reclamation to meet and establish the deadlines for entering into a cooperative agreement.

DATED: April 11, 2017



Authorized Signature

ATTEST:



Harold and Stacy Miller

8750 El Camino Ave. Gerber Ca. 96035
Phone: 530-520-9999

► **El Camino Irrigation District**

8451 Hwy 99W Gerber, Ca. 96035
Phone: 530-385-1559

RE: El Camino Irrigation District Grant Proposal

To Whom It May Concern

I am writing to show my support for The WaterSMART: Water and Energy Efficiency Grant being proposed by El Camino Irrigation District (ECID). I believe the project will benefit all water users in our area.

My wife and I own and operated a construction and trucking company. We have worked with the district manager to come up with a workable plan. I have read and support the project and pledge to contribute \$11,702.79 in construction, labor and irrigation equipment.

Work will begin upon funding of grant award by Bureau of Reclamation.



Harold Miller

4/11/2017

Jerry and Charlene Burson

23296 Reno Ave. Gerber Ca. 96035

Phone: 530-385-1592

► **El Camino Irrigation District**

8451 Hwy 99W Gerber, Ca. 96035

Phone: 530-385-1559

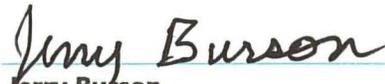
RE: El Camino Irrigation District Grant Proposal

To Whom It May Concern

I am writing to show my support for The WaterSMART: Water and Energy Efficiency Grant being proposed by El Camino Irrigation District (ECID). I believe the project will benefit all water users in our area.

As a former board member of ECID, I can appreciate the efforts to conserve water and energy by increasing efficiency. I support the project and have pledged to contribute \$618.77 for new valves on my property.

Funds will be available upon acceptance of grant award by ECID.


Jerry Burson

4/11/2017

Lloyd Faria

22424 Reno Ave. Gerber Ca. 96035
Phone: 530-200-0080

► **El Camino Irrigation District**

8451 Hwy 99W Gerber, Ca. 96035
Phone: 530-385-1559

RE: El Camino Irrigation District Grant Proposal

To Whom It May Concern

I am writing to show my support for The WaterSMART: Water and Energy Efficiency Grant being proposed by El Camino Irrigation District (ECID). I believe the project will benefit all water users in our area.

I support the project and have pledged to contribute \$166.46 for a new valve on my property.

Funds will be available upon acceptance of grant award by ECID.


Lloyd Faria

4/11/2017

Diego Barison

4132 Cowell Blvd. Davis Ca. 95618

Phone: 530-908-2921

► **El Camino Irrigation District**

8451 Hwy 99W Gerber, Ca. 96035

Phone: 530-385-1559

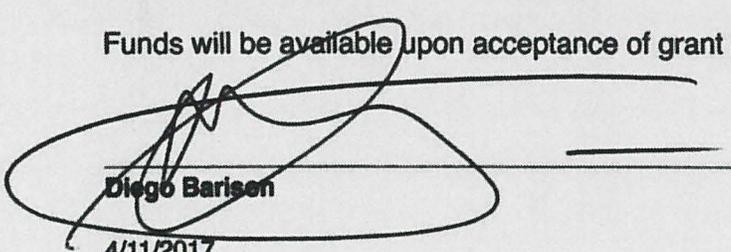
RE: El Camino Irrigation District Grant Proposal

To Whom It May Concern

I am writing to show my support for The WaterSMART: Water and Energy Efficiency Grant being proposed by El Camino Irrigation District (ECID). I believe the project will benefit all water users in our area.

I support the project and have pledged to contribute \$166.46 for a new 12 inch valve on my property at 22392 Reno Ave. Gerber, Ca.

Funds will be available upon acceptance of grant award by ECID.



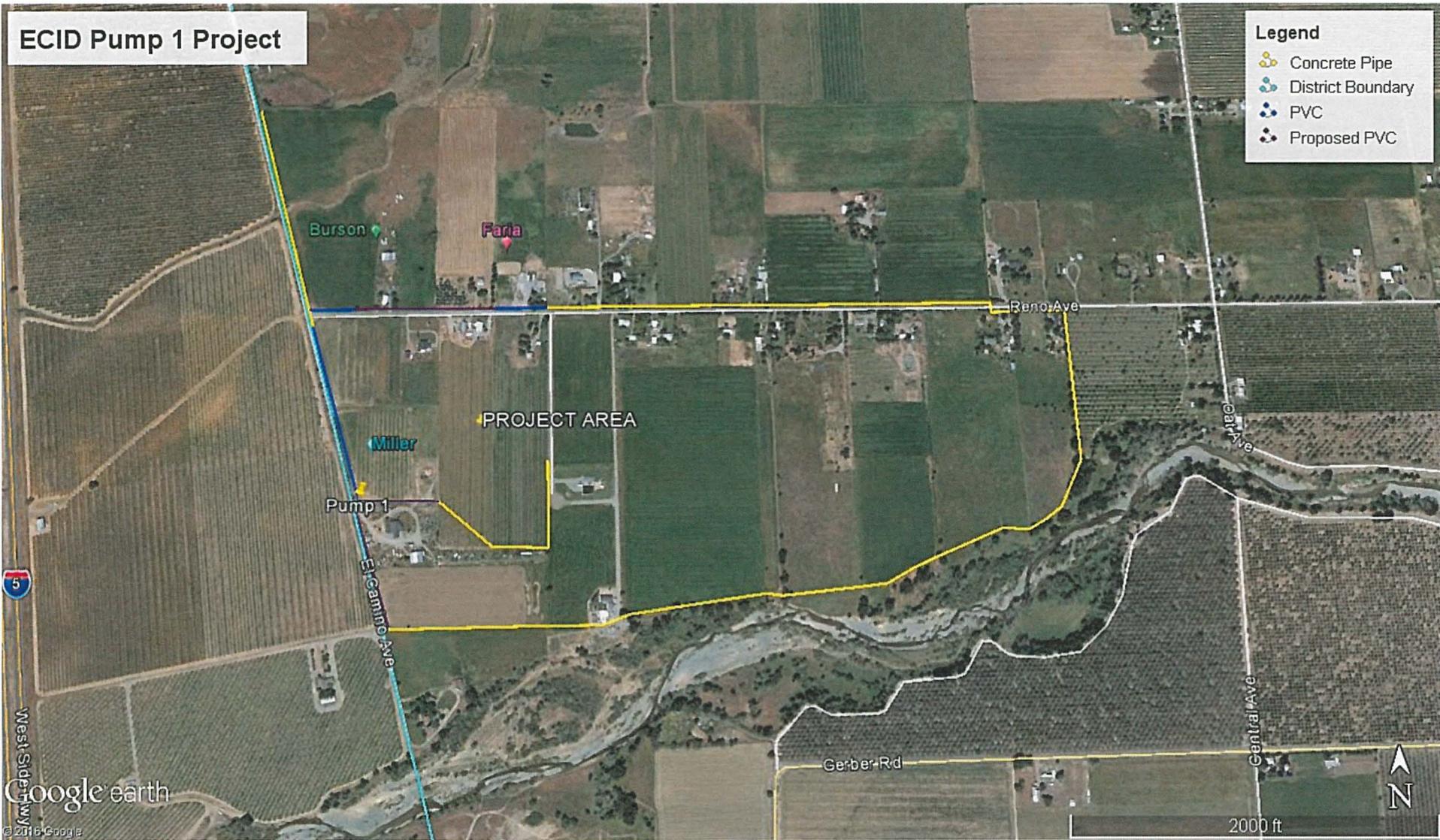
Diego Barison

4/11/2017

ECID Pump 1 Project

Legend

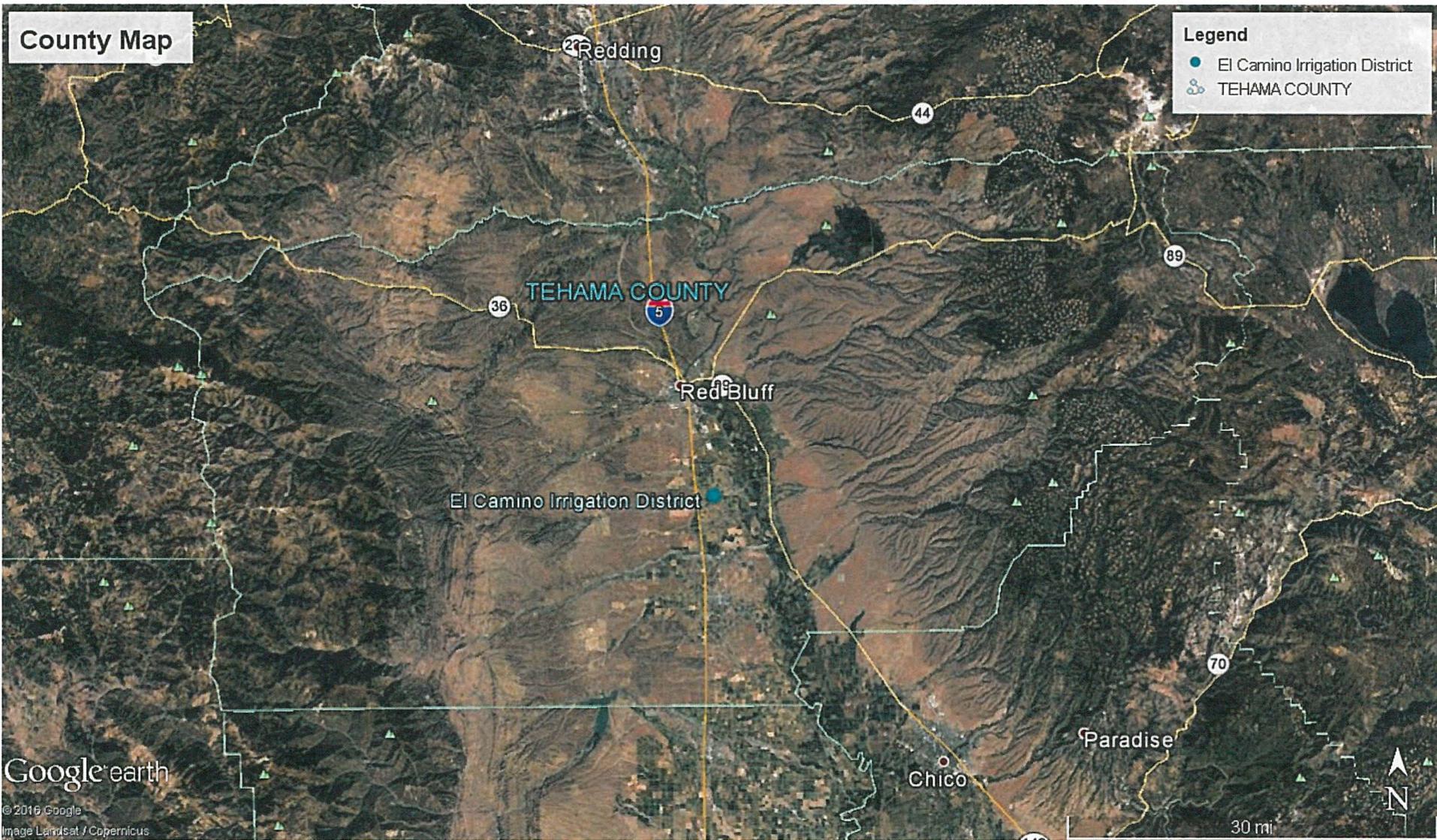
- Concrete Pipe
- District Boundary
- PVC
- Proposed PVC



County Map

Legend

- El Camino Irrigation District
- ⊞ TEHAMA COUNTY

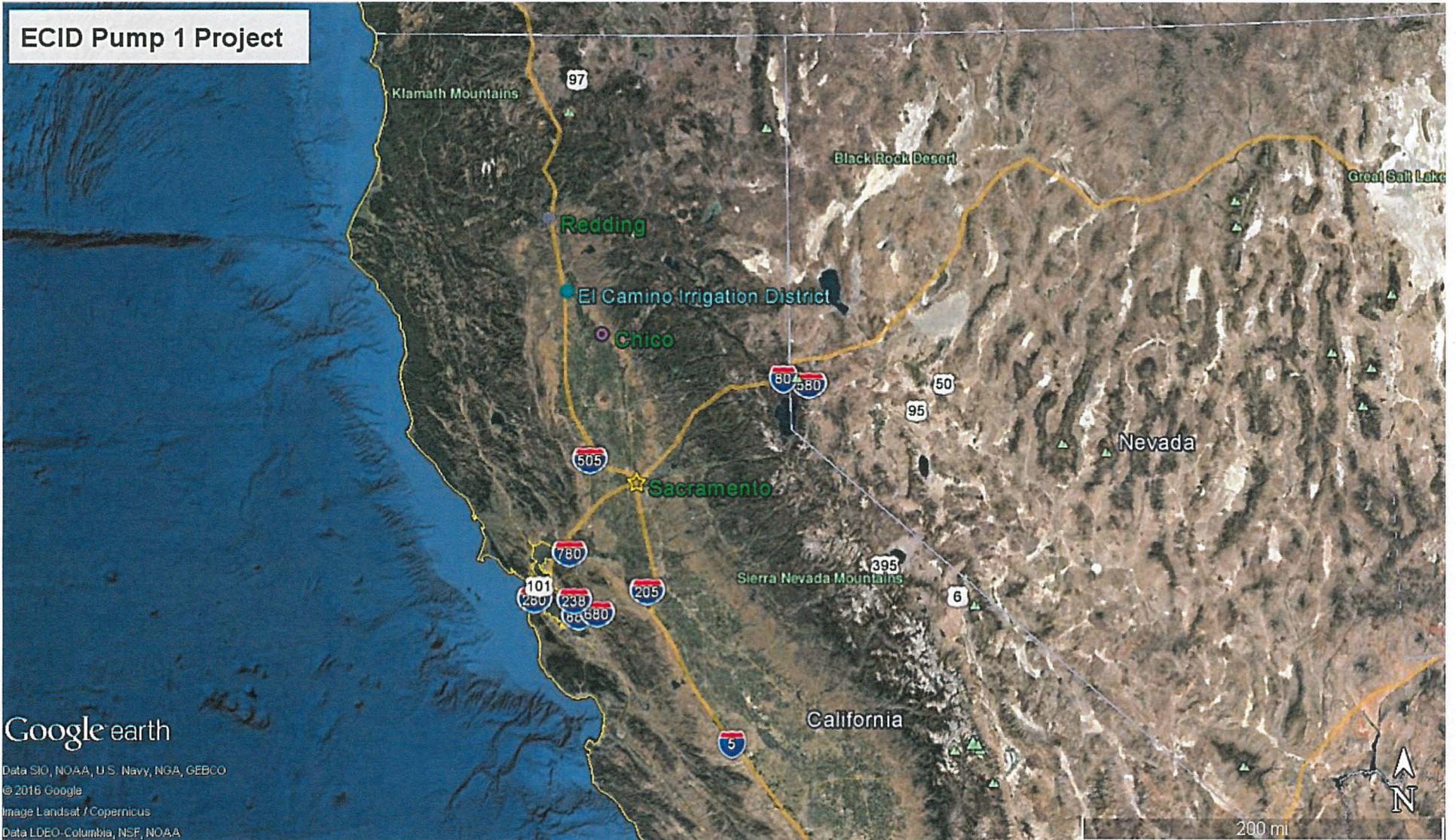


Google earth

© 2016 Google
Image Landsat / Copernicus

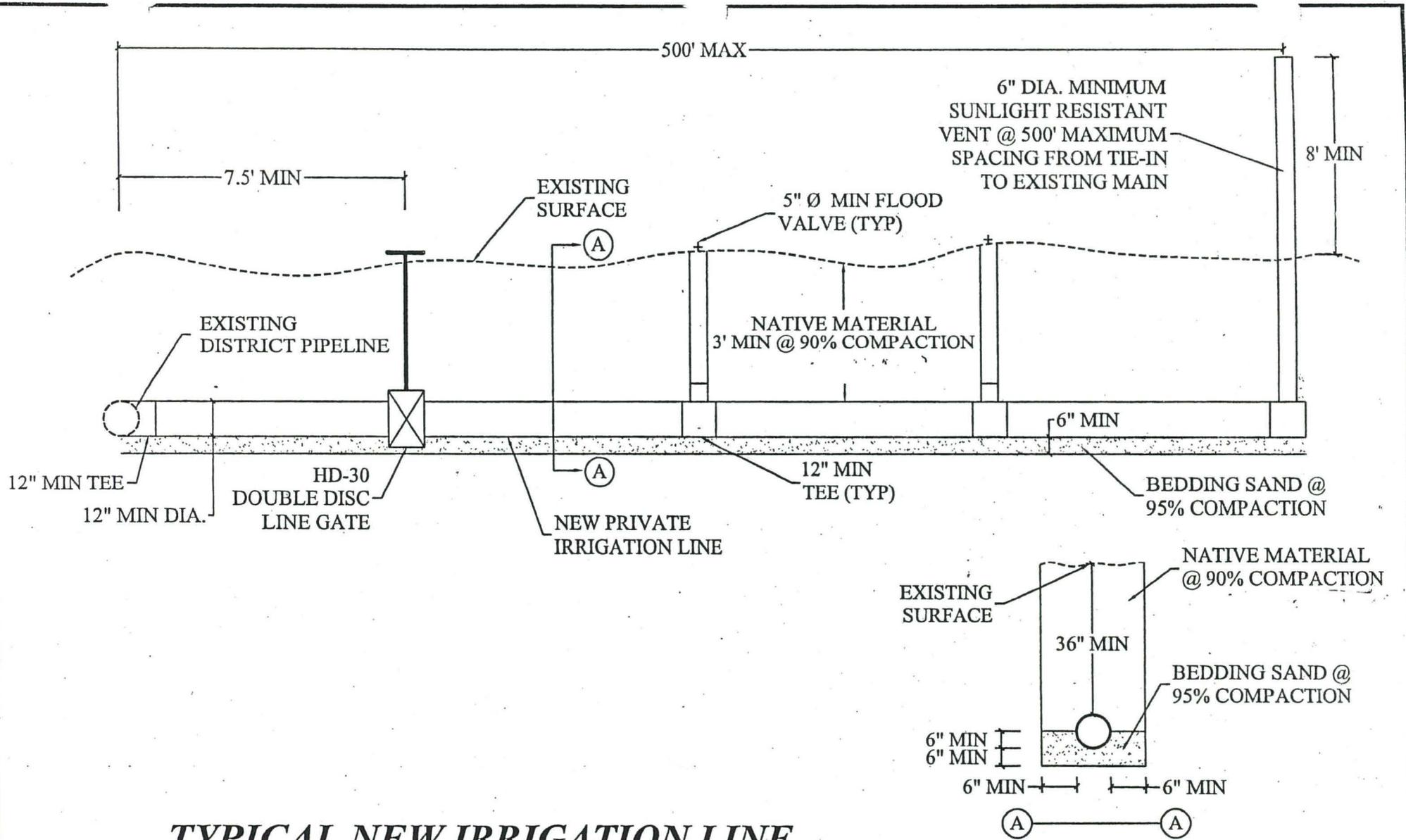
30 mi

ECID Pump 1 Project

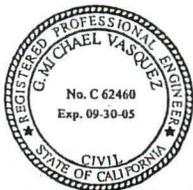


Google earth

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2016 Google
Image Landsat / Copernicus
Data LDEO-Columbia, NSF, NOAA



TYPICAL NEW IRRIGATION LINE



DRAWN BY
PWP
DESIGNED BY
PWP
CHECKED BY
GMV
APPROVED BY
GMV

NO.	DATE	REVISION	BY	APVD

PREPARED BY
CALIFORNIA ENGINEERING COMPANY
ENGINEERING-PLANNING-SURVEYING
1510 POOLE BLVD.
YUBA CITY, CA 95993
530-751-0952
530-751-0953 FAX

CLIENT NAME AND SHEET TITLE
EL CAMINO IRRIGATION DISTRICT
8451 99 W. ROAD
GERBER, CA 96035
530-385-1559
TYPICAL PRIVATE IRRIGATION LINE

PROJECT NO. 04-201	DETAIL 2
DATE MAY 20, 2004	
SCALE NO SCALE	