

**PIXLEY IRRIGATION DISTRICT'S
GRAVITY CONVEYANCE AND
CONSERVATION PROJECT**

TULARE COUNTY, CA

**APPLICATION SUBMITTED TO THE
UNITED STATES BUREAU OF RECLAMATION
FOR A
WaterSMART: WATER AND ENERGY
EFFICIENCY GRANT**

(FUNDING OPPORTUNITY ANNOUNCEMENT NO. R12SF80049)



Pixley

SINCE 1958

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**USBR WaterSMART: Water and Energy Efficiency Grant Application
Gravity Conveyance and Conservation Project**

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TECHNICAL PROPOSAL

1. Executive Summary

(a) General Project Information

Date: January 19, 2012

Applicant Name: Pixley Irrigation District

City, County and State: City of Tipton, County of Tulare, California

(b) Project Summary

The Pixley Irrigation District's (District or PIXID) Gravity Conveyance and Conservation Project (Project) will accomplish goals within the Tasks A, B, C and D of the funding opportunity. This Project is a cooperative effort between PIXID and Lower Tule River ID (LTRID), as one of LTRID's canals is the diverting facility from the Friant-Kern Canal for this conveyance system and will be improved as part of the Project. The Project involves the improvement of portions of six miles of existing canal (LTRID's Casa Blanca Canal), associated control structures and road crossings. The modifications to the Casa Blanca Canal will be on the upstream side of six road crossings where headwalls will be extended and earthen banks will be raised to improve the capacity through the road crossings. Also the Project will develop approximately 7.5 miles of new earthen canal and associated structures (see **Figure 2 –Schematic Project Map**). The Project will allow PIXID to divert available surplus supplies into a new 8,030 acre service area that previously has not had access to surface water. Also, this new system will be able to avoid the significant seepage losses experienced in all of the District's other surface water diversions from Deer Creek, which will save significant volumes of water for District growers. The construction of the Gravity Conveyance and Conservation Project facilities will make it possible to conserve approximately 8,500 acre-feet (AF) per year through (1) the ability to use larger volumes of Friant Division CVP supplies and Tule River floodwaters during wet years and (2) the avoidance of losses to Deer Creek seepage during dry years.

The development of a new gravity conveyance system to deliver to a new service area that is already developed to agriculture will offset groundwater pumping to the extent that surface water can be delivered to growers (Task B benefits). This gravity system uses the natural fall of the land to convey surface waters to growers rather than any non-renewable energy source (Task B benefits). The waters conveyed through this system will also be surplus CVP supplies or Tule River floodwaters and will therefore provide water conservation benefits through deliveries to growers and groundwater recharge (Task A benefits). The new earthen channel will be open and while water deliveries are made through it this will provide an additional source of water for local endangered species (Task C benefits). The improved capacity developed in Lower Tule River ID's existing Casa Blanca Canal will allow LTRID to divert supplies at a greater rate than possible prior to the Project and PIXID to provide PIXID the capacity to deliver to the new service area without impacting LTRID's ability to deliver to growers on that system (Task A and D benefits).

Accomplishing this will make an equivalent amount of water available to be banked in local groundwater or marketed to the District's historic banking and exchange partners

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(Task A and D benefits). The new flow meters constructed as part of the Avenue 116 Lateral facilities will measure all of the water that will be diverted from the existing Casa Blanca Canal (135 CFS maximum). This new measurement facility will allow water supplies to be more accurately measured than the existing measuring facilities (Task A benefits). Also, sluice gates at the Casa Blanca Intertie diversion will be automated to maintain consistent flows by varying the gate opening (Task A benefits). The Project also involves adding the new automated gates into the District's existing SCADA system. Using SCADA to remotely monitor this District diversion location will modernize the existing facilities and improve water management through the use of new available technology (Task A benefits).

Table 1 PIXID Conveyance Facilities

Project Component	Task A - Water Conservation	Task B - Energy-Water Nexus	Task C - ESA Benefits	Task D - Water Markets
Surplus Friant Division CVP Supplies	Approx. 6,700 AF per year	Avoided energy from pumping 6,700 AF per year of groundwater	Open canal conveyance system will provide better water supply for local endangered species.	Water transferred annually from other Friant Division CVP contractors
Tule River Floodwater	Approx. 1,800 AF per year	Avoided energy from pumping 2,300 AF per year of groundwater	Open canal conveyance system will provide better water supply for local endangered species.	Floodwater diverted from Tule River channel to avoid flood damage in the Tulare Lake Bed
Improved Capacity in Casa Blanca Canal	LTRID can divert supplies at a greater rate from Friant-Kern Canal	Renewable energy conveyance system that utilizes the natural fall of the land		LTRID can make additional capacity available to PIXID without impact to growers in their service area
Automated Sluice Gates	Facilities will deliver consistent flows to growers downstream and minimize spills			

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Project Component	Task A - Water Conservation	Task B - Energy-Water Nexus	Task C - ESA Benefits	Task D - Water Markets
SCADA monitoring	District staff back at the office will have up to the minute information on the system when making decisions			

(c) Project Duration and Estimated Completion Date

CEQA compliance documents in the form of a negative declaration for the Project have been publicly noticed with the State Clearinghouse and circulated to responsible agencies; responses from that circulation considered by the District and the Board of Directors adopted the documents at their normal December 2011 Board of Directors meeting. Project design is expected to begin upon the preliminary announcement of selection for grant award in April 2012. All permitting should be accomplished by November 2012. Permits from the State Water Resources Control Board (Storm Water Pollution Prevention Plan), California Air Resources Board (Dust Control Plan) and Tulare County (Grading Permit) are believed to be necessary. Once awards have been announced, presuming the District is successfully selected; the District will begin the process of land acquisition and also begin planning the construction of modifications to the Casa Blanca Canal. Construction is planned to begin in March 2013, lasting roughly 28 months, to be completed in June 2015. This schedule will provide a 8 month buffer from the 36 month window that would begin after NEPA documentation is complete, likely ending in January 2016. However, if the 36 month window is applied to when the funding contract is signed in October 2012, then the projected completion date would provide a 3 months buffer.

TECHNICAL PROPOSAL

2 . Background Data

(a) Geographic Location

Pixley ID is in southern Tulare County in California. The community of Pixley is roughly 45 miles north of Bakersfield along Highway 99. Pixley is also roughly 60 miles southeast of Fresno along Highway 99.

A location map for the District is included as **Figure 1** and a location map for the Project is included as **Figure 2**.

(b) Water Supply

Growers within the District use private groundwater wells to pump approximately 174,000 acre-feet per year on average.

PIXID diverts Deer Creek waters within the District boundary through connections with historic agricultural diversions that have been happening in this area since the late 1800s. PIXID's long term average annual amount of water diverted from Deer Creek is 8,900 AF per year.¹ The District was formed in 1958 in response to an available Friant Division CVP contract that the District decided not to pursue. Riparian diverters exist along the Deer Creek channel throughout the District as well as upstream of the District.

In 1975, PIXID sold bonds to purchase a share of the capacity in the Cross Valley Canal in Kern County and entered into a three-party contract (#14-06-200-8238A) with the USBR and State of California (for wheeling) to provide an additional water supply from CVP controlled rivers tributary to the Sacramento River and diverted from the Sacramento/SJR Delta for a contract supply of 31,102 AF. This water was historically delivered through an exchange of water supplies with the Arvin-Edison Water Storage District that was called the Cross Valley Exchange Program. Between 1975 and 1995, this contract provided an additional average water supply to the District of approximately 29,000 AF per year.

PIXID is also a District that attempts to acquire as much surplus water from the Friant Division CVP system as possible. PIXID's long term average annual amount of water diverted from Friant Division CVP is 30,300 AF per year.² PIXID usually acquires either flood waters (Section 215 water) if Deer Creek supplies are not running at the same time, surplus contract supply from a long-term contractor to be run in June and July in very wet years, or contract supply that would have to be carried over from a long-term contractor to be run in August and September. Lower Tule River ID, who has the second largest Class 2 contract amount on the Friant Division CVP system, is a historic PIXID water supply partner. However, PIXID has also worked with these other local districts: Terra Bella ID, Fresno ID, Deer Creek and Tule River Authority, Stone Corral ID, Saucelito ID, Porterville ID, Exeter ID, and Tea Pot Dome WD.

¹ Averages generated from values including 1994 – 2008.

² Averages generated from values including 1994 – 2008.

Table 2 PIXID Average Annual Water Supplies

Average Annual CVC Contract Water Delivered to PIXID (AF)	Average Annual River Supplies (AF)	Average Annual Transfers into District from Long-term CVP Contractors (AF)	Average Annual Groundwater Pumped by Private Growers (AF)
1,500	8,900	28,800	174,000

(c) Water Delivery System

All waters delivered by Pixley ID are for agriculture. Deer Creek is a very sandy ephemeral stream that runs the entire width of the District through its southern third (see **Figure 2**). The District maintains approximately 15 miles of the Deer Creek channel within its boundary. The District's surface water delivery systems that divert from Deer Creek currently consist of the East Main Canal (max. 45 CFS), the West Main Canal (max 210 CFS), and the Harris Ditch (max 15 CFS). There are 166 turnouts (or farms service outlets) on the 45 miles of PIXID's earthen channel distribution system. The District's delivery system currently serves approximately 27,510 acres or 40% of District's lands.

Water delivery measurements are performed by means of calibrated slide gate (meter gates). The District does not have groundwater extraction facilities. Each individual landowner must provide his/her own well(s) to sustain irrigation during periods when the District is not diverting surface water to the growers. Additionally, the District maintains and operates 11 regulation and recharge basins totaling approximately 278 acres.

The on-farm irrigation efficiency is not regularly calculated by the District but within the region has been estimated to range from 75 to 85%. Seepage losses to the earthen canal system are regularly estimated from measuring stations throughout the system. However the seepage losses through Deer Creek can be as high as 35%.

Table 1 lists the diversions locations into the District's conveyance system.

Table 3 PIXID Conveyance Facilities

	Diversion To	Diversion From
1	East Main Canal	Deer Creek
2	Harris Ditch	Deer Creek
3	West Main Canal	Deer Creek
4	Deer Creek	Friant-Kern Canal

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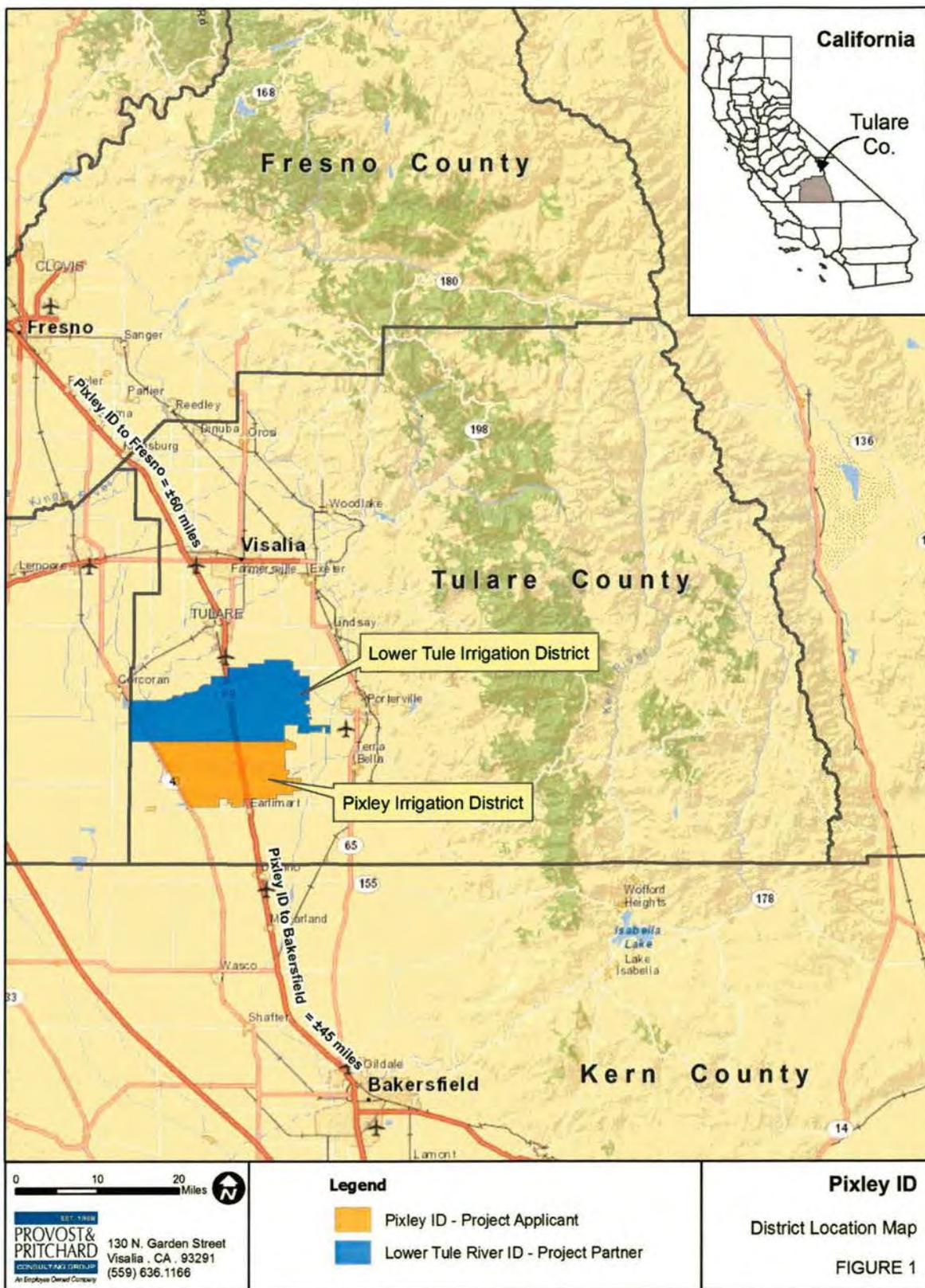


Figure 1: Pixley ID Location Map

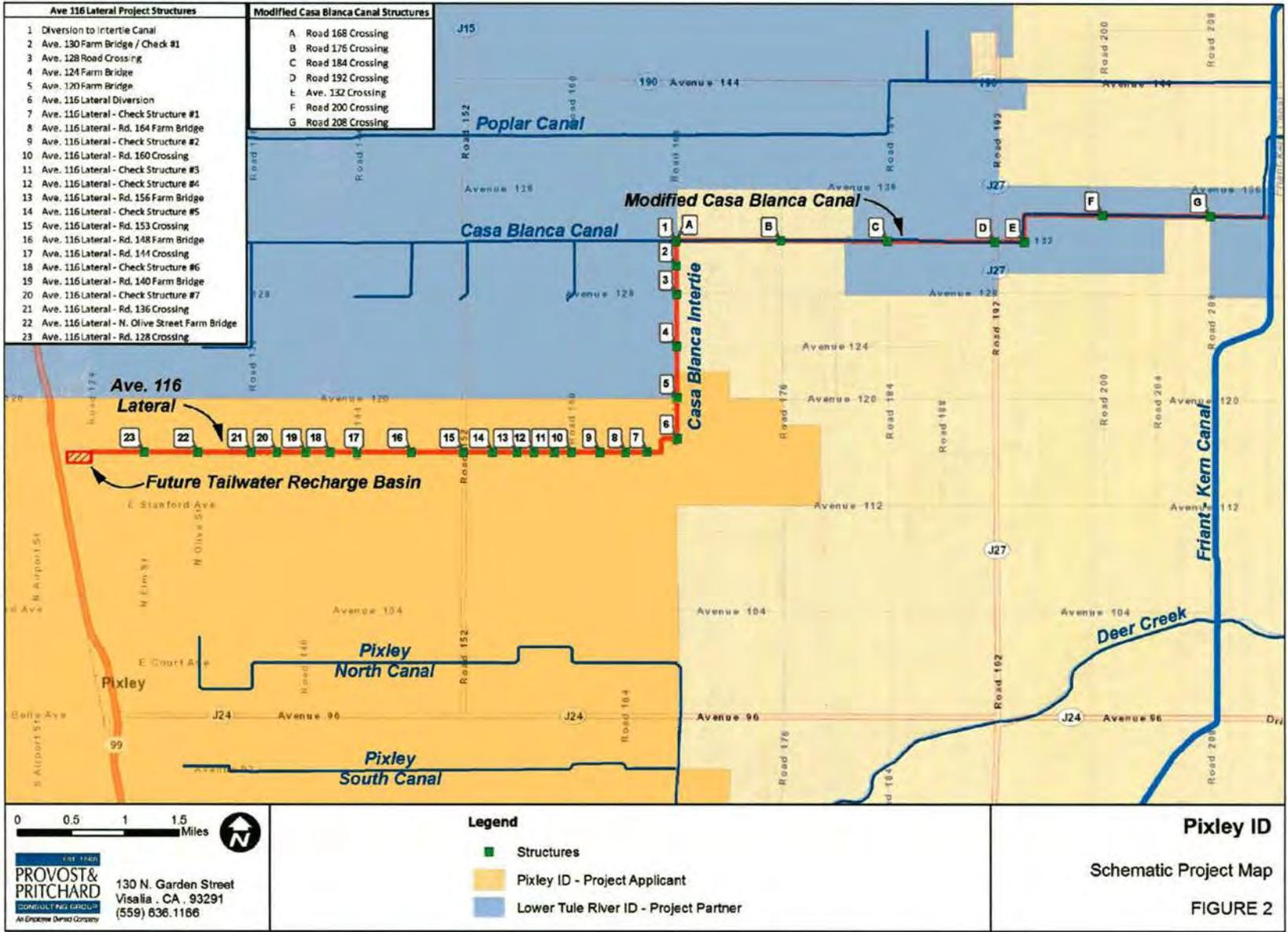


Figure 2: Project Location Map

Pixley ID
 Schematic Project Map
 FIGURE 2

(d) **Energy**

Electricity in PIXID is principally supplied by SCE, a large utility with diversified generation facilities. The District's efforts to recharge groundwater have slowed the decline of depths to groundwater. This has provided energy savings to groundwater pumpers in the District, due to decreased lifting by pumps.

(e) **Past Working Relationships with Reclamation**

Pixley ID has been a long-term CVC contractor with the Bureau since 1975. In compliance with its long-term contract, Pixley ID cooperates with the Bureau regarding scheduled deliveries, biannual depth to groundwater readings, water conservation plans and regular meetings regarding operations of the Friant Division as well as meetings associated with the CVP's other reservoirs and Delta export pumping.

Pixley ID has also worked with the Bureau on a grant funded System Optimization Review (SOR) Study that was recently finalized in the fall of 2011.

3. Technical Project Description

Major project tasks include the following:

Task 1 – Project Administration: Overall Project coordination. Communication and contract management with USBR. Request budget and contract revisions, if needed. Manage subconsultants. Organize and attend progress meetings with USBR and stakeholders. Preparation of quarterly and annual progress reports and a final report.

Task 2 – Permitting and NEPA Documentation/Permitting: Assist the USBR with complying with the National Environmental Policy Act. (Compliance with the California Environmental Quality Act (CEQA) is already complete.)

Task 3 – Engineering/Inspection/Construction Staking: Currently the Project design can be categorized as a conceptual (30%) design. Preparation of final construction plans and specifications for earthwork, structures and miscellaneous facilities will begin upon preliminary selection for funding and will be completed by October 2012. A geotechnical investigation of the soil characteristics throughout the Project site will be completed as will a hydraulic model of the proposed facilities.

The District's engineering consultant will provide construction inspection and staking services. These services are anticipated to be on-going throughout the Project's construction. In addition to those services, the consulting engineer will also provide miscellaneous engineering services if needed, should any changes occur to the Project's design during construction.

Task 4 – Right-of-Way Acquisition: The District will work with landowners along the Project alignment to secure right-of-way for the new canal facility. District staff is familiar with the process of acquiring property for new facilities as they have been through it on another effort (Lower Tule River ID's Tule River Intertie) within the last two years. It is anticipated that securing project right-of-way for the entire alignment will take approximately nine months and will begin after grant contracts are signed.

Task 5 – Project Construction: The alignment for the new canal is currently agricultural fields. Clearing of these areas and modifications of the existing on-farm irrigation systems, as per negotiated landowner agreements, will be accomplished in spring 2013. Work to clear fields and modify existing fields and irrigation systems will be accomplished by a local contractor familiar with the needs of farmers in this area. The District will select this contractor as per their existing policies on securing contracted services.

The new 2.5 mile canal is mostly below the existing ground surface and will require significant earthwork along the Project alignment. Some stockpiling of material will be necessary. There will be excavation and hauling in some cases. District staff will accomplish the earthwork involved in developing the new canal facility.

The improvements to the Casa Blanca Canal will largely be within the existing channel right-of-way. It is anticipated that this work will begin in October 2013 after the summer irrigation run is over and the channel has dried. Earthwork will be accomplished to raise the channel banks of the canal on the upstream side of several road crossings. At these road crossings, concrete work to extend existing headwalls will also be accomplished and the surrounding transitions to existing roadways will be re-graded.

Project Background and Description: PIXID is a 69,550 acre District with an annual irrigated demand of approximately 196,000 that on average receives approximately 39,200 AF. These conditions have led to a large groundwater depression beneath the District, private groundwater pumping of approximately 174,000 AF/year and an estimated groundwater imbalance of approximately 100,000 AF/year. The District's existing surface water supplies are either unstorable Deer Creek run-off or surplus Friant Division CVP supplies transferred from long-term contractors. The District could take advantage of additional available wet year surplus surface water supplies if the District's delivery system provided to more than 40% of the District's area.

The Gravity Conveyance and Conservation Project is the development of a new delivery system that will allow delivery of surface water to approximately 8,030 additional acres within PIXID. The Project would utilize Lower Tule River ID's existing Casa Blanca Canal as a diversion facility from the Friant-Kern Canal. Use of this diversion facility will allow the District to lose far less diverted water to unrecoverable seepage and allow the District to sell a greater percentage of diverted water to growers. LTRID's Casa Blanca Canal's capacity would be improved from 200 CFS to 335 CFS.

At Road 168 the Project will divert water from the improved Casa Blanca Canal and develop a new 135 CFS conveyance facility that will travel 2 miles south and then 5.5 miles west. The new conveyance facility will be a new earthen canal, built almost entirely by District forces with associated turnouts, control structures, and public and private crossings. This project was determined to be the preferred alternative for PIXID in their recent System Optimization Review Study and the District has already processed CEQA documents for the conceptual project.

The Project is expected to have two main benefits. The primary benefit will be water supply benefit to the growers through access to surface water. The second benefit will be the groundwater recharge through the new canal and decreased pumping that will

increase the reliability of groundwater resources in the area and will in part mitigate the overdraft in the area.

Project Schedule: A Project schedule is included in **Appendix C**. PIXID believes that they can reasonably be complete the Project before the contract deadline of September 30, 2015. Project construction will begin in February 2013 with an estimated completion date of August 2015. The final report is planned to be submitted by August 31, 2015. This provides a one-month buffer to accommodate unforeseen circumstances that may delay Project completion.

Project Benefits: Project benefits will include the following:

- Water conservation
- Water supply/conveyance
- Reduction in energy consumption through groundwater pumping
- Groundwater recharge and conservation
- Storm and flood water capture
- Increase in groundwater levels
- Improvement in groundwater quality
- Preservation of groundwater resources
- Improved water reliability
- Potential on-farm irrigation efficiency increases
- Improved water management
- Potential water supply benefits to local endangered species
- Increased energy efficiency at nearby wells
- Water marketing

Funding: PIXID will solely fund the dollars not contributed by federal funds by way of in-kind contributions and money available in the District's reserve fund. PIXID's cost share will represent 65.6% of the total estimated Project cost. See **Appendix D** for a copy of PIXID's most recent certified financials.

4. Evaluation Criteria

(a) Water Conservation

Subcriteria No. 1: **(a) *Quantifiable Water Savings. Describe the amount of water to be saved.***

Tule Floodwater and Surplus CVP Water. This project will develop a new surface water delivery area within PIXID that will be able to receive both surplus CVP water from the Friant-Kern Canal and Tule River floodwater. This would be the only PIXID facility that would have a connection to the Tule River and would allow the District to receive Tule River floodwater that would likely be used for groundwater recharge or irrigation deliveries. Considering both available supplies it appears from an analysis of potential operations given water supply availability between 1996 and 2008 contract year that the average capability to deliver surplus water of 9,350 AF/year (8,500 AF/year delivered to growers plus 10% conveyance losses). In very wet years this

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service area will be capable of being delivered as much as 23,900 AF, and in above average years the deliveries could be approximately 15,000 AF/year.

Conserved Groundwater Resources. As this area does not currently have access to surface water, but is developed to agriculture, growers in this area pump groundwater for all of the irrigated supplies. The surface water deliveries to this service area will reduce the amount of groundwater pumping and conserve an average 8,500 AF/year of groundwater so that groundwater resources are more reliable when extended droughts occur.

Avoided Seepage Losses. All of PIXID's existing conveyance systems divert from Deer Creek. This creek is very sandy and losses as much as 35% of diverted supplies to seepage losses. The project would develop a facility that would divert from LTRID #1 Cana (a man made channel) that losses approximately 10% in seepage losses. The avoided seepage losses through the new diversion will allow the District to deliver more surface water to growers and to financially recoup more for the water through water charges that they purchase and transfer from other districts.

Additional Capacity in LTRID #1 Canal. Improving the capacity in the LTRID #1 Canal will also allow LTRID to deliver greater volumes of water to the southeastern portion of the District when surplus water is available or must be taken due to limited storage conditions in Millerton Lake on the San Joaquin River or Lake Success on the Tule River. This improved delivery capacity will conserve water otherwise lost to insufficient or restricted storage.

Future Groundwater Banking. The District is pursuing a groundwater banking project with its partner Delano-Earlimart ID (DEID). This new groundwater bank is planned to be along Deer Creek and have a maximum dry year return capacity of 30,000 AF. This project is envisioned to allow PIXID to bank surplus Deer Creek and Friant Division CVP supplies through the recharge facilities and potentially receive return water in a transfer with DEID through their Friant Division CVP contract supply. This banked water could be transferred and then delivered to the new developed service area.

Also, this new conveyance system is in the area that has very preliminarily been considered by the District as a large future groundwater bank. This surface water conveyance facility would make it possible to deliver surface water to an area within PIXID that as a groundwater bank could potentially store up to 100,000 AF of imported water due to the large cone of depression in the area. If the District partnered with LTRID in this type of endeavor, recovery facilities could deliver to lands within LTRID and PIXID while the return supply could be LTRID's Friant Division CVP contract supply. This type of project would open up a new water market in southern California.

Measuring & Automated Gate. The District's current diversions are all metered by Parshall Flumes and chart recorders. For this reason flow measurements and the time between measurements are often used by District staff to estimate how much water has been diverted between times when the charts are reduced. The proposed project facilities will have instantaneous and totalizing flow meters that will be available to water managers so that up to date information can inform decisions being made in order to minimize losses of supplies and maximize benefits to District growers. Further the

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water level sensors on the actuated sluice gates will be programmed to so that the facilities will protect against unforeseen spills and maintain constant downstream flow depending on which mode they are set in. These aspects incorporate current technology into the project so that water managers can utilize this facility to its greatest benefit.

SCADA system. The Project will also include the inclusion of this system's main control facilities into the District's existing SCADA system. This system will provide staff at the District office real-time operations information on the District's diversion into this system. Providing SCADA at these diversion locations will modernize the existing facilities and improve water management through the use of new available technology. This improvement to the District's distribution system will conserve approximately 1,250 AF/year that was previously lost to operation spills or un-diverted supplies (approximately 0.6 percent of total average annual supplies).

Subcriteria No. 1: ***(b) Improved Water Management. Describe the amount of water better managed.***

Surface Water Delivery to previously un-served lands. The project will develop a new conveyance system that will serve a new area with surface water. During wet years when surplus water is available, PIXID was limited in the amount that it could divert and deliver because of the area that the District's conveyance system serves (approximately 40% of District lands). This project will increase District's surface water service area by approximately 8,030 acre. This benefit applies to the entire 8,500 AF/year of deliveries to growers through the new system (approximately 21.7% of District average annual supplies).

Reduced Loses to Seepage. Currently all District surface water supplies are conveyed through a portion of Deer Creek and then diverted into the District's distribution system. Deer Creek is a very sandy natural channel and seepage losses in this channel are as high as 35%. This high amount of seepage loss has a significant financial impact on the District because in order to recoup costs for transferred water supplies the District must either raise water charges to account for the volume lost to seepage (which can make surface water charges more costly than local groundwater) or subsidize water charges from reserves. The project will develop a new conveyance system that will have the normal losses associated with a man-made channel, or around 10%. Being able to avoid the previously unavoidable losses to seepage and deliver more water to growers than before will be significant improvements to PIXID's surface water management. This benefit applies to approximately 1,675 AF/year (approximately 4.3% of District average annual supplies).

Beneficial Use of Floodwater. The project will develop a new conveyance system that will serve a new area with surface water. This system will be able to divert Tule River flood waters and San Joaquin River floodwater and put them to beneficial use either through groundwater recharge or through agricultural deliveries within the new 8,030 acre service area. This benefit applies to approximately 1,800 AF/year (approximately 4.6% of District average annual supplies).

Increased Capacity in existing LTRID #1. The project will significantly increase the

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capacity of LTRID's #1 Canal. This will allow LTRID to deliver a broader range of flows to its growers and potentially allow LTRID to deliver additional supplies to its growers, both Tule River and Friant Division CVP supplies.

Improved Groundwater Quality. The tertiary treated wastewater supplied through the Project will be excellent water quality. This water will mix with lower quality groundwater, and, through blending, will improve the local groundwater quality.

Therefore, the Project is estimated to improve the water management of approximately 11,975 AF per year, which is approximately 30.5% (11,975 /39,200) of the District's average annual supplies.

Subcriteria No. 2: *Percentage of Total Supply. Describe the percentage of total water conserved.*

PIXID currently has an average annual surface water supply of 39,200 AF. However, PIXID's average annual deliveries to growers is only approximately 22,400 AF. The new facility can provide 8,500 AF/year to the region which represents $8,500/39,200 = 21.7\%$ of average District supplies and $8,500/22,400 = 37.9\%$ of average total ag water sales within the District.

Subcriteria No. 3: *Reasonableness of Cost*

The total cost of the Project is \$4,362,375. The average annual amount of water conserved and better managed from the Project is approximately 17,000 AF.

The Project costs used are based on actual recent project costs from completed similar District projects. A detailed estimate of probable Project costs is summarized in **Appendix B**. The life expectancy of the facilities is at least 50 years. This is based on a combination of District experience, manufacturer's information, and life expectancies listed in *Design and Operation of Farm Irrigation Systems*, ASAE Monograph No. 3, 1981 (pg 58).

$$\frac{\$4,362,375}{17,000 \text{ Acre-Foot Conserved} \times 50 \text{ Years}} = \$5.13/\text{Acre-Foot}$$

Some benefits gained from this Project are:

- Delivery of surface water to a previously unserved area;
- Conservation of storm and flood waters, and excess supplies;
- Automation of a control gate with telemetry equipment for offsite monitoring;
- Flow control for the Project facilities;
- Increased reliability of local groundwater resources through reduction in groundwater pumping;
- Improved water control technology through telemetry and gate control;
- Timely and accurate data for water management decisions;
- Collaboration with other local agencies regarding water management decisions.

(b) Energy Efficiency

Subcriteria No. 1: *Implementing Renewable Energy Projects Related to Water Management and Delivery*

Gravity Surface Water Delivery. The Project's 8,030 acre surface area currently is completely dependent on groundwater pumping for irrigation supplies. After the project is developed the growers in the service area will no longer have to use the energy to pump groundwater from depths as great as 300 feet below ground surface when they receive surface water through a gravity conveyance system. Capitalizing on this renewable energy (potential energy of ground surface slope) is one of the keys in making this conveyance Project affordable for local growers.

PIXID has goals to install more renewable energy facilities in rural areas, particularly solar power, but has not yet prepared an economic feasibility study. However, the District's basins have been identified as potential prime locations for such solar projects. Solar panels could be placed on top of the existing levees, and could provide some power to lift pumps, automated gates, SCADA systems and data collection equipment for District facilities. These locations are all suitable for easy solar panel installation and maintenance.

Subcriteria No. 2: *Increasing Energy Efficiency in Water Management*

Gravity Surface Water Delivery. The Project's 8,030 acre surface area currently is completely dependent on groundwater pumping for irrigation supplies. After the project is developed the growers in the service area will no longer have to use the energy to pump groundwater from depths as great as 300 feet below ground surface when they receive surface water through a gravity conveyance system. This will significantly improve the energy efficiency of the water management system.

Increased Groundwater Levels. The Project will recharge groundwater resources with surplus surface water supplies in an attempt to reduce the energy consumed by growers that pump groundwater resources with private groundwater wells. In this area, where surface water cannot be delivered all year round, surface water irrigation runs are scheduled during the hottest time of the year so that the capacity of private groundwater wells, in combination with the available surface water, can sustain crops through this period. However, these periods are also coincident with the greatest use of energy in the State of California due to the demand from residential air conditioners. The reduction of electrical demand from groundwater users will benefit the State and will require less power to be produced thereby making available sources of energy more renewable than without the Project. According to UC Davis's Tulare County Cooperative Extension, a pumper can expect to save \$0.15 for each foot of lift they save for each acre-foot pumped. So, raising the water level from 150' below ground surface (bgs) to 75' bgs will save a grower pumping 1 AF/day \$11.25/day. This all assumes a \$0.10/kWh energy rate.

Floodwater Pumping Energy Offset. The Gravity Conveyance and Conservation Project will allow PIXID to deliver wet year waters and accomplish groundwater recharge with supplies that previously would have caused flooding in the Tulare Lake bed. The delivery of this water to growers will be by gravity, and therefore no energy for the conveyance would be required. This is in contrast to the situation if the flood water

is allowed to flow to the Tulare Lakebed. When the Tulare Lakebed is flooded, large areas of bermed farm ground are flooded and then the stored waters are pumped back out later in the year for use as irrigation supplies. The soils in the area are not very permeable and in some cases it takes up to three years to dry these flooded areas back out, but the reuse of the flood water is very energy intensive. Delivery of the flood water to the Project would reduce overall energy consumption by avoiding a portion of the energy used to reuse floodwater.

Small Scale Solar. It is proposed that SCADA sites be equipped with solar panels to power radio communications and PLC function.

(c) Benefits to Endangered Species

The project site will be converted from planted tree and row crops to a earthen conveyance channel that will be wet for several weeks during coordinated irrigation runs in wetter years. This will provide the following benefits to local wildlife:

- Improved water and food supply for all local species
- Improved conditions for wildlife by reducing dust production during disking and harvesting, and reducing the amount of herbicides and pesticides applied to the land

In 2011, PIXID prepared a California Environmental Quality Act Initial Study for the proposed project. The study addressed biological issues and determined that this is potential habitat to the federally endangered San Joaquin Kit Fox and the state threatened Swainson's hawk, as identified by the California Natural Diversity Database. The project will provide food, water, and habitat to these and potentially other sensitive species. The project will also likely be occupied by non-sensitive species, and thereby reduce competition for food, water and habitat with threatened species in surrounding areas, providing the endangered species a chance to thrive.

Project features are expected to significantly improve habitat for wildlife in the area, which has been highly disturbed for many years due to agricultural activity. Water will be delivered to growers over extended periods, and during wet years deliveries will probably occur for several months. The project site is within the following historic habitat ranges:

- San Joaquin kit fox (*Vulpes macrotis mutica*), which is State and Federally Endangered;
- Swainson's Hawk (*Buteo swainsoni*), which is State Threatened;
- Burrowing Owl (*Athene cunicularia hypugaea*), which is a Federal Species of Concern; and
- Blunt Nosed Leopard Lizard (*Gambelia sila*), which is State and Federally Endangered.

Water Marketing and Banking

(1) Estimated amount of water to be marketed

Surface Water Delivery to previously un-served lands. The Project will develop an 8,030 acre surface water service area that will create a new water market for surplus

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water within PIXID. The landowners in this service area have not previously had access to service from PIXID. The estimated amount of water to be marketed in this new service area is approximately 8,500 AF per year on average.

The water that PIXID will deliver in the developed service area will come from the surplus supplies of other long-term Friant Division CVP contractors that are willing to sell PIXID surface water in wet years. PIXID will continue to pursue as much surplus surface water as possible, but the amount they can deliver to growers will increase significantly due to the irrigated demand within the new 8,030 acre service area. This new surplus water demand will also be a new water market for long-term Friant Division CVP contractors.

Also given that this facility will now be able to divert Tule River water and deliver it to an area that will have few surface water supplies, Tulare Lake Bed landowners will likely market floodwaters to PIXID in order to reduce the potential for flood damage within the Tulare Lake Bed.

Future Groundwater Banking. The District is pursuing a groundwater banking project with its partner DEID. This new groundwater bank is planned to be along Deer Creek and have a maximum dry year return capacity of 30,000 AF. This project is envisioned to allow PIXID to bank surplus Deer Creek and Friant Division CVP supplies through the recharge facilities and potentially receive return water in a transfer with DEID through their Friant Division CVP contract supply. This banked water could be transferred and then delivered to the new developed service area.

Also, this new conveyance system is in the area that has very preliminarily been considered by the District as a large future groundwater bank. This surface water conveyance facility would make it possible to deliver surface water to an area within PIXID that as a groundwater bank could potentially store up to 100,000 AF of imported water due to the large cone of depression in the area. If the District partnered with LTRID in this type of endeavor, recovery facilities could deliver to lands within LTRID and PIXID while the return supply could be LTRID's Friant Division CVP contract supply. This type of project would open up a new water market in southern California.

(2) A detailed description of the mechanism through which water will be marketed

In-District Water Sales to New Service Area Growers: The District regularly communicates through on-line network and connection services, as well as social media to inform growers regarding the developing scenario of surface water availability throughout the year. When surface water supplies become available to PIXID, the District contacts all landowners and makes them aware of the availability and the costs associated with receiving District supplies. Water orders must be made according to District policy and require 24 hours advanced notice. The District communicates to growers if there is a prorated on their water order due to the amount of requests versus the amount of supply. Also the District communicates to the grower if there will be a schedule to the delivery due to capacity limitations on the lateral that serves the area. Once water orders have been placed, District staff operates the conveyance facilities

and growers turnouts from the conveyance facilities to deliver surface water to growers. Growers are invoiced by the District monthly for their water charges.

Friant System Open-Market Transfers and Sales. PIXID is a member of the Friant Water Authority (FWA) umbrella organization representing water agencies that contract for water on the Friant Division of the Central Valley Project. PIXID meets regularly with these agencies at FWA meetings, and could announce water marketing opportunities at these meetings. All of the 23 agencies, including PIXID, use water from the San Joaquin River that is conveyed through the Friant-Kern and Madera Canal. As a result, PIXID could feasibly acquire available surplus CVP water supply from any of these agencies.

Surplus Friant Division CVP surface water supplies are regularly marketed by long-term contracting district's to other contractors and these supplies would continue to develop that existing water market. Agreements to implement transfers would have a determined duration, timing and amount of transfer. Costs for these transactions would be negotiated between the parties and agreed to in a written agreement drafted by the legal counsels for the parties. The District currently has existing transfer agreements with Terra Bella WD, the Deer Creek and Tule River Authority, and historic relationships of water transfers with Lower Tule River ID (PIXID's largest and most regular transfer partner) and Porterville ID. Each of these parties receives Friant Division CVP water delivered through the Friant-Kern Canal that is secured by the District under their water service contract with the Bureau.

Tule IRWM Group Members. PIXID is a participating member of the Tule Integrated Regional Water Management (IRWM) Group. The California Department of Water Resources (DWR) has approved the region through their regional acceptance process in 2009 and their Integrated Regional Water Management Plan is currently under development. The current members of the Tule River Basin IRWM Group are:

Lower Tule River Irrigation District	Pixley Irrigation District
Porterville Irrigation District	Saucelito Irrigation District
Tea Pot Dome Water District	Terra Bella Irrigation District
Vandalia Irrigation District	

Given the proximity of the regional partners in the Tule River Basin IRWM, it would be the District's desire to market surplus water supplies to regional partners before others that might be interested.

(3) *Number of users, types of water use, etc. in the water market*

This Project will increase the number of landowners with access to PIXID surface water through the expansion of the existing surface water service area by 8,030 acres. The District only delivers agricultural water for irrigation purposes. PIXID has 166 existing farm service outlets (turnouts) and this project is expected to add an additional 33 farm service outlets which would be an increase of approximately 20%.

The District's contracts with the Bureau are for agricultural water delivery and there are many districts within the Friant Division, CVP place-of-use (over 30 long-term water

supply contractors) that surplus supplies could be marketed from.

(4) *Discuss any legal issues pertaining to water marketing*

PIXID will obtain all necessary agreements, approvals and permits prior to marketing. These will be obtained from USBR, DWR, and other relevant agencies. Pertinent legal issues will include water transfer and exchange regulations, place of use restrictions for CVP water, Reclamation law regarding uses of water, such as on excess lands, recent "9d" contract modifications for Friant Division, CVP contractors and proper tracking and oversight of the water sources in the arrangements. The process of water marketing in the Friant Division is fairly straight forward in that the District and the buyer would have to comply with the Bureau's regulations on transfers and state and federal environmental laws. As the water marketed would only be transferred and no long-term ownership of the contract entitlement would change, there are no significant legal issues pertaining to the water marketing within the long-term Friant Division contractor group.

(5) *Estimated Duration of Water Market*

The duration of marketed water would likely be year-to-year, meaning that each year PIXID would evaluate their water supply situation based on the developing hydrology and solicit offers for the appropriate magnitude of water arrangements if District supplies and finances warranted the request. However, some amount of solicitation would be requested in every year by the District because of their lack of surface water.

(d) *Other Contributions to Water Supply Sustainability*

Subcriteria No. 1: ***Will the project make water available to address a specific concern?***

The proposed Project will provide water to address the following, specific concerns:

San Joaquin River Restoration Impacts. These supplies would partially address water supply shortages due to San Joaquin River Restoration impacts and heightened competition for finite water supplies within the San Joaquin Valley given urban growth. Specifically, this will help to address water supply reductions from the San Joaquin River Restoration settlement, and curtailment of Delta pumping due to Delta Smelt issues.

Surface Water Storage. It has been postulated that future climate variability may bring about more rain flood periods and less storable snow melt for the San Joaquin Valley's watersheds. Larger rain events will require more groundwater banking capacity to capture such water that previously remained in foothill reservoirs (Lake Millerton on the San Joaquin River and Lake Success on the Tule River). This Project adds recharge basin capacity for the District and should thus aid in mitigating for adverse impacts due to climate variability.

Beneficial use of Floodwater. This Project will construct a new conveyance system that will allow PIXID to deliver surplus and floodwater from the Tule River and the Friant Division, CVP for beneficial use and thereby reduce the hazardous floodwater that eventually reaches the Tulare Lake Bottom which is currently farmed.

Subcriteria No. 2: *Does the project promote and encourage collaboration among parties? Is there widespread support for the project? Will the project help to prevent a water related crisis or conflict?*

This Project is a collaborative effort between LTRID and PIXID and will modify one of LTRID's existing canals so that PIXID can utilize additional diversion capacity under certain conditions. The Project partners are working on an agreement for the joint use of the facility and are hopeful that this Project will bring mutual benefits to growers in the Project area.

Letters of Support. Letters of support for the Project are included as **Appendix E**, and have been provided from:

- Lower Tule River ID,
- Deer Creek and Tule River Authority,
- Delano-Earlimart ID,
- Saucelito ID,
- Pioneer Water Company;
- Kern-Tulare WD;
- Terra Bella WD,
- Friant Water Authority,

PIXID has a well-developed process for informing stakeholders and the general public about the proposed Project. Previous and future stakeholder involvement efforts are described below:

Board Meetings. The District holds monthly board meetings that are open to the public. The agenda for the Board meetings are posted at the District office 72 hours in advance of each meeting. At each meeting, there is a public comment period where the public is invited to voice their opinion or concern on any issue. During the course of the proposed Project, regular presentations on the Project will be made at the Board meetings.

Board Resolution. The PIXID Board of Directors has approved the proposed Project. The Board of Directors is comprised of local landowners, so this endorsement represents support from the local farmers.

Online Information. The District regularly communicates through on-line network and connection services, as well as social media to inform growers regarding the developing scenario of surface water availability throughout the year. Information on progress on the proposed project and opportunities for involvement in the water made available through it would be available through these systems.

PIXID SOR Study with LTRID. PIXID conducted a System Optimization Review Study for optimizing their available resources. The outcome of the Study was that the proposed Project was the preferred alternative amongst all projects considered in terms of water supply benefit, construction cost and lack of potential environmental issue through development.

Integrated Regional Water Management Plan. Since 2007, PIXID has assisted in preparing the Tule Integrated Regional Water Management Plan (TIRWMP) as a

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member of the TIRWMP. The IRWMP being prepared is comprised of several public water management agencies, including PIXID, cities and other special interest groups in the region. The District will be submitting this Project for consideration in the planning effort.

Prevention of Water Related Crisis or Conflict. Probably the most significant water related conflict in the Project area relates to groundwater and how growers in PIXID impact the depths to groundwater in adjacent districts. The proposed Project will increase the efficient use of limited water supply, and help to reduce competition for the water resources in an area that experiences frequent water shortages and water conflicts. This Project will also provide surface water service to an area within PIXID that has historically not been served and thereby make groundwater resource in the area more reliable.

Refer to **Section 4.E.1** above for information on conflicts and crisis related to the San Joaquin River Settlement, inadequate surface storage, groundwater level declines, and Delta pumping restrictions. The proposed Project will help to address and partially alleviate all of these concerns.

Subcriteria No. 3: ***Will the project expedite future on-farm irrigation improvements?***

Yes. The growers in the proposed Project service area currently are completely reliant on groundwater pumping. In this area a good groundwater well will produce 2,000 gallons per minute (GPM) and for that reason it takes a significant amount of time to irrigate some fields. The future surface water deliveries from the proposed conveyance system will provide much larger flows and higher heads to push irrigation water across fields more quickly. This will decrease the variation of irrigation uniformity across fields and improve irrigation by local growers.

Subcriteria No. 4: ***Will the project increase awareness of water/energy conservation and efficiency efforts?***

The District regularly shares information on District matters with landowners through a mass email service. Information on water/energy conservation and efficiency through the proposed project would be available through this system and District prepared emails.

(e) **Implementation and Results**

Subcriteria No. 1: ***Project Planning***

Does the project have a Water Conservation Plan, System Optimization Review, and/or district or geographic area drought contingency plans in place?

PIXID has the following water management plans:

PIXID System Optimization Review. Over the past few years the District has conducted a System Optimization Review Study in partnership with the Bureau of Reclamation. This study investigated the amount and quality of resources available to the District and evaluated potential projects that would address District priorities. The

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proposed Project submitted in this application was the preferred alternative identified in the SOR having the most benefits for the associated financial costs. This project is consistent with the District's long-term strategic planning efforts and stated goals from the year 2011.

Water Management Plan. The District prepared a Water Management Plan in compliance with USBR 2008 requirements and submitted it for review at the end of Calendar Year 2011. The plan is currently being considered by Bureau staff and is anticipated to be finalized as soon as requests are received. The plan addresses numerous water management issues, primarily related to the District's surface water supply. A copy of the draft plan is included in **Appendix J**.

Groundwater Management Plan. PIXID is a participant in the Deer Creek and Tule River Association (DCTRA) Groundwater Management Plan (GMP) which was last updated and adopted in July, 2006 (see **Appendix K**). The original plan was prepared in 1992 in accordance with the requirements prescribed in Assembly Bill No. 3030 (California Water Code Section 10750 et seq.). The 2006 Plan was revised to satisfy the new requirements for GMPs created by the September, 2002 California State Senate Bill No. 1938, which amended Sections 10753 and 10795 of the California Water Code.

Integrated Regional Water Management Plan. Since 2007, PIXID has assisted in preparing the Tule Integrated Regional Water Management Plan (TIRWMP) as a member of the TIRWMP. The IRWMP being prepared is comprised of several public water management agencies, including PIXID, communities and other special interest groups in the region.

As the District is a conjunctive use district and heavily relies on groundwater, these plans function as the District's drought contingency plans.

Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, Systems Optimization Review, or other planning efforts done to determine the priority of this project in relation to other potential projects.

PIXID System Optimization Review. Over the past few years the District has conducted a System Optimization Review Study in partnership with the Bureau of Reclamation. This study investigated the amount and quality of resources available to the District and evaluated potential projects that would address District priorities. The proposed Project submitted in this application was the preferred alternative identified in the SOR having the most benefits for the associated financial costs. This project is consistent with the District's long-term strategic planning efforts and stated goals from the year 2011.

New Service Area Costs and Alternatives Study. In 2006 the District undertook an evaluation of available surface water resources and potential plans to develop projects to serve areas of the District that were outside the surface water service area (approximately 60% of District lands). This study analyzed the proposed Project's

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service area, in that report called the Northeast Service Area, and identified a very similar project to the proposed Project in this application. The Northeast Service Area options was shown to be preferred to the others considered in terms of costs and benefits. This alternative was further refined in the 2011 PIXID System Optimization Review Study.

DCTRA GWMP. The DCTRA Groundwater Management Plan (GMP) was updated in July, 2006 (see **Appendix K**). The DCTRA GMP encourages member agencies to utilize “available facilities and resources for conjunctive use through cooperative management”. This document also states that “Efficient water use and distribution within the management area will be encouraged” among member agencies. This Project is consistent with the goals of the current DCTRA Groundwater Management Plan, and has been listed as a potential project in their GMP updates since 2006.

Water Management Plan. The District’s 2010 Agricultural Water Management Plan evaluates the entire District and reports to the Bureau how the District intends to implement best management practices over the next five years and meet its goal to better manage available water resources. The proposed Project is listed in the District’s 2010 Water management Plan.

Integrated Regional Water Management Plan. The regional water management planning in this area is underway, but the plans are in progress and so the evaluation of the Projects and guidelines for the evaluations have not been decided on yet. The Tule Integrated Water Management Plan’s project list contains this Project. In addition to this, the District has participated in planning efforts and implemented action items for this Project over the last five years.

(2) Identify and describe any engineering or design work performed specifically in support of the proposed project.

Facility Alignment Selection. Several potential alignments for this facility were investigated and catalogued in terms of physical restrictions and existing irrigation systems. The proposed Project alignment was the alignment that was determined to have the least costly issue to be encountered during construction.

Topographic Survey. A topographic survey of the proposed Project alignment has been accomplished. This survey included gathering information on the existing structures, channel configuration and high water surface profiles within the Casa Blanca Canal. This survey also collected ground surface and existing utility information along the Casa Blanca Intertie and Avenue 116 Lateral alignments.

Hydrologic Analysis of Available Surface Water Supplies. The available surface water supplies that would potentially be used by growers in this new service area were analyzed over a balanced period of hydrology. This was accomplished to provide an accurate estimate of average water deliveries in a region that experiences dramatic swings between dry and wet years.

Preliminary Hydraulic Calculations. Hydraulic calculations for the existing and modified Casa Blanca Canal were undertaken to determine what modifications would be

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necessary to improve the facility so that LTRID's interests were projected through the Project. Hydraulic calculations to determine the necessary channel geometry were conducted for both the Casa Blanca Intertie and the Avenue 116 Lateral given the topographic survey information along those alignments. Also these calculations were used to estimate the size of new structures necessary to control the velocity of water in the proposed Project and provide adequate delivery to growers.

Identification of Impacted Land Owners. Mapping was produced showing the impacted landowners along the Project alignment. Acreage and land use information was gathered for each impacted parcel.

Biological Evaluation of Project site and CEQA Documents. The Project site was evaluated in terms of potential environmental impacts through Project development. This Initial Study was conducted by a qualified District consultant and was informed the District in terms of the state environmental compliance document to be pursued. The District adopted a Negative Declaration for the Project under the guidelines of the California Environmental Quality Act (CEQA).

Estimates of Probable Construction Cost. The preliminary design was used to estimate probable construction costs for Project facilities constructed both by District staff and a few contracted services. Hours per employee type and per equipment type was estimated for the construction effort. Also equipment rentals were factored in so that on-going District efforts would be made manageable through the construction period.

Cost to Benefit Comparison. The potential water supply benefits associated with the Project and the probable construction costs for the effort were compared against the cost to benefit ratios of other conceptual projects. The proposed Project was determined to be the preferred alternative amongst all projects considered.

Construction Schedule. The efforts to construct the Project were evaluated in terms of construction schedule and potential water delivery conflicts. A preliminary construction schedule was generated to outline the potential timeframe for construction of the Project which is consistent with the Project budget.

(3) Describe how the project conforms to and meets the goals of any applicable State or regional water plans, and identify any aspect of the project that implements a feature of an existing water plan(s).

Tule IRWMP: The Project has also been included in the Tule Integrated Regional Water Management Plan's Project list, and will be included in the Fall 2012 implementation grant application to be funded by the Department of Water Resources.

Tulare Lake Basin Plan. This Plan was created by the Regional Water Quality Control Board, and contains administrative policies and procedures for protecting state waters. This Project fulfills goals in this plan by the reduction of groundwater overdraft and the improvement of groundwater quality.

CA Water Plan. The California Water Plan update for 2009 contains the following top objectives in its implementation plan:

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Objective 1 - Promote, improve, and expand integrated regional water management to create and build on partnerships that are essential for California water resources planning, sustainable watershed and floodplain management, and increasing regional self-sufficiency.

Objective 2 – Use water more efficiently with significantly greater water conservation, recycling, and reuse to help meet future water demands and adapt to climate change.

Objective 3 – Advance and expand conjunctive management of multiple water supply sources—surface water and groundwater—to prepare for future droughts and climate change.

This Project conforms to the listed goals from the California Water Plan for 2009. Objective 1 is met through the building of the relationship with the City of Farmersville and addressing groundwater overdraft through a local partnership. Objective 2 is met through the conservation of flood waters and surplus surface waters through groundwater recharge. Objective 3 is met through overdraft mitigation from groundwater recharge of floodwaters and surplus water supplies and the acquisition of surplus irrigation supplies to offset groundwater pumping.

CalFed Targeted Benefits. CalFed is a joint state-federal water program designed to address water supply, water quality and ecosystem restoration issues in the San Francisco Bay-Delta system. The Agricultural Water Management Council maintains a listing of CalFed Targeted Benefits to assist districts in achieving water supply reliability, water quality and in-stream flow timing benefits in the CalFed solution area. The CalFed Agricultural Water Use Efficiency Program links specific CalFed objectives with practical actions that can be carried out on the farm or by irrigation and water districts. Development of a groundwater recharge site helps achieve CalFed targeted benefit No. 185, which states "*Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater....during periods of shortage; and increase flows to groundwater....during periods of excess.*"

Subcriteria No. 2: *Readiness to Proceed*

The District has already processed CEQA compliance documents on the Project and formally adopted them in December 2011. Once the Project is preliminarily selected for award in April 2012 the District will proceed with the Project design over the next five months so that Project details are resolved when the Bureau is ready to begin considering NEPA compliance documents in October 2012. During this same time, discussions with impacted land owners will begin and right-of-way acquisition is anticipated to be completed by end of Calendar Year 2012. It is expected that the Bureau will require approximately four months after the beginning of their Fiscal Year in October 2012 to process NEPA compliance documents, at which point the District will be ready to proceed with construction of the Project.

Prior to construction the District will secure a grading permit from Tulare County, a Dust Control Plan from the Air Resources Control Board, and a Stormwater Pollution Prevention Plan from the State Water Resources Control Board. If the water year of

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2013 is dry, then the Project will proceed without delay. However, if the water year of 2013 is wet, then the work to modify the Casa Blanca Canal will be delayed until the irrigation season is over so as to not negatively impact the growers along this system in Lower Tule River ID.

Subcriteria No. 3: *Performance Measures*

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (i.e., water saved, marketed, or better managed).

Water Diverted. The amount of water diverted into this system will be understood to represent the amount of groundwater made more reliable through the Project. Records on water diversions to the Gravity Conveyance and Conservation Project will be compiled and annually evaluated by the Board of Directors.

Water Sales to Growers. The amount of water sold to District growers through this system will be understood to represent the amount of avoided electrical groundwater pumping through the Project. Also this value will represent the amount of water marketed through the Project to growers that previously did not have surface water service from the District. Records on water sales to growers through the Gravity Conveyance and Conservation Project will be compiled and annually evaluated by the Board of Directors.

Water Transferred. The amount of water secured from other Friant Division CVP contractors and diverted into this system will be understood to represent the amount of surplus CVP water put to beneficial use through the Project and the amount of marketed water obtained through the Project. Records on water transfers by the District and diverted into the Gravity Conveyance and Conservation Project will be compiled and annually evaluated by the Board of Directors.

Floodwater Capture. PIXID will be able to capture Tule River floodwater and deliver it to supply District demands in this service area. This will help to alleviate flooding problems and damage elsewhere in the Valley. Floodwater volumes will be determined by the volume of floodwater that LTRID diverts on behalf of PIXID at the Wood Central Ditch diversion, as determined by Replogle Flume measurements.

Groundwater Recharge. Groundwater recharge will be achieved through delivery of water to the proposed site. A comparison of seepage losses and intentional recharge will determine how much water infiltrated through the system.

Groundwater Levels. Groundwater levels will be monitored to determine the impacts from Project water conservation. Groundwater levels are currently monitored through a monitoring network throughout the District. This is done under in accordance with the District's Groundwater Management Plan using highly accurate water level sounders that are regularly calibrated and maintained.

Water Better Managed. Records on the amount of water that was conveyed through the facility and the amount of water ponded by the facility will be regularly compiled from

gauging station data. This will show the amount of water better managed as the existing Project site does not have the ability to regulate flows of Deep Creek.

SCADA System. The performance measure used to quantify benefits from the automated control structures and SCADA on the new conveyance system will be to measure the effectiveness of District system operations. District staff and growers along this delivery system will be informally surveyed to determine the utility of the re-regulation from the automated control structures and new SCADA equipment so that the facility can be made as useful as possible. Ultimately, as the District obtains years of data, averages will be developed and compared, along with quantification of the benefits during wet and dry years. This information would confirm the amount of water that has been better managed by the Project. It is anticipated that this information will be annually summarized and provided to the Board of Directors for their consideration.

The information gathered in these performance measures will be regularly discussed and evaluated with marketing partners, will be annually summarized and recorded in the District's Annual Water Management Report and will annually be review by the District's Board of Directors. The performance measures above will all be compared to baseline data. Baseline data is available for groundwater levels and groundwater recharge.

(f) **Connection to Reclamation Project Activities**

(1) ***How is the proposed project connected to a Reclamation project activities***

The District is a Cross Valley Canal (CVC) contractor with the Bureau of Reclamation and regularly contracts with Friant Division CVP contractors for transferred Class 1 or Class 2 supplies.

(2) ***Does the applicant receive Reclamation project water?***

The District contracts with the Bureau for Friant Division CVP floodwater (Section 215) on an annual basis should it becomes available. The District has a CVC contract for 31,102 AF, and can under certain conditions take delivery of that water via the Friant-Kern Canal. However, due to difficulty arranging this, the District has more often over the last decade arranged for the sale of this water when there are interested buyers and uses the funds to acquire surplus Friant Division CVP water. PIXID's long term average annual amount of water diverted from Friant Division CVP is 30,300 AF per year.³

(3) ***Is the project on Reclamation project lands or involving Reclamation facilities?***

Yes.

(4) ***Is the project in the same basin as a Reclamation project or activity?***

Yes.

(5) ***Will the proposed work contribute water to a basin where a Reclamation project is located?***

Yes.

³ Averages generated from values including 1994 – 2008.

PERFORMANCE MEASURES FOR QUANTIFYING ACTUAL POST-PROJECT BENEFITS

This Project combines water marketing of available storm, flood, and surplus water supplies, an improved diversion and regulation capability through automated control structures, an improved water measurement capability through new gauging stations, and the reduction in system spills through SCADA improvements. Due to the several different types of water management and conservation benefits, performance measures for measuring devices, data acquisition and system control will be gathered and reported to the District's Board of Directors for the consideration at the end of each year.

The amount of water diverted into this system will be understood to represent the amount of groundwater made more reliable through the Project. Records on water diversions to the Gravity Conveyance and Conservation Project will be considered a performance measure and compiled and annually evaluated by the Board of Directors.

The amount of water sold to District growers through this system will be understood to represent the amount of avoided electrical groundwater pumping through the Project. Also this value will represent the amount of water marketed through the Project to growers that previously did not have surface water service from the District. Records on water sales to growers through the Gravity Conveyance and Conservation Project will be considered a performance measure and will be compiled and annually evaluated by the Board of Directors.

The amount of water secured from other Friant Division CVP contractors and diverted into this system will be understood to represent the amount of surplus CVP water put to beneficial use through the Project and the amount of marketed water obtained through the Project. Records on water transfers by the District and diverted into the Gravity Conveyance and Conservation Project will be considered a performance measure and will be compiled and annually evaluated by the Board of Directors.

PIXID will be able to capture Tule River floodwater and deliver it to supply District demands in this service area. This will help to alleviate flooding problems and damage elsewhere in the Valley. Floodwater volumes will be determined by the volume of floodwater that LTRID diverts on behalf of PIXID at the Wood Central Ditch diversion, as determined by Replogle Flume measurements. These amounts will be considered performance measures and will be compiled and annually evaluated by the Board of Directors.

Groundwater recharge will be achieved through delivery of water to the proposed site. A comparison of seepage losses and intentional recharge will determine how much water infiltrated through the system. These amounts will be considered performance measures and will be compiled and annually evaluated by the Board of Directors.

Depth to groundwater readings will be regularly measured at the Project site. There are several nearby irrigation wells for construction water and for monitor wells. Depth to groundwater information from the Project will be incorporated into the semi-annual

District groundwater mapping. The information gathered in these performance measures will be regularly discussed and evaluated at the District's operational meeting, will be annually summarized and recorded in the District's Annual Groundwater Management Plan Report and will annually be review by the District's Board of Directors.

The performance measure used to quantify benefits from the automated control structures and SCADA on the new conveyance system will be to measure the effectiveness of District system operations. District staff and growers along this delivery system will be informally surveyed to determine the utility of the re-regulation from the automated control structures and new SCADA equipment so that the facility can be made as useful as possible. Ultimately, as the District obtains years of data, averages will be developed and compared, along with quantification of the benefits during wet and dry years. This information would confirm the amount of water that has been better managed by the Project. It is anticipated that this information will be annually summarized and provided to the Board of Directors for their consideration.

ENVIRONMENTAL COMPLIANCE

(1) Will the project impact the surrounding environment (i.e., soil [dust], air, water [quality and quantity], animal habitat, etc.)? 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.

Earth disturbing activities will occur in the construction of the proposed earthen channels and structures. Typical mitigation measures, such as a water truck, will be used to minimize impacts on the surrounding area, along with other suggested practices developed in the CEQA/NEPA process.

The Casa Blanca Canal has been actively maintained by the District since they have owned it. However, the project alignment for the Casa Blanca Intertie and the Avenue 116 Lateral is currently in active agricultural fields. The dust generated during Project construction will only be temporary and nothing more than what is normal for the agricultural fields in the vicinity. Therefore, the construction of Project facilities are not anticipated to impact the environment.

(2) Are you aware of any species listed or proposed to be listed as a Federal endangered or threatened species, or designated Critical Habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

It is not anticipated that the Project would affect any endangered or threatened species near the Project. However, since this is potential habitat for the San Joaquin Kit Fox and the Swainson's Hawk, mitigation measures may be necessary prior and during construction to ensure no negative impacts to the species.

(3) Are there wetlands or other surface waters inside the project boundaries that potentially fall under Federal Clean Water Act jurisdiction as “Waters of the United States?” If so, please describe and estimate any impact the project will have.

There are no wetlands areas are known along the Project area. No adverse impacts are expected.

(4) When was the water delivery system constructed?

It is unknown when the District’s facilities were created. However, some of the canals in the District are old enough to be listed on the state’s historic register.

(5) Will the project result in any modification of, or effects to, individual features of an irrigation system (e.g., headgates, 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.

The Project will result in slight modifications to Lower Tule River’s Casa Blanca Canal. The modifications will be to raise the earthen banks and confining headwalls on the upstream side of existing road crossings. There is no definitive date for the construction of this facility, but it is likely that the Casa Blanca Canal was constructed in the 1950’s. Regular maintenance is performed on all canals, ditches and structures in the District. For more information on the vertical change along the Project alignment, refer to the figure in **Appendix G**.

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

A review of the National Register of Historic Places did not show listings for any buildings, structures, or features within the Project location (other than the Friant-Kern Canal). It is not believed that the existing site is eligible for listing on the National Register of Historic Places.

(7) Are there any known archeological sites in the proposed project area?

No archaeological sites are known to be present in the vicinity of the proposed modifications.

(8) Will the project have a disproportionately high and adverse effect on low income or minority populations?

On the contrary, the benefits from this project will be to District growers in rural parts of Tulare County which is generally considered a low income area with a high minority population.

(9) Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No, not known to exist at site.

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

No. Also, it is part of the District maintenance program to eradicate these weeds.

REQUIRED PERMITS OR APPROVALS

Permits and approvals anticipated for the Project are discussed below. Both PIXID and their engineering consultants, have experience in securing these permits for other projects.

NEPA - PIXID, in cooperation with USBR, will comply with the National Environmental Policy Act (NEPA) regarding construction of the conveyance system facilities. PIXID will perform most of the work for complying with NEPA, and it is assumed that USBR will be the lead agency. It is anticipated that an Environmental Assessment will be prepared and a Finding of No Significant Impact (FONSI) will be filed.

California Environmental Quality Act (CEQA) - PIXID has already processed and adopted CEQA documents and therefore this will not be a necessary approval to obtain during the Project.

Water transfer agreements - PIXID and any future transfer partners will secure the appropriate approvals for water transfers needed to deliver water to the Project area.

Grading Permit - The District will need to obtain a grading permit for the earthwork.

Dust Control Plan. A Dust Control Plan will be needed for the basin earthwork. The plan will be submitted to the local Air Quality Control Board one month before construction. The District's engineering consultant will prepare the plan.

Storm Water Pollution Prevention Plan. A Storm Water Pollution Prevention Plan will be needed for the basin earthwork. The District's engineering consultant will prepare and submit the plan one month before construction.

FUNDING PLAN AND LETTER OF COMMITMENT

(1) ***Describe how the applicant will make its contribution to the cost-share requirement, e.g. monetary and/or in-kind contributions, and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).***

PIXID will make its contribution to the cost-share requirement primarily through District staff and equipment involved in the construction of the Project's earthen channel, concrete structures and road crossings. All portions of the District's cost-share will be spent prior to the anticipated Project start date of October 1, 2011. The resolution adopted on January 13, 2012 by the District's Board of Directors (see **Appendix A**) commits to make these funds available if the Project is selected for funding and the Bureau accepts the contributions outlined in the funding plan.

If funding is not awarded, then PIXID might have to wait until funding (either this grant or another source) becomes available before proceeding with the Project. **Appendix D** includes the most current financial report showing the District's reserve funds from several different accounts.

(2) Describe any in-kind costs incurred before the anticipated project start date that the applicant seeks to include as project costs.

The District will include all costs associated with the development of the Project's CEQA documentation, necessary permitting, final design, and right-of-way negotiations which are anticipated to be completed from October 2011 through September 2012, prior to the anticipated start date of October 1, 2012.

(3) Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment.

No funding will be provided through funding partners.

(4) Describe any other funding requested or received for the proposed work from other Federal partners.

No other Federal funding requests have been made for the proposed work.

(5) Describe any other pending funding requests for the proposed work that have not yet been approved, and explain how the project will be affected if such funding is denied.

PIXID, through the Tule IRWM Group, is planning to apply for an Integrated Regional Water Management Plan (IRWM) Implementation Grant for the construction of the Project. If both grants were successful in securing funding, then it is likely that the IRWM grant would be targeted at the right-of-way acquisition costs and any other reimbursable costs that were outside of the amount covered by the WaterSMART grant.

OFFICIAL RESOLUTION

Appendix A includes Resolution 2012-1-4 authorizing the preparation of this application and funding for the District's cost share. This resolution was adopted at the January 10, 2012, Board meeting. The Board of Directors is comprised of local landowners, so the resolution will also represent support for the Project from local farmers.

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BUDGET PROPOSAL

Below is a budget proposal for the Project. Detailed cost estimates are included in **Appendix B**.

BUDGET ITEM DESCRIPTION	COMPUTATION		RECIPIENT FUNDING	RECLAMATION FUNDING	TOTAL COST
	\$/Unit and Unit	Quantity			
SALARIES AND WAGES - PIXID					
District General Manager	\$50.00/hr	40	\$2,000	\$0	\$2,000
District Operations Manager	\$49.00/hr	332	\$16,268	\$0	\$16,268
O&M Superintendent	\$35.00/hr	2,865	\$100,275	\$0	\$100,275
Heavy Equipment Operator	\$29.00/hr	9337	\$270,773	\$0	\$270,773
Light Equipment Operator	\$20.00/hr	3,172	\$63,440	\$0	\$63,440
Structures Laborer	\$15.00/hr	13,615	\$204,225	\$0	\$204,225
FRINGE BENEFITS – PIXID					
District General Manager	\$25.74/hr	40	\$1,030	\$0	\$1,030
District Operations Manager	\$20.24/hr	332	\$6,720	\$0	\$6,720
O&M Superintendent	\$12.26/hr	2,865	\$35,125	\$0	\$35,125
Heavy Equipment Operator	\$10.74/hr	9337	\$100,279	\$0	\$100,279
Light Equipment Operator	\$6.45/hr	3,172	\$20,459	\$0	\$20,459
Structures Laborer	\$6.77/hr	13,615	\$92,174	\$0	\$92,174
PAYROLL TAXES – PIXID					
District General Manager	\$4.26/hr	40	\$170	\$0	\$170
District Operations Manager	\$3.76/hr	332	\$1,248	\$0	\$1,248
O&M Superintendent	\$2,74/hr	2,865	\$7,850	\$0	\$7,850
Heavy Equipment Operator	\$2.26/hr	9337	\$21,102	\$0	\$21,102
Light Equipment Operator	\$1.55/hr	3,172	\$4,917	\$0	\$4,917
Structures Laborer	\$1.23/hr	13,615	\$16,746	\$0	\$16,746
LAND ACQUISITION					
Land in Trees	\$20,000/AC	6.4	\$128,000	\$0	\$128,000
Land in Row Crops	\$12,000/AC	71.5	\$858,000	\$0	\$858,000
Right-of-Way Appraisals/Negotiation	\$100/hr	715	\$71,500	\$0	\$71,500
EQUIPMENT -					
Crane Rental	\$500/hr	102	\$0	\$51,000	\$51,000
Earth Moving – District Excavator	\$74.00/hr	568	\$42,032	\$0	\$42,032
Earth Moving – Rental Excavator	\$9,500/month	7.2	\$0	\$68,400	\$68,400
Earth Moving – Rental Scraper	\$15,000/month	5.5	\$0	\$82,500	\$82,500
Earth Moving – District Grader	\$70.00/hr	2,509	\$175,630	\$0	\$175,630
District Dump Truck	\$52.00/hr	431	\$22,412	\$0	\$22,412
District Water Truck	\$51.00/hr	2,741	\$139,344	\$0	\$139,344
Concrete Pump Rental	\$1,300/day	45	\$0	\$58,500	\$58,500

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Gravity Conveyance and Conservation Project

BUDGET ITEM DESCRIPTION	COMPUTATION		RECIPIENT FUNDING	RECLAMATION FUNDING	TOTAL COST
	\$/Unit and Unit	Quantity			
Shotcrete Pump Rental	\$1,000/day	5	\$0	\$5,000	\$5,000
SUPPLIES/MATERIALS -					
Reusable Wood Structure Forms	\$5.00/SF	30,000	\$0	\$150,000	\$150,000
Reinforced Concrete	\$300/CY	838.9	\$0	\$251,670	\$251,670
Shotcrete	\$100/CY	71.4	\$0	\$7,140	\$7,140
24" RGRCP	\$20.00/LF	56	\$0	\$1,120	\$1,120
36" RGRCP	\$44.00/LF	80	\$0	\$3,520	\$3,520
42" RGRCP	\$65.00/LF	80	\$0	\$5,200	\$5,200
48" RGRCP	\$85.00/LF	104	\$0	\$8,840	\$8,840
48" Sluice Gates	\$5,000/EA	2	\$0	\$10,000	\$10,000
54" RGRCP	\$105.00/LF	80	\$0	\$8,400	\$8,400
60" RGRCP	\$125.00/LF	264	\$0	\$33,000	\$33,000
60" Sluice Gate	\$8,000/EA	1	\$0	\$8,000	\$8,000
48" OF Open Flow Propeller Meter	\$5,000/EA	3	\$0	\$15,000	\$15,000
Construction Water	\$0.50/GAL	250,000	\$0	\$125,000	\$125,000
CONTRACTUAL/CONSTRUCTION¹					
Clearing and Grubbing	\$500/AC	76	\$0	\$38,000	\$38,000
Mobilizations	\$1,000/EA	15	\$15,000	\$0	\$15,000
Site Safety	\$2,000/EA	6	\$0	\$12,000	\$12,000
Intertie Construction	\$52.53/hr	2210	\$71,140	\$44,960	\$116,100
Turnout Structure	\$4,000/EA	33	\$0	\$132,000	\$132,000
SCADA	\$10,000/EA	2	\$0	\$20,000	\$20,000
Contracted Paving/Marking at Crossings	\$1.10/SF	12,500	\$0	\$13,750	\$13,750
Contracted Private Irrigation Repair	\$15,000/EA	6	\$0	\$90,000	\$90,000
Pre-Project Consulting and Design	\$124.84/hr	761	\$95,000	\$0	\$95,000
Environmental, Engineering, Inspection, Construction Staking and Project Administration by Engineering Consultant	\$115,000/EA	1	\$0	\$115,000	\$115,000
Geotechnical Inspection by Consultant	\$107.18/hr	140	\$0	\$15,000	\$15,000
Materials Testing by Consultant	\$10,000/EA	1	\$0	\$10,000	\$10,000
Reporting by Consultant	\$44,500/EA	1	\$0	\$44,500	\$44,500
ENVIRONMENTAL AND REGULATORY COMPLIANCE²	Total Project Cost	1.5%	\$0	\$72,500	\$72,500
OTHER					
Contingencies ³	Construction	10%	\$279,516		
TOTAL DIRECT COSTS			\$2,862,375	\$1,500,000	\$4,362,375
INDIRECT COSTS - 0.24%			\$0	\$0	\$0

**USBR WaterSMART: Water and Energy Efficiency Grant Application
Gravity Conveyance and Conservation Project**

BUDGET ITEM DESCRIPTION	COMPUTATION		RECIPIENT FUNDING	RECLAMATION FUNDING	TOTAL COST
	\$/Unit and Unit	Quantity			
TOTAL PROJECT COSTS			\$2,862,375	\$1,500,000	\$4,362,375
PERCENTAGE OF COSTS			65.6%	34.4%	

¹ Contracts should be broken out into specific line items. Lump sum estimates are not acceptable. Applications may attach a separate, detailed budget for each contract to adequately address all contract budget items.

² Environmental and regulatory compliance should be at least 1-2 percent unless a justification is provided for a lesser amount.

³ A 10% contingency was added for the construction of the new channel primarily for uncertainty of costs at time of construction, but also for uncertainty in quantities, neglected items and unforeseen circumstances.

BUDGET NARRATIVE

Detailed cost estimates for the Project can be found in Appendix B.

Salaries and Wages – The District will be constructing the vast majority of this project with District Staff. The bulk of the time will come from constructing the new channel and structures. Salaries and wages were broken out to a unit rate per each category of District Personnel expected to be involved in the Project.

Fringe Benefits – Since District Staff will be performing the construction, Fringe Benefits will be accrued during the construction efforts. Fringe Benefits were broken into a unit rate per District Personnel expected to work on the Project. Fringe Benefits available to each employee are Insurance (medical, dental, vision and life), worker’s compensation insurance, retirement, disability, and liability insurance.

Payroll Taxes – As stated above, since District Staff will be performing the construction, Payroll Taxes will be accrued during the effort. District Payroll Taxes were broken out to a unit rate per each type of District Personnel involved.

Equipment – The District owns some of its own equipment and will be using it during the construction effort. The District equipment includes an excavator, a grader, a dump truck, and water trucks. Some heavy equipment will need to be rented. The rented equipment includes a crane to move the pipe segments, a concrete pumper truck, an excavator, and two scrapers during the channel construction.

Materials and Supplies – All Material and Supply costs associated with the Project are items not included in contractual work. Due to the District performing the construction, these listed items are those needed to perform the construction.

Contractual – The construction of the earthen channel and construction of the control structures will all be accomplished by District Staff. However there are a few minor efforts that the District will contractor services for according to existing District guidelines. One contract will be with the District’s Engineering Consultant Provost & Pritchard Consulting Group. This contract will be for survey, design, right-of-way documentation, permitting, construction inspection, construction staking, and Project reporting. Also, a geotechnical investigation will be performed through a sub-consultant to the District’s Engineering Consultant. Other contractual services will include paving and striping at road crossings, private irrigation system repair, SCADA system integration and material and compaction testing. The costs included in the Project

USBR WaterSMART: Water and Energy Efficiency Grant Application
Gravity Conveyance and Conservation Project

Budget are based from previous costs confirmed through similar jobs (like the Lower Tule River ID Tule River Intertie Project) recently completed in the area.

Environmental and Regulatory Compliance Costs – A portion of the budget was set aside for environmental and regulatory compliance. These costs were not included in the contractual category, since it is believed that they will be incurred by USBR staff. The total estimated costs are \$72,500 which represents 1.50% of the total estimate Project cost.

Reporting – Reporting costs are incurred through fees to the District's Engineering Consultant. The Consultant will prepare quarterly and final reports as required in the District's funding contract with the Bureau.

Other – A 10% contingency was added for the construction of the Project primarily for uncertainty of costs at the time of construction, but also for uncertainty in quantities, neglected items and unforeseen circumstances. Contingency costs were applied to all aspects of the construction effort of the new surface water facility (Casa Blanca Canal Modification, Intertie Canal Construction, Ave. 116 Lateral Canal Construction, & New Structures). The District's Engineering Consultant has participated in several projects similar to the Gravity Conveyance and Conservation Project that were constructed between 2010 and 2011 that used 10% contingencies and these costs were necessary and were incurred.

Indirect Costs – There are no indirect costs included for this Project.

Total Cost – Total Project Cost is estimated to be \$4,362,375. The Federal grant request will be \$1,500,000 (34.4% of the total Project cost); and the applicant share will be \$2,862,375 (65.6% of the total Project Cost).

**RESOLUTION NO. 2012-1-4
OF THE BOARD OF DIRECTORS
OF THE
PIXLEY IRRIGATION DISTRICT**

APPLICANT'S NAME: PIXLEY IRRIGATION DISTRICT

- WHEREAS,** the Pixley Irrigation District (District) has prepared and reviewed preliminary plans for the proposed Avenue 116 Lateral Project (Project) which will provide increased surface water delivery capacity and groundwater recharge to water users within the District; and
- WHEREAS,** the Board of Directors of the District support the Project and the water management benefits provided thereby; and
- WHEREAS,** the District desires to apply for and secure funds that may be made available thereto from the U.S. Bureau of Reclamation (USBR) from the WaterSMART Water and Energy Efficiency Grants Program for FY 2012 (Grant Program) for said Project; and
- WHEREAS,** said Project will consist of a new earthen canal, recharge basin, and appurtenant facilities, all of which can be constructed and made operational within the time frame as may be established by the USBR; and
- WHEREAS,** the District possesses cash reserves dedicated for new facilities and capital projects sufficient to provide funding and in-kind contributions as specified in the Project Funding Plan; and
- WHEREAS,** the District pledges to cooperate with USBR in meeting deadlines established thereby for the purpose of entering into a Cooperative Agreement therewith.

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of the District that it (a) has reviewed and supports the proposed Project and (b) that the District has in its possession sufficient funds and can furnish in-kind contributions to fulfill its funding requirements as identified in the Project Funding Plan.

BE IT FURTHER RESOLVED that, if selected by USBR for a grant from the Grant Program, the President of the District is hereby authorized to execute a Cooperative Agreement therewith and the District shall cooperate with USBR to ensure timely execution of said Agreement.

THE FOREGOING RESOLUTION WAS ADOPTED at a regular meeting of the Board of Directors of the Pixley Irrigation District held this 10th day of January, 2012, based on motion by Director Junio and seconded by Director DeGroot.

DATED: 1/13/2012



President

ATTEST:



Daniel G. Vink

APPENDIX B: ESTIMATE OF CONSULTANT HOURS IN TOTAL PROJECT COST

PIXLEY IRRIGATION DISTRICT
Gravity Conveyance and Conservation Project

STAFF HOURS Rate / Hour	District Engineering & Surveying Labor Costs																	Totals								
	Principal Engineer V	Senior Engineer IV	Associate Engineer III	Associate Engineer II	ETT Engineer I	Senior Technician I	GIS Specialist III	Senior Planner I	Licensed Survey III	Administrative Assistant III	2 Man GPS Crew	Geotechnical Engineer	Laboratory	Geotechnical Field Technician	Geotechnical Chertal Staff	District Controls Integrator - Labor	District Controls Integrator - Materials	Wages	Benefits	Overhead Costs	Profit	Subtotal Labor Costs	Total Engineering Hours	Total Cost		
	\$170	\$135	\$105	\$100	\$85	\$100	\$105	\$120	\$120	\$60	\$185	\$140.00	\$104.00	\$78.00	\$48.00	\$150		35%	30%	25%	10%					
Task 1 Project Administration																										
Task 1.1 WEEG Application		40	10	3	37		1												\$3,500	\$3,000	\$2,500	\$1,000	\$10,000	91	\$10,000	
Task 1.2 Semi-annual Reporting to the Bureau		40	35	1	53			1		20									\$5,250	\$4,500	\$3,750	\$1,500	\$15,000	150	\$15,000	
Task 1.3 Annual work with Bureau on funding plan		18	14	6															\$1,575	\$1,350	\$1,125	\$450	\$4,500	38	\$4,500	
Task 1.4 As-built Plans		10	50	10	40	40													\$5,250	\$4,500	\$3,750	\$1,500	\$15,000	150	\$15,000	
Task 1.5 Final Report		8	20	20	40	2				4									\$3,500	\$3,000	\$2,500	\$1,000	\$10,000	94	\$10,000	
																								Task 1 Total =	\$54,500	
Task 2 Permitting and NEPA Documentation																										
Task 2.1 CEQA Compliance	10	160	20			3	20	60											\$12,250	\$10,500	\$8,750	\$3,500	\$35,000	273	\$35,000	
Task 2.2 DCP and SWPP	0	40	30	7	37		1												\$4,375	\$3,750	\$3,125	\$1,250	\$12,500	115	\$12,500	
Task 2.3 NEPA Compliance	10	60	20			2	20	80		20									\$8,750	\$7,500	\$6,250	\$2,500	\$25,000	212	\$25,000	
Task 2.4 LTRID-PIXID Cooperative Use Agreement																			\$0	\$0	\$0	\$0	\$0	0	\$0	
																								Task 2 Total =	\$72,500	
Task 3 Engineering/Inspection/Construction Staking																										
Task 3.1 Project Site Survey	0	8	8						16		32								\$3,416	\$2,928	\$2,440	\$976	\$9,760	64	\$9,760	
Task 3.2 Utility Investigation	0	12	16		40	16	8		8										\$3,535	\$3,030	\$2,525	\$1,010	\$10,100	100	\$10,100	
Task 3.3 Hydraulic Analysis	8	30	122	43	20	40			16										\$10,549	\$9,042	\$7,535	\$3,014	\$30,140	279	\$30,140	
Task 3.4 Geotechnical Investigation	0	8	12			12		1				42	15	50					\$5,250	\$4,500	\$3,750	\$1,500	\$15,000	140	\$15,000	
Task 3.5 Construction Plans/Specifications	16	40	140	45	20	40			16	1									\$12,250	\$10,500	\$8,750	\$3,500	\$35,000	318	\$35,000	
Task 3.6 Construction Inspection/Misc. Engineering	8	90	64	60	162														\$14,000	\$12,000	\$10,000	\$4,000	\$44,000	384	\$40,000	
Task 3.7 Construction Staking	1	80		1	8				80		290								\$26,250	\$22,500	\$18,750	\$7,500	\$82,500	460	\$75,000	
Task 3.8 Compaction and Materials Testing		2									6	20	75	20	\$0	\$0			\$3,500	\$3,000	\$2,500	\$1,000	\$11,000	123	\$10,000	
																								Task 3 Total =	\$225,000	
Task 4 Right-of-Way Acquisition																										
Task 4.1 Right-of-Way Appraisals/Negotiation	8	40	30	30	30			4	75	1									\$8,750	\$7,500	\$6,250	\$2,500	\$25,000	218	\$25,000	
Task 4.2 Right-of-Way Survey/Mapping/Documentation	8	40	22	4	30			4	75										\$7,525	\$6,450	\$5,375	\$2,150	\$21,500	183	\$21,500	
Task 4.3 Acquisition of Tree Ground																			\$0	\$0	\$0	\$0	\$0	0	\$0	
Task 4.4 Acquisition of Row Crops																			\$0	\$0	\$0	\$0	\$0	0	\$0	
																								Task 4 Total =	\$46,500	
Task 5 Project Construction																										
Task 5.1 Clearing and Grubbing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.2 Mobilizations																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.3 Site Safety																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.4 Casa Blanca Canal Modifications																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.5 Intertie Canal Construction																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.6 Diversion to Intertie																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.7 Ave. 130 Farm Bridge / Check #1																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.8 Ave. 128 Road Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.9 Ave. 124 Farm Bridge																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.10 Ave. 120 Farm Bridge																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.11 Ave. 116 Lateral Diversion																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.12 Ave. 116 Lateral Channel Construction																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.13 Ave Lateral - Check Structure #1																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.14 Ave. 116 Lateral - Rd. 164 Farm Bridge																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.15 Ave. 116 Lateral - Check Structure #2																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.16 Ave 116 Lateral - Rd. 160 Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.17 Ave. 116 Lateral - Check Structure #3																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.18 Ave. 116 Lateral - Check Structure #4																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.19 Ave. 116 Lateral - Rd. 156 Farm Bridge																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.20 Ave. 116 Lateral - Check Structure #5																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.21 Ave. 116 Lateral - Rd. 152 Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.22 Ave. 116 Lateral - Rd. 148 Farm Bridge Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.23 Ave. 116 Lateral - Rd. 144 Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.24 Ave. 116 Lateral - Check Structure #6																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.25 Ave. 116 Lateral - Rd. 140 Farm Bridge Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.26 Ave. 116 Lateral - Check Structure #7																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.27 Ave. 116 Lateral - Rd. 136 Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.28 Ave. 116 Lateral - N. Olive St. Farm Bridge Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.29 Ave. 116 Lateral - Rd. 128 Crossing																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.30 Ave. 116 Lateral - Turnouts																				\$0	\$0	\$0	\$0	\$0	0	\$0
Task 5.31 SCADA															65	\$10,250				\$3,413	\$2,925	\$2,438	\$975	\$9,750	65	\$20,000
																								Task 5 Total =	\$20,000	
Total Hours:	77	738	613	210	517	155	50	150	286	46	322	48	35	125	20	65										
Total Cost:	\$13,090	\$99,630	\$64,365	\$21,000	\$43,945	\$15,500	\$5,250	\$18,000	\$34,320	\$2,760	\$59,570	\$6,720	\$3,640	\$9,750	\$960	\$130	\$10,250			\$127,313	\$109,125	\$90,938	\$36,375	\$376,250	3,457	\$408,880

\$408,880

PIXLEY IRRIGATION DISTRICT

FINANCIAL STATEMENTS

For the Years Ended
December 31, 2010 and 2009

PAUL E. KLIPPENSTEIN
Certified Public Accountant
831 West Morton Avenue
Porterville, California 93257

TEL (559) 784-4045
FAX (559) 784-4046

PAUL E. KLIPPENSTEIN
Certified Public Accountant
831 West Morton Avenue
Pixley, California 93257

TEL (559) 784-4045
FAX (559) 784-4046

To the Board of Directors
Pixley Irrigation District
357 East Olive Avenue
Tipton, California 93257

I have audited the financial statements of Pixley Irrigation District for the year ended December 31, 2010 and have issued my report thereon dated June 29, 2011. Professional standards require that I provide you with the following information related to my audit.

My Responsibility under U.S. Generally Accepted Auditing Standards

As stated in my engagement letter dated December 9, 2010, my responsibility, as described by professional standards, is to express opinions about whether the financial statements prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. My audit of the financial statements does not relieve you or management of your responsibilities.

Planned Scope and Timing of the Audit

I performed the audit according to the planned scope and timing previously communicated to you in the above referenced engagement letter.

Significant Audit findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. In accordance with the terms of my engagement letter, I will advise management about the appropriateness of accounting policies and their application. The significant accounting policies used by Pixley Irrigation District are described in Note A to the financial statements. No new accounting policies were adopted and the application of existing policies was not changed during 2010. I noted no transaction entered into by the governmental unit during the year for which there is a lack of authoritative guidance or consensus. There are no significant transactions that have been recognized in the financial statements in a different period than when the transaction occurred.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected.

Difficulties Encountered in Performing the Audit

I encountered no significant difficulties in dealing with management in performing and completing my audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are trivial, and communicate them to the appropriate level of management. Management has corrected all such misstatements. In addition, none of the misstatements detected as a result of audit procedures and corrected by management were material, either individually or in the aggregate, to the financial statements taken as a whole.

Disagreements with Management

For purposes of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to my satisfaction, that could be significant to the financial statements or the auditor's report. I am pleased to report that no such disagreements arose during the course of my audit.

Management Representations

I have requested certain representations from management that are included in management representation letter dated June 29, 2011.

Management Consultation with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the governmental unit's financial statements or a determination of the type of the auditor's opinion that may be expressed on those statements, my professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To my knowledge, there are no such consultations with other accountants.

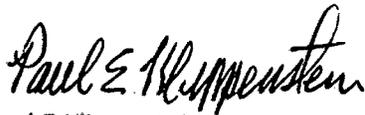
Other Audit Findings or Issues

I generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the governmental unit's auditors. However, these discussions occurred in the normal course of my professional relationship and my responses were not a condition to my retention.

Pixley Irrigation District
June 29, 2011
Page 3

This information is intended solely for the use of The Board of Directors and management of Pixley Irrigation District and is not intended to be and should not be used by anyone other than these specified parties.

Very truly yours,

A handwritten signature in black ink that reads "Paul E. Klippenstein". The signature is written in a cursive style with a large initial 'P' and 'K'.

Paul E Klippenstein
Certified Public Accountant
Porterville California

**PIXLEY IRRIGATION DISTRICT
MANAGEMENT'S DISCUSSION AND ANALYSIS
For the Year Ended December 31, 2010**

Discussion of the Basic Financial Statements

The District operations are accounted for as a proprietary fund. A proprietary fund is a governmental enterprise fund type where accounts are maintained in a similar manner as a business operating in the private sector. The District maintains its accounts on the accrual basis of accounting where, revenues are recognized when earned and expenses are recognized when incurred. The measurement focus of the financial statements is the determination of net income, financial position and changes in cash flows.

Condensed Financial Information

CONDENSED BALANCE SHEET

	<u>2010</u>	<u>2009</u>
Current Assets	4,262,778	3,826,660
Property, Plant & Equipment, Net	3,902,588	4,488,328
Noncurrent Assets	1,264,728	620,763
Total Assets	<u>9,430,094</u>	<u>8,935,751</u>
Current Liabilities	1,102,690	1,278,823
Long-Term Liabilities	210,568	153,467
Total Liabilities	<u>1,313,258</u>	<u>1,432,290</u>
Invested in Capital Assets, Net of Related Debt	3,643,107	4,156,991
Unrestricted	4,473,729	3,346,470
Total Net Assets	<u>8,116,836</u>	<u>7,503,461</u>
Total Liabilities and net assets	<u>9,430,094</u>	<u>8,935,751</u>

CONDENSED STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS

Total operating revenues	1,629,107	1,333,794
Total operating expenses	<u>(3,095,359)</u>	<u>(3,061,916)</u>
Operating Income(Loss)	(1,466,252)	(1,728,122)
Non-operating revenue(expense)	2,079,627	1,202,048
Net Increase (decrease) in net assets	<u>613,375</u>	<u>(526,074)</u>

The District is in healthy financial condition. The District has sufficient current assets to cover all liabilities, as current assets are more than three times larger than total liabilities. Total assets increased from 2009 to 2010 mainly due to a property sale with a corresponding note receivable being held by the District. In 2010, there were more CVC contract water sales on the west side of the valley than 2009. Money from the CVC contract water sales is used to purchase water on the east side of the valley for delivery within District boundaries. Net assets increased in 2010. The primary reason was the increase in income from CVC contract water sales as well as the gain realized on the property sale. The Board of Directors review the Investment and Reserve policies of the District on a regular basis.

**PIXLEY IRRIGATION DISTRICT
MANAGEMENT'S DISCUSSION AND ANALYSIS
For the Year Ended December 31, 2010**

Budget Variances

	<u>2010 BUDGET</u>	<u>ACTUAL EXPENSE</u>	<u>VARIANCE</u>
General, Administration & Operating	1,370,884	1,372,652	-1,768
Capital & Debt Service	<u>90,500</u>	<u>58,752</u>	<u>31,748</u>
SUB-TOTAL - NON WATER	1,461,384	1,431,404	29,980
Water Purchases	<u>1,700,500</u>	<u>1,521,963</u>	<u>178,537</u>
GRAND TOTAL	<u>3,161,884</u>	<u>2,953,367</u>	<u>208,517</u>

The District budgets for expenditures only. The District does use a projected cash flow analysis, which estimates revenues, as a tool when preparing the budget. The District does not budget for Depreciation. The District was under budget by 6.59% for 2010. The water supply section of the budget is the most difficult to budget for because the water supply available is dependant primarily on yearly hydrology, which cannot be predicted at the time the budget is drafted and passed. An average water year was assumed when preparing the 2010 budget in the fall of 2009. In the spring of 2010, when the forecast of water being available to the District was better known, the budget was adjusted.

Net Asset Analysis

The responsibility for the accounting and investment of the District's Reserve funds resides with the Board of Directors. Authority to implement the Reserve Policy and Guidelines is delegated to the Treasurer and Deputy Treasurer, under the working supervision of the General Manager.

A reserve is a portion of the net assets of an organization, in a stated amount, held for a designated purpose. Establishing reserves is essential due to the fluctuating nature of the District's water supply and the possibility of unanticipated events. Accumulations of reserves are necessary to meet the long-term known and unknown needs of the District.

A designated fund is a portion of the net assets of an organization, in a stated amount, with constraints placed on their use internally. Constraints include those imposed by the Board of Directors as a means of setting aside funds to be used only for a specific purpose.

The District is organized and operates under the statutory authority of Division 11 of the California Water Code. There are no other provisions of California law that govern the accumulation and use of reserves. Absent statutory guidelines to direct special districts in the accumulation and use of reserves, Pixley Irrigation District has established and adopted this Reserve Policy and Guidelines. The Reserve Policy and Guidelines are reviewed on no less than an annual basis and can be amended only by action of the Board of Directors. Expenditure of District reserve funds requires action of the Board of Directors.

Deer Creek & Tule River Authority



APPENDIX E

January 13, 2012

Member Districts:

*Lower Tule River ID
Pixley ID
Porterville ID
Saucelito ID
Stone Corral ID
Terra Bella ID
Tea Pot Dome WD
Vandalia ID*

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

The Deer Creek & Tule River Authority supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new later canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. The Deer Creek & Tule River Authority believes strongly that this project greatly benefit the area, which lies within the District.

The Deer Creek & Tule River Authority recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. The Deer Creek & Tule River Authority and the PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. The Deer Creek & Tule River Authority strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,

Daniel G. Vink
General Manager

President:
Guido Lombardi

Vice-President:
George Simms

Legal Counsel:
*Alex Peltzer
Dooley, Herr, Peltzer
& Richardson*

Address:
*357 E. Olive Avenue
Tipton, CA 93272*

Telephone:
*(559) 752-5050
(559) 686-4716
FAX (559) 686-0151*

Pioneer Water Company

Albert L. Berra
President

Laurie Pugh
Director

Guido Allan Lombardi
Director

Bryan B. Styles
Secretary

David Fenn
Director

Dooley, Herr &
Peltzer
Legal Counsel

Lower Tule River
Irrigation District
Operating Agent

Daniel G. Vink
Contact

Mailing Address:
357 E. Olive Ave.
Tipton, CA 93272

Located At:
357 E. Olive Ave.
Tipton, CA 93272

Phone:
(559) 752-5050
(559) 686-4716

FAX:
(559) 686-0151

January 13, 2012

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

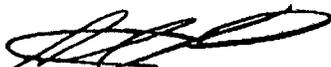
Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

The Pioneer Water Company supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new later canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. The Pioneer Water Company believes strongly that this project greatly benefit the area, which lies within the District.

The Pioneer Water Company recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. The Pioneer Water Company and the PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. The Pioneer Water Company strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,



Daniel G. Vink
General Manager

DGV/cc



Lower Tule River

Irrigation District

SINCE 1950

Anton G. Simonich
President

January 13, 2012

Gary Fernandes
Vice President

Jim Costa
Director

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

John Roeloffs
Director

Tom Barcellos
Director

Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

Daniel G. Vink
General Manager

The Lower Tule River Irrigation District supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new later canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. The Lower Tule River Irrigation District believes strongly that this project greatly benefit the area, which lies within the District.

Eric Limas
Treasurer

Beth Grote-Lewis
Assessor

Alex Peltzer
Legal Counsel

The Lower Tule River Irrigation District recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. The Lower Tule River Irrigation District and the PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. The Lower Tule River Irrigation District strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,

Daniel G. Vink
General Manager

357 E. Olive Avenue
Tipton, CA 93272
(559) 686-4716
or (559) 752-5050
FAX (559) 686-0151
e-MAIL ltrid@ltrid.org

DGV/cc

KERN-TULARE Water District

BOARD OF DIRECTORS

KENT H. STEPHENS, PRESIDENT
ANDREW PANDOL, VICE PRESIDENT/TREASURER
JOHN ZANINOVICH, SECRETARY
BRUCE KELSEY, DIRECTOR
CURT HOLMES, DIRECTOR

STEVEN C. DALKE, GENERAL MANAGER
DAN ANTONINI, SUPERINTENDENT
SKYE GRASS, OFFICE MANAGER

January 13, 2012

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

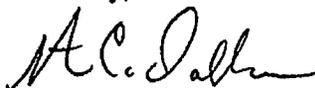
Re: Pixley Irrigation District -- Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

Kern-Tulare Water District supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new later canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the region.

Kern-Tulare Water District recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. Kern-Tulare Water District and the PIXID have a history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. Kern-Tulare Water District strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,



Steven C. Dalke
General Manager

FRIANT WATER AUTHORITY

January 13, 2012

Harvey A. Bailey
Chairman of the Board

Nick Canata
Vice Chairman

Tom Runyon
Secretary/Treasurer

Ronald D. Jacobson
General Manager

Jennifer T. Buckman
General Counsel

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

Friant Water Authority supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new later canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. The Friant Water Authority believes strongly that this project greatly benefit the area, which lies within the District.

The Authority is a Joint powers authority consisting of twenty water-related districts in the southern San Joaquin Valley that contract for water supplies from the Friant Division of the Central Valley Project. The Authority operates and maintains the Friant-Kern Canal, which is a major conveyance feature of the Friant Division, and represents the common interests of its members on various water resources and water policy issues. The Friant Diversion service area includes approximately on million acres and 15,000 mostly small family farms on the east side of the southern San Joaquin Valley (Merced, Madera, Fresno, Tulare and Kern Counties).

Member Agencies
Arvin-Edison W.S.D.
Delano-Earlimart I.D.
Exeter I.D.
Fresno I.D.
Ivanhoe I.D.
Kaweah Delta W.C.D.
Kern-Tulare W.D.
Lindmore I.D.
Lindsay-Strathmore I.D.
Lower Tule River I.D.
Madera I.D.
Orange Cove I.D.
Pixley I.D.
Porterville I.D.
Sawcetto I.D.
Shafter-Wasco I.D.
Stone Corral I.D.
Tea Pot Dome W.D.
Terra Bella I.D.
Tulare I.D.

Main Office
854 N. Harvard Avenue
Lindsay, CA 93247

Phone: 559-562-6305
Fax: 559-562-3496

Sacramento Office
1107 9th Street, Suite 640
Sacramento, CA 95814

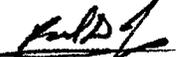
Phone: 916-346-4165
Fax: 916-346-3429

Website: www.friantwater.org

Michelle Maher
January 13, 2012
Page 2

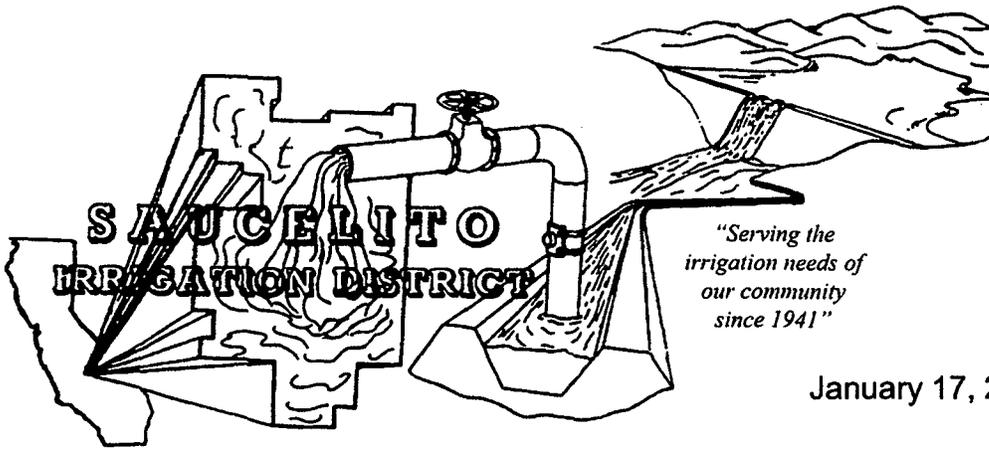
The Friant Water Authority recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. The Friant Water Authority and the PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. The Friant Water Authority strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,



Ronald D. Jacobsma
General Manager

RDJ:tm



Saucelito Irrigation District

Board of Directors:

Eric R. Merritt, President
Steven G. Kisling, V.P.
Lucille Demetriff
Robert D. McCloskey
Mark O. Merritt

Manager/Secretary

Sean P. Geivet

Assessor, Collector, Treasurer

Diane M. Ennis

Legal Counsel

Pucheu Law

Jacqueline McDonald Pucheu

January 17, 2012

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

Saucelito Irrigation District supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new later canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. The Saucelito Irrigation District believes strongly that this project greatly benefit the area, which lies within the District.

The Saucelito Irrigation District recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. The Saucelito Irrigation District and the PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. The Saucelito Irrigation District strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,

Sean P. Geivet
General Manager

SEAN P. GEIVET
Manager

KAREN L. KERWOOD
Assessor/Collector

ALEX M. PELTZER
Doolety, Herr, Peltzer & Richardson LLP



GUIDO LOMBARDI
President

ERIC BORBA
Vice-President

DAVID GISLER
Director

DENNIS SCHNEIDER
Director

January 18, 2012

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

Porterville Irrigation District supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new lateral canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. The Porterville Irrigation District believes strongly that this project greatly benefits the area, which lies within the District.

The Porterville Irrigation District recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. The Porterville Irrigation District and the PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. The Porterville Irrigation District strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,

A handwritten signature in cursive script, appearing to read "Karen L. Kerwood".

for Sean P. Geivet
General Manager

Physical: 22086 Avenue 160, Porterville CA 93257-9261
Mailing: PO Box 1248, Porterville CA 93258 1248
Phone: 559-784-0716 Fax: 559-784-6733

TERRA BELLA IRRIGATION DISTRICT

24790 Avenue 95
Terra Bella CA 93270

Established 1915

559/535-4414
Fax 559/535-5168

EDWIN L. WHEATON, President
Division 3
GLEN R. FOWLER, Vice-President
Division 4
BRENT E. DOYEL
Division 1
GEOFFREY C. GALLOWAY
Division 2
ALFREDO MARTINEZ
Division 5

SEAN P. GEIVET
General Manager
KAREN L. KERWOOD
Secretary-Treasurer
MINASIAN LAW FIRM
Legal Counsel
KELLER-WEGLEY
ENGINEERING
Consulting Engineer

January 16, 2012

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

Terra Bella Irrigation District supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new later canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of the District will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. The Terra Bella Irrigation District believes strongly that this project greatly benefits the area, which lies within the District.

The Terra Bella Irrigation District recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. The Terra Bella Irrigation District and the PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area. The Terra Bella Irrigation District strongly encourages the Bureau to consider funding the PIXID in their pursuit of this grant application.

Sincerely,



for Sean P. Geivet
General Manager

SPG/kk



January 16, 2012

OFFICERS

Harold D. Nelson
President

Peter J. Hronis
Vice-President

DIRECTORS

Kelly T. Hampton
Division 1

Nick J. Canata
Division 2

Harold D. Nelson
Division 3

Anton G. Caratan
Division 4

Peter J. Hronis
Division 5

Dale R. Brogan
General Manager

Bureau of Reclamation
Attn: Michelle Maher
Mail Code: 84-27810
P.O. Box 25007
Denver, CO 80225

Re: Pixley Irrigation District – Avenue 116 Lateral Project Grant Application

Dear Ms. Maher:

The Delano-Earlimart Irrigation District (DEID) supports the efforts of the Pixley Irrigation District (PIXID) in their pursuit of a WaterSMART grant application from the United States Department of the Interior, Bureau of Reclamation (Bureau) for Fiscal Year 2012. This grant application involves the development of a new intertie canal from the Casa Blanca Canal in the Lower Tule River Irrigation District to a new canal along Avenue 116 that will increase surface water availability to a previously unserved area. Bringing in surface water to this part of PIXID will allow for less pumping in wet years. This in turn increases the reliability of groundwater for dry years and decreases pumping costs in the area. DEID believes strongly that this project will greatly benefit the area and will have secondary benefits to DEID, which shares a common groundwater basin with PIXID.

DEID recognizes the importance of sound water management and conservation projects, and the significant role they play in stabilizing the local water supply. DEID and PIXID have a long history of coordinating water management projects and programs aimed at managing water supplies in the area to meet local demands. The Avenue 116 Lateral Project is envisioned to be one of these projects that will assist in securing a viable water supply for the local area.

DEID strongly encourages the Bureau to consider funding PIXID in its pursuit of this grant application and trusts that our support is helpful in its efforts to secure grant funding assistance for this project.

Sincerely,

Dale Brogan, General Manager
Delano-Earlimart Irrigation District

APPENDIX F

Gravity Conveyance & Conservation Project	All Values are in Acre-Feet	
	Est. Water Saved	Est. Water Better Managed
Transferred Water Offset Groundwater Pumping	8,500	9,350
Total Benefit	17,000	9,350
Total Water Supply	39,200	39,200
Related % of Total Water Supply	43.4%	23.9%

Gravity Conveyance & Conservation Project	Total Cost	Est. Water Saved (AF/Year)	Total Cost per AF	Est. Water Better Managed	Total Cost per AF	Life of Improv. (Years)	Cost \ (Yield x Life)
New Channel	\$4,362,375	8,500	\$513.22	9,350	\$466.56	50	--
Related % of Total Water Supply		21.7%		23.9%			

Improved Water Management	Values in Acre-Feet
Est. Water Better Managed	9,350
Avg. Annual Water Supply	39,200
% Water Supply Better Managed	23.9%

Improved Water Management	Values in Acre-Feet
Est. Water Conserved	17,000
Avg. Annual Water Supply	39,200
% Water Supply Conserved	43.4%

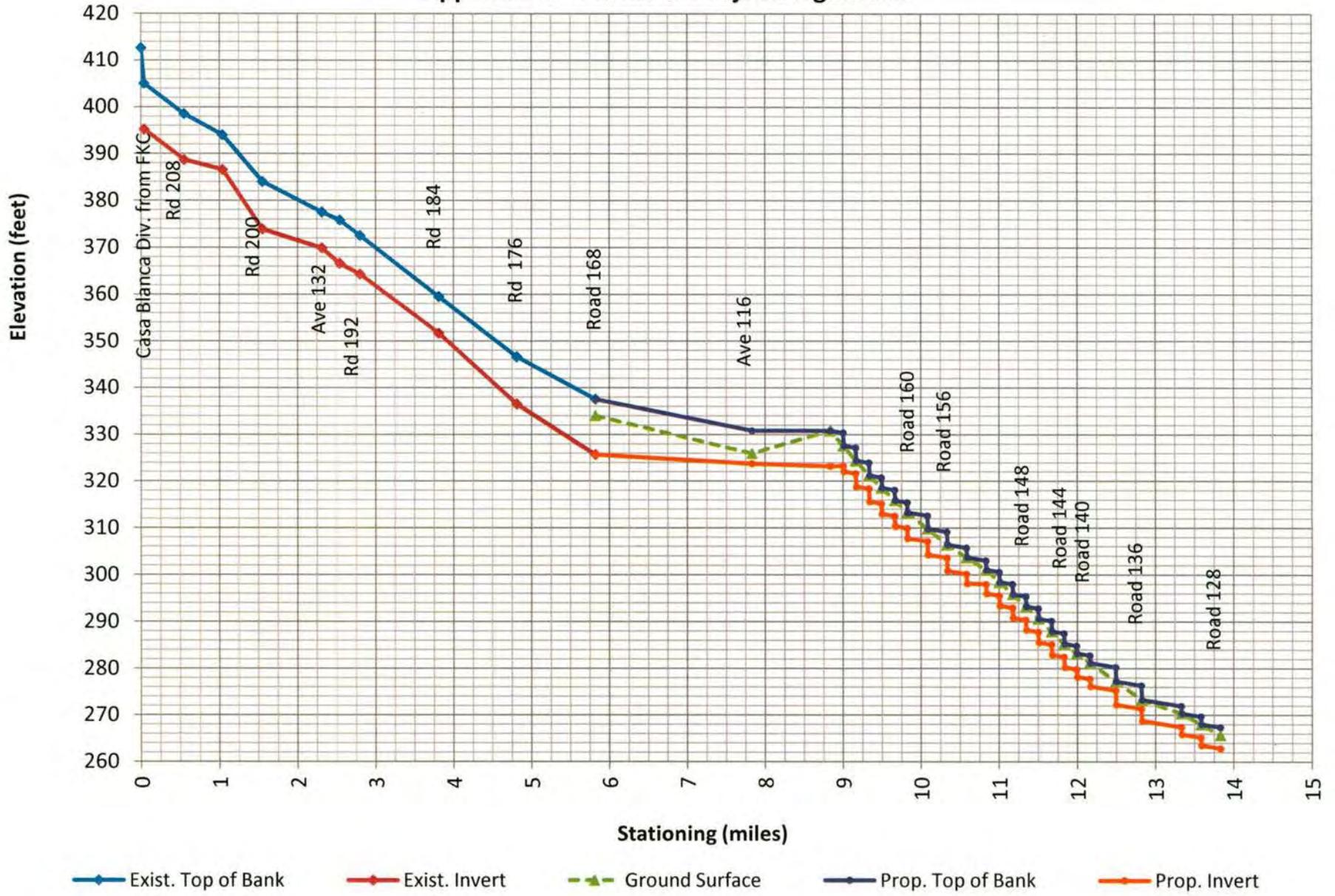
Reasonableness of Cost	
Est. Water Conserved	17,000
Improvement Life	50
Total Cost	4,362,375
Cost per Acre-Foot	\$5.13

Pixley Irrigation District
Gravity Conveyance & Conservation Project
Energy Savings from Raised Groundwater Levels

Specific Yield	0.15	
Energy to lift 1 AF/1 ft	1.46	kWh (see note 1)
Annual Recharge Volume	8,500	AF
Assumed Area of Dispersal	12.6	square miles
Period of Storage	3	years
Rise in Groundwater Levels	7	ft
Depth pumped over area	1	ft (gw represents 100% of District water supply, 100% x 1 AF/acre)
Volume pumped over area	8,032	/year
Energy Savings	248,200	KW-hrs
Monetary Savings	\$24,820	/year (Assumes \$0.10/KW-hr)

1) Assumes 70% equipment efficiency. Source: University of California Cooperative Extension, Tulare County, Energy and Cost Required to Lift or Pressurize Water, 1998

Appendix G - Profile of Project Alignment



CALIFORNIA ENVIRONMENTAL QUALITY ACT DOCUMENT

ENVIRONMENTAL ASSESSMENT/INITIAL STUDY

FOR

**PIXLEY IRRIGATION DISTRICT DISTRIBUTION SYSTEM EXPANSION
PROJECT**

WITHIN

TULARE COUNTY, CA

OCTOBER 6, 2011

PREPARED BY:

PIXLEY IRRIGATION DISTRICT

357 E. Olive Avenue

Tipton, CA 93272

559-686-4716

California Environmental Quality Act Document

Environmental Assessment/Initial Study
for
Pixley Irrigation District Distribution System Expansion Project
within
Tulare County, CA

SECTION 2

Project Description

2.1 Project Location

The Project is located in southwest Tulare County, approximately 5 miles southwest of the City of Porterville. The project is within the Pixley, Tipton, Woodville, Sausalito School and Porterville USGS 7.5 minute topographic quadrangles. A Map Book identifying the project location is included in Appendix A. The Project can be divided into three separate sections, the existing Casa Blanca Canal upgrade, the new open channel canal, and the new pipeline.

- 1) Existing Casa Blanca Canal Upgrade: A section of the existing Casa Blanca Canal, which is part of the Lower Tule River Irrigation District (LTRID), will be upgraded to transport surface water from the Friant Kern Canal to the Road 168 intersection where the new PID open channel begins. The lineal limits of the Casa Blanca Canal upgrade begin at the Friant Kern Canal turn-out west to the Road 168 intersection. The cross sectional limits of this work will be within the existing channel and access roads.
- 2) New Open Channel Canal: The new open channel canal will begin where the Casa Blanca Canal intersects Road 168 and will continue south along the east side of the road for approximately 2 miles to the Avenue 116 alignment. At the Avenue 116 alignment, the open channel canal will continue west along the north side of Avenue 116, avoiding the existing residence, for approximately 5.5 miles to Road 124, which the open channel canal will terminate into the existing recharge basin area. The cross sectional limit for the new canal will include up to seventy five feet (75 ft), which will include the channel and an access road on each side.
- 3) New Pipeline: The new pipeline will begin at the intersection of Road 168 and Avenue 116, where the open channel terminates along Road 168. From here, the pipeline will head south along Road 168 approximately two (2) miles and connect to the Pixley North Canal, part of the existing PID distribution system. The new pipeline constructed within a twenty five foot (25 ft) wide easement area outside the County right of way.

2.2 Project Background & Purpose

PID currently includes approximately 69,000 acres within the service boundary, although only around 42,000 acres can receive surface water from the existing distribution system. The area within the district consists primarily of agricultural farm ground that is actively farmed throughout the year. The type of produce grown within the district ranges between permanent crops of citrus trees, vineyards, and orchards or yearly row crops typically including corn, wheat, cotton, or sorghum.

Existing Groundwater Levels:

The farmers within the PID service area that do not have access to surface water from the existing PID distribution system are required to pump groundwater to meet the irrigation demands from their crops, unless the hydrologic conditions during the crop growth are enough to meet the demand, which may only happen during the winter months during higher than average precipitation years. In review of the District's groundwater database, from 1986 through 2004, the groundwater depths have continued a downward trend of over 70 feet in the last 20 years, due to the overdraft of groundwater. In addition, the deepest groundwater depths occur in the areas of the district that do not have surface water access.

Surface Water Supply:

The existing source of PID surface water is from either run-off from Deer Creek or from the purchase of Friant Division Central Valley Project Section 215 water or other surplus water from Friant member units. The source of water for the proposed Project will be from the purchase of Friant Kern Water, as the Deer Creek water available during an average year is not enough to meet the irrigation demands of the existing distribution service area.

Purpose:

The purpose of the project is to construct a new canal distribution system to allow approximately 7,500 acres within the district boundary to access surface water. The PID service area suffers from groundwater overdraft, particularly in the drought years. This Project will bring additional water into the district to help offset groundwater pumping and recharge the groundwater in the PID service area.

2.3 Project Description

The proposed Project involves the re-construction of twenty five (25) Casa Blanca Channel existing structures, the construction of seven and one-half (7.5) miles of new open channel canal, the construction of two (2) miles of new pipeline, the re-construction of an existing five (5) acre re-charge basin, the construction of eight (8) new road culverts at existing county road crossings, the construction of fifteen (15) new dirt road culverts at existing dirt road crossings, and the construction of drop structures as needed to maintain the channel velocity. The purpose of the project is to provide surface water access to approximately 7,500 acres within the existing PID service area to help offset groundwater pumping and prevent further groundwater overdraft in the PID service area (Project).

New Channel Design Criteria

The Project will provide access to surface water to approximately 7,500 acres of farmable land. Based upon the Bureau of Reclamation service area to canal design capacity formula ($Q_{canal} = \text{Area (acres) divided by 80 for areas larger than 1,680 acres}$), the total design capacity of the new canal will be one hundred (100) cubic feet per second (cfs), which exceeds the capacity calculated of ninety four (94) cfs. Based upon this design capacity, the new channel will have a bottom width of ten feet, side slopes of 1.5 to 1, a design slope of 0.00040 ft/ft to maintain around a 2 foot per second velocity to avoid erosion in the canal. The slope will be maintained by installing drop structures along the canal. The total depth of the canal will be six and one-half (6.5) feet deep, assuming a minimum freeboard of two (2) feet. The top of bank will be designed to be above the ground surface. The total channel width including the access roads will be seventy five feet or less. A design channel cross section is included in Appendix A.

Casa Blanca Canal Structures

The Project includes the re-construction of the existing structures along the Casa Blanca Canal. This canal has a channel capacity of approximately 200 cubic feet per second (cfs). This canal is under the jurisdiction of Lower Tule River Irrigation District (LTRID) who may or may not require the expansion of this canal to transport the 100 cfs to the new PID canal, dependent upon the timing of water demands in the LTRID system compared to the PID demands. Although the flow provided to PID may be managed to avoid the expansion of the existing canal, the Project includes the update of the structures in case the timing of the demands cannot be managed around.

New Pipeline

The Project includes the connection of the new PID Open Channel to the existing PID North Canal via a new pipeline. This will allow water to be pushed between the new system and the existing system, dependent upon the available water of a particular year. The pipeline will not exceed 36" in diameter and be constructed within a 25 foot easement area.

New Structures

Road culverts will need to be constructed at the head works starting at the Casa Blanca Canal and at each of the eight (8) County road crossings along the canal alignment and will also need to be constructed at each of the fifteen (15) existing dirt road crossings to allow farm equipment to access farm ground split by the new canal. In addition to the culvert structures, several drop structures to control the flow and velocity of the channel, along with several turn-outs for the farmers will be installed along the canal. The culverts and drop structures will be constructed out of concrete. The material for the pipe barrels beneath the road crossing will be reinforced concrete pipe to sustain the live loads of the road. The size of the pipe in each culvert may vary along the alignment based upon the flow at a particular location.

California Environmental Quality Act Document

Environmental Assessment/Initial Study
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**PIXLEY REGIONAL WATER MANAGEMENT PROGRAM
Optimizing Available Resources**

LOWER TULE RIVER AND PIXLEY IRRIGATION DISTRICTS, CA

JUNE 2011

Prepared for:

Pixley Irrigation District,
and funded through a grant from the
Bureau of Reclamation

Prepared by:

Provost & Pritchard Consulting Group
Visalia, California

SECTION EIGHT**8 COMPARISON OF NE SERVICE AREA PROJECT ALTERNATIVES**

The development of a surface water delivery system in the northeastern part of PIXID has been a priority for the District for some time. This area currently does not have access to surface water and therefore exclusively pumps groundwater to supply crop demands. This area, which is approximately 8,000 acres, also has some of the deepest groundwater depths within the District. This section of the report summarizes the different alternatives, both alignment and construction material, that were evaluated in connection with providing surface water deliveries to growers in the northeastern part of the District.

The primary design criteria for each project alternative remained the same as in the 2006 study on service to this area. The total system capacity was 135 CFS and all other existing systems that were used to convey water to this new area were improved so that additional capacity was provided in order to avoid negative impacts.

8.1 PRIMARY DELIVERY ALONG AVENUE 116 ALIGNMENT

This project alternative is currently PIXID's preferred alternative for deliveries to the northeast service area. This project alternative would improve delivery capacity through LTRID's Casa Blanca Canal from the FKC to a new diversion point (just upstream of Road 168 crossing) where a new canal with 135 CFS capacity could convey waters to the south, and then to the west through a conveyance lateral that approximates the alignment of Tulare County Avenue 116. The reason why this project alternative is the District's preferred alternative will be discussed in Section 11 – Ranking of Projects.

8.1.1 PROJECT FACILITIES**8.1.1.1 Casa Blanca Modifications**

The Casa Blanca Canal (LTRID Canal #1) is a facility owned by LTRID, which can divert a maximum of 200 CFS from the FKC). Water is released and measured through a turnout and Parshall flume adjacent to the FKC and flows to the west. The current high water marks in the Casa Blanca Canal immediately downstream of the Parshall flume are approximately at elevation 401 feet above MSL. This facility is also now capable of receiving approximately 150 CFS from the Tule River Intertie that can deliver water from the Tule River.

Fall, in this area, is much greater to the west than to any other direction. It appears from a topographic survey of the canal that the ground surface falls from around 403

SECTION EIGHT

feet above MSL near the FKC to elevation 347 near the Road 168 alignment, in approximately 4.5 miles. The geometry of the earthen Casa Blanca Canal is not hydraulically limiting, but instead the check structures and road crossings at almost every quarter to half-mile appear to limit flow along this canal. These structures limit the velocity of water in the canal to a generally less than erosive range.

It was assumed for this project that the capacity of the Casa Blanca Canal would be increased an equivalent amount to the diversion through the new northeast service area distribution system being 135 CFS. This would increase the first several miles (from the diversion at the FKC to Road 168) of the Casa Blanca Canal in LTRID from 200 CFS to 335 CFS.



Figure 8-1: Casa Blanca road crossing at Road 208

Both replacing the road crossings and altering the upstream channels were investigated to facilitate the desired capacity increase. There are six existing road crossing along this alignment, each being a double barrel 60-inch diameter submerged culvert. Given the slope of the existing channels and available head across road crossings, it is estimated that increasing the existing double barrel 60-inch diameter culverts to double 84-inch diameter barrel culverts would be sufficient to increase the system capacity to 335 CFS. It was estimated that upsizing these submerged culverts would cost approximately \$125,000 per crossing to upgrade²⁹.

Alternatively the existing crossings were analyzed to determine what channel modifications would be necessary to make them capable of conveying the desired 335

²⁹ Cost assumes 84 inch RGRCP at \$430 per LF with District forces installing pipe and constructing concrete entrance and exit structures.

SECTION EIGHT

CFS. It appears that an additional two-feet of head on the upstream side of each road crossing would meet the hydraulic requirements. This would mean that both the earthen banks of the canal and the concrete headwall on the upstream side of each road crossing would need to be increased by two feet. The earthwork on the canal banks would likely need to extend back to the next upstream check structure (1/4-mile in most situations). Locations where earthwork would be required were channel sections upstream of Road 208, Road 200, Road 132 / Ave 132, Road 184, Road 176 and Road 168. This option was economically superior, costing approximately \$66,000 in earthwork costs³⁰, \$26,000 in transportation costs associated with the earthwork³¹, and \$24,000 in formed concrete modifications to the existing structures, totaling approximately \$116,000.

It appears that the existing channel geometry is generally a 5 foot bottom width, and 35 foot top width, a ten foot depth and each quarter mile section drops approximately 0.4 feet in elevation. Given this geometry it appears that the existing channel is capable of flowing the desired 335 CFS if the standard 24-inch freeboard is reduced to approximately 22-inches. Increasing the flow would raise the velocity in the channel from 2.0 to 2.3 feet per second. It is difficult to determine what the impact of this potential increase in velocity would be. It is unlikely that serious erosion would be suffered at this velocity given what is known about the soils in the area. However, if problems do arise, the District has a few borrow sites for clay material that are used to line channel sections with high seepage rates and this material could be used to stabilize impacted sections.



Figure 8-2: Check Structure half mile west of Road 208

³⁰ 26,400 CY at \$2.50/CY.

³¹ 26,400 CY at approximately \$1/CY.

SECTION EIGHT

Also, the existing check structures along this reach of the canal should be able to pass the proposed maximum flow when a sufficient number of weir boards have been removed. However, during this condition, the top of structures (the concrete walkways) would be in danger of being submerged. For this reason concrete wall extensions and new walkways with handrails would be needed on all existing structures.

Given these modifications to the Casa Blanca Canal, it is difficult to determine if minor modifications to the existing Parshall flume from the FKC that feeds this canal will be necessary. It appears that if the crossings are addressed, the depth of water in the canal will not submerge the flume. However, this will need to be analyzed and modeled more carefully during final design.

The total projected cost to increase the capacity of Casa Blanca Canal from 200 CFS to 335 CFS is approximately \$116,000.

8.1.1.2 Casa Blanca Intertie

The Casa Blanca Intertie would be a new earthen canal facility that would divert surface water from the improved Casa Blanca Canal and convey it south along the east side of the Road 168 alignment until it was then diverted into a distribution lateral for the new service area along the Avenue 116 alignment. The new canal's diversion capacity would be 135 CFS.

The Road 168 alignment south from the Casa Blanca Canal was selected because of the relatively low number of road crossings needed and its eastern location relative to lands served. From a topographic survey of this two mile alignment showed that the ground surface falls approximately 8.5 feet between the diversion from the Casa Blanca Canal at Road 168 and the end of the Casa Blanca Intertie at Ave 116 (the proposed northern lateral alignment). This finding was very significant to costs for this project alternative as it was learned that the Avenue 116 alignment is a low spot between the existing Casa Blanca Canal and the existing North Ditch. If the Casa Blanca Intertie alignment were continued on to meet the existing East Main Canal at the North Ditch, the ground surface would recover the 8.5 foot drop and end up higher than the ground surface at the diversion at the Casa Blanca Canal.

The cross section for the Casa Blanca Intertie would have approximately three segments. The most upstream segment would have an eleven foot depth, the next downstream segment would have an eight foot depth and the final segment would have a seven foot depth. As can be seen in **Figure 8-3**, this step-down concept was employed in this project alternative to avoid having the canal be significantly elevated above the existing ground surface. Each portion of the facility was envisioned to have an eight-foot bottom width and 2.0:1.0 side slopes. Preliminary calculations show that

SECTION EIGHT

approximately 51,100 cubic yards of cut and 20,900 cubic yards of fill would be necessary for the facility. The total of these volumes lead to a projected total earthwork cost of \$138,300.

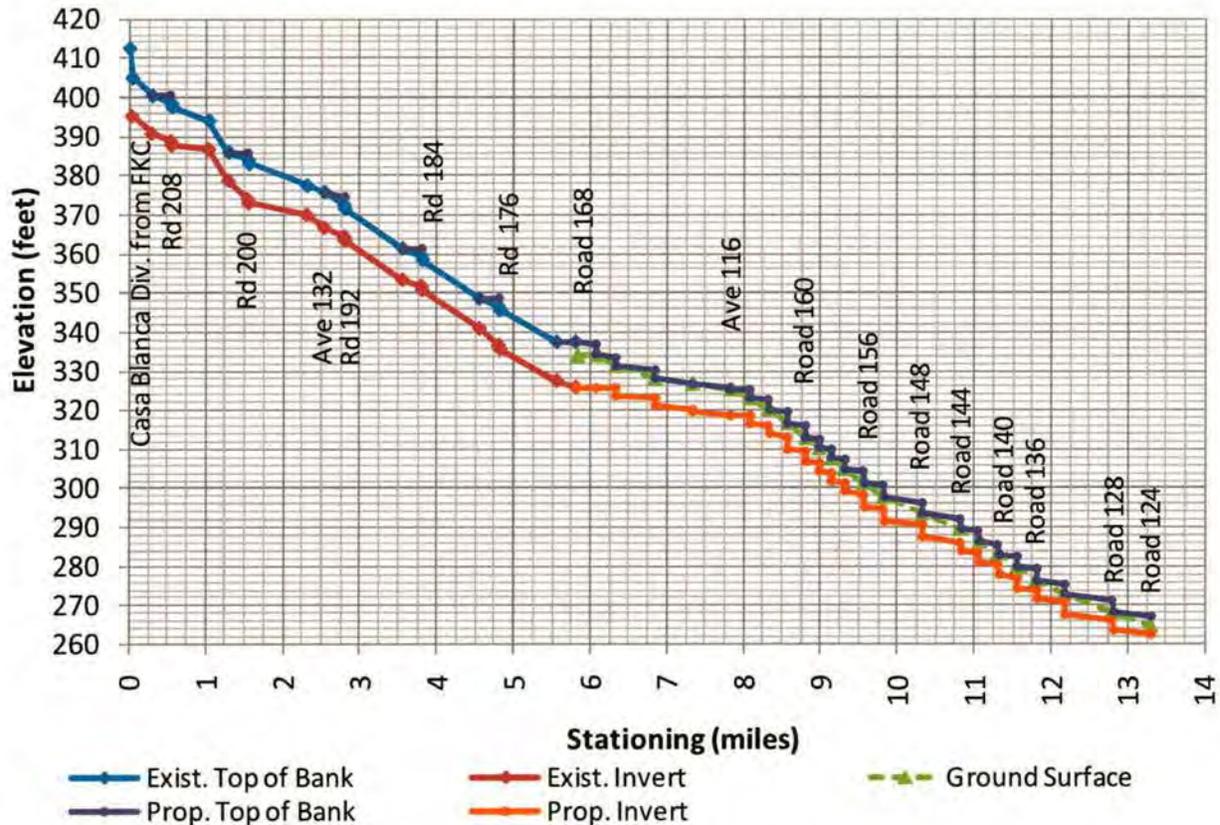


Figure 8-3: Casa Blanca Canal-Casa Blanca Intertie-Ave 116 Lateral

A new culvert will be constructed upstream of the Casa Blanca Canals Road 168 crossing and will require double 48 inch diameter RGRCP barrels.

New ROW will be required for this facility. For cost estimating purposes it was assumed that all ROW would be purchased at \$10,000 per acre. This was assumed for all project alternatives so that they could be compared against each other, but estimates were also generated for purchase values of \$5,000 and \$20,000 per acres so that a range of costs could be considered for each project. The Casa Blanca Intertie will require a segment of 105-foot right-of-way width and a segment of 86-foot width over two miles, totaling 23 acres. Therefore the projected land acquisition cost for the new Casa Blanca Intertie canal was \$230,000.

SECTION EIGHT

Culverts would be constructed at the head works from the Casa Blanca Canal, Ave 128, and potentially the Ave 120 alignment. These projected to require double 48-inch diameter pipe barrels.

Total construction costs for the earthen channel described, land acquisition and the new control structures and road crossings was approximately \$1,041,000.

8.1.1.3 Lateral along Avenue 116

This new Lateral along Avenue 116 would convey 115 CFS (the amount not delivered by turnouts along the Casa Blanca Intertie) for delivery within the new northeastern service areas. From a topographic survey of this alignment the ground surface falls approximately 61 feet between the diversion and the end of the system. The District has a minimum bottom width of 6 feet for canal facilities³², so channel depths between 4.5 and 6.5 feet accommodated flow requirements along the facility alignment.

The channel depth of 6.5 feet was held from the facility diversion until the crossing at Road 160 where it was reduced to 6.0 feet. The channel depth of 6.0 feet was then held until the crossing at Road 144 where it was reduced to 5.5 feet. The channel depth of 5.5 feet was then held until the crossing at Road 136 where it was reduced to 5.0 feet. The channel depth of 5.0 feet was then held until the crossing at Road 128 where it was reduced to 4.5 feet. The depth of 4.5 feet was held for the next half mile until the facility terminated at Road 124. Given the local soil properties 2.0:1.0 side slopes were used, which combined with the other channel geometry produced necessary right-of-way width along the channel that varied from 85 feet near the diversion to 75 feet towards the downstream end. Total right-of-way acquisition for the lateral along Avenue 116 was anticipated to be approximately 54.8 acres and cost approximately \$548,000.

The District believes that this single conveyance lateral will be able to effectively deliver to all lands within the service area through gravity pipelines that run perpendicular to the north and south of the Ave 116 Lateral. Most of these piped facilities are expected to be constructed by landowners to facilitate delivery of water to their properties. The maximum length of these facilities would be 1.5 miles to the south and 0.5 miles to the north.

Given the dramatic fall along the Ave 116 Lateral alignment (approx. 61 feet), a minimum slope for the canal of 0.0005 was used to ensure that velocities at maximum flow did not exceed 2.0 feet per second, which is what was viewed as the upper limit

³² This width provides them a channel that can be more easily maintained with existing equipment and less need for herbicides.

SECTION EIGHT

given soils in the area. This combination generated a facility with 11 reaches that were separated by either drop checks, road crossings or canal crossings.

Construction of the lateral will require approximately 66,700 CY of compacted fill and 71,700 CY of excavated cut. These volumes are prior to an adjustment for shrinkage which has been assumed to be 30% given other construction efforts in the area. Accounting for shrinkage increases the needed fill volume to approximately 86,700 CY and leaves the on-site earthwork short of material by approximately 15,000 CY. It was assumed that this material would be obtained from excavations in PIXID basins or from material acquisition from either PIXID basins or from LTRID stockpiles.

New road crossing for the Ave 116 Lateral will be constructed at Road 168, Road 160, Road 152, and Road 136. Headwalls for road crossings were assumed to be 30-foot wide, 10-foot tall, and one-foot thick with a three-foot wide spread footing on the bottom of the wall. Crossings upstream were accomplished with 60 inch RGRCP but crossings downstream of this location were downsized to 54 inch.

Also there are 9 planned canal crossing across this facility that are designed very similarly to the planned road crossings. They differ from road crossings in that they are only 24 feet wide and they are not covered by pavement. However, the size of RGRCP used was the same and the headwalls and exit/entrances were the same.

New check structures were assumed to be constructed similar to check structures in the existing District system (measurements taken of typical existing structures estimate 38 cubic yards of concrete per structure). In locations where combination structures (culvert/check) were assumed to be needed, volumes of concrete were based upon adding volumes of the two different types of structure together in order to be conservative. There are 11 drop check structures planned for the Ave 116 Lateral system.

Total construction costs for the earthen channel described, land acquisition and the new control structures and road crossings was approximately \$2,650,000.

8.1.1.4 Estimated Probable Construction Costs

Total construction costs for the capacity improvements to the existing Casa Blanca Canal between the FKC and Road 168, the new Casa Blanca Intertie canal from the diversion to Avenue 116, and the new Lateral along Avenue 116 from Road 168 to Road 124 was approximately \$3,807,000³³.

³³ Value assumes \$10,000 per acre for right-of-way acquisition and a 20% contingency.

SECTION EIGHT**8.1.2 POTENTIAL ENVIRONMENTAL ISSUES**

A California Natural Diversity Database (CNDDDB) search was done for sightings of endangered or threatened species in the area of the propose project alternative. Approximately half a mile north of the Avenue 116 alignment there was a recorded sighting listed for California jewel-flower that was dated in 1986. As this sighting was a half a mile away from the proposed project alignment and it was the only sighting recorded for that species in the area for roughly 25 years, it is not viewed as a significant potential environmental issue for this project alternative. See **Appendix F** for all CNDDDB information compiled through the PIXID SOR Effort.

8.1.3 WATER SUPPLY BENEFITS

As PIXID does not have a long-term Friant Division CVP contract, the District is currently dependant on the seasonal run-off from Deer Creek and surplus water that can be acquired from long-term Friant Division contractors. Therefore the surface water seen as available for additional service areas within PIXID was viewed that when non-long-term contractors had access to Section 215 water then there would have been available surplus water. Also, if there were Deer Creek flows in excess of the monthly consumptive use within the existing surface water service area then there was also surplus water available. Further when long-term Friant Division CVP contractors appeared to have contract water in excess of their ability to use it in a particular contract year it was assumed that surplus water was available.

It appears from an analysis of potential operations given water supply availability between 1996 and 2008 contract year that the average capability to deliver surplus water of 6,700 AF/year. This service area is capable of being delivered as much as 23,900 AF in contract year 2005, and there are 3 years that have deliveries above 15,000 AF/year. There are also 5 years that the service area is not delivered any water at all.

It appears that deliveries to this new service area could be a significant revenue generator for the District given the District's surface water pricing structures (which sets water rates competitively with local groundwater pumping costs) and the likely pricing for surplus water when it is available. During the period considered the average revenue through water sales was approximately \$181,000/year. In contract year 1998 there was a significant amount of Deer Creek water that could have been delivered and in this year the project generated approximately \$568,000 in additional revenue for the District.

SECTION EIGHT

REGIONAL WATER MANAGEMENT PROGRAM

Table 8-1: Potential Additional Water Supply Deliveries through NE Service Area

Contract Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
March	1,874	0	1,874	0	1,874					1,874	1,874		
April	2,275	0	0	2,275	2,275					2,275	2,275		
May	3,413		0							3,413	3,413		
June	4,417		0					4,417		4,417	4,417		
July										4,751	4,751		
August													
September													
October	1,205	1,205											
November	468	468											
December	0	602		602									
January		0								2,008			
February		2,008		2,008									
Water sold to growers	13,651	4,283	1,874	4,885	4,149	0	0	4,417	0	18,737	16,729	0	0
Conveyance Losses	3,783	1,187	519	1,354	1,150	0	0	1,224	0	5,193	4,636	0	0
Total water imported	17,434	5,470	2,393	6,239	5,299	0	0	5,640	0	23,929	21,365	0	0
Weighted Water Costs	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$ -	\$ -	\$35.00	\$ -	\$35.00	\$35.00	\$ -	\$ -
	\$0	Deer Creek Water Available					8,030 Acre Service Area Served from the Casa Blanca Canal						
	\$35	Months PIXID took 215 Water											
	\$35	Months D/S FKC users took 215 or uncontrolled season but PIXID didn't											

8.1.4 OTHER BENEFITS

Given that the District has an estimated groundwater overdraft of approximately 25,000 AF/year and approximately 68,000 AF/year of groundwater flows in from adjacent districts to support that condition, it is reasonable to view the District as being approximately 93,000 AF/year out of balance in terms of local groundwater resources. This project has the potential to address approximately 27 percent of the overdraft and 7 percent of the District's local groundwater imbalance.

8.2 DELIVERY WITH TWO LATERALS

This project alternative is not PIXID's preferred alternative for deliveries to the northeast service area because of the large portion of ground along the Avenue 108 alignment that is not cropped and the environmental issues associated with construction along this alignment. This project alternative would improve delivery capacity through LTRID's Casa Blanca Canal from the FKC to a new diversion point where a new canal with 135 CFS capacity could convey waters to the south, and then to the west through a conveyance lateral that approximates the alignment of Tulare County Avenue 116 and another that approximates the alignment of Tulare County Avenue 108. Also, this alternative is different in that this system would be connected with an additional mile of canal to the existing East Main Canal at the North Ditch.

**Pixley Irrigation District
Water Management Plan
2008 Criteria**

**Date of first draft – (12/30/11)
Date of final – (TBD)**

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Section 1: Description of the District

District Name: Pixley Irrigation District
Contact Name: Dan Vink
Title: General Manager
Telephone: (559) 686-4716
E-mail: dvink@ltrid.org
Web Address _____

A. History

1. Date district formed: 1958 *Date of first Reclamation contract:* 1975
Original size (acres): 69,571 *Current year (last complete calendar year):* 2010

The Pixley Irrigation District (District) was organized in 1958 pursuant to the California Irrigation District Law, Division 11, Sections 20500 through 29975, as amended, of the California Water Code. The District was formed for the purpose of promoting flood control on Deer Creek and to secure a supplemental irrigation water supply from the Federal Central Valley Project and other agencies. This supply was needed to sustain and enhance the irrigated agriculture that had developed in the area.

The District's water supply is derived from the use of groundwater, surface water diverted from Deer Creek and surface water diversions from the Sacramento - San Joaquin Rivers delta under a long-term water service contract for Central Valley Project water with the U.S. Bureau of Reclamation and the State of California.

In 1975, the District sold bonds to purchase a share of the capacity in the Cross Valley Canal in Kern County and entered into a three-party contract with the U.S. Bureau of Reclamation and the State of California (for wheeling) to provide an additional water supply from the Sacramento River for 31,102 acre-feet through an exchange for water supplies with the Arvin-Edison Water Storage District (Cross Valley Exchange Program). This contract provided an additional average water supply of approximately 29,000 acre-feet per year through the first 20 years of contract history.

The District is governed by a board of five directors elected for four-year terms on a staggered basis of two and three, at elections held every two years. The District Board of Directors appoint an Engineer-Manager, Assessor, Collector, Treasurer, Legal Counsel and Secretary.

2. Current size, population, and irrigated acres

	2010
Size (acres)	69,571
Population served	0
Irrigated acres	59,283

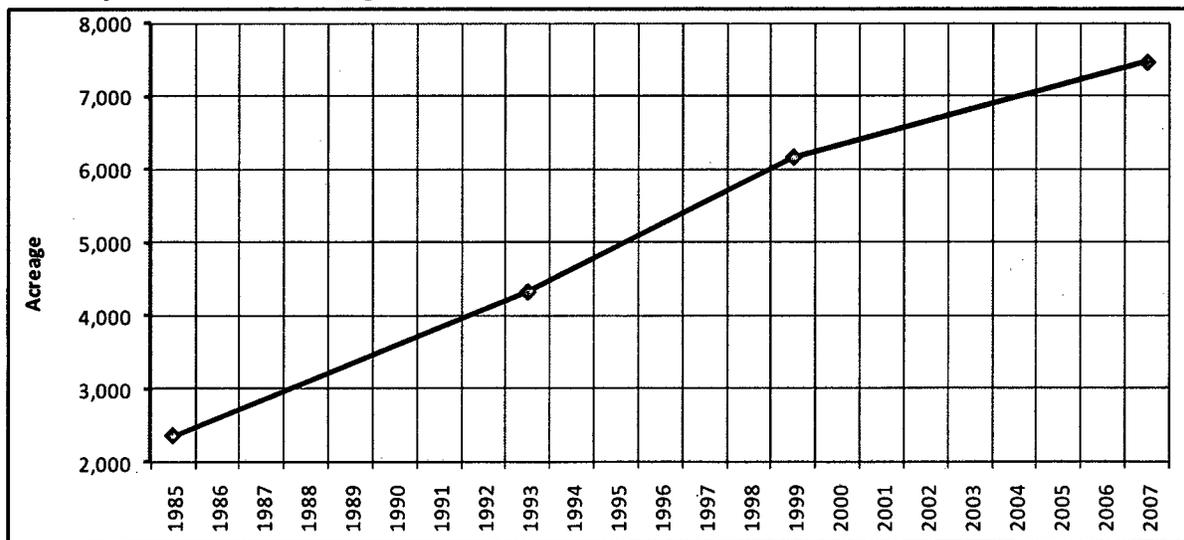
3. Water supplies received in current year

Water Source	AF
Federal urban water (Tbl 1)	
Federal agricultural water (Tbl 1)	
State water (Tbl 1)	
Other Wholesaler (define) (Tbl 1)	
Local surface water (Tbl 1)	1,000
Upslope drain water (Tbl 1)	
District ground water (Tbl 2)	
Banked water (Tbl 1)	
Transferred water (Tbl 6)	30,296
Recycled water (Tbl 3)	
Other (define) (Tbl 1)	
Total	31,296

4. Annual entitlement under each right and/or contract

	AF	Source	Contract #	Availability period(s)
Reclamation Urban AF/Y	0			
Reclamation Agriculture AF/Y	31,102	CVP	14-06-200-8238A	No CVP Wheeling
Other AF/Y	0			
Other AF/Y	0			

5. Anticipated land-use changes

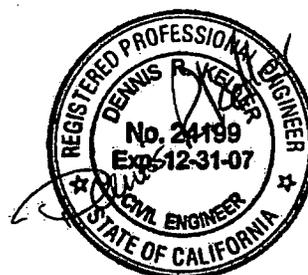


Graph of Dairy/Ag Related Acreages for Pixley ID

GROUNDWATER MANAGEMENT PLAN

DEER CREEK AND TULE RIVER AUTHORITY

JULY 2006



DENNIS R. KELLER / JAMES H. WEGLEY
CONSULTING CIVIL ENGINEERS

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SECTION 1
PURPOSE
GROUNDWATER MANAGEMENT PLAN
DEER CREEK AND TULE RIVER AUTHORITY