WaterSMART Grant Application

Installation of Conservation Pipelines – Blocks 42, 44 & 46

March 15, 2019

East Columbia Basin Irrigation District

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Executive Summary

March 15, 2019

The East Columbia Basin Irrigation District (District), headquartered in Othello, Washington, which is in Adams County, operates and maintains a portion of the Federal Columbia Basin Project. The District is proposing to replace approximately 17,124 feet of open canals with pipelines. By doing so, the District will conserve approximately 882 acre-feet of which will be available for other projects each and every year. In addition, since water serving the Columbia Basin Project is pumped from Grand Coulee Dam, the Bonneville Power Administration (BPA) has calculated that an energy savings of approximately 558 busbar kilowatt-hours (kWh) per acre-foot will be saved, resulting in an annual energy savings of approximately 492,156 kWh's. Furthermore, any water that is not diverted from the Columbia River as a result of this conservation will be left in the river to assist the endangered salmon. And finally, a portion of this conserved water will be used to replace the existing groundwater supply for irrigated lands within the East District boundaries in an area commonly referred to as the "Odessa Subarea". The aquifer used to irrigate these lands is declining at a rapid and unsustainable rate; therefore, by providing irrigators with a surface water replacement, the District will provide them with a reliable replacement water supply while generating additional revenue through new Water Service Contracts. It is estimated that this piping project will begin in September, 2020 and will be complete by March, 2022 and will be completed by District forces.

Background Data

Please see Appendix A for a general location map. The East Columbia Basin Irrigation District is one of three (3) Irrigation Districts that operate the U.S. Bureau of Reclamation's Columbia Basin Project (CBP) in the state of Washington. Its source of power and water is the Grand Coulee Dam on the Columbia River. The District serves approximately 154,000 acres primarily for irrigation and has about 2,400 customers. Major crops include alfalfa, wheat, corn, potatoes, and beans. The average annual diversion from the Columbia River to serve the entire CBP is 2.85 million acre-feet, of which the East District uses approximately 949,000 acre-feet. We operate 87 miles of main canal (the East Low Canal), 30 miles of which is concrete lined and the rest is unlined, compacted earth. We operate approximately 530 miles of laterals and sublaterals, of which 25 miles are concrete lined, 38 miles are membrane lined and 80 miles are piped. We operate 62 pumping plants ranging in size from 10 Horsepower to 2,600 Horsepower.

The District began a formal water conservation program in 1986, utilizing the State of Washington's Referendum 38 water supply program which provided both grants and loans. The District began participating in Reclamation's Water Conservation Field Services Program (WCFSP) shortly after the program became available in 1996. These funds helped to update the District's Water Conservation Plan in 2007. The District has completed hundreds of water conservation projects since the inception of WCFSP. These projects included shotcrete lining, piping, automated gates for upstream level control, and polyurea crack sealing. The estimated water savings from these projects exceeds 20,000 acre feet per year.

Project Location

Please see Appendix A for a general location map. The District plans to replace open laterals with pipelines in Grant and Adams County, WA. The EL16B is located approximately 6 miles north of Moses Lake, WA. The EL29N3 is located approximately 3 miles south of Moses Lake. The EL63E and EL63F are located near Warden, WA. The EL74.8A7 is located approximately 4 miles east of Othello, WA.

Technical Project Description

If selected to receive a WaterSMART grant, the District plans to replace approximately 17,124 linear feet of earth lined, open ditch with PVC pipelines ranging in size from 15" diameter to 24" diameter and carrying flows from 8 cubic feet per second (cfs) to 18 cfs. This proposal anticipates the need for approximately 17,380 lineal feet of pipe to replace the earthen laterals. Consequently, the District estimates a savings of approximately 882 acre-feet will be realized due to the elimination of seepage and evapotranspiration each and every year. Additional benefits achieved by piping open laterals include lower maintenance costs, decreased conveyance times, less sediment removal, less terrestrial and aquatic weed control, and many times, enabling on-farm irrigation improvements such as center pivots to be installed. Such on-farm improvements have been proven to greatly reduce the consumptive needs of agricultural croplands. These projects also address some of the District's aging infrastructure issues by replacing older open channel conveyance facilities with new efficient pipelines.

Since our canals and laterals are being used to deliver water from March 31st to October 25th, our construction season is fairly short. The District is comprised of two (2) watermaster sections, each with approximately 20 maintenance personnel. Each section is equipped with a digging excavator, long boom excavator, backhoe, Grade-all, dozers, several dump trucks, loaders, trench compactors, etc. Each watermaster section has historically been tasked with installing upwards of 15,000 linear feet of pipe in a construction season. For the two-year schedule proposed for the projects, District crews will install the entire 17,380 feet of pipe during the next two construction seasons.

E.1. Technical Proposal: Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (30points)

*Up to **30 points** may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the*

project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings.

All applicants should be sure to address the following:

Describe the amount of estimated water savings. For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.

Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.

The District annually diverts an average of 949,000 acre-feet of water. The District is estimating that an annual savings of 882 acre-feet of water will be achieved through the piping of 17,124 feet of open laterals. The conserved water will be available for other project uses. Please see following table (Appendix B) for a comprehensive list of all of the piping projects and their associated savings estimates.

Appendix B - East Columbia Basin Irrigation District -Water Conservation Analysis
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BLOCK	LATERAL	SECTION FROM BUREAU PROFILE DRAWINGS	DITCH LOSS (CFS)	STATION LENGTH (FT)	PIPE LENGTH (FT)	DITCH LOSS (AF/YR)	DRAINAGE BASIN	% Lost to Project	ACTUAL SAVINGS (AF/YR)	TRANSIT LOSS (AF/YR/ MILE)
40	EL16B	219-0.9, 223-1.3	1	2681.5	2710	387	POTHOLES RESERVOIR	17.1	66	130
42	EL29N3	322-1.1, 326-1.5	0.75	1700	1730	290	POTHOLES RESERVOIR	17.1	50	154
42	EL29N3	322-1.2, 323-1.3	0.75	2755	2790	290	POTHOLES RESERVOIR	17.1	50	95
44	EL63E	424-1.3	5	2605	2740	1934	POTHOLES RESERVOIR	17.1	331	670
44	EL63F	424-1.4	1	1328	1330	387	POTHOLES RESERVOIR	17.1	66	263
44	EL63F	324-1.2	2.5	3473	3480	967	POTHOLES RESERVOIR	17.1	165	251
46	EL74.8A7	324-1.3	0.75	1343	1350	290	POTHOLES EAST CANAL	32	93	365
46	EL74.8A7	324-1.3	0.5	1238	1250	193	POTHOLES EAST CANAL	32	62	264
TOTAL				**17,124**	**17,380**	**4,738**			**882**	**2192**

Describe current losses: Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

In open laterals, the current transport system, water seeps into the ground. Seeping water typically flows into shallow groundwater systems, some of which terminate in the Potholes Reservoir or the Potholes East Canal. The South Columbia Basin Irrigation District relies on these facilities for a portion of its water supply. Water conservation projects in the East District that eliminate seepage may result in a reduction the South District's supply. East District will be conserving 4,351 acre-feet per year by piping proposed laterals. The South District relies on the returned seepage so the East District can account for saving a portion of total conservation dependent on the system the groundwater seepage would have fed, 17.1% of the conserved water for seepage terminating in the Potholes Reservoir and 32% of the conserved water for seepage terminating in the Potholes East Canal. For laterals with groundwater systems that seepage water flows directly to the Columbia River and does not enter the Potholes Reservoir or the Potholes

East Canal the East District can realize the full conservation as savings. The total actual savings taking into account the water needed to supply South District is 882 acre-feet per year.

Describe the support/documentation of estimated water savings: Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. *In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

The estimated water savings was calculated using measured ditch loss. Ditch loss is achieved by calculating the water diverted into the canal minus the deliveries to farm units and water remaining at the wasteway. The result should be the estimated loss due to seepage and evapotranspiration. Some laterals do have return flows that fluctuate and are not part of the balance calculation as we do not have record of how much comes back into the lateral. Return flows are irrigation water that is ordered by farmers but not used and are left in the canal.

Diversions – (Deliveries + Wasteways) – Return Flows = Ditch Loss

Diversions are the amount of water turned into the lateral. The measuring device at most head gates are Controlled head orifice (CHO) gates. Deliveries are the measurement of water delivered to each farm unit, measured by Adjustable weir or Cipoletti weir. Wasteways are typically at the end of a lateral and water is measured either over a weir or check structure. All measuring devices are original Bureau designed structures which most often are accurate within 5%.

To verify ditch loss, ponding tests or section specific measurements must be done. Most of the proposed piping projects are for the entire canal and the calculated ditch loss can be concisely measured. In pipe projects where a section is being piped the overall ditch loss of the system is not as accurate.

The ditch loss that is provided in Appendix B is the average ditch loss over the year, calculated ditch loss/days of delivery, multiplied by the % lost to the project and a factor of units (cfs to acre- feet per year) provides the total annual savings.

Please address the following questions according to the type of infrastructure improvement you are proposing for funding. See *Appendix A: Benefit Quantification and Performance Measure Guidance* for additional guidance on quantifying water savings.

(1) **Canal Lining/Piping:** Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address the following:

a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

Annual savings have been calculated by the estimated seepage losses. Piping of the open laterals conserves 4,738 acre-feet of water per year. The annual savings is dependent on the drainage basin each lateral contributes to. Appendix B shows the drainage basin and % lost to the project. Resultant savings of 882 acre-feet per year is water that can be delivered to new water contracts or left in the Columbia River.

b. How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.

Diversion records are kept for every lateral for each day of the irrigation season. A water balance calculation accounts for the diversions into and out of the lateral stretch. These calculations provide the Ditch Loss shown in the above Water Conservation Analysis table.

c.What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

Installation of pipe to replace existing open channel flow results in no measurable losses due to seepage. The seepage losses due to ditch loss are expected to be removed with the piping project. Previous projects that involved open canals being replaced with pipe have proven that the piped canals have no losses due to seepage and evapotranspiration.

d.What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?

Annual transit loss reductions have been calculated for each section of canal piped and are shown in Appendix B. The average rate of transit loss for the proposed projects is 485 acre-feet per mile per year.

e.How will actual canal loss seepage reductions be verified?

Diversion records for the water season prior to installing pipelines will be used for a balance calculation. If there is a question due to length of ditch being piped in comparison to accurate balance calculation, ponding tests will be conducted. The District has frequently used ponding tests as a check to verify seepage losses.

f.Include a detailed description of the materials being used.

The materials used in piping laterals is PIP PVC or C900 pipe.

E.1.2. Evaluation Criterion B—Water Supply Reliability (18points)

*Up to **18 points** may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.*

Note that an agreement will not be awarded for an improvement to conserve irrigation water unless the applicant agrees to the terms of Section 9504(a)(3)(B) of Public Law 111-11 (see p. 52 of the FOA for additional information).

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

1 .Will the project address a specific water reliability concern? Please address the following:

oExplain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?

oDescribe how the project will address the water reliability concern? In your response, please address where the conserved water will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

oProvide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

oIndicate the quantity of conserved water that will be used for the intended purpose.

2.Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:

oWill the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

▪Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project. Will the project benefit a larger initiative to address waterreliability?

Will the project benefit Indian tribes?

Will the project benefit rural or economically disadvantagedcommunities?

Describe how the project will help to achieve these multiplebenefits. In your response, please address where the conserved willgo and where it will be used, including whether the conservedwater will be used to offset groundwater pumping, used to reducediversions, used to

address shortages that impact diversions orreduce deliveries, made available for transfer, left in the riversystem, or used to meet another intended use.

3. Does the project promote and encourage collaboration among parties in away that helps increase the reliability of the water supply?

Is there widespread support for the project?

What is the significance of the collaboration/support?

Is the possibility of future water conservation improvements by otherwater users enhanced by completion of this project?

Will the project help to prevent a water-related crisis or conflict? Isthere frequently tension or litigation over water in the basin?

Describe the roles of any partners in the process. Please attach anyrelevant supporting documents.

4. Will the project address water supply reliability in other ways notdescribed above?

In the area known as the Odessa subarea, farmers currently use private wells to irrigate their land. They must pump from thousands of feet below ground to run their irrigation sprinkler systems. The aquifer is declining rapidly and much of the land currently irrigated by these wells is projected to be infeasible to irrigate by 2020. The loss of this farmland would be a huge economic impact to the immediate area as well as the state of Washington. Moving these farmers to surface water from the Columbia Basin Project would significantly reduce pumping costs and result in reduced electric use. More importantly, they would obtain a long-term, reliable water supply.

Municipalities within the Odessa subarea are reliant on the aquifer. Currently the drawdown of the aquifer is requiring towns to dig deeper wells creating a more costly water supply. By providing irrigators with surface water, removing them from deep wells, the aquifer can sustain the municipal water supply.

The Odessa subarea contains over 100,000 acres currently irrigated by groundwater that are within the East District boundaries. The current preferred alternative to serve this area allows for about 70,000 of these acres to be served by Project water.

The Odessa subarea special study is a collaborative effort, primarily led by the Bureau of Reclamation and Washington State Department of Ecology. In April 2005, a Memorandum of Understanding (MOU) between the East District, Ecology, and Reclamation established goals on how to handle conserved water within the District. It was determined that the conserved water would be available as a replacement water supply for groundwater deliveries in the Odessa Subarea, municipal and industrial water supply, and environmental uses. Ecology funded the preparation of the Plan through the Columbia River Water Management Program.

Furthermore, in July 2006, the Washington State Legislature passed the Revised Code of Washington (RCW), Title 90, Chapter 90 (90.90) which declared that a Columbia River basin water supply development program was needed and directed the Department of Ecology to

aggressively pursue the development of water supplies to benefit both instream and out-of-stream uses.

A Record of Decision was issued in 2013 by the Pacific Northwest Regional Director of the Bureau of Reclamation regarding the Odessa Subarea Special Study. That decision was to move forward with development of a replacement water supply for those farms on wells in the Odessa subarea. Work has been done and will continue to be done to increase the capacity in the East Low Canal so that the District can deliver surface water to replace groundwater in the Odessa Subarea. Currently the District is working on the EL47.5 pumping plant, and finishing the widening of the canal.

Much of the Odessa subarea is within East Columbia Basin Irrigation District boundaries. This land was envisioned to be served by second half development of the Columbia Basin Project. Second half development has not yet occurred. Water conserved by the proposed pipeline projects can be used to issue new water contracts to these farms currently using private wells. The full amount of the estimated savings (882 acre-feet) could be used as a source of supply for new water contracts. The District would issue these new contracts upon execution of a contract between the Bureau and the District. At a water duty of 3 acre-feet per acre, approximately 382 acres could be served by the water conserved under this proposal.

Upon issuance of a new water service contract, landowners would move their existing groundwater right to a status in which it would only be used in an emergency. Past water service contracts issued by the District run for a period of 10 years and can be renewed indefinitely. It is anticipated that new contracts will be of a similar nature. This type of contract would provide a secure, long-term source of water, enhancing the viability of continued agricultural production.

It is anticipated that all of the water conserved under this proposal would be made available to serve commercial agriculture needs in the Odessa subarea through contracts between individual landowners and the East District. The District has the authority to write these contracts through a master water service contract with the Bureau of Reclamation. This contractual relationship imposes Reclamation water law with respect to the way the water is used.

Chinook salmon are listed as endangered species in the Columbia River. Chum and steelhead are threatened. The three federal agencies that control Columbia River operations are required to abide by the Federal Columbia River Power System Biological Opinion (the BiOp). The BiOp sets standards and guidelines for operation of the River system, including withdrawals for irrigation of Federal irrigation projects. These standards and guidelines are intended to protect the 13 species of salmon and steelhead that are listed for protection under the Endangered Species Act. The enhancement of instream flows in the mainstem of the river is a critical component of the BiOp. Water conservation within the East District directly enhances instream flows in the Columbia River.

Water delivered to the East District is withdrawn from the Columbia River at Lake Roosevelt. Although the Columbia Basin Project diverts less than 3 percent of the flow from the River, any water savings achieved within the Project is a benefit to the salmon. Since water

conserved by this Grant will be used to supply CBP lands authorized by Congress for continued development of the CBP, all water supplied as a result of conservation will reduce the amount of future diversions under Reclamation's withdrawal permit from the Columbia River needed for project completion. This will result in more water remaining for endangered species in the Columbia River.

E.1.3. Evaluation Criterion C—Implementing Hydropower (18points)

*Up to **18 points** may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.*

If the proposed project includes construction or installation of a hydropower system, please address the following:

Describe the amount of energy capacity. For projects that implement hydropower systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.

Describe the amount of energy generated. For projects that implement hydropower systems, state the estimated amount of energy that the system willgenerate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.

Describe any other benefits of the hydropower project. Please describe and provide sufficient detail on any additional benefits expected to result from thehydropower project, including:

Any expected reduction in the use of energy currently supplied through aReclamation project

Anticipated benefits to other sectors/entities.

Expected water needs, if any, of the system

The Columbia Basin Project is pumps water from Grand Coulee Dam, the Bonneville Power Administration (BPA) has calculated that an energy savings of approximately 558 busbar kilowatt-hours (kWh) per acre-foot will be saved, resulting in an annual energy savings of approximately 492,156 kWh's. No new hydropower is created with the conservation pipeline project, however energy savings creates more power availability.

E.1.4. Evaluation Criterion D—Complementing On-FarmIrrigation Improvements (10 points)

*Up to **10 points** may be awarded for projects that describe in detail how they will **complement on-farm irrigation improvements** eligible for NRCS financial or technical assistance.*

Note: Scoring under this criterion is based on an overall assessment of the extentto which the WaterSMART Grant project will complement ongoing or future on-farm improvements. Applicants should describe any proposal made to NRCS, orany plans to seek assistance from NRCS in the future, and how an NRCS-assistedactivity would complement the WaterSMART Grant project. Financial assistance through the Environmental Quality Incentives Program (EQIP) is the mostcommonly used program by which NRCS helps producers implementimprovements to irrigation systems, but NRCS does have additional technical orfinancial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information described in the bullet points below. **Applicants are *not* required to have assurances ofNRCS assistance by the application deadline to be awarded the maximumnumber of points under this sub-criterion.** Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.

Please note: on-farm improvements themselves are *not* eligible activities forfunding under this FOA. This criterion is intended to focus on how theWaterSMART Grant project will complement ongoing or future on-farmimprovements. NRCS will have a separate application process for the on-farm components of selected projects that may be undertaken in the future,separate of the WaterSMART Grant project.
If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:

•Describe any planned or ongoing projects by farmers/ranchers that receivewater from the applicant to improve on-farm efficiencies.

Provide a detailed description of the on-farm efficiency improvements.

Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?

If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.

Applicants should provide letters of intent from farmers/ ranchers in the affected project areas.

•Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.

oWill the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.

OR

Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?

Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.

oEstimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.

Irrigators improve on-farm efficiencies by installing center pivot sprinkler irrigation systems replacing the Bureau gravity systems.

The Columbia Basin Project was designed as a gravity irrigation project and farmers started irrigating with rill irrigation. Conversion of open laterals to pipelines protects the cleanliness of the irrigation water and provides a more economical opportunity for farmers. By removing rill irrigation and installing sprinklers the irrigators have reduced the demand of irrigation per acre.

E.1.5. Evaluation Criterion E—Department of the InteriorPriorities (10 points)

*Up to **10 points** may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.*

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*

a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;

b. Examine land use planning processes and land use designations that govern public use and access;

c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards.

d. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;

e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;

f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing;

g. Shift the balance towards providing greater public access to public lands over restrictions to access.

2. *Utilizing our natural resources*

a. Ensure American Energy is available to meet our security and economic needs;

b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;

c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle;

d. Manage competition for grazing resources.

3. *Restoring trust with local communities*

a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;

b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

4.*Striking a regulatory balance*

a.Reduce the administrative and regulatory burden imposed on U.S.industry and the public;

b.Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.

5.*Modernizing our infrastructure*

a.Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;

b.Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;

c.Prioritize DOI infrastructure needs to highlight:

Construction of infrastructure;

Cyclical maintenance;

Deferred maintenance.

The projects proposed for construction represent a Public/Private partnership between the Bureau of Reclamation and the District to modernize U.S. Infrastructure. Further, infrastructure construction proposed in this application would be property of the United States of America. The District is funded through landowner assessments, private funds, and the WaterSMART Grants are public funds. Construction of pipelines to replace open laterals that were built in the 1950's is modernizing existing U.S infrastructure while conserving water.

Piping of open laterals eliminates the cyclical maintenance in regards to vegetation. Vegetation grows along ditch banks absorbing water as it grows and slowing flow through the ditch. Vegetation must be controlled by mechanical or chemical means. By replacing earth-lined ditches with pipelines, aquatic vegetation is essentially eliminated along piped sections of laterals. Piped laterals require less maintenance in general, particularly with respect to sediment removal and weed control. Management of terrestrial vegetation is less labor intensive and less costly than current open lateral maintenance.

E.1.6. Evaluation Criterion F—Implementation and Results (6points)

*Up to **6 points** may be awarded for these subcriteria.*

E.1.6.1. Subcriterion F.1— Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place.

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, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

(2)Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

The East District has a "Comprehensive Water Conservation Plan" which was developed in May, 2007 and is an update of one completed in 1995. Please see Appendix D for a photocopy of its cover.

This project meets the goals of the Comprehensive Water Conservation Plan as well as the "Columbia Basin Project, Coordinated Water Conservation Plan" (Appendix E) developed for the three (3) CBP Irrigation Districts and the Washington State Department of Ecology.

Preliminary design work has been completed by District staff in support of the proposed projects.

The installation of conservation pipelines is a key priority identified in the District's Water Conservation Plan.

E.1.6.2. Subcriterion F.2— Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure, see *Appendix A: Benefit Quantification and Performance Measure Guidance.*
All Water and Energy Efficiency Grant applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grant recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.

Note: program funding may be used to install necessary equipment to monitor progress. However, program funding may not be used to measure performance after project construction is complete (these costs are considered normal operation and maintenance costs and are the responsibility of the applicant).

With the amount of water saved through this project we can collaborate with the Bureau on how to get the water into a water service contract for lands that are in the Odessa Subarea which will decrease the amount of water consumed through the existing wells.

Some of the laterals to be piped may have measurement devices sensitive enough to reflect the reduction in seepage achieved by the project. In those cases, a water balance calculation will be used to account for the diversions into and out of the lateral stretch. Diversion records are kept for every lateral for each day of the irrigation season. Pre- and post-project diversion records can be compared to determine the savings achieved by the project.

Occasionaly the measurement devices used to record diversions into and out of the lateral are not sensitive enough to reflect the changes in flows resulting from the reduction in seepage when a lateral is piped. In these cases, we conduct ponding tests on a representative sample of the laterals before the piping project is started. The District has frequently used ponding tests as a check against the balance calculation.

Where ponding tests are to be conducted, the District creates an earthen dam at each end of the section being tested and fills the canal section to its normal operating level. Staff gauges are installed at appropriate points to measure water level. Measurements are recorded every few hours until the canal is dry. The resulting data is used to calculate the seepage rate.

E.1.6.3. Subcriterion F.3— Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement.

Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.

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

Describe any permits that will be required, along with the process for obtaining such permits.

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

Describe any new policies or administrative actions required to implement the project.

Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?

Implementing the proposed project begins with the awarding of the grant, typically in the fall. As soon as possible coordination with the Bureau on environmental compliance will be done. Survey work for the proposed pipelines will be done in the spring prior to filling the laterals. Engineering design follows the survey work with the intent of having all pipelines designed mid summer. Pipe should be purchased early fall with the intent of pipe being delivered as water is turned off to take best advantage of the construction season. Piping begins as soon as designs are ready, pipe arrives, and the laterals are free of water.

The District is comprised of two (2) watermaster sections, each with approximately 20 maintenance personnel. Each section is equipped with a digging excavator, long boom excavator, backhoe, Grade-all, dozers, several dump trucks, loaders, trench compactors, etc. Each watermaster section has historically been tasked with installing upwards of 15,000 linear feet of pipe in a construction season. For the two-year schedule proposed for the projects, District crews will install the entire 17,380 feet of pipe during the next two construction seasons.

After the WaterSMART grant is awarded the District will work with the Bureau to perform the environmental compliance. Previously when awarded a WEEG grant the District has coordinated with the Bureau and the $25,000 assumed cost is what was needed to complete the environmental work.

E.1.7. Evaluation Criterion G— Nexus to Reclamation ProjectActivities (4 Points)

*Up to **4 points** may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.*

•Is the proposed project connected to Reclamation project activities? If so,how? Please consider the following:

Does the applicant receive Reclamation project water?

Is the project on Reclamation project lands or involving Reclamation facilities?

Is the project in the same basin as a Reclamation project or activity?

Will the proposed work contribute water to a basin where a Reclamation project is located?

Will the project benefit any tribe(s)?

The Columbia Basin Project was constructed by the Bureau of Reclamation beginning in the 1930s with the Grand Coulee Dam. First half development of the project was completed in the 1960s. Second half development has not been completed yet. The majority of land intended to be served by second half development is in the East Columbia Basin Irrigation District. Water conserved by the proposed pipeline projects can be used to serve some of this land.

The East District receives project water from Banks Lake, which is used as a reservoir to serve all three Columbia Basin Project Districts.

The Bureau of Reclamation holds title to all water conveyance facilities within the East District, including the facilities to be built under this proposal

E.1.8. Evaluation Criterion H— Additional Non-Federal Funding(4 points)

*Up to **4 points** may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:*

The District plans to use its own funds and in-kind contributions to fund the majority of the cost of the project. Appendix J contains cost breakdowns, showing District labor, District equipment and materials costs. The total non-federal funding is $409,986.09. This equates to 58% of the total project costs.

Project Budget

Funding plan and letters of commitment:

To fund these projects, the District plans on obtaining 44% of the total cost from Reclamation through the WaterSMART program. The District is prepared to contribute in-kind labor and equipment costs as well as the remainder of the funding needed for the project. District funds come from assessments collected annually from our landowners as well as revenue from electricity generated by District-owned hydroelectric generation facilities.

Funding Sources	**Funding Amount**
Non-Federal Entities:	
1. ECBID	$378,914.67
Requested Reclamation Funding:	$300,000.00
Total Project Funding:	**$678,914.67**

No project costs have been incurred. Design costs are anticipated to occur beginning in May of 2020.

Budget Proposal:

See Appendix J.

Appendix J - East Columbia Basin Irrigation District - Budget Proposal
Installation of Conservation Pipelines - Blocks 40, 42, 44, 46

Budget Item Description	$/Unit	Quantity	District Funding	Reclamation Funding	Total Cost
Salaries and Wages					
Engineers					
District Engineer	$52.99	60	$3,179.40	$0.00	$3,179.40
Assistant District Engineer	$32.67	160	$5,227.20	$0.00	$5,227.20
Staff Engineer	$29.57	100	$2,957.00	$0.00	$2,957.00
Supervisors					
Watermaster	$32.75	90	$2,947.50	$0.00	$2,947.50
Assistant Watermaster	$30.09	90	$2,708.10	$0.00	$2,708.10
Laborers					
Laborer 1	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 2	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 3	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 4	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 5	$23.33	590	$13,764.70	$0.00	$13,764.70
Laborer 6	$23.33	590	$13,764.70	$0.00	$13,764.70
Laborer 7	$20.45	589	$12,045.05	$0.00	$12,045.05
Laborer 8	$19.72	589	$11,615.08	$0.00	$11,615.08
Fringe Benefits					
Engineers					
District Engineer	$19.49	60	$1,169.40	$0.00	$1,169.40
Assistant District Engineer	$16.78	160	$2,684.80	$0.00	$2,684.80
Staff Engineer	$16.14	100	$1,614.00	$0.00	$1,614.00
Supervisors					
Watermaster	$12.70	90	$1,143.00	$0.00	$1,143.00
Assistant Watermaster	$14.06	90	$1,265.40	$0.00	$1,265.40
Laborers					
Laborer 1	$12.68	590	$7,481.20	$0.00	$7,481.20
Laborer 2	$11.99	590	$7,074.10	$0.00	$7,074.10
Laborer 3	$11.99	590	$7,074.10	$0.00	$7,074.10
Laborer 4	$11.99	590	$7,074.10	$0.00	$7,074.10
Laborer 5	$12.67	590	$7,475.30	$0.00	$7,475.30
Laborer 6	$11.94	590	$7,044.60	$0.00	$7,044.60
Laborer 7	$9.02	589	$5,312.78	$0.00	$5,312.78
Laborer 8	$14.13	589	$8,322.57	$0.00	$8,322.57

Appendix J - East Columbia Basin Irrigation District - Budget Proposal
Installation of Conservation Pipelines - Blocks 40, 42, 44, 46

Equipment					
Excavator (60% of Total Equipment Hours)	$31.00	588	$18,228.00	$0.00	$18,228.00
Dozer (6% of Total Equipment Hours)	$31.00	59	$1,829.00	$0.00	$1,829.00
Gradall (9% of Total Equipment Hours)	$12.00	88	$1,056.00	$0.00	$1,056.00
Loader (9% of Total Equipment Hours)	$12.00	88	$1,059.11	$0.00	$1,059.11
Grader (16% of Total Equipment Hours)	$23.00	157	$3,608.80	$0.00	$3,608.80
Pickup Truck Mileage	$0.55	4,986	$2,742.50	$0.00	$2,742.50
Dump Truck Mileage	$1.00	5,057	$5,057.00	$0.00	$5,057.00
(See Attached Breakdown)					
Supplies/Materials					
Pipe (15" diameter)	$10.90	2600	$9,590.14	$18,749.86	$28,340.00
Pipe (21" diameter)	$21.17	10310	$78,574.57	$139,688.13	$218,262.70
Pipe (24" diameter)	$26.50	4470	$43,828.35	$74,626.65	$118,455.00
Fittings/Concrete/Etc.	$5,956.73	11	$23,588.64	$41,935.36	$65,524.00
(See Attached Breakdown)					
Environmental and Regulatory Compliance					
Coordination with SHPO/USBR	$25,000.00	1	0	$25,000.00	$25,000.00
Reporting					
Submitting Progress and Final Reports	$72.48	16	$1,159.68		$1,159.68
Total Project Costs			**$378,914.67**	**$300,000.00**	**$678,914.67**

Budget Narrative:

Salaries and wages are based on rates as of July 2018. Benefit rates are actual rates for 2018. Benefit rates include District contributions to: FICA, Medicare, employee health insurance, retirement, and industrial insurance premiums through the State of Washington.

Labor and equipment rates for construction are based on average prices for similar work done in the 2017-2018 construction seasons. The labor and equipment rates shown on the budget breakdown vary based on the size of pipe being installed. Equipment rates are based on the District's actual costs to operate and maintain District equipment. District equipment rates are shown in Appendix K.

Pipe prices are based on 2017 District pipe bids with a 10% increase.

Other materials incorporated into the work (such as concrete, pipe fittings, etc.) are tracked during construction. The lump sum prices shown on the budget breakdown are based on work done in the 2017-2018 construction seasons. Each reach of canal to be piped is anticipated to have a separate group of fittings and other materials.

The price shown on the budget for environmental and regulatory compliance is based on a contract with a consultant for the same type of work in 2018.

Reporting costs are based on the District Engineer's combined wage and benefit rate and the number of hours anticipated to prepare the required semi-annual and final reports to Reclamation.

The District does not have an approved indirect costs rate agreement. The District does not intend to recover indirect costs under a WaterSMART grant agreement, and no indirect costs have been included in the proposed budget.

The proposed project budget and construction budget are shown in Appendix J.

Environmental and Cultural Resources Compliance

The installation of conservation pipelines requires disturbing the existing open canal prism. The canal prism was previously constructed as part of the original system and has typically been cleaned occasionally by excavators or similar equipment. No impacts to air or water quality are anticipated. The work will be done when water is out of the canals and no discharge of stormwater from the project site will occur.

The pygmy rabbit, Columbia Basin DPS has been reported to live within the area. However, the District is not aware of any pygmy rabbits living near the proposed project sites. No effect is anticipated by construction of the proposed projects.

There are no wetlands within the proposed project sites.

The water delivery system was constructed primarily in the 1950s.

The project will eliminate existing open canals and some structures associated with those canals will be eliminated or modified. These are typically concrete structures such as drops, checks and turnouts. Most of these structures have not been modified since original construction with the exception of replacing gates.

The District's main canals, the East Low Canal and the Potholes East Canal, are eligible for listing on the National Register of Historic Places. The proposed projects do not include any modifications to the East Low Canal or Potholes East Canal.

There are no known archaeological sites within the project areas.

No adverse impact to low income or minority populations is anticipated.

No impacts to tribal lands are anticipated. There are no sacred Indian sites in the project area.

The projects will have no impact on the introduction, spread, or existence of noxious weeds or invasive species. District crews control weeds on an ongoing basis.

Required Permits or Approvals

The District will be required to obtain approval from the State Historic Preservation Office in order to complete the proposed projects. In the most recent projects where this was required, the District coordinated with the Bureau of Reclamation to contract the work to a consultant, who prepared a report describing their findings and submitted it to the State Historic Preservation Office for review and approval. The District intends to use this same process to obtain approval for the proposed projects.

Letters of Support

None.

Official Resolutions

An official resolution in support of the proposed projects will be signed by the Board of Directors at their April 8, 2019 board meeting and sent in at that time.

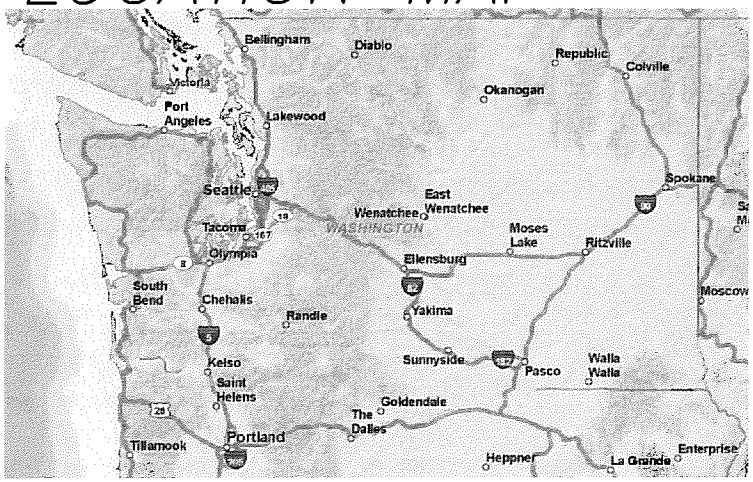
Unique Entity Identifier and System for Award Management

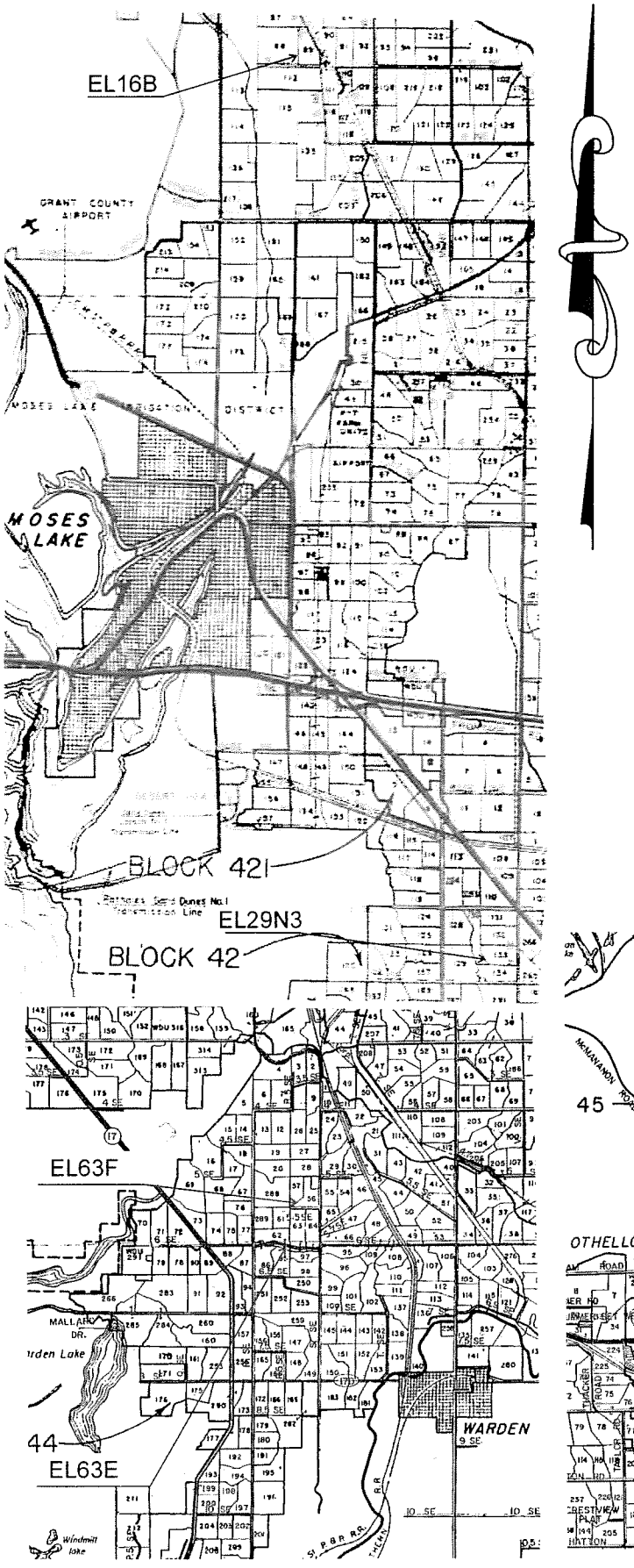
The East Columbia Basin Irrigation District is registered with the System for Award Management (SAM) with the DUNS number of 07-096-5710.

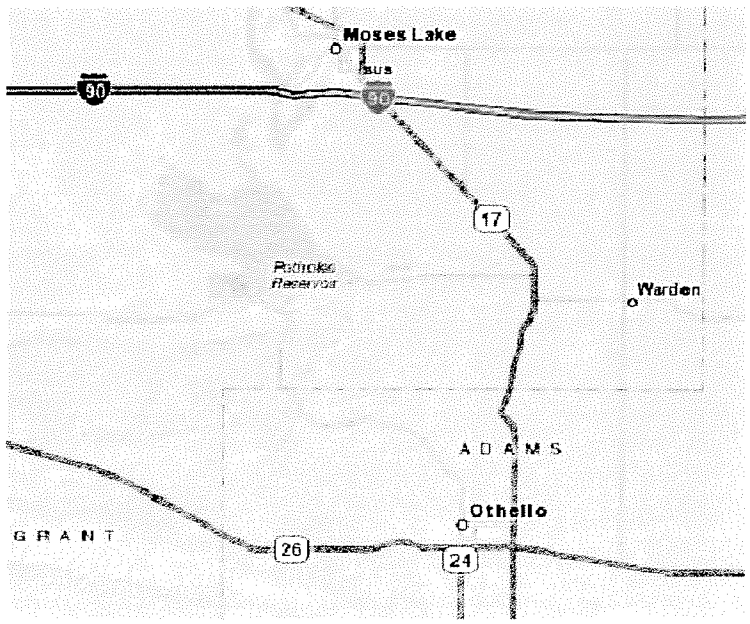
Appendix A

Location Map

APPENDIX A 2019 WATERSMART GRANT APPLICATION LOCATION MAP







INSTALLATION OF CONSERVATION PIPELINES – BLOCKS 40, 42, 44 & 46

Appendix B

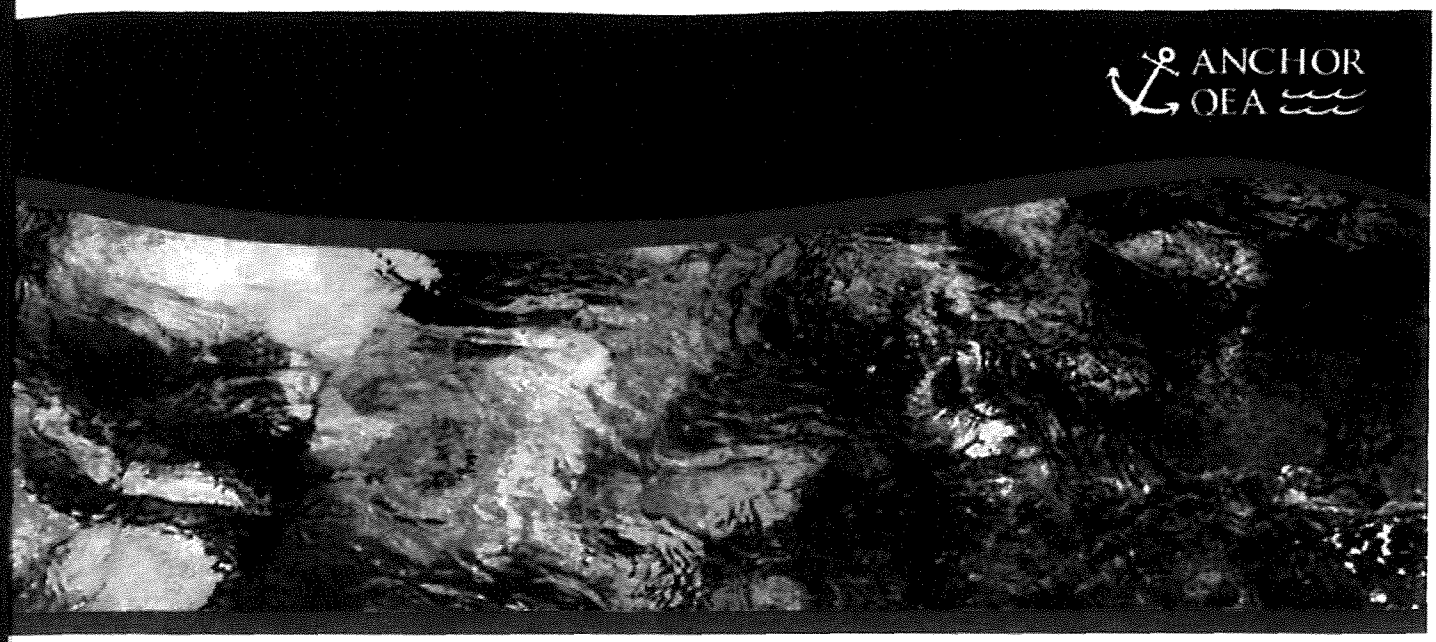
Seepage Analysis

Appendix B - East Columbia Basin Irrigation District -Water Conservation Analysis
Installation of Conservation Pipelines - Blocks 40, 42, 44 & 46

BLOCK	LATERAL	SECTION FROM BUREAU PROFILE DRAWINGS	DITCH LOSS (CFS)	STATION LENGTH (FT)	PIPE LENGTH (FT)	DITCH LOSS (AF/YR)	DRAINAGE BASIN	% Lost to Project	ACTUAL SAVINGS (AF/YR)	TRANSIT LOSS (AF/YR/MILE)
40	EL16B	219-0.9, 223-1.3	1	2681.5	2710	387	POTHOLES RESERVOIR	17.1	66	130
42	EL29N3	322-1.1, 326-1.5	0.75	1700	1730	290	POTHOLES RESERVOIR	17.1	50	154
42	EL29N3	322-1.2, 323-1.3	0.75	2755	2790	290	POTHOLES RESERVOIR	17.1	50	95
44	EL63E	424-1.3	5	2605	2740	1934	POTHOLES RESERVOIR	17.1	331	670
44	EL63F	424-1.4	1	1328	1330	387	POTHOLES RESERVOIR	17.1	66	263
44	EL63F	324-1.2	2.5	3473	3480	967	POTHOLES RESERVOIR	17.1	165	251
46	EL74.8A7	324-1.3	0.75	1343	1350	290	POTHOLES EAST CANAL	32	93	365
46	EL74.8A7	324-1.3	0.5	1238	1250	193	POTHOLES EAST CANAL	32	62	264
TOTAL				**17,124**	**17,380**	**4,738**			**882**	**2192**

Appendix D

Cover Sheet of the Comprehensive Water Conservation Plan



COLUMBIA BASIN PROJECT
COORDINATED WATER CONSERVATION PLAN

Prepared for

East Columbia Basin Irrigation District
Quincy-Columbia Basin Irrigation District
South Columbia Basin Irrigation District
Washington State Department of Ecology

Prepared by

Anchor QEA, LLC
811 Kirkland Avenue, Suite 200
Kirkland, WA 98033

March 2010 (Revised August 2010)

Appendix E

Cover Sheet of the Coordinated Conservation Plan

EAST COLUMBIA BASIN IRRIGATION DISTRICT

COMPREHENSIVE WATER CONSERVATION PLAN

Prepared for

East Columbia Basin Irrigation District

P.O. Box E

Othello, WA 99344

Prepared by

Anchor Environmental, L.L.C.

811 Kirkland Avenue, Suite 200

P.O. Box 2517

Kirkland, WA 98083-2517

ANCHOR ENVIRONMENTAL, L.L.C.

May 2007

Appendix G

SF424, SF424C, and SF424D Forms

Appendix J

Proposed Project Budget

Appendix J - East Columbia Basin Irrigation District - Budget Proposal
Installation of Conservation Pipelines - Blocks 40, 42, 44, 46

Budget Item Description	$/Unit	Quantity	District Funding	Reclamation Funding	Total Cost
Salaries and Wages					
Engineers					
District Engineer	$52.99	60	$3,179.40	$0.00	$3,179.40
Assistant District Engineer	$32.67	160	$5,227.20	$0.00	$5,227.20
Staff Engineer	$29.57	100	$2,957.00	$0.00	$2,957.00
Supervisors					
Watermaster	$32.75	90	$2,947.50	$0.00	$2,947.50
Assistant Watermaster	$30.09	90	$2,708.10	$0.00	$2,708.10
Laborers					
Laborer 1	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 2	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 3	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 4	$23.58	590	$13,912.20	$0.00	$13,912.20
Laborer 5	$23.33	590	$13,764.70	$0.00	$13,764.70
Laborer 6	$23.33	590	$13,764.70	$0.00	$13,764.70
Laborer 7	$20.45	589	$12,045.05	$0.00	$12,045.05
Laborer 8	$19.72	589	$11,615.08	$0.00	$11,615.08
Fringe Benefits					
Engineers					
District Engineer	$19.49	60	$1,169.40	$0.00	$1,169.40
Assistant District Engineer	$16.78	160	$2,684.80	$0.00	$2,684.80
Staff Engineer	$16.14	100	$1,614.00	$0.00	$1,614.00
Supervisors					
Watermaster	$12.70	90	$1,143.00	$0.00	$1,143.00
Assistant Watermaster	$14.06	90	$1,265.40	$0.00	$1,265.40
Laborers					
Laborer 1	$12.68	590	$7,481.20	$0.00	$7,481.20
Laborer 2	$11.99	590	$7,074.10	$0.00	$7,074.10
Laborer 3	$11.99	590	$7,074.10	$0.00	$7,074.10
Laborer 4	$11.99	590	$7,074.10	$0.00	$7,074.10
Laborer 5	$12.67	590	$7,475.30	$0.00	$7,475.30
Laborer 6	$11.94	590	$7,044.60	$0.00	$7,044.60
Laborer 7	$9.02	589	$5,312.78	$0.00	$5,312.78
Laborer 8	$14.13	589	$8,322.57	$0.00	$8,322.57

Appendix J - East Columbia Basin Irrigation District - Budget Proposal
Installation of Conservation Pipelines - Blocks 40, 42, 44, 46

Equipment					
Excavator (60% of Total Equipment Hours)	$31.00	588	$18,228.00	$0.00	$18,228.00
Dozer (6% of Total Equipment Hours)	$31.00	59	$1,829.00	$0.00	$1,829.00
Gradall (9% of Total Equipment Hours)	$12.00	88	$1,056.00	$0.00	$1,056.00
Loader (9% of Total Equipment Hours)	$12.00	88	$1,059.11	$0.00	$1,059.11
Grader (16% of Total Equipment Hours)	$23.00	157	$3,608.80	$0.00	$3,608.80
Pickup Truck Mileage	$0.55	4,986	$2,742.50	$0.00	$2,742.50
Dump Truck Mileage	$1.00	5,057	$5,057.00	$0.00	$5,057.00
(See Attached Breakdown)					
Supplies/Materials					
Pipe (15" diameter)	$10.90	2600	$9,590.14	$18,749.86	$28,340.00
Pipe (21" diameter)	$21.17	10310	$78,574.57	$139,688.13	$218,262.70
Pipe (24" diameter)	$26.50	4470	$43,828.35	$74,626.65	$118,455.00
Fittings/Concrete/Etc.	$5,956.73	11	$23,588.64	$41,935.36	$65,524.00
(See Attached Breakdown)					
Environmental and Regulatory Compliance					
Coordination with SHPO/USBR	$25,000.00	1	0	$25,000.00	$25,000.00
Reporting					
Submitting Progress and Final Reports	$72.48	16	$1,159.68		$1,159.68
Total Project Costs			**$378,914.67**	**$300,000.00**	**$678,914.67**

APPENDIX J - East Columbia Basin Irrigation District - BUDGET PROPOSAL BREAKDOWN
Installation of Conservation Pipelines - Blocks 40, 42, 44 & 46

SUPPLIES AND MATERIALS

BLOCK	LATERAL	LOCATION	FLOW (CFS)	PIPE SIZE (IN)	PIPE LENGTH (FT)	Pipe Price (per ft)	Pipe price incl. tax (per ft)	PIPE COST	FITTINGS/ CONC./ETC.	TOTAL COST
40	EL16B	FU 88 TO RD 9 NE	9	21	1640	$19.64	$21.17	$34,713.11	$6,050.00	$40,763.11
40	EL16B	FU88 TO RD 9 NE	9	21	1070	$19.64	$21.17	$22,648.19	$6,050.00	$28,698.19
42	EL29N3	CHO TO DIV BOX	12	24	920	$24.58	$26.50	$24,380.00	$6,500.00	$30,880.00
42	EL29N3	CHO TO DIV BOX	12	24	810	$24.58	$26.50	$21,465.00	$6,500.00	$27,965.00
42	EL29N3	DIV BOX TO DIV BOX	8	21	1520	$19.64	$21.17	$32,178.40	$6,050.00	$38,228.40
42	EL29N3	DIV BOX TO DIV BOX	8	21	1270	$19.64	$21.17	$26,885.90	$6,050.00	$32,935.90
44	EL63E	Headgate to Road 6	18	24	2740	$24.58	$26.50	$72,610.00	$6,500.00	$79,110.00
44	EL63F	STA 0+00 TO EL63F1	12	21	1330	$19.64	$21.17	$28,156.10	$6,050.00	$34,206.10
44	EL63F	STA 15+50 TO 50+23	9	21	3480	$19.64	$21.17	$73,671.60	$6,050.00	$79,721.60
46	EL74.8A7	HDGTE TO CHECK	10	15	1350	$10.11	$10.90	$14,715.00	$4,862.00	$19,577.00
46	EL74.8A7	CHECK TO FU 77	10	15	1250	$10.11	$10.90	$13,625.00	$4,862.00	$18,487.00
TOTAL					**17380**			**$365,048.30**	**$65,524.00**	**$430,572.30**

EQUIPMENT AND CONSTRUCTION LABOR

BLOCK	LATERAL	LOCATION	PIPE LENGTH (FT)	Labor (hr/ft)	Labor hours total	Hourly equipment (hr/ft)	Equipment hours total	Dump Truck mileage (mi/ft)	Dump Truck miles total	Pickup Truck mileage (mi/ft)	Pickup Truck miles total
40	EL16B	FU 88 TO RD 9 NE	1640	0.15	325.76	0.01	26.37	0.01	24.00	0.16	817.62
40	EL16B	FU88 TO RD 9 NE	1070	0.26	262.12	0.05	51.50	0.09	89.00	0.26	1393.39
42	EL29N3	CHO TO DIV BOX	920	0.15	137.48	0.01	11.13	0.01	10.00	0.16	345.05
42	EL29N3	CHO TO DIV BOX	810	0.15	121.04	0.01	9.80	0.01	9.00	0.16	303.80
42	EL29N3	DIV BOX TO DIV BOX	1520	0.39	591.11	0.07	105.27	0.33	503.00	0.32	4063.07
42	EL29N3	DIV BOX TO DIV BOX	1270	0.39	493.89	0.07	87.95	0.33	420.00	0.32	3394.80
44	EL63E	Headgate to Road 6	2740	0.15	409.44	0.01	33.15	0.01	30.00	0.16	1027.66
44	EL63F	STA 0+00 TO EL63F1	1330	0.39	517.22	0.07	92.11	0.33	440.00	0.32	3555.19
44	EL63F	STA 15+50 TO 50+23	3480	0.39	1353.32	0.07	241.00	0.33	1152.00	0.32	9302.29
46	EL74.8A7	HDGTE TO CHECK	1350	0.42	568.50	0.08	110.37	0.61	829.00	0.36	3545.87
46	EL74.8A7	CHECK TO FU 77	1250	0.42	526.39	0.08	102.20	0.61	767.00	0.36	3283.21
TOTAL			**17380**		**5306**		**871**		**4273**		**31032**

Appendix K

ECBID Equipment Rates

Object Label	Description	Type	Hourly Rate
Backhoe	Backhoes, per hour	E	$12.00
CIP	Construction In Progress	C	$0.00
Comp	Compressors	E	$10.00
ConcPump	Concrete Pump	E	$60.00
D Truck	Dump Truck-OGWRP	E	$5.99
Dozer	Dozers, per hour	E	$31.00
Dozer-JD	John Deer Dozer-OGWRP	E	$49.96
Dozer-Koma	Kamatsu Dozer-OGWRP	E	$85.63
Dump Tr	Dump Trucks, per mile	E	$1.00
DumpTruck	Dump Truck-Federal	E	$0.54
Excavate	Excavators, per hour	E	$31.00
Excavator	Volvo Excavator OGWRP	E	$61.63
Fuel Truck	Fuel/Lube Truck	E	$5.99
Gradall	Gradall, per hour	E	$12.00
Grader	Graders, per hour	E	$23.00
Hyd-Cran	Hydrocrane, per hour	E	$30.00
HydJet	HydroJet	E	$25.00
Labor	Labor	L	$0.00
LaborCst	Labor Cost	L	$0.00
Loader	Loaders, per hour	E	$12.00
Lowboy	Lowboy Tactor, Per Mile	E	$4.00
Matl	Materials	M	$0.00
Mower	Tractor/Mowers	E	$21.00
Pickup	Pickups, per mile	E	$0.55
Pump	2" Pump	E	$3.00
Rodder	Power Rodder	E	$25.00
Scraper	Scraper-OGWRP	E	$60.94
Tamper	Tamper	E	$9.00