

OREGON



WATER RESOURCES
DEPARTMENT

2020 SOLICITATION

FEASIBILITY STUDY GRANTS

GRANT APPLICATION

APPLICATION DEADLINE: BY 5:00PM ON OCTOBER 15, 2020

Application must be received by this date and time

Send application electronically to:

Mail application to:

OREGON WATER RESOURCES DEPARTMENT
Attention: Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, OR 97301

APPLICATION SUBMISSION INSTRUCTIONS

1. **When completing your application, use the** Application Instructions available at the OWRD Funding Opportunities, Applications, Forms, and Guidance webpage: <https://www.oregon.gov/OWRD/programs/FundingOpportunities/Pages/default.aspx>
2. Complete all sections in the spaces provided. An application must be submitted on the attached form provided by the Department. An explanation must accompany the application if any of the information required cannot be provided [OAR 690-600-0020(6)].
3. Please ensure that the Certification portion of Section II is signed with a live signature by the Applicant and, if applicable, the Co-Applicant.
4. Taking part in a Pre-Application Conference prior to applying is **highly** recommended. The pre-application conference request form is available on the OWRD Funding Opportunities Forms webpage. To learn more contact the Department.
5. Complete and sign the application checklist.
6. Electronic submission of application is the preferred method. You may scan a copy of the signed signature page and submit with your application if both documents are included in the same email.
7. If application is submitted in hard copy - use 8 ½” x 11” single sided, unstapled pages. Provide any attachments to the application on 8 ½” x 11” single-sided, unstapled pages.

8. Contact the Department at 503.986.0869 or WRD_DL_feasibilitystudygrants@oregon.gov if you have any questions.

FEASIBILITY STUDY GRANT APPLICATION CHECKLIST

Instructions: Use this checklist to ensure that your application is complete. An incomplete application will not be eligible for further review and consideration. This checklist must be completed and signed in order for your application to be considered complete.

SECTION A - Application

I. Study Information

- Study name and type(s) is complete and correct.
- The requested grant amount and previous Feasibility Study Grants for the study do not exceed \$500,000.
- The requested grant amount does not exceed 50% of the Total Cost of the Study.

II. Applicant Information

- All applicant and co-applicant name(s) and contact information is complete and correct.
- Application is signed by Applicant/Authorized Person.
- Application is signed by Co-Applicant/Authorized Person *OR* there is no co-applicant.

Note: If the project is awarded funding the co-applicant will be required to sign and be party to the grant agreement.

III. Study Location

- All questions have been addressed.
- Site plan map is attached.

IV. Feasibility Study Summary

- A brief (4-5 sentence) summary of the feasibility study and goal is included.

V. Feasibility Study Grant Specifics

- All questions have been addressed.
- Study key tasks are identified.

VI. Feasibility Study Budget

- All key tasks and budget items follow the Department's Budget Procedures and Allowable Costs guidance available on the OWRD Funding Opportunities Forms webpage.
- All budget information is accurate and complete.
- Administrative costs do not exceed 10% of total Grant Request.
- Key tasks listed in budget match those identified in Questions 13 and 14.

VII. Match Funding Information

- Matching Funds total, at a minimum, 50% of the Total Cost of the Feasibility Study.
- Match fund letters, indicating pending or secured match, are attached and equal the amounts listed in VI. Feasibility Study Budget.

VIII. Storage-Specific Questions

- All questions have been addressed *OR* the application is not for a storage project.
- Minimum Storage Specific Study Requirements are met and are incorporated into the study and key tasks.

SECTION B - Application Attachments

Instructions: Use this checklist to ensure required attachments are included with your application. All attachments to the application must be numbered as well as included in this list. For all attachments ensure documentation meets any criteria identified in the application instructions, Storage-Specific Guidance, and Guidance on Budget Procedures and Allowable Costs. For “other” optional attachments in excess of the three spaces provided, include a supplemental list.

Required Attachments:

- Attachment 1 – Site map (Question 3)
- Attachment 2 – Signed Landowner Agreement Forms (Question 5) to verify that you have authorized access to the lands on which the study would occur.
- Attachment 3 – Documentation of matching funds (Question 22) includes the following:
 - a) Match documentation for all match fund sources listed in the match fund table.
 - b) Match fund documentation that clearly identifies the dollar amount and describes the work to be accomplished with the match.
- Attachment 4 (*Select Storage Projects Only: if you answered “yes” to any part of Question 23*) – Description of approach to address storage-specific requirements; see the Storage-Specific Study Requirements: Application Guidance for the minimum requirements. *NA*

Optional Attachments:

- Letters of support (Question 13): Attachment # 5
- List and description of key tasks (Question 14): Attachment #
- Secured permits and regulatory approvals needed to implement the project (Question 15): Attachment #
- Other: Potential Tax Lots and Property Owners of Record Attachment # 6
- Other: Attachment #
- Other: Attachment #

All required items within Section A and B of the application checklist are completed and all identified criteria are addressed to the best of my knowledge.

Signature of Applicant/Authorized Person: *Kate Fitzpatrick* Date: 10/10/2020

Print Name: Kate Fitzpatrick Title: Operations Director, Deschutes River Conservancy



**FEASIBILITY STUDY GRANTS
2020 GRANT APPLICATION**

I. Study Information

Study Name: Dry River Canyon Water Conservation Study

Type of Feasibility Study: Water Conservation Reuse
 Storage (Above-Ground) Storage (Below-Ground)
 Storage (Other)

Requested Grant Amount (must be no more than 50% of Total Study Cost): \$27,760

Total Cost of Feasibility Study: \$ 55,520

Note: Request(s) may not exceed \$500,000 per project.

II. Applicant Information

Applicant Name: Deschutes River Conservancy	Co-Applicant Name: Central Oregon Irrigation District
Address: 700 NW Hill Street, Suite Bend, OR 97703	Address: 1055 SW Lake Rd Redmond, OR 97756
Phone: 541-382-4077 x14	Phone: 541-548-6047
Fax:	Fax:
Email: natasha@deschutesriver.org	Email:

Principle Contact: Natasha Bellis	Fiscal Officer: Tara MacMillan
Address: 700 NW Hill Street, Suite 1 Bend, OR 97703	Address: 700 NW Hill Street, Suite 1 Bend, OR 97703
Phone: 541-382-4077 x14	Phone: 541-382-4077 x12
Fax:	Fax:
Email: natasha@deschutesriver.org	Email: tara@deschutesriver.org

Certification: I certify that this application is a true and accurate representation of the proposed work for a project feasibility study and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant and Co-Applicant (if applicable) certifies that they are aware of the requirements of an Oregon Water Resources Department grant, have read and agree to all conditions within the sample Feasibility Study Grant Agreement and are prepared to conduct the study if awarded.

Signature of Applicant/Authorized Person: Kate Fitzpatrick Date: 10/10/2020

Print Name: Kate Fitzpatrick Title: Operations Director

Signature of Co-Applicant/Authorized Person: *Shon Rae*_____ Date: 10/10/2020_____

Print Name: Shon Rae Title: Deputy Managing Director

III. Feasibility Study Summary

1. Please provide a brief, 4-5 sentence summary of the feasibility study. This summary should include a brief description of the goal of the water conservation, reuse, or storage project being studied and the purpose of the study. Please refer to the Feasibility Study Grant Application Instructions for additional information on what to include in your study summary.

The proposed study will assess primary irrigation water runoff points into Dry River Canyon, a drainage to the Crooked River that runs parallel to Central Oregon Irrigation District's (COID) Central Oregon Canal (COC), to determine the feasibility of reducing water waste through the construction of a re-regulation system, implementation of targeted on-farm efficiency projects, and other strategies as identified through the course of this study. Implementing strategies to reduce irrigation water runoff will eliminate waste, improve water use efficiency, and improve water quality in the Crooked River. Specifically, the proposed study will review and evaluate existing data to predict primary points of discharge along COID's COC, collect data on these assumptions via a field investigation, and then evaluate the feasibility and efficacy of reducing these discharge points through the implementation of various strategies. DRC and COID (Applicants) will work with Black Rock Consulting, Inc. (BRC), an engineering firm, and local Oregon Water Resources Department (OWRD) staff to complete the study.

IV. Study Location

Instructions: Please answer the following questions about the location of the feasibility study and project being evaluated.

2. **Location.** Please provide the following information about the study and project location.
 - a. Latitude/Longitude (in decimal degrees): Lat: 44.337970352/Long: -121.065319997
 - b. County: Deschutes/Crook
 - c. Watershed/Basin (HUC 10 number): 1707030508
3. **Site Plan Map.** Please attach a site plan map showing the following and label as Attachment #1:
 - a. Feasibility study area boundaries
 - b. Project area (if implemented)
 - c. True north arrow
 - d. Map title and legend
 - e. Latitude and longitude
 - f. Property boundaries
 - g. Surface water bodies
 - h. Sampling locations (if proposed)
 - i. Points of Diversion and Place of Use, labeled for each water right (if applicable)

- 4. Properties Impacted or Accessed During Study.** Check the box which best describes the properties involved in the proposed Feasibility Study.
- This Feasibility Study will not impact or access lands.
 - This Feasibility Study will impact or access lands. Complete the table below to identify any properties where access is required for the feasibility study or on which the study would occur. *Add rows as needed.*
Please see narrative below table and refer to Attachment 6.

Tax Map Number	Tax Lot Number	Ownership Type (<input checked="" type="checkbox"/> One)	Property Owner of Record
Please see narrative below table and Attachment 6		<input type="checkbox"/> Public <input type="checkbox"/> Private	
		<input type="checkbox"/> Public <input type="checkbox"/> Private	
		<input type="checkbox"/> Public <input type="checkbox"/> Private	
		<input type="checkbox"/> Public <input type="checkbox"/> Private	

As part of the Dry River Canyon Water Conservation Study, Applicants will identify properties for field investigation via review and evaluation of existing data. See descriptions of Tasks 1-3 in Question 14 below. Once these properties have been identified (see Task 3), Applicants will secure access agreements (see Task 4). Additionally, COID uses its authority under ORS 545.237 (Right to enter upon lands for the inspection and maintenance of water works) to “enter upon land of a water user” and follow irrigation water. Under this statute, COID must “provide adequate and appropriate notice.” ORD 545.237(1)

Please see Attachment 6 for a list of potential tax lots and property owners of record.

- 5. Landowner Agreement.** Attach a signed Landowner Agreement form for each property listed in Question #4 where access to the property is required or on which the Feasibility Study would occur. Attach Landowner Agreement form(s) only for those properties involved in the Feasibility Study and label Attachment #2. (Landowner Agreement forms may be found on the [Applications, Forms and Guidance](#) webpage.)
- Where a single landowner entity is the owner of record for multiple properties, one form may list the multiple properties owned by that entity.
 - For *public* lands attach the landowner form or other documented authorization from the federal or state government property owner allowing the feasibility study activities **or** documentation that demonstrates such authorization is being pursued.

As part of the Dry River Canyon Water Conservation Study, Applicants will identify properties for field investigation via review and evaluation of existing data. See descriptions of Tasks 1-3 in Question 14 below. Once these properties have been identified (see Task 3), Applicants will secure access agreements (see Task 4). Additionally, COID uses its authority under ORS 545.237 (Right to enter upon lands for the inspection and maintenance of water works) to “enter

upon land of a water user” and follow irrigation water. Under this statute, COID must “provide adequate and appropriate notice.” ORD 545.237(1).

6. Properties Impacted or Accessed During Implementation. Check the box which best describes the properties involved in future project Implementation. Identify any lands that would be impacted or accessed during future project implementation. Check all that apply and provide the requested information.

- e. The proposed project, if implemented, will only impact or access lands already identified in Question 4 (must have selected box b under question 4).
- f. The proposed project, if implemented, will likely impact or access lands during implementation, but those lands likely to be accessed or impacted have not been identified, OR this question is not applicable. If this box (6b) is checked, do not complete the table below.

Please see Attachment 6 for a list of potential tax lots and property owners of record.

- g. The proposed project, if implemented, is highly likely to impact or access additional lands during implementation. If this box (6c) is checked, complete the table below to identify any additional properties (those not already identified under question (4)) where access is required for future project implementation. *Add rows as needed. No Landowner Agreement forms are required for lands listed only under this question.*

Tax Map Number	Tax Lot Number	Ownership Type (<input checked="" type="checkbox"/> One)	Property Owner of Record
		<input type="checkbox"/> Public <input type="checkbox"/> Private	
		<input type="checkbox"/> Public <input type="checkbox"/> Private	
		<input type="checkbox"/> Public <input type="checkbox"/> Private	
		<input type="checkbox"/> Public <input type="checkbox"/> Private	
		<input type="checkbox"/> Public <input type="checkbox"/> Private	

V. Feasibility Study Specifics

Instructions: Please answer all questions in this section. As applications are expected to result in additional pages to complete this section, you may attach your responses on a separate document as long as you indicate the question numbers in your response.

7. Water Need. Describe the identified water need (local, regional, or statewide). Please provide data or a narrative substantiating the need.

There is a need to conserve water within COID both locally—on the COC near Dry River Canyon—and basin-wide.

1. Conserving water is a basin-wide priority

The Upper Deschutes Basin has a story familiar to many basins in the state: over-appropriated streams, continued demand for reliable agricultural water, growing municipal water needs, and increased pressures under projected climate change scenarios. Basin partners have a long history of collaborative success developing and implementing projects and programs to meet instream and out-of-stream water needs. Partners have restored over 200 cfs instream in key reaches like Whychus Creek, the Middle Deschutes River, Tumalo Creek, and the Crooked River while increasing the reliability of irrigation rights. Despite this progress, flow issues persist in many stream reaches. Most notably, the volume of water and complexity of solutions needed to restore the Upper Deschutes River upstream of Bend requires a high level of coordination. The 2014 listing of the Oregon spotted frog under the Endangered Species Act accelerated the urgency of restoration in this reach. It also intensified risk to several irrigation districts in the basin, particularly North Unit Irrigation District, the junior water right holder and the district with the largest number of acres in commercial agricultural production, which relies heavily on stored water. A nearly completed Habitat Conservation Plan will set aggressive streamflow restoration targets in the Upper Deschutes River that irrigation districts will need to meet incrementally over the next 30 years.

Stakeholders in the Deschutes Basin recently completed the Upper Deschutes River Basin Study (Basin Study), designed to consider long-standing water management issues in the Upper Deschutes Basin. The Basin Study was funded jointly by the Bureau of Reclamation (Reclamation) and OWRD and is a collaborative product of the Upper Deschutes Basin Study Work Group (BSWG), which comprised 38 stakeholders. The purpose of the study was to assess current and future water supply and demand in the Upper Deschutes Basin and to identify a range of potential strategies to address projected imbalances. Key water supply needs in the basin involve agricultural, instream, and municipal objectives.

The study identified that median shortages associated with meeting instream water rights and existing irrigation demands are approximately 130,000 AF. Shortages range up to 300,000 AF in dry years. To meet higher flows that will be required to meet Endangered Species Act needs under the HCP, median shortages are approximately 200,000 AF, ranging up to 400,000 AF in dry years.

Based on identified water supply shortages, the Basin Study examined potential water management options that could help meet future needs in the basin. Desired outcomes for the Basin Study were to identify and evaluate options for addressing low and altered streamflows to benefit ecological conditions while maintaining or improving water supply reliability and/or financial security for irrigated agriculture, and while planning to meet future groundwater mitigation needs for municipal, industrial, and commercial uses.

One option the Basin Study examined to help address water supply needs in the basin was water conservation. The water conservation option considered specific tools related to agricultural demands, including piping district canals, piping privately owned laterals, and on-farm infrastructure upgrades (e.g., flood-to-sprinkler shifts in irrigation). Water conservation

can decrease irrigation demand in particular areas, making water available to meet other water needs in the basin and possibly increasing water security for other users.

Other benefits associated with water conservation infrastructure approaches include the following.

- Irrigation conservation is a proven tool in the Upper Deschutes Basin for increasing water supply.
- Upgrades to infrastructure improve management and operations.
- Infrastructure improvements do not affect the number or locations of irrigated acres.
- Piping canals and laterals increases opportunities for other tools such as water marketing.

2. Local need to conserve water on COID's COC

- a) Reducing irrigation water runoff into Dry River eliminates waste, improves COID and patron operations, and conserves water for other uses.

The Central Oregon Irrigation District (COID) was largely developed over 100-years ago to provide irrigation water to patented lands in the Central Oregon Region. The district currently serves approximately 45,000 acres of irrigated lands located from Bend, Oregon, northerly as far as the Crooked River and easterly as far as Powell Butte. The District also conveys water to the Lone Pine Irrigation District located on the north side of the Crooked River easterly of Terrebonne, Oregon.

Irrigation water transmission through COID is primarily from two diversions: The Pilot Butte Canal (PBC) diversion and the Central Oregon Canal (COC) diversion from the Deschutes River. The COC diversion is located in the southern end of the City of Bend, and the COC conveys irrigation water to farms for tens of miles. Applicants are submitting two applications under this grant offering: one for projects on the COC and one for a project on the PBC. In consultation with OWRD, Applicants felt the focus, needs, and locations of these projects were sufficiently different to warrant two separate applications.

The COC is paralleled by a natural drainage known as Dry River. Dry River Canyon is a large watershed and drains Bureau of Land Management and irrigated land. The watershed's southern boundary is near Brothers, Oregon and extends northwestward toward Powell Butte, terminating at its confluence with the Crooked River at approximately river mile 33. While most of Dry River carries no natural flow and if so, only does so seasonally, in years of high snowpack or with large rain events, the lower section of Dry River frequently carries "wastewater" from irrigation runoff and tailwater spills from irrigated land on COID's COC during the irrigation season. The flow from this water can range from 0-33 cfs, with an average of 4 cfs over the course of the season, as measured at a weir operated by COID near the mouth of Dry River Canyon.

The wastewater flowing into Dry River Canyon is the result of two main inputs: surface water runoff and tailwater spills. Surface water runoff is primarily the result of flood irrigation—the least efficient irrigation technique—on properties adjacent or near Dry River Canyon.

Tailwater spills—located at the terminus of the COC—are primarily the result of operational inefficiencies due to the leaky, open earth COC that results in the diversion and “push” of more water to ensure delivery to patrons tens of miles away. By exploring strategies to both better control the “push” water—through a series of re-regulation ponds and measurement devices—and reduce surface water runoff—by converting flood irrigation to sprinkler irrigation—COID and its patrons will improve operations, eliminate waste, and conserve water.

- b) Reducing irrigation water runoff into Dry River improves water quality in the Crooked River and the Lower Deschutes River.

Water quality has long been identified as a resource concern in the Crooked River. The Oregon Department of Environmental Quality lists the Crooked River on its 303(d) listings for failure to meet state water quality standards for the following parameters: temperature, turbidity, dissolved oxygen, and pH. Additionally, of the water comprising Lake Billy Chinook (LBC) and in turn released into the Lower Deschutes River, the Crooked River is notable for its number of water quality standard exceedances, the duration of these exceedances, and the geographic extent of the 303(d) listings throughout the Deschutes River Basin. This compromises water quality in both the Crooked River and the Lower Deschutes River, increasing algal growth and potentially harming fish production in the Deschutes Basin. This is particularly the case since the construction of the Selective Water Withdrawal (SWW) at the Pelton Round Butte Complex in 2010. The SWW allows for the release of water that more closely matches the temperature the river would have been if the Pelton Round Butte Project were not in place: warmer spring temperatures and cooler late summer-early fall temperatures. This more natural thermal pattern facilitates spawning, emergence, and growth of anadromous fish. It also means the release of a greater proportion of Crooked River water downstream into the Lower Deschutes River.

A recent Portland General Electric Study on water quality for the Pelton Round Butte Project and the Lower Deschutes River found that impaired water quality in the Crooked River is adversely impacting water quality in the Lower Deschutes River. The study reports that the Crooked River had the greatest concentrations of phosphorus and nitrogen among the three river inlets to LBC, with the Crooked River contributing 86% of the dissolved nitrate in LBC. Compared to the Deschutes and Metolius Rivers, the Crooked River is also the most turbid and warmest (on average) inlet into LBC. The study indicates that irrigation return flows along the Crooked River contribute to the Crooked River’s poor water quality with their high concentrations of nitrogen and phosphorus.

Nutrient inputs from the Crooked River into LBC are transported downstream to the LDR where data show an increased production of blue-green and green algae likely from increased temperature and availability of nitrogen. Dense blooms of algae and cyanobacteria are an undesirable situation, as cyanobacteria are a poor food source for zooplankton, which serve as a major food source for some fish. Recent literature indicates that the best strategy for reducing production of blue-green and green algae in LBC, and hence the LDR, is a dual approach that reduces both nitrogen and phosphorus. The study notes since most of the phosphorus entering LBC is derived from natural weathering, the greatest opportunity for reducing phosphorus inputs to LBC is through reduction of anthropogenic sources, found

primarily in the Crooked River. The vast majority of nitrate inputs are also derived from the Crooked River, specifically from irrigation return flow associated with crop production.

The Crooked River Watershed Council (2010-2014) took water quality samples from Dry River near its confluence with the Crooked River from 2010-2014. This data showed elevated nitrogen, phosphorus, and E. coli levels. Reducing irrigation runoff into Dry River would help reduce nitrogen and phosphorus loads into LBC and the LDR, improving habitat conditions for fish.

Sources:

Eilers, J. and Vache, K. (2019). Water Quality Study for the Pelton Round Butte Project and the Lower Deschutes River: Monitoring & Modeling. Report prepared for Portland General Electric & The Confederated Tribes of the Warm Springs Reservation of Oregon. Retrieved from: <https://www.portlandgeneral.com/-/media/public/corporate-responsibility/environmental-stewardship/water-quality-habitat-protection/deschutes/documents/water-quality-study/pge-ctwsro-water-quality-study-2019-june.pdf?la=en>

Upper Deschutes Basin Study. (2019). Draft Final Report. U.S. Department of Interior—Bureau of Reclamation and Oregon Water Resources Department. Retrieved from: <https://www.deschutesriver.org/PROVISIONAL%20Draft%20Final%20Report%20U%20Deschutes%20Basin%20Study%2020190701.pdf>

8. Study Goal. Describe the feasibility study goal.

The goal of this study is to assess primary irrigation water runoff points into Dry River Canyon to determine the feasibility of reducing this waste through the construction of re-regulation systems, the implementation of targeted on-farm efficiency projects, and other strategies as identified through the course of this study. Information obtained from the data review, hydrologic study, and field investigation components of this study will help the Applicants pinpoint the most efficient strategies and locations for potential implementation. The study will also identify regulatory requirements for potential project implementation and make recommendations for monitoring and quantifying water conservation and water quality outcomes associated with the project.

9. Study Scope. Describe how the proposed study would achieve the goal.

The proposed feasibility will focus on identifying the biggest points of irrigation water runoff into Dry River Canyon and then use this information to determine how the construction of re-regulation systems and the implementation of targeted on-farm efficiency projects could help reduce these inputs. Applicants will also evaluate other strategies that are identified through the course of this study.

A. Identifying biggest points of discharge into Dry River Canyon.

1. Review, evaluate, and summarize existing data: The Applicants will work with their consultant, BRC, to obtain, evaluate, and summarize existing data on water quantity, COC soil types, aerial imagery including available LiDAR, and COID information on on-farm water use, to predict primary points of irrigation water discharge along COID's COC. As part of this review, BRC will identify and summarize any data gaps that may be pertinent to this study.
 2. Hydrology Study: The Applicants will work with BRC to hire a qualified hydrologist to conduct a traditional study of 10-, 50-, and 100-year runoff estimates based on a 20-year period of record. The study will include an evaluation and estimate of annual peak, average, and low-flow estimates from runoff, and should identify summer thunderstorm influences as well. The purpose of this work will be to supplement available irrigation runoff information with natural hydrology information as it relates to the Dry River. This information will help quantify Dry River flow attributed to irrigation.
 3. Field Investigation: BRC and COID staff will perform a field investigation of properties identified from the data review and hydrology study listed above, during irrigation season, to document specific points of discharge, primary irrigation spills, existing weirs that may be operational, and water at the tail end of COID's COC.
 4. Mapping: COID will develop an aerial-based Dry River Canyon Basin Map that includes COID tributary farms, as located, and with indicators of noted discharges into Dry River Canyon and existing measurement points (that may be a map layer). Other information may be included in the map such as on-farm practices and soil types.
- B. Applying findings from A, above, to assess the feasibility of strategies to reduce irrigation water runoff.
1. Assess the feasibility and efficacy for a re-regulation system on the COC at the upper limits of the problem area, identified during this study, of the Dry River Canyon.
 2. Evaluate the introduction of an additional re-regulating pond(s) at the tail end of the COC.
 3. Assess the potential for telemetry and mechanical devices to control COC flows into re-regulation based upon tail water pond elevations.
 4. Assess the feasibility and efficacy of reducing irrigation water runoff by implementing on-farm efficiency projects on targeted properties.
 5. Assess the feasibility of other strategies identified through the course of the study.

10. Water Availability. Please provide evidence that water is available to meet the above described need. Evidence can include regulatory and physical information regarding water availability.

COID serves patrons on the COC with water diverted under Certificate 94956. This certificate has two priority dates—1900 and 1907—for live flow on the Deschutes River. The 1900 water

right, with a rate of 913 cfs, is considered a senior water right that is reliable roughly 100% of the time. The 1907 water right, with a rate of 367 cfs, is reliable roughly 75-80% of the time.

This study will investigate the feasibility of conserving water through the elimination of waste on COID's COC. Patrons on the COC are not water deficient. At this point the Applicants do not believe implementation of the project will require additional water rights. Though it is possible an additional water right—such as a storage permit and right—may be required when assessing the feasibility of alternative strategies (Task 9). The Applicants will work with the Oregon Water Resources Department (OWRD) when assessing all potential strategies to reduce irrigation water runoff into Dry River Canyon (Task 7-9).

11. Community Benefit. Describe how implementation of the project could benefit and/or impact the community.

Implementation of strategies to reduce irrigation water runoff into Dry River Canyon will have multiple community benefits.

- 1) Modernizing irrigation application systems represents a significant opportunity for water conservation. Newer irrigation technologies provide better and more uniform application of water and have greater efficiencies. Implementation of such efficiency upgrades results in less water needed to provide the same amount of water to the crops. Often these more efficient systems improve crop yields and can facilitate the growth of more valuable crops. Additionally, the conveyance system's efficiency is improved along with the application system, since pressurized water, and therefore piping, is required for modern application systems.
- 2) Measurable reductions in irrigation surface water runoff and operational tailwater spills into Dry River Canyon will improve water use efficiency for COID and patrons, eliminating waste and potentially making water use available for other uses. Many patrons on the COC must manage excess water, which is burdensome and expensive.
- 3) Measurable reductions in irrigation surface water runoff and operational tailwater spills into Dry River Canyon will reduce nitrogen and phosphorus loads into the Crooked River, LBC, and ultimately LDR, improving habitat conditions for both reintroduced and wild salmonids and native fish populations.

12. Community Support. Describe the level of community support and commitment associated with the study. This may include any collaborative water planning efforts undertaken to identify the project or study.

There is a high level of community support generally for water conservation in the Deschutes Basin, illustrated by the high level of participation and involvement in the Basin Study Work Group (described in Question 7, above). Stakeholders involved in this process represented a broad range of community interests in balancing water needs in the Deschutes Basin and included local entities, Tribal entities, state and federal agencies, local government, municipalities, irrigation districts, and non-governmental organizations. Additionally, the Basin Study specifically identifies water conservation as an option for balancing current and future water needs in the basin. Many of these community partners are now members of the

recently launched Deschutes Basin Water Collaborative, which remains heavily engaged in implementing and accelerating water conservation work basin wide.

There is also a high level of community support for reducing irrigation water runoff into Dry River Canyon specifically to improve water quality in the Crooked River. DRC is involved in the recently created Crooked River Water Quality Partnership formed to strategically address water quality needs in the Crooked River, with particular emphasis on reducing elevated nitrogen inputs. Partnership members include the Crooked River Watershed Council, DRC, Ochoco Irrigation District, Crook County Soil and Water Conservation District, City of Prineville, Crook County, and Trout Unlimited.

13. Letters of Support. List letters of support (name and/or affiliation of sender). Attach copies of the letters to your application.

Confederated Tribes of Warm Springs
Crooked River Watershed Council
Trout Unlimited
Crook County Soil and Water Conservation District

14. Study Key Tasks. Identify the study key tasks necessary to conduct the feasibility study using the following format and including as many tasks as necessary to complete the study. In the event that your study receives grant funding, the key tasks identified will be incorporated into your grant agreement as the “Statement of Work.” Please note: Project management and administration are common functions within a specified key task and not separate key tasks themselves.

Task number. Key Task Title

- **Task schedule:** The approximate dates during which the key task will be completed.
- **Description of key task activities:** Include specific details of the task such as task purpose, planned approach, appropriate technical information, proposed methods, and rationale for the approach.
- **Qualified personnel that will complete task:** Include a description of the professional experience, professional qualifications and licensure of personnel necessary for task work.

Task 1. Review and Evaluate Existing Data

- Task schedule: August 2021-September 2021
- Description of key task activities: The Applicant's consultant, Black Rock Consulting, Inc. (BRC), will work with the Applicants and state and federal agencies to obtain, review, and evaluate existing data including water quantity, soils maps, aerial imagery, and LiDAR. BRC will also identify any data gaps, and if applicable, develop a summary plan to address data gaps that may or may not affect the scope of work and tasks identified here.
- Qualified personnel that will complete task:

BRC

Kevin Crew, Principal: Kevin is a registered Professional Engineer in Oregon and several other states, with 33 years of professional experience in Civil Engineering and water resource related projects. He is President of Black Rock Consulting, Inc., a Bend, Oregon company, focused on irrigation system hydraulic modeling, planning, designing, and implementing projects, including fish screening, canal and lateral lining, piping projects, and sustainable hydroelectric power projects. His work is currently on two continents and in the Hawaiian Islands, but mostly focuses on the modernization needs of eight irrigation districts in Central Oregon.

COID staff

Baxter Davies, Operations Technician: Baxter has 5 years of experience at COID; he manages COID's On-farm Program and assists with operational work, which includes site visits, compiling raw information, facility locates, map making, and assisting landowners in on-farm project planning. Baxter has a BS from OSU with a minor in Fisheries and Wildlife

Leslie Clark, Director of Water Rights: Leslie has worked for COID for 19 years, working directly with COID patrons to manage water rights on their lands. She prepares and submits water right transactions with Oregon Water Resources Department. Over the years, Leslie has developed numerous policies and procedures for COID. She also works with other irrigation districts, and state and local government entities, to meet water needs in the Deschutes Basin. Leslie also serves as a Deschutes Soil and Water Conservation District board director.

Task 2. Hydrology Study

- Task schedule: October 2021-December 2021
- Description of key task activities: A qualified hydrologist will perform a hydrology study of 10-, 50-, and 100-year runoff estimates based on a 20-year period of record. The study will include an evaluation and estimate of annual peak, average, and low-flow estimates from runoff, and should identify summer thunderstorm influences as well. The purpose of this task will be to supplement available irrigation runoff information with natural hydrology information as it relates to the Dry River.
- Qualified personnel that will complete task: Applicants have not yet chosen qualified personnel for this task. Applicants will work with BRC to choose an appropriate subcontractor to perform the Hydrology Study. BRC estimated the amount for this Task based on previous studies.

Task 3. Identify Properties for Field Investigation

- Task schedule: April 2022-August 2022
- Description of key task activities: BRC will compile its evaluations and analyses from Task 1 and Task 2, and, in consultation with COID, identify key properties along COID’s COC where the highest discharge rates are expected. BRC will work with COID staff and the hydrologist and will walk key areas of the Dry River Canyon, during irrigation season, to document points of interest such as any primary irrigation spills, existing weirs that may be operational, the tail end of the COC, etc.
- Qualified personnel that will complete task:

BRC

Kevin Crew, Principal

DRC staff

Natasha Bellis, Program Manager: Natasha has twelve years of experience negotiating and completing water right transactions that result in streamflow restoration. She holds a MS in Environmental Studies and a JD in Environmental and Natural Resource Law.

Kelsey Wymore, Project Coordinator: Kelsey has six years of experience assisting in water right transactions that result in streamflow restoration and leads DRC’s monitoring efforts.

COID staff

Leslie Clark, Director of Water Rights

Baxter Davies, Operations Technician

Kelley Hamby, Operations Manager: Kelley has been with the district for almost a decade. Kelley began his career as a ditchrider before working in water rights and beneficial use. He served the district as assistant watermaster before accepting his current role. Kelley’s current responsibilities include oversight of maintenance and operations of district facilities as well as Crane Prairie Dam.

Cary Penhollow, Watermaster: Cary has 20 years of experience managing water flows, conveyance, and delivery operations at COID. Cary also manages the district's eight ditchriders.

Task 4. Secure Access Agreements

- Task schedule: April 2022-August 2022
- Description of key task activities: DRC will work with COID to contact property owners of record for the properties identified in Task 3 and obtain access agreements to conduct field investigations of irrigation water runoff.
- Qualified personnel that will complete task:

DRC staff

Natasha Bellis, Program Manager
Kelsey Wymore, Program Coordinator

COID staff

Leslie Clark, Director of Water Rights
Baxter Davies, Operations Technician
Shon Rae, Deputy Managing Director: Shon has been with COID for 6 years. She has rebranded the district, developed a strong social media following, implemented multiple technology upgrades, improved processes in operations, communications, and land use planning, and has been an integral part of the district irrigation modernization efforts and strategic planning.

Task 5. Field Investigation

- Task schedule: April 2022-August 2022
- Description of key task activities: After obtaining landowner access agreements, BRC, DRC staff, and COID staff will coordinate and perform field investigations, during the irrigation season, of properties identified in Task 3, to document points of interest such as any primary irrigation spills, existing weirs that may be operational, and water at the tail end of COID's COC. This task includes proper notice of access to landowners per the agreements in Task 4.
- Qualified personnel that will complete task:

BRC

Kevin Crew, Principal

DRC staff

Natasha Bellis, Program Manager
Kelsey Wymore, Project Coordinator

COID staff

Baxter Davies, Operations Technician
Kelly Hamby, Operations Manager
Cary Penhollow, Watermaster

Task 6. Mapping

- Task schedule: September 2022
- Description of key task activities: COID staff will use information summarized in Tasks 1-5 to develop an aerial-based Dry River Canyon Map that will include COID farms served by the COC, with indicators of noted discharges into Dry River and existing measurement points (that may be a map layer). The map may include other relevant information as identified by the Applicants
- Qualified personnel that will complete task:
COID staff
Leslie Clark, Director of Water Rights
Baxter Davies, Operation Technician

Task 7. Reregulation Assessment

- Task schedule: September 2022-November 2022
- Description of key task activities: BRC, in consultation with COID staff, will investigate the potential for a re-regulation system on the COC at the upper limits of the runoff area identified during this study. BRC and COID staff will evaluate the introduction of an additional re-regulating pond at the tail end of the COC and assess the potential for telemetry and mechanical devices to control COC flows into a re-regulation system based upon tail water pond elevations. DRC staff will provide input and project management oversight.
- Qualified personnel that will complete task:
BRC
Kevin Crew, Principal

DRC staff

Natasha Bellis, Program Manager

Kate Fitzpatrick, Program Director: Kate develops and implements collaborative strategies to restore water to the rivers and streams of the Deschutes Basin. She coordinated the Basin Study Work Group, a multi-stakeholder collaborative group managing a \$1.5 million study to meet the water needs in our rivers and our community over the next 50 years. Kate joined the DRC team in 2004. She has a BA in Geology from Colgate University and a MS in Collaborative Natural Resource Management from the University of Oregon.

COID staff

Shon Rae, Deputy Managing Director

Leslie Clark, Director of Water Rights

Kelly Hamby, Operations Manager

Cary Penhollow, Watermaster

Task 8. On-farm Improvements Assessment

- Task schedule: September 2022-November 2022
- Description of key task activities: BRC and DRC staff will work with COID to obtain an inventory of current on-farm water use on farms near and adjacent to Dry Canyon. DRC staff, BRC, and COID staff will evaluate this information and assess the potential outcomes of implementing on-farm efficiency projects on various properties. BRC and the Applicants will then prioritize properties that realize the greatest return on investment to target for implementation of on-farm efficiency projects.
- Qualified personnel that will complete task:
BRC
Kevin Crew, Principal

DRC staff

Kate Fitzpatrick, Program Director
Natasha Bellis, Program Manager

COID staff

Shon Rae, Deputy Managing Director
Leslie Clark, Director of Water Rights
Baxter Davies, Operations Technician
Kelly Hamby, Operations Manager

Task 9. Identification of Alternative Strategies

- Task schedule: September 2022-November 2022
- Description of key task activities: BRC will identify other strategies determined during the course of the work, discuss with the interested parties, and share those with COID and DRC staff. BRC and the Applicants will discuss these strategies and assess further courses of evaluation.
- Qualified personnel that will complete task:
BRC
Kevin Crew, Principal

DRC staff

Kate Fitzpatrick, Program Director
Natasha Bellis, Program Manager

COID staff

Shon Rae, Deputy Managing Director
Leslie Clark, Director of Water Rights
Cary Penhollow, Watermaster
Kelly Hamby, Operations Manager

Task 10. Draft Summary Report

- Task schedule: December 2022
- Description of key task activities: BRC will develop a summary report, given the findings from the study and related recommendations for minimizing irrigation water runoff into the Dry Canyon, and circulate the summary report to the Applicants and agency partners to obtain comments and recommendations. BRC will incorporate comments and recommendations into the final report.
- Qualified personnel that will complete task:
BRC
Kevin Crew, Principal

DRC staff

Kate Fitzpatrick, Program Director
Natasha Bellis, Program Manager

COID staff

Shon Rae, Deputy Managing Director
Leslie Clark, Director of Water Rights
Cary Penhollow, Watermaster
Kelly Hamby, Operations Manager

Task 11. Report of Findings and Recommendations

- Task schedule: January 2023
- Description of key task activities: BRC will draft a Report of Findings and Recommendations for the Dry River Canyon Water Conservation Study. BRC will host a meeting of with the Applicants and agency partners to present the Report and receive feedback. BRC will also circulate the report for comments and either include this feedback in the Report or resolve issues with appropriate parties.
- Qualified personnel that will complete task:
BRC
Kevin Crew, Principal

DRC staff

Natasha Bellis, Program Manager
Kate Fitzpatrick, Program Director

COID staff

Shon Rae, Deputy Managing Director
Leslie Clark, Director of Water Rights
Cary Penhollow, Watermaster
Kelly Hamby, Operations Manager

Copy and paste additional tasks as needed.

15. Study Task Scheduling. Estimated duration of feasibility study: August 2021 to January 2023

Place an “X” in the appropriate column to indicate when each task of the project would take place. Study tasks should match those listed as part of your response to the previous question.

Feasibility Study Key Tasks (Add additional rows as needed)	Grant year				Grant year				Grant year			
	2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Task 1: Review and evaluate existing and historic water quantity data	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 2: Hydrology study	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 3: Identify Properties for Field Investigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 4: Secure Access Agreements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 5: Field investigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 6: Mapping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 7: Reregulation Assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 8: On-farm Improvements Assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 9: Identification of Alternative Strategies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 10: Draft Summary Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 11: Report of Findings and Recommendations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Feasibility Study Water Rights. Identify any water rights required to **conduct** the proposed Feasibility Study below. Check all of the following that apply and provide the information requested:

- h. No water rights are required to complete the proposed study.
- i. The proposed study requires a new water right or other water right transactions to **conduct** the study. If checked, list the transaction(s) required (e.g., new right, transfer, etc.):
- j. The applicant has legal access to a water right that will be used to **conduct** the study. The proposed study requires a water right, and the applicant holds or has been given permission to utilize the water right(s) for the proposed study. If checked, list all water rights required for the study in the table below, adding rows as needed. See the Application Instructions for further guidance, including how to find water right information.

Water Right Number (Include prefixes, if applicable, e.g., CW 12345)	Is this an application, permit, certificate, limited license, special or final order, transfer, decree, lease, or claim? Enter "New right Needed" below if a new water right is needed to do this work.	Tax Lot IDs within the Place of Use where water will be used to complete the study

17. Project Implementation Water Rights. Identify any water rights needed to implement the proposed Project below. Check all of the following that apply and provide the information requested:

- k. The applicant does not know what water rights or water right transactions are required for the project. That will be determined through this study or other effort at a future date.
- l. The proposed project requires a new water right or other water right transactions. If checked, list transaction(s) required (e.g., new right, transfer, etc.):
- m. The applicants hold the water right(s) required for the project. If checked, include list of rights in the table below, adding rows as needed. See the Application Instructions for further instruction, including how to find water right information.

Water Right Number (Include prefixes, if applicable, e.g., G 00010)	Is this an application, permit, certificate, limited license, special or final order, transfer, decree, lease, or claim?	Water Right Amount			Tax Lot IDs within the Place of Use where water will be used to implement the proposed project
		Max Volume (cfs)	Max Rate (cfs)	Duty (ac-ft/ac)	

18. Feasibility Study Permits. Provide a list of any other permits and regulatory approvals needed to conduct the Feasibility Study and indicate the status of each in the table below. If permits/approvals are required, please submit copies of secured permits/approvals **or** describe efforts to secure permits/approvals including status. If no permits or authorizations are required for the study, provide an explanation:

No permits or regulatory approvals are needed to conduct the feasibility study. The study will use existing data to predict the biggest points of discharge along COID lands bordering Dry River Canyon and to determine the properties with the biggest potential for reducing waste through on-farm improvements and potential construction of re-regulation systems. A field investigation will gather data to verify or dismiss these assumptions and will require access to landowner property. Applicants will seek landowner access agreements once those properties are identified (see description of Task 4 under Question 14).

Permit/ Regulatory Approval	Permitting Entity	Status and Efforts To Date

19. Project Implementation Permits. Provide a list of the permits and regulatory approvals that you anticipate would be needed to implement the proposed project being studied. If permits/approvals are not required, please explain why and provide information regarding any agencies contacted to verify this determination:

Applicants do not know at this time what permits or regulatory approvals will be required to implement the proposed projects. Much will depend on the outcome of the feasibility study. Applicants anticipate that no permits or regulatory approval will be needed to complete any on-farm improvements made in association with this feasibility study. Permits or regulatory approvals may be needed to construct a re-regulation system on the COC, but the Applicants cannot identify those needs until the feasibility study determines the preferred system. Likewise, the study may identify alternative strategies to reducing irrigation water runoff and the Applicants cannot know at this time what permits or regulatory approvals will be required to implement those strategies.

Project Permit/Regulatory Approval (<i>add rows as needed</i>)	Permitting Entity
Potential: Storage permit for re-regulation strategies	OWRD
Potential: NEPA compliance for on-farm strategies	NRCS

VI. Feasibility Study Budget

Instructions: Please answer the following questions about the study budget using the tables provided.

20. Budget By Line Item or Category. Please provide an estimated line item budget for the proposed feasibility study. Examples include: Direct project specific costs, such as in-house staff salary, contractual services, and administrative costs. See the Department’s Budget Procedures and Allowable Costs for further guidance.

OVERALL STUDY BUDGET Line Items	Number of Units* (e.g. # of Hours)	Unit Cost (e.g. hourly rate)	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Staff Salary/Benefits (DRC)	100	\$61.35	\$6,135			\$6,135
Staff Salary/Benefits (COID)	106	\$56.60	\$6,000			\$6,000
Contractual/Consulting	238	\$173.75		\$15,625	\$25,785	\$41,410
Supplies						
Travel						
Other:						
Administrative Costs**					\$1,975	\$1,975
Total			\$12,135	\$15,625	\$27,760	\$55,520

* The “Unit” should be per “hour” or “day” – not per “project” or “contract.” $Units \times Unit\ Costs = Total\ Cost$
** Administrative Costs may not exceed 10% of the total funding requested from the Department

21. Budget by Key Task. Identify the budget for each key task below. Key tasks identified below should be the same as the key tasks identified in Questions 14 and 15.

Feasibility Study Key Tasks (Add additional rows as needed)	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Review and evaluate existing data	\$113		\$3,069	\$3,182
Hydrology study		\$7,000	\$8,000	\$15,000
Identify properties for field investigation (DRC and COID in-kin)	\$1,132	\$2,000	\$3,000	\$6,132
Secure Access Agreements (DRC and COID in-kind)	\$1,871			\$1,871
Field investigation (some COID in-kind)	\$1,811	\$1,500	\$3,000	\$6,311
Mapping (COID in-kind)	\$1,132			\$1,132
Assess reregulation system (some DRC, COID in-kind)	\$1,846	\$1,125	\$3,155	\$6,126
Assess on-farm improvements (some DRC, COID n-kind)	\$2,176	\$1,000	\$1,937	\$5,113
Identify Alternative Strategies	\$1,173	\$1,000	\$1,331	\$3,504
Draft Summary Report Approach (DRC and COID in-kind)	\$292		\$1,518	\$1,810
Final Report: Findings and Recommendations (COID and DRC in-kind)	\$589	\$2,000	\$2,750	\$5,339
Total	\$12,135	\$15,625	\$27,760	\$55,520

The Applicants built project management and administration into the Key Tasks in the ‘Budget by Key Task’ above.

VII. Match Funding

Instructions: Please answer the following question regarding matching funds.

22. Match Funding Table and Documentation. Please fill out the table below and attach the appropriate documentation for both the secured and pending match (add rows as needed). Keep in mind that applicants must demonstrate a minimum **dollar-for-dollar match**. Please note that a failure to meet this requirement or to attach documentation will result in an incomplete application that will not be considered for funding.

For secured funding, you must *attach a letter of support or award* from the match funding source that specifically mentions the dollar amount identified for this study and as shown in the ‘Amount/Dollar Value’ column in the table below.

For pending resources, *other written documentation showing a request* for the matching funds must accompany the application or documentation must identify the date on which a future funding application will be submitted, identify the funding program, and provide evidence that the project is eligible for the funding program identified.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	Type (<input checked="" type="checkbox"/> Only One)	Status (<input checked="" type="checkbox"/> Only One)	Amount/ Dollar Value	Date Match Funds Available (Month/Year)
Deschutes River Conservancy	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$6,135	
Deschutes River Conservancy	<input checked="" type="checkbox"/> cash <input type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$10,625	
Central Oregon Irrigation District	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$6,000	
Central Oregon Irrigation District	<input checked="" type="checkbox"/> cash <input type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$5,000	
Total of Match Funds			= \$27,760	

VIII. Storage-Specific Questions

Instructions: If you indicated that your study is for a storage project, answer question 23 in this section. If your study is for above-ground storage, also answer question 24. Please refer to the document on Storage-Specific Study Requirements for guidance and information on completing this section, available on the OWRD Funding Opportunities, Applications, Forms, and Guidance webpage. If your study is for a water conservation or reuse project, skip this section.

23. All Storage Projects. Answer the following “Yes/No” questions about the storage project to be evaluated in the proposed study.

- A. Will the project divert more than 500 acre-feet of surface water annually? Yes
No
- B. Will the project impound surface water on a perennial stream? Yes No
- C. Will the project divert water from a stream that supports sensitive, threatened or endangered species? Yes No

If you answered “yes” to any of the questions above, you are required to address the following analyses in your feasibility study. By signing this application, you are committing to include these required elements in your feasibility study.

If you answered “Yes” to (A), (B), or (C) above, attach a description of how you intend to address the following required elements in your feasibility study (please refer to the document on Storage-Specific Study Requirements for guidance and a description of the minimum acceptable standards regarding these study requirements):

- i. Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.
- ii. Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.
- iii. Analyses of environmental harm or impacts from the proposed storage project.
- iv. Evaluation of the need for and feasibility of using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.
- v. *For proposed storage projects for municipal use only* – For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project’s relationship to existing and planned water supply projects.

24. For Above-Ground Storage Only. Describe whether or not the storage project would include provisions for using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life or other ecological values. As per statute and rule, above-ground storage projects that include these provisions receive preference for funding over other storage projects.



**ATTACHMENT 1
SITE MAPS**

North of HWY 126 Dry Canyon Feasibility Study Area



Crooked River

NW O'NEIL HWY

LEGEND

- Potential Access Properties
- canals
- LATERALS**
- CO CANAL
- DC WASTE
- North DC Study Area
- Crooked River
- STREETS
- HIGHWAY

RADABAUGH CHRISTIAN
1414270000100

RADABAUGH CHRISTIAN
1414000001801

MALOTT MARK & ANN LLC
1414350000100

MALOTT MARK & ANN LLC
1414350000101

UNITED STATES
1514030000100

CAIN RICHARD MILTON
1514020000200

MERLICH MAX W
1514100000300

PETERSON DIANNE M
1514100000200

BAIN NORMAN C JR
1514100002500

BAIN NORMAN C JR
1514100002501

BAIN NORMAN C JR
1514150000100

ROBINSON JEANNE HASKELL AS TRUSTEE
1514150000200

UNITED STATES
1514150000800

OWINGS TERRY M
1514210000100

OWINGS LISA ANN
1514220000300

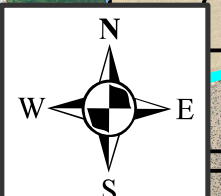
HARRISON SHIRLEY A TRUST
1514210000201

UMBARGER JOHN A
1514210000300

BURKE THOMAS M TRUSTEE
1514210000401

SW HWY 126

Map Extent
Lon: -121.708229994 TO
-120.62596378
Lat: 44.563180837 TO
43.86500784



South of HWY 126 Dry Canyon Feasibility Study Area

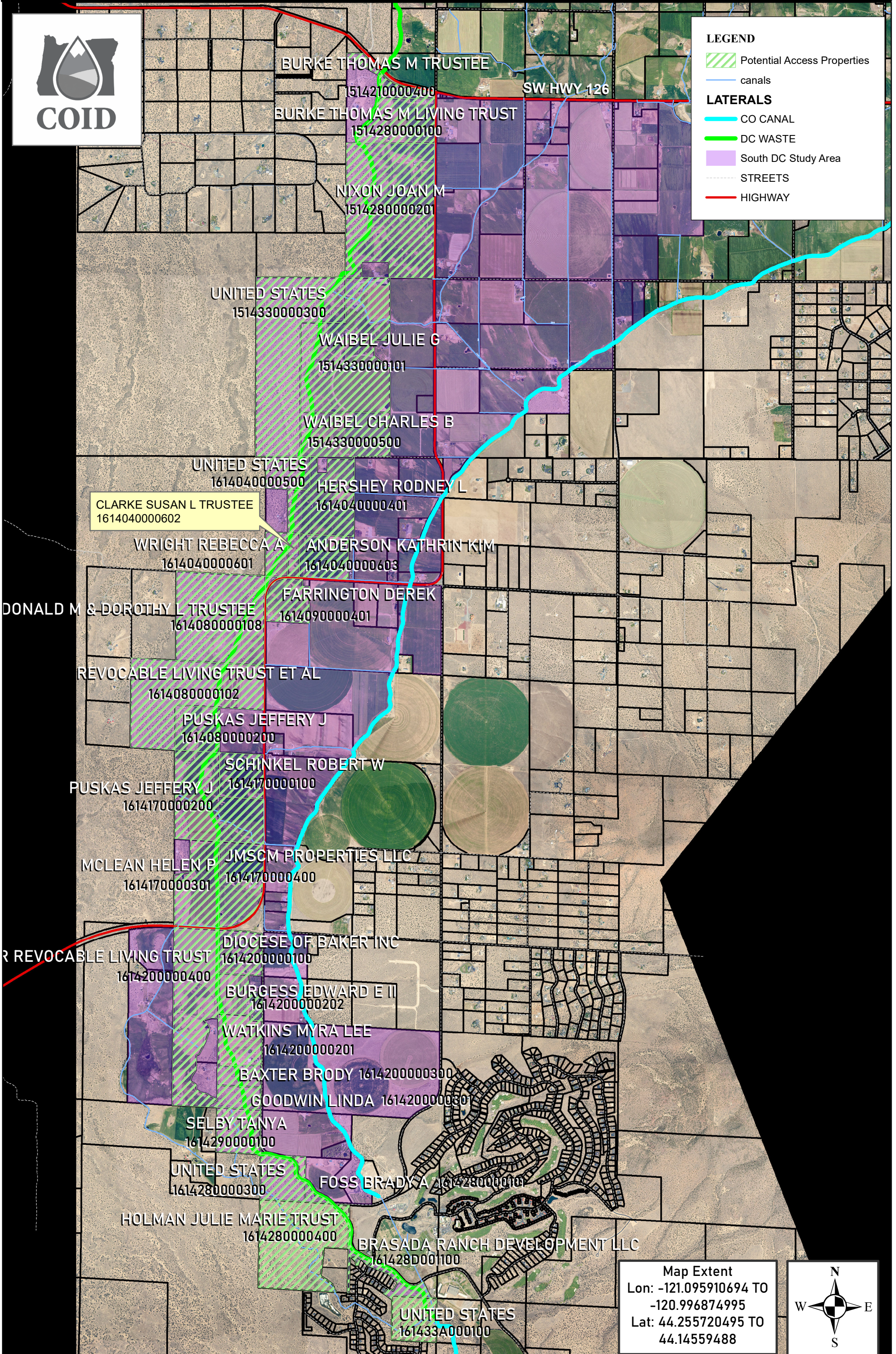


LEGEND

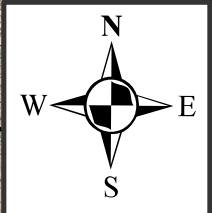
- Potential Access Properties
- canals

LATERALS

- CO CANAL
- DC WASTE
- South DC Study Area
- STREETS
- HIGHWAY



Map Extent
 Lon: -121.095910694 TO
 -120.996874995
 Lat: 44.255720495 TO
 44.14559488



ATTACHMENT 2
LANDOWNER AGREEMENT FORMS

Applicants do not have landowner agreement forms to attach to the application at this time. As part of the Dry Canyon Water Conservation Study, Applicants will identify properties for field investigation by reviewing and evaluating existing data (see descriptions of Tasks 1-3 in Question 14). Once properties have been identified for field investigation (see Task 3), Applicants will secure access agreements (see Task 4).

**ATTACHMENT 3
MATCH DOCUMENTATION**



DESCHUTES RIVER
CONSERVANCY

October 9, 2020

OREGON WATER RESOURCES DEPARTMENT
Attention: Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, OR 97301

RE: Match for DRC and COID OWRD Feasibility Grant

Dear Grant Program Coordinator:

The Deschutes River Conservancy (DRC) is committed to providing \$16,760 in match funds to support our Dry Canyon Water Conservation Study application to the Oregon Water Resources Department. DRC will provide both in-kind and cash match to support all Key Tasks outlined in our grant application. Specifically, DRC will provide the following in-kind and cash contributions:

DRC in-kind contribution: \$6,135

DRC cash contribution: \$10,625

Sincerely,

Ron Nelson
Executive Director



October 9, 2020

OREGON WATER RESOURCES DEPARTMENT
Attention: Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, OR 97301

RE: Match for Dry River Canyon Water Conservation Study

Dear Grant Program Coordinator:

Central Oregon Irrigation District (COID) is committed to providing \$11,000 in match funds to support our Dry River Canyon Water Conservation Study application to the Oregon Water Resources Department. COID will provide both in-kind and cash match in the following amounts:

COID in-kind contribution: \$6,000

COID cash contribution: \$5,000

Sincerely,

Shon Rae

Shon Rae
Deputy Managing Director

ATTACHMENT 4
STORAGE SPECIFIC STUDY REQUIREMENTS

NOT APPLICABLE

**ATTACHMENT 5
LETTERS OF SUPPORT**



THE CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON

NATURAL RESOURCES

**P.O. Box C, Warm Springs, Oregon 97761
Phone (541) 553-3466
Fax (541) 553-1994**

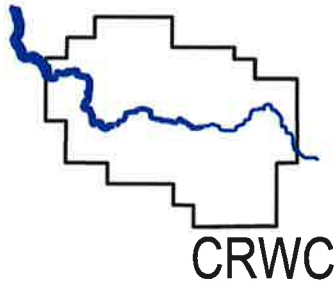
Dear Grant Review Committee,

I am writing to express support for the Deschutes River Conservancy (DRC) and Central Oregon Irrigation District's (COID) Dry Canyon Water Conservation Study (Study). The Study, which will identify major points of irrigation runoff on COID's Central Oregon Canal (COC) into Dry Canyon will help assess the feasibility of developing a re-regulation system for the COC. Additionally, targeted on-farm efficiency projects to eliminate or reduce runoff into Dry Canyon, a tributary to the Crooked River that contributes elevated nutrient levels and impaired water quality will be implemented.

The Confederated Tribes of Warm Springs has a vested interest in the water quality of the Deschutes Basin and its tributaries such as the Crooked River. These watersheds support native and reintroduced stocks of salmon and steelhead vital to maintain the Tribes subsistence and ceremonial uses. As a co-manager of the resources in the Basin the Tribes understand the importance of water quality and the challenges faced by the irrigation districts to meet the needs of the reintroduced fish stocks. The Tribes support this grant proposal to provide technical assistance that will support measured solutions to the water demands in the Deschutes Basin.

Sincerely,

Scott Turo
Fish Habitat Program Manager
The Confederated Tribes of the Warm Springs Reservation of Oregon



CROOKED RIVER WATERSHED COUNCIL

498 SE Lynn Blvd.
Prineville, Oregon 97754

Phone: (541) 447-8567 Fax: (541) 416-2115

contact@crwc.info
www.crookedriver.deschutesriver.org

Oregon Water Resources Department
Attn: Grant Program Coordinator
725 Summer Street, NE, Suite A
Salem, Or
97301

10/9/2020

Grant Program Coordinator,

The Crooked River Watershed Council, operating out of Prineville for the past 26 years, fully supports the grant application and request for funding to support an important local project that can provide water quality improvement benefits to the Crooked River below Prineville.

Specifically, we offer our support to the Deschutes River Conservancy (DRC) and Central Oregon Irrigation District's (COID) Dry Canyon Water Conservation Study (Study). This information and evaluation effort will identify and inventory major points of irrigation runoff from COID's Central Oregon Canal into Dry Canyon. The information supports direct assessment and the feasibility investigations for determining the efficacy of developing a re-regulation system on the canal and implementing targeted on-farm efficiency projects.

Eliminating or reducing runoff into Dry Canyon is of particular importance for the conservation community in the Crooked River watershed, many of whom share the same concerns for water quality impacts from irrigation returns, leaky canals, or other pathways that deliver water to the Crooked. Our concern centers on runoff into Dry Canyon that then flows into the Crooked River, contributing elevated nutrient levels and impairing water quality.

We support the efforts of the DRC and COID to study ways to reduce irrigation water runoff and improve water use efficiency on COID's Central Oregon Canal. This work contributes to our efforts to prioritize restoration actions that address water quality issues associated with, or delivered to, the Crooked River. Our organization works in parallel with the DRC and others on these issues that will require solutions and actions in support of the anadromous fish species reintroduction efforts underway for the last 13 years in the lower Crooked River.

This is an important project that complements our efforts to improve overall habitat conditions in the lower Crooked River and reduce nutrient inputs into the system. We are pleased to offer our full and unconditional support for this project.

Sincerely,

Chris M. Gannon
Director



October 9, 2020

To: OREGON WATER RESOURCES DEPARTMENT
Attention: Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, OR 97301

The Deschutes Redbands Chapter of Trout Unlimited strongly supports the Dry Canyon Water Conservation Study proposal developed by the Deschutes River Conservancy (DRC) and Central Oregon Irrigation District (COID). Water quality problems in the Crooked River have been documented in many ways. Those problems impact not only the Crooked river but also the lower Deschutes River. The complexity of the challenge is noteworthy.

The Study, which will identify major points of irrigation runoff on COID's Central Oregon Canal (COC) into Dry Canyon, will help assess the feasibility and efficacy of developing a re-regulation system on the COC and implementing targeted on-farm efficiency projects. Tailwater from the COC through Dry Canyon has been identified as a hot spot for Crooked River water quality problems for years, but corrective action has proven difficult to mobilize. This study has the potential to generate necessary momentum for corrective actions.

The mission of our chapter of over 600 members is to restore and protect cold water fisheries. Improving water quality in the basin is critical for the mission of the Deschutes Redband Chapter of Trout Unlimited. We strongly support work for improvement of water quality in the Crooked River.

Sincerely,

Shaun Pigott
Chapter President

Michael Tripp
Board Member and Past President



Crook County Soil & Water Conservation District
498 SE Lynn Blvd.
Prineville, Oregon 97754

Phone: (541) 447-3548 Fax: (541) 416-2115

Andy.gallagher@oregonstate.edu

October 14, 2020

Deschutes River Conservancy
700 NW Hill St., Suite 1,
Bend, OR 97703

RE: Weed Program Support

Dear Natasha

I am writing to express support for the Deschutes River Conservancy (DRC) and Central Oregon Irrigation District's (COID) Dry Canyon Water Conservation Study (Study).

Crook County Soil and Water Conservation District (SWCD) has prioritized the elimination of runoff into Dry Canyon as a means to improve water quality in the Lower Crooked River. We believe the Study, which will identify major points of irrigation runoff on COID's Central Oregon Canal (COC) into Dry Canyon, will help assess the feasibility and efficacy of developing a re-regulation system on the COC and implementing targeted on-farm efficiency projects. We support the efforts of DRC and COID to study ways to reduce irrigation water runoff and improve water use efficiency on the COID's COC. This work contributes to the SWCD's efforts to improve water quality, educate agricultural producers, and improve the efficiency of irrigation water use within the Crooked River Watershed.

Sincerely,

A handwritten signature in black ink that reads "Andy Gallagher". The signature is fluid and cursive, with the first name "Andy" being more prominent than the last name "Gallagher".

Andy Gallagher
District Manager

ATTACHMENT 6
POTENTIAL TAX LOTS AND PROPERTY OWNERS OF RECORD

Tax Map Number	Tax Lot Number	Ownership Type	Property Owner of Record
14140000	01801	Private	RADABAUGH CHRISTIAN
15140200	00200	Private	CAIN RICHARD MILTON
14143500	00100	Private	MALOTT MARK & ANN LLC
15141500	00200	Private	ROBINSON JEANNE HASKELL AS TRUSTEE
15141000	02500	Private	BAIN NORMAN C JR
15141000	02501	Private	BAIN NORMAN C JR
14143500	00101	Private	MALOTT MARK & ANN LLC
15142100	00300	Private	UMBARGER JOHN A
15142100	00201	Private	HARRISON SHIRLEY A TRUST
15140300	00100	Public	UNITED STATES
15142100	00100	Private	OWINGS TERRY M
15141100	00300	Private	MERLICH MAX W
15142200	00300	Private	OWINGS LISA ANN
15141500	00100	Private	BAIN NORMAN C JR
15141500	00800	Public	UNITED STATES
15141100	00200	Private	PETERSON DIANNE M
14142700	00100	Private	RADABAUGH CHRISTIAN
15142100	00401	Private	BURKE THOMAS M TRUSTEE

Tax Map Number	Tax Lot Number	Ownership Type	Property Owner of Record
15143300	00101	Private	WAIBEL JULIE G
15142800	00100	Private	BURKE THOMAS M LIVING TRUST
15142800	00201	Private	NIXON JOAN M
15143300	00500	Private	WAIBEL CHARLES B
15143300	00300	Public	UNITED STATES
16140400	00401	Private	HERSHEY RODNEY L
16140400	00500	Public	UNITED STATES
161433A0	00100	Public	UNITED STATES
16142000	00100	Private	DIOCESE OF BAKER INC
16140800	00108	Private	JAMES DONALD M & DOROTHY L TRUSTEE
16140400	00603	Private	ANDERSON KATHRIN KIM
16140400	00602	Private	CLARKE SUSAN L TRUSTEE/TRUST
16140400	00601	Private	WRIGHT REBECCA A
16142000	00301	Private	GOODWIN LINDA
16140800	00102	Private	REVOCABLE LIVING TRUST ET AL
16141700	00100	Private	SCHINKEL ROBERT W
16141700	00200	Private	PUSKAS JEFFERY J
16142000	00201	Private	WATKINS MYRA LEE
16142000	00202	Private	BURGESS EDWARD E II
16142000	00400	Private	TYE WILLIAM R REVOCABLE LIVING TRUST
16141700	00301	Private	MCLEAN HELEN P
16140800	00200	Private	PUSKAS JEFFERY J
16142000	00300	Private	BAXTER BRODY
16142800	00400	Private	HOLMAN JULIE MARIE TRUST
16142800	00101	Private	FOSS BRADY A
16142900	00100	Private	SELBY TANYA
161428D0	01400	Private	SNYDER RICHARD D
16140900	00401	Private	FARRINGTON DEREK
16141700	00400	Private	JMSCM PROPERTIES LLC
16142800	00300	Public	UNITED STATES
161428D0	01100	Private	BRASADA RANCH DEVELOPMENT LLC
161428D0	00100	Private	BRASADA RANCH RESIDENTIAL OWNERS ASSOC
16140900	00402	Public	UNITED STATES
15142100	00400	Private	BURKE THOMAS M TRUSTEE