BUREAU OF RECLAMATION

Finding of No Significant Impact and Environmental Assessment for the Crawford Clipper Jerdon-West-Hamilton Laterals Piping Project

Basinwide Salinity Control Program
Upper Colorado Basin: Interior Region 7
Western Colorado Area Office

U.S. Department of the Interior

September 2024

Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Basinwide Salinity Control Program
Upper Colorado Basin: Interior Region 7
Western Colorado Area Office

Prepared for the Bureau of Reclamation by
Rare Earth Science, LLC

September 2024

Cover Photo: View of the West Lateral, August 2020, Delta County, Colorado. (ERO Resources).

FINDING OF NO SIGNIFICANT IMPACT

United States Department of the Interior
Bureau of Reclamation
Upper Colorado Basin: Interior Region 7
Western Colorado Area Office
Grand Junction, Colorado

Crawford Clipper Jerdon-West-Hamilton Laterals Piping Project

Introduction

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA), the Council on Environmental Quality's (CEQ) NEPA regulations at 40 CFR Parts 1500 – 1508 (2022), the Bureau of Reclamation (Reclamation) has completed an environmental assessment (EA) for the Proposed Action of authorizing the use of federal funds to implement the Crawford Clipper Jerdon-West-Hamilton Laterals Piping Project (Project) in Delta County, Colorado. Under the authority of the Colorado River Basin Salinity Control Act, Reclamation will fund the Project and is the lead agency for purposes of compliance with the NEPA for this Proposed Action.

The EA was prepared by Reclamation to address the potential impacts to the human environment due to implementation of the Proposed Action. The EA is attached to this Finding of No Significant Impact (FONSI) and is incorporated by reference.

Alternatives

The EA analyzes the No Action, the Proposed Action, and the Ditch Lining Alternatives to authorize federal funding to implement the Crawford Clipper Jerdon-West-Hamilton Laterals Piping Project.

Decision and Finding of No Significant Impact

Reclamation's decision is to implement the Proposed Action Alternative. Based upon a review of the EA, Reclamation has determined that implementing the Proposed Action will not significantly affect the quality of the human environment. Therefore, an environmental impact statement is not required for this proposed action. This finding is based on consideration of the degree of effects of the Proposed Action on the potentially affected environment, as analyzed in the EA.

Potentially Affected Environment

The Project is located on Crawford Mesa, west of the Town of Crawford, in southeastern Delta County, Colorado. The affected locality is the Jerdon, West, and Hamilton laterals of the Crawford Clipper Ditch system. Affected interests include Reclamation, Bureau of Land Management (BLM), Colorado Parks and Wildlife, Crawford Clipper Ditch Company, and adjacent landowners. The EA evaluates the effects on the potentially affected environment, which includes physical, ecological, and socioeconomic factors.

Degree of the Effects

In determining the degree of effects of the Proposed Action, Reclamation has considered the following criteria as described in 40 CFR 1501.3(b)(2). These criteria were incorporated into the resource issues and analyses described in the EA.

1. **Short and Long Term Effects.** The Proposed Action would have minor impacts on resources as described in the EA Section 3.2. Environmental commitments were incorporated into the design of the Proposed Action to further reduce impacts. The predicted short-term and long-term effects of the Proposed Action are fully analyzed in Section 3.2 and are incorporated by reference here.

2. **Beneficial and Adverse Effects.** The Proposed Action would have a minor impact on resources as described and analyzed in the EA. Environmental commitments were incorporated into the design of the Proposed Action to further reduce impacts. The beneficial and adverse effects of the Proposed Action are fully analyzed in Section 3.2 of the EA, and incorporated by reference here.

3. **Effects on Public Health and Safety.** The Proposed Action will have minimal impacts on public health or safety. A full analysis can be found in Section 3.2.5 of the EA, and is incorporated by reference.

4. **Effects that would violate Federal, State, Tribal, and local law protecting the environment.** The Proposed Action does not violate any federal, state, local, or tribal law, regulation, or policy imposed for the protection of the environment. In addition, the Proposed Action is consistent with applicable land management plans, policies, and programs. Federal, State, and local agencies and stakeholders were provided an opportunity to comment on the environmental analysis.

Environmental Commitments

The environmental commitments in CHAPTER 4 of the Final EA are an integral part of the Proposed Action and were considered when analyzing the Proposed Action's impacts. CHAPTER 4 also states the authority for any mitigation adopted and any applicable monitoring or enforcement provisions. CHAPTER 4 of the Final EA is incorporated by reference.

Approved by:

Ed Warner
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Ed Warner
Area Manager, Western Colorado Area Office

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CHAPTER 1 - INTRODUCTION

This Environmental Assessment (EA) has been prepared to explain and evaluate the potential environmental effects of Crawford Clipper Ditch Company's (CCDC's) proposed Clipper Jerdon-West-Hamilton Laterals Piping Project and a Lining Alternative. The Piping Alternative ("Project") is the Preferred Alternative. The Federal action ("Proposed Action") evaluated in this EA is whether the Bureau of Reclamation ("Reclamation") would provide funding assistance to CCDC (the "Applicant") for the Project. Reclamation is authorized by the Colorado River Basin Salinity Control Act's Colorado River Basinwide Salinity Control Program to fund the Project under the 2017 Funding Opportunity Announcement (FOA) BOR-UC-17-F003.

Reclamation has prepared this EA in compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality's (CEQ's) NEPA regulations at 40 Code of Federal Regulations (CFR) Parts 1500 – 1508 (2022). After a public review period for the Draft EA, Reclamation determined that a Finding of No Significant Impact (FONSI) for the Proposed Action is warranted.

1.1 – Project Location and Legal Description

The Project is located in southeast Delta County, near the Town of Crawford, Colorado (see Figure 1, below). The Project consists of a "piping component" and a "habitat replacement component," which are in separate physical locations .

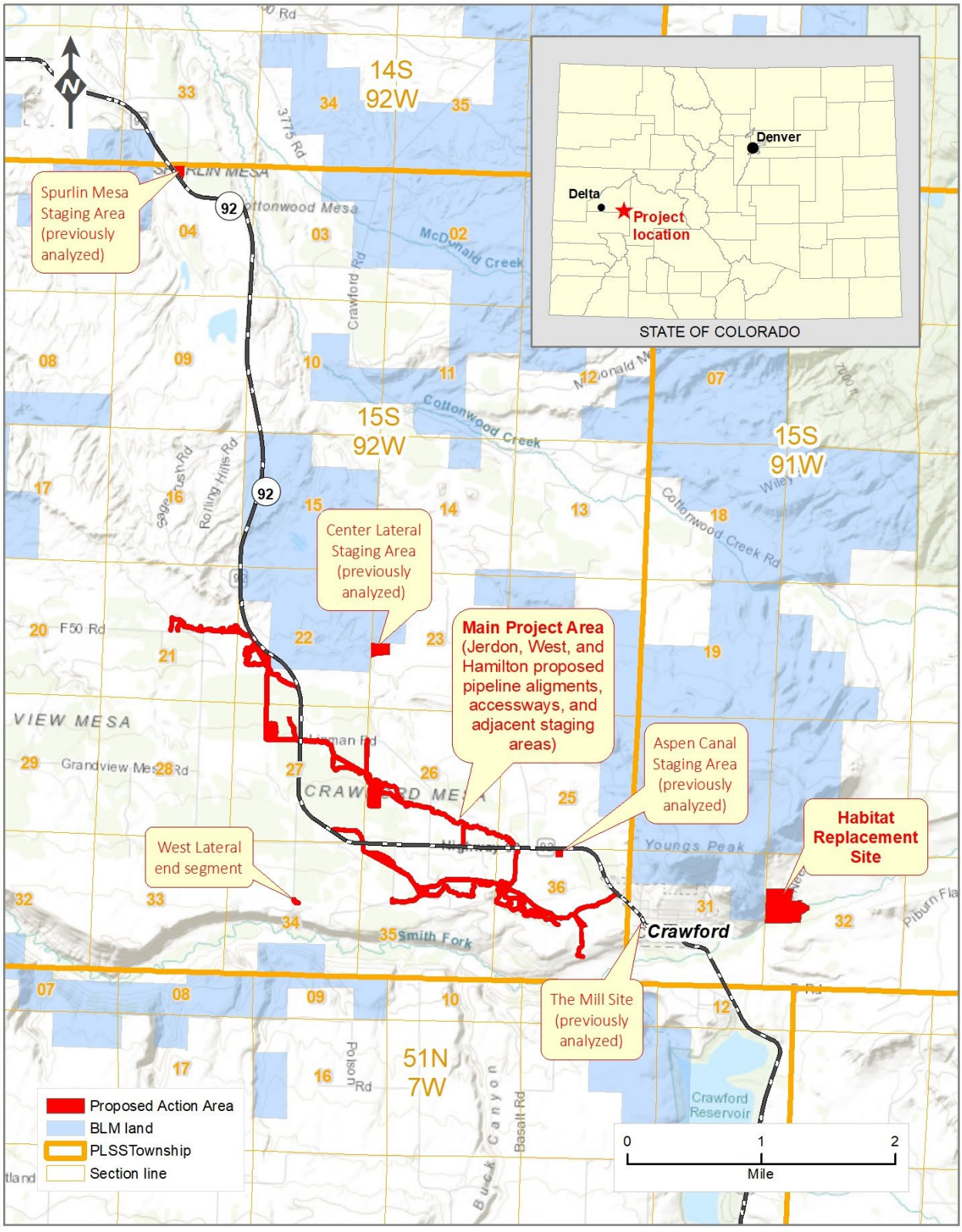
The Project lies on private land, with the following exception: a 60-foot-long segment of the Jerdon lateral is on public land administered by the U.S. Department of the Interior, Bureau of Land Management (BLM), Uncompahgre Field Office.

The piping component of the Project is in the local geographic area known as Crawford Mesa, and extends from an area approximately 1 mile northwest of the Town of Crawford to about 4 miles northwest of the Town of Crawford. The habitat replacement component is 42.5 acres of land in the Smith Fork River valley, approximately 0.5 mile east of the Town of Crawford. The physical areas that would be affected by the Project (the "Project Areas") and their general physical locations are summarized in Table 1 and shown on Figure 1.

Table 1. Areas Involved in the Project

Project Area	Specific Project Element or Activity	General Physical Location	Previous Analyses Incorporated by Reference
Main Project Area	The piping component: West, Hamilton, and Jerdon laterals of the Crawford Clipper Ditch	Crawford Mesa. T15S R92W of the 6th PM: Sections 21, 22, 25, 26, 27, 34, 35, 36, all in Delta County.	--
Habitat Replacement Site	Habitat replacement – establishing a conservation easement	Smith Fork River valley. T15S R91W of the 6th PM: Section 32, in Delta County.	--
Aspen Canal Staging Area	Staging area for supplies and equipment to and during construction	T15S R92W of the 6th PM: Section 36, in Delta County.	The "Aspen Canal Staging Area" in the general physical location of this Project Area was previously analyzed and authorized as part of the Aspen Canal Piping Project (see Section 1.6).
Spurlin Mesa Staging Area	Staging area for supplies and equipment to and during construction	T15S R92W of the 6th PM: Section 4, in Delta County.	The "Spurlin Mesa Staging Area" was previously analyzed and authorized as part of the Clipper Center Lateral Piping Project (see Section 1.6).
Center Lateral Staging Area	Material for pipe bedding, if needed	T15S R92W of the 6th PM: Section 23, in Delta County.	The "Center Lateral Staging Area" was previously analyzed and authorized as part of the Clipper Center Lateral Piping Project (see Section 1.6).
The Mill Site (CCDC's three-way splitter structure)	Installation of a self-cleaning screen that will benefit the ditches involved with the Project, as well as other ditches initiating at the Mill Site	T15S R91W of the 6th PM: Section 31, in the Town of Crawford, Delta County.	The "Mill Site" was previously analyzed as part of the CCDC Zanni Lateral Pipeline Project (see Section 1.6).

Figure 1. Map of project location.



1.2 - Need for and Purpose of the Proposed Action

The need and purpose for the Proposed Action is to reduce salinity concentrations in the Colorado River basin, in compliance with the Colorado River Basin Salinity Control Act of 1974, 43 U.S.C. §§ 1571, et seq., as amended;).

1.3 – Decision to be Made

Reclamation will decide whether to provide funding to the Applicant to implement the Project.

1.4 – Background

1.4.1 – Salinity Control Program

The threat of salinity loading in the Colorado River basin is a major concern in both the United States and Mexico (Reclamation 2019a). Salinity affects water quality, which in turn affects downstream users, by threatening the productivity of crops, degrading wildlife habitat, and corroding residential and municipal plumbing. Irrigated agriculture contributes approximately 37 percent of the salinity in the system (Reclamation 2019a). Irrigation increases salinity in the system both by depleting in-stream flows, and by mobilizing salts found in underlying geologic formations into the system, especially during flood irrigation practices.

The Colorado River Basin Salinity Control Act of 1974 authorizes the Secretary of the Interior to proceed with a program to enhance and protect the quality of water available in the Colorado River for use in the United States and Republic of Mexico. Public Law 104-20 of July 28, 1995, authorizes the Secretary of the Interior, acting through the Bureau of Reclamation, to implement a Basinwide Salinity Control Program. The Secretary may carry out the purposes of this legislation directly, or make grants, enter into contracts, memoranda of agreement, commitments for grants, cooperative agreements, or advances of funds to non-federal entities under such terms and conditions as the Secretary may require (43 U.S.C. § 1592).

The Basinwide Salinity Control Program funds salinity control projects with a one-time grant that is limited to an applicant's competitive bid. Salinity control projects are awarded based on applications received in response to a Notice of Funding Opportunity (NOFO) (formerly called Funding Opportunity Announcement [FOA]) issued by Reclamation. As part of the NOFO, applicants are evaluated individually according to the following criteria: cost effectiveness, ability to enable on-farm salinity control features, risk assessment, detailed project plan, costs & capability to implement the project, future operation & maintenance and management capabilities for the project, past performance, and Department of the Interior goals. Applications are ranked by an Application Review Committee made up of multiple disciplines, and high-ranking projects are recommended to the Salinity Control Program Manager for consideration. The Salinity Control Program Manager then provides recommendations to the Grants Officer for award. Once constructed, the facilities are operated, maintained, and replaced by the Applicant at their own expense.

The cost effectiveness value of a proposed project is quantified as the estimated total annual salt load (in tons) reduced in the Colorado River basin divided by the project cost amortized over 50

years. Estimated salinity reduction is calculated based on measured total dissolved solids loads in basin streams, GIS-based model calculations to determine subbasin loads, and ditch mapping data that include average flows, ditch lengths, and average annual days of use. Richards et al. (2014), Schaffrath (2012), and Linard (2013) provide more detailed information on salt loading estimate methodology.

Earthen irrigation ditch water seepage and the resultant deep percolation through saline soils is one way that salts are mobilized and transported into regional streams and rivers. Piping such ditches removes a source of deep percolation and salt mobilization to regional streams and rivers from the system. The Project would eliminate water seepage from approximately 6.6 miles of earthen ditches, reducing salinity loading by 2,614 tons per year (Reclamation 2017a, 2017b) in the Lower Gunnison Basin and the Colorado River Basin.

While the Project is not a selenium reduction project, it is anticipated that an unquantified reduction in selenium loading in the Colorado River basin would also be associated with the Project. The U.S. Geological Survey (USGS) monitors dissolved selenium loads in rivers and tributaries immediately downstream of the Project Area. There has been a 47.7 percent decrease in selenium levels in the Gunnison River near Whitewater between 1986 and 2020 (Henneberg 2021). The Gunnison Basin Selenium Management Program (SMP), a private/public partnership of concerned parties working together to identify and implement solutions to reduce selenium concentrations in the Gunnison and Colorado rivers, attributes a portion of the reduction in selenium throughout the area to the reduction of deep percolation from seeping irrigation ditches due to the implementation of salinity control projects (Reclamation 2022).

1.4.2 – The Applicant

CCDC, the Applicant, is a privately owned, non-profit, mutually-funded irrigation company incorporated and operating in Delta County since 1885. The Crawford Clipper Ditch system originates at a head gate on the Smith Fork River at a location just south of the Town of Crawford, and provides users with irrigation water and winter stock water across Crawford and Spurlin Mesas. Late season water called from Crawford Reservoir is also delivered in the Crawford Clipper Ditch system. The irrigated crops associated with the system include hay crops and grass pasture.

1.5 – Relationship to Other Projects

1.5.1 – Salinity Control Program

Reclamation, under the authority of the Colorado River Basin Salinity Control Act of 1974 provides funding through the Basinwide Salinity Control Program and the Basin States Program to implement cost-effective salinity control projects in the Colorado River Basin. Reclamation's Western Colorado Area Office is the process of or has recently utilized Salinity Control Program funds for the following salinity control projects in the vicinity of the Project Area (Figure 2, below):

- Bostwick Park Siphon Lateral Piping Project
- C Ditch/Needle Rock Piping Project
- Cattleman's Ditches Piping Project Phases I and II
- Clipper Center Lateral Piping Project and Project A
- Crawford Clipper Ditch Company's Jerdon/West/Hamilton Piping Project

- Eastside Laterals Piping Projects ("UVWUA Project 9" and "UVWUA Project 10")
- Fire Mountain Canal Piping Project
- Forked Tongue/Holman Ditch Piping Project
- Gould Canal Improvement Projects A & B
- Grandview Canal Upper Piping Project
- Grandview Canal Middle and Lower Piping Project
- Upper and Lower Stewart Ditch Piping Projects
- Minnesota Canal Piping Project Phase I and II
- Minnesota L75 Piping Project
- Needle Rock-Lone Rock Piping Project
- North Delta Canal Piping Project
- Orchard Ranch Piping Project
- Pilot Rock Ditch Piping Project
- Short Ditch Extension Piping Project
- Slack and Patterson Lateral Piping Project
- Spurlin Mesa Lateral Piping Project ("Clipper Project 4")
- Turner-Lone Cabin Combination Piping Project
- Waterdog and Shinn Park Laterals Piping Project
- Zanni Lateral Piping Project

1.5.2 – CRSP Funds

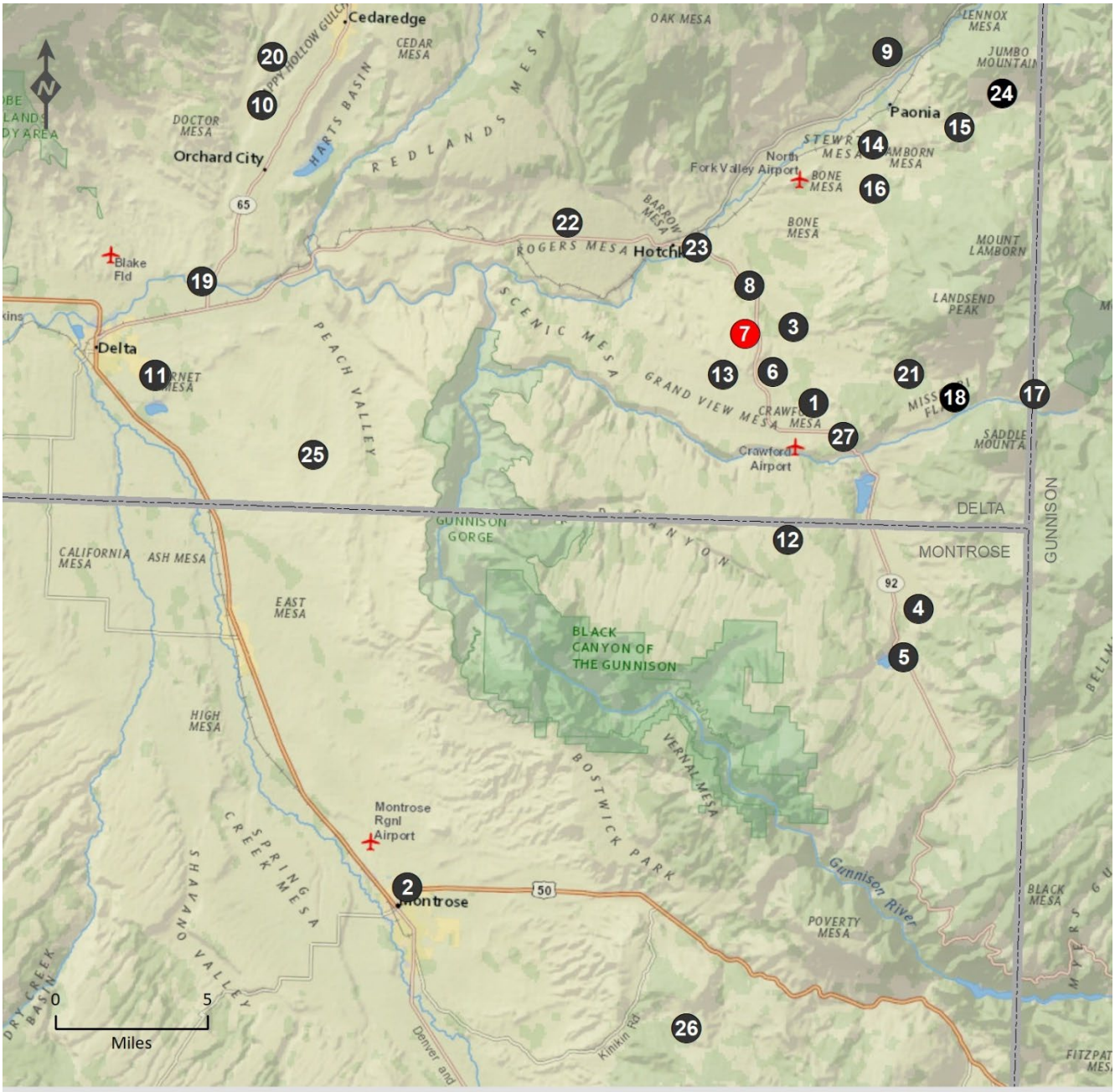
Reclamation's Western Colorado Area Office recently utilized Colorado River Storage Project (CRSP) Funds to implement the Aspen Canal Piping Project and the GK Lateral Piping Project in the vicinity of the Project Area (Figure 2).

1.5.3 – RCPP Funds

The U.S. Dept. of Agriculture Natural Resources Conservation Service (NRCS) issued a Regional Conservation Partnership Program (RCPP) grant administered by the Colorado River Water Conservation District under the Lower Gunnison Watershed Plan. RCPP irrigation infrastructure improvement projects planned in the vicinity of the Project Area include (Figure 2):

- Needle Rock Diversion Project
- Grandview Canal Piping Project
- Crawford Clipper Ditch Upper West Lateral Master Plan Projects (various)

Figure 2. Regional salinity control projects & other related projects.



1 Aspen Canal Piping Project	10 Forked Tongue/Holman Ditch Project	19 North Delta Canal Piping Project
2 Bostwick Park Salinity Control Project	11 GK Lateral Piping Project	20 Orchard Ranch Piping Project
3 C Ditch/Needle Rock Pipeline Project	12 Gould Canal Improvement Projects A & B	21 Pilot Rock Ditch Piping Project
4 Cattlemans Ditches Pipeline Project Phase I	13 Grandview Canal Piping Projects	22 Rogers Mesa WDA Slack & Patterson Laterals
5 Cattlemans Ditches Pipeline Project Phase II	14 Lower & Upper Steward Ditch Pipelines	23 Short Ditch Extension Piping Project
6 Clipper Center Lateral Piping Project	15 Minnesota Canal & Reservoir Projects I & II	24 Turner/Lone Cabin Combination Piping Project
7 Clipper Jerdon-West-Hamilton Piping	16 Minnesota L75 Piping Project	25 UVWUA Phases 9 & 10
8 Crawford Clipper Project 4	17 Needle Rock Diversion Project	26 Waterdog & Shinn Park Laterals Piping Project
9 Fire Mountain Canal Piping Project	18 Needle Rock/Lone Rock Piping Project	27 Zanni Lateral Pipeline Project

1.6 – NEPA Sufficiency Review for Certain Project Features

As explained in Section 1.1, the 60-foot-long portion of the Project that lies on BLM land is in the Main Project Area in the southwest corner of Section 22, Township 15 South, Range 92 West (T15S R92W) of the 6th Principal Meridian (PM). This segment of the Jerdon lateral on BLM is planned for decommissioning, and the Applicant's historic prescriptive easement would be abandoned there. Reclamation confirmed with BLM that BLM authorization is not required for this activity (BLM 2020). BLM Uncompahgre Field Office reviewed the Draft EA for the Proposed Action during the public review period, but has no connected action to the Proposed Action.

Certain Project Areas and activities have already been analyzed and authorized under the NEPA process for related projects, and are proposed for continuing use under the current Project. These include the Aspen Canal Staging Area, the Spurlin Mesa Staging Area, the Center Lateral Staging Area, and the Mill Site (itemized in Table 1, above, and in the following paragraphs). These continuing use areas and related activities are included in the Proposed Action description (Section 2.2), but are not analyzed in Chapter 3 (Affected Environment & Environmental Consequences). Instead, the EAs for these features and activities are incorporated here by reference. As required by 42 U.S.C. 4336b, Reclamation re-evaluated each of the prior NEPA documents to ensure that the analysis remains valid for the current Project. Reclamation determined that the existing analyses remain valid, with updated information related to species listed under the U.S. Endangered Species Act for each area, and with updated cultural information for the Mill Site. Since the times of the original NEPA analyses, the gray wolf and the silverspot have been listed under the U.S. Endangered Species Act. Reclamation determined that none of these continuing use areas include suitable habitat or occurrences of gray wolf or silverspot, and the Applicant does not have a predator management program that would affect gray wolf. Therefore, there would be no potential for Project activities at these continuing use areas to affect gray wolf or silverspot, and the analyses disclosed in the previous NEPA documentation are still adequate. For the previously-analyzed Mill Site, an amendment to an existing Memorandum of Agreement (MOA) was executed between Reclamation and the Colorado State Historic Preservation Officer (SHPO) to acknowledge the proposed activity for the current Project (see Section 3.2.13). Therefore, the analysis disclosed in the previous NEPA documentation for the Mill Site is still adequate. The Aspen Canal Staging Area was used as a staging area for Reclamation's Aspen Canal Piping Project and is currently proposed for that same use. No change in use would occur under the current Project which would change the environmental analysis contained in the 2019 EA for the Aspen Canal Piping Project (Reclamation 2019b), which is incorporated here by reference. A FONSI was signed by the WCAO on February 27, 2019, documenting that there would be no significant impact resulting from utilizing this area for staging.

The Center Lateral Staging Area was used as a staging area for soil stockpiles generated during the Clipper Center Lateral Piping Project, and these soil stockpiles are currently proposed for use as pipe bedding (if necessary) for the Project. No change in use would occur under the current Project which would change the environmental analysis contained in the Clipper Center Lateral Piping Project EA (Reclamation 2019c), which is incorporated here by reference. A FONSI was signed by the WCAO on October 18, 2019, documenting that there would be no significant impact resulting from utilizing this area for staging.

The Spurlin Mesa Staging Area was used as a staging area for Clipper Irrigation Salinity Control Project 4 and the Clipper Center Lateral Piping Project, and is currently proposed for that same use. No change in use would occur under the current Project which would change the environmental analysis contained in the 2014 EA for the Clipper Irrigation Salinity Control Project 4 (Reclamation 2014) or the Documentation of NEPA Adequacy for the Clipper Center Lateral Piping Project (Reclamation 2019d) which are incorporated here by reference. A FONSI was signed by the WCAO on April 25, 2014, documenting that there would be no significant impact resulting from utilizing this area for staging.

The Mill Site was analyzed as part of the Zanni Lateral Pipeline Project, wherein modifications were made to the three-way splitter structure at this location on the Crawford Clipper Ditch. Further modification of the splitter structure (the addition of a self-cleaning screen) is currently proposed for the same location. Nothing in the current Project would change the environmental analysis contained in the Zanni Lateral Pipeline Project EA (Reclamation 2016), which is incorporated here by reference. A FONSI was signed by the WCAO on February 26, 2016, documenting that there would be no significant impact resulting from construction activities at this area.

1.7 - Scoping

Scoping for this EA was completed by Reclamation, in consultation with the following agencies and organizations, during the planning stages of the Project to identify the potential environmental and human environment issues and concerns associated with implementation of the Proposed Action and No Action Alternatives:

- U.S. Bureau of Land Management, Uncompahgre Field Office, Montrose, CO
- Colorado State Historic Preservation Office, Denver, CO
- U.S. Army Corps of Engineers, Northwestern Colorado Branch, Grand Junction, CO
- Southern Ute Tribe, Ute Mountain Ute Tribe, and Ute Indian Tribe (Uintah and Ouray Reservation)
- U.S. Fish & Wildlife Service, Ecological Services, Grand Junction, CO
- Colorado Parks & Wildlife, Grand Junction, CO

Concerns raised during public comment periods on recent similar projects and related informal consultations with Colorado Parks and Wildlife, Gunnison, Colorado, also helped identify potential concerns for the Project.

Resources analyzed in this EA are discussed in Chapter 3. The following resources were identified as ***not present or not affected***, and are not analyzed further in this EA:

Table 2. Resources Eliminated from Further Analysis

Resource	Rationale for Elimination from Further Analysis
Indian Trust Assets and Native American Religious Concerns	No Indian trust assets have been identified within the Project Area. No Native American sacred sites were identified within the Project Area. Neither the No Action Alternative, nor the Action Alternatives, would affect Indian trust assets or Native American sacred sites. To confirm this finding, Reclamation provided the Ute Mountain Ute Tribe, the Ute Indian Tribe (Uintah and Ouray Reservation), and the Southern Ute Indian Tribe with a description of the Project and a written request for comments regarding any potential effects on Indian trust assets or Native American sacred sites. No comments were received.
Environmental Justice & Socioeconomic Issues	The Project Area does not occur on Indian reservation lands or within disproportionately adversely affected minority or low-income populations. The Project would not involve population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. Therefore, neither the No Action Alternative, nor the Action Alternatives, would have an environmental justice effect.
Wild & Scenic Rivers, Land with Wilderness Characteristics, or Wilderness Study Areas	No Wild and Scenic Rivers, land with wilderness characteristics, or Wilderness Study Areas exist in the Project Area. Therefore, neither the No Action Alternative nor the Action Alternatives, would have an effect on these resources.
Public lands grazing and recreation	BLM land involved with the Project is restricted to approximately 60 feet of ditch to be decommissioned and abandoned. The location is at the southwest corner of Section 22, T15S R92W of the 6th PM. This location is part of a 4.5-acre parcel that is physically separated from a larger 1,063-acre block of public land by State Highway 92. The BLM land involved with the Project is without public access for recreation or grazing, and therefore there is no recreation or grazing on the parcel. Therefore, neither the No Action Alternative, nor the Action Alternatives, would have an effect on public lands grazing or recreation.

1.8 – Alternatives Considered But Not Carried Forward

The Applicant considered lining rather than piping the ditches, but did not propose this alternative to Reclamation due to a number of reasons, including: (1) the life of a ditch liner is significantly

shorter than a pipeline, (2) the sediment collecting in the liner would be an issue for cleaning and maintenance, (3) freeze-thaw cycles and earth movement could affect the integrity of a liner, whereas buried pipe stays at a more constant temperature and is less vulnerable to ground movement, and (4) a lined ditch can still accumulate debris during storms and overflow its banks, causing washouts and erosion downgradient. Through the residential subdivision area, failure of an open ditch could be catastrophic given all the homes now built up around the ditch, and the Applicant ultimately determined it would be safest to pipe the ditch.

CHAPTER 2 - ALTERNATIVES

Alternatives evaluated in this EA include the No Action Alternative, the Piping Alternative (aka "Project," the Preferred Alternative), and the Lining Alternative.

2.1 – No Action Alternative

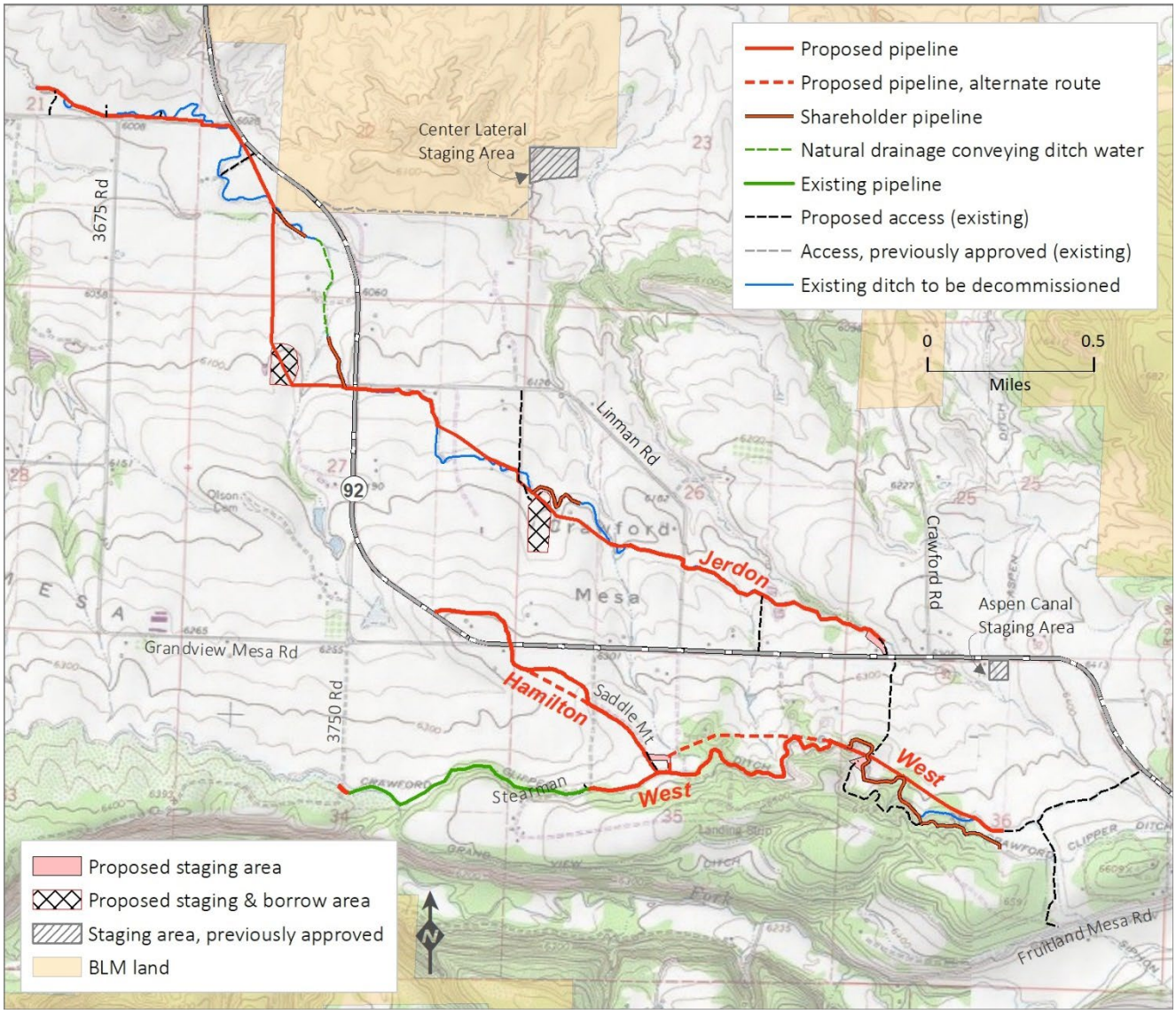
Under the No Action Alternative, Reclamation would not approve funding for the Project. The ditches proposed for piping would continue to flow in open, earthen ditches, and the resultant salt loading to the Lower Gunnison Basin and the Colorado River Basin would continue at the current rate. Without a change in the existing environment (i.e. *an action*, such as other remedial measures with the potential to reduce salt loading associated with the ditches), salt loading associated with the ditches proposed for piping would continue at the current rate. There are no known actions/remedial salinity control measures planned to occur which would impact the salt loading associated with the ditches proposed for piping at this time, and therefore the No Action Alternative does not include other potential salinity control measures in the area.

2.2 – Piping Alternative – Preferred Alternative

Under the Proposed Action, Reclamation would authorize funding to the Applicant to implement the Clipper Jerdon-West-Hamilton Laterals Piping Project ("Project") as the Preferred Alternative. The Project would include converting approximately 6.6 miles of open irrigation ditches to buried pipeline (the "piping component") and establishment of a 42.4-acre Habitat Replacement Site (the "habitat component") to maintain the value of the riparian and wetland habitat which would be lost as a result of the piping component.

The open ditches to be converted to buried pipeline are the West lateral, the Hamilton lateral, and the Jerdon lateral of the Crawford Clipper Ditch system (Figure 3).

Figure 3. Main project area plan.



The alignments of the proposed pipelines would follow a combination of existing ditch alignments and new alignments (outside the existing ditch prims) where such realignments would shorten piped distances and landowners have agreed to the realignments.

The Jerdon lateral pipeline would initiate just north of Highway 92 and upstream of where the current Jerdon lateral is divided from the Center lateral. The Jerdon lateral pipeline would continue northwesterly across Crawford Mesa, to the end of the current CCDC-maintained Jerdon lateral northwest of the intersection of F50 and 3675 Roads. The Jerdon lateral pipeline would cross three public roads (Highway 92, Linman Road, and F50 Road) and three seasonal or ephemeral drainages. Two shareholder and/or winter stockwater pipelines would depart from the Jerdon lateral pipeline and follow the existing Jerdon ditch to their outlets. An additional shareholder pipeline would initiate on a Jerdon Lateral tailwater feeder ditch ("Alum Ditch") and then follow the same trench as the Jerdon lateral pipeline after collecting tailwater from the Alum drainage. The use of a segment of

natural drainage as a conveyance for shareholder water and winter stock water in the west part of the Jerdon project area would continue following completion of the Project.

The West lateral pipeline would connect on its east (upstream) end to the Upper West lateral pipeline (a related project proposed for funding by NRCS) and extend westerly to connect to an existing buried pipeline segment of the West lateral near Stearman Road. If enough funds are available, an additional approximately 400-foot segment of the West lateral (the "West lateral end segment") would be added to the existing piped part of the West lateral near 3750 Road (Figure 3). The proposed West lateral pipeline would cross one public road (Saddle Mountain Lane), and the proposed West lateral end segment pipeline would cross 3750 Road. A shareholder pipeline related to the West lateral would connect to a branch of the Upper West lateral pipeline (a related project proposed for funding by NRCS) and follow the existing West lateral ditch alignment to the shareholder's outlet location (Figure 3). An alternate route is under consideration for a portion of the West lateral (Figure 3) and is being analyzed by this EA in case the landowner decides to execute a pipeline easement with Applicant prior to construction.

The Hamilton lateral pipeline would initiate at the existing location of the Hamilton lateral split on the West lateral and extend northwesterly, making one crossing of Highway 92 and one crossing of Stearman Road, and ending at the Applicant-maintained terminus of the existing Hamilton lateral. An alternate route is under consideration for a portion of the Hamilton lateral (Figure 3) and is being analyzed by this EA in case the landowner decides to execute a pipeline easement with the Applicant prior to construction.

Overall, approximately 7.1 miles of buried pipeline alignments would result from the Project. Pipelines would be installed in approximately 5 miles of existing ditch prisms (i.e., direct conversion of the ditch to pipe), and about 2.1 miles of pipeline alignments outside the existing ditch prisms would be created. Following construction, approximately 1.6 miles of existing ditches would be abandoned.

If the two alternate route segments (Figure 3) under consideration for the West and Hamilton pipelines are both adopted, a total of approximately 7 miles of pipelines would be installed in approximately 4.1 miles of existing ditch prisms (direct conversion of ditch to pipe), about 2.9 miles of pipeline alignments would be created outside the existing ditch prisms, and 2.5 miles of ditches would be abandoned. The alternate route segment under consideration on the Hamilton Lateral would leave the existing ditch prism for a distance of 0.2 mile, bypassing about 0.24 mile of existing ditch, and the alternate route segment under consideration on the West lateral would leave the existing ditch prism for a distance of 0.6 miles, bypassing about 0.7 mile of existing ditch. Both alternate routes would cross irrigated farmlands.

The pipelines would be polyvinylchloride (PVC) irrigation pipe, high-density polyethylene (HDPE) (or similar). The pipe diameter would vary from 36 inches (main lines) to 2 inches (certain shareholder distribution lines). A variety of control structures (valves, air vents, meters, etc.) and outlets (farm turnouts) would be installed on the pipelines. No new water storage, pump stations, compressor stations, or new irrigated farm areas would be associated with the Proposed Action.

At the Mill Site (a three-way splitter structure on Crawford Clipper Ditch), a self-cleaning screen would be installed as a part of the Project. The screen would capture debris in the Crawford Clipper

Ditch water prior to entering three Crawford Clipper Ditch laterals, including the Upper West Lateral, which connects downstream to the ditches involved with the Project.

The habitat replacement component of the Project consists of the Applicant's conveyance of a perpetual conservation easement on Applicant-owned lands to Colorado West Land Trust, to protect the property's existing wildlife values from a known risk of development. No physical activity or ground disturbance would be associated with the habitat component of the Project (see Section 2.2.9).

Table 3, below, is a summary of project elements (distances and estimated acreages involved are approximate). Distances of pipelines given in Table 3 are disturbance footprints, not linear distances of pipelines, because in some areas, multiple pipes (main pipes along with shareholder delivery lines) would be installed in the same trench. These elements were compiled from a review of the engineer's construction design drawings and a GIS analysis using Esri® ArcGIS Desktop software.

Table 3. Summary of Project Elements

Element	Total Area Involved	Comment
Ditches involved with the Project	6.6 mi	The existing Jerdon (3.8 mi), West (1.8 mi), Hamilton (0.9 mi) laterals of the Crawford Clipper Ditch system. In addition, an approximately 0.1-mile stretch of a tailwater collection ditch would be piped as a shareholder conveyance. Approximately 0.3 mi of the Jerdon lateral uses a natural drainage as a conveyance. Use of the natural drainage as a conveyance for shareholder water and winter stock water would continue following completion of the Project.
Total pipeline alignments to be installed (disturbance footprint)	7.1 mi (51.6 acres)	Pipelines would be installed directly in approximately 5 miles of existing ditch prisms, and approximately 2.1 miles of pipeline alignments would be installed outside existing ditch prisms. The width of the construction footprint would vary from approximately 25 to 60 feet depending on site characteristics (disturbance footprint acreage is based on the maximum disturbance footprint width of 60 feet).
Existing ditch to be abandoned & decommissioned	1.6 mi (11.6 acres)	Total miles of segments of ditch/prism proposed for abandonment and decommissioning because of realignments. The involved acreage estimates are based on a maximum disturbance footprint width of 60 feet (although the disturbance width could be as narrow as 25 feet).

Element	Total Area Involved	Comment
Alternate routes scenario: total pipeline alignments to be installed (disturbance footprint)	7 mi (50.9 acres)	If both alternate configurations are piped, the total amount of pipe alignment would be reduced by approximately 0.1 mile. Pipe would be installed in approximately 4.1 miles of existing ditch prisms and approximately 2.9 miles of pipeline would be installed in alignments outside the existing ditch prisms. The width of the construction footprint would vary from approximately 25 to 60 feet depending on site characteristics (disturbance footprint acreage is based on the maximum disturbance footprint width of 60 feet).
Alternate routes scenario: existing ditch to be abandoned & decommissioned	2.5 mi (21.8 acres)	If the alternate configurations explained above are piped, an additional approximately 0.94 mile of ditch would be bypassed, and decommissioned and abandoned. The involved acreage estimates are based on a maximum disturbance footprint width of 60 feet (although the disturbance width could be as narrow as 25 feet).
Staging and borrow areas (8 total areas)	33.8 acres total	There are six staging areas and two combination staging/borrow areas proposed for the Project. Three of the staging areas (the Spurlin Mesa Staging Area [7.6 acres], the Center Lateral Staging Area [8.5 acres] and the Aspen Canal Staging Area [2.1 acres]) were previously approved for related projects (see Section 1.6). The other three staging areas (totaling 2.8 acres) proposed for the Project are on pastures or previously disturbed ground. The two proposed combination borrow/staging areas are 6.9 acres and 5.9 acres, respectively, on a combination of disturbed ground and dryland pastures in the Jerdon Lateral area. The 8.5-acre Center Lateral Staging Area is where spoil piles reserved from constructing a regulating pond for the previously-analyzed Clipper Center Lateral Piping Project are stored. These piles are proposed to be used for pipe bedding material for the Project, if necessary.
Access routes	4.4 mi	Fourteen separate accessways totaling 3.7 miles are proposed for the Project. These are all existing private roads leading from county roads or Highway 92 to construction alignments. A 0.7-mile existing road on BLM land leads to the Center Lateral Staging Area and is part of the Applicant's operating and maintenance access for the Center Lateral. This accessway was previously approved for the Center Lateral Piping Project.

Element	Total Area Involved	Comment
Mill Site screen installation	0.2 acre	A self-cleaning screen structure is proposed at the existing Mill Site, a three-way splitter on Crawford Clipper Ditch. Similar construction activities (improvement of the Mill Site splitter structure) were previously approved in the same location for the a related project (see Section 1.6).
Habitat replacement	42.4 acres	Riparian/wetland habitat values affected as a result of piping the ditches would be maintained with a conservation easement on land owned by the Applicant on the Smith Fork River. The conservation easement prohibits subdivision or development of the land in perpetuity. Ongoing maintenance activities such as weed control and grazing would be permitted to maintain the riparian and wetland conservation values of the land.

The following subsections explain the construction methods and describe other aspects (staging, schedule, post-construction activities, habitat replacement) of the Project. For all aspects of the Project, Best Management Practices (BMPs) would minimize impacts of the project on the human and ecological environments. BMPs and other protective measures are incorporated as part of the Project, are described and analyzed as part of the Project in CHAPTER 3 (Affected Environment & Environmental Consequences), and are summarized in CHAPTER 4 (Environmental Commitments).

2.2.1 – Pipeline Installation

Pipeline installation would first involve using trackhoes and bulldozers to grub ditch bank vegetation. Woody vegetation on the side-slopes of ditch prisms, especially in natural areas, would be left intact as much as possible. Grubbed shrubs, trees and stumps would be cut, chipped, or burned onsite or at one of the staging areas, or hauled to a local landfill.

Following grubbing, trackhoes and bulldozers would be used to reserve existing topsoil or subsurface soil, depending on the post-construction revegetation method (see Section 2.2.7) and fill the existing ditch with material from the existing ditch prism. An excavator would then trench to the appropriate depth in the prism, adjacent to the previous location of the ditch, and prepare the pipe bed. Following installation of the pipe, an excavator would backfill the pipe trench and a dozer would grade the pipe alignment to match the surrounding land contours and restore drainage patterns. Appropriately-sized culverts would be placed at drainage crossings. Alternatively, low water crossings and/or rolling dips would be installed where appropriate, instead of culverts. A one-lane dirt maintenance road or ATV trail would remain on the pipe alignments following construction.

Pipe and supplies would be transported to the construction site on flatbed trucks (or similar) and unloaded with front end loaders with pallet forks. A trackhoe would position the pipe in the trench, and segments of pipe would be fused or joined together in place or alongside the prepared pipe trench. The pipe would be bedded and buried with fill material from within the ditch prism or, if necessary, with bedding or fill obtained from one of the proposed borrow sites. As a last option, fill

or bedding material would be obtained from a commercial sand and gravel pit. The pipeline burial depth would be below the frost line.

There is the possibility of encountering large boulders or bedrock in pipe trenches that cannot be moved with excavating equipment. In this case, conventional blasting would be used to break rock into pieces manageable with heavy equipment. Blasting would be performed by a state-permitted blasting contractor. Blasting would entail drilling a hole or holes in the (below grade) rock, placing a charge and detonator in each drill hole, and detonating the charge. The blasting activity would take place below grade entirely within the pipeline trench.

There are 5 points where the buried pipe alignments would cross public roads. These crossings would be either trenched or directionally drilled across or under the roads, or sleeved in existing culvert crossings. Road surfaces would be restored to their preexisting condition, per Delta County Road and Bridge District #3 or Colorado Department of Transportation specifications, following construction.

2.2.2 - Mill Site Screen Installation

The Mill Site self-cleaning screen installation would involve removal of some of the existing concrete at the Mill Site using an excavation track hoe and a dump truck. An excavation approximately 40 feet wide by 60 feet long would be required to install concrete forms to receive the screen, which would be installed by a steel fabricator with a welding truck and a boom truck to hold components in place during fabrication. Approximately 60 feet of 36 inch diameter pipe, and a concrete box with a flowmeter would be installed to extend from the new screen and connect to the NRCS-funded Upper West Lateral pipeline (the Upper West Lateral connects downstream with the ditches involved with the Project). Concrete trucks and a concrete pump vehicle would be used to install concrete, and pipeline construction would use methods described in Section 2.2.1. The construction footprint would be within an existing disturbed area at and around the Mill Site which is currently used for vehicle parking.

2.2.3 – Abandoned Ditch Segments Decommissioning

For those ditch segments that would be abandoned because of realignment paths (where the pipe alignment departs from the existing ditch prism [see Figure 3]), an excavator would be used to fill the abandoned ditch with material from the existing ditch prism, then a trackhoe would contour the filled ditch alignment to match the surrounding land, including natural drainage patterns that cross the alignment. In farmed areas, these segments would be finished with retained topsoil and revegetated using methods described in Section 2.2.7. In natural areas or unfarmed areas, the finishing method would be the sterile topsoiling and natural revegetation method, unless reseeding is requested by the landowner. Seed mixes are described in Section 2.2.7. No maintenance access road or trail would remain in these areas.

2.2.4 – Access

All access ways for construction of the Project would be on the existing ditch prisms, in the proposed new pipe corridors, on existing private roads, or directly to these areas from public roads (Figure 3). Some proposed access ways on existing private roads would require improvement (minor grading, smoothing, and widening up to 15 feet wide) in order to accommodate pipe hauling. Accessways and road crossings would be returned to the same or better condition than they were

prior to construction. The access ways authorized for the Project would be clearly marked on the construction drawings.

The Applicant asserts that the existing ditch alignments involved in the Project are in statutory rights-of-way. The Applicant asserts that a statutory right-of-way "includes the right to construct, operate, clean, maintain, repair, and replace the ditch and appurtenant structures, to improve the efficiency of the ditch, including by lining or piping the ditch, and to enter onto the burdened property for such purposes." Colorado law further states that the holder of the right-of-way has access "for all reasonable and necessary purposes related to the ditch" (C.R.S. § 37-86-102 and 103). All landowners in the footprint of the Project where activities would take place outside the statutory rights-of-way have formally agreed (or will have formally agreed prior to construction) to allow the activities of the Project to be conducted on their lands.

The anticipated average width of the construction area for the Project would be 40 feet, but could be as wide as 60 feet under certain conditions. The width of the construction footprint would depend on site conditions (slope, nearby infrastructure, nearby sensitive resources) and the ability to operate equipment safely. The authorized construction area widths would not be constrained by the existing ditch centerline, but rather would be adjustable to site conditions in order to complete the work safely and with the smallest possible disturbance footprint. Construction footprints would be limited to only those necessary to safely implement the Project. The authorized construction width would not be mechanically cleared to its maximum outer limits as a part of site preparation.

2.2.5 – Staging

Five staging areas and two combination staging/borrow areas have been identified for the Project. Their locations are shown on Figure 3 and their sizes are summarized in Table 3. The staging areas would be used to store pipe and other project supplies and equipment. Pipe arriving and leaving the staging areas would be transported on 50-foot flatbed trucks (or similar). Front end loaders with pallet forks would likely be used to handle pipe in the staging areas. Slash (grubbed shrubs, trees and stumps) may be processed by burning or chipping in staging areas. Any burning would be conducted in accordance with Delta County burning ordinances.

To conserve fuel and for the sake of work efficiency, working equipment would remain at active construction locations overnight, on weekends, and during times of brief work gaps due to weather conditions.

2.2.6 – Borrow Activities

The necessary pipe bedding and trench fill would be generated from within the construction footprint. To generate fill material onsite, a screening or portable crusher may be used in the construction footprint to prepare the fill material. If additional fill is required, fill would be obtained from either of the designated borrow sites for the Project, or from the Center Lateral Staging Area (Figure 3), where soil piles generated from a different project are staged. Borrow material may also be used to improve or repair accessways used for the Project. Borrow material would be loaded to end-dump trucks using an excavator and hauled to the construction site via approved access ways. As a last option, borrow material would be acquired from a commercial source and hauled to the Project Area.

2.2.7 – Weed Control & Post-Construction Revegetation

To prevent the spread of weeds during construction, all equipment and vehicles would be cleaned prior to arriving on work sites. Woody noxious weeds within the Project Area would be mechanically removed during construction preparation.

Following construction, disturbed ground would be revegetated in one of two ways: the sterile topsoiling/natural revegetation method, or the conventional method.

In the conventional revegetation method, reserved topsoil would be replaced on the prepared ground surface using a trackhoe, without back-dragging the blade (i.e., without smoothing), to create microtopography for reseeding.

In the sterile topsoiling/natural revegetation method, sub-surface soil would be reserved during pipe installation and spread on the surface following construction. Sub-surface soils do not contain a pre-existing weed seed bank, and finishing the construction site with sub-surface soils would therefore help curtail the spread of weeds following construction. Areas finished with sub-surface soils would not be reseeded since conditions for seed germination would be poor. Native plants from surrounding plant communities would naturally colonize the site over time without excessive competition from a pre-existing weed seed bank. The sterile topsoiling and natural revegetation method would be the default method of revegetation in non-farmed disturbed areas unless the underlying landowner specifically requests the conventional revegetation method.

Where conventional revegetation is required or requested, weed-free seed mixes appropriate for the surroundings would be used. For instance, where irrigated lands are revegetated, the seed mix would be a weed-free hay mix (or similar) acceptable to the landowner. Where the disturbed ground is adjacent to natural vegetation and reseeding is requested, the weed-free seed mix would include drought-tolerant and locally ubiquitous native grass such as western wheatgrass. The Project construction drawings would indicate where each revegetation method is to be used, and to specify the seed mix, where appropriate.

2.2.8 – Schedule

Construction in existing ditch alignments would occur during the irrigation off-season, to avoid interrupting irrigation activities of the shareholders. Irrigation off-season varies annually depending on weather patterns, but is typically late September or October through mid-April. Construction in the realignments and decommissioning of abandoned ditch alignments would not need to avoid irrigation season and could occur during any time of the year. Revegetation activities and weed treatments would occur during seasons when those activities have the best opportunity for success.

Construction would occur incrementally or in a sequenced fashion across the Project Areas over a period of approximately three years, mostly during the irrigation off-season. When construction is underway, it would occur during daylight hours (typically 7 am to 4 pm), Monday through Saturday. Weather conditions could cause gaps in activity.

Timing restrictions would apply to certain project activities and locations, to protect nesting migratory birds and raptors, as explained in the Wildlife Section (Section 3.2.11). The timing restrictions are specified in the Environmental Commitments of this EA (CHAPTER 4) and summarized in Table 4. Specific areas with construction timing restrictions, and the nature of those restrictions, would be prominently marked on construction drawings.

Table 4. Project Schedule Timing Restrictions Summary

Location	Activity	Timing Restriction	Reason
All Project Areas	Vegetation grubbing or clearing	Avoid April 1 - July 15	Protect migratory songbirds during their core nesting season
Buffered areas around documented raptor nests	All	Variable, between February 15 - July 31 See species-specific requirements in Section 3.2.11.	Protect nesting raptors during their core nesting season (note: location information is restricted from publicly-available maps but would be displayed on construction drawings)

2.2.9 – Habitat Replacement

In accordance with the Colorado River Basin Salinity Control Act, a habitat replacement project would be required to maintain riparian and wetland habitat affected as a result of the Project. The habitat replacement project would consist of conveying a conservation easement to Colorado West Land Trust on 42.5 acres of land owned by the Applicant on the Smith Fork River (Figure 1). The justification for the habitat replacement project includes the following: the conservation easement would protect land with high-quality natural riparian woodlands and wetlands from planned subdivision and/or development of the land. Unlike habitat replacement projects where existing wetlands or riparian areas are "improved" or "enhanced" to create net habitat replacement value for a period of 50 years in accordance with the Colorado River Basin Salinity Control Act, the Habitat Replacement Site for the Project would remain under a conservation easement and protected from subdivision and development in perpetuity. Other factors contributing to the favorability of the Habitat Replacement Site chosen for the Project are that it is in the same watershed as the piping component of the Project, and it is relatively close by (within 1.1 mile of the east extents of the Project (Figure 1).

The procedures used to establish the habitat replacement project for the Project are *Salinity Control Program: Fish and Wildlife Habitat Evaluation Procedures* (Reclamation 2018) and *Procedures for Scoring Land Acquisition as Habitat Replacement and Guidance on Developing Habitat Management Plans* (Reclamation 2021), developed in partnership with the U.S. Fish and Wildlife Service.

Colorado West Land Trust would monitor the land annually to ensure the terms of the conservation easement are being upheld and that the conservation and habitat values of the land remain intact. The Applicant's ordinary ongoing maintenance activities such as weed control and grazing would be permitted to maintain the riparian and wetland conservation values of the land. No construction activities would occur at the Habitat Replacement Site as a result of the Project.

2.2.10 – Permits & Authorizations

Agreements & Authorizations
The following interagency agreements or permits would be required prior to Project implementation:

- Memorandum of Agreement executed between Reclamation and the Colorado SHPO.
- Clean Water Act (CWA) Section 404 Regional General Permit 5 for Ditch Related Activities in the State of Colorado: 30-Day Advance of Construction Submittal Package (to include "(1) the respective agency's documentation for compliance with the Endangered Species Act and National Historic Preservation Act and/or the lead Federal Agency NEPA document containing the same, (2) a project description, (3) project plans, and (4) a location map.").
- Deed of Conservation Easement from Crawford Clipper Ditch Company Property, Delta County, Colorado to Mesa County Land Conservancy, Inc. dba Colorado West Land Trust, Delta County, Colorado.

Construction Permits & Plans
The following construction permits and plans would be required prior to Project implementation:

- Stormwater Management Plan, to be submitted to Colorado Department of Public Health & Environment (CDPHE) by the construction contractor prior to construction disturbance.
- CWA Section 402 Storm Water Discharge Permit compliant with the National Pollutant Discharge Elimination System (NPDES), to be obtained from CDPHE by the construction contractor prior to construction disturbance (regardless of whether dewatering would take place during construction).
- Certification under CDPHE Water Quality Division Construction Dewatering Discharges Permit COG070000 (if any dewatering is to take place during construction).
- Spill Response Plan, to be prepared in advance of construction by the contractor for areas of work where spilled contaminants could flow into water bodies.
- Utility clearances, to be obtained by the construction contractor prior to construction activities from local utilities in the area.
- Any construction, access, or use permits which may be required by the Delta County Planning Department, County Engineering and County Road & Bridge District #3 (North Fork Area).
- If blasting is to be conducted during construction, it must be conducted by an individual with a Type I Explosives Permit from Colorado Department of Labor and Employment Division of Oil and Public Safety – Explosives Program.
- If slash burning is to be conducted, an Open Burn/Slash Pile Permit to be obtained by the construction contractor from CDPHE

Compliance with the following federal laws and Executive Orders (E.O.) are required prior to and during project implementation (this list is not intended to be all-inclusive):

Natural Resource Protection Laws
- Clean Air Act of 1963 (42 U.S.C. § 7401)
- Endangered Species Act of 1973 as amended (16 U.S.C. 1531-1544, 87 Stat. 884)

- Clean Water Act of 1972 as amended (33 U.S.C. 1251 et seq.)
- Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712)
- Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668- 668c)
- Farmland Protection Policy Act (7 U.S.C. 4201, et seq.)

Cultural Resource Laws

- National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.)
- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm et seq.)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq.)
- American Indian Religious Freedom Act of 1978 (42 U.S.C. Public Law 95-341)
- Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines (48 FR 44716)

Paleontological Resource Laws

- Paleontological Resources Preservation Act of 2009 [Section 6301-6312 of the Omnibus Land Management Act of 2009 (Public Law 111-11 123 Stat. 991-1456)]

2.3 - Lining Alternative

Under the Lining Alternative, Reclamation would authorize funding to the Applicant to install a liner in the existing open ditch alignments. The Lining Alternative was not proposed by the Applicant, but is analyzed in this EA because it meets the purpose and need of the Salinity Control Act. The Lining Alternative would involve approximately 6.6 miles of open irrigation ditches and an approximately 0.1-mile stretch of a tailwater collection ditch (the same alignments described in Table 3 under "Ditches involved with the Project"). The habitat component, mill screen installation, access routes, staging areas, borrow areas, weed control, schedule, and permits & authorizations would be the same as or substantially similar to those described in Section 2.2.

Construction of the ditch liner would involve the following process. First, any existing riprap or sharp rocks would be removed or buried in the ditch (aka canal) bed and vegetation would be grubbed from the canal banks and either hauled to a local county landfill or mulched or burned at one of the proposed staging areas. Soft, unstable soils in the canal would be excavated and replaced with borrow material obtained onsite within the canal prism or from one of the proposed borrow areas, in order to shape the canal to design dimensions. After the canal is shaped, it would be compacted using vibratory plates mounted to excavators, to specifications verified by a geotechnical engineer. The next step is to place the synthetic liner system on the prepared grade. The first layer would consist of a non-woven geotextile that is intended to protect the impermeable layer (a polyvinyl chloride [PVC] membrane) from damage from any remaining sticks or sharp rocks in the subgrade. The PVC membrane (30 mil) would be placed on top of the non-woven geotextile and seams between PVC panels heat-fused together. A final layer of non-woven geotextile would be placed on the PVC membrane in order to provide a bonding surface for shotcrete. A minimum of 3 inches of fiber-reinforced shotcrete would then sprayed on top of the liner. After the shotcrete has been applied, the synthetic liner system would be horizontally anchored into the canal banks a minimum of 2 feet, and the edges of the liner fabric buried. Equipment required for the canal lining would include of the following: a trackhoe or excavator with buckets, conventional loaders, a skid

steer loader, a tamper, a grader, an end dump, haul trucks to transport bedding fill material, a concrete truck, and a pneumatic concrete pump for placing shotcrete. Due to the distance and travel time from local concrete sources, it is likely that the shotcrete would be mixed at one of the proposed staging areas rather than hauled in commercially. On-site shotcrete mixing would be accomplished using a portable batch plant, or a mobile mixer truck. Up to approximately 600 truckloads of shotcrete would be required over the course of the project. Water for mixing the shotcrete would be obtained locally from an irrigation well (or similar) by agreement with a local landowner and hauled in a water truck to the mixing location. Sand and cement required for shotcrete mixing would be purchased by the Applicant, hauled to the mixing location by a commercial provider, and stockpiled and/or siloed in a staging area. The portable batch plant or mobile mixer truck would require diesel fuel, which would be stored in bulk in on of the proposed staging areas (with appropriate spill containment). Fuel would be hauled and transferred to bulk storage by a licensed commercial provider. Post-construction cleanup would include smoothing of the access road alongside the canal, smoothing access roads as necessary, trash pickup, and weed control. Shareholder turnout structures would be replaced. The new turnouts would consist of precast concrete structures with control gates and punch-plate screens. A PVC pipe would carry water through the lined canal wall through a flow-measuring device that would discharge to the existing water delivery infrastructure at each turnout.

CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

3.1 – Introduction

This chapter discusses resources that may be affected by the two Action Alternatives and the No Action Alternative. For each resource, the affected area and/or interests are identified, existing conditions described, and impacts are disclosed under the No Action, Project (Piping Alternative, the Preferred Alternative), and Lining Alternative. This section concludes with a summary of impacts.

3.2 – Affected Environment & Environmental Consequences

3.2.1 – Water Rights & Use

The geographic scope of the analysis is the Project Area shown on Figure 1, which covers the area of potential effect for this resource by construction of the Project.

The Applicant is a privately owned, non-profit, mutually-funded irrigation company incorporated and operating in Delta County since 1885, with several absolute decreed water rights totaling 164.3 cubic feet per second (cfs), most of which were appropriated between 1884 and 1930. A stock right of 10 cfs was appropriated in 1883 for use during the non-irrigation season. The total average rate of annual diversions of irrigation water through the Crawford Clipper Ditch system (including direct

diversion from the Smith Fork River and water called from Crawford Reservoir) is approximately 18,000 acre-feet. The irrigation season is approximately 173 days long, and approximately 3,480 acres of hay crops and pasture are irrigated with the system. The Crawford Clipper Ditch system originates at a head gate on the Smith Fork River at a location just south of the Town of Crawford, and provides users with irrigation water and winter stock water across Crawford and Spurlin Mesas. Late season water called from Crawford Reservoir is also delivered in the Crawford Clipper Ditch system. A portion of the irrigation water carried by the Crawford Clipper Ditch System is lost during conveyance in the open, earthen ditches due to evaporation and seepage, resulting in less than the full amount of decreed water being delivered to the shareholders. Irrigation is primarily accomplished by flood methods directly from ditch laterals, and to a lesser extent with gated pipe and sprinklers. The system also carries winter stock water during the non-irrigation season for an annual average of 190 days; however, delivery of this water is only possible during times when the water is not frozen.

There are other privately-owned adjudicated irrigation water rights that are diverted from streams in the general Project Area or that possess delivery infrastructure in the Project Area. The local area distribution of water is overseen by a Colorado Division of Water Resources Water Commissioner, an official who enforces the priority system of water rights and water laws of the State of Colorado.

No Action Alternative: The No Action Alternative would have no effect on water rights and uses within the Project Area. The water delivery system would continue to function as it has in the past.

Project (Piping Alternative): Under the Piping Alternative, the Applicant would have the ability to better manage irrigation water with efficiencies gained from eliminating seepage by improving the system. The new turnout structures include adequate controls and measuring devices which would further improve water management in the system. By eliminating ditch seepage and evaporative loss from the open ditches, the Project would result in more water (i.e. the saved seepage/evaporation water) delivered per share to irrigated crops—in other words, the full decreed amount of water would be delivered. While not currently planned, the availability of pressurized water to the shareholders would also enable future installation of high-efficiency on-farm sprinklers.

Winter stock water delivery to shareholders would be temporarily affected by the Project. Shareholders would be notified prior to construction activities affecting winter stock water delivery so they can make individual temporary arrangements for stock water during the construction period. Alternative arrangements for winter stock water are common due to the inability of the ditch system to deliver the stock water when temperatures are low enough that the stock water freezes. Winter stock water would be unavailable for each shareholder for one winter season. Due to the temporary nature of the unavailability of winter stock water and due to the availability of temporary alternative stock water arrangements, the Project's effects on winter stock water would not rise to the level of significant.

Irrigation water rights owned by others in the Project Area would not be impacted by the Project. The Project has been designed such that it would not physically interfere with the diversion, delivery, or use of water rights owned by other entities.

There would be no significant adverse impacts to water rights and use as a result of the Project, because the Project would produce water delivery efficiencies beneficial to the Applicant's shareholders.

Lining Alternative. The impacts to water rights from the Lining Alternative would not differ from the Piping Alternative, as described above, with the following exceptions: Unlike the Piping Alternative, the Lining Alternative would not eliminate evaporative loss from the ditch system, producing less delivery efficiency than the Piping Alternative. Unlike the Piping Alternative, winter stock water would not be available to shareholders during freezing temperatures following implementation of the Lining Alternative.

There would be no significant adverse impacts to water rights and use from implementing the Lining Alternative, because the Lining Alternative would produce irrigation water delivery efficiencies beneficial to the Applicant's shareholders, and winter stock water delivery would remain unchanged from pre-construction conditions.

3.2.2 – Water Quality

The geographic scope of the analysis for water quality is the lower Gunnison River and the greater Colorado River Basin, because irrigation practices in the region and in the Project Area are contributing to elevated downstream salinity levels and create an adverse effect on the water quality of the Gunnison River and in the greater Colorado River Basin. In addition, selenium occurs in the region's soils in soluble forms such as selenate, which leaches into waterways by runoff and irrigation practices, and is toxic to living organisms when present beyond trace amounts. There is a regional effort to reduce salinity in the lower Gunnison and Colorado River watersheds, resulting in improved water quality at a basinwide scale (see Section 1.4). There are also ongoing regional efforts to reduce selenium loading in the lower Gunnison and Colorado river basins (SMPW 2011, Reclamation 2020).

In 2021, the U.S. Army Corps of Engineers (Corps) issued Regional General Permit 5 (RGP-5) for Ditch Related Activities in the State of Colorado. RGP-5 "authorizes discharges into ditches that have minimal individual or cumulative adverse effects on the aquatic environment," and covers construction, realignment, and relocation of existing ditches and conversion of such ditches into pipes or lined conveyances.

No Action Alternative: Under the No Action Alternative, the estimated 2,614 tons of salt annually, described above in Section 1.4.1 (Reclamation 2017a, 2017b), contributed to the Colorado River Basin from the ditch laterals involved with the Project would continue. Current selenium loading levels would continue.

Project (Piping Alternative): In the long term, the Project would eliminate seepage from the involved ditch system, reducing salt loading to the Colorado River Basin at an estimated rate of 2,614 tons per year, as described above in Section 1.4.1 (Reclamation 2017a, 2017b). The Project would reduce selenium loading into the Gunnison River basin, although the amount of selenium loading reduction that would result from the Project has not been quantified. Improved water quality would benefit downstream aquatic species by reducing salt and selenium loading in the Gunnison River, an important Colorado River Basin tributary. Maintenance or improvement of water quality in the Gunnison River is of high importance to users and to wildlife. The beneficial effects of improved water quality resulting from the Project would contribute to the regional efforts underway to reduce salinity and selenium in the lower Gunnison and Colorado River watersheds.

The Project would affect waters under the jurisdiction of Clean Water Act (CWA) Section 404 (the ditches themselves) and disturb irrigation-induced wetland and riparian vegetation associated with

the ditches. As a "ditch related activity in the State of Colorado" that is "conducted under a binding agreement with the USBR" (Reclamation), the Project would be authorized under RGP-5, by submitting documentation required by RGP-5 to the Army Corps at least 30 days in advance of construction. The required documentation for the Project, as a salinity control project per a binding agreement with Reclamation, is as follows: "(1) the respective agency's documentation for compliance with the Endangered Species Act and National Historic Preservation Act and/or the lead Federal Agency NEPA document containing the same, (2) a project description, (3) project plans, and (4) a location map." RGP 5 includes terms and conditions with which project proponents must comply to ensure their proposed projects will have minimal individual or cumulative adverse effects on the aquatic environment. The USACE has the authority to determine if an activity complies with the terms and conditions of an RGP. By authorizing use of RGP 5 for the proposed action, the USACE has determined that the Project has minimal individual or cumulative adverse effects on the aquatic environment. Therefore, there would be no significant impact to waters under the jurisdiction of CWA Section 404.

BMPs would be implemented during construction to minimize short-term erosion and further protect water quality. Project construction would take place in the ditch prism when water is not present. Pipeline crossings of any drainages would be conducted in accordance with CDPHE's Water Quality Control Division Dewatering General Permit to protect water quality in streams. The construction contractor would be required to operate under a Stormwater Management Plan, a Stormwater Discharge Permit, a Spill Response Plan, and a Dewatering Permit (when dewatering is conducted) (see Section 2.2.10 and CHAPTER 4).

There would be no significant adverse impacts to water quality as a result of the Project, because required permits and construction BMPs would be implemented, and because the overall result of the Project would be to improve water quality (reduce salinity) in the Colorado River Basin.

Lining Alternative. The impacts to water quality from the Lining Alternative would not differ from the Piping Alternative, as described above.

There would be no significant short- or long-term adverse impacts to water quality from the Lining Alternative, because required permits and construction BMPs would be implemented, and because the overall result would be to improve water quality (reduce salinity) in the Colorado River Basin.

3.2.3 – Hydrology

Hydrologic resources in the Project Area include surface water and groundwater. The geographic scope of the analysis for surface water is Crawford Mesa, the area of affected environment and general geographic vicinity of connected surface waters related to ditches associated with the Project. The geographic scope of the analysis for groundwater are the two USGS hydrologic units that intersect the Project Area, where U.S. Geological Survey (USGS) data are available for estimating groundwater recharge.

Surface waters on Crawford Mesa in general consist of natural waterbodies (intermittent or seasonal streams) and constructed waterbodies (such as irrigation ditches, reservoirs, and stockwater ponds). Crawford Mesa has approximately 31 acres of open surface water, consisting of at least 15 acres of natural streams and irrigation ditches, and 16 acres of reservoirs and stockwater ponds (Reclamation 2024a). Of this total combined surface area, the ditches involved with the Project contribute approximately 2.3 acres of seasonal open water surface area, or about 7 percent of the open water

surface area of Crawford Mesa. Open surface water represents a total of 0.2 percent of the total (3,800-acre) area of Crawford Mesa. About 54.7 acres of areas with wetland or riparian hydrology are associated with open surface waters on Crawford Mesa (Reclamation 2024a). Wetland or riparian hydrology is present where soils are inundated with surface water for a significant part of the growing season, such that riparian and wetland plant communities are supported (see Section 3.2.9). The ditches involved with the Project contribute about 4.2 acres of wetland and/or riparian hydrology (ERO 2020), or about 8 percent of the total area of wetland and/or riparian hydrology on Crawford Mesa.

Groundwater recharge or deep percolation is the hydrologic process in which surface water infiltrates downward through an unsaturated zone into a subsurface water table or aquifer. Rates of recharge vary regionally, and depend on several major factors, including precipitation (available water), soil and geologic characteristics (substrate permeability), and evapotranspiration of water by plants (which reduces water available for deep percolation). While the USGS has conducted studies on salinity loading in the upper Colorado River basin (see Section 1.4.1), comprehensive studies to determine the characteristics of groundwater and groundwater movement have not been conducted in the Project Area. However, USGS has developed a raster dataset to estimate average annual natural groundwater recharge in the conterminous United States (USGS 2003). The dataset was created by multiplying a grid of base-flow index (BFI) values by a grid of mean annual runoff values. BFI is a measure of the proportion of river runoff that derives from stored sources; the more permeable the rock, superficial deposits and soils in a catchment, the higher the baseflow and the more sustained the river's flow during periods of dry weather. Thus, the BFI is an effective means of indexing catchment geology (UKCEH 2023). Annual runoff is that part of precipitation which appears as a flow of water in surface streams. When considered together, the BFI and annual runoff data that the USGS receives is sufficient for the USGS to produce a dataset containing a reasonable estimate of natural groundwater recharge.

The Project Area falls within the boundaries of two HUC-12 sub-watersheds (HUCs 140200040504/Cottonwood Creek and 140200040508/Alum Gulch-North Fork Gunnison). These two sub-watersheds contain a total of 56,892 acres, and constitute the geographic scope of this analysis, as they are the sub-watersheds with the potential to be impacted by the Project. Watersheds are delineated by the USGS using a nationwide system based on surface hydrologic features. This system divides the country into 21 regions (2-digit), 222 subregions (4-digit), 370 basins (6-digit), 2,270 subbasins (8-digit), ~20,000 watersheds (10-digit), and ~100,000 sub-watersheds (12-digit), or hydrologic units. A hierarchical hydrologic unit code (HUC) consisting of 2 additional digits for each level in the hydrologic unit system is used to identify any hydrologic area. Each hydrologic unit is assigned a 2-digit to 12-digit number that uniquely identifies each of the six levels of classification within six two-digit fields. HUC-12 is the most granular level of sub-watershed classified in the Project Area. The USGS estimates the average annual groundwater recharge rate in the two HUC sub-watersheds in the Project Area to be 110.4 mm/year (USGS 2003).

There are 6 domestic wells permitted by the State of Colorado to draw on natural sources of groundwater within 500 feet of the involved ditches (Reeder 2024), and several other wells in the general Crawford Mesa area. Ditch water which has seeped from the canal prism is not a natural source of groundwater. Pursuant to Colorado Revised Statute (C.R.S.) § 37-86-103, "…a ditch right-of-way includes the right to construct, operate, clean, maintain, repair, and replace the ditch and appurtenant structures, to improve the efficiency of the ditch, including by lining or piping the ditch…".

No Action Alternative: Under the No Action Alternative, nothing would occur which would alter the surface hydrology of Crawford Mesa. Nothing would occur which would alter the BFI or annual runoff of the HUC sub-watershed areas, so there would be no change in the estimated groundwater recharge in the area. Nothing would occur which would affect natural groundwater or domestic well permits. Because the surface hydrology and the estimated amount of groundwater recharge into the two HUC sub-watershed areas would not change, and because there would be no change to the natural groundwater in the Project Area, there would be no significant impacts to surface water, groundwater recharge, or domestic well permits associated with the No Action Alternative.

Project (Piping Alternative): Approximately 7 percent of the existing surface water on Crawford Mesa would be piped, reducing evaporative loss of this water during transport. Once the water is distributed on the ground surface for irrigation, some of the water would evaporate, some of the water would be taken up by crops, and some water would enter the soil. The water that currently flows in the ditches involved with the Project creates wetland and riparian hydrologic conditions that support a narrow fringe of wetland and riparian vegetation comprising about 8 percent of such areas on Crawford Mesa. Piping these ditches would change the surface hydrology along the fringes of these ditches from wetland and riparian hydrology to upland (dry) conditions, or irrigated conditions, depending on the location. As stipulated by the Salinity Control Act, a habitat replacement project (Sections 2.2.9 and 3.2.9) was developed using Reclamation's *Procedures for Scoring Land Acquisition as Habitat Replacement and Guidance on Developing Habitat Management Plans* (Reclamation 2021), generating 33.4 habitat value units. The habitat replacement project is included as a component of the Project. Because the value of the habitat protected from degradation (33.4) is greater than the value of the habitat lost (11.6), there would be no net loss of fish and wildlife values (in this case, riparian and wetland vegetation, and by association, riparian and wetland hydrology) due to implementation of the Project.

Because there would be no net loss of riparian and wetland hydrology values associated with implementation of the Project, the effects of the loss of riparian/wetland hydrology adjacent to the ditches involved with the Project would be insignificant.

There would be no change in the inputs utilized by USGS to estimate average annual groundwater recharge (BFI values or mean annual runoff values) as a result of the Project. The same water which currently precipitates into the two HUC-12 sub-watershed areas would continue to precipitate within the area after Project implementation. The portion of the seepage which currently enters the groundwater through the canal prism would be redistributed within the general Project Area. While the specific area where the canal leakage would seep into the groundwater would be redistributed, it would be redistributed within the irrigated acres related to the canals associated with the Project, and therefore it would remain in the general Project Area within the two HUC-12 sub-watersheds. The redistribution would not alter the BFI or annual runoff of the area, so there would be no change in the estimated groundwater recharge in the area.

Ditch companies have the right to improve the efficiency of their ditches pursuant to C.R.S. § 37-86-103. Consequently, domestic water well owners cannot rely on canal seepage water to recharge domestic water wells. The Project would not alter natural sources of groundwater. Therefore, there would be no significant adverse effect on domestic well permits, which authorize wells to draw on natural sources of groundwater.

Because the estimated amount of groundwater recharge into the two HUC-12 sub-watershed areas would not change, there would be no significant impact to groundwater recharge as a result of the Project. Because the wetland and riparian surface hydrology related to the piping component of the Project would be conserved at the Habitat Replacement Site, there would be no significant impact to surface hydrology as a result of the Project. Because the Project would not alter natural sources of groundwater, there would be no significant adverse effect on domestic well permits near the Project Area.

Lining Alternative. The impacts to hydrology from the Lining Alternative would not differ from the Piping Alternative, as described above, with the following exception: Under the Lining Alternative, the same area of surface water that would be piped under the Piping Alternative would instead remain open water. Following construction, evaporative loss from the open water of the lined ditches would continue at the pre-construction rate.

Because the estimated amount of groundwater recharge into the two HUC-12 sub-watershed areas would not change, there would be no significant impact to groundwater recharge as a result of the Lining Alternative. Because the wetland and riparian surface hydrology related to ditch lining would be conserved at the Habitat Replacement Site, there would be no significant impact to surface hydrology from the Lining Alternative. Because the Lining Alternative would not alter natural sources of groundwater, there would be no significant adverse effect on domestic well permits near the Project Area.

3.2.4 – Air Quality

The geographic area of analysis is the airshed of the spatial extents of the Project Area (Figure 1), where people and the environment could potentially be affected by pollution emitted during construction activities. The Clean Air Act specifies regulates emissions of air pollutants from stationary and mobile sources of pollution, and enforcement is at the state level under the Code of Colorado Regulations (CCR) at 5 CCR 1001-5. If the levels of a pollutant in an area are higher than National Ambient Air Quality Standards (NAAQS), the airshed is designated as a "nonattainment area." Areas that meet the NAAQS for criteria pollutants are designated as "attainment areas." The level of analysis for NAAQS airsheds in Colorado is by county. Delta County is in attainment for all criteria (monitored) pollutants (EPA 2024). Impacts to air quality occur from a variety of stationary and mobile pollution sources throughout Delta County. Minor impacts to air quality from routine maintenance of the ditch system involved with the Project include dust and exhaust from occasional travel in light vehicles along the Project corridor, and occasional ditch cleaning and maintenance activities involving heavy equipment and occasional ditch burning. Together, these impacts have not historically risen to the level of non-attainment in the county.

No Action Alternative: There would be no effect on air quality in the Project Area from the No Action Alternative. The ditches would continue to operate in their current condition and dust, smoke, and exhaust would occasionally be generated by vehicles and equipment conducting routine maintenance and operation.

Project (Piping Alternative): Exhaust and dust from construction activities would have a minor, short-term effect on the air quality in the immediate Project Area. There would be no impact to air quality from blasting, because blasting would be conducted inside the pipeline trench and below grade. There would be no long-term significant impacts to air quality from the Project, as air quality would return to its baseline level and Delta County would remain in attainment for all criteria pollutants.

BMPs would be implemented to further minimize dust in the Project Area. Following construction, impacts to air quality from routine maintenance and operation activities along the pipeline corridor would be insignificant, as they would be similar or less in magnitude to those currently occurring for the existing ditch.

There would be no significant adverse impacts to air quality as a result of the Project, because construction activities are short-term and localized, and Delta County would remain in attainment for all criteria air pollutants.

Lining Alternative. The impacts to air quality from the Lining Alternative would not differ from the Piping Alternative, as described above.

There would be no significant adverse impacts to air quality as a result of the Lining Alternative, because construction activities are short-term and localized, and Delta County would remain in attainment for all criteria air pollutants.

3.2.5 –Access, Transportation, & Safety

The Project Area (Figure 1) is the geographical scope of the access, transportation, and safety analysis, where construction has the potential to affect this resource. The Applicant asserts that it currently operates its ditch within statutory rights-of-way in the Project Area to which it claims to be entitled under Colorado law, which authorizes a right-of-way that "includes the right to construct, operate, clean, maintain, repair, and replace the ditch and appurtenant structures, to improve the efficiency of the ditch, including by lining or piping the ditch, and to enter onto the burdened property for such purposes." Colorado law further states that the holder of the right-of-way has access "for all reasonable and necessary purposes related to the ditch" (C.R.S. § 37-86-102 and 103).

Private and public roads generally provide access and mobility for residents traveling in and out of the Project Area. The main public transportation routes that intersect the Project are Colorado State Highway 92, and the following county roads: Linman Road, Stearman Road, Saddle Mountain Lane, F50 Road, 3750 Road, and 3675 Road. The previously analyzed borrow and staging areas are accessed from Spurlin Mesa Road, a BLM route that already serves as a regular CCDC operating and maintenance route, and Highway 92. Highway 92 is the main regional route between the towns of Crawford and Hotchkiss and receives moderate to heavy traffic depending on time of day and time of year.

Various overhead or buried utilities are present near some elements of the Project. Various overhead or buried utilities are present near some Project Areas. The utility entities include the Crawford Mesa Water Association (domestic water), Delta Montrose Electric Association (electricity and fiber optic internet), TDS Telecom, and Black Hills Energy (natural gas).

Safety risks are associated with sources of open, moving water. The Project Area is served by the Delta County Sheriff, the Delta County Ambulance District, and the Delta County Fire Protection District 5.

No Action Alternative: There would be no effect to public safety, transportation, or public access from the No Action Alternative. The ditches would continue to operate in their current condition and the baseline status of access, public safety, transportation routes, and utilities in the vicinity would remain unchanged.

Project (Piping Alternative): All construction activities related to the Project would take place entirely in the approved and Project ROWs. The disturbance footprint would not exceed 60 feet wide, but is expected to average approximately 40 feet wide. In all cases, effort would be taken to create the smallest disturbance footprint, including a footprint that remains inside the historical area of disturbance if possible, that allows for safe completion of the planned work. However, for safety purposes and to achieve engineering requirements in the easement, the Applicant may, in accordance with C.R.S. §37-86-103, "enter onto the burdened property for such purposes, with access to the ditch and ditch banks, as the exigencies then existing may require, for all reasonable and necessary purposes related to the ditch." No work would occur beyond the right-of-way provided by statute.

There would be no need for construction of new access roads outside of the construction areas. There are no known bridges with weight restrictions that would be used by construction vehicles. Some short-term disruption of traffic at the involved public roads is expected to occur when equipment and materials are hauled into the Project location, and when pipe crossings are constructed across public roads. Appropriate traffic signage would be used to notify drivers of active construction ingress/egress. The construction contractor and/or the Applicant would coordinate with the county and sheriff department if traffic or access would be delayed or substantially re-routed. Due to the temporary nature of the traffic disruptions and the traffic management provided by coordination with the county and sheriff department, the impacts on traffic would not rise to the level of significant.

All utilities would be located and marked and, if necessary, relocated or raised, prior to any construction activities in the Project Area. If relocation or raising of utilities is necessary during construction, a brief interruption of utility services would occur. Due to the temporary nature of the interruptions, the impacts on utilities would not rise to the level of significant.

Under the Proposed Action, the safety risks associated with sources of open, moving water would no longer occur within the Project Area. The Delta County Sheriff, Delta County Ambulance District, and the Delta Fire Protection District 5 would continue to cover the Project Area for emergency response, and would not be hindered in their response. Any required construction, access, or use permits would be obtained from the Delta County Planning Department, County Engineering and County Road & Bridge District #3. The proposed irrigation pipe crossings of Highway 92 would be coordinated with Colorado Department of Transportation.

Active construction areas would be adequately marked and barricaded to prevent public access. If blasting is necessary during construction, it would be conducted by a blasting contractor under a permit from the Colorado Department of Labor and Employment Division of Oil and Public Safety – Explosives Program. Blasting would be in accordance with State regulations, localized and below-grade, and any potential impacts would not reach beyond the immediate construction area. Potential impacts would not reach beyond the immediate construction area because in accordance with State permit requirements, each blast must be designed and the charge size calculated to ensure that the energy from the blast is directed into breaking up the intended material, rather than being dissipated outward. Trenches left open overnight would be limited to the extent practicable. In the case that a trench is left open overnight, it would be covered to adequately prevent entrapment of people, livestock, or wildlife. Therefore, there would be no significant effect on public safety.

No significant impacts to access, transportation, and public safety would occur as a result of the Project, because traffic and access disruptions would be short-term and coordinated with authorities, and public safety measures would be implemented in construction areas.

Lining Alternative. The impacts to access, transportation, and safety from the Lining Alternative would not differ from the Piping Alternative, as described above, with the following exception: under the Lining Alternative, the safety risks associated with sources of open, moving water would remain in the Project Area.

No significant impacts to access, transportation, and public safety would occur as a result of the Project, because traffic and access disruptions would be short-term and coordinated with authorities, public safety measures would be implemented in construction areas, and safety risks associated with open water would remain unchanged from pre-construction conditions.

3.2.6 – Property Values

Property values in the Project Area are assessed periodically by the Delta County Assessor for the purposes of calculating property taxes. Assessments involve property inspections and interviews, consideration of market value when a property sells, and consideration of residential and agricultural improvements (location, size, age, construction, and quality), with the goal of systematically ensuring fair and equitable property valuations. Irrigated agricultural land typically has a higher assessed value and market value per acre than non-irrigated agricultural land in the same economic area. The value of the property may shift positively or negatively due to the personal preferences of potential buyers. For example, some people may feel the networks of irrigation ditches in the region that support scattered mature cottonwood trees contribute positively to property values because the trees provide aesthetic interest and cooling shade to the landscape, while others may feel open ditches can be a liability and the presence of modern irrigation infrastructure which aids in an increased ability to deliver agricultural water shares contributes positively to property values.

No Action Alternative: There would be no property value effects from the No Action Alternative. The ditches would continue to consist of open, unlined ditches and would continue to operate in their current condition. The baseline status of scattered cottonwoods along these ditches would remain the same, and be subject to potential ditch maintenance activities in the future.

Project (Piping Alternative): The Project would result in the loss of certain large cottonwood trees in the construction corridor and the removal of a seasonal flowing open water source on some properties in the Project Area. Changes to subjective aesthetic interest (Section 3.2.8) and cooling shade from cottonwoods (Section 3.2.15) would occur. According to the County Assessor, no statement or complaint has been received from a landowner, property buyer, or property seller, that a piped ditch had detracted from the value of a property in the North Fork valley (George 2023). The County Assessor noted that in certain cases, an open ditch could be considered a liability by a buyer, and in other cases, an aesthetic amenity (George 2023). In general, in this agricultural area of Delta County, it is not open ditches that add value to real estate, but rather the irrigation water itself and its application to farmlands (George 2023). The application of water to farmlands can produce profitable crops for landowners, while at the same time providing green open space in the area that contributes to the scenic pastoral views enjoyed by the residents around the area.

From the County Assessor's perspective, while the market value of a property may shift positively or negatively due to the personal preferences of potential buyers, the value of a property would not change as a result of piping the ditches (George 2023).

No significant impacts to property values would occur as a result of the Project, because piping the ditches would not affect the factors that are considered during the County Assessor's valuation process.

Lining Alternative. The impacts to property values from the Lining Alternative would not differ from the Piping Alternative, as described above.

No significant impacts to property values would occur as a result of the Lining Alternative, because lining the ditches would not affect the factors that are considered during the County Assessor's valuation process.

3.2.7 - Noise

The geographic scope of analysis for noise is the Project Area (Figure 1), where people and wildlife could potentially be affected by Project construction noise. A moderate baseline level of noise occurs in the Project Area, associated with farming and ranching activities, regular traffic on public roads, county and state highway maintenance activities, and the Applicant's operation and routine maintenance of the ditch system. Operation and maintenance involve the use of light-duty trucks, all-terrain vehicles and, occasionally, heavy equipment. Farming and ranching activities involving the use of farming equipment, light vehicles, all-terrain vehicles, and occasionally heavy equipment are ongoing in the immediate area and surroundings of the Project.

No Action Alternative: There would be no effect from the No Action Alternative, because there would be no construction noise related to ditch piping or ditch lining in the Project Area. Noise related to ditch operation and maintenance activities would continue as it has in the past.

Project (Piping Alternative): Project construction activities would generate a temporary source of noise audible to residents near the piping component of the Project. Sources of noise would include heavy equipment moving earth or crushing rock, trucks hauling pipe and other materials, and heavy equipment grubbing vegetation. As explained in Section 2.2.1, blasting may also be required to help prepare the pipe trench if bedrock is encountered. Blasting would occur inside the trench and below grade. The noise associated with such blasting would resemble a muffled "pop" from a firearm. These disturbances would occur during daylight hours (typically 7 am to 4 pm), Monday through Saturday, on a sequenced basis along the ditch section involved with the Project. There would be no project-related noise at the Habitat Replacement Site since no construction activities would take place there.

No significant impacts to noise would occur as a result of the Project, because noise associated with construction of the Project would be short-term and would not raise the noise level of the area above the moderate noise baseline; therefore, the short-term increase in noise would not be significant.

Lining Alternative. The impacts to noise from the Lining Alternative would not differ from the Piping Alternative, as described above.

No significant impacts to noise would occur as a result of the Lining Alternative, because noise associated with construction would be short-term and would not raise the noise level of the area above the moderate noise baseline; therefore, the short-term increase in noise would not be significant.

3.2.8 – Visual Resources

The geographic scope of analysis is Crawford Mesa, the general area where the Project is located, and the local viewshed of residents around the Project Area. Crawford Mesa is an area of pastoral beauty, with a pleasing array of colors and textures across the relatively open landscape—a mosaic of irrigated agricultural fields, rural residential areas, natural shrublands and badlands, scattered cottonwoods around residences and other developed areas, and natural wooded riparian corridors—against a backdrop of near and distant foothills and mountains. The ditches that traverse the area are linear features, often bermed and with an attendant access road and soil spoil piles remaining alongside or on the bermed area (ditch prism). The ditches support bands of shrub willows and occasional mature cottonwood trees which are visible on the relatively open and flat or gently-rolling landscape.

A baseline level of visual disturbance occurs in the Project Area, associated with local ranching and farming, local construction projects, and the Applicant's operation and routine maintenance of the ditch system. These activities can involve vehicles, machinery, earth moving, field and ditch burning, and can generate dust and smoke.

No Action Alternative: There would be no visual impacts from the No Action Alternative. The baseline level of visual disturbance in the Project Area associated with residential and farmstead developments, local ranching and farming activities, local construction projects, and the Applicant's operation and routine maintenance of the ditch systems would continue.

Project (Piping Alternative): Temporary impacts related to visual disturbance during and after construction would result from the Project. Machinery would be operating on the open landscape and highly visible from public roads in certain locations on a spatially incremental basis mostly during winter months during construction, and would be utilized sporadically for future maintenance of the pipeline. Following construction in the pipeline and abandoned ditch reaches, the disturbance footprint would be a linear area of bare ground, similar in appearance to its current condition. Within a few growing seasons, revegetation would help the disturbed ground blend with the surroundings. This impact would not rise to the level of significant. There would be no visual change to the Habitat Replacement Site since no construction activities would take place there.

While an estimated 0.3 acre of scattered cottonwoods would be in the construction footprint (ERO 2020), the overall long-term level of change to the visual characteristics of the landscape in and around the Project Area following construction would be minor. The scenic views around the Project Area of the mosaic of irrigated agricultural fields, rural residential areas, natural shrublands and badlands, scattered cottonwoods around residences and other developed areas, and natural wooded riparian corridors—against a backdrop of near and distant foothills and mountains, although slightly different following the Project, would remain intact overall.

No significant impacts to visual resources would occur as a result of the Project, because construction impacts would be temporary and the visual characteristics of the landscape in and

around the Project Area during and following construction would be minor and not out of character with the surrounding landforms or with the rural and the open agricultural character of the vicinity.

Lining Alternative. The impacts to visual resources from the Lining Alternative would not differ from the Piping Alternative, as described above, with the following exception: the visual scar left by the Lining Alternative would include the shotcrete-lined ditches rather than the bare and eventually revegetated ground that would result from the Piping Alternative.

No significant impacts to visual resources would occur from implementation of the Lining Alternative, because construction impacts would be temporary and the visual characteristics of the landscape in and around the Project Area during and following construction would be minor and not out of character with the surrounding landforms or with the rural and the open agricultural character of the vicinity.

3.2.9 – Vegetation

The geographic scope of analysis for vegetation is the general Crawford Mesa area (approximately 3,800 acres), as well as the Habitat Replacement Site (42.5 acres) on the Smith Fork River approximately 1.1 mile east of the Project. Crawford Mesa is the context within which physical disturbance or changes to vegetation would take place because of Project construction. Reclamation performed a spatial analysis in GIS (Reclamation 2024a), using publicly-available landcover and irrigated land datasets, to estimate that the Project Area and the general Crawford Mesa area are a mix of farmlands (approximately 2,383 acres of irrigated hayfields and grass pastures), developed farmstead areas and roads (a total of about 195 acres), natural uplands (about 1,220 acres in mixed saltbush (*Atriplex* spp.), sagebrush (*Artemisia* spp.), or pinyon (*Pinus edulis*)-juniper (*Juniperus osteosperma*) woodlands), and riparian and wetland areas (approximately 54.7 acres).

The maximum construction footprint of the Project Area contains approximately 15 acres of farmlands and 30 acres of uplands (Reclamation 2024a), as well as 4.2 acres of ditch-bank wetlands and riparian areas (ERO 2020). The ditch banks in the construction footprint support intermittent narrow corridors of irrigation-induced riparian and wetland vegetation, including stands of coyote willow (*Salix exigua*), cattails (*Typha* sp.), sedges (*Carex* and *Eliocharis* spp.), and rushes (*Juncus* spp.), occasional cottonwoods, and scattered non-native trees including Russian olive (*Elaeagnus angustifolia*) and salt cedar (*Tamarix* sp.) (ERO 2020). Within this area, cottonwood trees contribute an estimated 0.3 acre of riparian vegetation cover along the ditches involved with the Project (ERO 2020). The proposed staging and borrow areas for the Project are on a total of 33.8 acres (Table 3) of farmed or previously disturbed ground with upland vegetation. The Habitat Replacement Site contains 14.5 acres of natural upland vegetation in pinyon-juniper woodlands and native mixed shrublands, and nearly 28 acres of riparian cottonwood (*Populus* spp.) forests and woodlands with a diverse understory of native riparian shrubs and wetland and riparian herbaceous plant communities (Rare Earth 2021).

Vegetation along the ditches involved with the Project is disturbed by routine maintenance, which includes periodic mechanical clearing with heavy equipment and occasional burning or application of herbicides.

No Action Alternative: There would be no effect on existing vegetation from the No Action Alternative. The Applicant would continue to occasionally manage vegetation along the ditches,

which includes periodic mechanical clearing with heavy equipment, burning, or application of herbicides.

Project (Piping Alternative): The piping component of the Project would directly disturb a maximum footprint of approximately 50 acres—including approximately 30 acres of upland vegetation (Reclamation 2024a), about 15 acres of farmland (Reclamation 2024a), and 4.2 acres of ditch bank wetland and riparian vegetation (ERO 2020). The impact would be evident in the Project area as a linear disturbance absent of vegetation for a period of one growing season in irrigated agricultural areas to several years in natural areas (3.2.8). The impacted upland native vegetation and agricultural types are common and abundant in the surrounding areas. The surrounding native upland pinyon-juniper woodlands would not be affected by piping of the ditches (removal of the water resource) because they are adapted to arid conditions. Construction activities would also directly disturb the staging and borrow areas—areas which have been previously disturbed. Vegetation impacts to the previously-analyzed Aspen Canal, Spurlin Mesa Staging Area, and Center Lateral Staging areas did not rise to the level of significant, as documented in the respective EAs (Reclamation 2014, 2019a, 2019b). There would be no impacts to vegetation on the Habitat Replacement Site.

During construction, dust from operating equipment and vehicles would also affect nearby vegetation, however increased dust would be minor and temporary, and therefore the impact to nearby vegetation would be minor and temporary. Across the entire Project, vegetation removal and construction footprints would be confined to the smallest portion of the ditch prism or construction ROW necessary for safe completion of the work. Construction of the Project would follow BMPs to further minimize temporary impacts, to protect water quality, and to further minimize dust and soil erosion.

Following construction disturbance, natural areas would be recontoured and either topsoiled and reseeded with a seed mix appropriate for the surrounding vegetation community or finished with sterile subsurface soil and unseeded, depending on the wishes of the underlying landowner. Where applicable, the seed mix for the natural areas would be a native drought-tolerant weed-free seed mix approved by Reclamation (Appendix A). Natural colonization of native plants on the reserved unweathered subsurface soil is preferable to reseeding on reserved topsoil in these areas. Redistributed topsoil has a low probability of success in germinating commercial seed mixes following construction, especially in drought conditions, and instead has germinated its own existing seed banks of ruderal weeds adapted to ground disturbance. Finishing the ground surface instead with unweathered subsurface soil would help eliminate the weed seed bank in the construction area. In accordance with the principles of ecological succession, surrounding native vegetation would colonize the construction corridor over a period of several years as the new topsoil becomes weathered. Because the upland native vegetation is abundant in the surrounding areas and would re-colonize the construction corridor, the impact to upland native vegetation would not rise to the level of significant.

Following pipeline construction, farmed areas would be contoured to the surrounding grade and reseeded with compatible hay or pasture seed mixes. Farmed areas would return to a condition similar to or better than their pre-construction condition within a year of construction, because they would be reseeded and integrated into the surrounding irrigation and management regime.

The 4.2 acres of wetland and riparian areas associated with the ditches involved with the Project would either be converted to upland vegetation or farmland, depending on their context, following

construction. A habitat loss assessment was performed for the Project to quantify the fish and wildlife values that would be lost due to the conversion of these areas to uplands or farmlands by the Project (ERO 2020). The evaluation followed the methodology outlined in *Basinwide Salinity Control Program: Procedures for Habitat Replacement* (Reclamation 2018). In accordance with the protocol, the habitat value is calculated for each affected wetland or riparian habitat area by multiplying its acreage by its habitat quality score, which is assigned based on evaluation of a series of ten physical and biological criteria. These criteria include vegetative diversity, vegetative stratification, presence of noxious weeds, overall vegetative condition, interspersion of open water with vegetation, connectivity and proximity of other wildlife habitat areas, wildlife use, uniqueness or abundance, water supply, and degree of human-caused alteration. The Project would result in the permanent loss of approximately 4.2 acres of riparian and wetland vegetation associated with the unlined ditches, which when combined with the scores from the 10 habitat quality criteria described above, is the equivalent of 11.6 habitat value units (ERO 2020). As stipulated by the Salinity Control Act, a habitat replacement project (Section 2.2.9) conducted using *Procedures for Scoring Land Acquisition as Habitat Replacement and Guidance on Developing Habitat Management Plans* (Reclamation 2021) and generating 33.4 habitat value units, is included as a component of the Project. There was a known plan for residential development within the habitat replacement area, and therefore the area qualified for developing habitat value units by establishing a protective mechanism (i.e. a conservation easement) on the area to prevent the development from occurring, thereby securing the ongoing presence of 33.4 habitat value units which would otherwise have been lost. Because the value of the habitat protected from degradation (33.4) is greater than the value of the habitat lost (11.6), there would be no net loss of fish and wildlife values (in this case, riparian and wetland vegetation) associated with implementation of the Project. Because there would be no net loss of riparian and wetland values associated with implementation of the Project, the effects of the loss of riparian and wetland vegetation would be insignificant from a habitat perspective.

No significant impacts to vegetation would occur as a result of the Project, because the construction footprint would be revegetated with upland plants found in the existing well-established adjacent plant communities, farmed areas in the construction footprint would be reseeded and returned to agricultural production, and riparian and wetland values related to the ditches involved with the Project would be maintained with the implementation of the Habitat Replacement Site.

Lining Alternative. The impacts to vegetation from the Lining Alternative are similar to the Piping Alternative, as described above, except some of the surface area in the construction footprint would remain as open water (lined ditches) following construction.

No significant impacts to vegetation would occur from implementation of the Lining Alternative, because the construction footprint would be revegetated with upland plants found in the existing well-established adjacent plant communities, farmed areas in the construction footprint would be reseeded and returned to agricultural production, and riparian and wetland values related to the ditches involved with the Project would be maintained with the implementation of the Habitat Replacement Site.

3.2.10 – Noxious Weeds

The geographic scope of analysis for noxious weeds is Crawford Mesa, the context within which Project activities have the potential to affect this resource. The most conspicuous herbaceous noxious weeds present within the Project Area are whitetop (*Lepidium draba*), Russian knapweed (*Acroptilon repens*), and Canada thistle (*Cirsium arvense*) (ERO 2020). Non-native shrubs or trees

scattered on the ditch banks include Russian olive (*Elaeagnus angustifolia*) and salt cedar (*Tamarisk* spp.) (ERO 2020). These weeds are common and widespread in the region, in disturbed areas such as roadsides, along ditch banks, in agricultural field margins, and in and around livestock corrals, feeding areas, and stockwater ponds, etc. Noxious weeds are well-adapted to colonize both newly disturbed soils and historically disturbed soils more quickly than most native plants (Mohler 2001). Flowing water in irrigation ditches, as well as vehicles and livestock, are also vectors for the continued spread of noxious weeds in the Project Area. Although the Applicant occasionally conducts vegetation management along the ditches involved with the Project, noxious weeds are persistent in the Project Area, covering an estimated average of about 20 percent of involved ditch bank areas (ERO 2020), or the equivalent of approximately 3.2 acres (based on the 6.6 miles of ditches involved and an estimated average ditch prism width of 20 feet). The same noxious weed species are persistent and scattered across Crawford Mesa in advantageous (disturbed) locations, along waterways, and in developed and agricultural areas of Delta County at large. Crawford Mesa spans approximately 6 square miles (about 3,800 acres), with nearly the entire mesa in private agricultural and residential use. As a conservative estimate of the total acreage of noxious weeds on Crawford Mesa, Reclamation conducted the following analysis in GIS (Reclamation 2024a): Crawford Mesa has approximately 16.6 miles of mapped public roads, 24.6 miles of mapped waterways, a 1-mile-long air strip, and 234 separate legal parcels representing approximately 150 separate farms, ranches, and residential properties with private roads, livestock pens, fencelines, crop margins, and other areas of persistent ground disturbance where noxious weeds may proliferate. Assuming 13 percent noxious weed cover within 20 feet of mapped public roads and waterways; assuming 0.5-acre of disturbed ground with 3 percent noxious weed cover associated with each of the approximately 150 separate residences and agricultural operations on Crawford Mesa; and assuming 7.5 percent cover of noxious weeds associated with agricultural crops, there are potentially 198 acres of noxious weed cover on Crawford Mesa, or the equivalent of 5.2 percent noxious weed cover across the approximately 3,800-acre Crawford Mesa. Estimated percentages of noxious weed cover for different disturbance types were based on ERO (2020) and Loving (2022).

Delta County has weed control standards and a noxious weed management plan (Delta County 2020), though without an enforcement mechanism that triggers coordinated weed control at the county or local levels. Landowners on Crawford Mesa have varying levels of resources to dedicate to noxious weed management on their lands, and differences exist regarding effectiveness of management methods and which management methods are preferred (for instance, chemical versus biological or mechanical controls).

No Action Alternative: There would be no effect on noxious weeds from the No Action Alternative. Noxious weeds would continue to spread in the Project Area and on Crawford Mesa through common vectors, including flowing water associated with the ditches involved with the Project, surface soil disturbances, and vehicles, wildlife, and livestock moving through the Project Area.

Project (Piping Alternative): The piping component of the Project would create a construction footprint wider than the existing ditch prisms in some areas. Noxious weeds in the surroundings would spread opportunistically into these disturbed soils, or ground disturbance would trigger germination of the existing weed seed bank in the soils. A maximum of approximately 33 acres of new ground disturbance could be generated by the Project. If like the surrounding areas, noxious weeds colonize the disturbed ground at a rate of 20 percent cover, this would create an additional approximately 7 acres of noxious weed cover, or an overall equivalent increase of 0.2 percent in noxious weed cover, on Crawford Mesa (Reclamation 2024a). Design features (finishing techniques including the sterile

topsoiling natural revegetation method; conventional finishing with reserved topsoil and reseeding; and the use of BMPs such as cleaning equipment prior to bringing it onsite (CHAPTER 4), would help slow or prevent invasive weeds from colonizing areas disturbed by construction activities. After construction and reclamation of the Project Area, noxious weed presence would be managed subject to agreements between the Applicant and individual landowners. While these design features and agreements would help slow the spread of invasive weeds, this analysis is conservative in that it assumes a total lack of weed control post-construction.

While ground disturbance associated with the Project could increase the total overall noxious weed cover on Crawford Mesa by an estimated 0.2 percent, noxious weeds are already present across an estimated 5.2 percent of Crawford Mesa. Removal of the ditches involved with the Project either by piping or decommissioning would eliminate segments of flowing open water in the ditch system, a key element of invasive seed transport. Certain segments of the ditch would no longer require regular maintenance, lowering the potential for the continued spread and establishment of weeds by vehicles and surface disturbances. Downgradient herbaceous and woody noxious weeds which rely on ditch seepage would no longer be supported. Despite these beneficial effects to noxious weed presence, noxious weeds would continue to be present, and would continue to have the potential to spread, in the Project Area and on Crawford Mesa.

Because noxious weeds are currently present and have the continued potential to spread in the Project Area and on Crawford Mesa, their ongoing presence and potential to spread following the Project would not constitute a significant impact. The 0.2 percent overall estimated increase in noxious weed cover on Crawford Mesa as a result of the Project is a conservative estimate, and does not rise to the level of significant; therefore, no significant impacts to noxious weeds would occur as a result of the Project.

Lining Alternative. The impacts to noxious weeds from the Lining Alternative are similar to the Piping Alternative, as described above, except flowing surface water in the lined ditches would continue to provide a vector for spreading weed seeds in the area.

Because noxious weeds are currently present and have the continued potential to spread in the area of the involved ditches and on Crawford Mesa, their ongoing presence and potential to spread following implementation of the Lining Alternative would not constitute a significant impact. A 0.2 percent overall estimated increase in noxious weed cover on Crawford Mesa from implementing the Lining Alternative is a conservative estimate, and does not rise to the level of significant; therefore, no significant impacts to noxious weeds would occur.

3.2.11 – Wildlife Resources

The geographic scope of analysis for wildlife is the Project Area plus an approximately one mile buffer, the approximate area within which the Project has the potential to affect this resource. The riparian vegetation supported by the open ditches, in association with nearby irrigated land, and surrounding uplands with native shrublands and woodlands, provide nesting, breeding, foraging, cover, and movement corridors for an array of wildlife.

The Project Area falls within overall range of elk, mule deer, mountain lion, and black bear. The entire Project Area falls within elk and mule deer severe winter range mapped by Colorado Parks and Wildlife (CPW 2022). The entire Project Area is also a CPW-mapped mule deer concentration area. Mule deer are relatively common and present year-round in the area, whereas elk are present in

fewer numbers and only during winter. Crawford Mesa's array of irrigated agricultural lands and water resources (creeks, ditches, ponds) are attractive to big game, especially during winter.

A variety of small mammals, reptiles, amphibians, and birds inhabit the general Project Area (Armstrong et al. 2011; Hammerson 1999; Kingery 1998). The ditches in the Project Area create microclimate differences (Section 3.2.15) that support wetland and riparian vegetation, which in turn support a variety of wildlife dependent on wetland or riparian areas for some or all of their life cycle. Those that would be likely to use the ditch corridor or adjacent areas include small ground-dwelling mammals, such as badger, white-tailed prairie dog, cottontail rabbit, white-tailed jackrabbit, woodrat, several species of lizards, mice, voles, and shrews. Striped skunk, raccoon, red fox, coyote, bobcat, beaver, western terrestrial garter snake, smooth green snake, Woodhouse's toad, northern leopard frog, several species of bats, and tiger salamander could also be using the area. Waterfowl such as mallard ducks and Canada geese may occasionally use open water in the Project Area, but do not typically chose ditch banks for nest sites.

The primary nesting season for migratory songbirds in the Project Area is April 1 through July 15. The core nesting season for raptors in the area is also April 1 through July 15; however, individuals—especially red-tailed hawk and great-horned owl—may begin courtship and nest construction as early as February 15 (CPW 2020). Burrowing owls may be present and nesting in prairie dog burrows during the period of March 15 through October 31 (CPW 2020). Golden eagles nest between December 15 and July 15, and bald eagles nest between October 15 and July 31 (CPW 2020). The entire Project Area lies within CPW-mapped bald eagle winter foraging range (CPW 2022). Prairie falcon and American kestrel are species of falcon with the potential to nest in or near the Project Area. A nesting raptor survey conducted for the Project Area during Spring of 2020 and the Spring of 2023 identified three red-tailed hawk nests within 1/3 mile of the construction areas (the protective buffer distance recommended by CPW (CPW 2020). An American kestrel nest was identified within the Project corridor. CPW has no recommended protective buffer for this species (CPW 2020).

Wildlife in the Project Area experiences a baseline level of disturbance from farming and ranching activities, rural residential activities, domestic dogs, and people and vehicles traveling on public and private roads. Agriculture, including farming and livestock grazing, are the primary land uses in the Project Area. The ditch laterals are near fairly busy public roads, including State Highway 92, in a mix of residential and agricultural settings.

The Habitat Replacement Site is in the forested riparian corridor of the Smith Fork River, and is located approximately 1.1 direct miles east of the eastmost part of the piping component of the Project in the Smith Fork drainage, where a significant part of the ditch system's water originates (see Figure 1).

No Action Alternative: There would be no effect on wildlife resources from the No Action Alternative. Wildlife would continue to use the habitat and water resources in the area as in the past. Salt and selenium loading from the area would continue to affect aquatic dependent species.

Project (Piping Alternative): Construction would create incremental activity and ground disturbance in the Project Area, resulting in minor temporary impacts to mule deer and elk that may be present. There would be a short-term loss of vegetative cover in big game severe winter habitat until the areas are revegetated. However, the construction footprint of the Project represents less than

approximately 0.1 percent of the total amount of elk and mule deer critical winter habitat in Game Management Unit 53, and this temporary loss of vegetative cover would result in negligible effects to big game critical winter habitat. Additionally, given the existing level of human disturbance and development (winter livestock feeding, other agricultural activities, residential activities, and highway traffic) in the Project Area, big game would be somewhat habituated to the Project disturbances. Furthermore, severe winter conditions (e.g., snow cover, extreme cold temperatures, excessively muddy conditions) would preclude construction activities during times when game is most vulnerable. After implementation of the Project, water resources for big game and other wildlife would continue to exist in the Project Area at a rate of more than 4 sources per square mile (the rate recommended in CPW's comments on the Draft EA [Appendix E]). Other sources include on-farm irrigation ditch laterals, ponds, and streams. The Project would also result in better availability of winter livestock water for the shareholders. Up to 37 on-farm stockwater outlets spread across the Project Area would have the potential be active during freezing months following Project implementation. These stock watering resources would also benefit big game. Since irrigated agricultural crops and water resources are major drivers of big game presence in the Project Area, the Project would not result in a long-term change in big game use or migratory patterns in the Project Area.

Construction impacts to small animals, especially burrowing reptiles, and small mammals, could include direct mortality and displacement during construction activities. However, these species and habitats are relatively common throughout the area. Based on the principles of ecological succession, small animals in the surrounding areas would recolonize the construction footprint following the disturbance, and population-level significant impacts would not occur.

There would be no direct effect to nesting songbirds or the American kestrel nest in the Project footprint since pre-construction vegetation grubbing would occur outside the primary nesting season (potential nesting habitat including shrubs and trees along the ditch would be grubbed and removed outside the period of April 1 through July 15). Vegetation grubbing timing restrictions would be clearly noted on the Project construction drawings.

There would be no effect to the three red-tailed hawk nests identified near the Project Area as they would be avoided with sensitive area buffers and construction timing restrictions per CPW recommendations (CPW 2020). Construction activities would not occur within 1/3 mile of an active red-tailed hawk nest from February 15 through July 15, with the following exception: pipeline construction within 1/3 mile of a nest could begin prior to February 15, so long as the construction activities were initiated prior to February 15, and operated on a daily basis until completion (it is assumed that red-tailed hawks that initiate nesting during ongoing construction activities are tolerant to such activities). These timing restrictions and sensitive areas would be noted on Project construction drawings (see CHAPTER 4). If a new active raptor nest is discovered within 1/3 mile of the Project during construction, construction would cease until Reclamation could complete evaluations and consultations with FWS and CPW.

Bird, bat, reptile, and amphibian species dependent on wetland and riparian habitats for some or all of their life cycles would experience a long-term (greater than five years) loss of habitat due to the Project. Based on the principles of ecological succession, these species would continue to propagate in the region and population-level significant impacts would not occur. The habitat value associated with the lost wetland and riparian habitat, including microclimate benefits, would be fully maintained with the conservation of the Habitat Replacement Site (Sections 2.2.9, 3.2.9, and 3.2.15). Because the

value of these species' habitat would be fully maintained in the Crawford Mesa area, there would not be a significant impact to bird, bat, reptile, and amphibian species resulting from the loss of the ditch-induced wetland and riparian habitat.

Consistent with the *Salinity Control Program Fish and Wildlife Habitat Evaluation Procedures* (Reclamation 2018), the Habitat Replacement Site is near the Project Area and in the same watershed where the ditch system involved with the Project originates, contains a stream corridor, and connects to other areas that have wildlife habitat value. The ranges of many wildlife species in the area, including the local deer and elk herds, encompass both the Project Area and the Habitat Replacement Site. To further reduce the potential for effects to wildlife, pipeline trenches left open overnight during construction would be kept to a minimum and covered to reduce potential for entrainment of deer, elk, and other wildlife. Covers would be secured in place and strong enough to prevent wildlife from falling through. Where trench covers would not be practical, wildlife escape ramps would be utilized.

No significant impacts to wildlife resources would occur as a result of the Project, because construction impacts would be temporary and relatively small in comparison with surrounding available habitat, timing restrictions would protect nesting birds during sensitive periods, disturbed upland habitats would be revegetated, wildlife watering resources would be maintained, and wetland and riparian habitat values would be maintained with the implementation of a Habitat Replacement Site.

Lining Alternative. The impacts to wildlife resources from the Lining Alternative would not differ from the Piping Alternative, as described above, with the following exception: Unlike the Piping Alternative, the Lining Alternative does not provide the added wildlife benefit of the delivery to the shareholders of winter stock water during freezing weather. Wildlife water distribution and availability would continue as it has in the past.

No significant impacts to wildlife resources would occur as a result of the Lining Alternative, because construction impacts would be temporary and relatively small in comparison with surrounding available habitat, timing restrictions would protect nesting birds during sensitive periods, disturbed upland habitats would be revegetated, wildlife watering resources would be maintained, and wetland and riparian habitat values would be maintained with the implementation of a Habitat Replacement Site.

3.2.12 – Threatened & Endangered Species

The species listed or candidates for listing as threatened or endangered under the Endangered Species Act of 1973, as amended, with the potential to be affected by the Project are the four listed Colorado River basin fish species: bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), the humpback chub (*Gila cypha*), and the razorback sucker (*Xyrauchen texanus*), silverspot (*Speyeria nokomis nokomis*), and gray wolf (*Canis lupus*), as well as a candidate for listing, monarch butterfly (*Danaus plexippus*).

Other listed species or species proposed for listing and identified by FWS as having the broad potential for their range to intersect the general Project Area are Gunnison sage-grouse (*Centrocercus minumus*), Mexican spotted owl (*Strix occientalis lucida*), and yellow-billed cuckoo (*Coccyzus americanus*). These species were dismissed from analysis because there have been no documented occurrences in the Project Area, and/or there is no suitable habitat for these species in the Project Area.

None of the four listed Colorado River fishes occurs in the Project Area and the Project Area does not occur within or adjacent to designated critical habitat. However, because water depletions in the Gunnison Basin diminish backwater spawning areas for the Colorado River endangered fishes in downstream designated critical habitat, impacts to the listed fishes result from continuing irrigation practices in the Gunnison Basin. The total average historic depletion rate from the Applicant's system operations is estimated as 5,776 acre-feet per year.

The Upper Colorado River Endangered Fish Recovery Program ("Recovery Program") is a partnership of public and private organizations (including Reclamation) working since 1988 to recover the four species while allowing continued water uses and future water development. Recovery strategies include conducting research, improving river habitat, providing adequate stream flows, managing non-native fish, and raising endangered fish in hatcheries for stocking. In 2009, Reclamation completed a consultation for changes in operation (aka "reoperation") of the Aspinall Unit (the three dams on the Gunnison River in the upper part of the Black Canyon of the Gunnison) in coordination with other federal water project dams in the Gunnison watershed to address the needs of the downstream endangered fishes by creating a flow regime that more closely represents the natural conditions. The consultation considered all other federal and non-federal existing water depletions in the Gunnison River Basin (an estimated annual average of 602,700 acre-feet per year), along with projected new future depletions of up to 37,900 acre-feet per year. Following the consultation, FWS issued the 2009 Gunnison River Basin Programmatic Biological Opinion (2009 PBO)(FWS 2009). The 2009 PBO found that although the reoperation of the Aspinall Unit and the continued operation of other federal and non-federal operations in the Gunnison Basin may adversely affect the endangered fishes and their critical habitat, the ongoing Recovery Program remains the reasonable and prudent alternative to avoid jeopardy to the endangered Colorado River fishes and avoid adverse modification of designated critical habitat. On an annual basis, the FWS determines whether the Recovery Program continues to make "sufficient progress to be the reasonable and prudent alternative to avoid the likelihood of jeopardy to the endangered fishes, and to avoid destruction or adverse modification of their critical habitat" for "existing depletions" (FWS 2023a). Non-federal existing depletions such as those depletions from the operations of the Applicant are not required to consult with FWS under Section 7 of the ESA regarding the listed fishes until there is a "federal nexus" (e.g. a federally-funded project requiring the NEPA process and the analysis of impacts). At that time, a consultation with FWS is completed to consider whether the related depletions fit under the umbrella of the 2009 PBO and the Recovery Program. FWS notified Reclamation on June 25, 2024, that Reclamation projects involving existing depletions perfected prior to 1988 and covered under the PBO are not required to further consult with FWS under Section 7 of the ESA regarding the listed fishes (FWS 2024). The Project involves both federal project water and an existing non-federal depletion perfected prior to 1988.

The Project Area is mapped within the overall range of the silverspot (a butterfly) listed as threatened under the U.S. Endangered Species Act in February 2024. No documented populations of silverspot occur in or near the Project Area (FWS 2023b). Reclamation conducted an informal technical consultation with FWS to confirm that the silverspot's larval host plant, bog violet, is not present in the Project area (Reclamation 2024b).

The gray wolf is a wide-ranging habitat generalist and keystone predator that requires landscape-scale areas of minimal human disturbance and a sufficient prey base of large ungulates. Historically, wolves occurred across the state, but were extirpated (exterminated) from Colorado in the 1940s, mainly to protect domestic livestock. Documented reports of lone wolves sporadically dispersing

into northern Colorado began in 2004, following the re-establishment of populations in Idaho, Montana, and Wyoming. In 2020, CPW confirmed an active pack of 6 wolves in extreme northwestern (Moffat County) Colorado. In 2020, Colorado citizens voted to restore the gray wolf in Colorado by the end of 2023. In 2023, the U.S. Fish & Wildlife Service designated the Colorado wolf population as "experimental" under the U.S. Endangered Species Act, to provide management flexibility to CPW. CPW completed the first re-introduction of wolves in northern Colorado (Grand and Summit counties) in December 2023. The primary threats to wolves are vehicle collisions, illegal poaching, or accidental take (such as by poisoning targeted to other livestock predators such as coyote). The Project Area is not in gray wolf designated critical habitat.

While western Colorado has not been home to large numbers of monarch butterflies relative to other areas in its range, this Candidate species occurs in the Project Area during the warm season where milkweed plants are available in riparian areas, wetlands, irrigated pastures, and roadsides. Due to occasional ditch maintenance activities, riparian vegetation along ditches is occasionally cleared.

No Action Alternative: There would be no effect on the four Colorado River endangered fishes or their designated downstream critical habitat, or on the monarch butterfly, from the No Action Alternative. Historic depletions and salt and selenium loading from the Project Area would continue to affect the four Colorado River Basin listed fishes and their critical habitat downstream. Ditch maintenance activities would potentially continue to affect milkweed habitat, the larval host plant of the candidate monarch butterfly.

Project (Piping Alternative): No change to the Applicant's historic annual consumptive use rate or historic water depletions from operations of their systems within the Colorado River Basin would occur as a result of the Project. Based on previously issued biological opinions, including the 2009 PBO, that all depletions within the Upper Colorado River Basin may adversely affect the four listed fish species and their critical habitat, it is determined that the Project may adversely affect the bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker and their critical habitat. However, the Recovery Program ensures impacts to listed fishes or adverse modification of their designated critical habitat resulting from projects covered under the 2009 PBO would not result in jeopardy to the species. Reclamation previously consulted with FWS on the Applicant's total historical annual depletion rate in 2016 for a different salinity control project (File ES/JG-6-CO-09-F-001-GP029 TAILS 06E24100-2016-F-0022). To ensure the Applicant's depletions were covered under the 2009 PBO, the Applicant executed a Recovery Agreement with FWS (Appendix B). Because the Applicant's depletions are covered under the 2009 PBO, the Project would not result in jeopardy to the species, and there would be no significant impact to the endangered fishes or their designated critical habitat.

Direct effects to individual monarch butterflies in larval or chrysalis stages on milkweed plants could occur during construction. Because the Project Area is not within a core migration area or core population area for the monarch butterfly, direct effects would not rise to the level of significant. The Habitat Replacement Site would preserve host plant (milkweed) habitat, maintaining monarch butterfly habitat in the area. Therefore, the Project would not adversely or significantly affect the monarch butterfly's habitat or population in western Colorado.

There would be no effect to silverspot from the Project because the Project does not overlap with the documented population occurrences of silverspot, and its host plant is not present in the Project Area.

Given the current understanding that wolves are not present or documented in the Project Area, the Project would have no effect on the gray wolf. If wolves dispersed into or near the Project Area during construction of the Project, the Project activities would not measurably affect wolves, because the Project does not include a predator management program, and wolves could disperse away from the Project area. Since the Project is not in gray wolf designated critical habitat, there would be no effect to gray wolf critical habitat.

No significant impacts to threatened and endangered species and their critical habitat would occur as a result of the Project, because the execution of a Recovery Agreement in accordance with the 2009 PBO ensures the Project has no significant impact on the Upper Colorado River listed fishes or their designated critical habitat; and because habitat for the monarch butterfly (a candidate for listing) would be conserved at the Habitat Replacement Site.

Lining Alternative. The impacts to threatened and endangered species from the Lining Alternative would not differ from the Piping Alternative, as described above.

No significant impacts to threatened and endangered species and their critical habitat would occur from the Lining Alternative, because the execution of a Recovery Agreement in accordance with the 2009 PBO ensures there is no significant impact on the Upper Colorado River listed fishes or their designated critical habitat; and because habitat for the monarch butterfly (a candidate for listing) would be conserved at the Habitat Replacement Site.

3.2.13 – Cultural Resources

Cultural resources are defined as physical or other expressions of human activity or occupation. Such resources include culturally significant landscapes, prehistoric and historic archaeological sites, isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historical significance.

Alpine Archaeological Consultants conducted Class III cultural resource inventories of the Project Area. The geographic area of analysis for these inventories were the ditches and potential ground disturbance areas involved with the Project, plus a 100-foot buffer (e.g. the Area of Potential Effect). All ditch reaches involved with the Project were inventoried, as well as access routes, borrow areas, and staging areas. The inventories resulted in the documentation of several sites within the Project Area are eligible for listing in the National Register of Historic Places (NRHP).

There is an ongoing trend of piping earthen irrigation ditches in the region (see Figure 2), many of which are eligible for listing in the NRHP. This conversion is typically viewed as an adverse effect on the eligible cultural resource.

No Action Alternative: The No Action Alternative would have no effect on cultural resources. The cultural resources documented as eligible for listing in the NRHP would continue to exist in their current condition on the landscape.

Project (Piping Alternative): As a result of the Class III cultural resources inventory of the Project Area, and in consultation with the Colorado State Historic Preservation Officer (Colorado SHPO), Reclamation has determined that the Project would have an adverse effect on several ditch elements involved with the Project, which are resources eligible for listing in the NRHP. A nearby sensitive historical structure (an old homestead structure) lies within 25 feet of the construction right-of-way. A Memorandum of Agreement (MOA) has been executed between Reclamation and the Colorado SHPO, with the Applicant participating as an invited party, regarding the management of cultural resources related to the Project. The MOA outlines stipulations designed to maintain the cultural heritage of irrigation history through public interpretation and/or documentation (Appendix C). An amendment to the MOA (Appendix C) has also been executed between Reclamation and the Colorado SHPO to acknowledge the screen installation for the current Project at the previously analyzed Mill Site (see Section 1.6), and to extend the deadline to complete the MOA requirements in Stipulations I.A.c and III. Maintaining the cultural heritage of irrigation history would ensure that piping the ditches would not result in the loss of knowledge of early irrigation systems, their design, or reduce the ability to gain knowledge of early irrigation systems into the future. The nearby sensitive historical structure would be protected from construction activities by placement of a barricade between the construction zone and the sensitive structure. The required location for the barricade would be clearly marked on the Project construction drawings. Because the value of the cultural resources related to the Project would be conserved, there would be no significant impacts to cultural resources as a result of implementing the Proposed Action.

No significant impacts to cultural resources would occur as a result of the Project, because the cultural heritage of irrigation history would be maintained.

Lining Alternative. The impacts to cultural resources from the Lining Alternative would not differ from the Piping Alternative, as described above.

No significant impacts to cultural resources would occur as a result of the Lining Alternative, because the cultural heritage of irrigation history would be maintained.

3.2.14 – Soils & Farmlands of Agricultural Significance

The Project Area (Figure 1) is the geographic scope of analysis for soils and farmlands of agricultural significance, the context within which Project activities have the potential to affect this resource. The soils units mapped by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) in the Project Area are generally clay loams that have Mancos shale parent material and are a source of salinity in irrigation water in the region. Several soils in the Project Area are agriculturally significant since they are classified by NRCS (NRCS 2022) as "prime farmland if irrigated," "farmland of unique importance," or "farmland of statewide importance" under the Farmland Protection Policy Act.

Soils in the area are also highly prone to erosion, especially where irrigation ditches contour through Mancos shale-derived soils and along slope faces.

No Action Alternative: The No Action Alternative would have no effect on soils characterized by NRCS as agriculturally significant. Farmlands in the Project Area would continue to produce as in the past. Salinity loading from irrigation water contact with saline soils in the involved ditches would continue as it has in the past.

Project (Piping Alternative): Under the Piping Alternative, installation of the buried pipelines would temporarily disturb soils in the construction footprint. Staging activities would take place on existing irrigated pastures or existing disturbed areas. Project activities would cause temporary disturbance to soils that are either not in irrigated agricultural production, or soils directly adjacent to irrigated agricultural lands, or soils of irrigated lands. Some currently farmed agriculturally significant soils would be temporarily directly disturbed by the Project, but would be put back into production prior to the following irrigation season. No farmlands would be permanently altered or removed from production as a result of the Project, and no interruption to agricultural production would occur. Therefore, there would be no significant impact to soils, farmlands, or agricultural production as a result of implementing the proposed action.

The ditches involved with the Project also convey irrigation water to agriculturally significant soils downstream of the Project Area; however, no change to or effect on the configuration of irrigated lands would occur because of the Project. No part of the irrigation season would be lost during implementation of the Project.

Soil erosion from irrigation water conveyances would be substantially reduced where ditch reaches are proposed for replacement with buried pipe. Therefore, no adverse effects on soil erosion would occur due to implementation of the Project.

Following piping, wetland and riparian microclimate conditions in the soils adjacent to the ditches involved with the Project would be converted to upland conditions (Section 3.2.15). Wetland and riparian microclimate conditions are being conserved at the Habitat Replacement Site (Section 3.2.9). Because there would be no net loss of wetland and riparian soil microclimate conditions associated with implementation of the Project, the effects of the loss of these microclimate conditions in the Project Area would be insignificant.

No significant impacts to soils & farmlands of agricultural significance would occur as a result of the Project, because no soils or farmlands of agricultural significance would be permanently removed from production. Soils affected by construction would be protected from erosion with BMPs and agricultural soils returned to production the following growing season.

Lining Alternative. The impacts to soils and farmlands of agricultural significance from the Lining Alternative would not differ from the Piping Alternative, as described above.

No significant impacts to soils & farmlands of agricultural significance would occur as a result of the Lining Alternative, because no soils or farmlands of agricultural significance would be permanently removed from production. Soils affected by construction would be protected from erosion with BMPs and agricultural soils returned to production the following growing season.

3.2.15 – Microclimate

The geographic scope of analysis for microclimate is the general Crawford Mesa area (approximately 3,800 acres), as well as the Habitat Replacement Site (42.5 acres) on the Smith Fork River approximately 1.1 mile east of the Project. Crawford Mesa is the context within which physical disturbance or changes to microclimate could take place because of Project construction.

There are differences in soil moisture content between soils in the saturation zone of irrigation ditches and other water bodies and surrounding uplands. Saturated soils along ditch margins and

other waterbodies, and the wetland or riparian vegetation types they support, create a microclimate that is different than surrounding uplands, with higher humidity and cooler air and soil temperatures. These conditions in turn provide habitat for species requiring wetland and/or riparian habitat for all or parts of their life cycles (Section 3.2.11). Riparian and wetland vegetation, including cottonwoods, provide localized shade and cooling effects from evapotranspiration. Crawford Mesa has approximately 54.7 acres of wetland and riparian areas, and the Project Area has about 4.2 acres of wetland and riparian areas—including about 0.3 acres of cottonwood canopy (Section 3.2.9).

Agricultural irrigation has significant microclimate effects in arid and semi-arid regions. "In warm, dry regions, irrigation increases the amount of water available for plants to release into the air through a process called evapotranspiration. When the soil is wet, part of the sun's energy is diverted from warming the soil to vaporizing its moisture, creating a cooling effect" (Puma & Cook 2010). As such, irrigated hay meadows and grass pastures (as well as irrigated grass lawns) create a microclimatic moderating or cooling effect during the warm season. Crawford Mesa has approximately 2,383 irrigated acres (Section 3.2.9). *No Action Alternative:* The No Action Alternative would have no effect on microclimate. Surface hydrology (including irrigation), soil, and vegetation aspects of microclimate would continue to function as they have in the past within the Project Area.

Project (Piping Alternative): The Project would affect 4.2 acres of wetland and riparian vegetation and soils related to irrigation ditches on Crawford Mesa. To contextualize the vegetation impact of the Project on the microclimate of Crawford Mesa, Reclamation performed a spatial analysis in GIS (Reclamation 2024a) using publicly-available landcover and irrigated land datasets. Crawford Mesa encompasses approximately 54.7 acres of riparian and wetland landcover types, constituting 1.9 percent of Crawford Mesa. By contrast, the agricultural landcover type (irrigated croplands and pastures) is estimated as 2,382 acres, or nearly 63 percent of the landcover on Crawford Mesa. Because irrigated hay meadows and pastures function similarly to wetlands and riparian areas in terms of evapotranspiration and wetted soil cooling effects (Puma & Cook 2010), this analysis suggests that irrigated agricultural lands are contributing the majority of the microclimate cooling effect to Crawford Mesa, rather than the approximately 54.7 acres of wetland and riparian vegetation on Crawford Mesa and the 4.2 acres of wetland and riparian vegetation associated with the Project.

The 4.2 acres of wetland and riparian vegetation, including the 0.3 acre of cottonwood trees (ERO 2020), that would be impacted by the Project, constitute approximately 0.1 percent of Crawford Mesa. Approximately 1/3 of this area would be converted to irrigated farmland, and approximately 2/3 of this area portion would be converted to uplands, resulting in a loss of microclimate benefits to habitat in particular spatial locations. These microclimate habitat benefits lost in the Project Area would be maintained at the Habitat Replacement Site (Section 3.2.9).

Because the preponderance of microclimate benefits on Crawford Mesa are provided by irrigated agricultural lands, and no irrigated agricultural lands would be lost as a result of the Project (Section 3.2.14), impacts to microclimate on Crawford Mesa would not rise to the level of significant. The loss of microclimate benefits in the Project Area from loss of riparian and wetland vegetation due to the Project would not create a significant impact to microclimate because those benefits would be maintained at the Habitat Replacement Site.

Lining Alternative. The impacts to microclimate from the Lining Alternative would not differ from the Piping Alternative, as described above.

Because the preponderance of microclimate benefits on Crawford Mesa are provided by irrigated agricultural lands, and no irrigated agricultural lands would be lost as a result of the Lining Alternative (Section 3.2.14), impacts to microclimate on Crawford Mesa would not rise to the level of significant. The loss of microclimate benefits in the Project Area from loss of riparian and wetland vegetation due to the Lining Alternative would not create a significant impact to microclimate because those benefits would be maintained at the Habitat Replacement Site.

3.2.16 – Cumulative Impacts

Cumulative impacts are direct and indirect impacts on the resources affected by the Project (Piping Alternative) or the Lining Alternative (together, "Action Alternatives") which result from the incremental impact of either Action Alternative when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts can also be characterized as additive or interactive. An additive impact emerges from persistent additions from one kind of source, whether through time or space. An interactive—or synergistic—impact results from more than one kind of source.

The analysis of cumulative impacts (Table 5) for the Action Alternatives considers both spatial (geographic) boundaries and temporal limits of impacts, on a resource-by-resource basis. Spatial and temporal analysis limits vary by resource. Spatial limits were selected to be commensurate with the impacts on, and realm of influence of, each resource type. The temporal limits of analysis were established as 50 years for each resource type (a standard timeframe for cumulative impacts analysis), except for resource types perceived to have only temporary impacts (impacts that end following construction of the Project or within a few seasons following construction).

The direct and indirect effects of past and ongoing (present) actions are reflected in the current conditions described in the affected environment above in each of the resource topics of **Error! Reference source not found.**, and take into account ongoing cumulative effects from the past and present projects listed in Section 1.5. Reasonably foreseeable future actions are specific actions, and not speculative actions, in that they have approved NEPA documentation or approved plans with the potential to impact the same resources affected by the Project. Reasonably foreseeable future actions potentially affecting resources within the spatial and temporal limits of this analysis (Table 5) the Action Alternatives are as follows:

- Gunnison Basin Selenium Management Program (SMP)(see Sections 1.4.1 and 3.2.12). The resources affected by this program relevant to this analysis are Water Quality and Threatened & Endangered Species.

- The Colorado River Endangered Fish Recovery Program ("Recovery Program")(see Section 3.2.12). The resource affected by this program relevant to this analysis is Threatened & Endangered Species.

- Salinity Control Program. Projects that may be occurring simultaneously with the Project are the Grandview (Middle and Lower) Piping Project ("Grandview M&L") and the Turner and Lone Cabin Ditch Combination Salinity Reduction Project ("Turner & Lone Cabin"). Water

Quality, Vegetation, Noxious Weeds, Wildlife Resources, Threatened & Endangered Species, and Cultural Resources are the affected resources relevant to this analysis.

Table 5 describes the cumulative impacts incrementally cumulative effects, if any, of the reasonably foreseeable future actions in combination with each Action Alternative on the resources carried forward for analysis in this EA.

Table 5. Cumulative Impacts Analysis Spatial & Temporal Limits by Resource

Resource	**Reasonably Foreseeable Future Action with Impacts on this Resource**	**Spatial & Temporal Limits of Analysis**	**Cumulative Impacts Analysis**
Water Rights and Use (Section 3.2.1)	None	Project Area (area of Crawford Mesa); 50 years	There are no known reasonably foreseeable future actions which would have an impact on water rights and use and would incrementally contribute to a cumulative impact on this resource. Therefore, there are no cumulative impacts to water rights and use associated with implementation of either of the Action Alternatives.
Water Quality (Section 3.2.2)	1) None 2) Salinity Control Program and Gunnison Basin SMP	1) Project Area; 50 years 2) Upper Colorado River Basin; 50 years	1) There are no other reasonably foreseeable future actions in the local Project Area that would together with either of the Action Alternatives incrementally contribute to a cumulative impact on this resource. 2) The beneficial effects of improved water quality resulting from the implementation of either Action Alternative, along with other similar projects in the Upper Colorado region would contribute to the regional efforts underway to reduce salinity and selenium in the lower Gunnison and Colorado River watersheds.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Hydrology (Section 3.2.3)	Other Salinity Control Projects (Grandview M&L)	1) Crawford Mesa; 50 years 2) The two sub-watershed units encompassing the Project Area; 50 years	1) Surface water: Consistent with the Colorado River Basin Salinity Control Act, habitat replacement projects maintain riparian and wetland habitat values in the region, including wetland and riparian hydrology. While all past, present, and reasonably foreseeable future actions associated with Salinity Control Program result in the permanent loss of riparian and wetland hydrology associated with ditch seepage, habitat replacement projects have been or would be implemented to maintain the value of the surface hydrology associated with those projects (see Appendix F for a table detailing habitat losses and credits generated for each Salinity Control project). Because there would be no net loss of the habitat value of riparian and wetland hydrology associated with implementation of either Action Alternative, or with the nearby upcoming Grandview M&L, the Action Alternatives would not contribute to cumulative effects on riparian and wetland hydrology on Crawford Mesa. 2) Groundwater: Under either of the Action Alternatives, the estimated amount of groundwater recharge into the two HUC sub-watershed area would not change. Therefore, there would be no impacts resulting from either Action Alternative which would incrementally contribute to a cumulative impact on this resource.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Air Quality (Section 3.2.4)	Other Salinity Control Projects (Grandview M&L)	The airshed in the immediate Project Area; for the duration of Project construction	Even if other projects occur concurrently with the either of the Action Alternatives, the cumulative impact on air quality in the area would be temporary and minor and would not rise to the level of significant because the contractors completing the work would be required to follow State of Colorado air quality regulations established to protect the airshed from significant impacts (5 CCR 1001-5).
Access, Transportation, and Safety (Section 3.2.5)	Other Salinity Control Projects (Grandview M&L)	Project Area; for the duration of Project construction	Some construction aspects of the Grandview M&L may occur simultaneously with the either of the Action Alternatives. Although more than one action could be implemented during overlapping time periods, traffic associated with these actions would occur only temporarily. Therefore, there are no cumulative impacts to access, transportation, and safety associated with either of the Action Alternatives.
Property Values (Section 3.2.6)	Other Salinity Control Projects (Grandview M&L)	Crawford Mesa; 50 years	While the market value of a property may shift positively or negatively due to the personal preferences of potential buyers, the value of a property from the County Assessor's perspective would not change as a result of piping or lining irrigation ditches. Therefore, there are no cumulative impacts to property values associated with either of the Action Alternatives.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Noise (Section 3.2.7)	Other Salinity Control Projects (Grandview M&L)	Project Area plus 1-mile buffer; for the duration of Project construction	Some construction aspects of the Grandview M&L may occur simultaneously with either of the Action Alternatives. Although more than one action could be implemented during overlapping time periods, construction of the projects would not be adjacent, and the dispersed noise associated with these actions would occur only temporarily. Therefore, there are no cumulative impacts to noise associated with either of the Action Alternatives.
Visual Resources (Section 3.2.8)	Other Salinity Control Projects (Grandview M&L)	Crawford Mesa; 50 years	Vegetation clearing and the linear disturbance from pipeline or ditch liner installations would create a minor visual effect for a period of a few years. Because this disturbance would not lead to visible changes significantly different or more dominant in the long-term than what is already present on the landscape, neither Action Alternative would contribute significantly to long-term cumulative effects to visual resources.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Vegetation – Wetland and Riparian (Section 3.2.9)	Other Salinity Control Projects (Grandview M&L)	Crawford Mesa; 50 years	There is a regional effort to reduce salinity in the lower Gunnison and Colorado River watersheds, resulting in an ongoing area-wide conversion of artificially-created riparian and wetland habitat to uplands over the past 15 to 20 years. Consistent with the Colorado River Basin Salinity Control Act, habitat replacement projects maintain riparian and wetland habitat values in the region. While all past, present, and reasonably foreseeable future actions associated with Salinity Control Program result in the permanent loss of riparian and wetland vegetation associated with ditch seepage, habitat replacement projects have been or would be implemented to maintain the habitat values associated with those projects (see Appendix F for a table detailing habitat losses and credits generated for each Salinity Control project). Because there would be no net loss of riparian and wetland values associated with implementation of either of the Action Alternatives, or with the nearby upcoming Grandview M&L, neither Action Alternative would contribute to cumulative effects on riparian and wetland vegetation on Crawford Mesa.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Vegetation – Upland (Section 3.2.9)	Other Salinity Control Projects (Grandview M&L)	For upland vegetation: the Project Area and general Crawford Mesa area; 50 years	Some Grandview M&L construction activities could take place on Crawford Mesa near the Project Area concurrently or near the time of construction of the Project. Vegetation clearing and the linear disturbance from pipeline installation for the Grandview M&L would create similar effects on less than approximately 50 acres of vegetation in the general Crawford Mesa area until revegetation is accomplished. Because the area of impact for either of the Action Alternatives is less than 2 percent of Crawford Mesa, because revegetation would occur following both alternatives and the Grandview M&L, neither Action Alternative would contribute significantly to cumulative impacts to upland vegetation.
Noxious Weeds (Section 3.2.10)	Other Salinity Control Projects (Grandview M&L)	Crawford Mesa; 50 years	Noxious weeds are present in the Project Area and surroundings as a baseline condition. In the long-term, piping or lining the involved ditch laterals, along with other salinity control projects, would remove an important vector of weed seed transport in the vicinity—open water. Seeps from the earthen ditches that currently support herbaceous and woody noxious weeds would be dried and the cumulative ability of the environment to support these weeds would be diminished. Because noxious weeds are currently present and have the continued potential to spread in the Project Area and on Crawford Mesa, their ongoing presence and potential to spread following implementation of either of the Action Alternatives would not constitute a significant impact. Either Action Alternative would therefore not contribute significantly to adverse cumulative impacts related to noxious weeds.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Wildlife Resources (Section 3.2.11)	Other Salinity Control Projects (Grandview M&L)	Crawford Mesa; 50 years	The Action Alternatives would contribute to a regional trend resulting in the relocation of artificially-created riparian and wetland values from earthen irrigation conveyances to habitat replacement sites. These activities are incrementally influencing small changes in the spatial distribution of riparian and wetland-dependent wildlife across the landscape. The changes are small, because although piping earthen ditch systems removes local wetland and riparian habitat, other wetland and riparian habitat exists in the piping project areas in the form of natural drainages, on-farm irrigation distribution ditches, and on-farm stock ponds and irrigation ponds. Additionally, the piping projects are making winter stock water available to wildlife along the pipeline alignments and at shareholder locations when it was previously unavailable. This change in spatial distribution of riparian and wetland-dependent wildlife does not rise to the level of significant, because it does not result in a net loss of habitat value or a reduction of wildlife populations. Therefore, the Action Alternatives would not generate effects which would contribute to a significant cumulative effect on wildlife resources.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Threatened and Endangered Species (Section 3.2.12)	SMP and Recovery Program	Project Area & downstream critical habitat for endangered fishes; 50 years	Because the Project Area is not within a core migration area or core population area for the monarch butterfly, direct and indirect effects would not rise to the level of significant and would therefore not contribute significantly to cumulative impacts on monarch butterfly. While the Action Alternatives would adversely affect the listed Colorado river fishes due to the Applicant's historic depletion rates, the Recovery Program ensures cumulative effects to the fishes and their designated critical habitat do not occur due to projects covered under the 2009 PBO. The reduction in selenium loading to the Colorado River and Gunnison River basins as a result of either Action Alternative would contribute to the cumulative beneficial effects of the Gunnison Basin SMP in improving water quality within designated critical habitat for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail throughout the Colorado River and lower Gunnison River basins.
Cultural Resources (Section 3.2.13)	Salinity Control Program	Project Area; 50 years	The cultural heritage of irrigation history associated with either Action Alternative would continue to be maintained due to the MOA stipulations developed with the Colorado SHPO. There would be no loss of cultural heritage associated with cultural resources, and therefore there would be no incremental impacts resulting from the lost value of cultural resources due to either Action Alternative.

Resource	Reasonably Foreseeable Future Action with Impacts on this Resource	Spatial & Temporal Limits of Analysis	Cumulative Impacts Analysis
Soils & Farmlands of Agricultural Significance (Section 3.2.14)	None	Project Area; 50 years	Because the Action Alternatives would be conducted using design features and construction BMPs to prevent soil erosion, the Action Alternatives would not contribute significantly to cumulative effects on soils in the Project Area. There are no reasonably foreseeable future actions in the Project Area that would affect farmlands of agricultural significance. Due to the temporary nature of impacts to agricultural soils from construction, neither Action Alternatives would contribute to cumulative effects on Farmlands of Agricultural Significance.
Microclimate (Section 3.2.14)	Other Salinity Control Projects (Grandview M&L)	Crawford Mesa; 50 years	Because the preponderance of microclimate benefits on Crawford Mesa are provided by irrigated agricultural lands, and no irrigated agricultural lands would be lost as a result of either of the Action Alternatives, impacts to microclimate would not rise to the level of significant. The loss of microclimate benefits in the Project Area from loss of riparian and wetland vegetation due to the implementation of either Action Alternative would not create a significant impact to microclimate because those benefits would be maintained at the Habitat Replacement Site. Therefore, neither Action Alternative would generate effects which would contribute to a significant cumulative effect on microclimate.

3.3 – Summary

Table 6 provides a summary of environmental impacts, including cumulative impacts, for each the resources evaluated in this EA. Resource impacts are outlined for both the No Action and the two Action Alternatives. As described throughout Chapter 3, environmental impacts of the Action Alternatives were not determined to be significant.

Table 6. Summary of Impacts for the No Action Alternative and the Action Alternatives.

Resource	**Impacts: No Action Alternative**	**Impacts: Action Alternatives**
Water Rights and Use (Section 3.2.1)	No Effect; neither Action Alternative would be completed, and ditch seepage and irrigation inefficiencies would continue as they have in the past, and winter stock water would continue to be undeliverable during freezing weather conditions.	With either Action Alternative, the Applicant would have the ability to better manage irrigation water with efficiencies gained from eliminating seepage by improving the system. Winter stock water would be unavailable for some shareholders for part of one winter season during construction. Following construction of the Project (Piping Alternative), winter stock water would be delivered to most shareholders throughout the winter season, including during periods of freezing weather. Following construction of the Lining Alternative, winter stock water would not be delivered during periods of freezing weather. The Action Alternatives contribute to the growing amount of piped and lined irrigation conveyances in the region, which are collectively reducing water seepage and improving irrigation water delivery efficiency on a larger scale.
Water Quality (Section 3.2.2)	No Effect; neither Action Alternative would be completed, and salt and selenium loading from the Project Area would continue to affect water quality in the Colorado River Basin.	An estimated salt loading reduction of 2,614 tons per year to the Colorado River Basin would result from implementation of either of the Action Alternatives. Both Action Alternatives would reduce selenium loading into the Gunnison River (the amount has not been quantified). Improved water quality would benefit downstream aquatic species by reducing salt and selenium loading in the Gunnison and Colorado rivers. The beneficial effects of improved water quality resulting from either of the Action Alternatives would contribute to the regional efforts underway to reduce salinity and selenium in the lower Gunnison and Colorado River watersheds. Both Action Alternatives would affect waters under the jurisdiction of CWA Section 404 (the ditches themselves) and disturb irrigation-induced wetland and riparian vegetation associated with the ditches.

Resource	Impacts: No Action Alternative	Impacts: Action Alternatives
Hydrology (Section 3.2.3)	No Effect, because nothing would occur which would alter the surface hydrology, estimated groundwater recharge, or domestic well permits in the area.	The distribution of surface water would change in the Project area as a result of implementing either of the Action Alternatives. Because the habitat replacement project would ensure no net loss of riparian and wetland values associated with implementation of either of the Action Alternatives, the effects of the loss of riparian/wetland hydrology adjacent to the involved ditches would be insignificant. Because the estimated amount of groundwater recharge into the two HUC sub-watershed areas in the vicinity would not change, there would be no significant impact to groundwater recharge as a result of implementing the either Action Alternative. Because neither Action Alternative would alter natural sources of groundwater, there would be no significant adverse effect on domestic well permits near the Project Area. No cumulative effects.
Air Quality (Section 3.2.4)	No Effect; neither Action Alternative would be completed and the ditches would continue to operate in their current condition and dust and exhaust would occasionally be generated by vehicles and equipment conducting routine maintenance and operation.	Exhaust and dust from construction activities would have a minor, short-term effect on the air quality in the immediate area. Following construction of either Action Alternative, impacts to air quality from routine maintenance and operation activities along the pipeline or lined ditch corridors would be similar or less in magnitude to those currently occurring for the existing ditch. If other construction projects occur concurrently with either Action Alternative, the cumulative impact on air quality in the area would be temporary and the area would remain in attainment for any criteria pollutants in Delta County. No cumulative effects.

Resource	Impacts: No Action Alternative	Impacts: Action Alternatives
Public Access, Transportation & Safety (Section 3.2.5)	No Effect; neither Action Alternative would be completed and the ditches would continue to operate in their current condition and the baseline status of public safety, transportation routes, utilities, and public access in the vicinity would remain unchanged.	Some short-term disruption of traffic at the involved public roads is would occur for either Action Alternative when equipment and materials are hauled into the Project location, and when piped crossings are constructed across public roads. If relocation or raising of utilities is necessary during construction, a brief interruption of utility services would occur. Under the Lining Alternative, the safety risks associated with sources of open, moving water would remain following implementation. No cumulative effects.
Property Values (Section 3.2.6)	No Effect; neither Action Alternative would be completed and the ditches would continue to operate in their current condition, with no impact to property values.	While the market value of a property may shift positively or negatively due to the personal preferences of potential buyers, the value of a property from the County Assessor's perspective would not change as a result of piping or lining the ditches. No significant impacts to property values would occur as a result of either Action Alternative, because piping or lining the ditches would not affect the factors that are considered during the County Assessor's valuation process. No cumulative effects.
Noise (Section 3.2.7)	No Effect; there would be no construction noise related to ditch piping or lining in the Project Area, and noise related to ditch operation and maintenance activities would continue as it has in the past.	Project construction activities under either Action Alternative would generate a temporary source of noise audible to residents near the area. If other construction projects occur concurrently with either Action Alternative, the cumulative impact on noise in the area would be short-term would not raise the noise level of the area above the moderate noise baseline.

Resource	Impacts: No Action Alternative	Impacts: Action Alternatives
Visual Resources (Section 3.2.8)	No Effect; the baseline level of visual disturbance in the Project Area associated with residential and farmstead developments, local ranching and farming activities, local construction projects, and the Applicant's operation and routine maintenance of the ditch systems would continue.	Machinery would be operating on the landscape and highly visible from public roads in certain locations on a spatially incremental basis during construction of either Action Alternative. Following construction of the Piping Alternative, the disturbance footprint would be a linear area of bare ground, rather than an open earthen ditch. Following construction of the Lining Alternative, the disturbance footprint would be the shotcrete-lined ditches, with shotcrete edges visible alongside the open water of the ditches. Within a few growing seasons, revegetation would help the disturbed ground blend with the surroundings. Overall, the long-term level of change to the visual characteristics of the landscape in and around the Project Area during and following construction of either Action Alternative would be minor and not out of character with the surrounding landforms or with the rural and agricultural character of the vicinity. No cumulative effects.
Vegetation (Section 3.2.9)	No Effect; the Applicant would continue to routinely manage vegetation along the ditches, which includes periodic mechanical clearing with heavy equipment, burning, or application of herbicides.	Construction of either Action Alternative would result in a minor impact to upland native vegetation located within the construction corridor. The impact would be evident in the project area for a period of several years. Either Action Alternative would result in the permanent loss of approximately 4.2 acres of riparian and wetland vegetation associated with the unlined ditches. The value of the habitat loss which would occur is 14.1 habitat units (ERO 2020). The Habitat Replacement Site to be placed under a conservation easement for the Project would generate 31.1 habitat units to fully maintain the value of the fish and wildlife values to be lost as a result of either of the Action Alternatives. No cumulative effects.

Resource	Impacts: No Action Alternative	Impacts: Action Alternatives
Noxious Weeds (Section 3.2.10)	No Effect; neither Action Alternative would be completed and noxious weeds would continue to exist in the general area, and flowing water in the irrigation ditches, along with animals traveling along the ditch corridors would continue to serve as vectors for the spread of noxious weeds in the area.	The Piping Alternative would remove segments of open water, a key element of invasive seed transport. Under the Piping Alternative, finishing the ground surface with subsurface soil would help eliminate the weed seed bank in the construction area. Piped segments of the ditches would no longer require regular maintenance, lowering the potential for the continued spread and establishment of weeds. Under both Action Alternatives, downgradient herbaceous and woody noxious weeds which rely on ditch seepage would no longer be supported. Under either Action Alternative, noxious weeds would continue to be present throughout the Project Area. The Piping Alternative, along with other salinity control piping projects in the region, would cumulatively remove an important vector of weed seed transport in the vicinity—open water. Under both Action Alternatives, seeps from the earthen ditches that currently support herbaceous and woody noxious weeds would be dried and the cumulative ability of the environment to support these weeds would be diminished.

Resource	Impacts: No Action Alternative	Impacts: Action Alternatives
Wildlife Resources (Section 3.2.11)	No Effect; neither Action Alternative would be completed and wildlife would continue to use the area as in the past. Salt and selenium loading from the Project Area would continue to affect aquatic dependent species.	Construction of either Action Alternative would create incremental activity and ground disturbance throughout the Project Area, resulting in minor temporary impacts to mule deer and elk. There would be a short-term loss of vegetative cover in big game critical winter habitat until the areas are revegetated. Construction impacts to small animals, especially burrowing amphibians, reptiles, and small mammals, would include direct mortality and displacement during construction activities. Bird, bat, reptile, and amphibian species dependent on wetland and riparian habitats would experience a long-term (greater than five years) loss of habitat due to either Action Alternative. However, the habitat value associated with the lost wetland and riparian habitat would be fully maintained with the conservation of the Habitat Replacement Site. Unlike the Piping Alternative, the Lining Alternative does not provide the added wildlife benefit of the delivery to the shareholders of winter stock water during freezing weather, and wildlife water distribution and availability under the Lining Alternative would continue as it has in the past. Both Action Alternatives would contribute to a regional trend resulting in the relocation of artificially-created riparian and wetland values from earthen irrigation conveyances to habitat replacement sites.
Threatened & Endangered Species (Section 3.2.12)	Neither Action Alternative would be completed, and historic salt and selenium loading from the Project Area would continue to affect the four Colorado River basin listed fishes and their critical habitat downstream.	Both Action Alternatives may adversely affect the bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker and their critical habitat. However, the Applicant's historic depletions are covered under the 2009 PBO following the execution of a Recovery Agreement between the Applicant and FWS (Appendix B). The Recovery Program ensures impacts to listed fishes or adverse modification of their designated critical habitat resulting from projects covered under the 2009 PBO would not result in jeopardy to the species. The reduction in selenium loading to the Colorado River and Gunnison River basins resulting from both Action Alternatives would contribute to the cumulative beneficial effects of the Gunnison Basin Selenium Management Program in improving water quality within designated critical habitat for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail throughout the Colorado River and lower Gunnison River basins.

Resource	Impacts: No Action Alternative	Impacts: Action Alternatives
Cultural Resources (Section 3.2.13)	No Effect: neither Action Alternative would be completed, and the cultural resources documented as eligible for listing in the NRHP would continue to exist in their current condition on the landscape.	Both Action Alternatives would have an adverse effect on NRHP eligible cultural resources. An MOA (Appendix C) between Reclamation, and the Colorado SHPO, with the Applicant participating as an invited party, outlines stipulations designed to conserve the value of the eligible cultural resources. Both Action Alterantives would contribute to an area-wide adverse effect on NRHP eligible cultural resources. The value of the eligible cultural resources in the area which have been or may be affected due to federally-funded irrigation piping and ditch lining projects have been and would continue to be maintained due to the project stipulations developed with the Colorado SHPO, and therefore the adverse cumulative effect either Action Alternative on cultural resources would not rise to the level of significant.
Soils & Farmlands of Agricultural Significance (Section 3.2.14)	No Effect; neither Action Alternative would be completed and soils and farmlands of significance in the Project Area would continue to produce as in the past. Salinity loading from deep percolation of irrigation water through saline soils along the ditches would continue.	The construction of either Action Alternative would temporarily disturb soils in or near the previously-disturbed ditch prisms. Construction activities would cause temporary disturbance to soils that are either not in irrigated agricultural production, or soils directly adjacent to irrigated agricultural lands, or irrigated lands. Some currently farmed agriculturally significant soils would be temporarily directly disturbed by either Action Alternative, but would be put back into production prior to the following irrigation season. No farmlands would be permanently altered or removed from production as a result of either Action Alternative, and no interruption to agricultural production would occur. Soil erosion from irrigation water conveyances would be substantially reduced where ditch reaches are either piped or lined. Either Action Alternative would contribute to the growing amount of piped or lined irrigation conveyances in the region, which are collectively having a beneficial cumulative effect on the reduction of soil erosion on a larger scale.

Resource	Impacts: No Action Alternative	Impacts: Action Alternatives
Microclimate (Section 3.2.15)	No Effect; neither Action Alternative would be completed and the surface hydrology, soil, and vegetation aspects of microclimate would continue to function as they have in the past within the Project Area.	Conversion of the open, earthen ditches to pipelines or lined ditches would convert areas with wetland or riparian soils, hydrology, and vegetation (elements contributing to microclimate differences) to irrigated farmlands or uplands. The open water aspect of the ditches would remain following the Lining Alternative. However, the preponderance of microclimate benefits in the Project Area and on Crawford Mesa are provided by irrigated agricultural lands. Because no irrigated agricultural lands would be lost as a result of either of the Action Alternatives, there would be no significant impact to microclimate. No cumulative effects.

CHAPTER 4 – ENVIRONMENTAL COMMITMENTS

This section summarizes the design features, BMPs, conservation measures, and other requirements (collectively, "Environmental Commitments") developed to lessen the potential adverse insignificant effects of the Project. The actions in the following environmental commitment list would be implemented as an integral part of the Project and shall be included in any contractor bid specifications.

Note that in the event there is a change in the Project description, or any construction activities are proposed outside of the inventoried Project Area or the planned timeframes outlined in this EA, additional environmental review by Reclamation would be required to determine if the existing surveys and information are adequate to evaluate the changed project scope. Additional NEPA documentation may be required.

Table 7. Environmental Commitments

Type	Environmental Commitment	Affected Resource	Authority
Construction Contractor Plan or Certification Requirement	A Spill Response Plan shall be prepared in advance of construction by the contractor for areas of work where spilled contaminants could flow into water bodies.	Water Quality	Clean Water Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	A Stormwater Management Plan shall be prepared and submitted to CDPHE by the construction contractor prior to construction disturbance.	Water Quality	Clean Water Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	A CWA Section 402 Storm Water Discharge Permit compliant with the National Pollutant Discharge Elimination System (NPDES) shall be obtained from CDPHE by the construction contractor prior to construction disturbance (regardless of whether dewatering would take place during construction).	Water Quality	Clean Water Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	Certification under CDPHE Water Quality Division Construction Dewatering Discharges Permit COG070000 shall be obtained by the construction contractor prior to any dewatering activities related to construction.	Water Quality	Clean Water Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	Any construction, access, or use permits required by the Delta County Planning Department, County Engineering and County Road & Bridge District #3, shall be obtained in advance of road crossings.	Access, Transportation & Safety	County Ordinances and Regulations

Type	Environmental Commitment	Affected Resource	Authority
Construction Contractor Requirement	Required (if any) air quality emissions inventories, record-keeping, or reporting for construction equipment shall be on file with CDPHE prior to commencing construction.	Air Quality	Clean Air Act of 1963 and 5 CCR 1001-5 Part I.B.10 (Allowable Emissions), Part II.A (Air Pollutant Emission Notices for New, Modified, and Existing Sources), Part II.D (Exemptions from Air Pollutant Emission Notice Requirements
General NEPA Compliance	To satisfy the requirements of RGP-5, submit the following package to the Army Corps at least 30 days in advance of construction: (1) documentation for compliance with the Endangered Species Act and National Historic Preservation Act and/or the lead Federal Agency NEPA document containing the same, (2) a project description, (3) project plans, and (4) a location map."	Wetlands	RGP-5, Section 404, Clean Water Act of 1972 as amended
General BMP 1	Construction limits shall be clearly flagged or marked onsite to avoid unnecessary plant loss or ground disturbance. No grading or blading shall occur inside the project ROW other than that necessary within the actual construction footprint.	Vegetation, Weeds, Habitat, Wildlife	Delta County Weed Management Plan (Delta County 2020
General BMP 2	All equipment shall be cleaned before it is brought to the construction area, to minimize transport of new weed species to the construction area.	Vegetation, Weeds, Habitat, Wildlife	Delta County Weed Management Plan (Delta County 2020

Type	Environmental Commitment	Affected Resource	Authority
General BMP 3	Prior to construction, vegetative material shall be removed by mowing or chopping, and either reserved for mulch onsite, or hauled to the County landfill or to a staging area to be burned, chipped, and/or mulched. Stumps shall be grubbed and hauled to the County landfill or a proposed staging area to be burned.	Soil, Vegetation, Weeds, Habitat	Delta County Weed Management Plan (Delta County 2020
General BMP 4	Vegetation removal shall be confined to the smallest portion of the Project Area necessary for completion of the work.	Soil, Vegetation, Weeds, Habitat	Delta County Weed Management Plan (Delta County 2020
General NEPA Requirement	Tree grubbing and vegetation removal in all project areas shall avoid the primary nesting season of migratory birds (April 1 – July 15). This timing restriction shall be noted on Project construction drawings.	Wildlife	Migratory Bird Treaty Act of 1918
General BMP 5	Where required, topsoil, or top material, shall be stockpiled and then redistributed as top dressing after completion of construction activities.	Soil, Vegetation, Weeds, Habitat	Delta County Weed Management Plan (Delta County 2020
General BMP 6	Straw wattles, silt curtains, cofferdams, dikes, straw bales, or other suitable erosion control measures shall be used to prevent erosion from entering water bodies during construction.	Water Quality	Clean Water Act of 1972 as amended
General BMP 7	Any concrete pours shall occur in forms and/or behind cofferdams to prevent discharge into waterways. Any wastewater from concrete-batching, vehicle wash down, and aggregate processing shall be contained and treated or removed for off-site disposal.	Water Quality	Clean Water Act of 1972 as amended

Type	Environmental Commitment	Affected Resource	Authority
General BMP 8	The construction contractor shall transport, handle, and store any fuels, lubricants, or other hazardous substances involved with the Project in an appropriate manner that prevents them from contaminating soil and water resources.	Water Quality, Soil	Clean Water Act of 1972 as amended
General BMP 9	Equipment shall be inspected daily and immediately repaired as necessary to ensure equipment is free of petrochemical leaks.	Water Quality, Soil	Clean Water Act of 1972 as amended
General BMP 10	Ground disturbances and construction areas shall be limited to only those areas necessary to safely implement the Project.	Soil, Vegetation, Weeds, Habitat, Wildlife	Archaeological Resources Protection Act of 1979; Paleontological Resources Preservation Act of 2009
General BMP 11	Pipeline trenches left open overnight shall be kept to a minimum and covered to reduce potential for hazards to the public and to wildlife. Covers shall be secured in place and strong enough to prevent people, livestock, or wildlife from falling through. Where trench covers would not be practical, wildlife escape ramps shall be used.	Wildlife, Public Safety	C.R.S. 33-1-101 to 125 Parks and Wildlife Article 1: Wildlife
General BMP 12	Typically, 30 to 500 feet of trench would be left open overnight during project construction. Each evening, the end of the trench would be sloped to create an escape ramp for wildlife.	Wildlife, Public Safety	C.R.S. 33-1-101 to 125 Parks and Wildlife Article 1: Wildlife
General NEPA Compliance	A barricade shall be placed between the construction zone and a sensitive historical structure identified during a cultural resources survey for the Project. The location of the sensitive historical structure shall be clearly marked on the construction drawings.	Cultural Resources	National Historic Preservation Act of 1966

Type	Environmental Commitment	Affected Resource	Authority
General NEPA Compliance	If previously undiscovered cultural or paleontological resources are discovered during construction, construction activities must immediately cease in the vicinity of the discovery and Reclamation must be notified. In this event, the SHPO shall be consulted, and work shall not be resumed until consultation has been completed, as outlined in the Unanticipated Discovery Plan in the MOA (see Appendix C of the EA). Additional surveys shall be required for cultural resources if construction plans, or proposed disturbance areas are changed.	Cultural Resources	National Historic Preservation Act of 1966 Archaeological Resources Protection Act of 1979 Paleontological Resources Preservation Act of 2009
General NEPA Compliance	In the event that previously undocumented threatened or endangered species are encountered during construction, the contractor shall stop construction activities until Reclamation has consulted with FWS to ensure that adequate measures are in place to avoid or reduce impacts to the species.	Threatened & Endangered Species	Endangered Species Act of 1973 as amended
General NEPA Compliance	Construction activities shall take place only in accordance with the schedule restrictions outlined in the EA.	Wildlife	Migratory Bird Treaty Act of 1918; Bald and Golden Eagle Protection Act of 1940

Type	Environmental Commitment	Affected Resource	Authority
General NEPA Compliance	To avoid disturbance to nesting raptors, construction activities within species-specific CPW-recommended (CPW 2020) buffer distances are time-restricted as follows: Red-tailed hawk: no construction activity within 1/3 mile of a nest February 15 through July 15, with the following exceptions: 1) pipeline construction within 1/3 mile of a nest could begin prior to February 15, so long as the construction activities were initiated prior to February 15, and operated on a daily basis until completion (it is assumed that red-tailed hawks that initiate nesting during ongoing construction activities are tolerant to such activities), or 2) a Reclamation-approved biologist determines that the nest is not active that year. These timing restrictions and sensitive areas shall be noted on Project construction drawings.	Wildlife	Migratory Bird Treaty Act of 1918 Bald and Golden Eagle Protection Act of 1940
General NEPA Compliance	If a previously unknown active raptor nest is discovered within 1/2 mile of the Project Area during construction, construction shall cease until Reclamation can complete consultations with FWS and CPW.	Wildlife	Migratory Bird Treaty Act of 1918 Bald and Golden Eagle Protection Act of 1940
General NEPA Compliance	The raptor nest survey shall be repeated in Spring 2026 for construction work anticipated to continue past October 15, 2026, and on a three-year cycle thereafter. The survey must only be repeated for the remaining construction areas, within the required buffer distances explained in CPW 2020.	Wildlife	Migratory Bird Treaty Act of 1918

Type	Environmental Commitment	Affected Resource	Authority
General BMP 13	Following construction, except where other finishing techniques indicated on the construction drawings, all disturbed areas shall be smoothed with tracked equipment (without back dragging blade), shaped, and contoured to as near to their pre-project conditions as practicable.	Soil, Vegetation, Weeds, Habitat	Clean Water Act of 1972 as amended
Design Feature	All drainage patterns that intersect the ditch shall be shaped to their natural flow patterns following ditch piping.	Soil, Vegetation, Habitat	Clean Water Act of 1972 as amended
General BMP 14	All equipment shall be cleaned before it is transported to another job site, to avoid introducing weed species from the construction area to another job site.	Vegetation, Weeds, Habitat	Delta County Weed Management Plan (Delta County 2020
General BMP 15	Re-seeding, where conducted in areas surrounded by native vegetation, shall occur following construction at appropriate times and with appropriate methods, using a drought tolerant, weed-free seed list approved by Reclamation (see Appendix A of the EA). The Applicant shall coordinate with private landowners to reseed any disturbances to irrigated areas.	Soil, Vegetation, Weeds, Habitat	Delta County Weed Management Plan (Delta County 2020
General BMP 16	Weed control shall be implemented by Applicant or its contractor in accordance with any agreements with individual landowners.	Soil, Vegetation, Weeds, Habitat	Delta County Weed Management Plan (Delta County 2020

CHAPTER 5 – CONSULTATION AND COORDINATION

5.1 – Introduction

Reclamation's public involvement process presents the public with opportunities to obtain information about a given project, and allows interested parties to participate in the project through written comments. This chapter discusses public involvement activities taken to date for the Proposed Action.

5.2 – Public Involvement

Notice of the public review period and availability of the Draft EA was distributed to private landowners adjacent to the Project, and the organizations and agencies listed in Appendix D. Reclamation notified 30 interested parties and 102 landowners adjacent to the project area of the availability of the Draft EA public comment period through a mailed distribution letter. Reclamation develops landowner distribution lists based on the names and addresses on file with the county's accessors office. The public review period extended from January 23, 2023 to February 27, 2023 (a total of 35 days). During this period, Reclamation received 12 comment documents. A summary of the comments and Reclamation's responses to the comments are provided in Appendix E, along with a copy of the comment documents.

5.3 – Distribution

The publicly-available electronic version of the Final EA is available on Reclamation's website, and meets the technical standards of Section 508 of the Rehabilitation Act of 1973, so that the document can be accessed by people with disabilities using accessibility software tools.

CHAPTER 6 – PREPARERS

The following list contains the individuals who participated in the preparation of this EA.

Table 8. List of Preparers

Name	Agency	Title	Areas of Responsibility
Jennifer Ward	Reclamation	Environmental Protection Specialist	EA review, general authorship, cultural resources
Dawn Reeder	Rare Earth Science (Consultant to the Ditch Companies)	Principal Biologist	General authorship, mapping

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CHAPTER 8 – ABBREVIATIONS AND ACRONYMS

Abbreviation or Acronym	Definition
BLM	U.S. Bureau of Land Management
BMP	Best management practice
CAA	Clean Air Act
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CPW	Colorado Parks and Wildlife
C.R.S.	Colorado Revised Statute
CRSP	Colorado River Storage Project
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
E.O.	Executive Order
EPA	Environmental Protection Agency
ESA	U.S. Endangered Species Act
FOA	Funding Opportunity Announcement
FONSI	Finding of No Significant Impact
FWS	U.S. Fish & Wildlife Service
HDPE	High-density polyethylene
Interior	U.S. Department of the Interior

Abbreviation or Acronym	Definition
mi	mile
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NCA	National Conservation Area
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
NRHP	National Register of Historic Places
PBO	Programmatic Biological Opinion
PM	Principal meridian
PVC	Polyvinylchloride
RCPP	Regional Conservation Partnership Program
Reclamation	U.S. Bureau of Reclamation (also USBR)
ROW	Right-of-way
SHPO	State Historic Preservation Officer
SMPW	Selenium Management Program Workgroup
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
U.S.C.	United States Code
USDA	U.S. Department of Agriculture

APPENDIX A – SEED LIST

The following certified weed-free seed mix is approved by Reclamation and suitable for uplan, non-irrigated areas. The recommended seeding rate is 40 seeds per square foot, and the pounds of live seed (PLS) per acre are calculated on published data for seeds per pound of the recommended species.

Code	Common Name	Suggested Cultivar	Genus	Species	Mix Proportion	PLS/acre
PASM	Western wheatgrass	X-ARRIBA	*Pascopyrum*	*smithii*	25%	3.5
ELTR	Slender wheatgrass	White River	*Elymus*	*trachycaulus*	25%	3
POSE	Sandburg bluegrass	UP	*Poa*	*secunda*	40%	0.75
POFE	Muttongrass	UP/Ruin Canyon	*Poa*	*fendleriana*	10%	0.2
				TOTAL		**7.45**

APPENDIX B – ESA COMPLIANCE DOCUMENTATION

GUNNISON RIVER RECOVERY AGREEMENT

This RECOVERY AGREEMENT is entered into this 8th day of January, 2014, by and between the United States Fish and Wildlife Service (Service) and **Crawford Clipper Ditch Company** (Water User).

WHEREAS, in 1988, the Secretary of Interior, the Governors of Wyoming, Colorado and Utah, and the Administrator of the Western Area Power Administration signed a Cooperative Agreement to implement the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program); and

WHEREAS, the Recovery Program is intended to recover the endangered fish while providing for water development in the Upper Basin to proceed in compliance with state law, interstate compacts and the Endangered Species Act; and

WHEREAS, the Colorado Water Congress has passed a resolution supporting the Recovery Program; and

WHEREAS, on December 4, 2009, the Service issued a programmatic biological opinion (2009 Opinion) for the Gunnison River Basin and the operation of the Wayne N. Aspinall Unit concluding that implementation of specific operation of the Aspinall Unit, implementation of a Selenium Management Plan and specified elements of the Recovery Action Plan (Recovery Elements), along with existing and a specified amount of new depletions, are not likely to jeopardize the continued existence of the endangered fish or adversely modify their critical habitat in the Gunnison River subbasin and Colorado River subbasin downstream of the Gunnison River confluence; and

WHEREAS, Water User is the **Crawford Clipper Ditch Company**, which causes or will cause depletions to the Gunnison River subbasin from its **Crawford Clipper Ditch System diversion on the Smith Fork of the Gunnison River** with the implementation of **Salinity Control Projects** (Water Projects); and

WHEREAS, Water User desires certainty that its depletions can occur consistent with section 7 and section 9 of the Endangered Species Act (ESA); and

WHEREAS, the Service desires a commitment from Water User to the Recovery Program so that the Program can actually be implemented to recover the endangered fish and to carry out the Recovery Elements.

NOW THEREFORE, Water User and the Service agree as follows:

1. The Service agrees that implementation of the Recovery Elements specified in the 2009 Opinion will avoid the likelihood of jeopardy and adverse modification under section 7 of the ESA, for depletion impacts caused by Water User's Water Project. Any consultations under

section 7 regarding Water Project's depletions are to be governed by the provisions of the 2009 Opinion. The Service agrees that, except as provided in the 2009 Opinion, no other measure or action shall be required or imposed on Water Project to comply with section 7 or section 9 of the ESA with regard to Water Project's depletion impacts or other impacts covered by the 2009 Opinion. Water User is entitled to rely on this Agreement in making the commitment described in paragraph 2.

2. Water User agrees not to take any action which would probably prevent the implementation of the Recovery Elements. To the extent implementing the Recovery Elements requires active cooperation by Water User, Water User agrees to take reasonable actions required to implement those Recovery Elements. Water User will not be required to take any action that would violate its decrees or the statutory authorization for Water Project, or any applicable limits on Water User's legal authority. Water User will not be precluded from undertaking good faith negotiations over terms and conditions applicable to implementation of the Recovery Elements.

3. If the Service believes that Water User has violated paragraph 2 of this Recovery Agreement, the Service shall notify both Water User and the Management Committee of the Recovery Program. Water User and the Management Committee shall have a reasonable opportunity to comment to the Service regarding the existence of a violation and to recommend remedies, if appropriate. The Service will consider the comments of Water User and the comments and recommendations of the Management Committee, but retains the authority to determine the existence of a violation. If the Service reasonably determines that a violation has occurred and will not be remedied by Water User despite an opportunity to do so, the Service may request reinitiation of consultation on Water Project without reinitiating other consultations as would otherwise be required by the Reinitiation Notice section of the 2009 Opinion. In that event, the Water Project's depletions would be excluded from the depletions covered by 2009 Opinion and the protection provided by the Incidental Take Statement.

4. Nothing in this Recovery Agreement shall be deemed to affect the authorized purposes of Water User's Water Project or The Service statutory authority.

5. This Recovery Agreement shall be in effect until one of the following occurs:

a. The Service removes the listed species in the Upper Colorado River Basin from the endangered or threatened species list and determines that the Recovery Elements are no longer needed to prevent the species from being relisted under the ESA; or

b. The Service determines that the Recovery Elements are no longer needed to recover or offset the likelihood of jeopardy to the listed species in the Upper Colorado River Basin; or

c. The Service declares that the endangered fish in the Upper Colorado River Basin are extinct; or

d. Federal legislation is passed or federal regulatory action is taken that negates the need for [or eliminates] the Recovery Program.

6. Water User may withdraw from this Recovery Agreement upon written notice to the Service. If Water User withdraws, the Service may request reinitiation of consultation on Water Project without reinitiating other consultations as would otherwise be required by the Reinitiation Notice section of the 2009 Opinion.

1-6-16

Crawford Clipper Ditch Company Date

Water User Representative

2/2/16

Western Colorado Supervisor Date
U.S. Fish and Wildlife Service

APPENDIX C – CULTURAL RESOURCE COMPLIANCE DOCUMENTATION

MEMORANDUM OF AGREEMENT
AMONG
THE BUREAU OF RECLAMATION WESTERN COLORADO AREA OFFICE,
THE CRAWFORD CLIPPER DITCH COMPANY,
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
UPPER WEST LATERAL PIPING PROJECT AND THE
WEST HAMILTON, HAMILTON, AND CENTER LATERALS PIPING PROJECT,
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

WHEREAS, the Bureau of Reclamation (Reclamation) and the Crawford Clipper Ditch Company (CCDC) plan to pipe 0.46 miles of the Upper West Lateral (Project No. 1) and 15 miles of the West Hamilton, Hamilton, and Center Laterals (Project No. 2); and

WHEREAS, Project No. 2's name is also known as the Crawford Clipper Ditch Company's Jerdon, Hamilton, and West Laterals Pipeline Project; and

WHEREAS, Reclamation plans to partially fund CCDC to pipe the lateral waterways, as authorized by the Basinwide Program under the Colorado River Basin Salinity Control Program, thereby making the Project a federal undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. § 306108, and its implementing regulations, 36 CFR Part 800; and

WHEREAS, Reclamation has defined in consultation with the Colorado State Historic Preservation Officer (SHPO) that Project No. 1's Area of Potential Effects (APE) as contained within a 200-foot-wide corridor centered on 0.46 mile of existing lateral and totaling 11.14 acres on private lands, as well as a previously surveyed staging area and access road, as depicted in Attachment A.

WHEREAS, Reclamation has defined in consultation with SHPO that Project No. 2's APE as contained within a 200-foot-wide corridor centered on approximately 15 miles of existing laterals, proposed pipelines, and access roads, and a 100-foot-wide buffer around six staging areas totaling 297.8 acres on private lands and 0.6 acres on lands managed by the Bureau of Land Management (BLM), as depicted in Attachment B; and

WHEREAS, the BLM has determined they do not have a federal action associated with the Project No. 2, and do not wish to participate in the Section 106 consultation; and

WHEREAS, Reclamation as the lead Federal agency has determined, in consultation with the SHPO, that the West Hamilton Lateral of the Crawford Clipper Ditch (5DT1811.10, 5DT1811.11 and 5DT1811.12), the Spurlin Mesa Lateral of the Crawford Clipper Ditch (5DT1811.13), the Hamilton Lateral of the Crawford Clipper Ditch (5DT1811.14), and the Center Lateral of the Crawford Clipper Ditch (5DT1811.15 and 5DT1811.16) are eligible for inclusion on the National Register of Historic Places (NRHP) under Criterion A and that the Project will result in adverse effects to those historic properties; and

WHEREAS, the CCDC, as the sponsor of the Project, has been invited to participate in this Agreement as an invited signatory, and has chosen to participate in the consultation; and

WHEREAS, Reclamation consulted with the Southern Ute Indian Tribe, the Ute Indian Tribe of the Uintah and Ouray Reservation, and the Ute Mountain Ute Tribe via a December 16, 2020, letter (Project No. 1) and a February 23, 2022 letter (Project No. 2) inviting the tribes to participate in consultation on the proposed undertakings as concurring parties. The Southern Ute Indian Tribe responded that Project No. 1 would have no adverse effect to identified properties of cultural and religious significance. The Ute Mountain Ute Tribe and the Ute Indian Tribe of the Uintah and Ouray Reservation have not responded regarding Project No. 1 as of the signing of this Agreement. The Southern Ute Indian Tribe requested additional information on Project No. 2 on March 18, 2022. Additional information was provided on March 29, 2022. The Southern Ute Indian Tribe did not respond after receiving additional information. The Ute Mountain Ute Tribe, and the Ute Indian Tribe of the Uintah and Ouray Reservation have not responded regarding Project No. 2 as of the signing of this Agreement; and

WHEREAS, Reclamation consulted with the Delta County Commissioners, the Delta County Historic Landmarks Board, and the Hotchkiss Crawford Historical Museum via a December 16, 2020 letter (Project No. 1) and a February 22, 2022 letter (Project No. 2) to invite the local governments and other potentially interested entities to participate in consultation on the proposed undertakings as concurring parties. The Delta County Commissioners, the Delta County Historic Landmarks Board, and the Hotchkiss Crawford Historical Museum have not responded as of the signing of this Agreement; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), Reclamation has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, pursuant to Section 106 of the NHPA, Reclamation and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect on historic properties.

STIPULATIONS

Reclamation shall ensure that the following measures are carried out:

I. MITIGATION

A. The CCDC will develop an interactive website (Storymap) on a platform such as ArcGIS Storymap that presents a visual narrative about the history of the CCDC system, its canals, and the role of irrigation in the development of the Crawford area. The Storymap will be available on the internet free of charge to the public.

a. The Storymap will include photographs—which can be either historical or contemporary—and interactive maps that allow the viewer to explore common features along the laterals, learn about each laterals' history and development, the significance of the laterals, the contributions of the laterals to the development of the local communities and economies, and view historical maps. The entirety of each of the laterals included in Project No. 1 and Project No. 2 will be presented on the platform and include a brief history and description of each lateral, along with representative photographs, historic records, historic maps, videos, and/or scaled drawings to provide the user with sufficient information to understand the importance of the laterals and how they served and continue to serve the people of the Crawford area.

b. Prior to any modification of the West Hamilton Lateral of the Crawford Clipper Ditch Segments (5DT1811.10, 5DT1811.11, and 5DT1811.12), the Spurlin Mesa Lateral of the Crawford Clipper Ditch Segment (5DT1811.13), the Hamilton Lateral of the Crawford Clipper Ditch Segment (5DT1811.14), and the Center Lateral of the Crawford Clipper Ditch Segments (5DT1811.15 and 5DT1811.16), Reclamation shall ensure that necessary information for the development of the Storymap is collected, including but not limited to additional research and scanning of images and documents held at CCDC's office.

c. Reclamation will submit a draft outline and text of the Storymap to all signatories to this Agreement within two (2) years of the execution of this agreement. The signatories shall review and provide comments, if they have any, within thirty (30) calendar days of receipt of the draft. Reclamation shall consider signatory comments and revise the draft accordingly. Once a draft is agreed to by the signatories, Reclamation will finalize the Storymap for public use.

d. A link to the Storymap will be uploaded to the history webpage on CCDC's website as well as Reclamation's cultural resources webpage (webpage). The Storymap and the associated links will be appropriately maintained and remain on both web pages for a period of no less than five (5) years following the final publication of the Storymap.

e. Within six (6) months of the publication of the final Storymap website, CCDC will prepare a report version of the final Storymap in hard print of archival quality and electronic format (PDF file). The PDF version will be prepared and submitted to SHPO. The following organizations within the Crawford area will receive an archival copy free of charge: Delta County Historic Landmarks Board, the Hotchkiss Crawford Historical Museum, Colorado Mesa University Hutchins Water Center, Delta Public Library

II. GENERAL REQUIREMENTS AND STANDARDS

A. Reclamation will provide a link to the final Storymap and PDF file via email or CD as appropriate to all signatory parties within three (3) years of the execution of this Agreement. A letter containing a link to the Storymap will also be sent to the Delta

County Commissioners, the Delta County Historic Landmarks Board, the Hotchkiss Crawford Historical Museum, Colorado Mesa University Hutchins Water Center, Delta Public Library, Colorado Archaeological Society, and the Colorado Council of Professional Archaeologists.

B. The activities prescribed by the stipulations of this Agreement shall be carried out by or under the direct supervision of a person or persons meeting, at minimum, the *Secretary of the Interior's Historic Preservation Professional Qualification Standards* (48 FR 44716, September 29, 1983, and 62 FR 33708, June 20, 1997) (PQS) in the appropriate discipline. This does not preclude the use of properly supervised persons who do not meet the PQS.

III. DURATION

This Agreement shall expire if its terms are not carried out within three (3) years from the date of its execution. Prior to such time, Reclamation may consult with the other signatories to reconsider the terms of the Agreement and amend it in accordance with Stipulation VII below.

IV. POST-REVIEW DISCOVERIES

If potential historic properties are discovered or unanticipated effects on historic properties found, the CCDC on behalf of Reclamation shall implement the discovery plan included as Attachment B of this Agreement.

V. MONITORING AND REPORTING

No later than December 31st of each calendar year following the execution of this Agreement until its stipulations are carried out, it expires, or is terminated, CCDC on behalf of Reclamation shall provide all parties to this Agreement a summary report detailing work carried out during the previous calendar year pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in CCDC's efforts to carry out the terms of this Agreement.

The signatories may monitor activities pursuant to this Agreement, and the ACHP will review such activities if so, requested by a party to this Agreement. Reclamation will cooperate with the signatories in carrying out their review and monitoring responsibilities.

VI. DISPUTE RESOLUTION

Should any signatory or concurring party to this Agreement object at any time to any actions proposed or the manner in which the terms of this Agreement are implemented, Reclamation shall consult with such party to resolve the objection. If Reclamation determines that such objection cannot be resolved, Reclamation will:

A. Forward all documentation relevant to this dispute, including Reclamation's proposed resolution, to the ACHP. The ACHP shall provide Reclamation with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, Reclamation shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. Reclamation will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, Reclamation may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, Reclamation shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the Agreement and provide them and the ACHP with a copy of such written response.

C. Reclamation's ability to carry out all other actions subject to the terms of this Agreement that are not the subject of the dispute remains unchanged.

VII. AMENDMENTS

This Agreement may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VIII. TERMINATION

If any signatory to this Agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate this Agreement upon written notification to the other signatories.

Once the Agreement is terminated, and prior to work continuing on the undertaking, Reclamation must either (a) execute an Agreement pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. Reclamation shall notify the signatories as to the course of action it will pursue.

Execution of this Agreement by CCDC, Reclamation, and SHPO and implementation of its terms evidence that Reclamation has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

LIST OF ATTACHMENTS

Attachment A: Area of Potential Effects – Project No. 1
Attachment B: Area of Potential Effects – Project No. 2
Attachment C: Unanticipated Discovery Plan

SIGNATORIES:

Colorado State Historic Preservation Office
Bureau of Reclamation, Western Colorado Area Office

INVITED SIGNATORIES: Crawford Clipper Ditch Company

SIGNATORY PAGE

MEMORANDUM OF AGREEMENT
AMONG
THE BUREAU OF RECLAMATION WESTERN COLORADO AREA OFFICE,
THE CRAWFORD CLIPPER DITCH COMPANY,
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
UPPER WEST LATERAL PIPING PROJECT AND THE
WEST HAMILTON, HAMILTON, AND CENTER LATERALS PIPING PROJECT,
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

Colorado State Historic Preservation Office

By: Dr. Holly Kathryn Norton Digitally signed by Dr. Holly Kathryn Norton Date: 2022.05.06 15:39:31 -06'00' Date: _____

Dawn DiPrince, State Historic Preservation Officer

SIGNATORY PAGE

MEMORANDUM OF AGREEMENT
AMONG
THE BUREAU OF RECLAMATION WESTERN COLORADO AREA OFFICE,
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COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

Bureau of Reclamation, Western Colorado Area Office

By: LOUIS WARNER 2022.05.06 09:05:43 -06'00' Date:_____

Ed Warner, Area Manager

SIGNATORY PAGE

MEMORANDUM OF AGREEMENT
AMONG
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THE CRAWFORD CLIPPER DITCH COMPANY,
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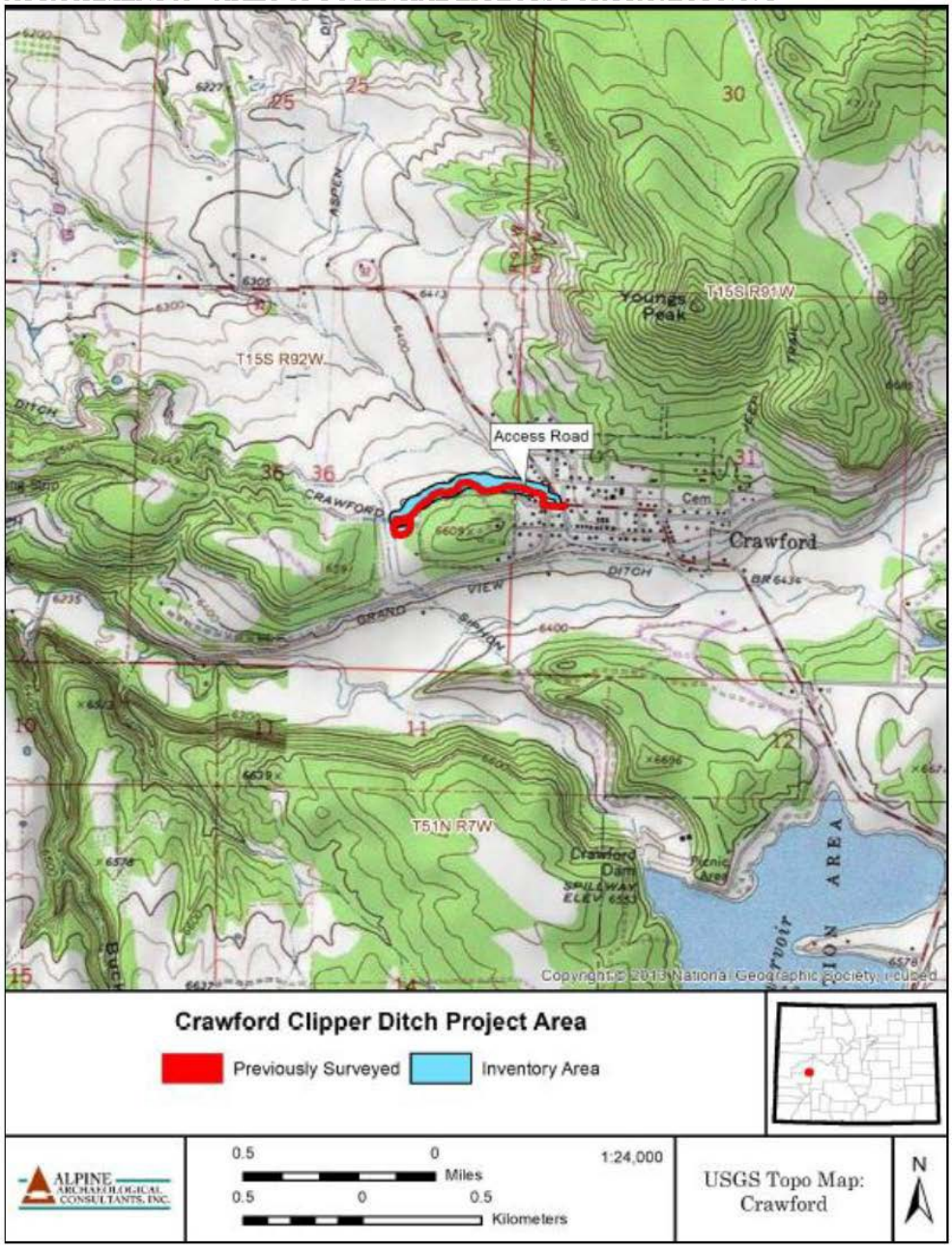
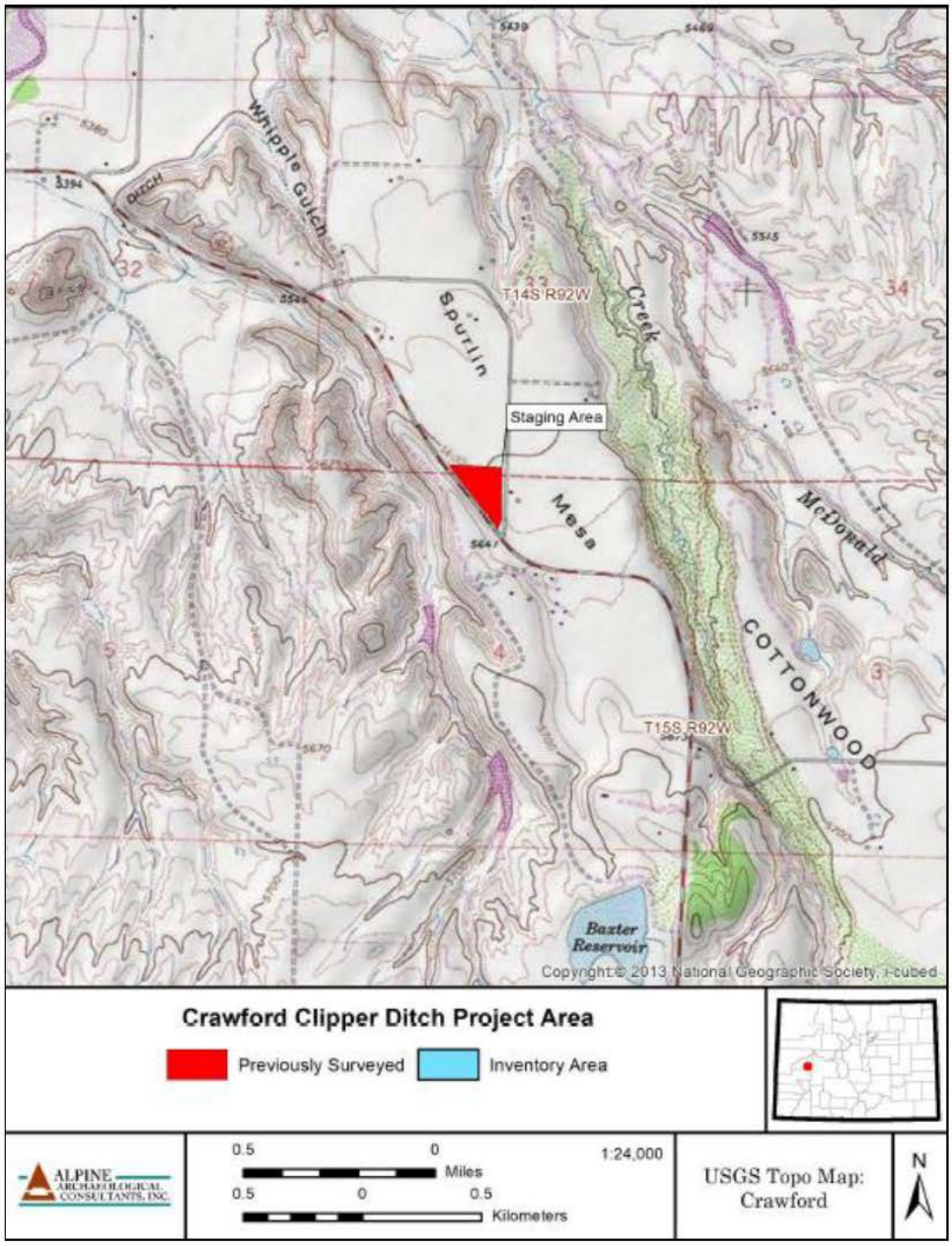
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

The Crawford Clipper Ditch Company

By: Mark LeValley Date: 5-4-22
Mark LeValley, President

ATTACHMENT A – AREA OF POTENTIAL EFFECTS FOR PROJECT NO. 1




Whipple Gulch
Spurlin Mesa
Staging Area
T14S R92W
T15S R92W
Creek
McDonald
COTTONWOOD
Baxter Reservoir
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Crawford Clipper Ditch Project Area
Previously Surveyed
Inventory Area
ALPINE ARCHAEOLOGICAL CONSULTANTS, INC.
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USGS Topo Map: Crawford
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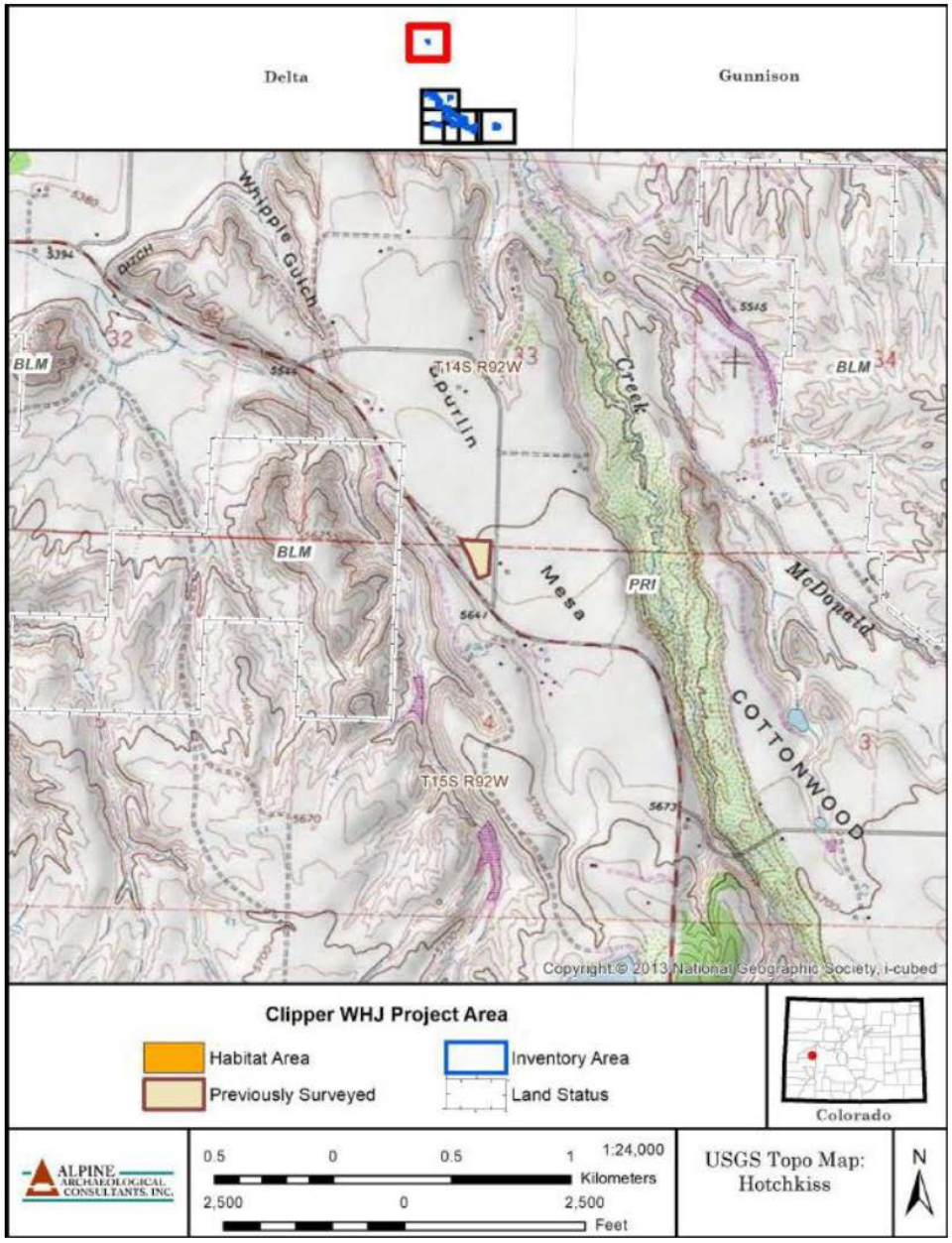
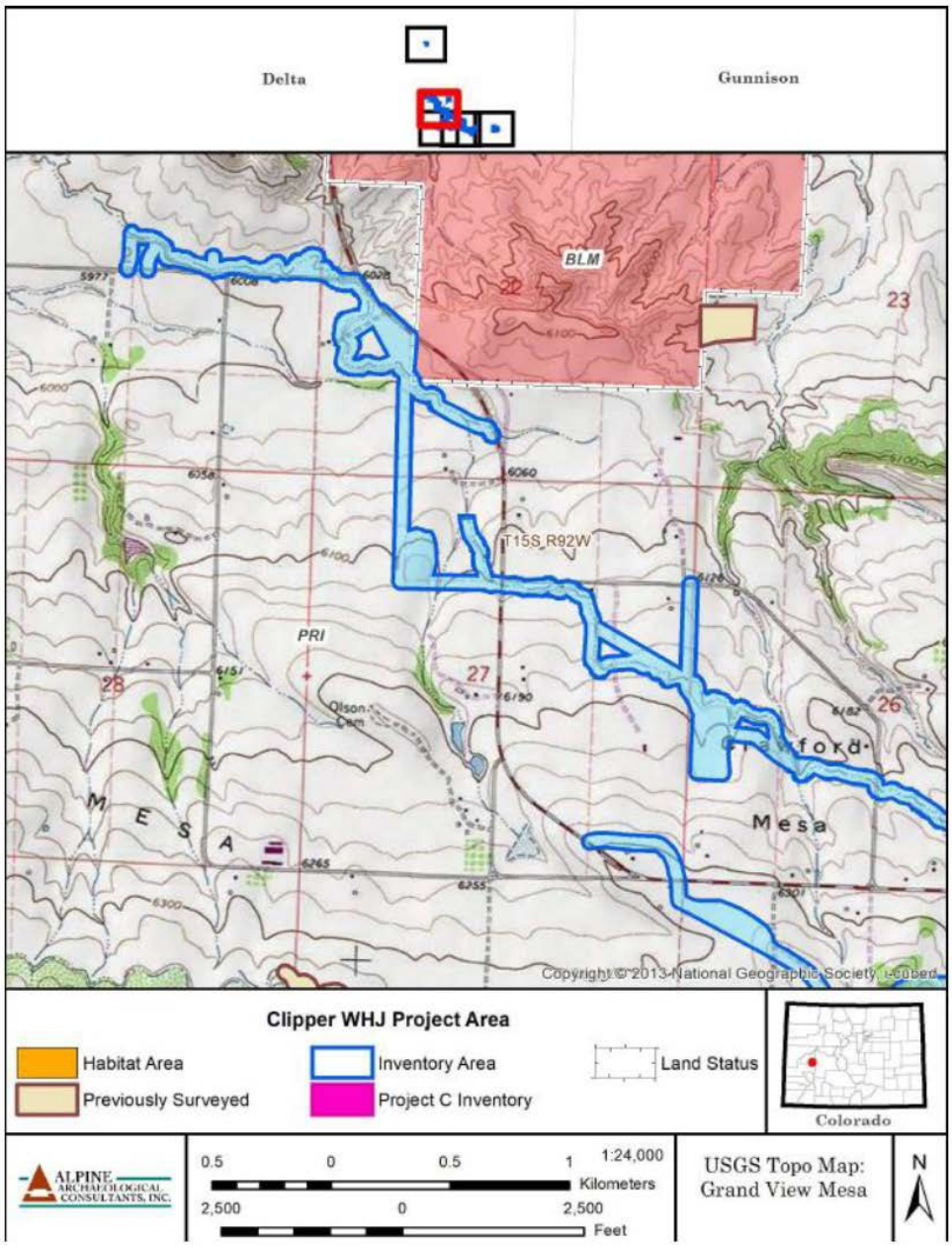
ATTACHMENT B – AREA OF POTENTIAL EFFECTS FOR PROJECT NO. 2

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Mesa
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Clipper WHJ Project Area
Habitat Area
Previously Surveyed
Inventory Area
Project C Inventory
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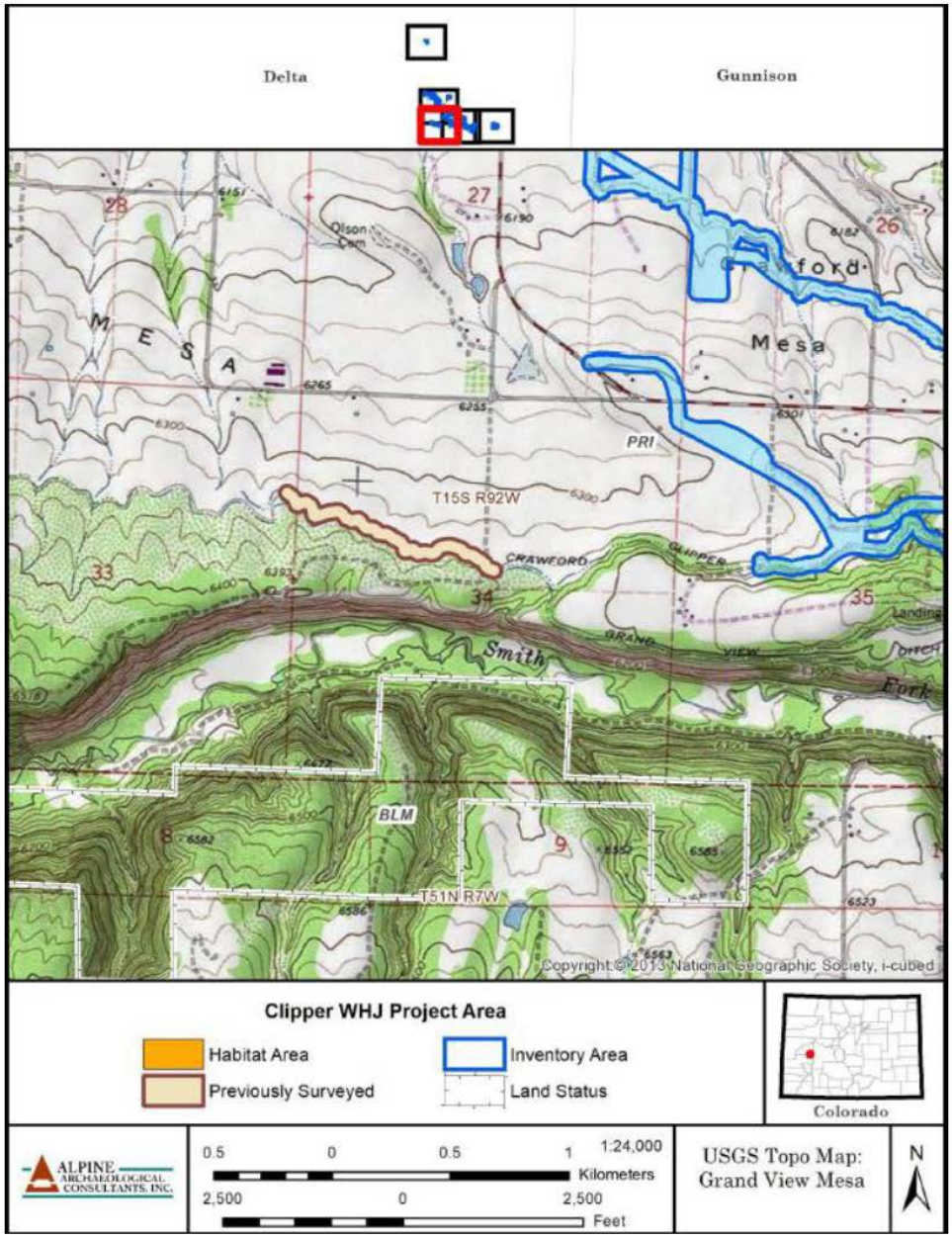
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Copyright © 2013 National Geographic Society, i-cubed
Clipper WHJ Project Area
Habitat Area
Previously Surveyed
Inventory Area
Land Status
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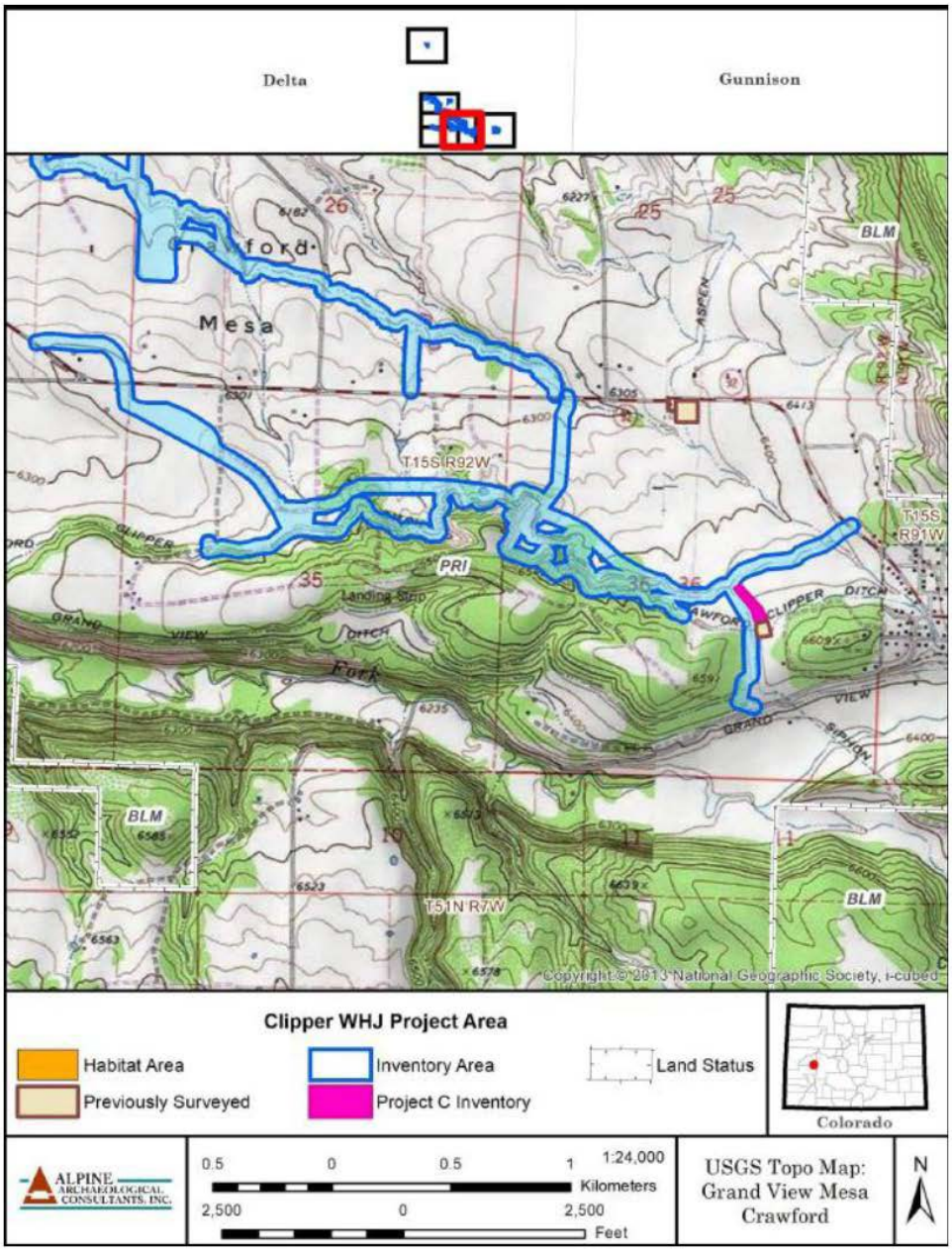
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Gunnison
Crawford
Mesa
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T15S R91W
T51N R7W
BLM
Landing Strip
Grand View Ditch
Clipper Ditch
Fork
Clipper WHJ Project Area
Habitat Area
Previously Surveyed
Inventory Area
Project C Inventory
Land Status
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Grand View Mesa
Crawford
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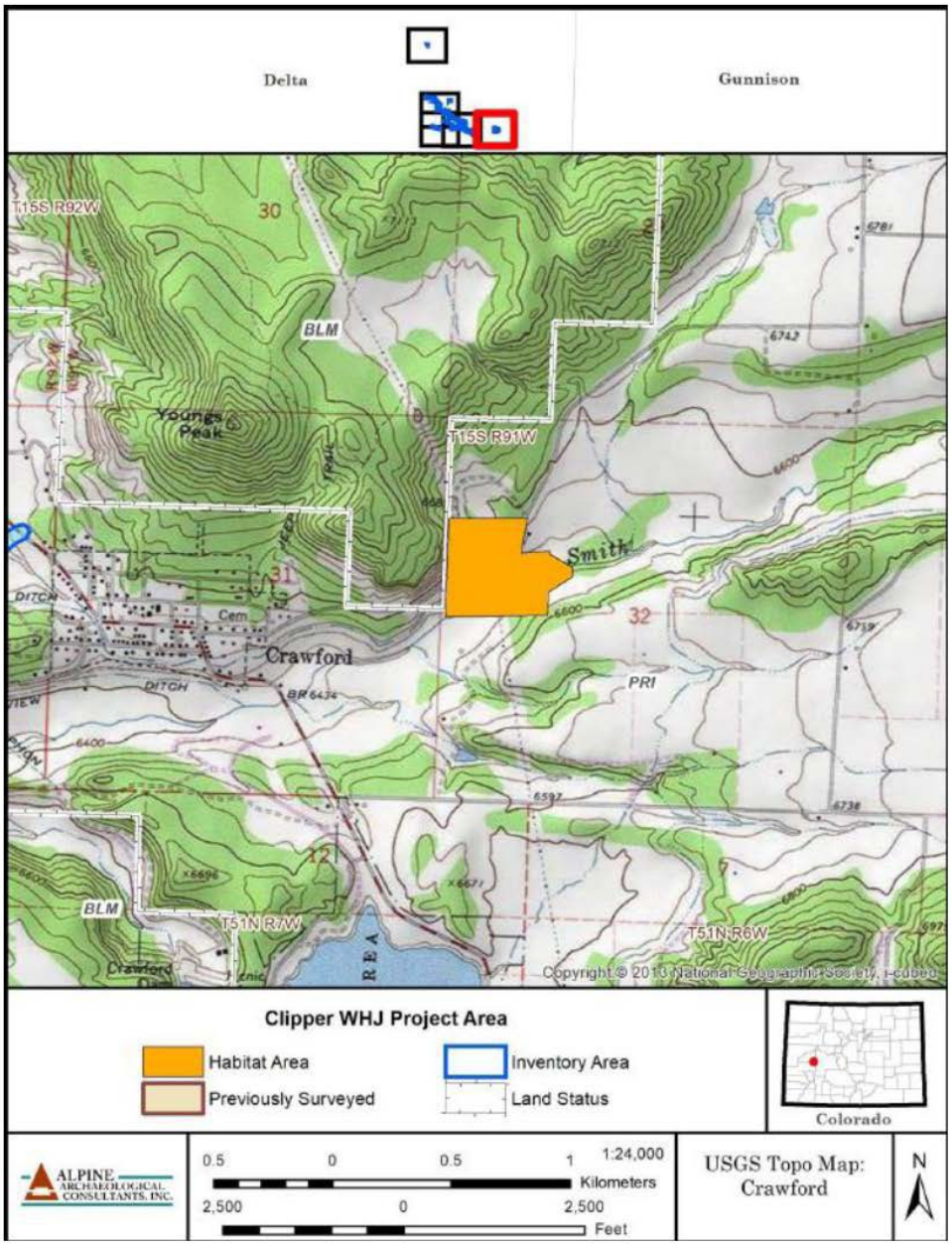
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BLM
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Crawford
DITCH
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BR 6434
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BLM
T51N R7W
T51N R6W
REA
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Clipper WHJ Project Area
Habitat Area
Inventory Area
Previously Surveyed
Land Status
Colorado
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Kilometers
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Feet
USGS Topo Map: Crawford
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ATTACHMENT C – UNANTICIPATED DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

THE CRAWFORD CLIPPER DITCH COMPANY
UPPER WEST LATERAL PIPING PROJECT AND THE
WEST HAMILTON, HAMILTON, AND CENTER LATERALS PIPING PROJECT,
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

1. INTRODUCTION

The Crawford Clipper Ditch Company (CCDC) plans to pipe 15.46 miles of laterals associated with the Crawford Clipper ditch system. The purpose of the projects is to reduce the salt load in the Colorado River Basin. The following Unanticipated Discovery Plan outlines procedures to follow, in accordance with state and federal laws, if archaeological materials are discovered.

2. RECOGNIZING CULTURAL RESOURCES

A cultural resource discovery could be prehistoric or historic. Examples include, but are not limited to:

- An accumulation of shell, burned rocks, or other food related materials
- An area of charcoal or very dark stained soil with artifacts,
- Stone tools or waste flakes (i.e. an arrowhead, or stone chips),
- Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years,
- Abandoned mining structures and features (i.e. mine shafts or adits, head frames, processing mills, or tailings and waste rock piles),
- Buried railroad tracks, decking, or other industrial materials.

When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

STEP 1: STOP WORK. If any CCDC employee, contractor or subcontractor believes that he or she has uncovered a cultural resource at any point in the project, all work adjacent to the discovery must immediately stop. The discovery location should be secured at all times.

STEP 2: NOTIFY BUREAU OF RECLAMATION. Contact the Reclamation Cultural Resources Manager (CR Manager) at the Bureau of Reclamation immediately upon becoming aware of the discovery:

Project Manager:	CR Manager:
Mark LeValley	Kristin Bowen
970-210-1000	970-385-6540
board@clipperditch.com	kbowen@usbr.gov

The CR Manager will make all other calls and notifications.

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media. The CR Manager will contact the county coroner and sheriff. Do not take, or allow anyone to take, any photographs of human remains at any time.

4. FURTHER CONTACTS AND CONSULTATION

A. Project Manager's Responsibilities:

- Protect Find: The CCDC Project Manager is responsible for taking appropriate steps to protect the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material as set forth in this document.

- Contact CR Manager: If the CR Program Manager at the Bureau of Reclamation has not yet been contacted, the Project Manager will do so.

B. CR Manager's Responsibilities

- Notify SHPO: The CR Manager will notify the Colorado State Historic Preservation Office (SHPO) within 48 hours of the discovery.

  Colorado State Historic Preservation Office:
  Dr. Holly Norton
  Deputy State Historic Preservation
  Officer and State Archaeologist
  History Colorado
  1200 Broadway
  Denver CO, 80203
  (303) 866-2736

- Direct Construction Elsewhere On-site: The CR Manager may direct construction away from cultural resources to work in other areas prior to contacting the concerned parties.

- Identify Find: The CR Manager will ensure that a qualified professional archaeologist examines the find to determine if it is archaeological.

    - If a qualified archaeologist determines that the discovery is not archaeological, work may proceed with no further delay.

    - If a qualified archaeologist determines the discovery to be archaeological, the CR Manager will continue with notification.

    - If the discovery may represent human skeletal remains or associated funerary objects, the CR Manager will immediately notify the county coroner and the sheriff or police chief. If the county coroner and local law enforcement determine that the skeletal remains are human remains, the procedure described in Section 5 will be followed.

C. Further Activities

- Archaeological discoveries will be documented as described in Section 6.
- Construction in the discovery area may resume as described in Section 7.

5. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect.

The project is located on both federal and private lands, and the requirements under the Native American Graves Protection and Repatriation Act (NAGPRA) apply (43 CFR Part 10). For all discoveries, the kinds of objects considered and referred to as NAGPRA items as defined in 43 CFR 10.2 (d) include: human remains, funerary objects, sacred objects, and objects of cultural patrimony. The requirements under State Law Colorado Revised Statute (CRS) 24-80 part 13 also apply. The Unmarked Human Graves Colorado Statute (CRS 24-80-1301-1305) applies if the human remains are on private lands.

In the event possible human skeletal remains are discovered, work in that portion of the project shall stop immediately. The remains shall be covered and/or protected in place in such a way that minimizes further exposure of and damage to the remains, and Reclamation shall immediately notify the Delta and Montrose County Coroners and the Delta and Montrose County Sheriffs. If the remains are found to have no forensic value and are located on private land, the coroner shall notify the state archaeologist, in accordance with CRS 24-80-1302. A plan of action shall be developed by the state archaeologist in consultation with the appropriate Indian tribes, the Colorado Commission of Indian Affairs and the landowner following the Process for Consultation, Transfer, and Reburial of Culturally Unidentifiable Native American Human Remains and Associated Funerary Objects Originating from

Inadvertent Discoveries on Colorado State and Private Lands. If the remains are not Native American, and are otherwise unclaimed, the appropriate local authority shall be consulted to determine final disposition of the remains.

Avoidance and preservation in place are the preferred option for treating human remains.

CCDC and the CR Manager will comply with the procedures outlined, and will coordinate with the following contacts:

CR Manager
Kristin Bowen
(970) 385-6540

Delta County Coroner
(970) 874-5918

Delta County Sheriff
(970) 874-2000

Colorado Deputy State Historic Preservation Officer and State Archaeologist
Holly Norton
(303) 866-2736

A. Further Activities:

When consultation and documentation activities are complete, construction in the discovery area may resume as described in Section 7.

6. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological deposits discovered during construction will be assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The CR Manager will ensure the proper documentation and assessment of any discovered cultural resources in consultation with Reclamation, SHPO, affiliated tribes, and a contracted consultant (if any). All prehistoric and historic cultural material discovered during project construction will be recorded by a professional archaeologist in accordance with all state and federal laws and Stipulation II B. above.

7. PROCEEDING WITH CONSTRUCTION

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. A professional archaeologist must determine the boundaries of the discovery location. In consultation with SHPO and affiliated tribes, the CR Manager will determine the appropriate level of documentation and treatment of the resource.

Construction may continue at the discovery location only after the process outlined in this plan is followed and CCDC, Reclamation, and SHPO determine that compliance with state and federal laws is complete.

FIRST AMENDMENT TO
MEMORANDUM OF AGREEMENT
AMONG
THE BUREAU OF RECLAMATION WESTERN COLORADO AREA OFFICE,
THE CRAWFORD CLIPPER DITCH COMPANY,
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
UPPER WEST LATERAL PIPING PROJECT AND THE
WEST HAMILTON, HAMILTON, AND CENTER LATERALS PIPING PROJECT,
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

WHEREAS, a Memorandum of Agreement (Agreement) was executed for the aforementioned undertaking on May 6, 2022; and

WHEREAS, a scope of work change is required to complete the Upper West Lateral (Project No. 1) and the West Hamilton, Hamilton, and Center Laterals (Project No. 2), a screen initially proposed to be along 5DT.1811.10 will be placed at feature 1 of 5DT.1811.10, the new location is within the APE previously agreed to by Reclamation and the Colorado State Historic Preservation Officer (SHPO) via letters dated December 16, 2020, and January 13, 2021; and

WHEREAS, the Bureau of Reclamation Western Colorado Area Office (Reclamation) as the lead Federal agency for the undertaking has determined, in consultation with SHPO, that the changes to the previously consulted scope of work will not pose additional adverse effects to historic properties; and

WHEREAS, the aforementioned project changes and unanticipated circumstances have prevented the Crawford Clipper Ditch Company (CCDC) from fulfilling the terms of the originally executed Agreement within the allotted timelines described in Stipulations I.A.c and III; and

WHEREAS, Reclamation will send a copy of this executed amendment to the Advisory Council on Historic Preservation (ACHP); and

NOW, THEREFORE, in accordance with Stipulation VII of the Agreement, Reclamation, the Crawford Clipper Ditch Company, and the SHPO agree to amend the Agreement as follows:

1. Stipulation I.A.c shall be amended to read as follows:

   Reclamation will submit a draft outline and text of the Storymap to all signatories of this Agreement within three (3) years of the execution of this agreement. The signatories shall review and provide comments, if they have any, within thirty (30) calendar days of receipt of the draft. Reclamation shall consider signatory comments and revise the draft accordingly. Once a draft is agreed to by the signatories, Reclamation will finalize the Storymap for public use.

2. Stipulation III shall be amended to read as follows:

   This Agreement shall expire if its terms are not carried out within four (4) years from the date of its execution. Prior to such time, Reclamation may consult with the other signatories to reconsider the terms of the Agreement and amend it in accordance with Stipulation VII below.

SIGNATORY PAGE

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THE CRAWFORD CLIPPER DITCH COMPANY,
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REGARDING THE
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WEST HAMILTON, HAMILTON, AND CENTER LATERALS PIPING PROJECT,
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

Colorado State Historic Preservation Office

By: Patrick A. Eidman Digitally signed by Patrick A. Eidman Date: 2024.04.04 10:51:10 -06'00' Date:_____

Dawn DiPrince, State Historic Preservation Officer

SIGNATORY PAGE

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COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,
LOCATED IN DELTA COUNTY, COLORADO

Bureau of Reclamation, Western Colorado Area Office

By:_____ Ed Warner 2024.04.11 06:12:22 -06'00' Date:_____

Ed Warner, Area Manager

SIGNATORY PAGE

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LOCATED IN DELTA COUNTY, COLORADO

The Crawford Clipper Ditch Company

By: Mark LaValley President Date: 4-3-24
Mark LaValley, President

APPENDIX D – DISTRIBUTION LIST

All landowners adjacent to the Project
Black Hills Energy
Citizens for a Healthy Community
Colorado Department of Transportation
Colorado Office of Archaeology and Historic Preservation
Colorado Parks and Wildlife
Colorado River Water Conservation District
Colorado Water Conservation Board
Crawford Mesa Water Association
Delta Montrose Electric Association
Delta County Commissioners
Delta County Road & Bridge Department
Delta County Planning & Community Development Department
Delta County Independent
TDS Telecom
Southern Ute Indian Tribe
Trout Unlimited
U.S. Army Corps of Engineers
U.S. Bureau of Land Management, Uncompahgre Field Office
U.S. Department of Agriculture Natural Resources Conservation Service
U.S. Fish and Wildlife Service
Ute Indian Tribe – Uintah and Ouray Reservation
Ute Mountain Ute Tribe
Western Slope Conservation Center

APPENDIX E – SUMMARY OF COMMENTS ON THE DRAFT EA & RESPONSES

Twelve (12) comment letters were received during the public comment period (see the pages of this Appendix following the comment summary). Two of the comment letters contained comments consisting of nearly identical language, and therefore the duplicative comments were assigned the same comment numbers. The comment documents contained 74 distinct, substantive comments. The comments were primarily focused on the range of alternatives; the loss of riparian habitat and habitat replacement; impacts to wildlife, property values, noxious weeds, air quality, and soils; and cumulative impacts. In compliance with 40 CFR 1503.4, possible responses to these comments include:

- Modifying the alternatives or developing and evaluating new alternatives
- Supplementing, improving, or modifying the analyses
- Making factual corrections

Reclamation reviewed each comment and classified them according to topic or comment category below. Summary comments and consolidated responses follow. Changes were made to supplement, improve, or modify the EA as a result of these comments and the reader is referred to the section of the EA where the changes occurred.

CATEGORY: WILDLIFE
Comment Numbers: 2, 7, 14, 31, 42, 46, 47 52, 53, 55, 73

Summary comment: Commenters are concerned about impacts to wildlife due to the loss of the open water and riparian vegetation along the ditches, as they are said to be central to the health of biodiversity in agricultural and semi-arid regions. Commenters are also concerned about changes in wildlife migration patterns and the loss of the ditches as a source of drinking water and shelter to local wildlife. One commenter indicated that The Nature Conservancy lists this region as B3 (High Significance) habitat value and questioned the Project's impact on the overall habitat value for wildlife. Wildlife species specifically mentioned by the commenters include coyotes, mountain lions, badgers, rabbits, bobcats, deer, fox, ducks, red tail hawk, falcons, and bullfrogs. One commenter questioned the impact on wildlife resulting from raises in air and soil temperatures and decreases in soil moisture.

Response: The Final EA discloses impacts to wildlife, including impacts associated with the loss of open water and riparian vegetation, in Section 3.2.11. After project implementation, water resources available to wildlife would continue to persist in the project area at a rate of more than four sources per square mile (Section 3.2.11), the CPW-recommended frequency of wildlife water sources. In addition, winter stock water would be available within the area, providing a source of water during the non-irrigation season which is not currently available within the open ditch (Section 3.2.1). A discussion on water available and wildlife migration patterns has been added to Section 3.2.11 of the Final EA. As required by the Salinity Control Act, there would be no net loss of habitat value associated with the Project, as described in Section 3.2.9 of the Final EA. A discussion on air and soil temperatures and soil moisture in relation to wildlife has been added to Sections 3.2.11, 3.2.11,

and 3.2.14 of the Final EA. It is the Colorado Natural Heritage Program (CNHP), rather than The Nature Conservancy, that designates "potential conservation areas" (PCAs) in the State of Colorado and assigns biodiversity rankings. No part of the Project Area falls within a CNHP-designated PCA, although several PCAs are designated in the valley due to the presence of sensitive species which do not find habitat directly within the Project's footprint. The commenter who mentioned bullfrogs may not be aware that the bullfrog is an introduced species (native only east of the Rocky Mountains) and considered a threat to native amphibians and fish in western Colorado. Reclamation has assumed the commenter is concerned with native frogs in general.

CATEGORY: VEGETATION
Comment Numbers: 3, 7, 9, 15, 31, 42, 46, 47, 48, 71, 73
Summary comment: Commenters are concerned about the loss of riparian vegetation and cottonwood trees which would occur as a result of implementing the Project, with one commenter indicating that the value of this vegetation has been undervalued by the analysis included in the Draft EA. There is a concern on how the loss of this vegetation would affect wildlife, regional biodiversity, and ecological function. One commenter indicated watering cottonwood trees after construction is not an option due to cottonwoods not uptaking water applied to the soil surface well.

Response: The Final EA discloses the permanent loss of approximately 4.2 acres of riparian and wetland vegetation associated with the unlined ditches (ERO 2020) in Section 3.2.9., but for the reasons described in this response and in greater detail in the EA, the effects of those losses would be insignificant. Wildlife use and the diversity of the riparian and wetland vegetation along the open water channels were taken into consideration during an evaluation of the existing habitat (ERO 2020). The value of the riparian and wetland vegetation was determined by utilizing Reclamation's April 2018 *Basinwide Salinity Control Program: Procedures for Habitat Replacement*, which was developed in partnership with the U.S. Fish and Wildlife Service (Reclamation 2018). Wildlife use and vegetative diversity are two of the ten criteria analyzed under these procedures. The value of the wildlife use and diversity of the lost riparian and wetland vegetation is being maintained by the implementation of the Project's habitat replacement site. Together, the ten criteria considered in determining the lost riparian and wetland values speak to the ecological function of the riparian and wetland habitat. A description of the ten criteria and the habitat evaluation procedures has been added to Section 3.2.9 of the Final EA. Because there would be no loss of riparian and wetland values associated with implementation of the Project, the effects of the loss of riparian and wetland vegetation would be insignificant.

It is acknowledged that cottonwood trees supported by canal seepage would be lost due to project implementation, especially if irrigation of cottonwood trees post-construction is unsuccessful. The vegetation analysis is conservative in that it assumes all cottonwood trees supported by canal seepage would be lost due to implementing the Project (Section 3.2.9). Loss of cottonwood trees associated with the loss of seepage water from the canals was considered in the habitat losses evaluation (ERO 2020), and the loss of the value of the cottonwood trees is being replaced by the implementation of the Project's habitat replacement site.

CATEGORY: CUMULATIVE IMPACTS
Comment Numbers: 23, 24, 25, 40, 43, 45, 47, 51, 62

Summary comment: Commenters questioned the adequacy of the cumulative impacts analysis included in the Draft EA cumulative impacts analysis, and said the analysis was poorly defined and limited in scope. Commenters requested a broad cumulative impacts study. One commenter felt the cumulative impacts analysis omitted collectively significant impacts from present and future piping projects, and requested the completion of a third party cumulative impacts study of the North Fork and Lower Gunnison sub-watersheds. Commenters were concerned that the cumulative impacts analysis did not fully analyze the impacts to the local and regional environment. Commenters are concerned about the cumulative impacts to property values and riparian habitat; and they are concerned that cumulative impacts would be a driver for ecosystem level change and would intensify and increase the pace of aridification in the region.

Response: The cumulative impacts analysis has been moved from each of the individual resource sections into a separate Cumulative Impacts section in the Final EA (Section 3.2.16). The new Cumulative Impacts section includes a broad cumulative impacts study. The new section defines the geographic and temporal scope of analysis for each of the resources and includes a complete list of the past, present, and reasonably foreseeable future actions considered. Defining the geographic scope of analysis for each resource helps demonstrate that the cumulative impacts analysis fully analyzed the impacts to the local and regional environment. As described in Section 3.2.16, no cumulative impacts to any resources within the North Fork and Lower Gunnison sub-watersheds rise to the level of significant when considering past, present, and reasonably foreseeable future actions. NEPA does not require agencies to prepare third party analyses, and a third-party analysis on cumulative impacts has not been prepared for the Project. The Environmental Assessment itself serves as a comprehensive study disclosing the effects of the Project.

CATEGORY: ALTERNATIVES
Comment Numbers: 1, 4, 12, 39, 57, 61, 65, 66, 74

Summary comment: The commenters questioned if an alternative to piping laterals could be implemented or whether other alternatives were considered, including alternatives that better minimize impacts to wildlife, vegetation, and visual resources while also reducing salinity or alternatives which reduce runoff and erosion and increase soil organic matter. Alternatives identified include desalination, soil health and the deployment of strategic agricultural conservation practices, management changes in adjacent grazing and hay fields and edging the ditch with appropriate vegetative cover, ditch lining, and the observation of things that impact ditch efficiency. A commenter questioned the accuracy of the No Action Alternative analysis, indicating that No Action does not mean other remedial measures would not mitigate the salinity concern.

Response: The federal action for this project is awarding a grant through the federal Salinity Control Program; thus, salinity control efforts through the Salinity Control Program in the Crawford area is an applicant-driven process. This process, including information on Funding Opportunity Announcements (FOAs) (now known as Notice of Funding Opportunities – or NOFOs) and cost effectiveness, is described in Section 1.4.1 of the Final EA. Applications have not been received relating to soil health and the deployment of strategic agricultural conservation practices, management changes in adjacent grazing and hay fields and edging the ditch with appropriate vegetative cover, and the observation of things that impact ditch efficiency, or any other alternative that could minimize impacts to wildlife, vegetation, and visual resources or alternatives which reduce runoff and erosion and increase soil organic matter. Information has not been presented to Reclamation which details how these alternatives would occur or how effective (i.e. tons of salt

removed) the alternatives would be. Therefore, these alternatives have not been defined to a point where they could be included for further analysis.

A discussion on alternatives considered but removed from further analysis has been added as Section 1.8 of the Final EA.

The No Action Alternative has been appropriately defined, as it is accurate to state that the salt loading associated with the ditches proposed for piping under the Project would continue to load salt into the Lower Gunnison Basin and the Colorado River Basin. Without a change in the existing environment (i.e. an action, such as other remedial measures with the potential to reduce salt loading associated with the ditches), salt loading associated with the ditches proposed for piping would continue at the current rate. The No Action Alternative could include other remedial measures that would occur without the Project; however, there are no known remedial salinity control measures which would impact the salt loading associated with the ditches proposed for piping at this time. Therefore, as applied here, the No Action Alternative means other remedial measures would not mitigate the salinity concern. This has been clarified in Section 2.1 of the Final EA.

CATEGORY: PROPERTY VALUES
Comment Numbers: 8, 10, 16, 41, 43, 46, 50, 51

Summary comment: Commenters are concerned about the Project's impact, including the loss of trees, habitat, and climate change on property values and questioned what would be done to mitigate impacts to property values. One commenter was concerned about cumulative impacts to property values. One commenter included a reference which the commenter said stated that healthy mature trees both on and around a property can increase property value by 10%. The commentor included other references which the commentor said indicated that the average value of properties landscaped with trees are 20% higher than those without. The commenter also indicated that dead and dying trees cause property values to decrease.

Response: An analysis to impacts to property values has been added to Section 3.2.6 of the Final EA, and a cumulative impacts analysis on property values has been added to Section 3.2.16 of the Final EA. From the County Assessor's perspective, the value of the property would not change as a result of piping the ditch.

CATEGORY: HABITAT REPLACEMENT
Comment Numbers: 5, 11, 20, 26, 32, 44, 52, 56, 71

Summary comment: Commenters questioned how habitat is calculated and replaced. One commenter stated that they felt the Draft EA undervalued the vegetation that is supported by the ditch as well as the wildlife that the vegetation supports. Commenters are concerned that the ecological benefits of the riparian systems are not being fully accounted for in the habitat replacement projects. Commenters mentioned that the habitat replacement site serves as habitat replacement for multiple Salinity Control Program projects. Commenters requested justification as to how implementing a conservation easement on existing riparian habitat serves to replace habitat lost by implementing the Project, and how it would meet the requirement to maintain riparian and wetland habitat affected as a result of the Project as listed on page 18 of the Draft EA. One commenter described the habitat replacement site as being located on the south side of Crawford Reservoir, and described the characteristics of the site as including dried grass with transient ponds

that produce some cattails. One commenter questioned how habitat replaced six (6) miles from the project area can benefit the species present in the project area, insinuating that the proposed replacement habitat is outside the ranges of coyotes, mountain lion, badger, rabbits, and other impacted animal species.

Response: A discussion on how habitat is calculated, valued, and replaced has been added to Section 3.2.9 of the Final EA. The habitat replacement project is located within the overall ranges of the various wildlife species present within the Project Area, and the Final EA discloses impacts on the loss of this habitat to wildlife and vegetation in Sections 3.2.11 and 3.2.9 of the Final EA. Together, the ten criteria considered in determining the lost riparian and wetland values speak to the ecological benefits of the riparian and wetland habitat. The Project's habitat replacement site is described in Section 2.2.9 of the Final EA. While excess habitat credits generated by a habitat replacement project may be utilized to replace habitat credits lost by multiple projects as long as there are excess habitat credits available, the habitat replacement site included in the Project is currently only serving as a replacement habitat site for this single project.

Reclamation's 2018 *Salinity Control Program: Fish and Wildlife Habitat Evaluation Procedures* allow for land acquisition actions to generate habitat credits. Reclamation, in partnership with the U.S. Fish and Wildlife Service, developed the 2021 *Procedures for Scoring Land Acquisition as Habitat Replacement and Guidance on Developing Habitat Management Plans* (Reclamation 2021). These procedures outline the requirements to generate habitat credit through land acquisition measures. Land acquisition may include land purchase along with establishing a conservation easement or establishing a conservation easement on currently owned property for the benefit of wildlife. To be eligible for a habitat replacement site, the land must include, or have the potential to include, suitable riparian and/or wetland habitat. If the land contains fully functioning riparian and/or wetland habitat and is faced with an imminent threat of development or action which would notably reduce its habitat value, credit may be generated by implementing a land acquisition action which would prohibit the degradation.

In this case, the property in question was planned for subdivision and development, which would destroy the highly valuable riparian and wetland habitat located on the property. By placing the property in a conservation easement, future development of the parcel is prohibited not just for the 50-year life of the project but in perpetuity. Because the value of the habitat protected from degradation (33.4 credits) is greater than the value of the habitat lost (11.6 credits), Reclamation is meeting the requirement to maintain riparian and wetland habitat value. This justification has been added to Section 2.2.9 of the Final EA.

The area on the south side of Crawford Reservoir which was described by the commenter is not the habitat replacement site for the Project. The habitat replacement site ranges from approximately 1.1 to 5 miles from the project area. It is located approximately ½ mile east of the Town of Crawford, and it consists of 42.5 acres of land with high-quality riparian woodlands and wetlands owned by the Applicant on the Smith Fork River. A map showing the location of the habitat replacement site is included in Figure 1 in the Final EA. Impacts to wildlife, including coyotes, mountain lion, badger, rabbits, and other impacted animal species resulting for the loss of a water source and riparian habitat associated with the Project are described in Section 3.2.11 of the Final EA. The analysis includes a discussion on the distance between the Project area and the habitat replacement site.

CATEGORY: NEPA PROCESS
Comment Numbers: 6, 13, 23, 29, 64

Summary comment: One commenter questioned if Reclamation was following its own procedures, as earlier EAs have included separate cumulative impact sections and the current EA appears to be omitting collectively significant actions over time. Two commenters were upset that they were not informed directly of the Project and the Draft EA public comment period, and another commenter indicated that Reclamation did not do due diligence in outreach to notify the community of the proposed action.

Response: Reclamation followed its procedures in the development of the Draft EA, specifically in how cumulative impacts are disclosed. Reclamation altered how cumulative impact analyses were included in EAs in 2020 after the Council on Environmental Quality (CEQ) announced its final rule titled "Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act" in July 2020. This final rule simplified the definition of effects by eliminating references to direct and indirect effects and deleting the definition of cumulative effects. As a result, Reclamation moved the cumulative impacts analysis in EAs from a designated Cumulative Impacts section to being located within the sections of the resources in question, and no longer specifically labeled those effects as "cumulative." In May 2022, the CEQ released an update to the National Environmental Policy Act Implementing Regulations which returned the definitions and references to direct, indirect, and cumulative effects to their pre-2020 definitions. Reclamation responded to this change by once again labeling cumulative impacts as such, however, Reclamation continued to include the cumulative impacts analysis within each specific resource section. In response to comments received, Reclamation has moved the cumulative impacts analyses to its own resource section, included as Section 3.2.16 of the Final EA.

Reclamation has done due diligence in outreach to notify the community of the proposed action. Reclamation solicited public comments during a public comment period which extended from January 23, 2023 to February 27, 2023 (a total of 35 days). Reclamation notified 30 interested parties and 102 landowners adjacent to the project area of the availability of the Draft EA public comment period through a mailed distribution letter. Reclamation develops landowner distribution lists based on the names and addresses on file with the county's accessors office, and both commenters who mentioned not being made aware of the public comment period were included in the mailing distribution. This information is included in Section 5.2 of the Final EA.

CATEGORY: NOXIOUS WEEDS
Comment Numbers: 18, 19, 27, 28

Summary comment: The commenters questioned the adequacy of the analysis on noxious weeds, indicating that noxious weeds are known to spread in disturbed ground, that it appears to the commenters that many ditch companies do not have the resources or incentive to maintain ditch corridors, and that Delta County does not have any on-the-ground implementation of noxious weed control or oversight. The commenters observed that many of the revegetation and weed control applications in previous Salinity Control Program projects appear to be inadequate, poorly administered, and left to become "wastelands." One commenter mentioned that newly disturbed soils are a breeding ground for invasive weeds and said native species intended to outcompete noxious weeds would require irrigation to take root. This commenter requested the creation of a noxious weed control management plan.

Response: To be conservative, the analysis on noxious weeds (Section 3.2.10) has been updated to assume a lack of weed control throughout the project area and to include a discussion on disturbed soils as a breeding ground for invasive weeds; however, it is anticipated that weeds would be controlled within the majority of the project area due to the sterile topsoiling and natural revegetation method (see Section 2.2.7) and due to individual agreements between landowners and the Applicant. A noxious weed control management plan has not been developed for the Project, as the analysis assumes a lack of weed control. Additional discussion on noxious weeds is included in the Contracting category, below.

CATEGORY: AIR QUALITY AND MICROCLIMATE
Comment Numbers: 24, 44, 46, 47, 48, 51, 59, 62

Summary comment: The commenters mentioned that the Air Quality analysis in the Draft EA only analyzed particulate matter. The commentors are concerned that changes in evapotranspiration and air temperature would have significant impacts to the surrounding ecosystem. They are also concerned that the loss of cottonwoods would result in increased air temperatures and aridification. One commenter requested an additional assessment on the rise in area air temperatures and the associated impacts to the health of the local juniper forest and resident wildlife. One commenter included a reference which was said to indicate that wetlands buffer surrounding area temperatures by as much as 14 degrees F in summer months (according to Impact of wetland change on local climate in semi-arid zone of Northeast China. Liu, Y., Sheng, L. & Liu, J. Chin. Geogr. Sci. 25, 309–320 (2015). https://doi.org/10.1007/s11769-015-0735-4), and indicated that the net cooling effect of a young, healthy cottonwood tree is equivalent to ten room-size air conditioners operating 20 hours a day (no citation provided). There is a concern that the loss of cottonwoods would disrupt the small water cycles in the arid southwest. The commenters questioned the impacts to the area's micro-climates. The commenters are concerned that "atmospheric loading" of water and decreases in vegetative cover would cause the region to experience a decrease in precipitation. It was mentioned that decreases in precipitation can contribute to lower rates of dilution and greater salt concentrations.

Response: A microclimate section was added to the Final EA to provide an additional assessment on the cooling effect of wetlands (including the loss of 0.3 acre of cottonwood trees) and the associated rise in area air temperatures Section 3.2.15 as well as the associated impact on the local juniper forest (Section 3.2.9), and resident wildlife (Sections 3.2.11 and 3.2.15).

Water currently associated with canal seepage would be conserved and applied to irrigated fields under the Project. While canal seepage water would no longer be transpired by the vegetation associated with the canal seepage, it would be transpired through the irrigated crops utilizing the conserved water. Therefore, the currently transpired canal seepage water would, under the Project, continue to remain within the acreage of vegetation which is supported by the canal system and would continue to contribute to transpiration within the area. A discussion on evapotranspiration has been added to the microclimate section (Section 3.2.15) of the Final EA.

The microclimate associated with the canal seepage would be lost; this impact has been added to Section 3.2.15 of the Final EA.

Approximately 0.3 acre of cottonwood canopy cover is associated with seeping canal water related to the Project. An analysis of microclimate changes, including in relation to the loss of the 0.3 acre of cottonwood canopy cover, has been added to Section 3.2.9 the Final EA.

CATEGORY: ENVIRONMENTAL COMMITMENTS
Comment Numbers: 34, 35, 36, 37, 38

Summary comment: Colorado Parks and Wildlife (CPW) requested the following environmental commitments be added to the Final EA: a timing limitation for mule deer and elk Severe Winter Range and mule deer Winter Concentration Area; escape ramps for wildlife be installed at a minimum of one escape ramp every ¼ mile where trench covers are not practical; a timing limitation for the bald eagle winter roost located in Section 35 - T15S:R92W; and the installation of six to eight water taps with stock ponds or guzzlers on private lands throughout the project area or rain-catching guzzlers on public lands.

Response: Reclamation set up a call with CPW to discuss project-specific concerns and to review maps and discuss these environmental commitments as they relate to this specific project with CPW on May 17, 2023. The results of the discussion are summarized below.

CPW retracted their comment on limiting construction during the winter months considering (1) the level of development and human activity in the area is high and State Highway 92 traverses the area (herds are already adapted), (2) the large size of the severe winter range and winter concentration area relative to the construction footprint, and (3) the concentrated, incremental nature of the construction across the landscape (approx. 300 feet per day), meaning big game can move away from the disturbance within the large area of severe winter range and winter concentration area.

Due to the nature of pipeline construction, only approximately 30 feet to 500 feet of trench would be left open each night (less than 0.1 mile), so CPW's request to provide one escape ramp every ¼ mile would already be met. The following environmental commitment has been added to CHAPTER 4 of the Final EA: Typically, 30 to 500 feet of trench would be left open overnight during project construction. Each evening, the end of the trench would be sloped to create an escape ramp for wildlife.

Monitoring of the bald eagle winter roost by CPW and experts has shown that the mapped roost is no longer active. Therefore, CPW retracted their comment and no timing limitation for a bald eagle winter roost is necessary.

CPW retracted their comment requesting wildlife water taps, guzzlers or ponds because of water resources that would persist in the project area at the rate of more than 4 sources per mile -- these include outlets to on-farm ditches and stock ponds. It was also discussed that availability of winter stock water would increase in the project area as a result of the project, as piping the canal would enable the delivery of stock water even during freezing months. Up to 37 on-farm stockwater outlets spread across the project area could be active during freezing months following project implementation. A discussion on the availability of water for wildlife has been added to Section 3.2.11 of the Final EA.

CATEGORY: SOILS
Comment Numbers: 47, 49, 58, 60

Summary comment: One commenter requested an additional assessment on the rise in area soil temperatures and decrease in soil moisture, and the associated impacts that these environmental factors would have on local temperatures and the health of the local juniper forest and resident wildlife. The commenters are concerned about increased soil moisture deficit and higher localized thermal loading of soils and the exacerbated loss of soil moisture driving the need for more irrigation while simultaneously reducing overall water availability in the system. One commenter remarked that salinity levels can increase as a result of degraded soil health, irrigation methods, and overall land management.

Response: Language was added to the Final EA to provide an additional assessment on the rise in area soil temperatures (Section 3.2.15), decreases in soil moisture (Section 3.2.15), and the associated impact on local temperatures (Section 3.2.15), the local juniper forest (Section 3.2.9), and resident wildlife (Section 3.2.15).

Water currently associated with canal seepage would be conserved and applied to irrigated fields under the Project. Therefore the current seepage water would, under the Project, continue to remain within the acreage which is currently irrigated by the canal, and this water would continue to contribute to soil moisture within the area. The soils directly under the canals would experience a loss of soil moisture. A discussion on soil moisture has been added to Section 3.2.15 of the Final EA. The Project area and acres of seepage-supported riparian and wetland vegetation which may extend outside of the project area encompass 4.2 acres. The irrigated agricultural acreage on Crawford Mesa includes approximately 2,383 acres. Any increases in localized thermal loading of soils would be negligible, as the soils in question are associated with less than 0.1% of the soil contributing to localized thermal loading in the area. Analysis on soil moisture has been added to Section 3.2.14 of the Final EA.

The Project would not change soil health, irrigation methods, or land management on Crawford Mesa, and therefore the Project would not contribute to increases in salinity levels resulting from soil health, irrigation methods, or land management. This information has been added to Section 3.2.14 of the Final EA.

CATEGORY: VISUAL RESOURCES
Comment Numbers: 15, 31, 72, 73

Summary comment: A commenter described that the loss of flora associated with canal seepage, including many large cottonwoods, would leave a scar on the land. The commenters indicated that the Visual Resources analysis included in the Draft EA does not adequately address the impacts to the visual landscape resulting from the loss of ditch-supported riparian vegetation nor the visual impacts to the viewshed of individual landowners along the ditch from the windows of their homes.

Response: Further description of impacts to visual resources resulting from the loss of ditch-supported riparian vegetation has been added to Section 3.2.8 of the Final EA. A viewshed analysis at the individual homeowner level is not required to understand whether there would be reasonably foreseeable adverse impacts on the human environment, because Reclamation's general viewshed analysis already achieves this understanding. Attempting to analyze impacts to the viewshed of individual landowners from the windows of their homes along the ditch would be unduly burdensome as it would necessitate obtaining access to windows within individual homes. It is acknowledged that there would be loss of some cottonwoods that are part of the scenic landscape as

a result of the Project. However, since the other factors that create the scenic landscape would remain following the Project (agricultural fields, irrigated hay meadows, in mosaic with native woodlands and shrublands, as well as scattered cottonwoods that would not be involved with the Project, the visual impacts do not rise to the level of significant Therefore, an analysis on visual impacts down to the individual level has not been included in the Final EA.

CATEGORY: EASEMENTS
Comment Numbers: 67, 68, 70

Summary comment: The commenter objects to any easement being created on their property other than the historic easement that currently exists. The commenter calculates the historic easement on their property generally to be 17 feet from the ditch centerline, and does not want any ground disturbance, vegetation disturbance, ingress, or egress occurring on their property outside of the historic easement. The commenter questioned the area of disturbance included in the Draft EA as being as wide as 60 feet and not constrained by the existing ditch centerline.

Response: As described in Sections 2.2.4 and 3.2.5 of the Final EA, the smallest disturbance footprint (not to exceed 60 feet wide, but expected to average approximately 40 feet wide) would be employed to safely complete the work in the historic prescriptive easement. For safety purposes and engineering requirements, the Applicant may need to extend the disturbance footprint a reasonable distance beyond the area of historical disturbance. The Applicant asserts that it is within its legal rights to do so. C.R.S. §37-86-103 provides that an existing prescriptive right-of-way "includes the right to construct, operate, clean, maintain, repair, and replace the ditch and appurtenant structures, to improve the efficiency of the ditch, including by lining or piping the ditch, and to enter onto the burdened property for such purposes" and that the holder of the right-of-way has access "for all reasonable and necessary purposes related to the ditch." The regulation further clarifies that the scope of a prescriptive ditch right-of-way is not limited to the precise area which has been historically used, but instead is based on the area "sufficient for the purpose required." A discussion on what is reasonably necessary has been added to the Section 3.2.5 of the Final EA.

CATEGORY: CONTRACTING
Comment Numbers: 21, 33

Summary comment: The commenters questioned if a bond could be put in place should contractors and ditch companies not live up to the standards outlined in the EA, specifically in regard to post-project weed control and revegetation efforts.

Response: The analysis on noxious weeds (Section 3.2.10) and vegetation (Section 3.2.9) has been updated to assume a lack of weed control and no revegetation efforts in natural areas in the project area. Therefore, there are no standards outlined in the EA with regard to post-project weed control and revegetation efforts. Thus, there are no standards to enforce through a bond. This provides a conservative analysis, as the natural revegetation finishing method would help control the spread of noxious weeds in natural areas. The Applicant is coordinating with individual landowners on weed management efforts and revegetation of agricultural areas. These efforts are subject to agreements between the Applicant and the individual landowners.

Noxious weed control measures are required, however, as environmental commitments (see CHAPTER 4, General BMPs 1, 2, 4, 10, 14, 15, and 16) and these measures would be included in

the Applicant's contract with the Construction Contractor. The construction contract would include a Performance and Payment Bond. Therefore, these noxious weed control measures would be indirectly covered by a bond, though without enforcement standards as described above. Revegetation efforts would either be included in the Applicant's construction contract (in which case they would be covered by a bond) or they may be carried out by the Applicant themselves. To be conservative, the EA analysis assumes no revegetation efforts would occur; however, if revegetation results were to be outlined in the EA and those standards were not met, the Applicant would receive lower ratings in future grant proposals.

CATEGORY: HYDROLOGY
Comment Numbers: 30

Summary comment: The commenter is concerned about the Project changing the hydrology of the area which has existed for over 100 years.

Response: An analysis on hydrology has been added to the Final EA in Section 3.2.3. Groundwater recharge is a related topic to hydrology, and therefore a brief discussion on groundwater recharge has been added to the Final EA in Section 3.2.3.

CATEGORY: SALINITY BENEFIT
Comment Numbers: 1

Summary comment: The commenter commented on the value of salinity control resulting from the Project compared to the entirety of the Colorado River Basin.

Response: Estimated salinity reduction is calculated based on measured total dissolved solids loads in basin streams, geographic information system (GIS)-based model calculations to determine subbasin loads, and ditch mapping data that include average flows, ditch lengths, and average annual days of use. Richards et al. (2014), Schaffrath (2012), and Linard (2013) provide more detailed information on salt loading estimate methodology. The USGS prepares progress reports for the Bureau of Reclamation on the quality of water in the Colorado River Basin, and these reports indicate that the Salinity Control Program is effective in reducing the salinity levels of the lower Colorado River (Reclamation 2019a). This information is included in Section 1.4.1of the Final EA.

CATEGORY: SUMMARY OF EFFECTS
Comment Numbers: 17

Summary comment: The commenter said the Draft EA indicated there would be "no effect" to any resource analyzed, and mentioned that other salinity projects in the area show effects do occur.

Response: The Draft EA listed numerous direct, indirect, and cumulative effects for multiple resources. A summary of effects is included in Table 6 of the Final EA. Section 1.7 acknowledges that concerns from previous projects were taken into account during the Project's scoping process.

CATEGORY: OTHER BENEFITS
Comment Numbers: 22

Summary comment: The commenter mentioned that given the declining available water on the Western Slope due to decreasing precipitation, piping helps to extend the beneficial use of irrigation

water and helps to protect a huge part of the economy that comes from agriculture. That agriculture includes not only hay and alfalfa, but crops such as corn, soy beans, orchard fruits, vineyards and livestock such as cattle, sheep, goats, and pigs, all of which add to the vistas that are so aesthetically pleasing to residents and tourists alike. Irrigation water makes possible the growing tourism industry in the North Fork Valley and the farm to table dinners that help drive our economy.

Response: A discussion on benefits to agriculture and the local economy related to the extended use of irrigation water has been added to Section 3.2.1 of the Final EA. A discussion on the agricultural vista supported by irrigation ditches has been added to Section 3.2.8 of the Final EA.

CATEGORY: SPECIES OF SPECIAL CONCERN
Comment Numbers: 44, 54

Summary comment: One commenter mentioned that given the challenges the region is facing from increased temperatures, long term drought, and irregular precipitation, the piping of open ditches would destroy critical habitat. That same commenter referenced the 2016 Smith Fork of the Gunnison River Watershed Assessment which was prepared by the Western Slope Conservation Center, and questioned how that assessment lists over twenty endangered or species of special concern as residing in the riparian and wetland systems in the watershed while the Draft EA did not seem to have found any of the species residing in the impacted areas. The commenter indicated that American Peregrine falcon, bald eagle, and the Canadian lynx are regularly sighted in these areas.

Response: Reclamation consulted with the U.S. Fish and Wildlife Service on impacts to critical habitat. The results of that consultation are described in Section 3.2.12 of the Final EA.

The 22 special status species included in the 2016 Smith Fork of the Gunnison River Watershed Assessment includes both federally listed and state sensitive species. Reclamation, as a federal agency, is required to disclose impacts to federally listed threatened or endangered species or their critical habitat. Federal agencies are not required to specifically analyze impacts to state sensitive species; therefore, the Final EA includes a specific analysis on threatened or endangered species and their critical habitat in Section 3.2.12, and the analysis on all other species, including state sensitive species, is included within the scope of the vegetation and wildlife analyses in Sections 3.2.9 and 3.2.11 of the Final EA.

Reclamation obtained an official species list from the U.S. Fish and Wildlife Service on October 26, 2022, and updated official species lists on November 21, 2023 and May 2, 2024. Official species lists identify federally threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of a proposed project and/or may be affected by a proposed project. The Draft EA only discussed those species and critical habitat with the potential to be affected by the Project (Section 3.2.12 in the Draft EA). It did not discuss those species or habitat with no potential to be affected. A comprehensive list of all species considered in our threatened and endangered species analysis has been added to Section 3.2.12 of the Final EA, along with justification for a no effect determination on those species.

Impacts to raptors, including the Peregrine falcon and bald eagle, are disclosed in Section 3.2.11 of the Final EA. Canada lynx are limited to subalpine and upper montane mixed conifer and aspen forests, which are not found within or near the Project area.

CATEGORY: EROSION
Comment Numbers: 63

Summary comment: The commenter identified the presence of a studio garage located on a steep slope less than 15 feet above the ditch and questioned if earth work in this area would exacerbate an already existing issue of erosion which would impact the foundation of that structure.

Response: The project engineers are aware of the subject structure. The ditch contours below the structure on a steep slope. Ditch cleaning can and has caused sloughing of the slope above the ditch over time. Debris and ice dam blockages in the ditch in that segment could cause the ditch to overflow wash out or undercut the slope below the structure. The pipe installation would be directly in the prism and the exiting road would remain. No digging into the slope above the ditch would occur during pipeline construction. The installation of the pipe would result in less ditch-induced erosion in this area, and there would no longer be flowing water contouring along the hillside below the structure. A discussion on erosion has been added to Section 3.2.14 of the Final EA.

CATEGORY: CRAWFORD CLIPPER DITCH COMPANY
Comment Numbers: 64

Summary comment: The commenter questioned if the project included benefits to individuals who run the Crawford Clipper Ditch Company or if those individuals are compensated for this project, and recommended that any such benefits or compensation be included in the cost/benefit assessment of the Project.

Response: The Applicant's benefits from the project include receiving federal funding to pipe a portion of its system. This helps lower ongoing operational and maintenance costs and provides shareholders with a pressurized system so they have the opportunity to investigate other more efficient irrigation techniques (such as sprinklers) if desired. The Applicant's board of directors and other shareholders coordinating the project are volunteers and do not receive compensation for the project. The only individuals who are being compensated for this project are those who have been hired to design and construct the project and analyze project impacts. As described in Section 1.4.1 of the Final EA, the cost effectiveness value of a proposed Salinity Control Program project is quantified as the estimated total annual salt load (in tons) reduced in the Colorado River basin divided by the project cost amortized over 50 years. This cost effectiveness provides Reclamation with the cost per tons of salt loading removed from the system, or cost/benefit. The funding required for the design and construction of the project and the analysis of its impacts is considered in the cost of the overall project and therefore is included in the cost/benefit assessment.

CATEGORY: BLASTING ACTIVITY
Comment Numbers: 69

Summary comment: The commenter was concerned about the impact of blasting on the property should blasting be required and the anticipated compensation to any area outside the current easement prism.

Response: Blasting would only be used if rock is encountered that cannot be moved with heavy equipment. Blasting would be extremely localized. The Colorado Department of Labor and Employment Division of Oil and Public Safety – Explosives Program regulates the transport and

use of explosives (see 7 CCR 1101-9 at https://ops.colorado.gov/sites/ops/files/Explosives%20Regulations010109.pdf). Under these regulations, blasting must be conducted by a trained individual with a Type I Explosives Permit from the State of Colorado. The regulations contain "Blasting Vibration and Air-over Pressure Standards" that require controlling the intensity of motion in the ground at the nearest dwelling, house, school, church, commercial or occupied building. The regulations also require notification of people in the area before blasting is to occur. There is no anticipated compensation because there would be no impacts outside of the immediate construction area. The potential need for and impacts resulting from this permit have been added to Section 3.2.5 of the Final EA, and this permit has been added to Section 2.2.10 of the Final EA.

[EXTERNAL] Crawford Clipper Ditch Piping Project

Eric Cobb <erice.cobb@gmail.com>

Thu 2/23/2023 5:48 PM

To: Ward, Jennifer K <jward@usbr.gov>

Eric E. Cobb
38626 Indian Head Ln.
Crawford, Colorado
81415

United States Department of the Interior
Bureau of Reclamation
Upper Colorado Region
Western Colorado Area Office
445 West Gunnison Avenue, Suite 221
Grand Junction, CO 81501

Refer To:
WCG-J Ward
2.1.4.17

Subject: Draft Environmental Assessment, Crawford Clipper Ditch, 6.5 miles piping project, Delta County, Colorado.

Dear Mr. Warner,

Comment 1

I'm trying to put some prospective to the scope of this project while comparing a 6.5 mile pipe to a one thousand five hundred mile Colorado River to implement a reduction of salinity loading into said river. Not to mention all watershed before and after the Crawford Clipper Ditch pipe. Then I have to look at all the tributaries that feed into the Colorado River. This looks like a futile endeavor and a total waste of resources. Instead of trying to solve this problem at the head water, it might be better served at the bottom end through desalination. Seems to me you would have better control on what is needed and how pure the water needs to be.

Comment 2

My environmental take on this project. I know for a fact that the wild animals use this water for their survival in this area. In the last two years since I've lived here, there seem to be a dear population that lives in the area. I have gotten to know them personally because I see them on a regular bases. I like waking up in the mornings seeing them bedded down in my front yard. Sometimes as many as ten to thirteen. I would be devastated to see them move out of the area because there is no more surface water. Also in the spring the ducks can be heard quacking in the ditch and there is nothing more beautiful than seeing the ducks flying over head in formation. I fear a covering of this ditch would end this. Then there is the plant life (trees mostly) we would loose. I don't think there is a need to tell you how bad this would be.

Comment 3

My first year living here I've had Wolfs in my back yard, one male and one female about a week apart. They ran off down along the ditch when I lost sight. One Mountain Lion, two Bobcats, and several Coyotes. None of these animals have been back in over a year. I have no reason for this.

In closing I'd like to say there is one place it would be beneficial in covering the Crawford Clipper Ditch is anywhere it runs through Crawford City Limits. Mostly as a safety measure as I see a potential of someone falling in and drowning.

Good luck with this project. I hope it will be beneficial for all.

Interested Individual.

Best Regards,

Eric Cobb

[EXTERNAL] Crawford Clipper Ditch Co

elena goldstein <elliegoldstein80@gmail.com>

Thu 2/23/2023 1:46 PM

To: Ward, Jennifer K <jward@usbr.gov>

Dear Ms. Ward,

I write you in regard to the planned piping of the ditch running through my property at 38324 Saddle Mountain Lane in Crawford.

Certainly, with all the scientific intelligence around, an alternative can be found to the piping of our historic ditches. Who has looked into that question?

Comment 4

Creating a "conservation area" on someone's private property as a substitute for piping miles of other's ditches is like giving one group of children pebbles while another child gets a hunk of chocolate.

Explain the logic of that to the beautiful stands of cottonwoods along the ditches, the red tailed hawks that nest in these trees, and the creatures who live in or drink from the miles of ditches.

Comment 5

A reasonable, not knee jerk response would be appreciated.

Thank you,
Elena Goldstein

[EXTERNAL] Crawford Clipper Ditch Company

J L J <jlesliej@hotmail.com>

Sat 2/25/2023 9:23 AM

To: Ward, Jennifer K <jward@usbr.gov>

Dear Mr. Warner,

Like most agriculture diches in the area the Clipper ditch has been a feature of the topography for at least the last century. The ditch has ran through our property since my parents bought and built our home. I am disappointed that I have not been contacted directly regarding the Clipper Ditch Company's intention to pipe the ditch running through my property. Fortunately, my neighbor shared your information and the notice that we are required to send in our comments by February 27, 2023. Comment 6

Comment 7

I have many concerns about the impact of this project on my property and adjacent properties. For the last century the ditch has provided a habitat for wildlife, including bullfrogs, birds, deer, fox and other animals, as well as trees, grasses, wildflowers and cattails. I understand that there is a wetland reclamation project to mitigate these impacts, however this project will not benefit my property or the animals my family has come to expect and love to watch. I hate to imagine what will happen to the beautiful huge Cottonwood trees that are along the Clipper ditch banks and the animals they house. This peaceful looking running water is not only used for irrigation but by many different species. You will now be changing the environment and making it more difficult for many of them. As well as changing the view and atmosphere of my property. We have been happy to have an easement of acquiescence for the Clipper ditch on our property for the view it offers, the support to wildlife it provides and the historical nature of it.

Comment 8

I believe the piping of the ditch will create an unnecessary inconvenience to us as the owners of the property that it runs through. I am concerned about the monetary implications to my property value of removing this historically established habitat from my property. Not to mention the short term nuisance of having the construction done.
Please reconsider and keep the Clipper Ditch the way it is.

Thank you,

Jaye Leslie Jackson
38948 Indian Head Lane
Crawford, CO 81415
303-898-1193

Sent from Outlook

[EXTERNAL] Draft Environmental Assessment, Crawford Clipper Ditch Company's Piping Project.

Ed Keleher <phred537@yahoo.com>

Sun 2/26/2023 2:32 PM

To: Ward, Jennifer K <jward@usbr.gov>

To: US Bureau of Reclamation, Ed Warner

Re: Draft Environmental Assessment for the Crawford Clipper Ditch.

This is a response from Edward and Toni Keleher. We are homeowners at 38947 Indian Head Lane in Crawford, Colorado. We are expressing our concerns with the project to pipe the Clipper Ditch through our area.

The Clipper Ditch runs through the East end and around the North and West edge of our property. There is an established wetland that extends from our property onto our neighbors. There are many mature Cottonwood Trees in this area as well as along the ditch. Piping of this area will result in the drying up the wetland and the loss of a significant number of Cottonwoods. We have observed the results of other ditch piping projects which leave unsightly scars on the landscape as well as large numbers of dead trees. What will be done to mitigate the impact to property values? The replacement of live, mature trees with possibly hundreds of dead ones along with the scar will certainly have a negative impact. This will be the inevitable result if this project is approved.

Comment 9

Comment 10

Comment 11

Another question is the proposed wetland mitigation area. It looks like you are replacing a vibrant, established ecosystem that also functions as a wildlife corridor with some sort of island habitat. I am familiar with the mitigation area located on the south side of Crawford Reservoir. That area doesn't look like anything like a successful project. Pretty much dried grass with transient ponds that produce some cattails. The area has been successful at times of producing weeds like thistle. How is any of this beneficial?

We would like to see the USBOR come up with some better alternatives to piping the ditch. The current proposal will have a detrimental effect on wildlife and the property owners who live in this area.

Comment 12

We look forward to hearing from the USBOR regarding this project.

Thank you,

Edward and Toni Keleher

38947 Indian Head Lane

Crawford, CO 81415

970-921-5140

[EXTERNAL] https://www.usbr.gov/uc/envdocs/ea/clipperIrrig/index.html

Lawrence Ribnick <ribnicklawrence@gmail.com>

Thu 2/23/2023 10:39 AM

To: Ward, Jennifer K <jward@usbr.gov>

Dear Mr. Warner:

Comment 13

We are somewhat angered that we had to be informed of this proposed action at the last moment for comment by a neighbor, rather than directly, since the action involves an irrigation ditch which currently runs along the northern boundary of our property.

Our comment about this proposal: To enclose the current open ditch will adversely affect our property and/or that of our neighbors in the following ways:

Comment 14

1. Wildlife--Many animals have become dependent on this water since its construction and would be forced to move away from this area or be deprived of a necessary source of drinking water. This will be a loss for this neighborhood.

Comment 15

Comment 16

2. Vegetation--Since the formation of this open ditch, much of the flora along this waterway has become dependent on this source of water. This flora will die, including many large cottonwood trees, and would leave a scar on the land, depreciating the value of properties adjacent to the current open ditch. And if the dead cottonwood trees left by accepting this proposed action would not be disposed of by the ditch company, there would be a mess of dead and fallen trees in the neighborhood, further depreciating property values.

Please consider rejecting the proposal for enclosing this waterway, which has become vital to the flora, fauna and property values of this neighborhood.

Thank you for your consideration of this comment.

Sincerely,

Lawrence Ribnick & Cheryl Irwin
38741 Indian Head Lane
Crawford, CO 81415
ribnicklawrence@gmail.com
970-921-5370

"Approach each new person you meet in a spirit of adventure." --Eleanor Roosevelt

[EXTERNAL] Re: Availability of Draft EA - Jerdon, West, and Hamilton Laterals Piping Project

Schaefer - HC, Mitchell <mitchell.schaefer@state.co.us>

Tue 1/24/2023 3:24 PM

To: Ward, Jennifer K <jward@usbr.gov>

Dear Ms. Ward:

Thank you for your communication regarding the Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Laterals Piping Project in Delta County (HC#79037). At this time in the consultation process, our office has no comments regarding the draft Environmental Assessment, dated January 2023, intended for NEPA compliance. As you know, our office has previously provided comments regarding the undertaking in accordance with Section 106 of the National Historic Preservation Act, as amended (54 USC §306108), and its implementing regulations "Protection of Historic Properties," found in 36 CFR Part 800. We will provide additional comments upon receipt of documentation intended to fulfill the stipulations enumerated in the project's Memorandum of Agreement.

Please note, our office is now accepting electronic consultation through our secure file transfer system, MoveIT. You can find information about MoveIT and digital submissions here.

Sincerely,

Mitchell K. Schaefer
Section 106 Compliance Manager, Built Environment
History Colorado | State Historic Preservation Office
O: **(303) 866-2673** | C: **(720) 213-6380** | mitchell.schaefer@state.co.us
History Colorado Center | 1200 Broadway | Denver, Colorado 80203 | HistoryColorado.org

On Tue, Jan 24, 2023 at 3:13 PM Ward, Jennifer K <jward@usbr.gov> wrote:

> Hello,
>
> Please find attached a letter announcing the availability of the Draft Environmental Assessment for the Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Laterals Piping Project.
>
> Thank you,
> Jenny
>
> **Jenny Ward** *(she/her)*
> Environmental Protection Specialist

Bureau of Reclamation
Western Colorado Area Office
(970) 248-0651

[EXTERNAL] Crawford Clipper Ditch Company's proposed Clipper Jerdon- West-Hamilton Laterals Piping Project

Jay Simon <simonjay001@gmail.com>

Tue 2/21/2023 4:06 PM

To: Ward, Jennifer K <jward@usbr.gov>

Ms Ward-

As an adjacent land owner to the Clipper Ditch in Crawford I have serious concerns about the proposed project.

There are many aspects of this project (and several others in our region) that create severe impacts on our landscape and environment.

Comment 17

While the BOR EA stipulates there will be "no effect" in any of the categories studied, the results found at other underground irrigation ditches proves otherwise. First and foremost is the lack of oversight of projects once they have been completed.

Specific remediation methods are prescribed to limit the proliferation of noxious and non-native vegetation. In reality many of the applications appear to be inadequate, poorly administered, and left to become wasteland after the fact. My personal experience is from the Grandview Ditch that runs right above my property in Crawford. Although I was assured that there would be minimal impact, I was left with a 60 ft swath of downed Juniper trees, sage and other native species.

The ditch rider scattered some hay seed and then had some hydroseeding at my request but very little took root and I am left with nothing but a poor patch of grass along with bare ground, knapweed, whitetop and other noxious weeds. I have no recourse in going back to the ditch company for remediation, nor are there any easily obtainable methods for me to restore the disturbed area on my own. I am left with a wide swath of destruction with little chance of rejuvenation.

Comment 18

The CCDC EA outlines very specific methods to curb the introduction of invasive species and extensive remediation, yet there is very limited oversight as to whether these practices are followed as outlined. The EA states "noxious weed presence would be monitored subject to agreements between the Applicant and individual landowners, and regulated by Delta County in accordance with county standards (Delta County 2020)", ostensibly resulting in no significant impact from noxious weeds. Nevertheless, it appears that many ditch companies do not have the resources or incentive to maintain ditch corridors, nor does Delta County have any on the ground implementation of noxious weed control, or even oversight of projects.

The EA states, "Because noxious weeds are currently present in the Project Area, their ongoing presence within the Project

Area would not constitute a significant impact", yet it is well documented that newly disturbed soils are a breeding ground for invasive weeds, pushing out native species that would need irrigation to take root.

Comment 19

As well, it appears that the same patch of land along the Smith Fork of the Gunnison is being used as the replacement acreage for several projects to offset wetlands and riparian areas that are being lost due

Comment 20

to under grounding of irrigation ditches. While this might make sense as an acreage to acreage exchange, it in no way meets the needs of wildlife migration routes or the diversity which existed prior to undergrounding.

I have no issue with the burying of pipe for water delivery, reducing salinity in the watershed and more efficiently delivering irrigation water. I do have issues with poor planning, unrealistic expectations for remediation and lack of recourse for affected land owners. There should at least be an adequate bond in place should contractors and ditch companies not live up to the standards outlined in the EA. Comment 21

I have hopes that the BOR might from this project forward take a closer look at the impacts from the underground pipe projects beyond simply looking at reduction of salinity as an ultimate goal.

Thank you for your time and consideration -

Jay Simon, 39714 Fruitland Mesa Crawford, Co 81415 303-437-7755

WESTERN SLOPE CONSERVATION CENTER

PO Box 1612, Paonia CO 81428
970-527-5307
www.westernslopeconservation.org
info@theconservationcenter.org

Jenny Ward, Environmental Protection Specialist
Ed Warner, Area Manager
445 W. Gunnison Ave
Grand Junction, CO 81501

Re: Draft Environmental Assessment, Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Laterals Piping Project, Delta County, Colorado

Submitted electronically to JWard@usbr.gov on 02/27/2023

Dear Ms. Ward and Mr. Warner,

Thank you for the opportunity to comment on the draft Environmental Assessment of the Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Laterals Piping Project. The Western Slope Conservation Center, based in the North Fork Valley of the Gunnison, has been involved in environmental issues of the region for over 40 years. We take pride in focusing on the health and wellbeing of our flora and fauna, representing the people who live here.

Background

The Western Slope Conservation Center (WSCC) is a 600+ member organization that builds an active and aware community to protect and enhance the lands, air, water, and wildlife of the Lower Gunnison Watershed. The Conservation Center has a 40+ year history of working to ensure our public lands and waters are well-managed with the highest level of protection they deserve.

WSCC has a history of interacting with the Bureau of Reclamation (BOR) on similar piping projects. In the past, WSCC has been consulted for habitat replacement projects when other local ditches have gotten piped. Staff at WSCC have implemented habitat replacement projects on adjacent lands for other piping projects, and worked with BOR and the ditch companies to ensure the long-term success of these habitats.

Comment 22

We understand the need of the BOR to protect and enhance the quality of water available in the Colorado River system by reducing salinity levels. There are other notable enhancements within this project, namely an improved efficiency of water throughout the Jerdon, West, and Hamilton Laterals system. Less water will be lost to evaporation and seepage. Given the declining available water on the Western Slope due to decreasing precipitation, piping helps to extend the beneficial use of irrigation water and helps to protect a huge part of the economy that comes from agriculture. That agriculture includes not only hay and alfalfa, but crops such as corn, soy beans, orchard fruits, vineyards and

livestock such as cattle, sheep, goats, and pigs, all of which add to the vistas that are so aesthetically pleasing to residents and tourists alike. Irrigation water makes possible the growing tourism industry in the North Fork Valley and the farm to table dinners that help drive our economy.

Cumulative Impacts of Piping Irrigation Ditches

Comment 23

In the BOR's own assessment of this project, BOR notes 27 different piping projects in the vicinity that are already occurring. These ditches, while originally man-made over 100 years ago, now constitute a significant riparian area that plants and animals rely on as the population of Delta and Montrose County continues to grow. The riverine systems act as habitat for big game, mountain lion, black bear, a variety of small mammals, birds, reptiles, and amphibians. We are concerned that the cumulative impacts to piping many ditches in the surrounding area constitute a larger disturbance than any one project analyzes.

WSCC recognizes that a cumulative impacts study is often completed as a part of the FONSI process for many ditches in the area. However, WSCC is concerned that the BOR is not fulfilling its own protocols of these studies by omitting collectively significant actions over time. As an example: "The Crawford Clipper Center Lateral Pipeline FONSI" was completed in October 2019. A cumulative impacts analysis is described on pg 30-35. The temporal limits analysis is described to cover a maximum of 50 years. However, there is no mention of future impacts from piping projects such as "The Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Laterals Piping Project" proposed action described in this EA, and of the cumulative impacts to the listed resources. These impacts should be considered additive (as is defined on page 30 of the aforementioned FONSI).

Comment 24

WSCC is further concerned that the analyzed "Resource" category of BORs cumulative impacts analysis is poorly defined and limited in scope, which results in the omission of significant environmental impacts. For example: In the "The Crawford Clipper Center Lateral Pipeline, FONSI" it is unclear what measurable components are included in the resource listed as "Air Quality". It is inferred that particulate matter during the project construction window is the only impact analyzed from the proposed action. However, it seems quite plausible that changes in evapotranspiration and air temperature would have significant impacts to the surrounding ecosystem, especially when considering future additive proposed actions.

Comment 25

We request that before more piping happens on our landscape that a landscape-scale expanded cumulative impact analysis be done by the BOR to determine the cumulative impacts of the proposed actions.

Ask: Complete a 3rd party cumulative impacts study of the North Fork and Lower Gunnison sub-watersheds...

Habitat Replacement for the CCDC Project

WESTERN SLOPE CONSERVATION CENTER

Comment 26

It appears that the same parcel of land along the Smith Fork of the Gunnison is being used as the replacement acreage for several projects to offset wetlands and riparian areas that are being lost due to under grounding of irrigation ditches. WSCC recognizes that protecting pristine riparian habitat from certain development through a conservation easement represents a high value for wildlife. However, WSCC is concerned that protecting existing habitat does not fulfill the BOR's requirement to replace the riparian and wetland habitat value lost as a result of the Proposed Action. Please explain the justification of the habitat replacement site and how it fulfills the habitat loss evaluation from the Proposed Action.

Ask: how is the piece of land being conserved justifying what is lost

Invasive Species and Weed Control

Comment 27

Specific remediation methods are prescribed to limit the proliferation of noxious and non-native vegetation in the draft Environmental Assessment. In reality, many of the applications appear to be inadequate, poorly administered, and left to become wasteland after the fact. In personal trips to other projects in the area, there are areas that have not recovered well from reseeding, resulting in additional proliferation of noxious weeds and non-native species.

The draft Environmental Assessment outlines very specific methods to curb the introduction of invasive species and extensive remediation, yet there is very limited oversight as to whether these practices are followed as outlined. The EA states "noxious weed presence would be monitored subject to agreements between the Applicant and individual landowners, and regulated by Delta County in accordance with county standards (Delta County 2020)", ostensibly resulting in no significant impact from noxious weeds. Nevertheless, it appears that many ditch companies do not have the resources or incentive to maintain ditch corridors, nor does Delta County have any on the ground implementation of noxious weed control, or even oversight of projects.

Comment 28

The EA states, "Because noxious weeds are currently present in the Project Area, their ongoing presence within the Project Area would not constitute a significant impact", yet it is well documented that newly disturbed soils are a breeding ground for invasive weeds, pushing out native species. Native specieswould need irrigation to take root. A management plan must take that into account.

Ask: How will the BOR assure that revegetation efforts are successful over time

Comment 29

Process Concerns

WSCC is concerned the BOR did not do due diligence in outreach to notify the community of the proposed action. WSCC has received multiple informal complaints from community members near the project area of being unaware of the project. This matter is not a concern for ditch shareholders alone, the surrounding lands are also impacted by these changes. The cumulative impacts of piping deserve consideration.

WESTERN SLOPE CONSERVATION CENTER

Conclusion

We are concerned about the cumulative impacts of many of these projects happening all at once in the Gunnison River system. We have heard from many individuals who are concerned about the long term impacts of these projects - changing the hydrology that has existed for over 100 years, upsetting riparian areas that are both food and shelter for native species and changing the landscape enjoyed by neighbors for generations. We are also concerned that the ecological benefits of these riparian systems are not being fully accounted for in the habitat replacement projects that occur.

Comments 30 31 32

WSCC would support including bonding to a degree that remediation could be adequately completed when contractors and ditch companies do not live up to the standards outlined in the EA. The BOR could also consider specific grants to allow community groups to follow through with revegetation that truly address the impacts of these projects.

Comment 33

We are not opposed to this piping project, as it solves a significant concern when taking into consideration climate change, a long-term drought, and increased water efficiency. Our hope is that BOR can continue these projects in the correct way so that our communities can continue to thrive while also taking into consideration all of the plant and animal species that have come to rely on the ditch corridors for food and shelter in a rapidly drying landscape.

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Ben Katz , WSCC Program Director & Jay Simon, WSCC Co-Chair`,
For the board of WSCC

COLORADO
Parks and Wildlife
Department of Natural Resources

Gunnison Office
300 W. New York
Gunnison, CO 81230
P 970.641.7060 | F 970.641.7883

February 27, 2023

Mr. Ed Warner - Area Manager
Department of the Interior
Bureau of Reclamation
445 West Gunnison Ave, Suite 221
Grand Junction, CO 81501

RE: Draft Environmental Assessment: Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Lateral Piping Project

Dear Mr. Warner,

Thank you for the opportunity to provide comments on the Bureau of Reclamation's (Reclamation) Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Lateral Piping Project Draft Environmental Assessment (EA) (hereafter - proposed project). Under the Proposed Action Alternative, Reclamation would provide funding to the Crawford Clipper Ditch Company to pipe approximately 6.5 miles of open unlined ditch laterals associated with the Jerdon, West, and Hamilton system. This project is intended to reduce salinity loading into the Colorado River. Colorado Parks and Wildlife (CPW) appreciates the level of involvement Reclamation has given CPW in the planning of this project. This collaboration allows CPW to carry forward our mission, which is in part to perpetuate the wildlife resources of the state.

The proposed project area is located on private land with surrounding public lands that are inhabited by a diverse population of wildlife, including mountain lion, black bear, beaver, wild turkeys, mule deer, raptors, and elk. The project area contains CPW mapped High Priority Habitats (HPH), which includes Severe Winter Range for mule deer and elk and Winter Concentration Area for mule deer. The current open ditch provides a water source for wildlife and supports surrounding vegetation. CPW's recommendations to avoid and minimize impacts to HPHs can be found here.

Comment 34

During the planning phase of this proposed project, CPW has consulted with Reclamation to identify and address wildlife concerns associated with implementation. CPW supports the following actions as stated in the Draft EA, and would like to see them carried forward into the Final EA:

- Abide by appropriate timing restrictions and buffers to protect big game, small game, nesting raptors, and migratory birds as stated in Table 6 of Chapter 4;
- Conduct the habitat replacement as stated in the Draft EA Chapter 2 Proposed Action and Alternatives to offset loss of riparian and wetland that would result from the implementation of this project.

Comment 35

In section 2.2.7, please evaluate and include a timing limitation for mule deer and elk Severe Winter Range and mule deer Winter Concentration Area. CPW recommends no permitted or authorized human activities from December 1 to April 30 in big game concentration areas and big game winter range.

COLORADO
Parks and Wildlife
Department of Natural Resources

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Comment 36

In Chapter 4, Table 6, please include within the BMPs for open trenches that escape ramps for wildlife should be installed at a minimum of one escape ramp every ¼ mile where trench covers are not practical.

Comment 37

In Chapter 4, Table 6, and section 2.2.7, please include the timing limitation, as specified in CPW's HPH Table, for the bald eagle winter roost located in Section 35 - T15S:R92W, as follows: No permitted or authorized human activities within 0.50-mile of winter night roost or communal roost site from November 15 to March 15 if there is direct line of sight to the activity; No permitted or authorized human activities within 0.25-mile of winter night roost or communal roost site from November 15 to March 15 if there is no direct line of sight to the activity.

Comment 38

Additionally, please include a plan for the installation of six to eight water taps with stock ponds or guzzlers on private lands throughout the project area or rain-catching guzzlers on public lands. Six to eight water sources are recommended as a replacement for the 6.5 miles of open ditch, at a proportion of approximately one water replacement per mile. The currently proposed action will significantly reduce wildlife access to water along the existing open irrigation ditch and CPW requests replacement water sources to mitigate for that reduction and associated resource loss. Installation of replacement water sources will benefit wildlife and livestock producers, and may help mitigate game damage conflicts on private lands by promoting big game use of public lands. Public lands (Bureau of Land Management) to the north, south, east, and southwest of the main proposed project area should be considered for water developments. Installation of guzzlers on private land should be considered when landowners are amenable. A map of possible public land replacement areas is included in Attachment A.

CPW appreciates the opportunity to provide comments and input on this Salinity Reduction Project Draft EA. If you have any questions or would like further clarification, please don't hesitate to contact myself or District Wildlife Manager, Codi Inloes-Williams at 970-275-4276.

Very Respectfully,

Codi Inloes-Williams

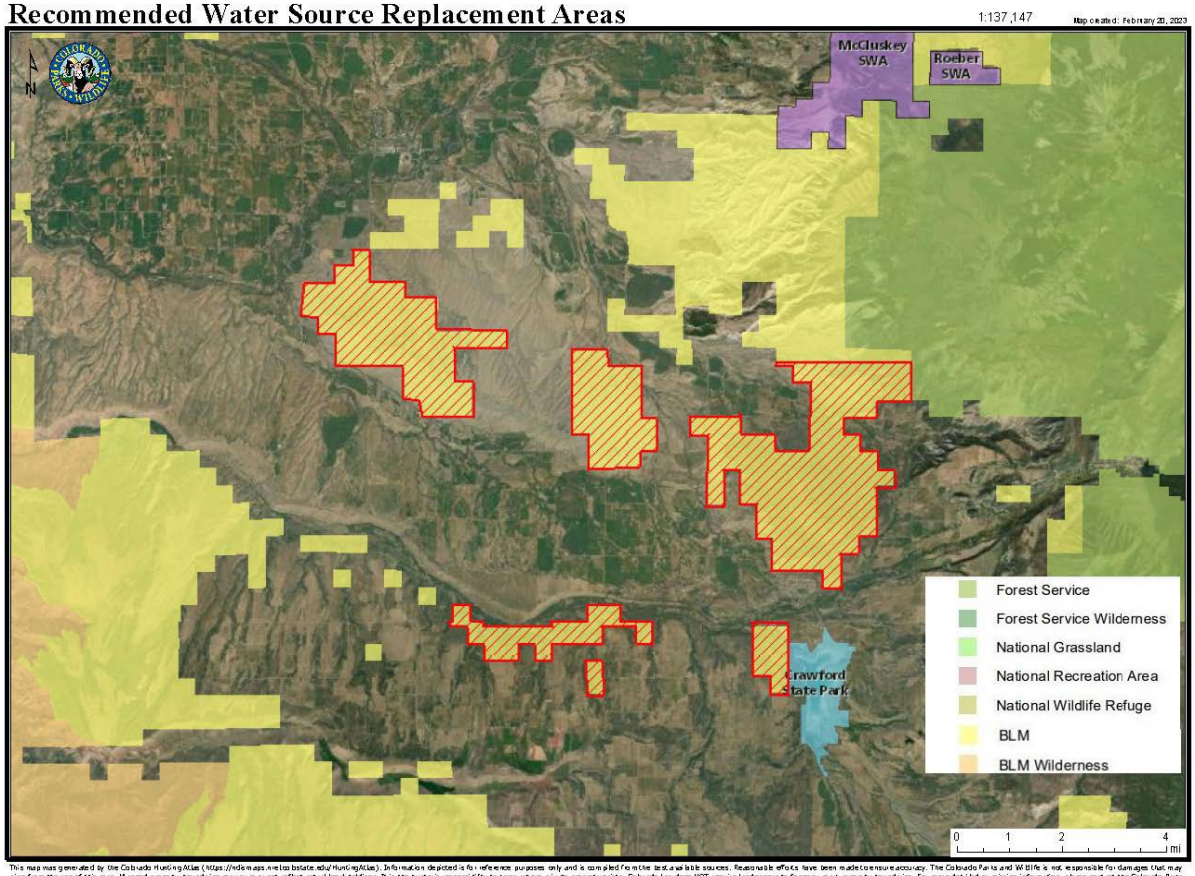
Codi Inloes-Williams
District Wildlife Manager, Area 16

Brandon Diamond
Area Wildlife Manager, Area 16

Cc: Area 16 File, SW Regional File

Recommended Water Source Replacement Areas

1:137,147 Map created: February 20, 2023



This map was generated by the Colorado Hunting Atlas (https://cdcmaps.nrel.colostate.edu/HuntingAtlas). Information depicted is for reference purposes only and is compiled from the best available sources. Reasonable efforts have been made to ensure accuracy. The Colorado Parks and Wildlife is not responsible for damages that may arise from the use of this map. Mapped property boundaries may or may not reflect actual legal holdings. It is the hunter's responsibility to know where private property exists. Colorado law does NOT require landowners to fence or mark property boundaries. For more detailed or missing information, please contact the Colorado Parks and Wildlife at (303)297-1192 (M-F 8am-5pm MST).

Feb 2023

To: The Bureau of Reclamation
Re: Draft Environmental Assessment for the Crawford Clipper Heron West Hamilton Lateral Piping Project

My name is Krista Dudley and I am a homeowner at 38591 Indian Head Lane, Crawford, Colorado. I am writing to you today because of a proposed piping project for the Crawford Clipper Ditch.

The Crawford Clipper Ditch runs by the northern edge of my property and directly through an adjacent 10 acres that my HOA owns and manages. Based on the information provided by the Bureau of Reclamation in its *Draft Environmental Assessment for the Crawford Clipper Heron West Hamilton Lateral Piping Project (*my home appears on the cover photo for the report) I understand that the goal of the project is to reduce salinity and selenium concentrations in the Colorado River basin via the elimination of seepage from 6.5 miles of open unlined ditch laterals. Having reviewed the draft EA, I do not believe that piping offers the best solution to the stated problem, nor that the complete cumulative impacts to the local and regional environment have been considered. I believe the Bureau has failed to account for both foreseen and unforeseen impacts that will directly affect the value of my property, and will cause significant impacts on local and regional biodiversity and ecological function.

Comments 39 40 41 42

Please understand, I am very supportive of decreasing salinity and selenium loading to the Colorado River and appreciate the Bureau of Reclamation's efforts to address the issue. However, I do not believe that the Bureau has made the case that piping is the best answer to this problem and we believe that there are unaccounted for impacts that will have a significant cumulative impact on our private property and region. Given the challenges our region is facing from increased temperatures[1],[2], long term drought[3], and irregular precipitation[4], the piping of open ditches will have significant ramifications for areas microclimate[5], cause an increase in temperatures[6],[7], decrease moisture availability and non-monsoonal rain events[8], and destroy critical habitat[9][10].

Comment 43

[1] **Colorado Public Radio** https://www.cpr.org/2021/09/13/colorado-western-slope-second-hottest-summer-on-record/
[2] **A century of observations reveals increasing likelihood of continental-scale compound dry-hot extremes** MOHAMMAD REZA ALIZADEH , JAN ADAMOWSKI, MOHAMMAD REZA NIKOO, AMIR AGHAKOUCHAK PHILIP DENNISON H AND MOJTABA SADEGH H***SCIENCE ADVANCES*** 23 Sep 2020 Vol 6, Issue 39 DOI: 10.1126/sciadv.aaz4571
[3] NOAA https://www.drought.gov/states/colorado
[4] **USDA US Forest Service**
https://www.fs.usda.gov/rmrs/warming-and-warnings-assessing-climate-change-vulnerability-rocky-mountain-region
[5] **Drought-Induced Reduction in Global Terrestrial Net Primary Production from 2000 Through 2009** MAOSHENG ZHAO AND STEVEN W. RUNNINGAUTHORS INFO & AFFILIATIONS ***SCIENCE*** 20 Aug 2010 Vol 329, Issue 5994 pp. 940-943 DOI: 10.1126/science.1192666
[6]**Impact of wetland change on local climate in semi-arid zone of Northeast China.** Liu, Y., Sheng, L. & Liu, J. *Chin. Geogr. Sci.* 25, 309–320 (2015). https://doi.org/10.1007/s11769-015-0735-4
[7] **Understanding land use change impacts on microclimate using Weather Research and Forecasting (WRF) model** Xia Li, Chandana Mitra, Li Dong , Qichun Yang cDepartment of Geographical Sciences, University of Maryland, College Park, MD, 20742, USA Department of Geosciences, Auburn University, AL, 36849, USA Joint Global Change Research Institute, Pacific Northwest National Laboratory, College Park, MD, 20740, USA
[8] **IPCC Land-climate interactions** https://www.ipcc.ch/srccl/chapter/chapter-2/
[9] **USDA FSA Critical Habitat** https://www.fsa.usda.gov/Internet/FSA_File/chapter2.pdf
[10] **Agricultural drainage ditches, their biological importance and functioning.** May 2008 Biological Conservation 141(5):1171-1183 DOI:10.1016/j.biocon.2008.03.005

Based on the 6.5mile project, and the precedent it would continue to set for further piping in the region,[11] as proposed, the project has potentially large and currently unaccounted for cumulative impacts and could be a driver for ecosystem level change. Specifically, I believe the Bureau has failed to consider the impacts the project will have with regards to increasing acidification and temperatures, and the consequent impacts these will have on our micro-climate, liveability, biodiversity and property.

Comment 44

Comment 45

I am requesting that the data produced for the Habitat Loss Analysis in the Draft EA on the number of medium and large trees that will die due to piping and the loss of adjacent wetland area, be used in an additional assessment on the associated rise in area air and soil temperatures, decrease in soil moisture, and the impacts that these environmental factors will have on local temperatures and health of the local juniper forest and resident wildlife. Cumulative impacts need to be considered when determining habitat value loss.

Comment 46

I believe that this analysis is in keeping with NEPA's directive to address the climate impacts of a given project, "*The National Environmental Policy Act requires federal agencies to analyze the environmental effects of their proposed actions before making decisions. Climate change is one environmental effect that may be considered. Considerations may include both potential effects of a proposed action on climate change and the implications of climate change for the environmental effects of a proposed action. Which effects to analyze, and the depth of analysis, will vary by the nature of the proposal, the needs of the decision-maker, the intensity of the effect(s), scientific uncertainty or controversy, and public interest as determined from scoping* ***or public comment.*** *"*[12]

There is a wetland close to my property that exists downslope from the ditch. This wetland is near to a stand of mature cottonwood trees. The piping of the ditch will dry this wetland and directly impact these trees both through construction and deprivation of water. Cottonwoods do not uptake water applied to the soil surface well, so watering these trees is not an option. Studies have shown that wetlands buffer surrounding area temperatures by as much as 14 degrees F[13] in summer months, while according to the USDA, the net cooling effect of a young, healthy tree is equivalent to ten room-size air conditioners operating 20 hours a day. In particular, cottonwoods are the primary vectors for small water cycles in the arid southwest. The direct loss of small local wetlands, mature trees and potential indirect loss of area juniper forest due to increased soil moisture deficit and higher localized thermal loading of soils, will have a negative effect both on the liveability of our neighborhood and on our property value. Again, according to the USDA healthy mature trees, both on and around a property can increase its value by 10%. ICMA Management Information Services and PNW Research Station place an average value of properties landscaped with trees at 20% higher than those without. Dead and dying trees have the opposite effect, causing property value to decrease. The Bureau has failed to address the cumulative impact this project will have on aridification in our region and has

Comment 47

Comment 48

Comment 49

[11] Draft EA 1.5.1 Relationship to Other Projects, pg 6

[12] **USDA Climate Change Resource Center, NEPA**
https://www.fs.usda.gov/ccrc/topics/nepa-introduction-incorporating-climate-change

[13] **Impact of wetland change on local climate in semi-arid zone of Northeast China.** Liu, Y., Sheng, L. & Liu, J. *Chin. Geogr. Sci.* 25, 309–320 (2015). https://doi.org/10.1007/s11769-015-0735-4

failed to assess the potential direct impacts to neighboring property value. **I would like to request that the Bureau complete a broad cumulative impacts study of this project, including an assessment of potential impacts to property values if the proposed action is taken.**

Comment 50

Protecting healthy rivers and their adjacent floodplains from future development is critical to wildlife in western Colorado and we applaud the approach to conserving river bottom lands in the habitat replacement proposal. Unfortunately, this draft EA does nothing to address in situ water needs for wildlife that rely on the ditch because the proposed replacement habitat is outside the ranges of coyotes, mountain lion, badger, rabbits and other impacted animal species. We are in support of the Bureau's innovative approach to placing a portion of land in conservation easement as habitat replacement. It is an incredibly unique piece of property and it is in need of protection from future development. However, proposed "replacement" habitat which is up to 6 miles[14] away from impacted areas[15], will not support the many animals that currently live near the Crawford ditch.

Comment 51

Furthermore, ditches themselves represent critical core habitat and movement corridors for wildlife and are central to the health of biodiversity in agricultural and semi arid regions[16]. These include mountain lion, bobcat, deer, badger, fox, coyote, red tail hawk, falcon and many bird species. While the most recent Smith Fork Watershed Plan lists over twenty endangered or species of special concern to the state of flora and fauna as residing in the riparian and wetland systems in the watershed, the current Draft Environmental Assessment do not seem to have found any of the species residing in the impacted areas[17]. I do not believe this to be the case as the American Peregrine falcon, the Bald Eagle, and the Canadian Lynx are regularly sighted in these areas. The Nature Conservancy lists this region as B3 habitat value," B3= High significance, such as an excellent example of any community type or a good occurrence of any species with very restricted range or a good occurrence of a state rare species"[18]. I am skeptical that piping will not impact the overall habitat value as so much of our biodiversity is dependent upon open water and wetland and the trees and healthy river, stream and ditch banks. Piping the ditch will not only deprive wildlife of water, by causing adjacent tree death and drying wetlands it will also intensify the pace of regional aridification and will decrease biodiversity through directly and indirectly induced mortality and forced migration. Conserving existing habitat, while laudable, does not replace the habitat loss this project will cause and does nothing to alleviate impacts this project will have on flora and fauna here where the project is taking place. **Please explain the justification for the habitat replacement and how it would meet the requirement to "maintain riparian and wetland habitat affected as a result of the Proposed Action as listed on page 18 of the Draft EA.**

Comment 52

Comment 53

Comment 54

Comment 55

[14] Estimate derived from google maps based on Map of Project Location, pg 3
[15] Draft EA Figure 1. Map of project location, pg 3

[16] **Toward Best Management Practices for Ecological Corridors,** Department of Biology, University of North Texas, Denton, TX 76203, USA https://www.mdpi.com/2073-445X/10/2/140

[17] **Smith Fork Watershed Plan pg 20,** https://westernslopeconservation.org/wp-content/uploads/2016/11/Final_SmithForkWatershedAssessment.pdf
[18] **Southern Rocky Mountains assessment (The Nature Conservancy, 2001)**

Comment 56

In this process, we are curious have any other alternatives to managing salinity and selenium leaching been considered? Has the Bureau considered soil health and the deployment of strategic agricultural conservation practices as alternatives to reducing selenium and salt leaching? For example, a project working with USGS or the local conservation district to analyze the potential benefits to water quality, as well as area biodiversity, and microclimate regulation from changes to adjacent agricultural production and ditch vegetation management might have similar benefits without the drawbacks of impacting the local micro-climate and wildlife habitat. The draft EA notes that a significant portion, 37%, of the salinity which the project seeks to prevent comes from agricultural run off[19]. According to the 2016 Smith Fork Watershed Plan, "*the canal seepage component of the agricultural salinity load ranged from 1,100 t/yr in sub-basin AL1 to 15,300 t/yr in subbasin CK1. Subbasins B1, R1, SF2, and SF3 had canal seepage salinity loads of 6,610 t/yr, 3,890 t/yr, 9,430 t/yr, and 12,100 t/yr, respectively.*[20]" I am aware of the programs to reduce salinity from agriculture hosted by NRCS[21], and those also practiced without government support by private landowners, but it is not clear to me if adoption of soil health practices has been considered as a way of addressing water quality and as an alternative to managing salinity and selenium leaching. **Can you please provide justification for choosing piping over soil management?**

Comment 57

While soils containing excessive salts do occur naturally in arid and semiarid climates, salinity levels can increase as a result of degraded soil health, irrigation methods, and overall land management. As an example, a fourfold increase in salinity along the Rio Grande River has been related to evaporation exacerbated by management and irrigation practices[22].

Comment 58

Human-caused climate change also increases temperatures, which, in turn, increase evaporation due to increased atmospheric water holding capacity. This "atmospheric loading" of water and decrease in vegetative cover can cause regions such as ours, to experience a decrease in precipitation, both of which contribute to lower rates of dilution and greater salt concentrations.

Comment 59

While piping may have an immediate effect with regards to reducing evaporation, the medium and long term effects of acidification and exacerbated loss of soil moisture that will ensue after piping, will continue to drive the need for more irrigation while simultaneously reducing overall water availability in the system.

If approached from a soil health perspective, excess loss of both salts and selenium to water, even in high selenium soils, can be seen as indicators of insufficient organic matter levels and poor soil structure. Salinity loading will continue to impact the river due to flood or other heavy irrigation methods which concentrate salts in drier soils[23],[24] and induce erosion. This is not just an issue of the ditch itself, but also one that stems from the reliance of local agricultural

[19] Draft EA, Section 1.4.1, pg 4
[20] **Smith Fork Water Shed Plan,** pg 39 Western Slope Conservation https://westernslopeconservation.org/wp-content/uploads/2016/11/Final_SmithForkWatershedAssessment.pdf
[21] **On-farm salt loading is targeted by the NRCS through its EQIP program.**
[22] **Predicting combined effects of land use and climate change on river and stream salinity** John R. Olson Published:**03 December 2018**https://doi.org/10.1098/rstb.2018.0005
[23] Front. Sustain. Food Syst., 17 March 2020 Sec. Agroecology and Ecosystem Services Volume 4 - 2020 | https://doi.org/10.3389/fsufs.2020.00030
[24] https://cropwatch.unl.edu/documents/USDA_NRCS_EC_guide.pdf

operations on the flood irrigation method, and low soil organic matter leading to low cat-icon exchange capacity in the soils, and the subsequent loss of nutrients such as selenium and salt via erosion[25],[26], [27]. **Is it possible to conduct an alternative analysis to examine the potential benefits to water quality from management changes in adjacent grazing and hay fields and edging the ditch with appropriate vegetative cover?** Simple practices such as filter stips and hedgerows, ground cover/cover crops, grazing exclosures, and pivot or drip irrigation will reduce runoff and erosion by increasing water inflation and increasing soil organic matter[28], [29]. Organic matter in soils both acts to stabilize nutrients against leaching and erosion[30] and increases water holding capacity which has a cooling effect for crops and for the surrounding areas[31]

Comment 60

I believe there are both foreseen and other associated unforeseen impacts from this project and that this and the greater set of projects piping the open ditches will/are forcing undesirable ecosystem level change. Because of this, I am concerned that the project as proposed will have a significant and cumulative long term impact with regards to intensifying and increasing the pace of aridification which will be detrimental to both the Colorado River and to our region. I also believe there are alternatives and compromises and potential ways to offset or mitigate these changes if the considerations of impact to micro-climate and in-situ water availability for vegetation and wildlife are considered.

Comment 61

I look forward to continuing this conversation with the Bureau and again, thank you for all of the work you are doing to protect our water resources.

Sincerely,
Krista Dudley

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[25] **Soil Organic Matter Recovery in Semiarid Grasslands: Implications for the Conservation Reserve Program** Ingrid C. Burke, William K. Lauenroth, Debra P. Coffin First published: 01 August 1995 https://doi.org/10.2307/1941987

[26] **Evaluating the impact of flood irrigation on spatial variabilities of soil salinity and groundwater quality in an arid irrigated regions** Nengzhan Zheng; Mengshen Guo; Weifeng Yue; Yanguo Teng; Yuanzheng Zhai; Jie Yang; Rui Zuo Hydrology Research (2021) 52 (1): 229–240. https://doi.org/10.2166/nh.2020.209

[27] **Runoff, nutrients, sediment and salt yields in an irrigated watershed in southern Navarre (Spain)** D. Merchán a, J. Casalí a, J. Del Valle de Lersundi b, M.A. Campo-Bescós a, R. Giménez a, B. Preciado c, A. Lafarga c https://doi.org/10.1016/j.agwat.2017.10.004

[28] **Carbon sequestration and soil restoration potential of grazing lands under exclosure management in a semi-arid environment of northern Ethiopia** Tsegay Gebregergs, Zewdu K. Tessema, Negasi Solomon, Emiru Birhane First published: 14 May 2019

[29] **USDA NRCS Conservation Practice Physical Effects** https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-physical-effects

[30] **Dynamics of organic matter in soils** E. A. PAUL Department o f Plant and Soil Biology, University o f California, Berkeley, CA 94 720, USA

[31] **Decreased Soil Organic Matter in a Long-Term Soil Warming Experiment Lowers Soil Water Holding Capacity and Affects Soil Thermal and Hydrological Buffering** W. J. Werner, J. Sanderman, J. M. Melillo https://doi.org/10.1029/2019JG005158

Feb 27th 2023

To: The Bureau of Reclamation
Re: Draft Environmental Assessment for the Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Laterals Piping Project, Delta County Colorado

Hello my name is Trudy Welty and I am a homeowner at 38591 Indian Head Lane, Crawford, Colorado. I am writing to you today because of a proposed piping project for the Crawford Clipper Ditch. The Crawford Clipper Ditch runs by the northern edge of my property, and comes onto my property in three places. My home appears on the cover of the *Draft Environmental Assessment for the Crawford Clipper Jerdon, West, and Hamilton Lateral Piping Project*. This ditch also runs directly through 10 acres of land that my HOA owns and manages.

Comment 62

I have an immediate concern about this project with regards to my physical property. Dozens of trees and one of the structures on my property, the studio garage, sits on a steep slope less than 15 ft above a section of the ditch. Any earth work in this area will exacerbate an already existing issue of erosion and will likely impact the foundation of that structure. I have not been approached about this issue and how it would be addressed should the project proceed. Can you please clarify the process for assessing and addressing risk to my physical property?

I have other serious concerns about the project's impact on my property value and to my quality of life. I understand that the goal of the project is to reduce salinity and selenium concentrations in the Colorado River basin via the elimination of seepage from 6.5 miles of open unlined ditch laterals. However, I am very supportive of decreasing salinity and selenium loading to the Colorado River and appreciate the Bureau of Reclamation's efforts to address the issue. However, I do not believe that the Bureau has made the case that piping is the best answer to this problem and believe that there are unaccounted for impacts that will have a significant cumulative impact on my private property and region. I believe the Bureau has failed to account for both foreseen, and unforeseen impacts that will directly affect the value of my property, and will cause significant impacts on local and regional biodiversity and ecological function.

Comment 43

Comment 45

Is piping truly the best solution to the stated problem given the other environmental challenges affecting our region? Based on the information in this letter I believe this solution will, unintentionally, exacerbate other major, negative, environmental impacts. Specifically our region is already facing the consequences of increased temperatures[1],[2],

[1] **Colorado Public Radio** https://www.cpr.org/2021/09/13/colorado-western-slope-second-hottest-summer-on-record/
[2] **A century of observations reveals increasing likelihood of continental-scale compound dry-hot extremes** MOHAMMAD REZA ALIZADEH, JAN ADAMOWSKI, MOHAMMAD REZA NIKOO, AMIR AGHAKOUCHAK PHILIP DENNISON H AND MOJTABA SADEGH H***SCIENCE ADVANCES*** 23 Sep 2020 Vol 6, Issue 39 DOI: 10.1126/sciadv.aaz4571

long term drought[3], and irregular precipitation[4]. Given these environmental factors at play, the piping of open ditches will have significant ramifications for the microclimate[5] in our area, by causing increases in temperatures[6,7], decreases in moisture availability[8], and the destruction critical habitat[9,10].

Comment 43

Based on the 6.5 mile project, and the precedent it would continue to set for further piping in the region,[11] as proposed, the project has potentially large and currently unaccounted for cumulative impacts and could be a driver for ecosystem level change.

Comment 44

Specifically, I believe the Bureau has failed to consider the impacts the project will have with regards to increasing acidification and temperatures, and the consequent impacts these will have on our micro-climate, liveability, biodiversity and property.

Comment 45

I am requesting that an additional assessment be made. Specifically that the data produced for the Habitat Loss Analysis in the Draft EA on the number of medium and large trees that will die due to piping and the loss of adjacent wetland area be used to calculate/model the associated rise in area air and soil temperatures, decrease in soil moisture, and the impacts that these environmental factors will have on local temperatures and health of the local juniper forest and resident wildlife. Cumulative impacts must be considered when determining habitat value loss. I believe that this analysis is in keeping with NEPA's directive to address the climate impacts of a given project, *"The National Environmental Policy Act requires federal agencies to analyze the environmental effects of their proposed actions before making decisions. Climate change is one environmental effect that may be considered. Considerations may include both potential effects of a proposed action on climate change and the implications of climate change for the environmental effects of a proposed action. Which effects to analyze, and the depth of analysis, will vary by the nature of the proposal, the needs of the decision-maker, the intensity of the effect(s), scientific*

Comment 46

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[3] NOAA https://www.drought.gov/states/colorado

[4] **USDA US Forest Service**
https://www.fs.usda.gov/rmrs/warming-and-warnings-assessing-climate-change-vulnerability-rocky-mountain-region

[5] **Drought-Induced Reduction in Global Terrestrial Net Primary Production from 2000 Through 2009** MAOSHENG ZHAO AND STEVEN W. RUNNINGAUTHORS INFO & AFFILIATIONS ***SCIENCE*** 20 Aug 2010 Vol 329, Issue 5994 pp. 940-943 DOI: 10.1126/science.1192666

[6] **Impact of wetland change on local climate in semi-arid zone of Northeast China.** Liu, Y., Sheng, L. & Liu, J. *Chin. Geogr. Sci.* 25, 309–320 (2015). https://doi.org/10.1007/s11769-015-0735-4

[7] **Understanding land use change impacts on microclimate using Weather Research and Forecasting (WRF) model** Xia Li, Chandana Mitra, Li Dong , Qichun Yang cDepartment of Geographical Sciences, University of Maryland, College Park, MD, 20742, USA Department of Geosciences, Auburn University, AL, 36849, USA Joint Global Change Research Institute, Pacific Northwest National Laboratory, College Park, MD, 20740, USA

[8] **IPCC Land-climate interactions** https://www.ipcc.ch/srccl/chapter/chapter-2/

[9] **USDA FSA Critical Habitat** https://www.fsa.usda.gov/Internet/FSA_File/chapter2.pdf

[10] **Agricultural drainage ditches, their biological importance and functioning.** May 2008 Biological Conservation 141(5):1171-1183 DOI:10.1016/j.biocon.2008.03.005

[11] Draft EA 1.5.1 Relationship to Other Projects, pg 6

uncertainty or controversy, and public interest as determined from scoping ***or public comment."***[12]

There is a wetland close to my property that exists downslope from the ditch. This wetland is near to a stand of mature cottonwood trees. The piping of the ditch will dry this wetland and directly impact these trees both through construction and deprivation of water. Cottonwoods do not uptake water applied to the soil surface well, so watering these trees is not an option. Studies have shown that wetlands buffer surrounding area temperatures by as much as 14 degrees F[13] in summer months, while according to the USDA, the net cooling effect of a young, healthy tree is equivalent to ten room-size air conditioners operating 20 hours a day. In particular, cottonwoods are the primary vectors for small water cycles in the arid southwest. The direct loss of small local wetlands, mature trees and potential indirect loss of area juniper forest due to increased soil moisture deficit and higher localized thermal loading of soils, will have a negative effect both on the liveability of our neighborhood and on our property value. Again, according to the USDA healthy mature trees, both on and around a property can increase its value by 10%. ICMA Management Information Services and PNW Research Station place an average value of properties landscaped with trees at 20% higher than those without. Dead and dying trees have the opposite effect, causing property value to decrease. The Bureau has failed to address the cumulative impact this project will have on aridification in our region and has failed to assess the potential direct impacts to neighboring property value. **I would like to request that the Bureau complete a broad cumulative impacts study of this project, including an assessment of potential impacts to property values from juniper forest death and increased aridification if the proposed action is taken.**

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Protecting healthy rivers and their adjacent floodplains from future development is critical to wildlife in western Colorado and we applaud the approach to conserving river bottom lands in the habitat replacement proposal. Unfortunately, this draft EA does nothing to address in situ water needs for wildlife that rely on the ditch because the proposed replacement habitat is outside the ranges of coyotes, mountain lion, badger, rabbits and other impacted animal species. We are in support of the Bureau's innovative approach to placing a portion of land in conservation easement as habitat replacement. It is an incredibly unique piece of property and it is in need of protection from future development. However, proposed "replacement" habitat which is up to 6 miles[14] away

Comment 51

[12] **USDA Climate Change Resource Center, NEPA**
https://www.fs.usda.gov/ccrc/topics/nepa-introduction-incorporating-climate-change

[13] **Impact of wetland change on local climate in semi-arid zone of Northeast China.** Liu, Y., Sheng, L. & Liu, J. *Chin. Geogr. Sci.* 25, 309–320 (2015). https://doi.org/10.1007/s11769-015-0735-4

[14] Estimate derived from google maps based on Map of Project Location, pg 3

from impacted areas[15], will not support the many animals that currently live near the Crawford ditch.

Furthermore, ditches themselves represent critical core habitat and movement corridors for wildlife and are central to the health of biodiversity in agricultural and semi arid regions[16]. These include mountain lion, bobcat, deer, badger, fox, coyote, red tail hawk, falcon and many bird species. While the most recent Smith Fork Watershed Plan lists over twenty endangered or species of special concern to the state of flora and fauna as residing in the riparian and wetland systems in the watershed, the current Draft Environmental Assessment do not seem to have found any of the species residing in the impacted areas[17]. I do not believe this to be the case as the American Peregrine falcon, the Bald Eagle, and the Canadian Lynx are regularly sighted in these areas. The Nature Conservancy lists this region as B3 habitat value," B3= High significance, such as an excellent example of any community type or a good occurrence of any species with very restricted range or a good occurrence of a state rare species"[18]. I am skeptical that piping will not impact the overall habitat value as so much of our biodiversity is dependent upon open water and wetland and the trees and healthy river, stream and ditch banks. Piping the ditch will not only deprive wildlife of water, by causing adjacent tree death and drying wetlands it will also intensify the pace of regional aridification and will decrease biodiversity through directly and indirectly induced mortality and forced migration. Conserving existing habitat, while laudable, does not replace the habitat loss this project will cause and does nothing to alleviate impacts this project will have on flora and fauna here where the project is taking place. **Please explain the justification for the habitat replacement and how it would meet the requirement to "maintain riparian and wetland habitat affected as a result of the Proposed Action as listed on page 18 of the Draft EA.**

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In this process, we are curious have any other alternatives to managing salinity and selenium leaching been considered? Has the Bureau considered soil health and the deployment of strategic agricultural conservation practices as alternatives to reducing selenium and salt leaching? For example, a project working with USGS or the local conservation district to analyze the potential benefits to water quality, as well as area biodiversity, and microclimate regulation from changes to adjacent agricultural production and ditch vegetation management might have similar benefits without the drawbacks of impacting the local micro-climate and wildlife habitat. The

Comment 56

[15] Draft EA Figure 1. Map of project location, pg 3

[16] **Toward Best Management Practices for Ecological Corridors,** Department of Biology, University of North Texas, Denton, TX 76203, USA https://www.mdpi.com/2073-445X/10/2/140

[17] **Smith Fork Watershed Plan pg 20,** https://westernslopeconservation.org/wp-content/uploads/2016/11/Final_SmithForkWatershedAssessment.pdf

[18] **Southern Rocky Mountains assessment (The Nature Conservancy, 2001)**

draft EA notes that a significant portion, 37%, of the salinity which the project seeks to prevent comes from agricultural run off[19]. According to the 2016 Smith Fork Watershed Plan, "*the canal seepage component of the agricultural salinity load ranged from 1,100 t/yr in sub-basin AL1 to 15,300 t/yr in subbasin CK1. Subbasins B1, R1, SF2, and SF3 had canal seepage salinity loads of 6,610 t/yr, 3,890 t/yr, 9,430 t/yr, and 12,100 t/yr, respectively.*[20]" I am aware of the programs to reduce salinity from agriculture hosted by NRCS[21], and those also practiced without government support by private landowners, but it is not clear to me if adoption of soil health practices has been considered as a way of addressing water quality and as an alternative to managing salinity and selenium leaching. **Can you please provide justification for choosing piping over soil management?**

While soils containing excessive salts do occur naturally in arid and semiarid climates, salinity levels can increase as a result of degraded soil health, irrigation methods, and overall land management. As an example, a fourfold increase in salinity along the Rio Grande River has been related to evaporation exacerbated by management and irrigation practices[22]. Human-caused climate change also increases temperatures, which, in turn, increase evaporation due to increased atmospheric water holding capacity. This "atmospheric loading" of water and decrease in vegetative cover can cause regions such as ours, to experience a decrease in precipitation, both of which contribute to lower rates of dilution and greater salt concentrations. **While piping may have an immediate effect with regards to reducing evaporation, the medium and long term effects of acidification and exacerbated loss of soil moisture that will ensue after piping, will continue to drive the need for more irrigation while simultaneously reducing overall water availability in the system.**

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If approached from a soil health perspective, excess loss of both salts and selenium to water, even in high selenium soils, can be seen as indicators of insufficient organic matter levels and poor soil structure. Salinity loading will continue to impact the river due to flood or other heavy irrigation methods which concentrate salts in drier soils[23],[24] and induce erosion. This is not just an issue of the ditch itself, but also one that stems from the reliance of local agricultural operations on the flood irrigation method, and low soil organic matter leading to low cat-icon exchange capacity in the soils, and the

[19] Draft EA, Section 1.4.1, pg 4

[20] **Smith Fork Water Shed Plan,** pg 39 Western Slope Conservation https://westernslopeconservation.org/wp-content/uploads/2016/11/Final_SmithForkWatershedAssessment.pdf

[21] **On-farm salt loading is targeted by the NRCS through its EQIP program.**

[22] **Predicting combined effects of land use and climate change on river and stream salinity** John R. Olson Published:**03 December 2018**https://doi.org/10.1098/rstb.2018.0005

[23] Front. Sustain. Food Syst., 17 March 2020 Sec. Agroecology and Ecosystem Services Volume 4 - 2020 | https://doi.org/10.3389/fsufs.2020.00030

[24] https://cropwatch.unl.edu/documents/USDA_NRCS_EC_guide.pdf

subsequent loss of nutrients such as selenium and salt via erosion[25],[26], [27]. **Is it possible to conduct an alternative analysis to examine the potential benefits to water quality from management changes in adjacent grazing and hay fields and edging the ditch with appropriate vegetative cover?** Simple practices such as filter stips and hedgerows, ground cover/cover crops, grazing exclosures, and pivot or drip irrigation will reduce runoff and erosion by increasing water inflation and increasing soil organic matter[28], [29]. Organic matter in soils both acts to stabilize nutrients against leaching and erosion[30] and increases water holding capacity which has a cooling effect for crops and for the surrounding areas[31]

Comment 60

I believe there are both foreseen and other associated unforeseen impacts from this project and that this and the greater set of projects piping the open ditches will/are forcing undesirable ecosystem level change. Because of this, I am concerned that the project as proposed will have a significant and cumulative long term impact with regards to intensifying and increasing the pace of aridification which will be detrimental to both the Colorado River and to our region. I also believe there are alternatives and compromises and potential ways to offset or mitigate these changes if the considerations of impact to micro-climate and in-situ water availability for vegetation and wildlife are considered.

Comment 61

I look forward to continuing this conversation with the Bureau and again, thank you for all of the work you are doing to protect our water resources.

Thank you,
Trudy Welty

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[25] **Soil Organic Matter Recovery in Semiarid Grasslands: Implications for the Conservation Reserve Program** Ingrid C. Burke, William K. Lauenroth, Debra P. Coffin First published: 01 August 1995 https://doi.org/10.2307/1941987

[26] **Evaluating the impact of flood irrigation on spatial variabilities of soil salinity and groundwater quality in an arid irrigated regions** Nengzhan Zheng; Mengshen Guo; Weifeng Yue; Yanguo Teng; Yuanzheng Zhai; Jie Yang; Rui Zuo Hydrology Research (2021) 52 (1): 229–240. https://doi.org/10.2166/nh.2020.209

[27] **Runoff, nutrients, sediment and salt yields in an irrigated watershed in southern Navarre (Spain)** D. Merchán a, J. Casalí a, J. Del Valle de Lersundi b, M.A. Campo-Bescós a, R. Giménez a, B. Preciado c, A. Lafarga c https://doi.org/10.1016/j.agwat.2017.10.004

[28] **Carbon sequestration and soil restoration potential of grazing lands under exclosure management in a semi-arid environment of northern Ethiopia** Tsegay Gebregergs, Zewdu K. Tessema, Negasi Solomon, Emiru Birhane First published: 14 May 2019

[29] **USDA NRCS Conservation Practice Physical Effects** https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-physical-effects

[30] **Dynamics of organic matter in soils** E. A. PAUL Department o f Plant and Soil Biology, University o f California, Berkeley, CA 94 720, USA

[31] **Decreased Soil Organic Matter in a Long-Term Soil Warming Experiment Lowers Soil Water Holding Capacity and Affects Soil Thermal and Hydrological Buffering** W. J. Werner, J. Sanderman, J. M. Melillo https://doi.org/10.1029/2019JG005158

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February 28, 2023

Ed Warner
United States Department of Interior
Area Manager
445 W. Gunnison Ave.
Grand Junction, CO 8150

Email: JWard@usbr.gov

Re: Draft Environmental Assessment, Crawford Clipper Ditch Company's Jerdon, West, and Hamilton Laterals Piping Project, Delta County, Colorado (Assessment)

Dear Mr. Warner,

I am a homeowner in Crawford, Colorado at the address of 38664 Saddle Mountain Lane, Crawford Colorado, 81415. My family has owned the residence for 30 years. The Clipper ditch runs adjacent to the property where my house is situated and along a neighboring lot that is also part of my property. The legal description of the land containing the residential structure is Section 35 T: 15SR. I was informed of the ability to comment on the Draft Environmental Statement just recently and hope you will consider these comments although they are delivered a day after the deadline indicated in your correspondence.

The maps provided in the Assessment do not give me an exact location that identifies my property, but I know the location of the Clipper ditch and the "proposed action area" definitely covers the ditch that borders two of my lots.

It is hard to be sufficiently educated on much of the scientific information contained in the report without consulting experts that would require time, and perhaps more importantly expense, that I and my neighbors do not have in sufficient amounts to be impactful. However, having lived for decades on the property there are observations I would like to provide in opposition to the piping of the ditch. Comment 63 It is not lost on me that there are benefits to the piping, but I do not think they outweigh the sacrifice the area will experience and there seems to be little discussion of the benefit to the Clipper Ditch Company (CCDC) that is not being shared with those whose property will be impacted. I recognize that the CCDC is identified as a "non-profit" but that does not resolve whether there are benefits to those who run the company, or are compensated, that are not adequately

addressed in this Assessment. I understand that it may not be the focus of this document but an assessment of the cost/benefit to the program should include such an evaluation.

The project is being funded by the Bureau of Reclamation to the CCDC, apparently based on authorization provided by the Colorado River Basin Salinity Control Act's Colorado River Basinwide Salinity Control Program. Much of the local conversation as the ditches throughout the area have been replaced with piping has been about the decrease in evaporation that would perhaps retain much of the needed water that services a drought-stricken area with agriculture as a significant contribution to the local economy. Although there is discussion of reduced seepage and evaporation, the piping is primarily justified by claiming reduced salinity in the Lower Gunnison Basin and Colorado River Basin. There is little discussion of how much salinity could be reduced if the maintenance of the ditches was more rigorous, such as better lining of the ditches and more regular observation of those things that impact ditch efficiency. Although I question the amount of salinity saving that would be realized, it is this area that I confess a lack of expertise. Chapter 2 (2.1) – No Action Alternative, is an incomplete assessment of other options. Should no action be taken it does not mean other remedial measures would not mitigate the salinity concern. The language of this section reveals a bias in the reporting. It could be argued that other options would not be as effective but to leave out a consideration of what could be done if no action pursuant to this request was taken is not an objective discussion of possible alternatives.

Comment 64

Comment 65

Chapter 2.2 – Proposed Action

I want to highlight my concern with the "Proposed Action" section. Figure 3 describes the "Main Project Plan". It is a map of the proposed pipeline that includes a "Proposed pipeline, alternate route". The exact location of the pipe that is proposed appears to be adjacent to my property. If the piping authorization is approved, as I anticipate, and it pipes the existing ditch, I am well familiar with what area the pipe would traverse. The alternate route is a cause of great concern. I would need a more detailed map and location of this alternate route to determine if it goes through my property. Suffice it to say that I object to any easement being created other than the historic easement that currently exists. I also object to ingress and egress onto my property such access should be what has been afforded to operate and service the current Clipper Ditch. I appreciate the comment that the proposed pipelines would follow existing ditch alignments and any "new alignments (outside the existing ditch prims) …" (would only occur when…) **"landowners have agreed to alignments"** (Chapter 2.2, emphasis added). I just want to emphasize the point.

Comment 66

Chapter 2.2.1 Pipeline Installation

Comment 67

The description of the pipeline installation is problematic. Let my position be clear. I believe the easement that has been in existence for decades is the easement the CCDC is entitled to use and provides a limit on their ability to impact the land adjacent to the existing ditch. I do not believe piping through the use of trackhoes and bulldozers to grub ditch bank vegetation should impact anything outside the existing easement, established by historic use. When it is noted that woody vegetation on the side-slopes of ditch prisms "would be left intact as much as possible" it suggests the ability to affect areas outside the current easement. My view of the ditch adjacent to my land is that the area that has been used to service the ditch does not have vegetation that needs to be impacted. Any such impact would be outside the current easement boundaries. The statement that "an excavator would then trench to the appropriate depth in the prism, adjacent to the previous location of the ditch, and prepare the pipe bed" describes an area greater than the current easement. I find that unacceptable. The comment in Chapter 2.2.3 says that the average width is 40' and as high as 60', not constrained by the existing

ditch centerline. If the Project, CCDC or the United States Department of Labor believes it is entitled to expand the easement boundaries as they currently exist, I would appreciate the authority allowing such expansion *before the expansion has occurred*. In my estimation any expansion onto land or involving vegetation that is outside the current boundary, which I calculate generally to be, 17' from the ditch centerline, is an improper taking of private property without the requisite authority, compensation, chance to be heard or imminent domain proceedings.

Comment 68

The process as outlined in this chapter also describes the possibility of "blasting activity" if needed to break rock up into manageable pieces. There is no discussion of the impact it might have on the southside steep grade or the north side (my property) drop-off, that currently exists. I would like a discussion of the likely impact on the property should blasting be required and the anticipated compensation to any area outside the current easement prism.

Chapter 2.2.3 – Access

Comment 69

I have briefly addressed access as being acceptable through the historic ingress and egress points to the current easement. I appreciate this section requiring landowners to agree if activities are conducted on their land outside the historic prescriptive easement. That is not exactly what this section says since it proceeds to describe a right to go as wide as 60 feet and not constrained by the existing ditch centerline.

Chapter 3 – Affected Environment & Environmental Consequences

Similar to my comments concerning the conclusion regarding salinity improvement, I do not have the expertise to challenge the conclusions drawn in Chapter 3. Intuitively, having been familiar with this area for over 40 years, I question many of the statements. Relating to the concerns of my property, which I know are shared by others who will be impacted by the piping, the visual resources, vegetation and wildlife adjacent to the current open ditches will be impacted to a greater degree then the report confesses. The visual resources of the Grandview Development, within which my property is located, and the Clipper Ditch intersects, have been a source of the quality of life since the development was created. The report undervalues the vegetation that will be disturbed by the construction of the pipe, the vegetation that will die as a result of the piping of the ditch and the wildlife supported by the open ditch as it currently exists. The report confesses as much when it states "[t]he ditches support bands of shrub willows and occasional mature cottonwood trees which are visible on the relatively open and flat landscape" (3.2.6 – Visual Resources). I assure you this vegetation is important to the visual resources of the entire Grandview complex and will be lost. The conclusion that the Proposed Action would not contribute to the cumulative impact to visual resources is a brazen conclusion not informed by the current state of vegetation along the ditch and certainly not informed by sitting and looking out of the many windows of the homes that view this vegetation. Admission of the impact on riparian and wetland habitat is found ins section 34.2.9 when other projects need to be developed to replace riparian and wetland loses in conjunction with piping projects.

Comments 70, 71

I do not believe any response to this Draft Assessment will prevent the piping of the areas proposed in the document. It is incumbent on those who live in these areas, and those who know the topography, vegetation and animal life that reside here to nonetheless comment. There is a tradeoff that occurs when certain values are pitted against one another. In this case it appears the major concern is salinity with some mention of evaporative losses. There is also, what I believe is understated and undervalued, the impact on vegetation,

Comment 72

wildlife and the environment of those who live along these ditches. Both interests could be adequately protected by greater attention to alternative methods of reducing the salinity that is causing complaint. Comment 73

I hope that before this project is given approval some of the issues addressed in this letter can be further discussed and the homeowners impacted given a greater voice in the decision.

Sincerely,

David S. Kaplan
Crawford Resident

APPENDIX F – SUMMARY OF HABITAT REPLACEMENT ACCOUNTING FOR SALINITY CONTROL PROJECTS IN THE REGION

Salinity Project	Status	Habitat Units Lost	Habitat Credits Created
Bostwick Park Siphon Lateral Piping Project and Waterdog & Shinn Park Laterals Piping Project	Past	32.1	32.4
C Ditch/Needle Rock	Past	7.88	10.49
Cattleman's Ditch Phases 1 and 2	Past	18.57	23.32
Crawford Clipper – Center Lateral	Past	33.9	38.4 + Excess from previous project
Crawford Clipper - Jerdon, West, & Hamilton	Project	11.6	33.4
Crawford Clipper – Spurlin Mesa (Clipper 4) & Zanni Lateral	Past	16.38	16.49
East Side Laterals – Phase 1	Past	59.85 acres[i]	100 acres
East Side Laterals – Phase 2	Past	26 acres	26 acres
East Side Laterals – Phase 3	Past	8.6	26
East Side Laterals – Phase 4	Past	7.04	Using excess from previous project
East Side Laterals – Phase 5 & GE, DK Laterals	Past	9.99	Using excess from previous project
East Side Laterals – Phase 7[ii]	Past	2.77	41.9
East Side Laterals – Phase 8	Past	22.2	Using excess from previous project
East Side Laterals – Phase 9 & Phase 9 Mod	Past	35.6	31.7+ Excess from previous project
East Side Laterals – Phase 10	Reasonably Foreseeable	18.7	6.3[iii] + Excess
Fire Mountain Canal	Past	8.42	13.05
Forked Tongue/Holman Ditch	Past	6.7	11.07

Salinity Project	Status	Habitat Units Lost	Habitat Credits Created
Gould Canal – Projects A & B	Past	18.1	24.19
Grandview Canal – Upper, Middle & Lower	Past & Reasonably Foreseeable	33.6[iv]	34
Minnesota Ditch – Phase 1	Past	11.17	22.73
Minnesota Ditch – Phase 2 and Minnesota L-75	Past	24.92	17.61 + Excess from previous project
Needle Rock/Lone Rock Ditch	Present	13.9	15.8
North Delta Canal – Phase 1 and Phase I Extension	Past	173.03	174.6
Orchard Ranch Ditch	Past	5.12	5.99
Pilot Rock Ditch	Past	16.9	20.9
Roger's Mesa Slack and Patterson Laterals	Past	20.34	39.93
Short Ditch Extension	Present	13.8	14.1
Stewart Ditch – Upper, Middle & Lower	Past	8.67	9.63
Turner/Lone Cabin Ditch	Reasonably Foreseeable	117.8	120.3
	TOTAL:	**697.8 units, 85.85 acres**	**784.3 credits, 126 acres**

[i] In late 1990's and early 2000's, the habitat replacement procedures focused on acres rather than credits.
[ii] East Side Laterals – Phase 6 was not a salinity control project, and therefore there is no habitat replacement project associated with that phase.
[iii] As Phase 10 is a potential future project and documentation has not been completed at this time, this figure is an estimate.
[iv] As the Middle & Lower Grandview project is a potential future project and documentation has not been completed at this time, this figure is an estimate. The Upper Grandview project resulted in the loss of 26 habitat units and the Middle & Lower is currently anticipated to result in the loss of an additional 7.6 habitat units.