

RECLAMATION

Managing Water in the West

Willard Canal Lining Project Final Environmental Assessment

PRO-EA-16-007

Upper Colorado Region
Provo Area Office
Provo, Utah



U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah

February 2016

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.

Willard Canal Lining Project Final Environmental Assessment

PRO-EA-16-007

Upper Colorado Region
Provo Area Office
Provo, Utah

prepared by: *Beth Reinhart*
 Environmental Protection Specialist
 Provo Area Office



U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah

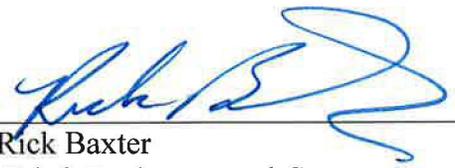
February 2016

U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah

FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment Willard Canal Lining Project
Weber Basin, Utah

Recommended by:


Rick Baxter
Chief, Environmental Group

2/24/16
Date

Concur:


Water and Environmental
Resources Division

29 FEB 2016
Date

Approved by:


Wayne G. Pullan
Area Manager, Provo Area Office

29 FEB 2016
Date

Introduction

In compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Bureau of Reclamation and the Weber Basin Water Conservancy District (District) conducted an Environmental Assessment (EA) to disclose the potential impacts to the human environment of lining sections of the Willard Canal (Canal) located in Weber and Box Elder County, Utah. The action is being proposed on a Reclamation facility and therefore, Reclamation is the lead agency for the purposes of compliance with the NEPA.

Reclamation's mission is to manage, develop, and protect water, and water related resources, in an environmentally and economically sound manner. A key component of Reclamation's activities is to support water conservation and assist resource managers in making decisions regarding water use. The Willard Canal Lining Project would reduce water loss and would be constructed entirely upon property that is owned fee title by Reclamation. All improvements would remain in United States ownership.

Proposed Action

The Proposed Action is the preferred alternative. If Reclamation decides to authorize implementation of the Proposed Action Alternative, the District would be allowed to proceed with lining the remaining unlined sections of Canal and make the associated water conveyance system improvements. If authorized to proceed, the District would construct, operate, and maintain the new and existing features of the Canal.

Under the Proposed Action Alternative, Reclamation would approve District to perform the following types of work:

- Construct a 6-inch concrete liner in the Canal
- Install permanent access ramps
- Install new manholes for under drain maintenance
- Modify existing manholes for under drain maintenance and to accommodate installation of a pump and supporting electrical system
- Connect to Rocky Mountain Power by means of buried conduit and install transformers
- Connect transformers to pump locations by means of buried conduit in the Canal right of way
- Install new bollards for safety line attachments
- Remove and replace existing riprap

Reclamation prepared a Draft Environmental Assessment on the project in January 2016 and made it available until February 5, 2016, for public comment on their website at: <http://www.usbr.gov/uc/envdocs/index.html>.

Reclamation determined there was "No Effect" to species listed under the Endangered Species Act (1973). Reclamation consulted with the State Historic Preservation Office (SHPO) in Utah under Section 106 of the National Historic Preservation Act (NHPA) (Title 54 U.S.C. § 306108) as this was a Reclamation undertaking with the potential to effect historic properties

(36 CFR § 800.3 (a)). The SHPO concurred with Reclamation findings of effects and an Programmatic Agreement has been signed, with mitigation to occur during the next 25 years.

Findings

Based on the EA and SHPO concurrence, Reclamation finds that funding the Proposed Action is not a major Federal action that will significantly affect the quality of the human environment. The EA is incorporated by reference.

Following are the reasons why the impacts of the Proposed Action are not significant:

1. The proposed action will not significantly affect public health or safety (40 CFR 1508.27(b)(3)).
2. The proposed action will not significantly impact natural resources and unique geographical characteristics such as historic or cultural resources; parks, recreation, and refuge lands; wilderness areas; wild or scenic rivers; prime farmlands; wetlands (Executive Order (EO) 11990); flood plains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas (40 CFR 1508.27(b)(3) and 43 CFR 46.215(b)).
3. The proposed action will not have possible effects on the human environment that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).
4. The proposed action will neither establish a precedent for future actions with significant effects nor represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).
5. There is no potential for the effects to be considered highly controversial (40 CFR 1508.27(b)(4)).
6. The proposed action will not have significant cumulative impacts (40 CFR 1508.27(b)(7)).
7. The proposed action would result in less than significant impacts through mitigation to historic properties (40 CFR 1508.27(b)(8)). Reclamation consulted under Section 106 of the NHPA, as required, and any adverse effects to historic properties were avoided, minimized, or mitigated, pursuant to 36 CFR § 800.6, Resolution of Adverse Effects.
8. The proposed action will not affect listed or proposed threatened or endangered species (40 CFR 1508.27(b)(9)).
9. The proposed action will not violate Federal, State, Tribal or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)).
10. The proposed action will not affect any Indian Trust Assets (ITA) (512 DM 2, Policy Memorandum dated December 15, 1993).

11. Implementing the proposed action will not disproportionately affect minorities or low-income populations and communities (EO 12898).

12. The proposed action will not limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (EO 13007 and 512 DM 3).

Contents

	Page
Chapter 1 Purpose of and Need for Proposed Action	1
1.1 Introduction.....	1
1.2 Background.....	1
1.2.1 Reclamation	1
1.2.2 Weber Basin Water Conservancy District.....	2
1.2.3 Willard Canal.....	3
1.3 Purpose of and Need for Proposed Action.....	3
1.4 Public Scoping and Involvement	5
1.5 Permits, Licenses, and Authorizations.....	5
1.6 Related Projects and Documents	5
1.6.1 Previously Completed Phases	5
1.7 Scope of Analysis	5
Chapter 2 Alternatives	7
2.1 Introduction.....	7
2.2 No Action Alternative.....	7
2.3 Proposed Action Alternative.....	7
2.3.1 Construction Schedule	9
2.3.2. Construction Procedures	9
2.3.3 Easements	9
2.3.4 Crossings and Transportation Requirements	9
2.3.5 Standard Operating Procedures.....	9
2.4 Alternative Considered and Eliminated from Further Study	10
2.4.1 Membrane Lining.....	10
2.4.2 Enclosing the Canal	10
2.5 Comparison of Alternatives	10
2.6 Mitigation Measures Incorporated into the Proposed Action	11
Chapter 3 Affected Environment and Environmental Consequences	12
3.1 Introduction.....	12
3.2 Resources Eliminated from Analysis.....	12
3.3 Affected Environmental and Environmental Consequences	14
3.3.1 Water Resources	14
3.3.1.1 No Action Alternative.....	15
3.3.1.2 Proposed Action Alternative.....	15
3.3.2 Water Rights	15
3.3.2.1 No Action Alternative.....	15
3.3.2.2 Proposed Action Alternative.....	15
3.3.3 Cultural Resources	16

3.3.3.1 No Action Alternative.....	16
3.3.3.2 Proposed Action Alternative.....	16
3.4 Indian Trust Assets	16
3.5 Environmental Justice.....	17
3.6 Climate Change.....	17
3.7 Cumulative Effects.....	17
3.8 Summary of Environmental Effects.....	18
Chapter 4 Environmental Commitments	19
4.1 Environmental Commitments	19
Chapter 5 Consultation and Coordination	22
5.1 Introduction.....	22
5.2 Public Involvement	22
5.3 Native American Consultation.....	22
5.4 Utah Geological Survey	22
5.5 Utah State Historic Preservation Office.....	23
Chapter 6 Preparers	24
Chapter 7 Acronyms and Abbreviations	25
Chapter 8 References.....	26

Chapter 1 Purpose of and Need for Proposed Action

1.1 Introduction

This Environmental Assessment (EA) has been prepared by the U.S. Bureau of Reclamation to assess the potential environmental impacts of the proposed improvements to the Weber Basin Water Conservancy District (District) Willard Canal Irrigation Delivery System located in Box Elder County and Weber County, Utah (Figure 1.1 Vicinity Map). The Federal action evaluated in this EA is whether or not Reclamation should authorize the District to construct a concrete lining and install pumping and flow measurement equipment in unlined sections of the Willard Canal (Canal).

This document has been prepared as required by the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and the U.S. Department of the Interior's NEPA implementing regulations. If potentially significant impacts to the environment are identified through the environmental evaluation, an Environmental Impact Statement (EIS) would be prepared. If no significant impacts are identified, a Finding of No Significant Impact (FONSI) would be issued by Reclamation.

1.2 Background

1.2.1 Reclamation

As the Interior's primary water management agency, Reclamation's mission is to manage, develop, and protect water, and water related resources, in an environmentally and economically sound manner. A key component of Reclamation's activities is to support water conservation and assist resource managers in making decisions regarding water use. The Willard Canal Lining Project would be constructed entirely upon property that is owned fee title by Reclamation, and all improvements would remain in United States ownership.

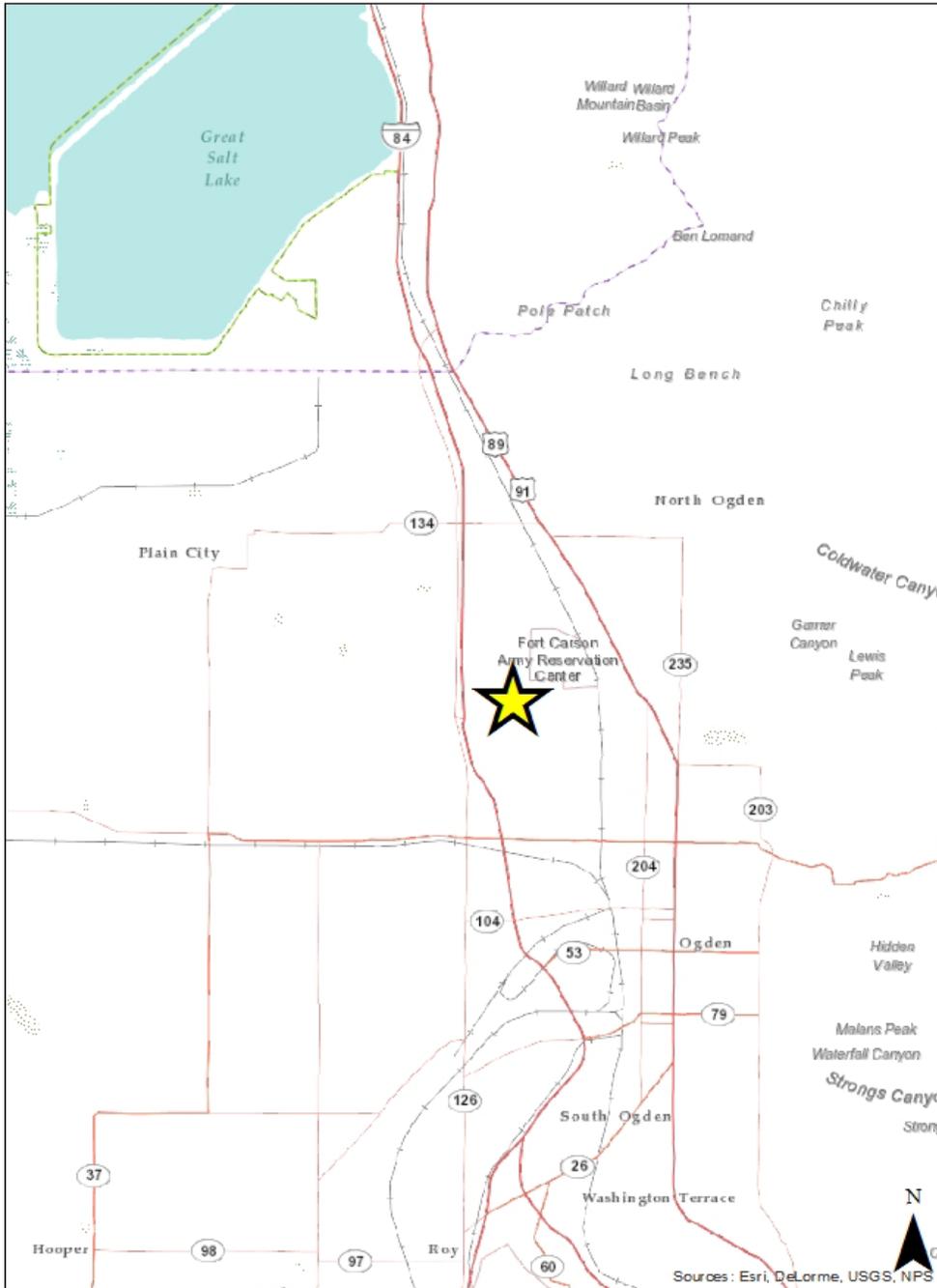


Figure 1.1 - Vicinity Map

1.2.2 Weber Basin Water Conservancy District

The Weber Basin Project (Project), which was aimed at developing and effectively utilizing the available water resources within the Weber River Basin Drainage, was constructed by Reclamation, and is currently administered, operated, and maintained by the District. The District covers over 2,500 square miles within five counties: Davis, Weber, Morgan, Summit, and a part of Box Elder. The District delivers approximately 220,000 acre-feet (AF) of water, 60,000 AF for municipal and industrial uses, and 160,000 AF for irrigation, which

includes secondary pressure irrigation systems. The District operates seven large storage reservoirs which store approximately 400,000 AF of the District's water. (Weber Basin Water Conservancy District 2011).

1.2.3 Willard Canal

The Canal is located in Weber County and Box Elder County (Figure 1.2 Project Location Map). The Canal originates at the Slaterville Diversion Dam west of Ogden and extends 10.2 miles north terminating at the Arthur V. Watkins Reservoir. Construction on the Canal was completed in 1964, is roughly 30-feet wide, with a water depth of 9 feet. The Canal carries water from the Weber River to Willard Bay at approximately 1,050 cubic feet per second.

Water diverted into the Canal during the non-irrigation season is conveyed to the Arthur V. Watkins Reservoir, where it is stored. During the irrigation season, water can be pumped by Willard Pumping Plants No. 1 and No. 2 back through the Canal from Arthur V. Watkins Reservoir to Slaterville Diversion Dam and on into the Layton Pumping Plant intake channel for irrigation of lands lying along the shores of the Great Salt Lake. (Weber Basin Water Conservancy District, 2011)

The District has completed three phases of this conservation project to line the Canal with reinforced concrete for a total of 1.56 miles. This EA would cover all remaining portions of the water conservation project, approximately 8.65 miles which would also be completed in phases.

1.3 Purpose of and Need for Proposed Action

This EA evaluates the potential effects of the Proposed Action in order to determine whether it would cause significant impacts to the human or natural environment, as defined by NEPA. If the EA shows no significant impacts associated with implementation of the proposed project, then a FONSI would be issued by Reclamation. Otherwise, an EIS will be necessary prior to implementation of the Proposed Action.

Water shortages and water-use conflicts have become more common place in many areas of the United States, even in normal water years. As competition for water resources grow for irrigation of crops, growing cities and communities, energy production, and the environment, the need for information and tools to aid water resource managers also grows. Water issues and challenges are increasing across the nation, but particularly in the western United States due to prolonged drought.

Through collaborative efforts in conducting a System Optimization Review of all Project Facilities, the District and Reclamation identified the Canal as a source of potential significant water loss due to canal seepage. Because the

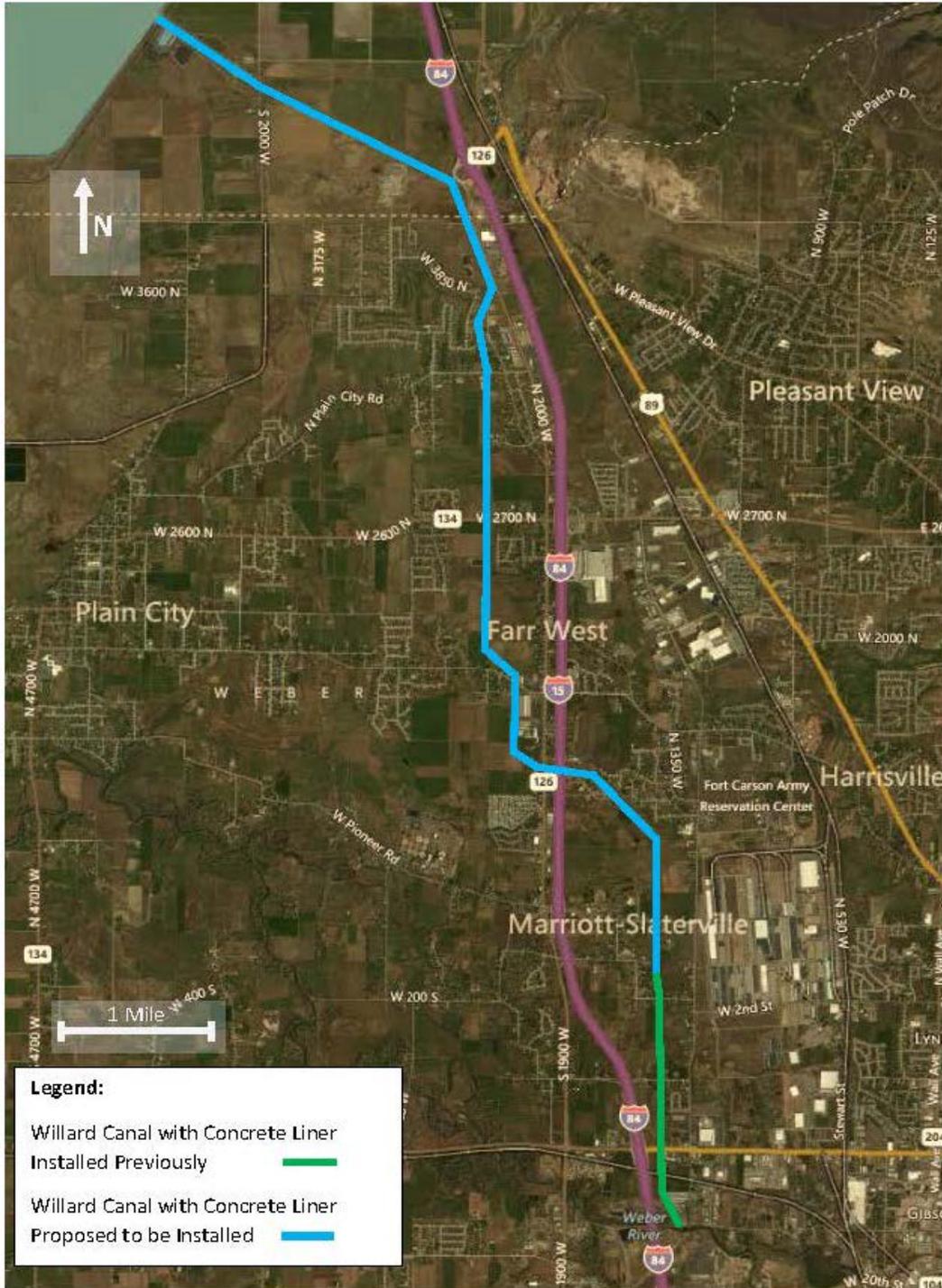


Figure 1.2 - Project Location Map

District serves one of the fastest growing regions in the Western United States, conservation efforts that would extend the capacity of existing supplies are a key to the District's success in managing the water resources within the region and avoiding water related conflicts. The District 2013 WaterSmart grant application states canal seepage losses in the upper 5,000 to 7,000 linear-feet (LF) of the

Canal estimated to be as high as 15,600 AF per year, mitigating these losses is a top priority.

1.4 Public Scoping and Involvement

The public was provided an opportunity to comment on the proposed action during the Draft EA comment period that ended February 5, 2016. A letter, providing the website where the Draft EA could be reviewed, was mailed to individuals and entities identified by the District as interested parties as well as Natural Resource Agencies and Tribes. All substantive comments received will be forwarded to the District.

1.5 Permits, Licenses, and Authorizations

Implementation of the Proposed Action may require a number of authorizations or permits from state and Federal agencies. The District would be responsible for obtaining all permits, licenses, and authorizations required for the Project. Potential authorizations or permits may include those listed in Table 1-2.

**Table 1-2
Permits and Authorizations**

Agency/Department	Purpose
Utah Division of Water Quality	Utah Stormwater Pollution and Prevention Plan

1.6 Related Projects and Documents

1.6.1 Previously Completed Phases

In 2012, 2013, and, 2014 Reclamation completed Categorical Exclusions PRO-CE-11-059, PRO-CE-12-059, and PRO-CE-13-054 authorizing the District to construct reinforced concrete liner and perform associated work totaling 1.56 miles of the Canal. The proposed action evaluated in this EA addresses 8.65 miles of the Canal which were not included in the previous projects.

1.7 Scope of Analysis

The purpose of this EA is to determine whether or not Reclamation should authorize the District to line sections of the Canal and make associated improvements to increase the efficiency in the delivery and conservation of water. That determination includes consideration of whether there would be significant impacts to the human environment. In order to make the proposed improvements,

this EA must be completed and a FONSI issued. Analysis in the EA includes temporary impacts from construction activities and permanent impacts as a result of lining the Canal.

The District has lined and made delivery improvements along 8,230 LF (1.56 miles) of the Canal. The remaining unlined portion from 200 South in Marriott-Slaterville to the A.V. Watkins Reservoir is approximately 8.65 miles. For the purpose of this EA the scope of analysis includes the Canal, adjacent right-of-way (ROW) that runs parallel along both sides, and the source of gravel and rock needed to accomplish the work.

Land use adjacent to the Canal includes commercial, agricultural, and residential. The adjacent areas are not part of the project area, therefore not being evaluated. The ROW is an unimproved road almost entirely devoid of vegetation due to ongoing maintenance. Construction vehicle access and all staging areas will use the ROW during all phases of construction.

The project area for each future phase of canal lining is estimated to be 2,000 to 3,000 LF. Construction on each phase will be done during the non-irrigation season and is anticipated to last 2 months. The canal lining is expected to be completed by 2035.

Chapter 2 Alternatives

2.1 Introduction

This chapter describes the features of the No Action and Proposed Action Alternatives, and presents a comparative analysis. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between each alternative.

2.2 No Action Alternative

Under the No Action Alternative Reclamation would not authorize the District to line the Canal and make the associated water conveyance system improvements. Under the No Action Alternative seepage would still occur approximately 1,330 AF per year of water loss. The No Action Alternative does not meet the Project purpose of water conservation and goal to increase efficiency in the water delivery system, therefore the No Action Alternative is not being given further consideration

2.3 Proposed Action Alternative

The Proposed Action is the preferred alternative. If Reclamation decides to authorize implementation of the Proposed Action Alternative, the District would be allowed to proceed with lining the remaining unlined sections of Canal and make the associated water conveyance system improvements. If authorized to proceed, the District would construct, operate, and maintain the new and existing features of the Canal.

Under the Proposed Action Alternative, Reclamation would approve WBWCD to perform the following types of work:

- Construct a 6-inch concrete liner in the Canal
- Install permanent access ramps
- Install new manholes for under drain maintenance
- Modify existing manholes for under drain maintenance and to accommodate installation of a pump and supporting electrical system
- Connect to Rocky Mountain Power by means of buried conduit and install transformers
- Connect transformers to pump locations by means of buried conduit in the Canal ROW

- Install new bollards for safety line attachments
- Remove and replace existing riprap

The proposed action area evaluated in his EA begins at 200 South in Marriott-Slaterville, the end of the previously authorized Phase 3 lining project and terminates at the Arthur V. Watkins Reservoir (Figure 2.1 Site Plan).



Figure 2.1 Site Plan (Typical)

2.3.1 Construction Schedule

Construction could begin as soon as the FONSI is signed, currently estimated to be in early of 2016. Construction on the canal lining and associated improvements is anticipated to take place during the non-irrigation season over a period of years between now and 2035. Each construction phase is expected to last approximately 2 months.

2.3.2. Construction Procedures

All work would take place within the canal and ROW. To accomplish this, heavy machinery, including trackhoes, bulldozers, and trucks, would be used on existing canal roads to excavate and compact the canal bed, which would then be lined with concrete. The project would use materials consistent with the three previous phases of the canal lining. Granular 6 feet minus, may be used for subgrade stabilization as required. Free draining 1 foot minus rock, non-woven filter fabric, and perforated High-Density Polyethylene Pipe would be used to augment under drains and prevent pore water pressures resulting from natural fluctuations in the groundwater table, or resulting ice, from heaving concrete liner (Source, Towers Sand & Gravel, LLC, 1476 West 4300 North Pleasant View, Utah, personal communication Troy Stout). The canal liner would consist of reinforced concrete, with a thickness of 6-inches along the cross section of the canal prism. Freeboard would be as per Reclamation Standards for the design flow. Construction and expansion joints would include water stops.

2.3.3 Easements

No permanent easements, ROW acquisition, or temporary construction easements would be required for the implementation of the Proposed Action. All project improvements and associated construction activities would take place on land owned by Reclamation and operated and maintained by the District.

2.3.4 Crossings and Transportation Requirements

No new roadway crossings would be required under the Proposed Action. An access road parallels the canal alignment on both sides within the ROW. These roads would be used for ongoing operation and maintenance.

Existing local, county, and state transportation routes would be utilized for the hauling of construction equipment and material. Traffic coordination would be discussed with local and state agencies to ensure optimal construction traffic route.

2.3.5 Standard Operating Procedures

Reclamation Standard Operating Procedures (SOPs), as outlined in Reclamation's Facilities Instructions, Standards and Techniques Volume 1-2 (November 2000) and Reclamations' Manual – Directive and Standards, would be applied during construction activities to minimize environmental impacts, and would be implemented by construction personnel and included in contract specifications.

2.4 Alternative Considered and Eliminated from Further Study

The following alternatives were evaluated but eliminated because they did not meet the purpose or need for the Project.

2.4.1 Membrane Lining

The District could have an alternate method of lining the Canal using a membrane liner; all other associated work would remain the same. This alternative was rejected because concrete has a greater longevity, reduced maintenance costs, and greater overall reliability. This alternative does not meet the purpose and need of the Project because it would not reduce maintenance and may need to be replaced periodically increasing cost.

2.4.2 Enclosing the Canal

The District could have chosen to enclose the Canal with a box culvert system or dual pipes. This alternative was rejected because the cost to enclose the Canal with a box culvert system or dual pipes would be rejected by the water users and would not provide significant benefit to the Project. While meeting the purpose and need of the Project this alternative provided little or no benefit over the concrete liner and increased cost.

2.5 Comparison of Alternatives

The suitability of the No Action and Proposed Action Alternatives were compared based on three objectives identified for the project. The objectives are:

- Prevent seepage and conserve water
- Increase efficiency in delivery, and
- Reduce maintenance

As shown in Table 2-1, the No Action Alternative did not meet any of the Project's objectives while the Proposed Action Alternative met all three objectives.

**Table 2-1
Comparison of Alternatives**

Project Objective	Does the <u>No Action Alternative</u> Meet the Objective	Does the <u>Proposed Action Alternative</u> Meet the Objective
Prevent Seepage /Conserve Water	No	Yes
Increase Efficiency in Delivery	No	Yes
Reduce Maintenance	No	Yes

2.6 Mitigation Measures Incorporated into the Proposed Action

The measures below, along with other measures listed under each resource in Chapter 3 and Chapter 4 have been incorporated into the Proposed Action Alternative to lessen the potential adverse effects.

- The proposed project construction area would be wholly located in the Canal and ROW.
- Staging areas would be located wholly in the Canal ROW.
- Ground disturbance would be limited to areas previously disturbed.
- Stockpiling of materials would be limited to the Canal ROW.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the environment that could be affected by the Proposed Action. These impacts are discussed under the following resource issues: hydrology; water quality; system operations; water rights; geology and soils resources; prime and unique farmlands; wild and scenic rivers; wildlife resources; threatened, endangered and sensitive species; wetlands, riparian, noxious weeds, and existing vegetation; cultural resources; paleontological resources; recreation; visual resources; socioeconomics; health, safety, air quality, and noise; public safety, access, and transportation; Indian Trust Assets; and environmental justice. The present condition or characteristics of each resource are discussed first, followed by a discussion of the predicted impacts caused by the Proposed Action. The environmental effects are summarized in Section 3.7.

3.2 Resources Eliminated from Analysis

**Table 3-1
Environmental Effects**

Resource	Rationale for Elimination from Further Analysis
Hydrology	The water source, timing, and quantity will not change in the canal; therefore hydrology would not be altered as a result of the canal lining or system delivery improvements.
Water Quality	Source of water diverted to the canal will not change; as a result there will be no impact to water quality.
System Operations	System Operations will not change, however improvement to delivery system will result in conserved water.
Geology and Soils	There will be no impacts to geology and soils, all work will take place within the highly disturbed existing canal and right-of-way.
Prime and Unique Farmlands	There are no unique or prime farmlands within the project footprint.

Resource	Rationale for Elimination from Further Analysis
Wild and Scenic Rivers	There are no wild and scenic rivers in the proposed project area.
Wildlife Resources	The canal will remain an open water conveyance; there will be no impact to wildlife use of the canal.
Threatened, Endangered and Sensitive Species	No listed species or critical habitat has been identified in the project area. There would be no impact to Federally listed species.
Wetlands, Riparian, Noxious Weeds, and Existing Vegetation	There are no wetlands in the proposed project location. Riparian vegetation and noxious weeds are removed annually during canal maintenance. The canal ROW is continuously maintained to be vegetation free.
Paleontological Resources	On December 14, 2015, the Utah Geological Society provided a letter stating no paleontological localities are located in the project area. There will be no impact to Paleontological Resources.
Recreation	There are no designated recreation resources in the project area and there would be no direct effects on recreation from the Proposed Action.
Visual Resources	There would be no impact on visual resources within the project area resulting from the Proposed Action as the canal will not change from its existing footprint and will remain an open water system.
Socioeconomics	Weber County's population was 231,236 in 2010 (Wikipedia, 2015), which increased 17.7 percent from 2000. Leading area employers include Hill Air Force Base, Weber State University, Weber School District, and the Internal Revenue Service. The project construction costs under the Action Alternative have been estimated at \$2,036,386, to be spent over 2 years. Though it is currently unknown whether a local contractor would be used or where the materials would be sourced, there would undoubtedly be some minor economic benefits to the area for fuel, retail, food, and other services. However, these benefits would not be significant due to the size and economic diversity of the area.
Health and Public Safety	The Proposed action location is the canal and ROW which is privately owned with no public access. There would be no impact to Health or Public Safety as a result to lining the canal or making improvements to the delivery system.

Resource	Rationale for Elimination from Further Analysis
Air Quality	The project is located in an area of nonattainment for PM 2.5 (UDAQ 2015) A PM 2.5 State Implementation Plan (SIP) for the Salt Lake City, Utah, Nonattainment Area. There would be no long-term air quality impacts in the proposed project area as a result of the 2-3 weeks of construction during each phase of the canal lining. Air Quality impacts would be negligible as a result of implementing Best Management Practices (BMPs) during construction.
Access and Transportation	Transportation to the project location would take place on state, county and/or municipal roadways, no new roadways will be constructed. Access to the canal is a privately owned ROW. The proposed action will not impact access and transportation.

3.3 Affected Environmental and Environmental Consequences

This chapter describes the affected environment (baseline conditions) and environmental consequences (impacts as a result of the Propose Action) on the quality of the human environment that could be impacted by construction and operation of the Proposed Action, as described in Chapter 2. The human environment is defined in this study as all of the environmental resources, including social and economic conditions, occurring in the impact area of influence.

3.3.1 Water Resources

The Canal and Slaterville Diversion Dam can be used to either store surplus Weber River Flows in Willard Bay Reservoir or to deliver Willard Bay Reservoir stored water to canals downstream of the Diversion Dam. When in the storing mode, surplus Weber River water available at the Slaterville Diversion Dam are diverted into the Canal and conveyed 10.2 miles to Willard Bay Reservoir for storage.

The surplus Weber River Flows consist of both the natural flows of Weber and Ogden Rivers not required for prior rights and storage releases from the upstream Weber Basin Project Reservoirs. The natural flows at the Slaterville Diversion Dam may include return flows from upstream water users (including hydropower plants) and inflows below upstream reservoirs. Water storage typically occurs during the non-irrigation and spring runoff season, but can occur at other times of the year.

When operating in delivery mode, stored Willard Bay stored water is pumped by Willard Pumping Plant No. 1 into the Canal. The water is delivered to turnouts

and/or canals tied directly to the Canal or are delivered to Willard Pumping Plant No. 2 where it delivered back to the Slaterville Diversion Dam. Once at the Slaterville Diversion Dam, stored Project water can be delivered to the Layton/Hooper Canals or delivered downstream on the Weber River.

The Canal has a capacity of 1,050 cubic-feet per second for gravity flow from the Slaterville Diversion Dam to the Plain City Canal turnout, and 950 cubic-feet per second from the turnout to the Willard Bay Reservoir. In the reverse direction, the capacity for pumped flows is 500 cubic-feet per second from the reservoir to the turnout and 300 cubic-feet per second from the turnout to Slaterville Diversion Dam.

3.3.1.1 No Action Alternative

The No Action Alternative would have no effect on water resources, system operations will remain unchanged

3.3.1.2 Proposed Action Alternative

The Proposed Action Alternative would result in the conservation of water currently lost to seepage.

3.3.2 Water Rights

There would be no changes to water rights or operations due to the proposed action; therefore water resources would not be affected. There will be less seepage from the Canal and the groundwater level immediately surrounding the Canal may lower slightly. Reclamation anticipate this lowering will be small due to the generally high groundwater levels in the Willard area caused by the relatively flat terrain and the close proximate of the Great Salt Lake.

Consequently there should be limited impact to well water rights surrounding the area. If there are drains that have historically benefited from canal seepage and waste, they would not entitled to the continued benefit of waste water if the Canal is lined. Under Utah Water Law, waste water rights cannot require an upstream uses to continue inefficient water use or conveyance practices to provide them water.

3.3.2.1 No Action Alternative

The No Action Alternative would have no effect on current seepage and groundwater levels.

3.3.2.2 Proposed Action Alternative

There would be no changes to water rights or operations due to the proposed action; seepage that currently recharges groundwater will be eliminated, causing a possible change to groundwater levels. Reclamation anticipates this lowering will be small due to the generally high groundwater levels in the Willard area caused by the relatively flat terrain and the close proximate of the Great Salt Lake.

3.3.3 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 as well as isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historic significance.

Section 106 of the National Historic Preservation Act of 1966 (NHPA), mandates that Reclamation take into account the potential effects of a proposed Federal undertaking on historic properties. Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NRHP). Potential effects of the described alternatives on historic properties are the primary focus of this analysis.

The affected environment for cultural resources is identified as the area of potential effects (APE), in compliance with the regulations to Section 106 of the NHPA (36 CFR 800.16). The APE is defined as the geographic area within which federal actions may directly or indirectly cause alterations in the character or use of historic properties. The APE for this proposed action is approximately 84 acres that could be physically affected by the proposed action.

Consultation with the Utah State Historic Preservation Society is currently underway.

3.3.3.1 No Action Alternative

The No Action Alternative would have no effect on cultural resources, as no adverse impacts will occur to the canal.

3.3.3.2 Proposed Action Alternative

Under the Proposed Action Alternative there would be an Adverse Effect to the Canal which is eligible for listing in the NRHP. A Programmatic Agreement with the Utah State Historic Preservation Office (SHPO) has been drafted and signed to address and mitigate the impacts identified in the Final EA.

3.4 Indian Trust Assets

Indian Trust Assets are legal interests in property held in trust by the United States for federally recognized Indian Tribes or Indian individuals. Assets can be real property, physical assets, or intangible property rights, such as lands, minerals, hunting and fishing rights, and water rights. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to such tribes or individuals by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires that all Federal agencies take all actions reasonably necessary to protect trust assets. Reclamation carries out its activities in a manner

which protects these assets and avoids adverse impacts when possible. When impacts cannot be avoided, Reclamation would provide appropriate mitigation or compensation. Implementation of the Proposed Action Alternative would have no foreseeable negative impacts on Indian Trust Assets.

3.5 Environmental Justice

Executive Order 12898, established Environmental Justice as a Federal agency priority to ensure that minority and low-income groups are not disproportionately affected by Federal actions. Implementation of the Proposed Action would not disproportionately (unequally) affect any low-income or minority communities within the project area. The reason for this is that the proposed project would not involve major facility construction, population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. This action would therefore have no adverse human health or environmental effects on minority and low-income populations.

3.6 Climate Change

The potential impacts of climate change in Reclamations Upper Colorado (UC) Region include decreased snowpack, higher temperatures, longer growing seasons, earlier spring runoff, more frequent and severe droughts, and greater variability. Researchers agree that climate change would likely reduce streamflow in much of the UC Region; however, the magnitude of these impacts varies with location. This project would reduce projected impacts from climate change by conserving water.

3.7 Cumulative Effects

In addition to project-specific impacts, Reclamation analyzed the potential for significant cumulative impacts to resources affected by the project and by other past, present, and reasonably foreseeable activities within the watershed. According to the CEQ's regulations for implementing NEPA (50 CFR §1508.7), a "cumulative impact" is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. It focuses on whether the Proposed Action, considered together with any known or reasonably foreseeable actions by Reclamation, other Federal or state agencies, or some other entity combined to cause an effect.

The District has completed three phases of this water conservation project totaling 1.56 miles of the 10.2 miles of canal. Currently, they are proposing to complete

and additional 2054 LF in Phase 4. Additional canal lining projects would likely take place in phases over the next 20 years. The canal lining projects and associated water conveyance system improvements will continue to reduce seepage and improve efficiency in the delivery of water. Project operations would not be altered due to the Proposed Action and therefore would not contribute to any long-term effects on environmental resources. The Proposed Action would not result in cumulative impacts to any of the resources described within this EA.

3.8 Summary of Environmental Effects

Table 3 summarizes environmental effects under the No Action Alternative and the Proposed Action Alternative.

**Table 3
Summary of Environmental Effects**

Project Resource	No Action Alternative	Proposed Action Alternative
Water Resources	No Effect	No Effect
Water Rights	No Effect	No Effect
Geology and Soils	No Effect	No Effect
Prime and Unique Farmlands	No Effect	No Effect
Wild and Scenic Rivers	No Effect	No Effect
Cultural Resources	No Effect	Adverse Effect
Paleontological Resources	No Effect	No Effect
Indian Trust Assets	No Effect	No Effect
Wildlife Resources	No Effect	No Effect
Threatened and Endangered Species, Sensitive Species	No Effect	No effect
Wetland, Riparian and Vegetation	No Effect	No Effect
Recreation	No Effect	No Effect
Visual Resources	No Effect	No Effect
Socioeconomics	No Effect	No Effect
Health, Safety, Air Quality and Noise	No Effect	No Effect
Public Safety, Access and Transportation	No Effect	No Effect

Chapter 4 Environmental Commitments

Environmental Commitments, along with Mitigation Measures in Section 2.6 have been developed to lessen the potential adverse effects of the Proposed Action.

4.1 Environmental Commitments

The following environmental commitments will be implemented as an integral part of the Proposed Action.

1. **Standard Reclamation Best Management Practices (BMP) -** Standard Reclamation BMPs will be applied during construction activities to minimize environmental effects and will be implemented by construction forces, or included in construction specifications. Such practices or specifications include sections in the present EA on public safety, air pollution, noise abatement, archaeological and historical resources, wildlife and threatened and endangered species. Excavated material and construction debris may not be wasted in flowing waters. This includes material such as grease, oil, joint coating, or any other possible pollutant. Excess materials must be wasted at an approved upland site well away from any channel. Construction materials, bedding material, excavation material, etc. may not be stockpiled outside of the canal and ROW. Machinery must be fueled and properly cleaned of dirt, weeds, organisms, or any other possibly contaminating substances offsite prior to construction.
2. **Additional Analyses -** If the Proposed Action were to change significantly from that described in this EA because of additional or new information, or if other spoil, or work areas beyond those outlined in this analysis are required outside the defined Project construction area, additional environmental analyses may be necessary.
3. **Cultural Resources -** In the case that any cultural resources, either on the surface or subsurface, are discovered during construction, Reclamation's Provo Area Office archeologist shall be notified and construction in the area of the inadvertent discovery will cease until an assessment of the resource and recommendations for further work can be made by a professional archeologist.

Any person who knows or has reason to know that he/she has inadvertently discovered possible human remains on Federal land, he/she must provide immediate telephone notification of the discovery to Reclamation's Provo Area Office archaeologist. Work will stop until the proper authorities are able to assess the situation onsite. This action will promptly be followed by written confirmation to the responsible Federal agency official, with respect to Federal lands. The Utah SHPO and interested Native American Tribal representatives will be promptly notified. Consultation will begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10); and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470).

4. **Paleontological Resources** - Should vertebrate fossils be encountered by the proponent during ground disturbing actions, construction must be suspended until a qualified paleontologist can be contacted to assess the find.
5. **Wildlife Resources**

Migratory Bird Protection

- a. Perform any ground-disturbing activities or vegetation treatments before migratory birds begin nesting or after all young have fledged.
- b. If activities must be scheduled to start during the migratory bird breeding season, take appropriate steps to prevent migratory birds from establishing nests in the potential impact area. These steps could include covering equipment and structures and use of various excluders (e.g., noise). Prior to nesting, birds can be harassed to prevent them from nesting on the site.
- c. If activities must be scheduled during the migratory bird breeding season, a site-specific survey for nesting birds should be performed starting at least 2 weeks prior to groundbreaking activities or vegetation treatments. Established nests with eggs or young cannot be moved, and the birds cannot be harassed (see b., above), until all young have fledged and are capable of leaving the nest site.
- c. If nesting birds are found during the survey, appropriate spatial buffers should be established around nests. Vegetation treatments or ground-disturbing activities within the buffer areas should be postponed until the birds have left the nest. Confirmation that all young have fledged should be made by a qualified biologist.

Raptor Protection

Raptor protection measures will be implemented to provide full compliance with environmental laws. Raptor surveys will be developed using the *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (Romin and Muck 2002), to ensure that the proposed project will avoid adverse impacts to raptors, including bald and golden eagles. Locations of existing raptor nests and eagle roosting areas will be identified prior to the initiation of project activities. Appropriate spatial buffer zones of inactivity will be established during breeding, nesting, and roosting periods. Arrival at nesting sites can occur as early as December for certain raptor species. Nesting and fledging can continue through August. Wintering bald eagles may roost from November through March.

6. **Previously Disturbed Areas** - Construction activities will be confined to previously disturbed areas within the ROW for such activities as work, staging, and storage, waste areas and vehicle and equipment parking areas.
7. **Public Access** - Construction sites are located entirely on private property and are to be closed to public access. The District will coordinate with landowners or those holding special permits and other authorized parties regarding access to or through the project area.

Chapter 5 Consultation and Coordination

5.1 Introduction

This chapter details other consultation and coordination between Reclamation and other Federal, state, and local Government Agencies, Native American Tribes, and the public during the preparation of this EA. Compliance with NEPA is a Federal responsibility that involves the participation of all of these entities in the planning process. The NEPA requires full disclosure about major actions taken by Federal agencies and accompanying alternatives, impacts, and potential mitigation of impacts.

5.2 Public Involvement

The Proposed Action was presented to the public and cooperating agencies through dissemination of this document. A letter was sent out to landowners, multiple municipalities, state and Federal agencies, and other interested stakeholders. The letter invited the recipients to review and comment on any concerns they have with the EA. They sent in those comments to Reclamation. The only substantive comments received were a list of items to consider by Marriott-Slaterville City. Those comments will be sent over to WBWCD for all future work on Willard Canal.

5.3 Native American Consultation

Consultation with Native American Tribes was initiated during the Draft EA comment period. No comments were received.

5.4 Utah Geological Survey

Reclamation requested a paleontological file search from the Utah Geological Survey (UGS) to determine the nature and extent of paleontological resources within the APE. File search results and recommendations from the UGS were received in a letter dated December 14, 2015.

5.5 Utah State Historic Preservation Office

A copy of the Class III Cultural Resource Inventory Report and a determination of historic properties affected for the Proposed Action Alternative was submitted to the Utah SHPO. Through the consultation process SHPO concurred with our findings of adverse effects. As a result, the parties associated with the project came to a consensus and signed a Programmatic Agreement (PA) to deal with adverse effects. The pre-construction surveys and subsequent mitigation measures already outlined in the PA will be followed by WBWCD and their contractors.

Chapter 6 Preparers

The following is a list of preparers who participated in the development of the EA. They include environmental summary preparers, Reclamation team members, and Federal, State and District members.

Environmental Summary Preparers

Ms. Wendy Simmons Johnson	Archeologist	Sagebrush Consultants
---------------------------	--------------	-----------------------

Reclamation Team Members

Ms. Linda Morrey	Secretary	Bureau of Reclamation
Mr. Rick Baxter	Project Oversight	Bureau of Reclamation
Mr. Peter Crookston	Environmental Protection Specialist	Bureau of Reclamation
Mr. Jeff Hearty	Economist	Bureau of Reclamation
Dr. Calvin Jennings	Archaeologist	Bureau of Reclamation
Ms. Beth Reinhart	Project Lead	Bureau of Reclamation
Mr. Justin Record	Water Rights	Bureau of Reclamation

Federal, State or District Members

Mr. Troy Stout	Engineer	Weber Basin Water Conservancy District
----------------	----------	--

Chapter 7 Acronyms and Abbreviations

AF	Acre feet
APE	Area of Potential Effect
BMP's	Best Management Practices
Canal	Willard Canal
CEQ	Council on Environmental Quality
EA	Environmental Assessment
EIS	Environmental Statement
FONSI	Finding of No Significant Impact
Interior	Department of Interior
LF	Linear Feet
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
Project	Weber Basin Project
Reclamation	U.S. Bureau of Reclamation
ROW	Right-of-Way
SHPO	Utah State Historic Preservation Office
SOP's	Standard Operating Procedures
UC	Upper Colorado
UGS	Utah Geological Service
District	Weber Basin Water Conservancy District

Chapter 8 References

The Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002)

Utah DEQ Interactive Map <http://enviro.deq.utah.gov/>

Weber County https://en.wikipedia.org/wiki/Weber_County,_Utah

Weber Basin Water Conservancy District, 2011 <http://www.weberbasin.com/>