



— BUREAU OF —
RECLAMATION

Ashley Upper and Highline Canals Salinity Control Project, Final Environmental Assessment and Finding of No Significant Impact

PRO-EA-16-023

Uintah County, Utah

**Colorado River Basin Salinity Control Program
Provo Area Office, Upper Colorado Region**



Mission Statements

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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.

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

FINDING OF NO SIGNIFICANT IMPACT

Ashley Upper and Highline Canals Salinity Control
Project

Uintah County, Utah

PRO-EA-16-023

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I. Introduction

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA), the Bureau of Reclamation, Provo Area Office has conducted an Environmental Assessment (EA; attached) to determine the potential effects to the human and natural environment of funding a water transmission pipeline project (Proposed Action) in Ashley Valley within and adjacent to Vernal City, Utah, proposed by the Ashley Upper Irrigation Company and the Highline Canal Company (Applicants). The Proposed Action would install:

- 25.48 miles of underground pressurized pipeline to replace two open unlined canals (Ashley Upper and Highline),
- 1.08 miles of underground piped interconnection between the pipelines at two locations, and,
- associated appurtenances.

If approved, the Proposed Action would reduce salinity loading in the Colorado River Basin by 2,713 tons annually, while improving water delivery efficiency for the Applicants customers. The Applicants were awarded a grant in 2016 based on their application for co-funding through Reclamation's Salinity Control Program.

The EA was prepared by Reclamation to address the impacts associated with the Proposed Action, which is needed to reduce salinity contributions from the existing canal system and minimize water loss through canal conveyance from Ashley Creek to agriculture-related irrigation systems. The Proposed Action would achieve these needs by increasing the efficiency of the existing systems by reducing water losses associated with seepage, evaporation, canal operations, and reducing maintenance along the canals, salinity contributions resulting from the existing Ashley Upper and Highline Canals, and, mitigating impacts to wildlife habitat by establishing and implementing a habitat replacement plan.

A public meeting was held on August 19, 2020 via the internet to discuss the Draft EA. Two individuals attended the meeting. A 30-day comment period began August 10, 2020 and ended September 9, 2020. Reclamation received no public comments on the Draft EA.

II. Alternatives Analysis

The EA analyzed the direct, indirect, and cumulative effects of the No Action and Proposed Action alternatives on 14 different resources.

No Action

Under the No Action Alternative, Reclamation would not authorize federal funding. This would require the Applicants to continue to experience reduced water delivery efficiency by conveying water through the existing canals when compared to similar contemporary delivery systems.

Proposed Action

Under the proposed action, Reclamation will authorize the use of Federal funds to install approximately 25.58 miles of pipe to replace the unlined, open Ashley Upper and Highline Canals with high-density polyethylene pipe. Several pipe diameter sizes will be used up to 48-inches.

Overall, canals will not be backfilled as they will be used for stormwater management, but the canals connection will be severed by backfilling a short canal segment immediately downstream of the Ashley Creek diversion structure. Construction start is scheduled for fall 2020 with substantial completion by spring 2020.

Environmental commitments that are integral to the Proposed Action are found in Chapter 4 of the EA:

III. Finding of No Significant Impact

Based on a review of the Final EA and its supporting documents, implementation of the Proposed Action will not significantly affect the quality of the human or natural environment, individually or cumulatively with other actions in the area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Consequently, an Environmental Impact Statement is not required for this Proposed Action.

IV. Decision

The Proposed Action meets the purpose and need of the Project, to increase the existing system's efficiency by reducing water loss due to seepage, evaporation, and operational losses, while also reducing maintenance and salinity contributions to the Colorado River Basin resulting from the two existing unlined canals. The No Action alternative does not meet the purpose or need for the Project.

It is Reclamation's decision, therefore, to implement the Proposed Action as described in the attached EA.

Final Environmental Assessment: Ashley Upper and Highline Canals Salinity Control Project

PRO-EA-16-023

**Colorado River Basin Salinity Control Program
Provo Area Office, Upper Colorado Region**

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Attachment B	Soil Maps and Data Summary
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Attachment E	Habitat Replacement Plan
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Attachment G	Biological Assessment
Attachment H	FWS Biological Opinion
Attachment I	UGS Paleontologist Letter
Attachment J	Utah State Historic Preservation Office Concurrence Letter

Chapter 1 - Purpose and Need

1.1 Introduction

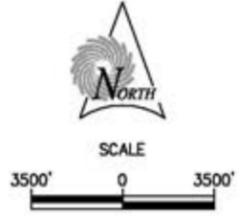
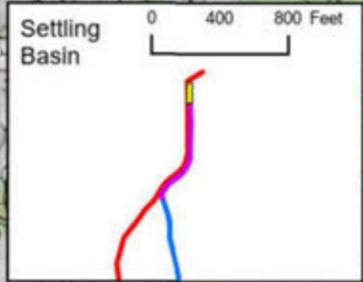
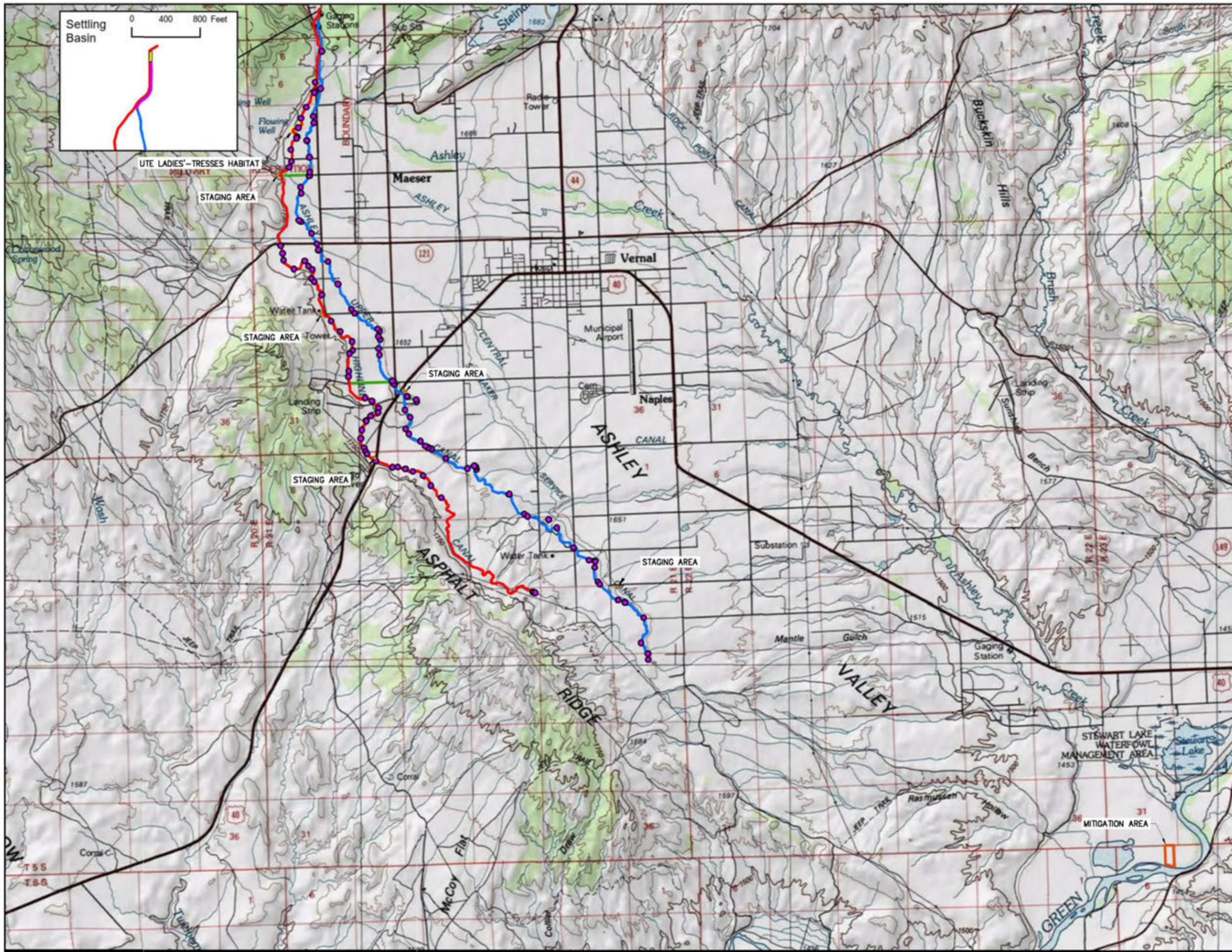
This Final Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) to evaluate the potential environmental impacts of the Ashley Upper and Highline Canals Salinity Control Project (Project or Proposed Action) proposed by the Ashley Upper Irrigation Company and the Highline Canal Company (Applicants). The Applicants have proposed to install approximately 25.48 miles of underground pressurized pipeline to replace two open unlined canals (Ashley Upper and Highline), 1.08 miles of underground piped interconnection between the pipelines at two locations, and associated appurtenances. The pipelines and associated appurtenances would primarily be installed within the easements for the existing canal alignments, while the interconnections would be installed within existing county road right-of-way (ROW) along 1500 North Street and 1500 South Street, respectively. The project is located west of Vernal, Utah and intersects U.S. Highway 40 and State Highway 121. The project location and proposed improvements are shown in Figure 1.1-1.

The U.S. Department of the Interior Bureau of Reclamation is authorized by the Colorado River Basin Salinity Control Act to provide funding assistance for the Proposed Action. As the primary funding agency, Reclamation is the lead federal agency for the NEPA evaluation of the Proposed Action. The operation and maintenance of the constructed project would be funded through annual water-user assessments.

In accordance with the NEPA Council on Environmental Quality (CEQ) Section 1502.13, all federal agencies should consider impacts of proposed actions on the environment and specify the underlying purpose and need to which the agency is responding to proposed actions and alternatives.

The EA assists Reclamation in project planning and ensuring compliance with NEPA, and in making determination as to whether any “significant” impacts could result from the Proposed Action. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impact” (FONSI).

Figure 1.1-1 Project Location with Proposed Improvements



- LEGEND**
- Head Gate
 - Highline Canal Pipeline
 - Ashley Upper Canal Pipeline
 - Double Pipeline
 - Interconnections
 - Ute Ladies'-Tresses Habitat
 - Staging Areas
 - Mitigation Areas



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ASHLEY UPPER IRR. & HIGHLINE CANAL COMPANIES
HIGHLINE/ASHLEY UPP. CNL SALINITY CNTRL PROJECT
ENVIRONMENTAL ASSESSMENT
PROJECT LOCATION WITH PROPOSED IMPROVEMENTS

SD NO. S06035	DESIGNED DQY	DRAWN DQY	CHECKED BSA	SHEET NO. 01 of 03	FIG. 1.1-1
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1.2 Background

1.2.1 Colorado River Basin Salinity Control Program

The Colorado River provides water for approximately 30 million people in the United States and the Republic of Mexico. Water from the Colorado River is currently used to irrigate approximately 2.3 million acres of land in the United States and 500,000 acres of land in Mexico (Reclamation 2019). The threat of salinity loading in the Colorado River basin is a major concern in both the United States and Mexico (Reclamation 2017a). Salinity affects water quality, which in turn affects downstream users by threatening the productivity of crops, degrading wildlife habitat, and corroding residential and municipal water distribution infrastructure. From 2005 to 2015, an average of 7.5 million tons of salt flowed into the Colorado River annually, and by the year 2035, it is estimated that 1.68 million tons of salt per year will need to be diverted from the system in order to meet water quality standards in the basin (Reclamation 2017a). Irrigated agriculture contributes approximately 37 percent of the salinity in the system (Reclamation 2017a). Irrigation increases salinity in the system by both depleting in-stream flows, and mobilizing salts found in underlying geologic formations, especially during flood irrigation practices.

The Colorado River Basin Salinity Control Act (Public Law 93-320) was enacted in 1974 and authorizes the strategies of the Departments of Agriculture and the Interior to implement measures that enhance and improve the water quality of the Colorado River System for use in the United States and Mexico. Public Law 104-20 of 1995 authorizes the Secretary of the Interior, acting through 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 (MOA), commitments for grants, cooperative agreements, or advances of funds to non-federal entities under such terms and conditions as the Secretary may require. Public Law 110-246 of 2008 amended the Salinity Control Act, establishing the Basin States Program, and authorizing Reclamation to take advantage of new, cost-effective opportunities to control salinity anywhere in the basin.

Both the Basinwide Salinity Control Program and the Basin States Program fund salinity control projects with a one-time grant that is limited to an applicant's competitive bid. Once constructed, the facilities are owned, operated, maintained, and replaced by the applicant at their own expense.

1.2.2 Highland Canal

The Highline Canal is maintained and operated by the Highline Canal Company. The construction of the Highline Canal began in 1913 after the Highline Canal Company purchased the Ashley Water Company. The initial construction of the canal's roughly 10-mile course was completed 3 years later in 1916 and supplied water to farms located along the Asphalt Ridge until reaching Highway 40 (Burton 1996). In 1933, the Civil Conservation Corps (CCC) located in Vernal, Utah worked on and constructed the canal's current 20-mile alignment. The canal has been historically utilized as a means to transmit irrigation water from Merkle Park at the confluence of Dry Fork and Ashley Creek, southward through the foothills of Ashley Valley until terminating at the Green River, roughly 10 miles south of the City of Vernal, Utah (Burton 1996). The original diversion on Ashley Creek was constructed sometime during the 1930s and is still in use today. The canal is generally an earthen ditch with intermittent cement lining and varies in both width and depth along its 20-mile course (Burton 1996). Lateral irrigation ditches are used to irrigate fields and pastures to the east of

the canal. During normal water years, the canal receives irrigation water from May through August. However, water delivery can occur as early as April and as late as October during high water years, or intermittently during low water years. According to records at the Utah Division of Water Rights (UDWR) from 1962 to 2013, the canal conveyed an average of 5,317 acre-feet of water annually.

1.2.3 Ashley Upper Canal

The Ashley Upper Canal is maintained and operated by the Ashley Upper Irrigation Company. The major irrigation system is about 12 miles long and was constructed in 1879. It is a central channel system feeding a number of laterals that distribute water to individual fields. Over the years, original wooden diversions have been replaced by more durable steel and concrete diversions. The canal irrigates an estimated 8,000 acres of land (Burton 1996). The unlined canal is approximately 5 to 6-foot-wide and 3 to 5-foot-deep, but also larger in some places. Water is diverted to the canal at a point along the Highline Canal approximately 800 feet downstream of the diversion structure on Ashley Creek. During normal water years, the Ashley Upper Canal receives irrigation water from May through October. Water delivery can occur as early as March and as late as October during high water years, or intermittently during low water years. According to records at UDWR, the canal conveyed an average of 20,032 acre-feet of water annually from 1962 to 2013.

1.3 Purpose and Need

The purpose of the Proposed Action is to comply with the Salinity Control Act (Public Law 93-320) of 1974, as amended, which provides that the Basinwide Salinity Control Program and the Basin States Program shall fund projects anywhere in the Colorado River Basin that contribute to salinity control. The Proposed Action qualifies for this funding in part because it would reduce salinity contributions to the Colorado River Basin by 2,713 tons annually (Attachment A).

The Proposed Action is needed to (1) reduce salinity contributions from the existing Ashley Upper and Highline Canals and (2) reduce system water losses.

The objectives of the Proposed Action are to:

1. increase the efficiency of the existing systems by reducing water losses associated with seepage, evaporation, and operation of the canals,
2. reduce maintenance along the canals,
3. reduce salinity contributions resulting from the existing Ashley Upper and Highline Canals, and
4. mitigate impacts to wildlife by establishing and implement a habitat replacement plan.

1.4 Public Scoping and Involvement

The public involvement process for this EA presented members of the public, including other agencies, interest groups, and key stakeholders, with opportunities to obtain information about the Proposed Action and opportunities to participate in the project through written comments. Reclamation's objectives during the public involvement process were to create and maintain a well-informed public and receive input on the project.

Coordination with interested agencies was performed throughout the EA process. Section 5, Consultation and Coordination, describes in detail the public involvement and coordination completed during the development of this EA.

1.5 Authorizing Actions, Permits, and Licenses

Implementation of the Proposed Action may require a number of authorizations or permits from federal and state agencies. The Applicants would be responsible for obtaining all permits, licenses and authorizations required for the Proposed Action. Potential authorizations or permits may include those listed in Table 1.5-1.

Table 1.5-1 - Potential Permits and Authorizations

Agency/Department	Purpose
Utah Division of Water Quality	Utah Pollutant Discharge Elimination System (UPDES) Permit for projects that disturb more than one acre of land.
State of Utah Department of Natural Resources, Division of Water Rights (UDWR)	Stream Alteration Permit under Section 404 of the Clean Water Act (CWA) and Utah statutory criteria of stream alteration described in the Utah Code.
Utah State Historic Preservation Office (SHPO)	Consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA), 16 USC 470.
U. S. Fish and Wildlife Service (FWS)	Consultation pursuant to Section 7 of the Endangered Species Act.
Uintah County, Utah	Floodplain Development Permit
Uintah County, Utah	Easement Agreements

1.6 Relationship to Other Projects

Once the pipelines are installed, sections of the two canals would continue to be utilized for storm water control by Uintah County in cooperation with the Uintah Water Conservancy District. The negotiation between the Applicants and Uintah County for an agreement regarding the future use of the canals for storm water management has not been completed to date. The agreement would require periodic maintenance of the canals to maintain the capacity for stormwater conveyance.

1.7 Scope of Analysis

The purpose of this EA is to determine whether Reclamation should authorize, provide funding, and enter into an agreement with the Applicants for the piping of the Ashley Upper and Highline Canals, consistent with Reclamation’s Salinity Control Program. That determination includes consideration of whether there would be significant impacts to the human and natural environment.

In order to pipe the Ashley Upper and Highline Canals, this EA must be completed and a FONSI issued.

Chapter 2 – Alternatives

2.1 Introduction

This chapter focuses on the Proposed Action and a No Action alternative. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action.

2.2 No Action Alternative

The Code of Federal Regulations (CFR), at 40 CFR 1502.14, directs agencies to consider a “No Action” alternative in EISs, but does not provide similar direction for EA level analysis. Analysis of a No Action alternative establishes “*a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternative*” (40 CFR 1502.14). Therefore, the EA-level evaluation includes a study of a No Action alternative to serve as a baseline for evaluating effects related to the Proposed Action.

Under the No Action alternative, Reclamation would not authorize funding to the Applicants to pipe the Ashley Upper and Highline Canals or construct the associated appurtenances. The two canals would continue to operate under the existing conditions. The open unlined canals would continue to deliver irrigation water with no improvements to reduce seepage or evaporation. Seepage from the canals would continue to dissolve salts contained in the soils, leaching salts into the groundwater. The groundwater would then continue to transport salts as it returns to local waterways and eventually the Upper Colorado River, leading to an increase in the salt loading of the Upper Colorado River Basin. Currently, seepage from the two open canals contributes an estimated 2,713 tons of salt annually to the Upper Colorado River Basin (Attachment A).

2.3 Proposed Action (Preferred)

2.3.1 Project Components

The Proposed Action, as depicted in Figure 1.1-1, would include the following:

- The Ashley Upper and Highline Canals would be piped primarily along the existing canal easements to reduce water loss from seepage and evaporation. The pipelines would be up to 48 inches in diameter and would be approximately 25.48 miles in length (12.99 miles of the Ashley Upper Canal and 12.49 miles of the Highline Canal). Additional pipeline construction easements would be acquired for four sections that would be outside the existing canal easements. Each section is no more than several hundred feet long.
- Two piped interconnections would be installed to transmit water between the two piped canals. One interconnection would be installed within the ROW of 1500 South Street while the other would follow the ROW of 1500 North Street. Each interconnection would be approximately 0.54 miles long with a diameter of 18 to 24 inches. The purpose of the interconnections would be to better equalize demand on the flow in the canals. For

example, if one canal is short of water to meet irrigations demands while the other has surplus water, the surplus water can be transferred through an interconnection to balance the overall water needs.

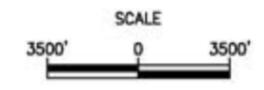
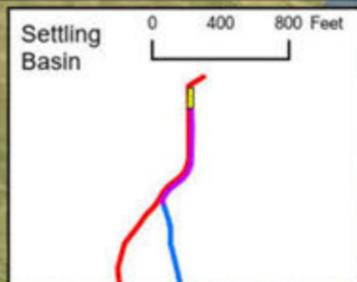
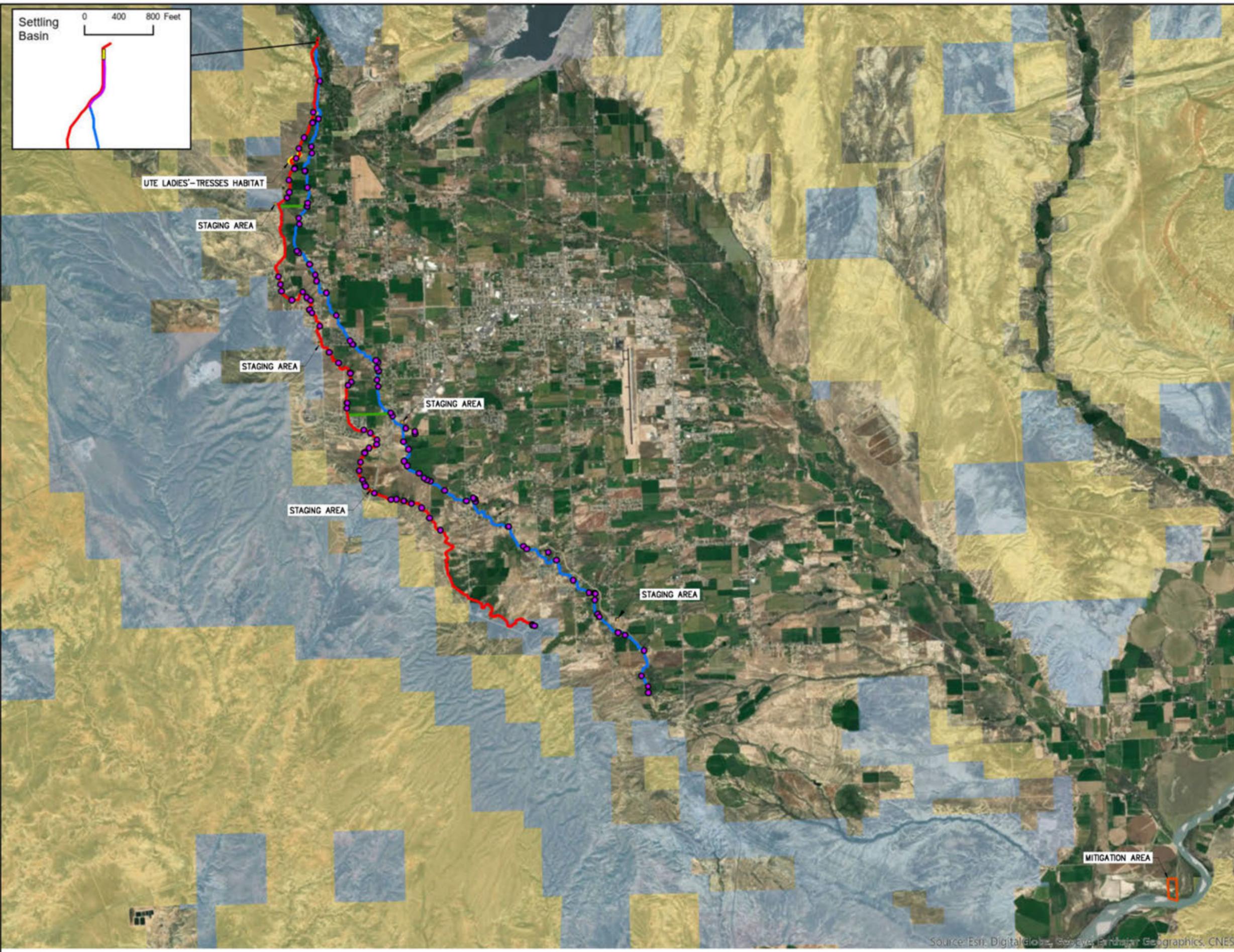
- For each canal, a trench would be excavated primarily within the existing canal easement for the installation of a pipeline. Excavation activities would be performed using appropriately sized construction equipment to minimize disturbance to the surrounding area. All excavated material would be stockpiled to the side of the trench within the construction easement and used as backfill around the pipeline. This installation method would also be used to install the two piped interconnections.
- The existing diversion structure would be utilized and a proposed settling basin with a trash screen would be installed to prevent debris from entering the pipeline near the diversion point of the existing Highline Canal. The location of the new settling basin would be in the SW¼ sec. 32, T. 4 S., R. 21 E., of the Salt Lake Base and Meridian, as shown in Figure 1.1-1. From the location of the new settling basin, each of the canals would be piped in 48-inch or smaller diameter pipelines. Piping for both canals would begin from the proposed settling basin.
- After the pipelines are installed, portions of the existing canals would remain as stormwater control facilities in accordance with an agreement that is under negotiation between Uintah County and the Applicants. The canals would continue to collect and convey stormwater runoff as they have normally done during storm events.
- One hundred forty lateral stubs (58 along Highline Canal and 82 along Ashley Upper Canal) would be constructed to deliver water to existing head gates within the proposed pipeline construction corridors. The head gates are existing structures that have historically been used by farmers to obtain irrigation water from the canal system. The head gates would continue to be used by farmers to obtain water from the proposed pipelines and are not part of the Proposed Action.
- Five construction staging areas would be utilized, each approximately 1 acre in size. Staging areas would be used to stockpile piping and other construction materials, to house equipment, and to park vehicles during construction.
- To mitigate project impacts on wildlife habitat that would be eliminated as a result of the project, a 40-acre area would be used as a Wildlife Habitat Replacement Site (WHRS).

2.3.2 Project Location and Surface Disturbance

As shown in Figure 2.3-1, the project would involve state lands administered by the Utah State School and Institutional Trust Lands Administration (SITLA) and private lands.

The project would involve portions of secs. 31 and 32, T. 3 S., R. 21 E.; secs. 5, 6, 7, 18, 19, 20, 29, 32 and 33, T. 4 S., R. 21 E.; secs. 3, 4, 5, 9, 10, 11, 12, 13, 14, 15 and 24, T. 5 S., R. 21 E.; and sec. 6 T. 6 S., R. 23 E., of the Salt Lake Base and Meridian (Figure 1.1-1).

Figure 2.3-1 Land Ownership Map



LEGEND

- Head Gate
 - Highline Canal Pipeline
 - Ashley Upper Canal Pipeline
 - Double Pipeline
 - Interconnections
 - Ute Ladies'-Tresses Habitat
 - Staging Areas
 - Mitigation Areas
- Land Ownership**
- BLM
 - State
 - Private

AREA MAP



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ASHLEY UPPER IRR. & HIGHLINE CANAL COMPANIES
HIGHLINE/ASHLEY UPP. CNL SALINITY CNTRL PROJECT
ENVIRONMENTAL ASSESSMENT
LAND OWNERSHIP MAP

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	DQY	DQY	DSA	02 of 03	

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES

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As shown in Table 2.3-1, the Proposed Action would result in approximately 174.3 acres of temporary surface disturbance, of which 6.5 acres would be on SITLA land and 167.8 acres on other private lands. The Proposed Action would result in 0.5 acres of permanent disturbance which would occur at the settling basin location on private lands.

Table 2.3-1 - Proposed Surface Disturbance under the Proposed Action

Project Component	Land Status	ROW (miles)	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Pipelines ¹	SITLA	1.13	5.5	0.0
	Other Private	25.43	123.3	0.0
Staging Area ²	SITLA	--	1.0	0.0
	Other Private	--	4.0	0.0
Settling Basin ³	Other Private	--	0.5	0.5
Habitat Mitigation Area	Other Private	--	40.0	0.0
Subtotal	SITLA		6.5	0.0
	Other Private	--	167.8	0.5
TOTAL		26.56	174.3	0.5
¹ A 40-foot wide construction corridor would be disturbed for pipeline installation. Installation of laterals to head gates would occur within the 40-foot wide construction corridor.				
² Each staging area would be approximately 1 acre in size and five staging areas would be used.				
³ The settling basin would be 100 feet by 200 feet in size.				

2.3.3 Easement

The Highline Canal Company and the Ashley Upper Irrigation Company have a 70-foot-wide maintenance easement along the Highline Canal and Ashley Upper Canal, respectively. The average construction corridor for pipeline installation would be approximately 40 feet. The proposed pipeline installation would occur mainly within the existing 70-foot-wide maintenance easement along both canals. However, sections of the proposed pipeline alignments would be outside the existing 70-foot-wide canal maintenance easement to minimize the unavoidable environmental impacts to the maximum extent practicable. Easements would be acquired from the owners of the properties outside the canal maintenance easements prior to the start of installation work. Also, the two piped interconnections would be installed within the ROW of county roads. County approval would be obtained before installation work commences. Access to adjacent farmlands and agricultural areas would be maintained.

2.3.4 Construction Schedule

Construction would begin in Fall 2020 with completion by April 2022. This timeframe would include construction shutdown during winter months, January through March. Construction during winter months may continue at the contractor's discretion if the weather permits.

2.3.5 Staging Area and Access Road

As shown in Figure 1.1-1, five proposed staging areas would be located adjacent to the existing canals as well as existing roads. Therefore, no access road construction would be required. Each staging area would cover an area of approximately 1 acre in size. Trucks would haul equipment and construction materials to the staging areas for stockpiling. There would also be enough room for trucks to turn around within the staging areas without causing additional surface disturbance.

Once construction activities are complete, prompt soil stabilization would be performed. Additionally, the staging areas would be recontoured and revegetated as deemed necessary by landowners as per negotiated easement agreements. Any additional road improvements would not be required for site access during construction and operation of the Project. After construction is complete, road repairs may be required.

2.3.6 Sanitation

Portable toilets would be provided during construction activities. The toilets would be supplied and serviced by a local supplier and would be removed at the completion of the construction work. The portable toilets would be placed within the construction corridor near the work site. Other materials, including scraps, trash, and unusable equipment, would be removed regularly, and disposed of in accordance with federal, state, and local regulations.

2.3.7 Project Construction

As described in Section 2.3.4, above, the construction of the Project is anticipated to begin in Fall 2020 with completion by April 2022. The exact start date would depend on when the NEPA process is completed.

A conventional construction process of approximately 6 to 9 months is anticipated for the Proposed Action. A general contractor would complete the work. Standard operating procedures approved by Reclamation would be used to ensure compliance with all construction standards, and Best Management Practices (BMPs) would be employed (Section 2.5 and Section 4). Construction inspections would be conducted by representatives from Reclamation and the Applicants to ensure quality construction and environmental compliance.

Construction activities would entail using cranes, pickup trucks, flatbed trucks, dump trucks, cement trucks, excavators and bulldozers.

The following briefly discusses interrelated and sometimes concurrent construction activities:

- 1. Preconstruction Activities:** Preconstruction activities would include the following:
 - Completion of NEPA, National Historic Preservation Act (NHPA) and Endangered Species Act (ESA) consultation processes
 - Final design of the Project
 - Contractor selection
- 2. Construction Activities:** Construction activities would include the following:
 - Preconstruction coordination/meeting

- Mobilization
- Site preparation
- Settling basin construction
- Trenching and pipeline installation
- Revegetation
- Wildlife habitat mitigation
- Demobilization

A preconstruction meeting with representatives from Reclamation, the Applicants, and the contractor would be held to ensure compliance with all construction standards. This meeting is expected to occur summer 2020.

Following the preconstruction meeting, mobilization would begin. The contractor would first transport construction equipment and materials to the site, continuing throughout construction on an “as-needed” basis using the existing site access roads. Construction materials and equipment would be stored in the staging areas with care not to cause any storm water pollution issues. Access to adjacent farmlands and agricultural areas would be maintained during the construction phase.

Site preparation activities would follow construction equipment mobilization. All site preparation would be conducted using heavy equipment such as excavators, front-end loaders and bulldozers. BMPs (Section 2.5, below, and Section 4, Environmental Commitments) would be used to minimize soil erosion and prevent sediment discharge offsite.

Meanwhile, the construction of other project components would proceed, including the excavation of trenches, fusing of pipe segments (i.e., welding), trench backfilling and compaction, and restoration and reseeded of the disturbed areas. Excavation activities would be performed utilizing appropriately sized construction equipment to minimize disturbance to surrounding areas. All excavated material would be stockpiled to the side of the trenches within the construction easement and used as backfill around the new pipelines. BMPs (Section 2.5, Minimization Measures Incorporated into the Proposed Action and Section 4, Environmental Commitments) would also be utilized to minimize soil erosion and prevent sediment discharge offsite.

Once construction work is complete, equipment would be demobilized from the site. Some equipment may be demobilized earlier once it is no longer required onsite. Construction debris would be securely transported to a local landfill.

2.3.8 Operation and Maintenance

Operation of the two canals (pressurized pipelines) after the Proposed Action is implemented would remain essentially unchanged. However, more land may be irrigated since more water is available and required maintenance would be significantly reduced. Operation would occur primarily from April 15 to October 15. Sediment removal from the settling basin using an excavator and a haul truck would also occur on an as-needed basis during the non-irrigation season. The removed sediments would be hauled offsite to an approved disposal site. It is anticipated that less than 160 cubic yards of sediments would need to be removed from the settling basin annually.

2.4. Alternatives Considered and Eliminated from Further Study

As described in Section 2.4.1, below, one alternative was evaluated but eliminated from further study as it did not meet the purpose or need for the project.

2.4.1 Piping Only One Canal with Possible Additional Piped Laterals

Under this alternative, only one of the canals would be piped. Additionally, several piped laterals would be constructed to supply water from the piped canal to the un-piped canal. In the end, the fact that new laterals would need to serve all points of diversion would negate the savings of construction costs. This alternative was only evaluated in the feasibility stage and eliminated from further analysis.

2.5. Minimization Measures Incorporated into the Proposed Action

Minimization measures have been determined throughout the creation of this EA to lessen the potential adverse effects to sensitive resources. The minimization measures listed below, along with other measures listed under each resource in Section 3, Affected Environment, and Section 4, Environmental Commitments, have been incorporated into the Proposed Action. These minimization measures include, but are not limited to, the following:

- Staging areas would be located where they would minimize new disturbance of area soils and vegetation.
- Ground disturbance would be minimized to the extent practicable.
- Construction vehicles and equipment would be inspected and cleaned prior to entry into the project area to ensure that they are free of weed seeds.
- Newly disturbed sites would be monitored for impacts to native vegetation.
- Stockpiling of materials would be limited to those areas approved and cleared in advance.

Chapter 3 – Affected Environment

3.1 Introduction

This chapter describes the environment potentially affected by the Proposed Action and No Action alternatives, and the predicted impacts of the alternatives. These impacts are discussed under the following resource issues: Geology and soils resources

- Visual resources
- Cultural resources
- Paleontological resources
- Hydrology
- Water quality
- System operations
- Health, safety, air quality and noise
- Prime and unique farmlands
- Floodplains
- Wetlands, riparian, noxious weeds and existing vegetation
- Fish and wildlife resources
- Threatened, endangered and candidate species
- Recreation
- Socioeconomics
- Access and transportation
- Water rights
- Indian Trust Assets
- Environmental justice
- Cumulative effects

The present condition or characteristics of each resource is discussed first, followed by a discussion of the predicted impacts under the Proposed Action and No Action alternative. The environmental effects are summarized in Section 3.7, Summary of Environmental Effects.

Implementing the Environmental Commitments (Section 4) would ensure impacts are minimal and short-term. Section 3, Affected Environment, presents the impact analysis for resources after the Environmental Commitments and BMPs have been successfully implemented.

3.2 Resources Considered and Eliminated from Further Analysis

The following resources in Table 3.2-1 were considered but eliminated from further analysis as they do not occur in the project area or the potential effect to the resource is so minor that it was discounted.

Table 3.2-1 - Resources Eliminated from Analysis

Resource	Rationale for Elimination from Further Analysis
Health, Safety, Air Quality and Noise	Public health and safety would not be affected by implementing the Proposed Action or the No Action alternative as the canals would remain open as they historically have been. The State of Utah National Ambient Air Quality Standards Areas of Non-attainment and Maintenance shows Uintah County as an attainment area. It is unlikely that any potential emissions associated with the Proposed Action would cause or contribute to an exceedance of the State of Utah National Ambient Air Quality Standards, or cause or contribute to any localized air quality issues. Therefore, Air Quality will not be discussed further in this EA. No long-term effects due to the Proposed Action are anticipated related to air quality or noise.
Paleontological Resources	Consultation with the state Paleontologist indicates that there are no paleontological localities recorded in the project area.
Prime and Unique Farmlands	There may be Prime and Unique Farmland within the project area. However, there would be no conversion of farmland to non-agricultural use, as defined by the Farmland Protection Policy Act (USC 4201-4209), by implementing the Proposed Action or the No Action alternative.
Recreation Resources	There are no recreation resources within or directly adjacent to the project area.
Wilderness and Wild and Scenic Rivers	There are no designated Wilderness Areas or Wild and Scenic Rivers within or adjacent to the project area.
Water Rights	Existing water rights would not change under the Proposed Action.

3.3 Affected Environment and Environmental Consequences

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

3.3.1 Geology and Soils Resource

Natural Resources Conservation Service (NRCS) Soil Survey data (NRCS 2003a) were used to determine soil mapping units, soils series, and soil characteristics for the project area. Thirty-one soil types occur in the project area. Each soil series is rated as having low, moderate, or high water and wind erosion hazards. These ratings were developed using soil erodibility, runoff factors, and the wind erodibility index, as defined in the National Soil Survey Handbook (NRCS 2003b). Wind and water erosion hazards become critical issues when protective vegetation is removed during and

following construction activities. Typically, soils found on steeper slopes have a high water-erosion hazard, and soils found on gentler slopes have a low water-erosion hazard. Finer grained soils are at greater risk of wind erosion, while soils with more gravel and/or stones have a lower risk of wind erosion.

In addition, other factors may affect revegetation following surface disturbance. Revegetation-limiting factors within the 31 soil types that would be impacted by the Proposed Action consist of (1) soil droughtiness, (2) alkalinity, and (3) rooting depth. Droughty soils are characterized by coarse texture, excessively rapid percolation rates, and low organic matter content; as such, they are prone to soil erosion and have limited restoration potential. Alkaline soils (those with a high pH value) have a low water infiltration capacity and can also limit restoration and revegetation potential due to reduced nutrient availability. Rooting depth, or depth to bedrock, is the soil depth to fixed rock; shallow soils are often not conducive to vegetation establishment and are prone to erosion. Table 3.3-1 contains a summary of the acreage and characteristics of soil types within the project area.

Table 3.3-1 - Acres and Characteristics of Soil Types within the Project Area

Soil Type (Map Symbol)	Acres Overlapping Project Components	Percentage of Project Area	Revegetation Limiting Factors
Abracon loam, 1-3 percent slopes (1)	1.9	1.1 per cent	Moderately restrictive: alkalinity and wind erosion
Abracon loam, 3-8 percent slopes (2)	3.2	1.8 percent	Moderately restrictive: alkalinity and wind erosion
Blackston loam, 2-4 percent slopes (24)	2.5	1.4 percent	Moderately restrictive: alkalinity and wind erosion
Blackston loam, 4-8 percent slopes (25)	4.6	2.6 percent	Moderately restrictive: alkalinity and wind erosion
Clapper gravelly loam, 2-25 percent slopes (44)	7.8	4.4 percent	Moderately restrictive: alkalinity
Cliff sandy loam, 2-4 percent slopes (53)	6.5	3.7 percent	Moderately restrictive: alkalinity, wind erosion and droughtiness
Gerst parachannery loam, 4-25 percent slopes (74)	0.6	0.4 percent	Highly restrictive: water erosion and rooting depth Moderately restrictive: alkalinity, wind erosion
Gerst-Rock outcrop complex, 4-40 percent slopes (77)	2.7	1.6 percent	Highly restrictive: water erosion and rooting depth Moderately restrictive: alkalinity and wind erosion

Soil Type (Map Symbol)	Acres Overlapping Project Components	Percentage of Project Area	Revegetation Limiting Factors
Green River loam, 0-2 percent slopes, occasionally flooded (88)	40.0	23 percent	Moderately restrictive: alkalinity, wind erosion and droughtiness
Green River loam, 0-2 percent slopes, rarely flooded (89)	2.8	1.6 percent	Moderately restrictive: alkalinity and wind erosion
Greybull clay loam, 4-20 percent slopes (91)	3.8	2.2 percent	Highly restrictive: water erosion Moderately restrictive: alkalinity, wind erosion and rooting depth
Greybull loam, 4-8 percent slopes (93)	1.0	0.6 percent	Moderately restrictive: alkalinity, wind erosion and rooting depth
Hanksville silty clay loam, 25-50 percent slopes (97)	2.1	1.2 percent	Highly restrictive: water erosion Moderately restrictive: alkalinity and wind erosion
Honlu very cobby sandy loam, 8-15 percent slopes (109)	8.1	4.6 percent	Moderately restrictive: alkalinity and droughtiness
Lind loam, 2-4 percent slopes (132)	6.8	3.8 percent	Moderately restrictive: alkalinity
Mikim loam, 3-15 percent slopes (137)	9.0	5.1 percent	Highly restrictive: water erosion Moderately restrictive: alkalinity and wind erosion
Nolava-Nolava, wet complex, 2-4 percent slopes (163)	7.3	4.1 percent	Moderately restrictive: alkalinity and wind erosion
Nolava loam, 4-8 percent slopes (164)	6.8	3.9 percent	Moderately restrictive: alkalinity and wind erosion
Reepo-Rock outcrop complex (186)	2.4	1.4 percent	Highly restrictive: wind erosion Moderately restrictive: water erosion, alkalinity and droughtiness
Robido-Uvercomplex, 1-4 percent slopes (192)	2.5	1.4 percent	Moderately restrictive: wind erosion and alkalinity
Shotnick sandy loam, 2-4 percent slopes (206)	10.9	6.2 percent	Moderately restrictive: wind erosion and alkalinity
Shotnick sandy loam, 4-8 percent slopes (207)	2.0	1.1 percent	Moderately restrictive: wind erosion and alkalinity
Shotnick-Walkup complex, 0-2 percent slopes	2.4	1.4 percent	Moderately restrictive: wind erosion and alkalinity

Soil Type (Map Symbol)	Acres Overlapping Project Components	Percentage of Project Area	Revegetation Limiting Factors
(209)			
Solirec fine sandy loam, 3-8 percent slopes (212)	0.4	0.3 percent	Moderately restrictive: wind erosion and alkalinity
Spitzen sand, 1-4 percent slopes (215)	2.1	1.2 percent	Moderately restrictive: alkalinity and droughtiness
Tipperary loamy fine sand, 1-8 percent slopes (229)	2.5	1.4 percent	Moderately restrictive: alkalinity and droughtiness
Turzo clay loam, 4-8 percent slopes (240)	3.6	2.1 percent	Moderately restrictive: wind erosion and alkalinity
Turzo -Umbo complex, 0-2 percent slopes (243)	11.7	6.7 percent	Moderately restrictive: wind erosion and alkalinity
Turzo -Umbo complex, 2-4 percent slopes (244)	10.2	5.8 percent	Moderately restrictive: wind erosion and alkalinity
Umbo clay loam, 0-2 percent slopes (251)	1.8	1.0 percent	Moderately restrictive: wind erosion and alkalinity
Utaline very gravelly sandy loam, 2-8 percent slopes (254)	5.8	3.3 percent	Moderately restrictive: alkalinity and droughtiness
Total	175.9	100 percent	

In summary, all 31 soil types (100 percent of project area) have features that could limit project revegetation. Five soil types (10.4 percent of the project area) are highly restrictive for water erosion; one soil type (1.4 percent of the project area) is highly restrictive for wind erosion; and two soil types (1.9 percent of the project area) are highly restrictive for rooting depth. All soil types found in the project area are moderately restrictive for alkalinity; one soil type (1.4 percent of the project area) is moderately restrictive for water erosion; 25 soil types (83.7 percent of the project area) are moderately restrictive for wind erosion; seven soil types (37.7 percent of project area) are moderately restrictive for droughtiness; and two soil types (2.8 percent of project area) are moderately restrictive for rooting depth. Soil maps and data summary are provided in Attachment B.

3.3.1.1 No Action Alternative

Under the No Action alternative, there would be no adverse impact to soil erosion and sedimentation. Soil erosion from water and wind would continue in the area at the current rate with those areas exposed to high winds and located on slopes experiencing the most erosion.

3.3.1.2 Proposed Action

Construction activities could result in soil compaction, soil erosion (from wind and water) and loss of soil productivity (ability to support vegetation). Under the Proposed Action, there would be a total of approximately 175.9 acres of surface disturbance during construction. There would be an estimated 0.5 acres of long-term surface disturbance for the settling basin. Table 3.3-1 identifies the soil types in the project area and the acreage of the Proposed Project features that overlap each soil type. Project-related surface disturbance would result in direct adverse impacts to soils associated with removal of protective vegetation and biological soil crusts, excavation and mixing of soil horizons, alteration of soil chemistry (e.g., minerals, water content, organic matter, soil organisms, and nutrients), and soil compaction. These impacts could increase the susceptibility of soils to wind and water erosion, increase surface runoff and sedimentation, contribute to the establishment or spread of invasive species and noxious weeds, and decrease soil productivity and restoration potential.

As soon as feasible following construction, the Applicants would begin reseeded of surface disturbance in the pipeline easement and staging areas where necessary. Reseeding would include the reapplication of topsoil temporarily removed and stockpiled during construction operations. Impacts to soils within the pipeline easement would be considered short-term if revegetation objectives are achieved within 5 years of the initial disturbance. The revegetation objective for the Proposed Action is to establish a vegetation community comprised of desired and/or seeded species with basal vegetation cover of at least 75 percent of a similar undisturbed, adjacent, and native vegetation community within 2 years. If basal cover is less than 30 percent after 3 years, additional seeding and restoration efforts may be required.

The approximately 0.5-acre settling basin would remain disturbed for the life of the project, resulting in long-term direct impacts to soils. The 0.5 acres of long-term disturbance would not be revegetated until after the life of the project. Soil impacts associated with long-term soil disturbance would persist until the settling basin is decommissioned and final restoration objectives are achieved.

During proposed construction activities, there would be direct impacts to soils through surface disturbance and vegetation removal on approximately 175.9 acres. All the potentially disturbed soils contain one or more characteristics that may limit the success of restoration following disturbance.

As described early in this section, a variety of soils in the project area have characteristics that increase susceptibility to erosion or limit revegetation potential. The acres of surface disturbance (and percentage of total disturbance) at risk for restricted revegetation is summarized in Table 3.3-2.

Table 3.3-2 - Acres of Surface Disturbance at Risk of Restricted Restoration

Restriction	Highly/Moderately Restrictive Water Erosion	Highly/Moderately Restrictive Wind Erosion	Moderately Restrictive Droughtiness	Moderately Restrictive Alkalinity	Highly/Moderately Restrictive Rooting Depth
Acres	20.7	149.6	66.3	175.9	8.2
(Percentage)	11.8%	85.1%	37.7%	100.0%	4.7%

The Applicants’ ongoing soil stabilization effort would minimize the total acreage of the pipeline routes subject to wind or water erosion at any given time. The Applicants would also cover any stockpiled soil, if needed, to further minimize wind and water erosion. The Applicants would inspect erosion controls in the spring and fall and following significant storm events.

Soil stabilization for the project would be considered a short-term effect if the timing of revegetating the construction corridor coincides with the completion of construction during the growing season, as permanent stabilization would likely occur that growing season. However, if construction completion occurs in winter, permanent stabilization may be considered long-term as the growing season would be a few months away. However, non-vegetation, temporary stabilization measures (e.g., straw) could be implemented to minimize the temporary effect if practicable. With the implementation of the Environmental Commitments described in Section 4, the direct impacts on soils would be lessened.

The Proposed Action would not have any impact on geological resources since all disturbance would occur in shallow soils.

3.3.2 Visual Resources

The natural and constructed features contribute to the visual resources within the project area, including mountain views, agricultural fields, and vegetation along the canal corridors. Viewers, including local residents, workers and recreationists, have a perception of the existing physical characteristics. This section assesses the extent to which the Proposed Action would change the perceived visual character and quality of the environment where the Project is located.

3.3.2.1 No Action Alternative

Under the No Action alternative, there would be no impact to the existing visual resources.

3.3.2.2 Proposed Action

Under the Proposed Action, the proposed pipeline would be buried, and the site would be restored to its original condition. Surface disturbance during the construction phase of the Proposed Action would temporarily result in increased dust and haze, creating short-term impacts to visual resources. Completion of the Proposed Project would ultimately lessen the amount of dust and haze through stabilization of the soil and restoration of plant cover. Revegetation, where necessary, and naturalization of the disturbed area would also reduce the short-term project-related dust and haze over the long term.

The settling basin is located in the vicinity of Ashley Creek, and Highline and Ashley Upper Canals, and is a small area (0.5 acres). Since there is no major road in the vicinity of the settling basin, the settling basin would have a negligible long-term impact to visual resources.

The removal of large trees along the Ashley Upper Canal in residential backyards may result in localized minor adverse impacts to the visual resources.

3.3.3 Cultural Resources

Cultural resources are defined as physical or other expressions of human activity or occupation. Cultural resources include archaeological resources, which are the material remains of past human activity. Archaeological resources can be either prehistoric or historic in age (i.e., dating to either before or after the time of Euro-American settlement), and they include artifacts (portable objects of human manufacture); features such as firepits, houses, and other types of structures; rock art; and archaeological sites where any of the above may be found. Cultural resources can also include other types of places that are important to the heritage of contemporary peoples (e.g., traditional cultural properties).

Section 106 of the National Historic Preservation Act of 1966, as amended, mandates Reclamation consider the potential effects of a proposed federal undertaking on historic properties. Historic properties are a subset of cultural resources that include prehistoric or historic districts, sites, buildings, structures, or objects that are at least 50 years of age and are 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.

In compliance with the regulations specified in Section 106 of the NHPA (36 CFR Section 800.16), the affected environment for cultural resources is identified as the area of potential effects (APE). 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 includes the area that could be physically affected by any of the Proposed Project alternatives (the maximum limit of disturbance).

Bighorn Archaeological Consultants, LLC (Bighorn) conducted a Class I literature review and a Class III cultural resource inventory for the APE of the Proposed Action for purposes of review under Section 106 of the NHPA.

In accordance with 36 CFR 800.4, the Project APE was evaluated for significance in terms of NRHP eligibility. The significance criteria applied to evaluate cultural resources are defined in 36 CFR Section 60.4 as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that

- Are associated with events that have made a significant contribution to the broad patterns of our history; or
- Are associated with the lives of persons significant in our past; or
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- Have yielded, or may be likely to yield, information important in prehistory or history.

A cultural resource inventory report was completed by Bighorn in January 2020 (Bighorn 2020).

Bighorn revisited and updated documentation for three Historic Period archaeological sites within the project area. These previously documented sites include a segment of U.S. Highway 40 (42UN1562), the Highline Canal (42UN2676), and the Ashley Upper Canal (42UN2680) (Bighorn 2020). All sites have been previously determined eligible for inclusion on the NRHP under criterion A for their role in regional history and the development of irrigation and transportation in the State of Utah. All three sites documented within the APE retain some aspects of integrity as defined in 36 CFR Section 800.5. The sites are summarized in Table 3.3-3.

Table 3.3-3 - NRHP-Eligible Sites within the Project Area

Site Number	NRHP Eligibility Criterion	Description	Time Period
42UN1562	A	Historic Highway 40	European/American
42UN2676	A	Highline Canal	European/American
42UN2680	A	Ashley Upper Canal	European/American

3.3.3.1 No Action Alternative

Under the No Action Alternative, there would be no foreseeable impacts to historic properties. There would be no need for ground disturbance for pipe installation or staging areas. The existing conditions would remain intact and would not be affected.

3.3.3.2 Proposed Action

For the bridge (a segment of Historic Site 42UN1562), the Proposed Action would not adversely affect the segment of highway and the historic bridge would remain in place.

However, for the remaining two eligible sites (42UN2676 and 42UN2680), the Proposed Action would straighten, reshape segments of the canal prism, and upgrade the canals with pressurized pipes. After pipeline installation, portions of the existing canals would remain open for stormwater runoff. Therefore, the original construction methods, location, setting, feeling, and association for the canal sites would be lost, removed, or altered. There would be an adverse effect to the Highline and Ashley Upper Canals. The Utah SHPO and the SITLA concurred with the Project determination of effect in March 2020. In consultation and concurrence with Reclamation, the Utah SHPO and the SITLA, the Applicants have opted to follow the process outlined in the 2020 Programmatic Agreement between the Bureau of Reclamation and the Utah State Historic Preservation Office Regarding National Historic Preservation Act Mitigation for Adverse Effects to Irrigation Infrastructure (2020 Mitigation PA) to mitigate the adverse effects to the Highline and Ashley Upper Canals (42UN2676 and 42UN2680).

3.3.4 Hydrology

The project area is in Ashley Valley (Figure 1.1-1). Ashley Creek originates in the Uinta Mountains which form the northern boundary of Ashley Valley. Winter snowfall in the mountains typically provides year-round flow into Ashley Creek as it melts throughout the year. The Ashley Upper and Highline Canals divert water from Ashley Creek in accordance with the water rights to supply irrigation water in Ashley Valley.

In addition to Ashley Creek, there are several unnamed intermittent streams originating to the west of Highline Canal and flowing to the east of Ashley Upper Canal. Some of the streams terminate at the two canals, while some flow eastward through the canals until they dissipate to the east of the Ashley Upper Canal. The canals also receive supplemental water in the form of runoff from these unnamed creeks and adjacent hillsides and other higher elevations.

3.3.4.1 No Action Alternative

Under the No Action alternative, the hydrology in the project area would remain unchanged in its current state. A greater demand for water from the natural hydrological resources in the area may be required as seepage and operational losses continue in the Ashley Upper and Highline Canal systems.

3.3.4.2 Proposed Action

The Proposed Action would prevent seepage and increase the efficiency of water delivery through the Ashley Upper and Highline Canals. This would result in an estimated 25 to 30 percent increase in water being delivered to agricultural users. The increased efficiency of the pipelines would not result in any new depletions to the water traveling to the Upper Colorado River Basin. The water would continue to be used for agricultural purposes and would not alter the water rights, water usage or amount of water in the current systems. Runoff that was previously collected by the open canals would sheet flow over the piped laterals and percolate into the ground or be collected by other local waterways. The Proposed Action would not impact the hydrologic conditions of natural water resources within the vicinity of the project area.

3.3.5 Water Quality

Each stream, reservoir, and canal in Utah is classified according to its beneficial use. The required standards for water quality parameters are determined by the classifications used. According to the Standards of Quality for Waters of the state, Environmental Quality (R317-2-13), Utah Administrative Code (UAC), the Ashley Upper and Highline Canals are classified as:

- 2B -- Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
- 3E -- Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.
- 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

The Ashley Upper and Highline Canals provide irrigation water to agricultural users. The canals are open and unlined. As the water migrates along the canals, water percolates from the canals generating seepage. The seepage dissolves salts in the soils which then leach into the groundwater. As the groundwater returns to local waterways and eventually the Upper Colorado River, the salinity of the water is increased. The two canals are estimated to contribute 2,713 tons of salt per year (Attachment A). This salt loading degrades the water quality of the Upper Colorado River Basin.

3.3.5.1 No Action Alternative

Under the No Action alternative, there would be long-term minor to moderate adverse impacts to the water quality in the Upper Colorado River Basin. Salt loads due to seepage from the canals would continue to degrade the water quality of the Upper Colorado River Basin.

3.3.5.2 Proposed Action

The Proposed Action would reduce seepage from the Ashley Upper and Highline Canals. The reduced seepage would result in an estimated 2,713 fewer tons of salt from reaching the Upper Colorado River Basin annually (Attachment A). Piping the open, unlined canals would also prevent debris and pollution from runoff entering the irrigation system. This would result in substantial improvements to water quality in local waterways and incrementally add to long-term water quality improvements in the Upper Colorado River Basin through eliminating the annual salt loading by 2,713 tons.

3.3.6 System Operations

The UDWR maintains records of water distribution at the Ashley Upper diversion structure. The monthly summary of average daily discharge at the diversion is converted to acre-feet to quantify delivery of water rights. The average annual water delivery in the Highline Canal for the years from 1962 through 2017 was 5,325 acre-feet. Water delivery in the Highline Canal normally begins mid-May and flows through mid-July. Water availability for the canal is dependent upon the flows in Ashley Creek. Water delivery in the canal can begin as early as April and may continue through October.

During drought years, water is proportioned in the Ashley Creek Distribution System according to water rights. The system does have pump back options built in where water that may be persisting in the lower canals can be made available to agricultural water users when Ashley Creek flows are too low to divert. Overall, water delivery is mostly dependent upon flows within Ashley Creek.

The average annual water delivery in the Ashley Upper Canal for the years from 1962 through 2017 was 19,519 acre-feet. Water delivery in the Ashley Upper Canal typically begins early-May and continues through late-August. Flows in this canal are also dependent upon stream flows in Ashley Creek.

3.3.6.1 No Action Alternative

Under the No Action alternative, the two canal systems would continue to operate under current conditions. Existing water losses in the system would continue and potentially increase as the canals continue to deteriorate over time. This in turn is anticipated to cause an increase in maintenance requirements.

3.3.6.2 Proposed Action

The Proposed Action would increase the efficiency of the system operations by reducing the amount of water lost through the open canals. Future system operations would also improve under the Proposed Action as maintenance frequency and cost would be greatly reduced. The Proposed Action would therefore result in a long-term beneficial impact on the operations of the two canal irrigation systems.

3.3.7 Floodplains

A floodplain is flat or nearly flat land adjacent to a naturally occurring water body (e.g., wetland or stream) that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood that do not experience a strong current. A 100-year flood is calculated to be the level of flood water expected to be equaled or exceeded every 100 years on average. The 100-year flood is more accurately referred to as the 1 percent flood, since it is a flood that has a 1 percent chance of being equaled or exceeded in any single year. Based on the expected flood water level, a predicted area of inundation can be mapped out.

The Federal Emergency Management Agency (FEMA) website was reviewed for Flood Insurance Rate Maps (FIRMs) covering the project area. The project area is included in FIRM 49047C0655D (FEMA, 2010a), FIRM 49047C0665D (FEMA, 2010b), FIRM 49047C0875D (FEMA, 2010c) and FIRM 49047C0925D (FEMA, 2010d). The floodplain information is provided in Figure 3.3-1. Figure 3.3-1 indicates that approximately 0.6 miles of pipeline and the entire 40-acre habitat mitigation area lie within Zone A. Zone A is defined as “areas within 1 percent annual flooding with no base flood elevations determined as no detailed analyses were performed for such areas”.

Floodplain development is regulated by the local government. The project area is under the jurisdiction of Uintah County. For pipeline installation and mitigation area development, a floodplain development permit would be required from Uintah County.

Figure 3.3-1 Floodplain Map

3.3.7.1 No Action Alternative

Under the No Action alternative, the existing conditions for the project area would be maintained and there would be no impacts to the floodplain or the potential for flooding.

3.3.7.2 Proposed Action

Under the Proposed Action, the installation of the pipelines within floodplains would have a short-term negligible impact on floodplains. After the pipeline installation is complete, the impact on floodplains would cease since the pipelines would be buried and the ground surface would be restored to the preconstruction conditions to the extent practicable.

At the Wildlife Habitat Replacement Site (WHRS), the plant community types found include riparian woodlands, riparian shoreline, desert alkaline mud flat and desert saline-wetland scrub (Alpine Environmental Resources, LLC [Alpine] 2019a). In the future, a variety of plants would be planted in the 40-acre area. With the implementation of the wildlife habitat mitigation plan at the 40-acre site, the current hydrologic group C designation of the site would not change as the site would remain as open space with no elevational changes (i.e., fill material placement). The width of the floodplain across the WHRS is approximately 1.8 miles (Figure 3.3-1) while the maximum width of the WHRS is roughly 0.3 miles. It is estimated that during a 100-year flood event the flood flow velocity within the floodplain may increase slightly when it flows through the cross section where the WHRS is located. Also, the flood elevation would be imperceptibly raised as a result of the addition of the plants at the WHRS. Therefore, development of the 40-acre WHRS would not discernably change the limits of the Zone A floodplain or raise the floodplain elevation. As a result, a Conditional Letter of Map Revision (CLOMR) is not required.

In summary, the development of the 40-acre WHRS would have a negligible impact on the floodplain.

For pipeline installation in the floodplain, there would be direct short-term negligible impact due to surface disturbance. The short-term impact would no longer occur once restoration of the disturbed area is successful. There would be no long-term impact since the pipeline would be buried. With the implementation of the Environmental Commitments described in Section 4, the direct impacts on floodplains would be lessened further.

3.3.8 Wetlands, Riparian Vegetation, Noxious Weeds, and Existing Vegetation

3.3.8.1 Wetlands and Riparian Vegetation

According to the Habitat Replacement Analysis for the Proposed Action (Attachment C) prepared by Alpine (2019a), the Highline Canal has been regularly maintained and spoils from historic dredging have formed the canal banks. The bottom of the canal is not vegetated and consists of hard compacted silty clay with gravel. The banks are vegetated with native grasses, predominantly reed canarygrass (*Phalaris arundinacea*) and horsetail (*Equisetum sp.*). Few trees and some shrubs line the canal banks at the northern end becoming less dense and more scattered as the canal flows to the south.

According to Alpine (2019a), the Ashley Upper Canal is mostly shaded with trees. Dominant tree species include cottonwood (*Populus fremontii*), quaking aspen (*Populus tremuloides*), silver poplar (*Populus alba*), black willow (*Salix goodingii*), boxelder (*Acer negundo*) and river birch (*Betula occidentalis*).

Dense mid-story shrubs grow along the banks and dominant species include willow (*Salix exigua*), woods rose (*Rosa woodsii*), goldenrod (*Solidago canadensis*), clematis (*Clematis ligusticifolia*), cocklebur (*Xanthium strumarium*) and milkweed (*Asclepias speciose*). The banks are vegetated with native grasses and broadleaf plants and dominant species include reed canarygrass, orchard grass (*Dactylis glomerate*), horsetail, sunflower (*Helenathia sp.*), annual wheatgrass (*Eremopyrum triticeum*) and Kentucky bluegrass (*Poa pratensis*). The bottom of the canal is unconsolidated sand, gravel, pebbles, and rocks.

According to Alpine (2019b), no waters of the U.S., which includes wetland area, occur within the project limits. The wetland determination report is provided in Attachment D.

3.3.8.2 Noxious Weeds

Noxious weeds and nonnative plant species exist throughout the project area, specifically along roadways, and along and within canals and other areas where the ground has been disturbed. Noxious weeds present in the project area include Dyer's woad (*Isatis tinctoria*), perennial pepperweed (*Lepidium latifolium*), and tamarisk (*Tamarisk ramosissima*) (Alpine 2019a).

3.3.8.3 Existing Vegetation

The majority of the land in the project area is comprised of plant species that were introduced either directly or indirectly as a result of agricultural practices. Agricultural activities have replaced native upland vegetation with alfalfa and pasture grasses. Native grasses consist primarily of wheatgrass, Kentucky bluegrass, reed canarygrass and horsetail along the banks of the canals. In addition, the project area contains some native upland vegetation species, such as cottonwood (Alpine 2019a).

3.3.8.4 No Action Alternative

Under the No Action alternative, the existing vegetation in the project area would remain in its current condition, experiencing minor fluctuations in quantity and quality, as naturally occurring precipitation patterns vary. Since no construction would occur, there would be no impacts to vegetation. Existing management and land use practices would continue. Existing management activities would include on-going maintenance and repair of the exiting canals and associated appurtenances. There would be no changes to the current conditions.

Under the No Action alternative, there would be no impact to wetlands in the project area.

3.3.8.5 Proposed Action

Under the Proposed Action, riparian vegetation would be permanently impacted by the piping of the canals. Piping the canals would result in loss of riparian vegetation. Areas of riparian vegetation loss may experience an increase in nonnative species including tamarisk, which may be able to out-compete native species for limited water supplies when irrigation flows cease. As required by the Colorado River Basin Salinity Control Act any fish and wildlife values lost as a result of project implementation (including the loss of the riparian vegetation) would be replaced by the Applicants through a habitat replacement plan, approved by Reclamation, following coordination with federal and state wildlife officials. Replacement habitat must be of an equal or greater value to the wetland and riparian habitat lost by the Proposed Project and must be managed to maintain its value for the life of the salinity control project (typically 50 years). After viewing the entire canal alignments, the habitat quality score (HQS) for the existing habitat was evaluated onsite by Alpine (2019a) and a Habitat Replacement Plan (Attachment E) has been developed by Alpine (2019c).

According to the U.S. Army Corps of Engineers (USACE), the replacement of open channel irrigation with a pipeline is considered an irrigation exemption under RGL No. 07-02 Exemption for Construction or Maintenance of Irrigation Ditches and Maintenance of Drainage Ditches under Section 404 Part 323.4(a)(3) of the CWA. Under this exemption, no USACE permitting is required for impacts to irrigation-induced wetlands, if any. Alpine (2019b) did not identify any wetlands within the construction corridor of the pipelines. Therefore, no wetlands are anticipated to be affected by the Proposed Action.

Upland areas would experience short-term losses of vegetation. Brush and grasses would be impacted during construction by the operation of equipment, excavation, and the staging of materials. All areas disturbed by construction activities would be re-contoured and reseeded. After completion of the re-contouring and reseeding, relatively little native habitat would be permanently lost when compared to the current condition. Areas that are disturbed may be more vulnerable to non-native species and noxious weed infestation. These non-native species typically recover more quickly following disturbance than native species. To minimize impacts to native vegetation, previously disturbed areas would be used for construction activities, where possible. Native vegetation that would be removed during construction would be restored by revegetation with native seeds. Cultivated lands that are disturbed by construction activities would be reseeded with an appropriate agricultural mix approved by a Reclamation biologist.

The Environmental Commitments described in Section 4 would be followed to reduce impacts to native vegetation, including staging materials outside of sensitive areas, such as streams and wetlands. Construction materials and equipment would be washed prior to entering the project area to remove dirt, seeds from weeds, and to reduce the possibility of infestation by nonnative species. Following any surface disturbance, proper restoration procedures would be implemented to prevent the infestation of invasive species. Restoration would include seeding mixtures of desirable native species and agricultural grasses where appropriate, and post-construction treatment to control noxious and invasive species.

3.3.9 Fish and Wildlife Resources

The project area is located within Ashley Valley where the predominant land-use type is rural/agriculture. Rural development, such as agricultural areas, typically provides functional habitat for wildlife species that are tolerant to a moderate amount of habitat alteration.

3.3.9.1 Fish

According to the Ashley National Forest (2019), the Ashley Creek Drainage has brook (*Salvelinus fontinalis*), rainbow (*Oncorhynchus mykiss*), and cutthroat trout (*O. clarkii*). Both canals are managed in a manner that they are waterless for months each calendar year. Consequently, the canals cannot support habitat for fish and other aquatic habitat as the water source is regularly intermittent.

3.3.9.2 Small Mammals, Reptiles and Big Game

Based on biological surveys of the project area conducted by Alpine from 2017 and 2019, small mammals common to the area include coyote (*Canis latrans*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), porcupine (*Erethizon dorsatum*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), white-tailed prairie dog (*Cynomys leucurus*), and deer mouse (*Peromyscus maniculatus*). Various other bats are also likely to be present in the project area.

Reptiles and amphibians expected to occur in the area include wandering garter snake (*Thamnophis elegans vagrans*), Great Basin gopher snake (*Pituophis catenifer deserticola*), sagebrush lizard (*Sceloporus graciosus*), tiger salamander (*Ambystoma tigrinum*), western chorus frog (*Pseudacris triseriata*), and northern leopard frog (*Lithobates pipiens*). Rocky areas, sagebrush shrubland, riparian, and wetland habitats present in the area provide suitable habitat for these and other reptile and amphibian species.

Ashley Valley has year-round habitat for mule deer (*Odocoileus hemionus*), and crucial winter habitat for Rocky Mountain elk (*Cervus canadensis nelsoni*). Pronghorn (*Antilocapra americana*) and wild turkey (*Meleagris gallopavo*) are increasing in numbers throughout the project region. These species forage the agricultural fields and open sagebrush habitat. Mountain lions (*Puma concolor*), coyote (*Canis latrans*), and bobcat (*Lynx rufus*) are in the surrounding foothills and mountains, are elusive, and typically avoid populated areas.

These animals utilize Ashley Creek, canals, stock ponds, and open agricultural ditches for water. During winter months when irrigation flows are not in the canals and ditches, head gates are closed and stock ponds can be frozen over, Ashley Creek, the Green River, and larger reservoirs are the primary water sources for big game species.

3.3.9.3 Migratory Birds and Raptors

The regulatory framework for protecting birds includes the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA) (which includes any part, nest, or egg), the Bald and Golden Eagle Protection Act (BGEPA) of 1940, and Executive Order 13186. The MBTA prohibits the take of migratory birds and does not include provisions for allowing unauthorized take. The BGEPA is similar to MBTA in that it prohibits the take of bald and golden eagles.

According to FWS (2020), four species of raptors/migratory birds may be present in the area. They are bald eagles (*Haliaeetus leucocephalus*), Brewer's sparrow (*Spizella breweri*), golden eagles (*Aquila chrysaetos*) and Rufous hummingbird (*Selasphorus rufus*). In the project area, cottonwood trees provide nesting and roosting habitat for raptors and migratory birds. Data obtained from FWS (2020) are provided in Attachment F. In September 2017, the project area was surveyed for raptor nests by Alpine. No active nests were discovered within the project area.

3.3.9.4 Other Birds

The project area is home to many resident bird species. There are large deciduous and evergreen trees in residential yards, along both canals, and along the Ashley Creek riparian zone. These serve as foraging, cover, and nesting habitat for resident songbirds and stop over habitat for migratory species. American robin (*Turdus migratorius*), mourning dove (*Zenaida macrourius*), black-billed magpie (*Pica hudsonia*), mockingbird (*Mimus polyglottos*), common raven (*Corvus corax*), house sparrow (*Passer domesticus*), white-crowned sparrow (*Zonotrichia leucophrys*), and pinyon jay (*Gymnorhinus cyanocephalus*) were noted during surveys conducted by Alpine in 2017 and are common in the project area.

3.3.9.5 No Action Alternative

The No Action alternative would have no effect on fish and wildlife resources. The No Action alternative would not involve construction of any kind and existing conditions would remain intact.

3.3.9.6 Proposed Action

Construction activities are expected to have a temporary impact on wildlife in the project area. Initial construction activity could cause stress to some wildlife species from noise, dust, displacement, and temporary loss of habitat, until construction is completed. Construction areas would be returned to their pre-existing condition after construction. There would be no impact to wetlands since there are no wetlands in the project area. Riparian habitat in the project area surrounding the existing canals would be impacted as the canals would not operate as they normally deliver irrigation water. The Wildlife Habitat Replacement Plan would mitigate the impact to riparian habitat.

The Proposed Action has the potential to negatively impact nesting birds. Raptors are particularly sensitive to movement of large equipment and noise created by construction and may abandon nests as a result of construction activities. Impacts to nesting birds, including raptors, during construction would be minimized by avoiding construction during the nesting season or conducting surveys by a qualified biologist to identify and establish disturbance buffers for nests during construction. The FWS typically recommends disturbance buffers of various sizes for nesting birds depending on the species. Cottonwood and other large trees and dead snags would be avoided during construction where feasible; however, loss of trees is expected to occur. These impacts would be minor as birds would be able to use similar nest and roost site habitat accessible immediately adjacent to the project area.

Ashley Valley and adjacent mountain areas have suitable habitat for big game species. Construction activities may displace these big game species. However, these impacts would be temporary. While maintenance and operation of the proposed pipelines may result in some persistent disturbance, much of the area is dominated by rural development that is subject to regular disturbance due to residential, farming, and ranching activities. The Proposed Action is therefore not expected to have a significant impact on big game species.

The Proposed Action would have a minimal effect on other wildlife resources. It is likely that terrestrial animals rely to some extent on the canals for water. However, with Ashley Creek, agricultural ponds and other irrigation canals all in the immediate vicinity, reducing flow in the Ashley Upper and Highline Canals should have a little-to-no effect on the availability of adequate water to wildlife.

Moreover, a Habitat Replacement Plan (Attachment E) would be implemented for the Proposed Action (Alpine 2019c) to compensate for unavoidable habitat impacts of the Proposed Action and would further lessen the impact to wildlife resources.

3.3.10 Special Status Species

Federal agencies are required, under Section 7 of Endangered Species Act, to consult with FWS to protect species listed under the ESA and their critical habitat.

Alpine (2019d) prepared a biological assessment (BA) for the Proposed Action. The BA is provided in Attachment F. Table 3.3-4 provides a list of Threatened (T) and Endangered (E) species that may occur in the project area (Alpine 2019d).

The BA (Attachment F) indicates that suitable habitat for Ute ladies'-tresses (ULT) is present in the project area and no suitable habitat is present for all the other species listed in Table 3.3-4. The BA was prepared for the Section 7 consultation under the ESA.

Table 3.3-4 - Threatened and Endangered Species with Potential to Occur in Project Area

Species	Status
Mammals	
Canada lynx (<i>Lynx Canadensis</i>)	Threatened
Birds	
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Threatened
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Threatened
Fishes	
Bonytail chub (<i>Gila elegans</i>)	Endangered
Colorado Pikeminnow (<i>Ptychocheilus lucius</i>)	Endangered
Humpback Chub (<i>Gila cypha</i>)	Endangered
Flowering Plants	
Ute Ladies'-tresses (<i>Spiranthes diluvialis</i>)	Threatened

3.3.10.1 No Action Alternative

Under the No Action alternative, there would be no effect to T and E species. The No Action Alternative would not involve construction of any kind and existing conditions would remain intact.

3.3.10.2 Proposed Action

The only species listed in Table 3.3-4 that would be adversely affected by the Proposed Action is the ULT.

The riparian zone with natural occurring gravel bars and oxbows of Ashley Creek contains suitable habitat for ULT. The ULT seeds occurring upstream of the irrigation water diversion can be dispersed via creek flows into the canals. Opportunistic seeds can find suitable conditions and germinate along canal banks, ditch banks, and on irrigated wet meadows.

Occupied habitat for ULT has been discovered along a 253 linear foot section (0.06-acre) of the Highline Canal. The canal is located on private property while the canal company maintains a 70-foot-wide ROW. Flows in the canal are determined by irrigation water rights diverted from Ashley Creek. Suitable habitat was created by the saturation of soils due to the irrigation flows and is intermittently maintained through periodic/seasonal flows in an otherwise waterless canal. This habitat is not supported by natural surface water or groundwater.

Fifteen individual ULTs were recorded within the project area during species-specific protocol level survey in August 2016. No plants were discovered during the previous year (2015 survey), or the subsequent 2017 and 2018 survey events. During the 2019 survey, two flowering ULTs were discovered.

Due to the identification of ULTs during the 2016 and 2019 surveys, the proposed pipeline alignment was moved east beyond the suitable habitat to avoid direct impact to individual plants in this area during construction.

However, indirect impacts include converting the canal and flood irrigation methods to a pressurized pipeline and sprinkler irrigation. While the canal would be maintained to accommodate snowmelt and storm water runoff, the irrigation water would be transmitted through the pressurized buried pipeline. The canal would no longer carry regular irrigation water during the summer months, thereby, changing the existing hydrologic regime in the action area, eventually changing the ULT habitat to a non-suitable condition.

Due to the hydrologic change caused by the Proposed Action in the action area, it is determined that the Proposed Action may affect, is likely to adversely affect 0.06 acres of ULT suitable habitat located on the western bank of the Highline Canal. No critical habitat has been designated for this species and therefore there is no effect on designated critical habitat. Because of the low number of ULT likely to be in this area and the generally unsuitable nature of the surrounding habitat, the Proposed Action is unlikely to reduce appreciably the viability of the ULT population rangewide. Additionally, the loss of 0.06 acres of suitable habitat from northeastern Utah would not appreciably reduce the likelihood of the species' survival or recovery. Because of this, the FWS has determined that the Proposed Action would not jeopardize the continued existence of the ULT.

The FWS (2020) issued a Biological Opinion (BO) (Attachment H) as a result of a formal Section 7 consultation and concurred with USBR's determination of effects of the Proposed Action based on the reasons that the Applicants would implement conservation measures as described in Section 4 and summarized as follows:

- A minimum of 3 consecutive years of clearance surveys will be conducted by a qualified botanist.
- Compensation for anticipated adverse effects to ULT is being provided based on the requirements of a developing ULT conservation fund program. This program will use a 6:1 ratio (habitat enhancement area to impacted habitat area) to calculate the compensatory fee. The final fee will be confirmed by our office as part of section 7 consultation. This fee will be held by State of Utah's Watershed Restoration Initiative Program and will be used to fund future ULT habitat enhancement projects performed by the Program.
- Contribution to the ULT conservation fund will occur within 1 year of the BO dated May 20, 2020.

Through meeting these requirements, the FWS has completed Section 7 consultation.

3.3.11 Socioeconomics

According to the U.S. Census Bureau (2019), the population of Uintah County was 32,588 in 2010, an increase of 7,364 or 29.2 percent since 2000. The ethnic makeup in 2010 was 86.6 percent white and 13.4 percent other races according to 2010 U.S. census data. In 2017, 11.6 percent of the population were below the poverty line, including 12.8 percent of those under the age of 18, and 9.3 percent of those over the age of 65 (U.S. Census Bureau 2019).

3.3.11.1 No Action Alternative

The No Action alternative would have no effect on the socioeconomic conditions or activities of those living within the project area.

3.3.11.2 Proposed Action

Implementation of the Proposed Action would have minor short- and long-term beneficial socio-economic impacts to the project area. The proposed pipelines would continue to provide needed water supply to the Applicants' customers. Directing the majority of irrigation water through the proposed pipelines rather than into the existing canals is expected to save substantial water due to the elimination of loss due to canal leakage, evaporation and plant transpiration. In addition, piping and pressurizing the water would make switching from flood irrigation to sprinkler irrigation optimal. The water saved would result in increased water shares for the Applicants to make available to new or existing customers.

The Proposed Action could potentially have a short-term beneficial impact by creating jobs and increasing revenue to local business during construction.

3.3.12 Access and Transportation

Two major transportation corridors, U.S. Highway 40 and Utah Highway 121, are located within the project area. In addition, several Uintah County roads are located in the area. The two piped interconnections between the two canals (1500 North and 1500 South Streets) are within the ROW of county roads.

3.3.12.1 No Action Alternative

Access and transportation resources would not be impacted under the No Action alternative.

3.3.12.2 Proposed Action

The Proposed Action may cause limited delays along U.S. Highway 40 and State Highway 121 due to construction vehicles entering and exiting the highways. Installation of the two piped interconnections along 1500 North and 1500 South may cause partial road closures. Therefore, the construction activities would slow the traffic flow locally, potentially resulting in traffic accidents. The implementation of the Environmental Commitments as described in Section 4 would help reduce the traffic accident risk. All the impacts would be local for a short time and the impact would cease to occur once the construction activities are complete.

3.4 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian tribes or individuals. The U.S. Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribal members, and to consult with tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, or tribal safety (see the Departmental Manual, 512 DM 2). Under this policy, as well as Reclamation's ITA policy, Reclamation is committed to carrying out its activities in a manner that avoids adverse impacts to ITAs when possible, and to mitigate or compensate for such impacts when it cannot. All impacts to ITAs, even those considered nonsignificant, must be discussed in the trust analysis in NEPA compliance documents, and appropriate compensation or mitigation must be implemented.

Trust Assets can be real property, physical assets, or intangible property rights such as lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. Impacts to

ITAs are evaluated by assessing how the Proposed Action would affect the use and quality of ITAs. Any action that would adversely affect the use, value, quality, or enjoyment of an ITA is considered an adverse impact on the resources.

Implementation of the No Action or Proposed Action would have no foreseeable negative impacts on ITAs. Inquiries about ITA concerns were included in the cultural consultation letters for the Proposed Action that were sent out to the Ute Indian Tribe of the Uintah & Ouray Reservation, the Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, and the Eastern Shoshone Tribe of the Wind River Reservation on March 10, 2020. Reclamation has received no responses from the tribes to date.

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.

As of 2017, the population of Uintah County was 36,343, including 32,103 white and 4,240 other races (U.S. Census, 2019). In 2017, 11.6 percent of the population were below the poverty line, including 12.8 percent of those under the age of 18, and 9.3 percent of those over the age of 65 (U.S. Census Bureau, 2019). However, implementation of the Proposed Action would not disproportionately (unequally) affect any low-income or minority communities within the Project area. 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 Cumulative Effects

In addition to project-specific impacts, Reclamation analyzed the potential for significant cumulative impacts to resources affected by the Proposed Project and by other past, present and reasonably foreseeable future activities in the watershed. According to the Council on Environmental Quality'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 Proposed Action would comply with all relevant federal, state and local permits. The proposed area and duration of disturbance under the Proposed Action would be minimal and short-term. Long-term impacts are not expected to create negative cumulative impacts to environmental resources. Based on Reclamation's resource specialists' review of the Proposed Action, Reclamation has determined that the Proposed Action would not have a significant adverse cumulative effect on any resources.

Several other salinity control projects in the Upper Colorado River Basin have been implemented by Reclamation and NRCS over the past 10 years. These projects are summarized in Table 3.6-1.

Table 3.6-1 Summary of Salinity Control Projects over Past 10 Years

Project	Annual Salt Reduction (Tons/Year)	Agency
Peoples Canal Salinity Control Project (Pining 9.1-mile canal)	5,553	Reclamation (2009)
Sheep Creek Irrigation Company (SCIC) Cedar Hollow Lateral Salinity Control Project (Piping 5.42-mile canal)	2,220	Reclamation (2013)
SCIC South Valley Lateral Salinity Control Project (Piping 7.4-mile canal)	3,373	Reclamation (2014)
SCIC Antelope and North Laterals Salinity Control Project (Pining 3.4-mile canal)	1,474	Reclamation (2017b)
Manila-Washam Project Area of the Colorado River Salinity Control Program	17,430	NRCS (2006)

These salinity control projects should result in a positive cumulative impact on water quality. No other known present and foreseeable future salinity control projects are identified.

3.7 Summary of Environmental Effects

Table 3.7-1 summarizes environmental effects under the No Action Alternative and the Proposed Action. This table does not include resources that were eliminated from analysis (detailed in Table 3.2-1).

Table 3.7-1 Summary of Environmental Effects

Project Resources	No Action	Proposed Action
Geology and Soil Resources	No Effect	Temporary impact to soil surface disturbance. Mitigate with the Environmental Commitments. Long-term negligible effect at settling basin.
Visual Resources	No Effect	Minor temporary impact from construction activities.
Cultural Resources	No Effect	Adverse Effect to the Upper Ashley and Highline Canals (Sites 42UN2676 and 42UN2680). Mitigation for the canals will be completed through the process outlined in the 2020 Mitigation PA.
Hydrology	No Effect	Long-term benefits due to increased efficiency of the water delivery system and reduced salt loading in the Colorado River Basin.
Water Quality	Long-term minor to moderate impacts to	Long-term benefits to water quality from decreased salinity loading.

Project Resources	No Action	Proposed Action
	water quality due to continued salt loading of the Colorado River Basin.	
System Operations	Long-term minor to moderate impacts from deteriorating system and maintenance requirements.	Long-term benefits from increased efficiency and decreased maintenance.
Floodplain	No Effect	Negligible impact on floodplain.
Wetlands, Riparian, Noxious Weeds, and Existing Vegetation	No Effect	There would be permanent loss of riparian vegetation along the canals. The loss would be mitigated through the Habitat Replacement Plan (Attachment E). The Environmental Commitments would be employed to decrease the likelihood of invasive plant species.
Fish and Wildlife Resources	No Effect	Temporary effect to nesting birds, raptors during construction. Implementation of the Environmental Commitments would minimize the impacts.
Threatened, Endangered and Sensitive Species	No Effect	The project may affect and is likely to adversely affect 0.06 acres of occupied ULT habitat. The loss of 0.06 acres of suitable habitat from northeastern Utah will not appreciably reduce the likelihood of the species' survival or recovery. The project will not jeopardize the continued existence of ULT or adversely modify designated critical habitat.
Socioeconomics	No Effect	Short-term beneficial effect by creating jobs and increasing revenue to local business during construction.
Access and Transportation	No Effect	Temporary impact during construction
Indian Trust Assets	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Cumulative Effects	No Effect	No Effect

Chapter 4 - Environmental Commitments

Environmental Commitments, along with Minimization Measures in Section 2.5, Minimization Measures Incorporated into the Proposed Action, have been developed to further lessen the potentially minimal effects of the Proposed Action. The following environmental commitments will be implemented as an integral part of the Proposed Action.

1. **Additional Analyses** - If the Proposed Action were to change significantly from that described in the EA, because of additional or new information, or if other construction areas are required outside the areas analyzed in this EA, additional environmental analyses will be completed as may be necessary.
2. **Standard Reclamation Best Management Practices** - Standard Reclamation BMPs will be applied during Project activities to minimize environmental effects and will be implemented by Project work forces or included in Project activity specifications. Such practices or specifications include erosion control, public safety, dust abatement, air pollution, noise abatement, water pollution abatement, waste material disposal, archaeological and historical resources, vegetation, wildlife, and flood control. Excavated material and debris may not be wasted in any stream or river channel in flowing waters. This includes material such as grease, oil, joint coating, or any other possible pollutant. Excess materials must be wasted at a Reclamation approved upland site well away from any channel. All materials, including bedding material, excavation material, etc. may not be stockpiled in riparian or water channel areas. If necessary, silt fencing will be appropriately installed and left in place until after revegetation becomes established, at which time the silt fence can then be carefully removed. Machinery must be fueled and properly cleaned of dirt, weeds, organisms, or any other possibly contaminating substances offsite prior to commencing the Project.
3. **UPDES Permit** - A Utah Pollution Discharge Elimination System Permit (UPDES) will be required from the State of Utah before any discharges of water, if such water is to be discharged at a point source into a regulated water body. Appropriate measures will be taken to ensure that Project activity related sediments will not enter the stream either during or after Project activity. Settlement ponds and intercepting ditches for capturing sediments will be constructed, and the sediment and other contents collected will be hauled off the site for appropriate disposal upon completion of the Project. A Storm Water Pollution Prevention Plan (SWPPP) is required in order to obtain a UPDES Permit. A Spill Prevention, Control and Countermeasure (SPCC) Plan will also be prepared as part of the Permit application process.
4. **Site Restoration** - A site restoration and revegetation plan will be developed to reclaim the areas disturbed by Project activity and prevent erosion and sedimentation in “Utah Surface Waters”.
5. **Fugitive Dust Control Permit** - The Division of Air Quality regulates fugitive dust from Project activity sites, requiring compliance with rules for sites disturbing greater than one-quarter of an acre. Sensitive receptors include those individuals working at the site or motorists that could be affected by changes in air quality due to emissions from the Project

activity. The BMP's will be followed to mitigate for temporary impacts on air quality caused by Project related activities. These may include the application of dust suppressants and watering to control fugitive dust; minimizing the extent of disturbed surface; during times of high wind, restricting earthwork activities; and limiting the use of, and speeds on, unimproved road surfaces.

6. **Cultural Resources** - In the event that any previously unidentified cultural resources are discovered within the area of proposed surface disturbance, the Applicants would ensure that all activities within 30 feet of the discovery are halted and the discovery is appropriately protected. The Applicants will notify Reclamations' Provo Area Office archaeologist. All work in the area of the inadvertent discovery will cease until Reclamation issues a Notice to Proceed. A Notice to Proceed may be issued by Reclamation under any of the following conditions:
 - Evaluation of potentially eligible resource(s) by a professional archaeologist results in a determination that the resource(s) are not eligible;
 - The fieldwork phase of the mitigation and treatment has been completed; and
 - Reclamation has approved a summary description of the fieldwork performed and a reporting schedule for that work and has made recommendations for further work.

The Applicants would inform all persons associated with the project that knowingly disturbing cultural resources (historic or archaeological) or collecting artifacts is illegal.

7. **Paleontological Resources** - In the event that paleontological resources of potential scientific interest are encountered during project activities (including all vertebrate fossils and deposits of petrified wood), the activities would be stopped within 30 feet of the discovery and Reclamation's Provo Area Office archaeologist would be notified. Activities that might impact the identified paleontological find would be suspended until after the discovery has been evaluated by a qualified paleontologist, any necessary mitigation measures completed, and Reclamation has issued a written Notice to Proceed.
8. **Human Remains** - If a person knows or has reason to know that she or he has inadvertently discovered possible human remains on state or federal lands or during the course of a federally funded project, she or he must immediately notify Reclamation's Provo Area Office archaeologist by telephone about the discovery. Work will stop until the proper authorities are able to assess the situation on site. This action will promptly be followed by written confirmation from the Applicants to the responsible federal agency official with respect to federal land. The Utah SHPO and interested Native American tribal representatives will be promptly notified by Reclamation. 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 USC Section 470).
9. **Special Status Species** - The Proposed Action would have minor potential impacts to individual ULT. The following conservation measures would be implemented according to the Biological Opinion (BO) issued by FWS (2020):

- A minimum of 3 consecutive years of clearance surveys will be conducted by a qualified botanist;
- Compensation for anticipated adverse effects to ULT is being provided based on the requirements of a developing ULT conservation fund program. This program will use a 6:1 ratio (habitat enhancement area to impacted habitat area) to calculate the compensatory fee. The final fee will be confirmed by FWS as part of section 7 consultation. This fee will be held by the State of Utah's Watershed Restoration Initiative Program and will be used to fund future ULT habitat enhancement projects performed by the Program; and
- Contribution to the Ute ladies-tresses conservation fund will occur within 1 year of the BO dated May 20, 2020.

10. **Migratory Birds and Raptors** - Where possible, land clearing and surface disturbance would be timed to prevent destruction of active bird nests or young birds during the avian breeding season (March 1 to August 15, annually) to comply with the Migratory Bird Treaty Act (MBTA). If surface-disturbing activities are unavoidable during this period, the Applicants would have a qualified biologist survey the areas proposed for immediate disturbance for the presence of active nests.

If active nests are located, or if other evidence of nesting is observed (mating pairs, territorial defense, carrying of nesting material, transporting of food), the area would be avoided to prevent destruction or disturbance of nests until the birds are no longer present. Avian surveys would be conducted only during the avian breeding season and immediately prior (within 7 days) to conducting construction activities that would result in disturbance. After such surveys are performed and disturbance created, the Applicants would not conduct any additional disturbance during the avian breeding season without first conducting another avian survey. After August 15, construction activities would continue; no further avian surveys, in compliance with MBTA, would be conducted until the next year.

11. **Public Access** - Project activity sites will be closed to public access. Temporary fencing, along with signs, will be installed to prevent public access.
12. **Previously Disturbed Areas** - Project activities will be confined to previously disturbed areas where possible, for such activities as work, staging, and storage, waste areas and vehicle and equipment parking areas. Vegetation disturbance will be minimized as much as possible.
13. **Disturbed Areas** - All disturbed areas resulting from the Project will be smoothed, shaped, contoured, and rehabilitated to as near the pre-Project condition as practicable. After completion of the Project and restoration activities, disturbed areas will be seeded at appropriate times with weed-free, native seed mixes having a variety of appropriate species (especially woody species where feasible) to help hold the soil around structures, prevent excessive erosion, and to help maintain other riverine and riparian functions. The composition of seed mixes will be coordinated with wildlife habitat specialists and Reclamation biologists. Weed control on all disturbed areas will be required. Successful revegetation efforts must be monitored and reported to Reclamation, along with photos of the completed Project.

14. **Traffic Control Plan** - A Traffic Control Plan would be developed in coordination with Uintah County officials to protect public health and safety.
15. **Health, Safety, Noise and Dust** - The Contractor would be responsible during Project activity for safety measures, noise control, dust control, and air and water pollution.
16. **Floodplain** - The Applicants would obtain a floodplain development permit from Uintah County before any fieldwork commences at floodplains. The Applicant shall strictly follow terms and conditions associated with the permit.

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

Reclamation mailed letters to shareholders of the Applicants, private property owners in the project vicinity, as well as to state and federal agencies, notifying them of the Proposed Action and inviting them to an open house. The mailed letters also included an invitation to participate in a 30-day public comment period.

5.3 Native American Consultation

Reclamation conducted Native American consultation throughout the public involvement process. A consultation letter and copy of the Class III Cultural Resource Inventory Report were sent to the Ute Indian Tribe of the Uintah and Ouray Reservation, the Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, and the Shoshone Tribe of the Wind River Reservation on March 10, 2020. This consultation was conducted in compliance with 36 CFR 800.2(c)(2) on a government-to-government basis. Through this effort, the tribe is given a reasonable opportunity to identify any concerns about historic properties; to advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance; and to express their views on the effect of the Proposed Action on such properties. Reclamation has received no response from the consulted tribes to date.

5.4 Utah Geological Survey

A paleontological file search was requested from the Utah Geological Survey (UGS) to determine the nature and extent of the paleontological resources within the Proposed Action disturbance area. The UGS paleontologist indicates that there are no paleontological localities recorded in the UGS files for the project area. Quaternary and Recent alluvial deposits that are exposed along most of the project ROW have a low potential for yielding significant fossil localities (PFYC2). However, there are also some exposures of the Mancos Shale and Mesaverde Group, mostly along the southern part

of the Highland Canal, that have a moderate to high potential for yielding significant fossil localities (PFYC 3-4). Therefore, if the Mancos Shale and Mesaverde Group deposits are disturbed, awareness of potential impacts to paleontological resources should be maintained. Otherwise, unless fossils are discovered as a result of construction activities, this project should have no impact on paleontological resources. The letter from the UGS paleontologist is provided in Attachment I.

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 were submitted to SHPO on March 24, 2020. SHPO concurred with Reclamations' determinations of eligibility and effect on March 24, 2020. The Utah SHPO agreed with the use of the 2020 Mitigation PA.

5.6 U.S. Fish and Wildlife Service

Coordination with FWS took place throughout the development of the EA. A formal section 7 consultation was performed for ULT and FWS issued a BO dated May 20, 2020. In the BO, FWS concurred with Reclamation's determination that the Proposed Action is likely to adversely affect the ULT. No critical habitat is designated for this species and therefore none would be affected.

Chapter 6 - List of Preparers

6.1 USBR Preparers and Reviewers

Name	Title	Responsible for the Following Section(s) of this Document
Thomas Davidowicz	NEPA Coordinator	Coordinated the NEPA process and review all reports
Carley Smith	Archaeologist	Cultural and paleontological resources
Thomas Davidowicz	Fish and Wildlife Biologist	Biological resources

6.2 Non-USBR Preparers and Reviewers

Name	Title	Responsible for the Following Section(s) of this Document
CIVCO Engineering		
Troy Ostler, P.E.	Principal Engineer	Oversight and coordination
Sunrise Engineering		
Derek Anderson, P.E.	Environmental Division Manager	Reviewed the entire report
Aaron Averett, P.E.	Project Manager	Project coordination and reviewed the entire report
Patrick London	GIS Analyst	Provided GIS support
Benjamin Smith	GIS Analyst	Provided GIS support
Dao Yang, P.E.	Environmental Engineer /Hydrogeologist	Prepared the entire report
Alpine Environmental Resources		
Angela Averett	Biologist	Performed biological surveys
Jill Hankins	Principal Biologist	Provided Attachments C, D, E and G and performed biological surveys
Bighorn Archaeological Consultants		
Jon Baxter	Principal Archaeologist	Prepared cultural inventory report
Aaron Jordan	Archaeologist	Performed archaeological survey

Chapter 7 - Acronyms and Abbreviations

Acronym/Abbreviation	Meaning
2020 Mitigation PA	2020 Programmatic Agreement between the Bureau of Reclamation and the Utah State Historic Preservation Office Regarding National Historic Preservation Act Mitigation for Adverse Effects to Irrigation Infrastructure
ACHP	Advisory Council on Historic Preservation
Alpine	Alpine Environmental Resources, LLC
APE	Area of Potential Effects
BA	Biological Assessment
BGEPA	Bald and Golden Eagle Protection Act
Bighorn	Bighorn Archaeological Consultants, LLC
BMPs	Best Management Practices
BO	Biological opinion
CCC	Civil Construction Corps
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Risk Map
FONSI	Finding of No Significant Impact
FWS	U.S. Fish and Wildlife Service
HQS	Habitat Quality Score
ITA	Indian Trust Asset
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Properties
O&M	Operation and Maintenance
PCN	Preconstruction Notification
PM	Particulate Matters
PRPA	Paleontological Resources Preservation Act
ROW	Right-of-Way

SCIC	Sheep Creek Irrigation Company
SHPO	Utah State Historic Preservation Office
SITLA	Utah State School and Institutional Trust Lands Administration
SPCC	Spill Prevention, Control and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
Sunrise	Sunrise Engineering, Inc.
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality
UDOT	Utah Department of Transportation
UDWR	Utah Division of Water Rights
UGS	Utah Geological Survey
ULT	Ute Ladies'-tresses
UPDES	Utah Pollutant Discharge elimination System
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USC	United States Code

Chapter 8 - References

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- U.S. Bureau of Reclamation. 2009. Environmental Assessment for Peoples Canal Salinity Control Project, Daggett County, Utah and Sweetwater County, Wyoming.
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Attachments

Attachment A

Salt Load Reduction Basis and Estimate

UC-240
ADM-13.00

Mr. Bill Cook, President
Ashley Water Users
44 West 100 North
Vernal, UT 84078

Subject: Funding Opportunity Announcement (FOA) No. R15AS00037 – Colorado River Basinwide and Basin States Salinity Control Programs – Salt Load Reduction Estimate for the Upper & Highline Canals Piping Project.

Dear Mr. Cook:

Thank you for submitting the Salt Load Reduction Worksheet and the relevant appendices. We understand your project will involve replacing approximately 29.2 miles of earthen lateral with a pressurized irrigation pipeline system including no water impoundment or settling basin. Based on the accepted salinity studies in the Uintah Basin area, the annual salt load reduction estimate for your proposed irrigation delivery system improvements is 2,713 tons. Salt load reduction estimates for the individual components of the proposed project are listed in the enclosed table.

The salt load reduction estimates provided in this letter are based on the best and current available updated and re-interpreted and thus these estimates may change. If these estimates change after receipt of this you will be notified by a similar letter by no later than July 1, 2015. The salt load estimates provided during this FOA are only valid for this FOA. In future FOAs, current salt load estimates will need to be requested.

The salt load reduction estimate must be reported in the application as the off-farm estimated salt load reduction in Part III, item C.2 and Part I, item F. It must also be used to calculate the cost effectiveness of the project in Part III, item C.4; the cost effectiveness also must be reported in Part I, item G. This letter and the enclosed table must be attached to the project proposal as Appendix F.

As stated in Section IV.B of the FOA, your final application must be received by 3 p.m. MDT, July 17, 2016. It is important that you provide the requested information for all applicable sections of the required format in a brief and concise manner in the spaces provided for your responses. The required electronic format for the project proposal can be downloaded from websites; www.grants.gov and www.usbr.gov/uc/progact/salinity.

We strongly encourage you to read the OMB Circulars that apply to your organization. The circulars can be found at http://www.whitehouse.gov/omb/grants/grants_circulars.html.

Funding agreements resulting from this solicitation will reimburse your organization of the actual allowable costs you incur to complete the project, up to the amount of the award. Successful applicants will be required to utilize competitive processes for the acquisition of materials and construction subcontracts. Sole source subcontracts will not be allowed except for engineering design, accounting, and legal services.

Cost allowability is governed by Office of Management and Budget (OMB) Circulars A-87, A-110, and A-122, depending upon the type of organization. Any cost incurred for the project in excess of the agreement amount is the responsibility of your organization.

It will be a requirement of the funding agreements executed with successful applicants that all facilities (i.e., earthen canals and laterals and diversion structures) being replaced, shall be rendered unusable by removal of the structures and refilling the prisms in order to assure the proposed salinity reduction. Costs for removing structures and refilling the prisms should be included in the cost of the salinity project.

False claims or mistakes made in the application that are discovered during the agreement award process will require that application to be re-rated, re-ranked and could result in the application not being awarded or termination of the agreement award.

If you have any questions, please contact me at 801-524-3753, Brad Parry at 801-524-3723 or, Ben Radcliffe at 801-379-1213.

Sincerely,



Kib Jacobson
Colorado River Basin Salinity Control
Program Manager

Enclosures – 2

bc: UC-240, UC-242, UC-823, UC-826
PRO-211, WCG-JSottolare

Salt Load Reduction Basis & Estimate

Item	Units	Identify individual canal, lateral, or ditch				
<u>Canal/Lateral Name</u>		Ashley Highline Canal	Ashley Upper Canal			Total
<u>Length of existing canal/lateral/ditch</u>	feet	69,168	85,536			
<u>Irrigated acreage served</u>	acres	9,800	3,800			
<u>Irrigation season</u>						
Avg. daily diversion	cfs	70.2	27.2			
Average seasonal diversion	ac-ft	25,700	9,950			
Average no. of days water carried	days	180	180			
<u>Non-irrigation season (winter water)</u>						
Average daily diversion	cfs	0	0			
Average seasonal diversion	ac-ft	0	0			
Average no. of days water carried	days	0	0			
Length of ditch carrying winter water	miles	NA	NA			
<u>Describe EXISTING lined or piped sections</u>						
Lined length	miles	NA	NA			
Liner type (concrete, earth, etc)	See Note 1					
Year installed	year					
Liner condition	See Note 2					
Piped length (see Note 3)	miles	NA	NA			
Remaining unlined/unpiped length	miles					
<u>Length to be replaced/improved</u>	miles	13.1	16.2			29.2 mi.
<u>Proposed replacement material</u>	pipe or liner	Pipe	Pipe			
<u>Estimated Salt Reduction</u>	Tons/yr	1,120	1,593			2,713 T/yr.

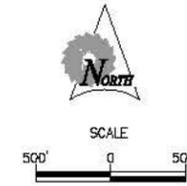
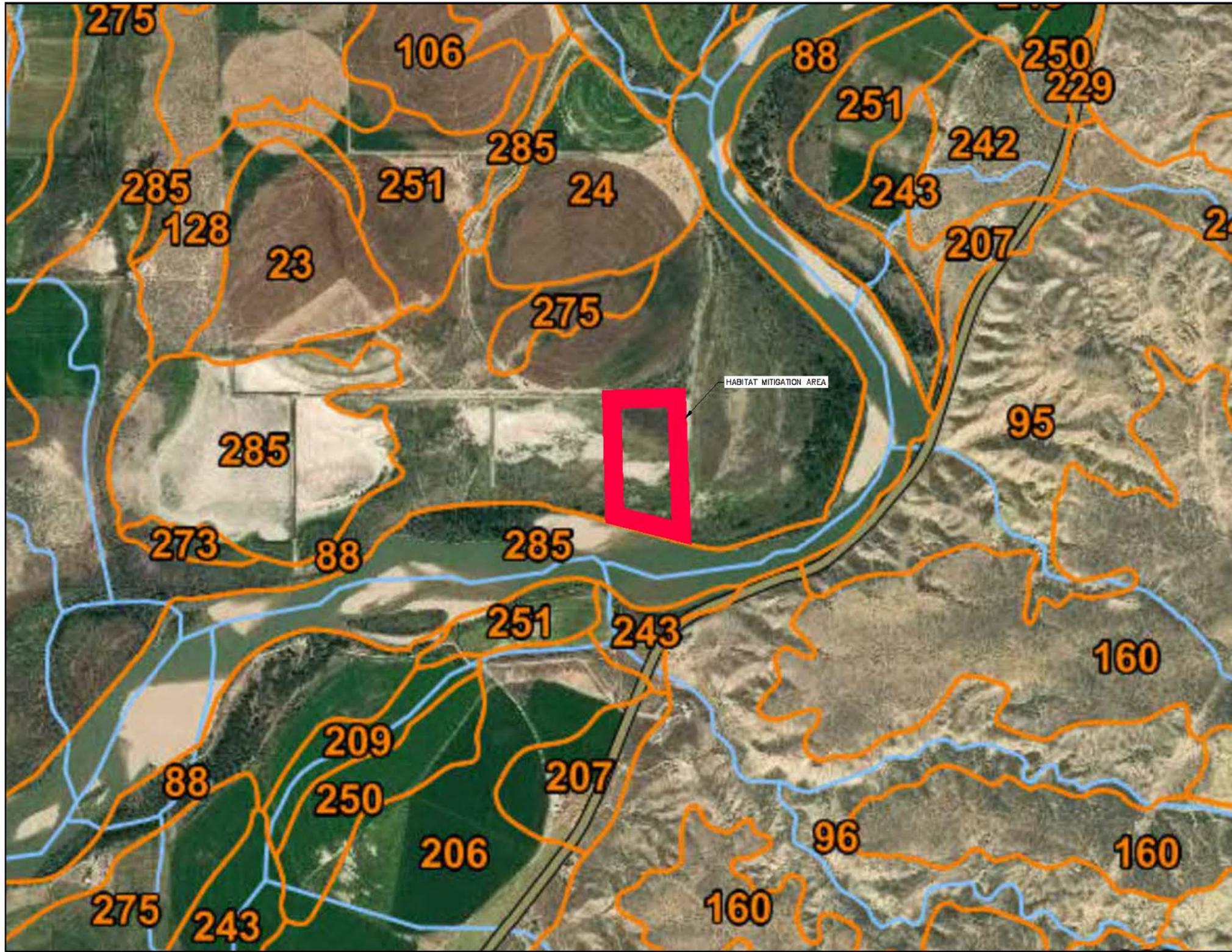
- Notes: 1. Type of liner may be concrete, earth (clay), membrane or other (please specify).
 2. Condition of liner should be rated as poor, satisfactory, good.
 3. Disregard dispersed pipe segments with individual lengths of less than 100 feet

Attachment B

Soil Maps and Data Summary

Soil Data Summary

Soil Map Unit	Soil Type	Salinity	Water Erosion Potential	Wind Erosion Potential	Droughtiness	Sodicity	Rooting Depth	Alkalinity	Reclamation Potential	ACRES		Highline Canal		Ashley Upper Canal		Crossconnections		Settling Basin (acre)	Staging Area (acre)	Mitigation Site (acre)
										Overlapping Project Components	Percent of Project Area (%)	Length (feet)	Area (acre)	Length (feet)	Area (acre)	Length (feet)	Area (acre)			
1	Abracon loam with 1-3% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	1.9	1.1%	1615	1.48	489	0.45					
2	Abracon loam with 3-8% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	3.2	1.8%	3480	3.20							
24	Blackston loam with 2-4% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	2.5	1.4%	2144	1.97	573	0.53					
25	Blackston loam with 4-8% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	4.6	2.6%	2862	2.63	1062	0.97				1	
44	Clapper gravelly loam with 2-25% slopes	Low	Low	Low	Low	Low	Low	Moderate	Moderate	7.8	4.4%	6592	6.05	1917	1.76					
53	Cliff sandy loam with 2-4% slopes	Low	Low	Moderate	Moderate	Moderate	Low	Moderate	Moderate	6.5	3.7%	5345	4.91			618	0.57		1	
74	Gerst parachannery loam with 4-25% slopes	Low	High	Moderate	Low	Low	High	Moderate	Low	0.6	0.4%	688	0.63							
77	Gerst-Rock outcrop complex with 4-40% slopes	Low	High	Moderate	Low	Low	High	Moderate	Low	2.7	1.6%	2972	2.73							
88	Green River loam with 0-2% slopes, occasionally flooded	Moderate	Low	Moderate	Moderate	Moderate	Low	Moderate	Moderate	40.0	23%									40
89	Green River loam with 0-2% slopes, rarely flooded	Moderate	Low	Moderate	Low	Moderate	Low	Moderate	Moderate	2.8	1.6%	130	0.12	2020	1.85				0.8	
91	Greybull clay loam with 4-20% slopes	Moderate	High	Moderate	Low	Low	Moderate	Moderate	Moderate	3.8	2.2%	1586	1.46	2574	2.36					
93	Greybull loam with 4-8% slopes	Low	Low	Moderate	Low	Low	Moderate	Moderate	Moderate	1.0	0.6%			911	0.84				0.2	
97	Hanksville silty clay loam, moist, with 25-50% slopes	Moderate	High	Moderate	Low	Low	Low	Moderate	Moderate	2.1	1.2%	2264	2.08							
109	Honlu very cobby sandy loam with 8-15% slopes	Low	Low	Low	Moderate	Low	Low	Moderate	Moderate	8.1	4.6%	8875	8.15							
132	Lind loam with 2-4% slopes	Low	Low	Moderate	Low	Moderate	Low	Moderate	Moderate	6.8	3.8%			7366	6.76					
137	Mikim loam with 3-15% slopes	Low	High	Moderate	Low	Low	Low	Moderate	Moderate	9.0	5.1%	8187	7.52			576	0.53		1	
163	Nolava-Nolava, wet complex, with 2-4% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	7.3	4.1%	798	0.73	7112	6.53					
164	Nolava loam with 4-8% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	6.8	3.9%	1057	0.97	6079	5.58	257	0.24			
186	Reepo-Rock outcrop complex	Low	Moderate	High	Moderate	Low	Low	Moderate	Moderate	2.4	1.4%	1875	1.72	723	0.66					
192	Robido-Uvercomplex with 1-4% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	2.5	1.4%	927	0.85	1221	1.12			0.5		
206	Shotnick sandy loam with 2-4% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	10.9	6.2%	6203	5.70	4829	4.43	865	0.79			
207	Shotnick sandy loam with 4-8% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	2.0	1.1%	1436	1.32			731	0.67			
209	Shotnick-Walkup complex with 0-2% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	2.4	1.4%			1550	1.42				1	
212	Solirec fine sandy loam with 3-8% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	0.4	0.3%	489	0.45							
215	Spitzen sand with 1-4% slopes	Low	Low	Low	Moderate	Low	Low	Moderate	Moderate	2.1	1.2%			2283	2.10					
229	Tipperary loamy fine sand with 1-8% slopes	Low	Low	Low	Moderate	Low	Low	Moderate	Moderate	2.5	1.4%	499	0.46	2189	2.01					
240	Turzo clay loam with 4-8% slopes	Low	Low	Moderate	Low	Moderate	Low	Moderate	Moderate	3.6	2.1%	3161	2.90	799	0.73					
243	Turzo -Umbo complex with 0-2% slopes	Low	Low	Moderate	Low	Moderate	Low	Moderate	Moderate	11.7	6.7%	4497	4.13	8108	7.45	175	0.16			
244	Turzo -Umbo complex with 2-4% slopes	Low	Low	Moderate	Low	Moderate	Low	Moderate	Moderate	10.2	5.8%	2034	1.87	7225	6.63	1812	1.66			
251	Umbo clay loam with 0-2% slopes	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	1.8	1.0%			1315	1.21	669	0.61			
254	Utaline very gravelly sandy loam with 2-8% slopes	Low	Low	Low	Moderate	Low	Low	Moderate	Moderate	5.8	3.3%	1037	0.95	5233	4.81					
Total										175.9	1.0	70752	65	65578	60	5702	5	1	5	40



REV. NO.	COMMENT	DATE

FOR REVIEW ONLY
 NO FOR CONSTRUCTION
 DATE



**SUNRISE
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ASHLEY UPPER IRRIGATION & HIGHLINE CANAL COMPANIES
 ASHLEY UPPER/HIGHLINE CANALS SALINITY CONTROL PROJECT
 ENVIRONMENTAL ASSESSMENT
 SOIL MAP 2

BY: SD6035	DESIGNED: DQY	DRAWN: DQY	CHECKED: BSA	SHEET NO: 02 of 02	FIG. 2
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P:\Projects\Engineering\2020\05\Highline Ditch Salinity Control EA\Design\20\fig2a.dwg, May 28, 2020 1:15pm dpm

Attachment C

Habitat Replacement Analysis

Habitat Replacement Analysis for the Highline and Ashley Upper Pipeline Project near Vernal, Utah



Prepared for:

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Revised April 16, 2019

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Ashley Upper Pipeline Proposed Alignment Maps	

1. Introduction

Alpine Environmental Resources, LLC is sub-contracted by Sunrise Engineering, Inc. to prepare this Habitat Impact Analysis for the Highline and Ashley Upper Canal Piping Project proposed by the Highline and Ashley Upper Canal Irrigation Companies in Vernal, Utah. The canal companies propose to construct two buried irrigation pipelines adjacent to the existing Highline Canal and the Ashley Upper Canal. Retiring the irrigation water transmission use of the canals, the irrigation water would be transmitted within the buried pipelines. The existing canals would be maintained for storm water drainage and habitat maintenance flows. This project would be partially funded by the Bureau of Reclamation under the provisions of the Colorado River Basinwide Salinity Control Program (Public Law 93-320). The purpose of the project is to reduce salt loading of the irrigation water and to provide water conservation through the use of pressurized sprinkler irrigation.

This report is subsequent to the Habitat Value Analysis dated March 5, 2018 in which the existing habitat along both canals is evaluated. The Habitat Value Analysis divided the canals into segments and determined a Habitat Quality Score for each segment. This report quantifies the existing riparian habitat that would likely die as result of direct impacts caused by construction of the pipeline and the indirect impact of moving the canal water to the pipeline.

As shown on the attached maps, the proposed construction width for trenching and burying the pipeline is 50-feet wide. It is anticipated that all vegetation within this alignment could be cleared for construction. Starting at the point of diversion off Ashley Creek, a 36-inch diameter pipeline would be connected to the diversion structure. The pipeline would be trenched and buried below the existing grade. The buried pipeline would be backfilled and the existing canal prism would be recontoured to the preconstruction condition and maintained open for storm water protection and drainage. A 10-foot wide maintenance easement would be maintained for the long-term over the top of the buried pipeline. The disturbance area would be reseeded with an approved native upland species seed mix.

In addition, 5 construction staging areas were identified along the proposed pipeline construction rights-of-way for the purpose of temporary stock piling and staging the pipeline for construction. Habitat impacts identified at the staging areas are also analyzed and included in this report. All 5 staging areas are disturbed and no tree or habitat removal would be necessary at these sites.

Post construction, irrigation water diverted off Ashley Creek would be directed to the buried pipeline and the canals would be retired of irrigation flows. As result of the moving the irrigation flows to the buried pipeline it is anticipated that riparian trees left outside of the

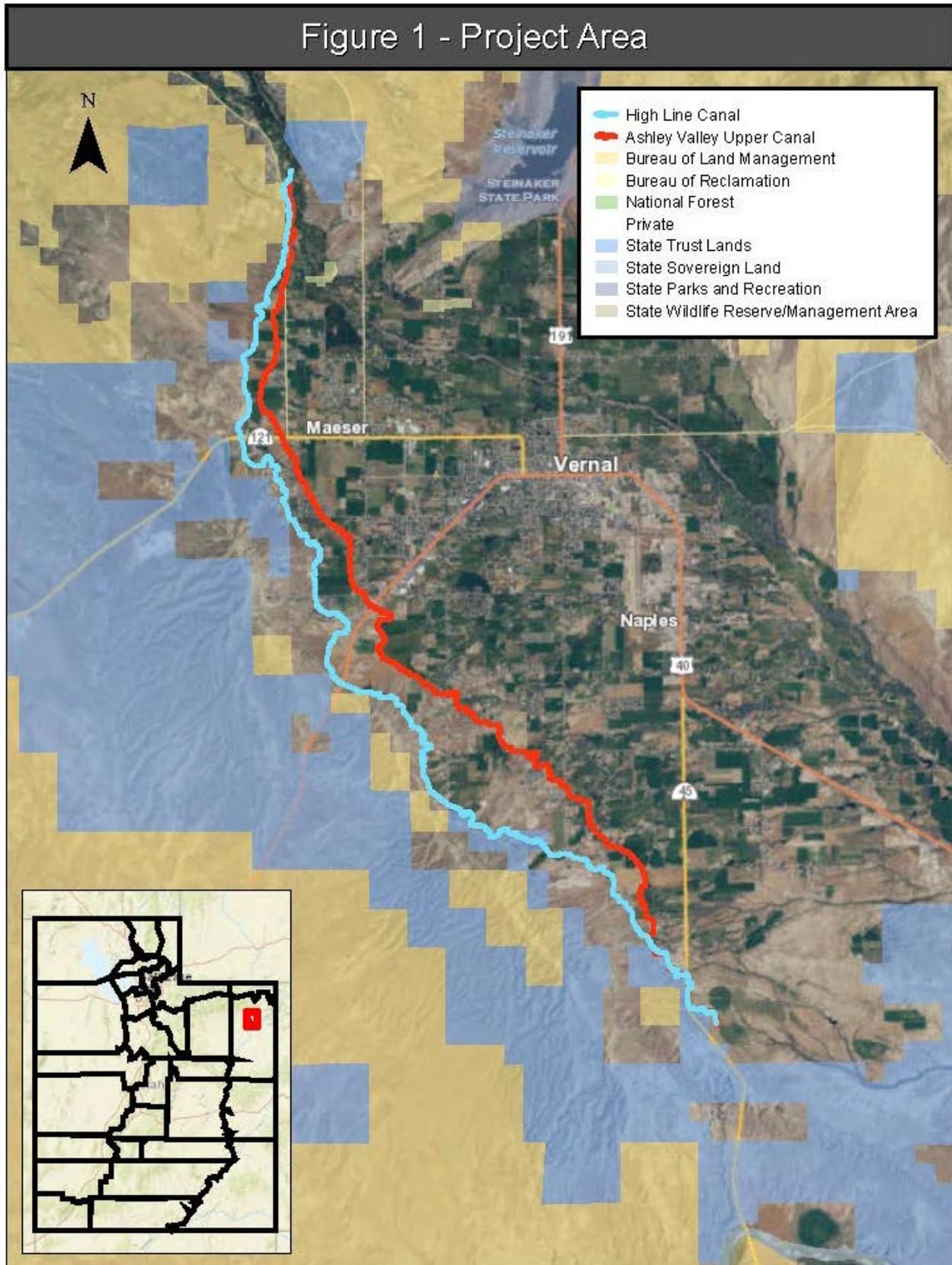
construction disturbance area could die. The indirect impact to existing riparian habitat along the construction easement is also considered and quantified by acreage in this analysis.

The proposed project is located in portions of Sections 31 and 32 of Township 3 South, Range 21 East, Sections 5, 6, 7, 18, 19, 20, 29 and 32 of Township 4 South, Range 21 East, Sections 4, 5, 9, 10, 13, 14, 15 and 24 of Township 5 South Range 21 East, and Sections 19 and 30 of Township 5 South, Range 22 East, SLBM (Figure 1).

The Highline pipeline would begin near the point of diversion off the west bank of Ashley Creek located at approximately 40° 30' 43.66" N 109° 35' 40.04"W. The proposed pipelines would range in size from 48-inch pipe to 18-inch pipe. The proposed Highline pipeline is approximately 15 miles long. It flows southwesterly from the point of diversion on the west side of the Ashley Valley to its terminus south of the town of Naples and east of State Route 45 at approximately 40° 22' 12.06" N, 109° 30' 27.90" W.

The Ashley Upper Canal is a diversion off the Highline Canal approximately 820 linear feet downstream of the Ashley Upper diversion structure, at approximately 40° 30' 36.44" N, 109° 35' 43.58" W. The Ashley Upper Canal flows south along the east side of the Highline Canal for approximately 14.2 miles. The proposed Ashley Upper pipeline is mostly parallel to the existing canal, it would merge with the proposed Highline pipeline and terminate just south of the town of Naples at approximately 40° 21' 14.22" N, 109° 29' 26.96" W.

Figure 1 - Project Area



Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Existing Conditions

For the purposes of this document, the **project region** is defined as the Uinta Basin that the project area is within. The **project vicinity** is defined as the project area buffered by 0.5 mile. And, the **project area of impact** is a 50-foot wide linear disturbance footprint along the proposed pipeline alignment and riparian habitat outside of the construction easement as shown on the figures in Appendix A, Highline Pipeline Alignment, and in Appendix B, Ashley Upper Pipeline Alignment. As previously stated, the existing canal prism will be reconstructed and maintained in areas that the pipeline alignment intercepts the existing canal. Riparian habitat directly impacted through cutting and removing to clear the construction corridor and riparian habitat indirectly impacted through the loss of irrigation water is quantified here to determine the Habitat Replacement Value needed to achieve habitat mitigation for construction impacts, which is a requirement of the Basin Wide Salinity Control Program.

The original diversion on Ashley Creek was constructed sometime during the 1930's. It is still in use today, although it has most likely been upgraded. This diversion does not have a fish screen, it is possible for fish to enter the canals. The canals were not screened for a fish survey. Approximately 820 feet down the canal from the point of diversion the canal splits at the Highline and the Ashley Upper canal flumes. The Highline diversion dam and control structure is a 10-foot wide concrete parshall flume located at 40° 30' 43.66" N 109° 35' 40.04"W. The Ashley Upper diversion dam and control structure is adjacent to the Highline, it is a 15-foot wide concrete parshall flume located at 40° 30' 36.53"N 109° 35' 43.56" W.

The Highline Canal is approximately 3 feet wide and 3 feet in depth. It is a man-made, un-lined canal cut at the base of the western talus slope of the Ashley Valley. Lateral irrigation ditches are used to irrigate fields and pastures to the east of the canal. This canal is regularly maintained; spoils from historic dredging form the canal banks. The canal bottom is not vegetated; it is hard packed silty, clay with some gravels. The banks are vegetated with native grasses, primarily reed canarygrass (*Phalaris arundinacea*) and horsetail (*Equisetum sp.*). Few trees and some shrubs line the canal banks at the northern end becoming less dense and more scattered as the canal flows to the south.

The Utah Division of Water Rights maintains water flow and water rights records. Flow data for the Highline Canal is available beginning in 1962. During normal water years, the Highline receives irrigation water May through August. Delivery can occur as early as April and continue as late as October during high water years or intermittently during low water years. The distribution systems mean monthly discharge for the years 1962 through 2017 is provided in Table 1 below.

TABLE 1: HIGHLINE CANAL DISTRIBUTION SYSTEM MONTHLY MEAN FLOW IN ACRE FEET*

Year	April	May	June	July	August	Sept	Oct	Annual
1962-2017	227	1,711	2,122	1,018	633	294	224	5,325

* Utah Division of Water Rights, Ashley Creek Highline Canal Daily Records Summary.

The Ashley Upper Canal is approximately 4 to 5 feet wide and 3 feet deep. It is un-lined and historically cut into the meandering contours of the valley edge. It is roughly 800 to 2,000 feet east of the Highline Canal and flows somewhat parallel to it. The Ashley Upper Canal is mostly tree lined shading the canal. Dominant tree species include cottonwood (*Populus fremontii*), quaking aspen (*Populus tremuloides*), silver poplar (*Populus alba*), black willow (*Salix goodingii*), boxelder (*Acer negundo*), and river birch (*Betula occidentalis*). Dense mid-story shrubs grow along the banks; dominant species include coyote willow (*Salix exigua*), woods rose (*Rosa woodsii*), goldenrod (*Solidago canadensis*), clematis (*Clematis ligusticifolia.*), cocklebur (*Xanthium strumarium*), and milkweed (*Asclepias speciosa*). The banks are vegetated with native grasses and broadleaf plants; dominant species include reed canarygrass, orchard grass (*Dactylis glomerata*), horsetail, sunflower (*Helenathia sp.*), annual wheatgrass (*Eremopyrum triticeum*), and Kentucky bluegrass (*Poa pratensis*). The canal bottom is unconsolidated sand, gravel, pebbles, and rocks. Flows in the canal ripple across the rocky bottom in some areas. Water in the canal is clear and cool at the north end, becoming cloudy and warmer as it flows south. The Ashley Upper Canal receives some tail water from fields on the west and laterals divert flows to flood irrigate fields on the east. During normal water years, the Ashley Upper Canal receives irrigation water from the Ashley Upper Creek Diversion May through October. Delivery can occur as early as April and continue as late as October during high water years or intermittently during low water years. The distribution systems mean monthly discharge for the years 1962 through 2017 is provided in Table 2 below.

TABLE 2: ASHLEY UPPER CANAL DISTRIBUTION SYSTEM MONTHLY MEAN FLOWS IN ACRE FEET*

Year	April	May	June	July	August	Sept	Oct	Annual
1962 – 2017	762	5,062	5,848	3,634	2,433	1,547	912	19,519

*Utah Division of Water Rights, Ashley Creek Upper Canal Daily Records Summary

2. Methods

The methodology used for this analysis is outlined in the *Basinwide Salinity Control Program Procedures for Habitat Replacement* (Bureau of Reclamation 2013), in which a Reclamation-Fish and Wildlife Service team prepared habitat replacement requirements and procedures. The

requirement and authority to implement habitat replacement features were first included in the 1984 amendments, public Law 98-569, to the Salinity Control Act, Public Law 93-320. The 1995 amendments, Public Law 104-20, to the Act that created the Basinwide Salinity Control Program states...*"Such program shall provide for the mitigation of incidental fish and wildlife values that are lost as a result of the measures and associated works."* The Act, as amended, requires the replacement of incidental fish and wildlife habitat values forgone by implementation of salinity control projects in the Basinwide Program. The cost of this mitigation has typically been included in the costs of the salinity control projects used in computing cost effectiveness.

Habitat Quality Scores for each canal segment were determined using this standardized habitat assessment protocol and are outlined in the Habitat Value Analysis prepared by Alpine dated March 5, 2018.

The project design engineers, CIVCO Engineering, Inc. identified a proposed construction alignment with intentions to minimize and avoid riparian zone impacts to the maximum extent practicable. Anticipated construction impacts as result of the proposed alignment are analyzed and outlined in this document. This habitat impact analysis identifies the amount of mitigation necessary to compensate for project related direct and indirect impacts to riparian habitat.

3. Findings

The Total Habitat Impact, Habitat Quality Score, and Habitat Replacement Value for each segment of the Highline and Ashley Upper Pipelines are outlined below in Tables 3 and 4, respectively. The construction width analyzed is 50-feet. To minimize the width of the construction easement required, the proposed construction method involves fusing long sections of pipeline then pulling the sections into the trench.

The amount of riparian habitat that will be removed for construction was quantified using the proposed construction alignment over the Utah ARGC base hybrid aerial imagery map with esri arcgis software. Impact area polygons were digitized and electronically quantified as shown on the attached figures in Appendix A (Highline) and Appendix B (Ashley Upper). Areas of impact considered that would require habitat mitigation include all riparian vegetation within the 50-foot wide construction easement that would be cleared for trenching and placement of the buried pipeline; And, all existing riparian vegetation that would likely die off as result of moving the irrigation water to the pipeline and retiring the canals from regular irrigation uses. Large trees outside of the construction easement that are on private landscaped lots were excluded as it is presumed that the land owners would maintain the trees along with their existing landscape vegetation. Clusters of Russian olive and tamarisk trees adjacent to the canals that could be indirectly impacted by a reduced flow regime are not considered for habitat mitigation, as these are non-native invasive species.

*Habitat Replacement Analysis for the Highline and Ashley Upper Pipeline Project
Vernal, Utah*

The Habitat Quality Score for each canal segment derives from the Habitat Value Analysis Report prepared by Alpine Environmental Resources dated March 5, 2018. Jill Hankins and Angela Averett collected habitat quality data in the field on September 26, 27, and 28, 2017.

TABLE 3: TOTAL HABITAT IMPACT AND REPLACEMENT VALUE FOR THE HIGHLINE PIPELINE

Segment	Linear Distance of Segment (Feet)	Habitat Impact (Acres)	Habitat Quality Score for Segment	Total Habitat Replacement Value for Pipeline Impacts
HL-1	845	0.55	5.6	3.08
HL-1.5	1,058	0.36	4.8	1.73
HL-2A-2D	7,250	1.95	3.8	7.41
HL-2.5	1,028	0.11	4.6	0.51
HL-3A-3E	9,877	3.06	3.6	11.02
HL-4A-4B	5,344	2.89	2.4	6.94
HL-5A-5B	2,800	1.53	2.1	3.21
HL-6	4,223	2.70	2.6	7.02
HL-7A-7B	2,700	0.84	1.6	1.34
HL-7.5	2,615	0.63	2.0	1.26
HL-8	5,431	1.86	2.4	4.47
HL-9	13,753	0.00	0.0	0.00
HL-10A-10D	11,050	0.00	0.0	0.00
HL-11	11,226	0.00	0.0	0.00
Totals	79,385	16.48		47.99

(~15 miles)

*The Total Habitat Replacement Value for construction of the Proposed Highline Pipeline is 47.99

*Habitat Replacement Analysis for the Highline and Ashley Upper Pipeline Project
Vernal, Utah*

TABLE 4: TOTAL HABITAT IMPACT AND REPLACEMENT VALUE FOR THE ASHLEY UPPER PIPELINE

Segment	Linear Distance of Segment (Feet)	Habitat (Acres)	Habitat Quality Score	Total Habitat Replacement Value for Pipeline Impacts
UA-1	1,720	1.40	6.4	8.96
UA-1.5	2,190	1.62	5.7	9.23
UA-2	2,813	1.69	4.4	7.44
UA-3	5,735	3.45	4.9	16.90
UA-4	6,290	7.53	3.8	28.61
UA-5	781	0.78	4.2	3.28
UA-6	2,307	1.80	3.0	5.40
UA-7	3,311	2.39	3.3	7.89
UA-8	3,860	2.33	3.2	7.46
UA-9	3,500	0.00	2.4	0.00
UA-10	10,810	6.20	3.7	22.94
UA-11	2,860	1.95	2.8	5.46
UA-12	5,738	3.36	3.0	10.08
UA-13	5,606	4.08	2.5	10.20
UA-14	2,206	2.03	2.1	4.26
UA-15	4,375	4.78	2.2	10.52
UA-16	5,628	1.97	1.9	3.74
Totals	75,642	47.36		136.37

(~14 miles)

*The Total Habitat Replacement Value for construction of the Proposed Ashley Upper Pipeline is 136.37

The total habitat impact replacement value of these canals should be achieved through a Habitat Mitigation Plan. Habitat **mitigation** means the creation, enhancement, and preservation of habitat to replace habitat values lost as a result of salinity control measures being implemented. The concept of mitigation is to off-set the anticipated loss of habitat caused by the proposed action.

Avoidance of impacts means not allowing impacts to occur in the first place. Avoidance opportunities were evaluated when determining the proposed pipeline alignment. The existing canal easement is 75-feet wide, which includes the canal and maintenance access. The existing canal easement and adjacent lands were evaluated for potential pipeline placement in attempt to avoid impacts to riparian habitat. The proposed pipeline construction easement avoids impacts to existing habitat to the greatest extent reasonably practicable with consideration of the existing conditions and engineering constraints.

Preservation of existing pre-project habitat means designing and implementing a management plan that assures that the habitat will remain viable for the life of the project. Both the Highline and the Ashley Upper canals will be maintained to intercept storm water run off for flood control. This will provide some hydrology to sustain the existing habitat along the canals.

Where avoidance and preservation are not feasible, then acquisition, through fee or easements, and improvement of mitigation property is the required approach.

A Habitat Mitigation Plan for this project will be prepared and presented to compensate for the anticipated habitat losses.

References

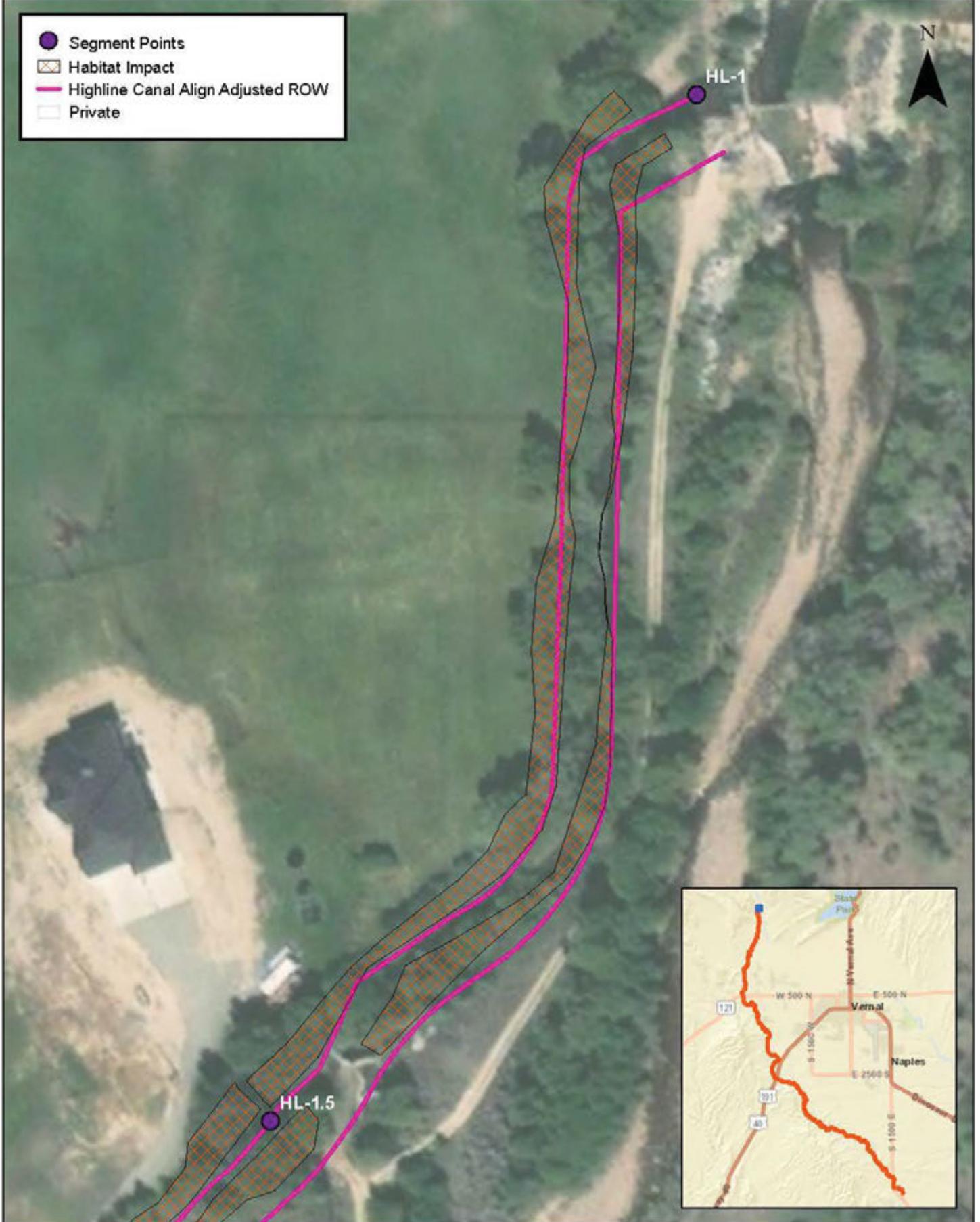
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<https://www.waterrights.utah.gov/>

Appendix A
Highline Pipeline Proposed Alignment Maps

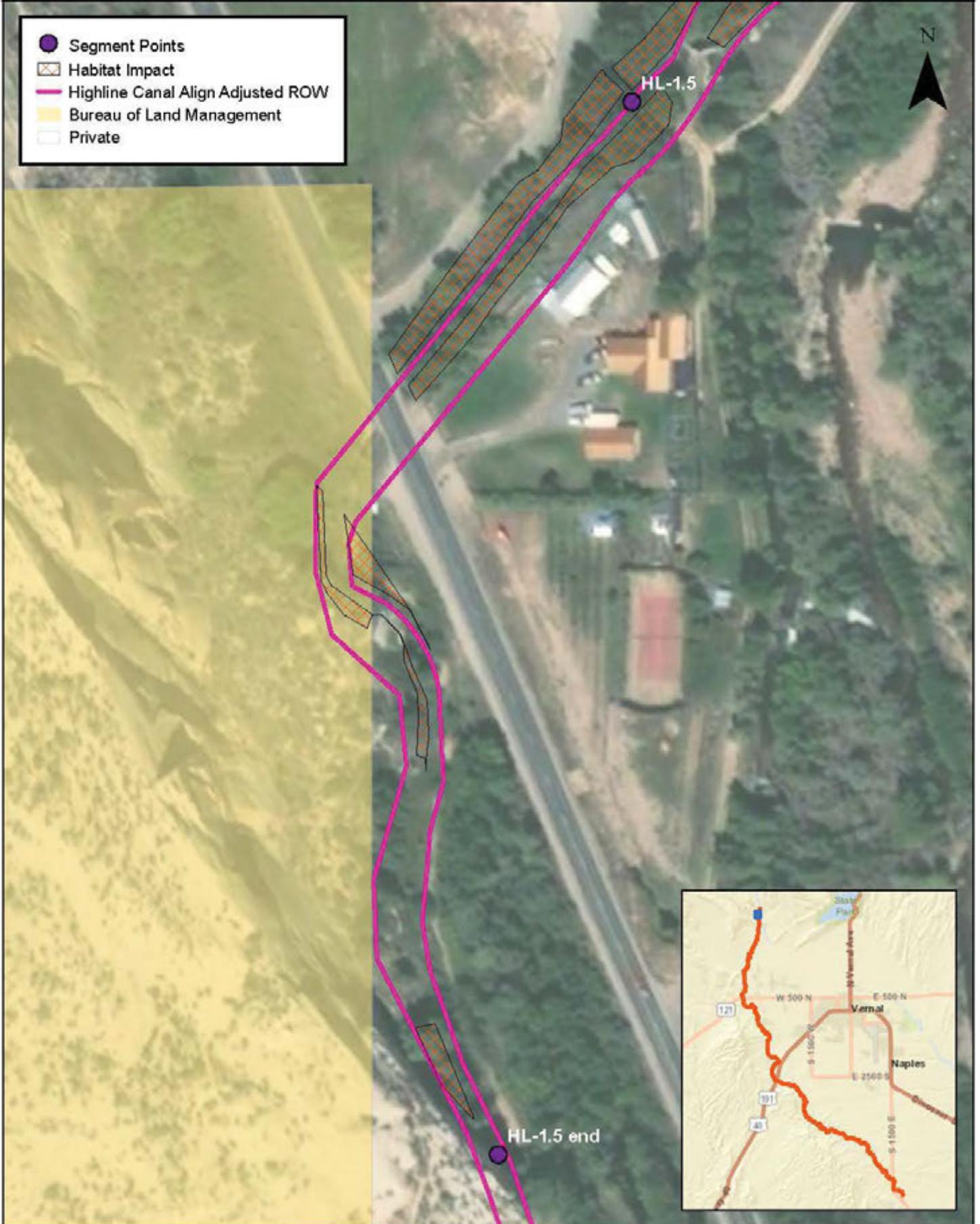
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- ▨ Habitat Impact
- Highline Canal Align Adjusted ROW
- Private

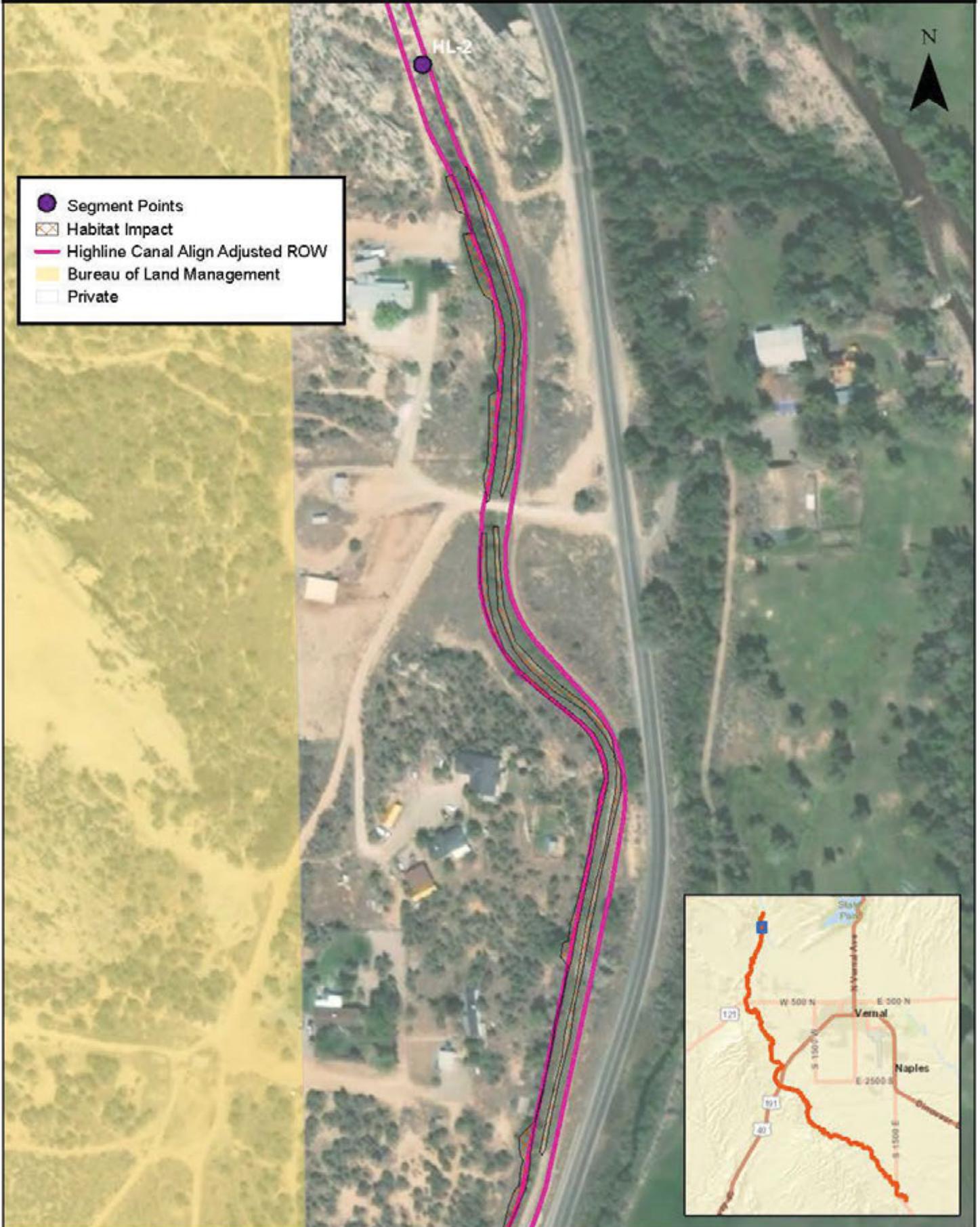


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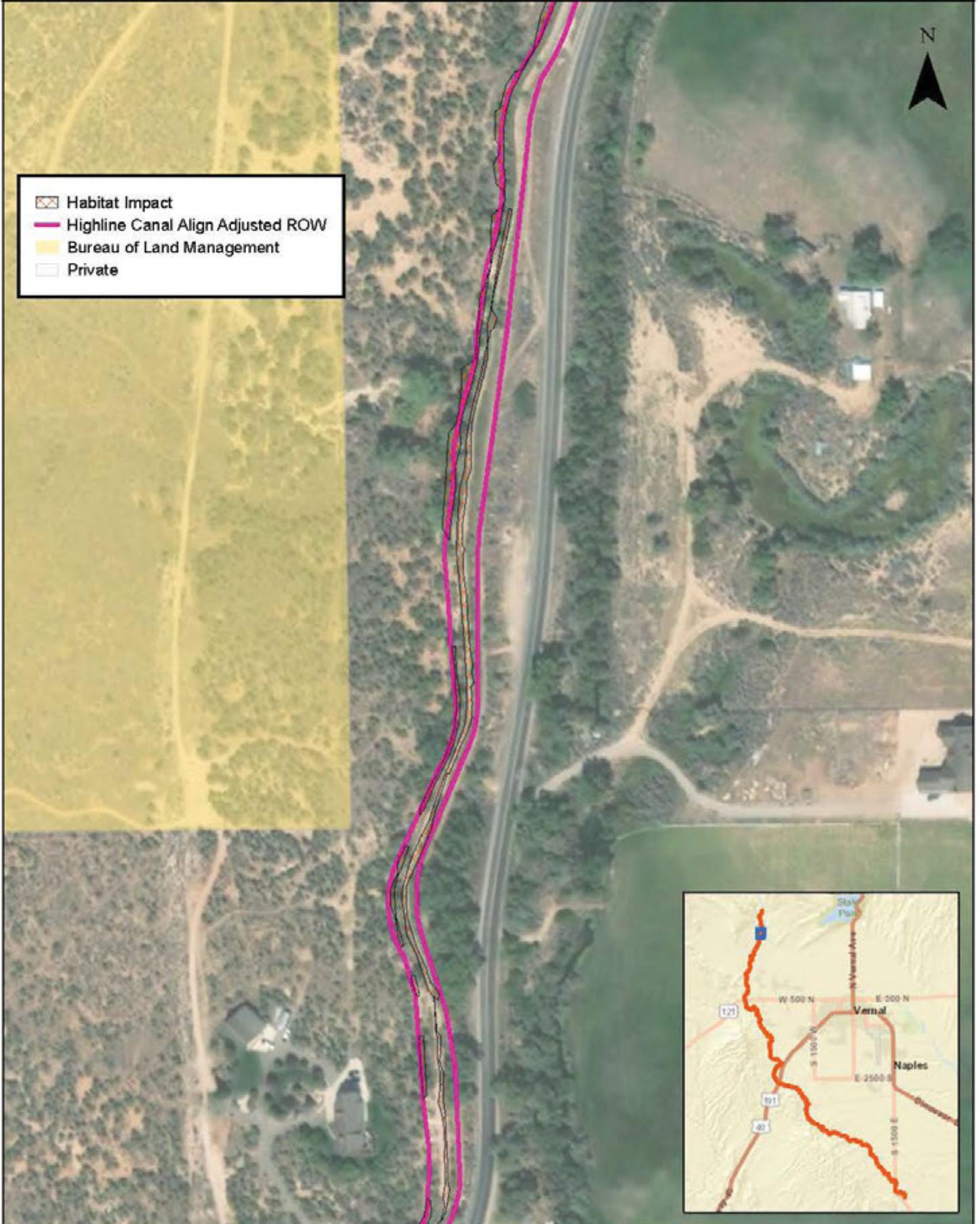
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- Bureau of Land Management
- Private



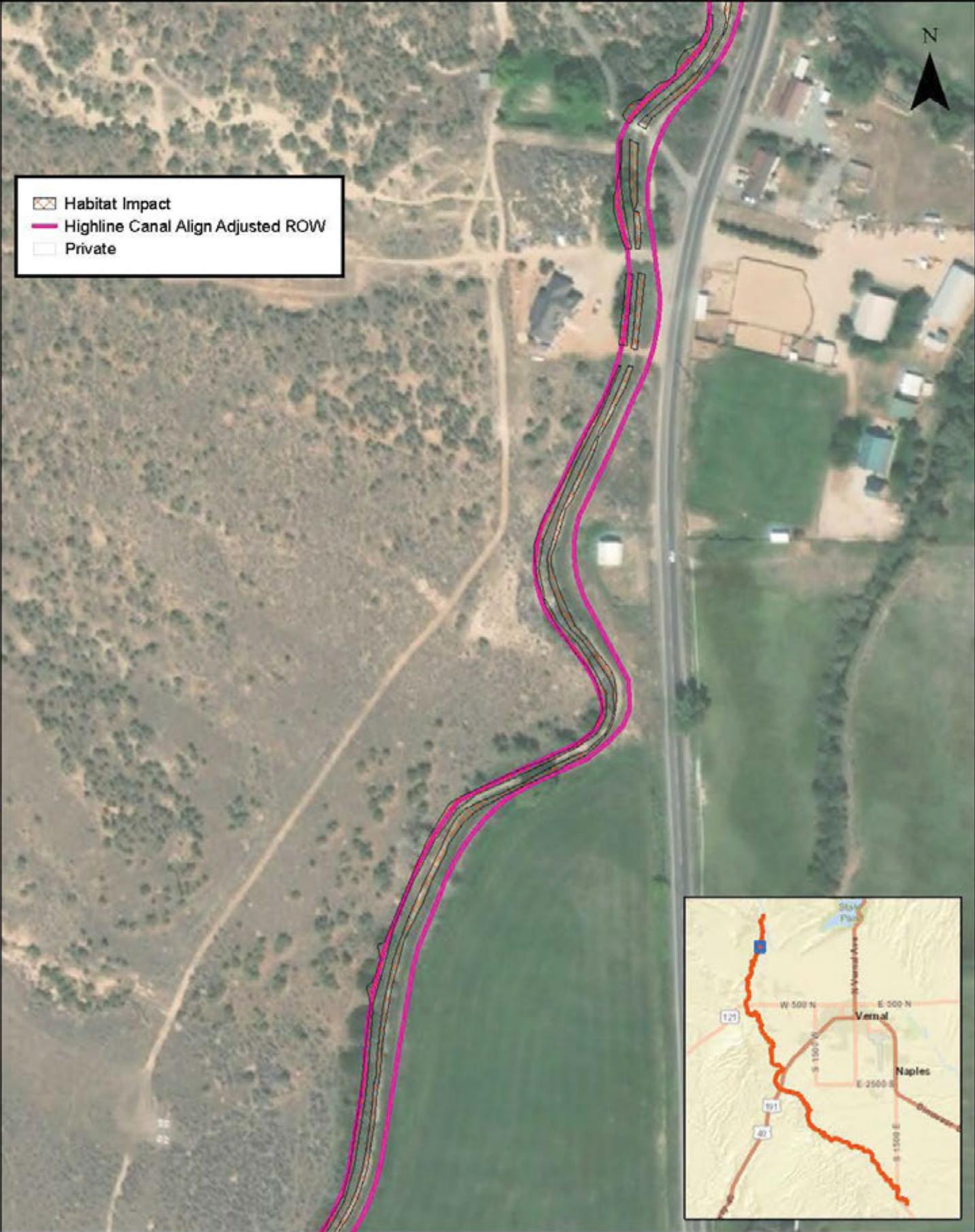
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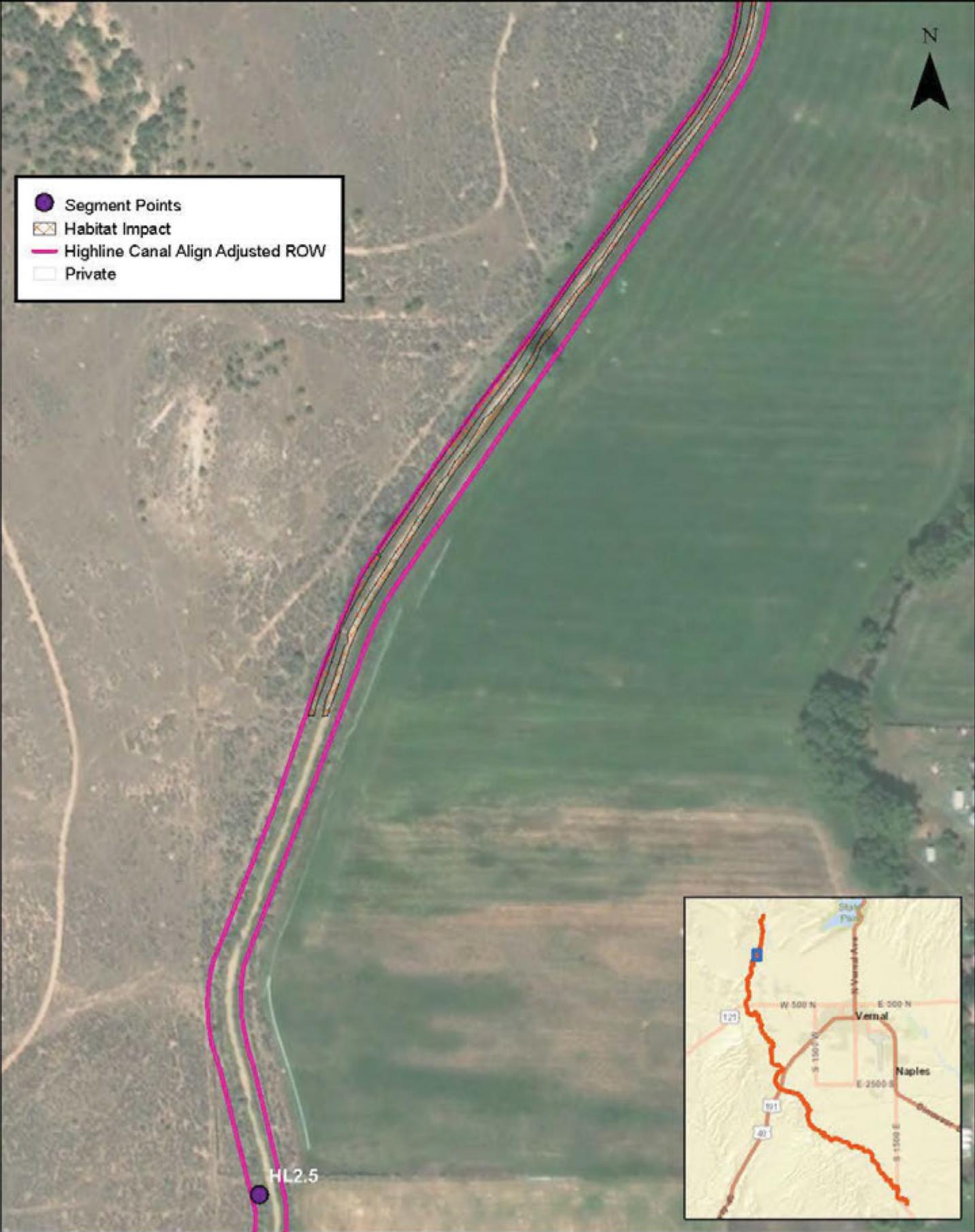
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Segment: HL-2C



Segment: HL-2D



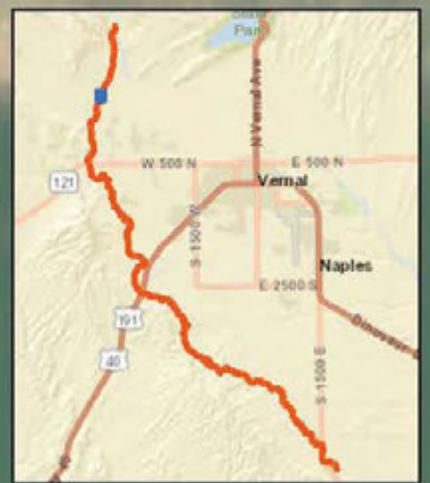
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- Segment Points
 - ⊠ Habitat Impact
 - Highline Canal Align Adjusted ROW
- Comments**
- Ute ladies' tresses suitable habitat
 - Private

HL2.5

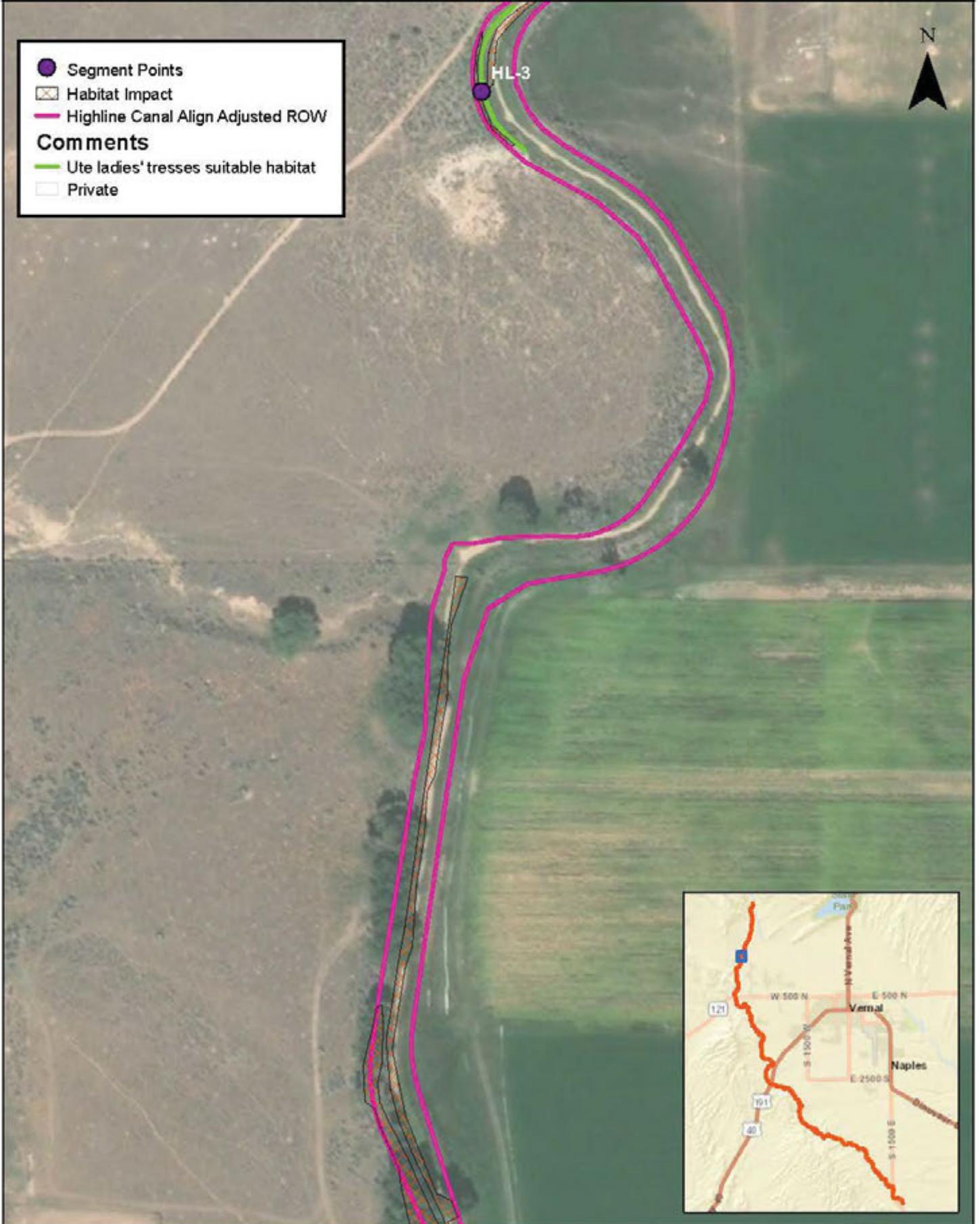
HL-3

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15 Plants 2016 Survey
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0 Plant 2017 Survey

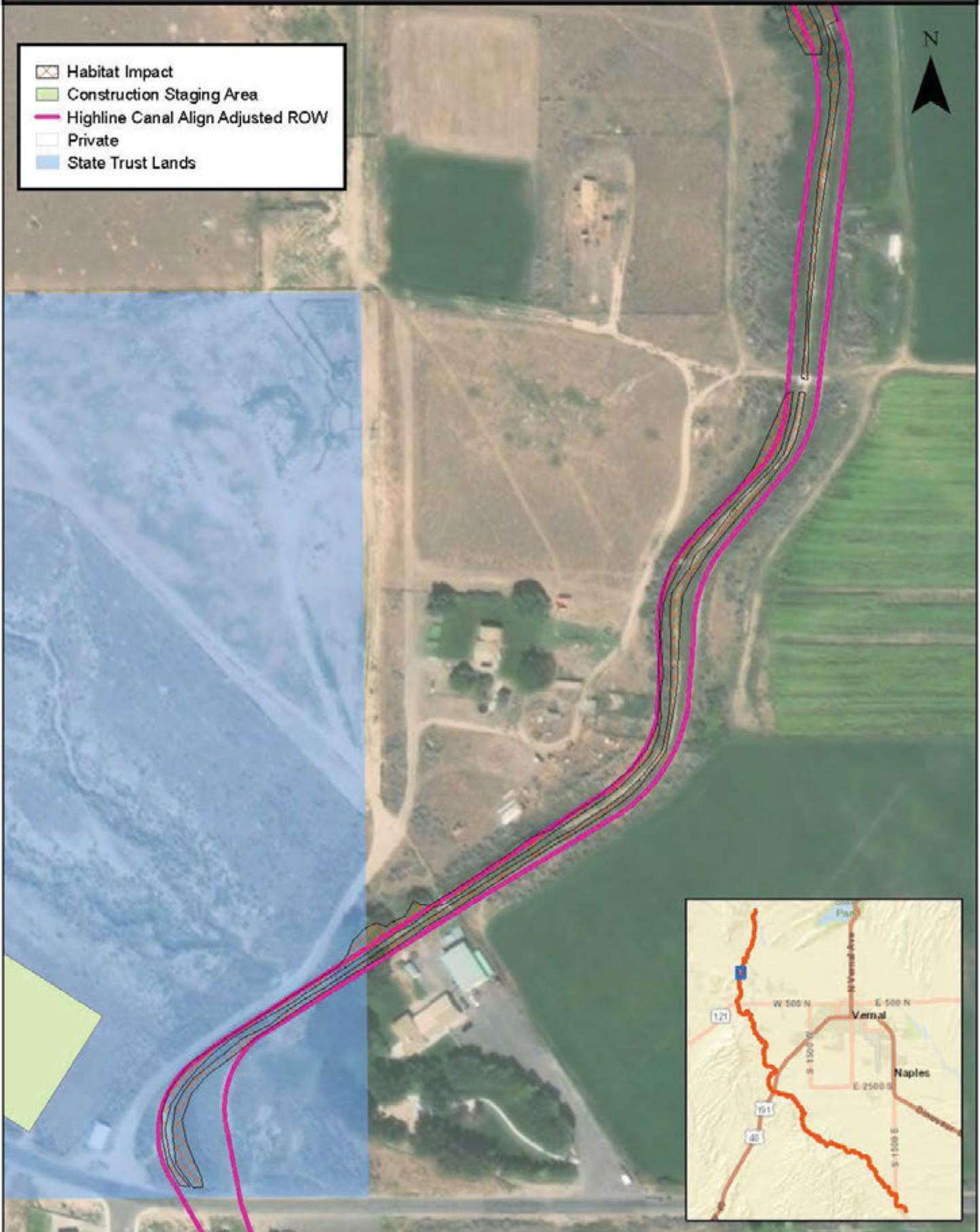


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- Comments**
- Ute ladies' tresses suitable habitat
 - Private



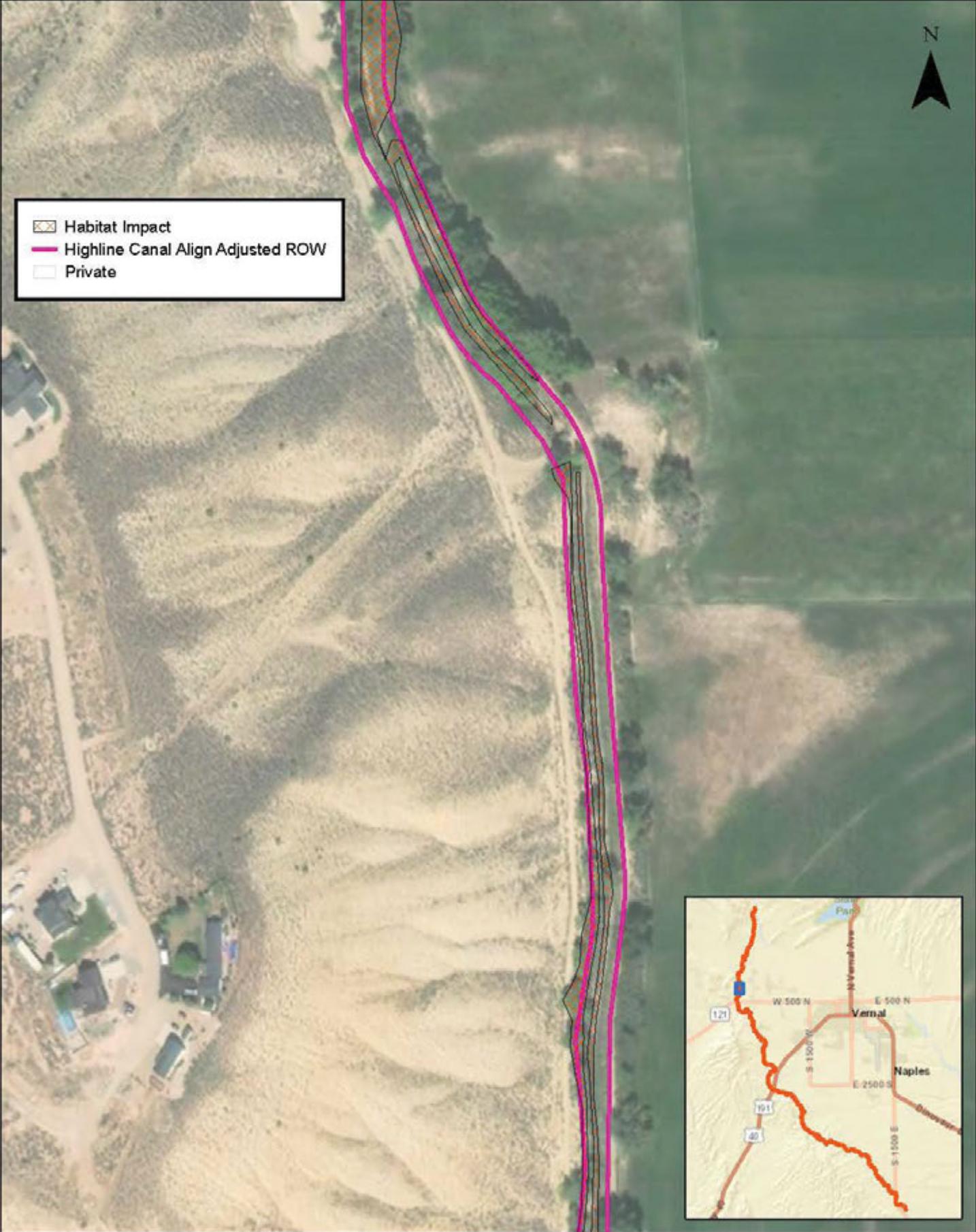
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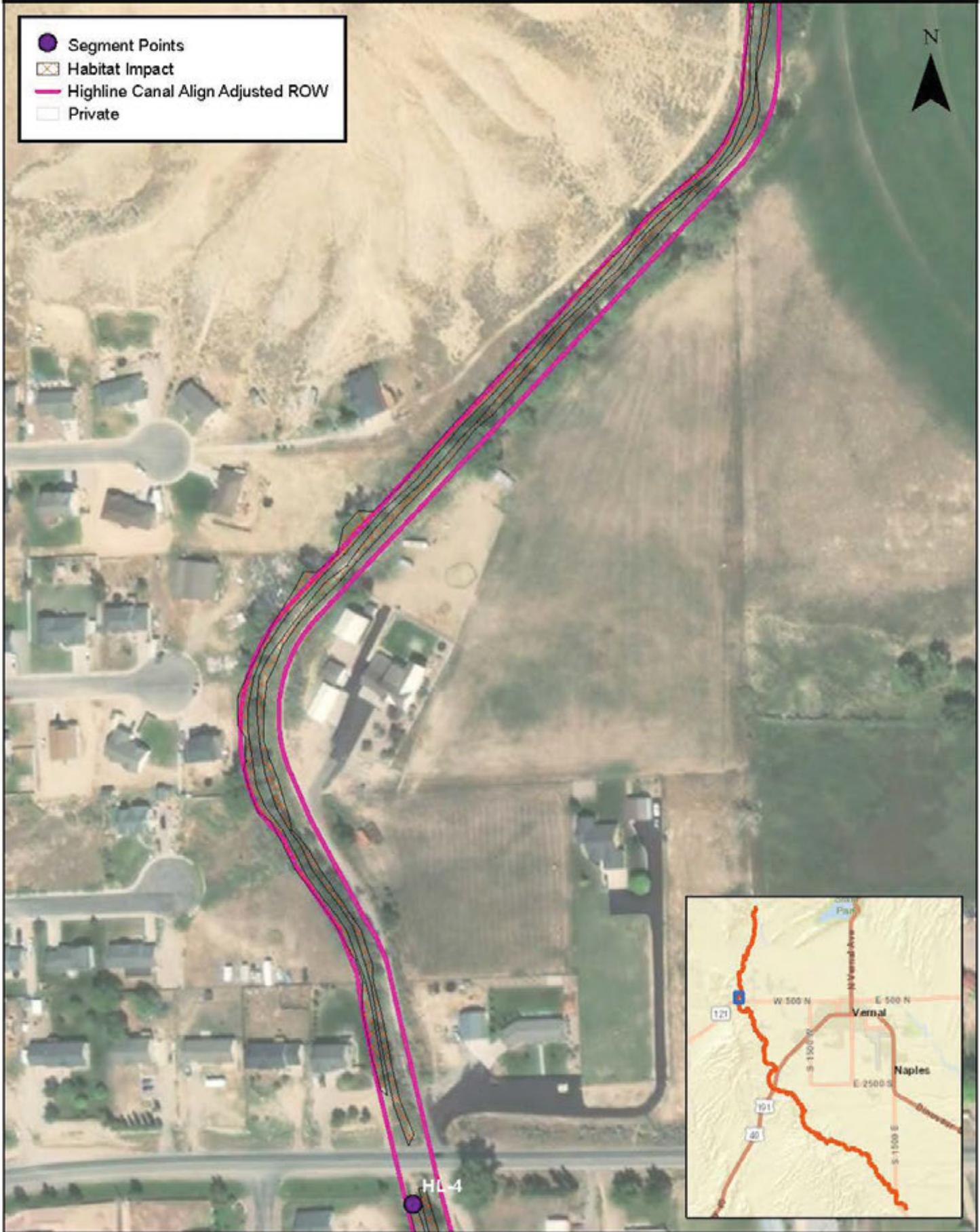


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Segment: HL-3E

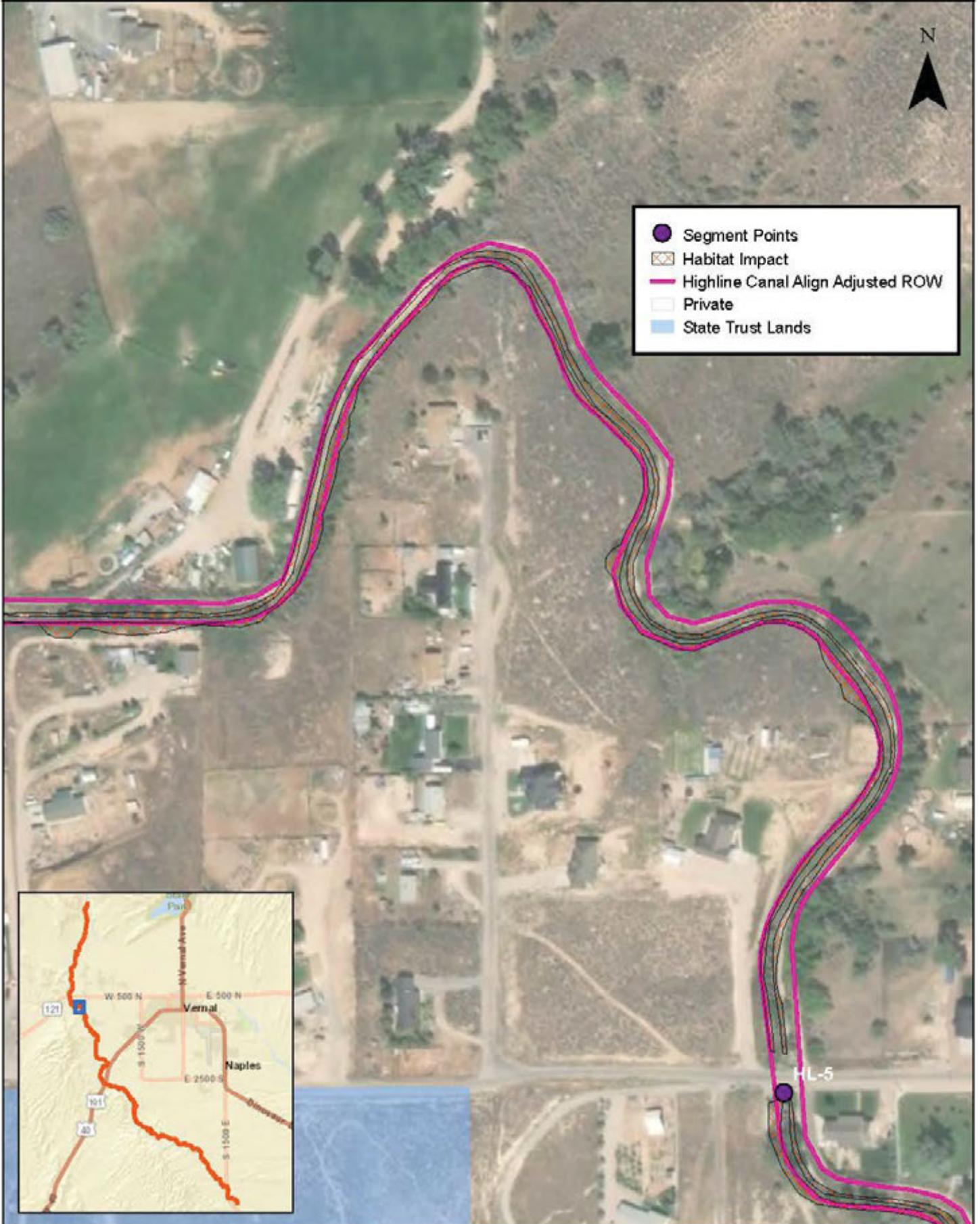
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- Highline Canal Align Adjusted ROW
- Private



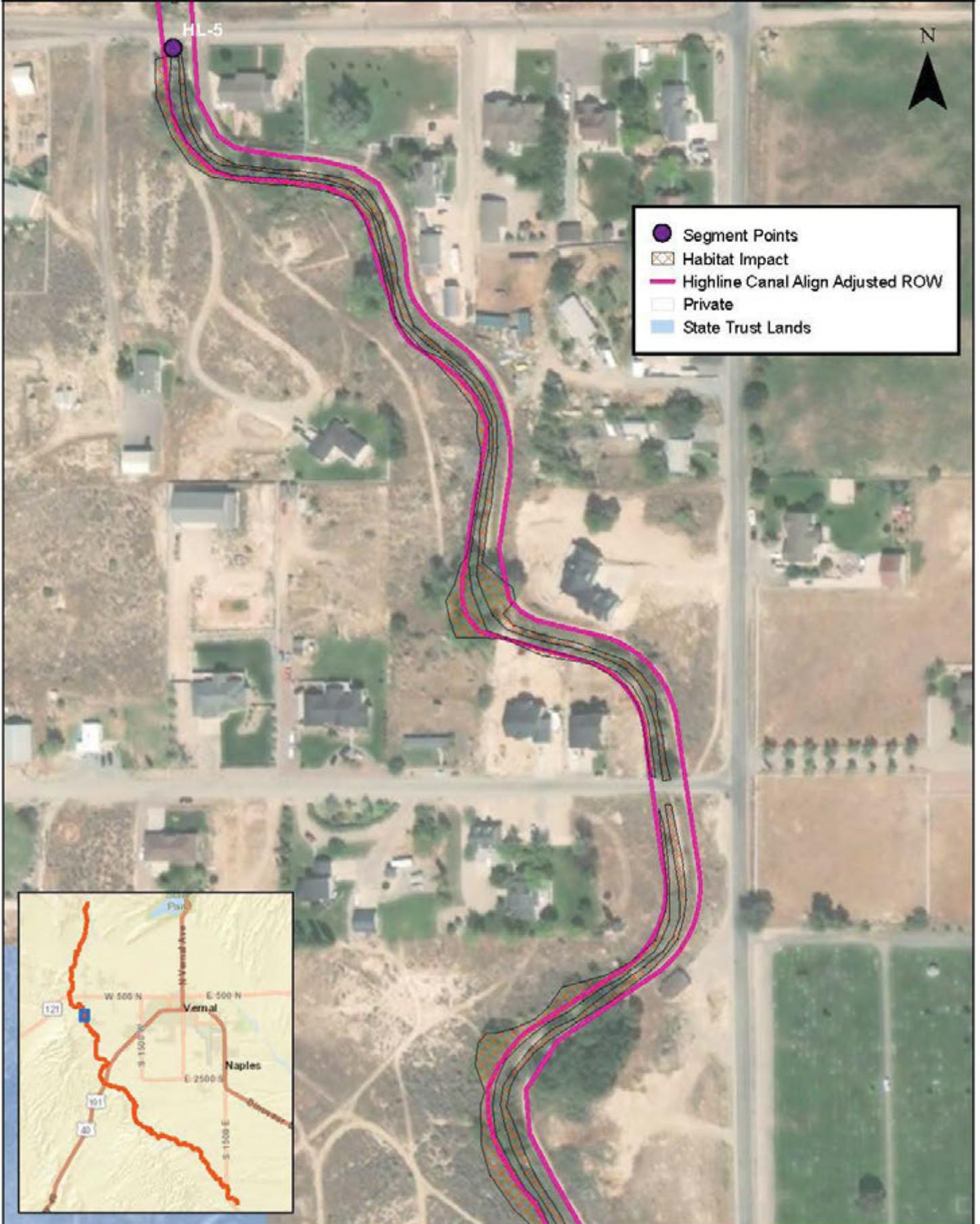
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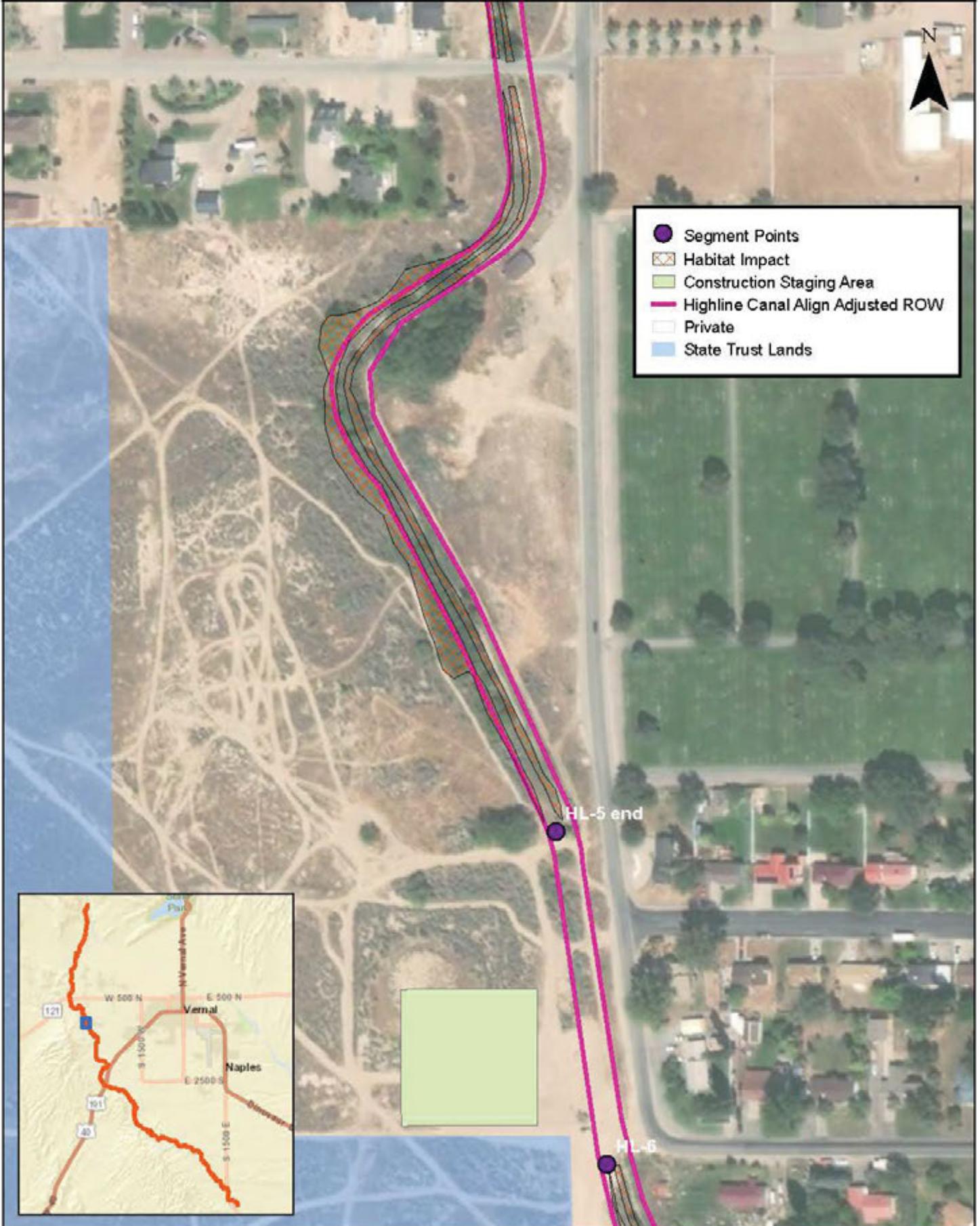
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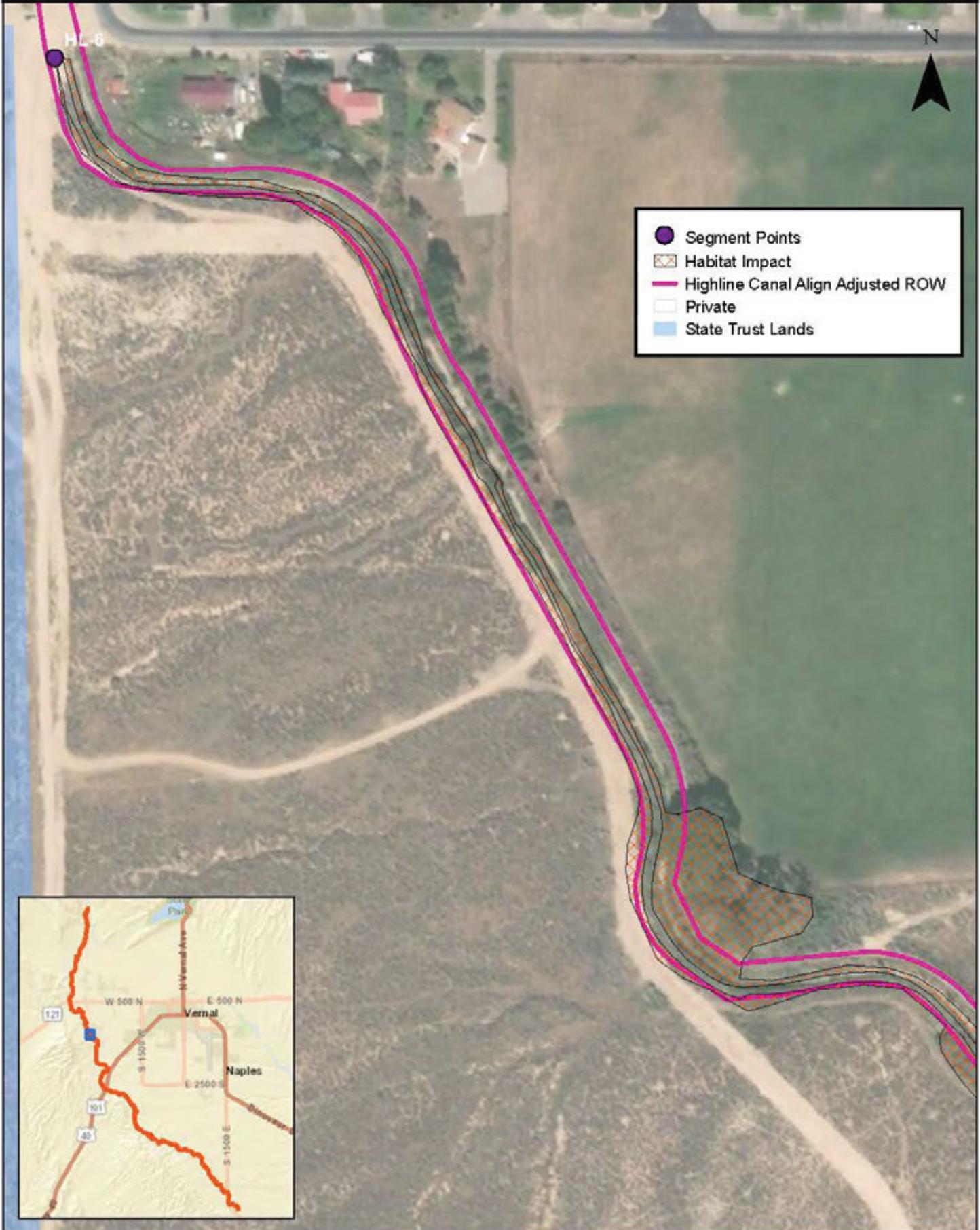
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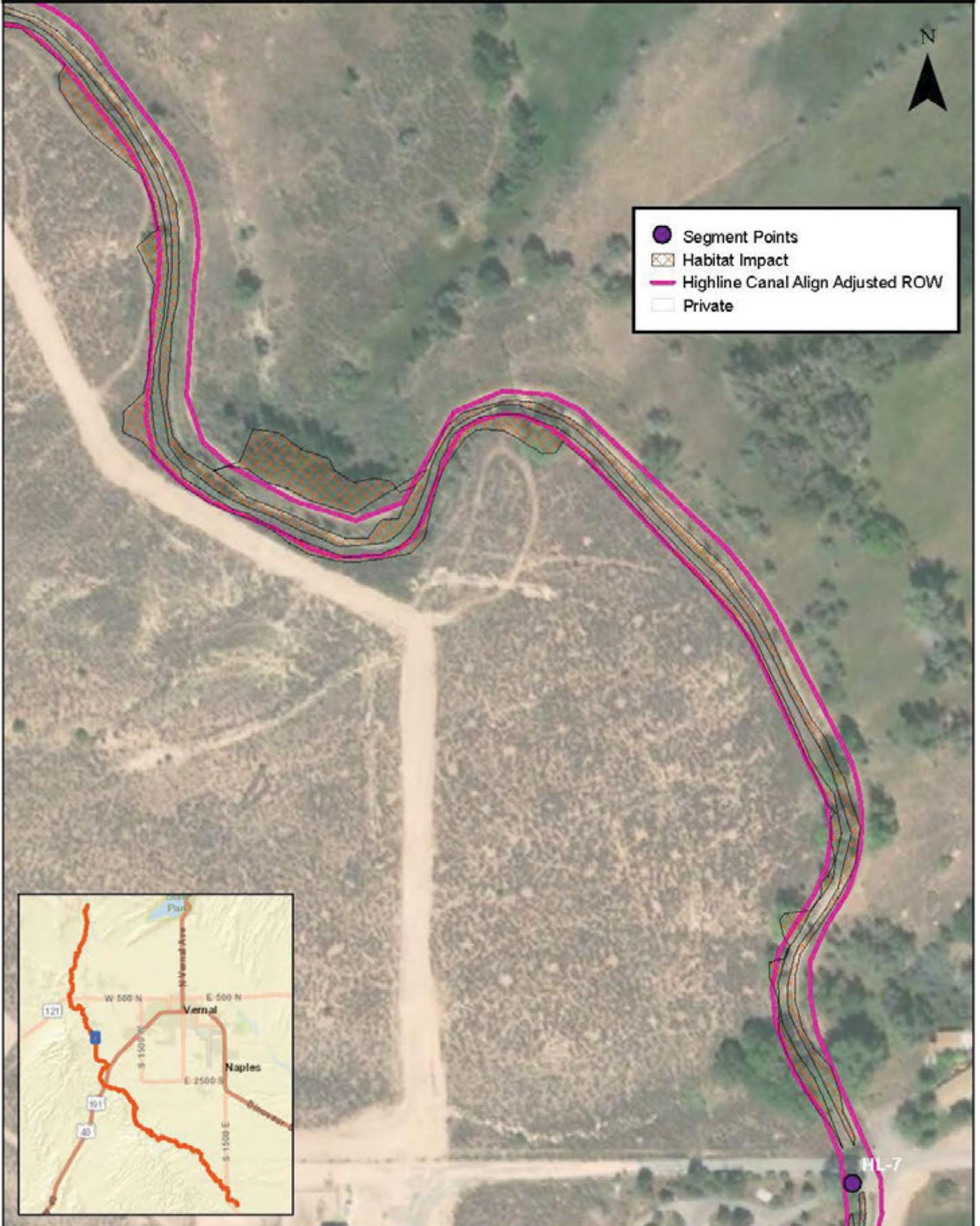
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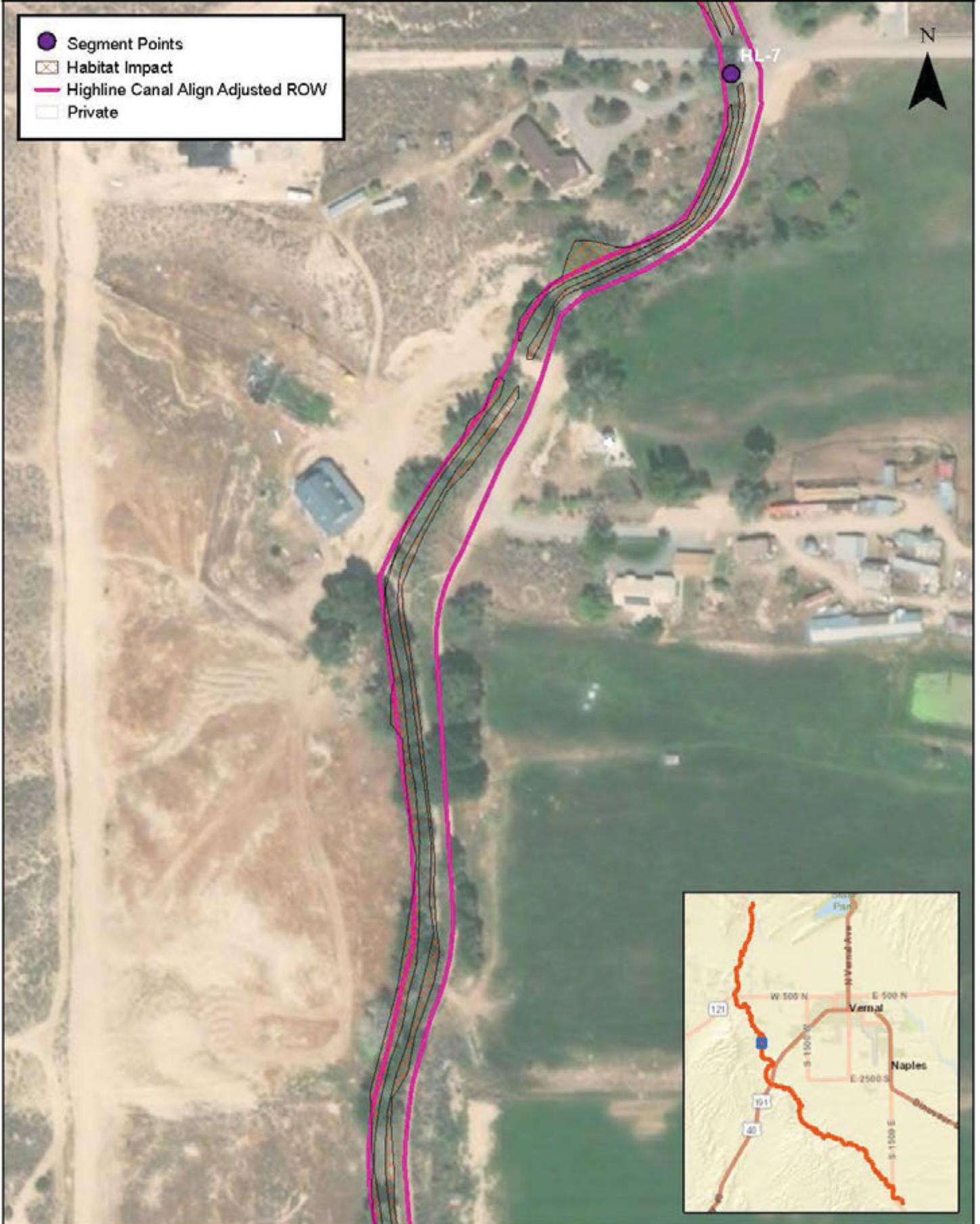


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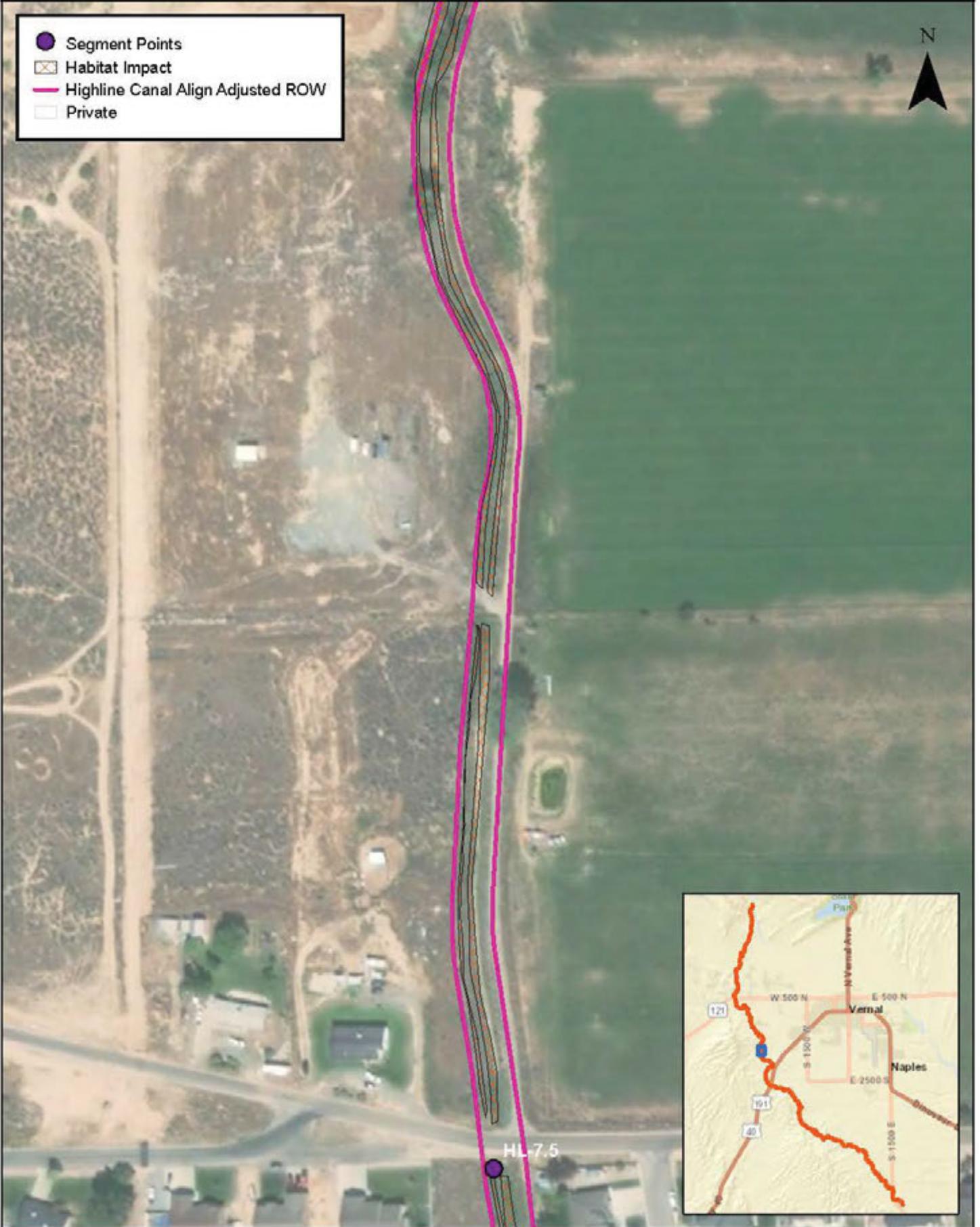
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- Segment Points
- ▨ Habitat Impact
- Highline Canal Align Adjusted ROW
- Private



Segment: HL-7B

- Segment Points
- ⊠ Habitat Impact
- Highline Canal Align Adjusted ROW
- Private

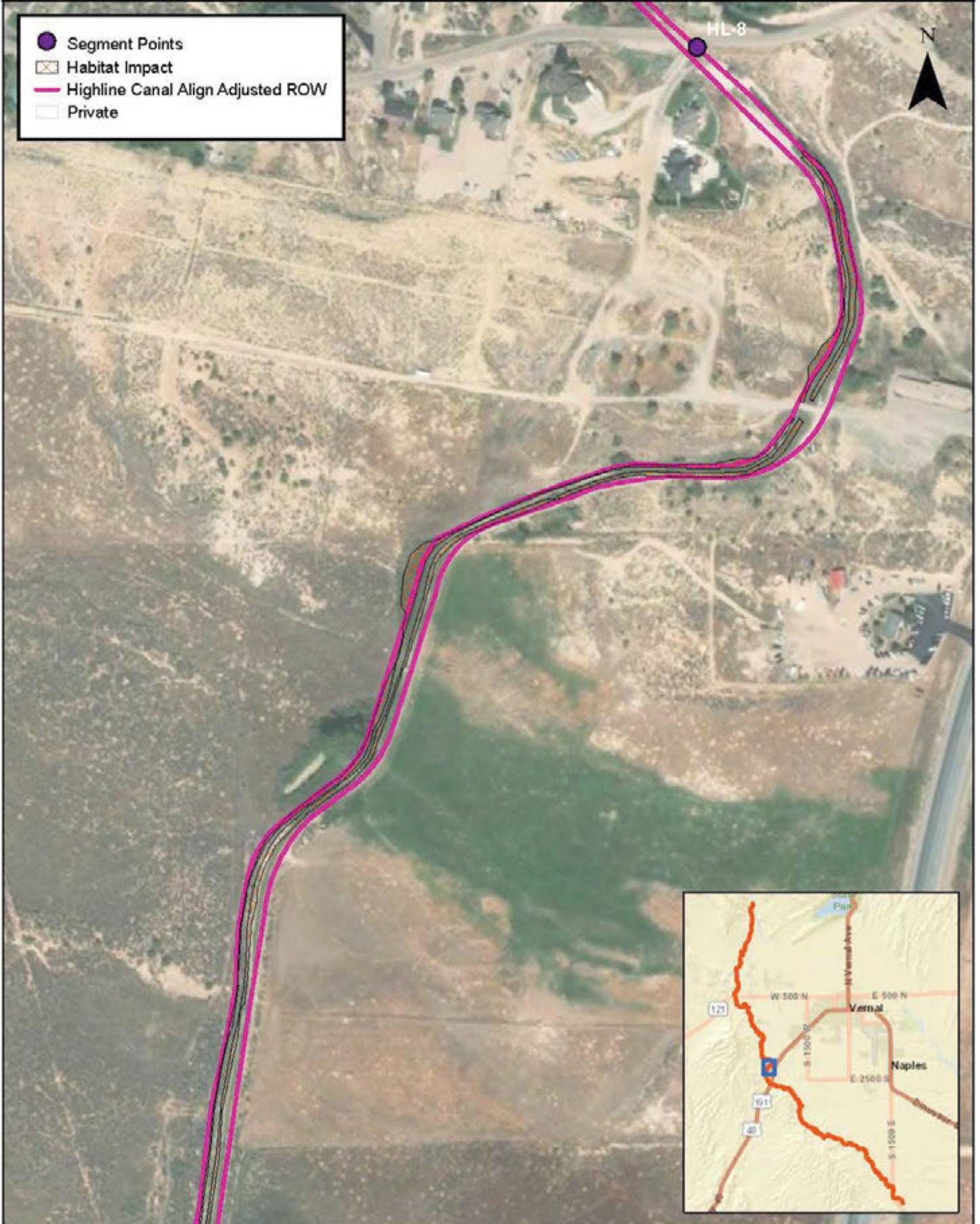


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Segment: HL-8A

- Segment Points
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- Private



Segment: HL-8B



Segment: HL-9A



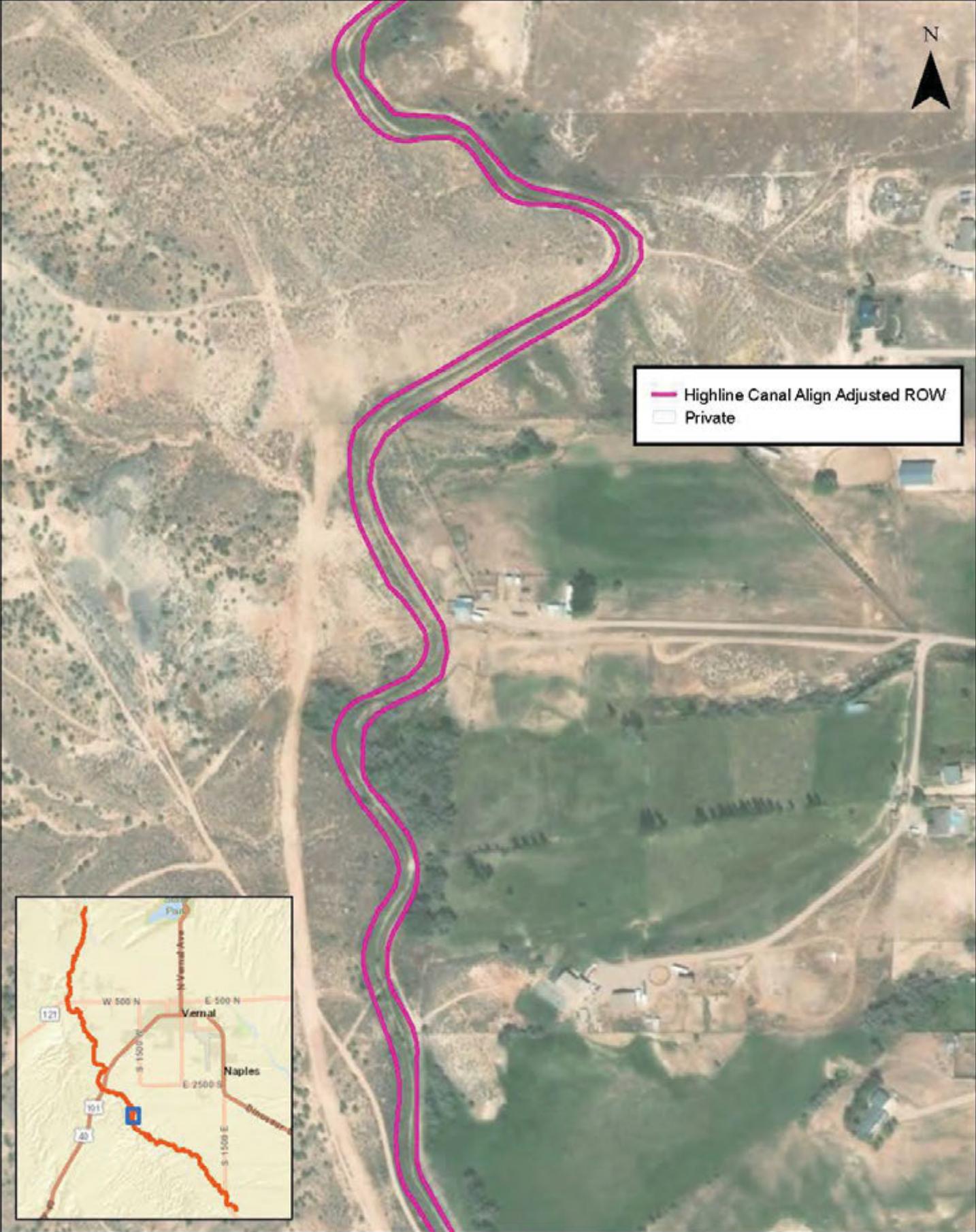
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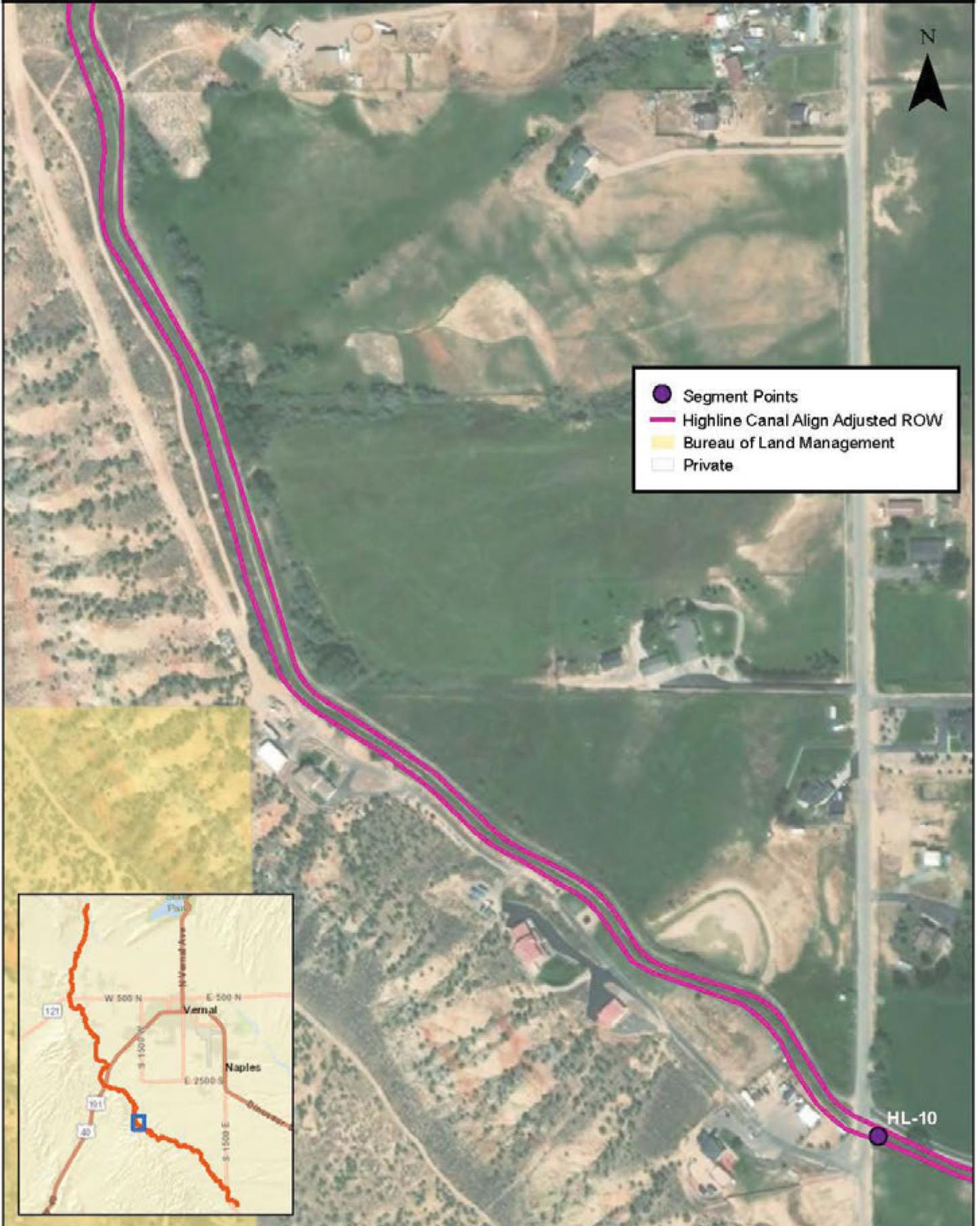
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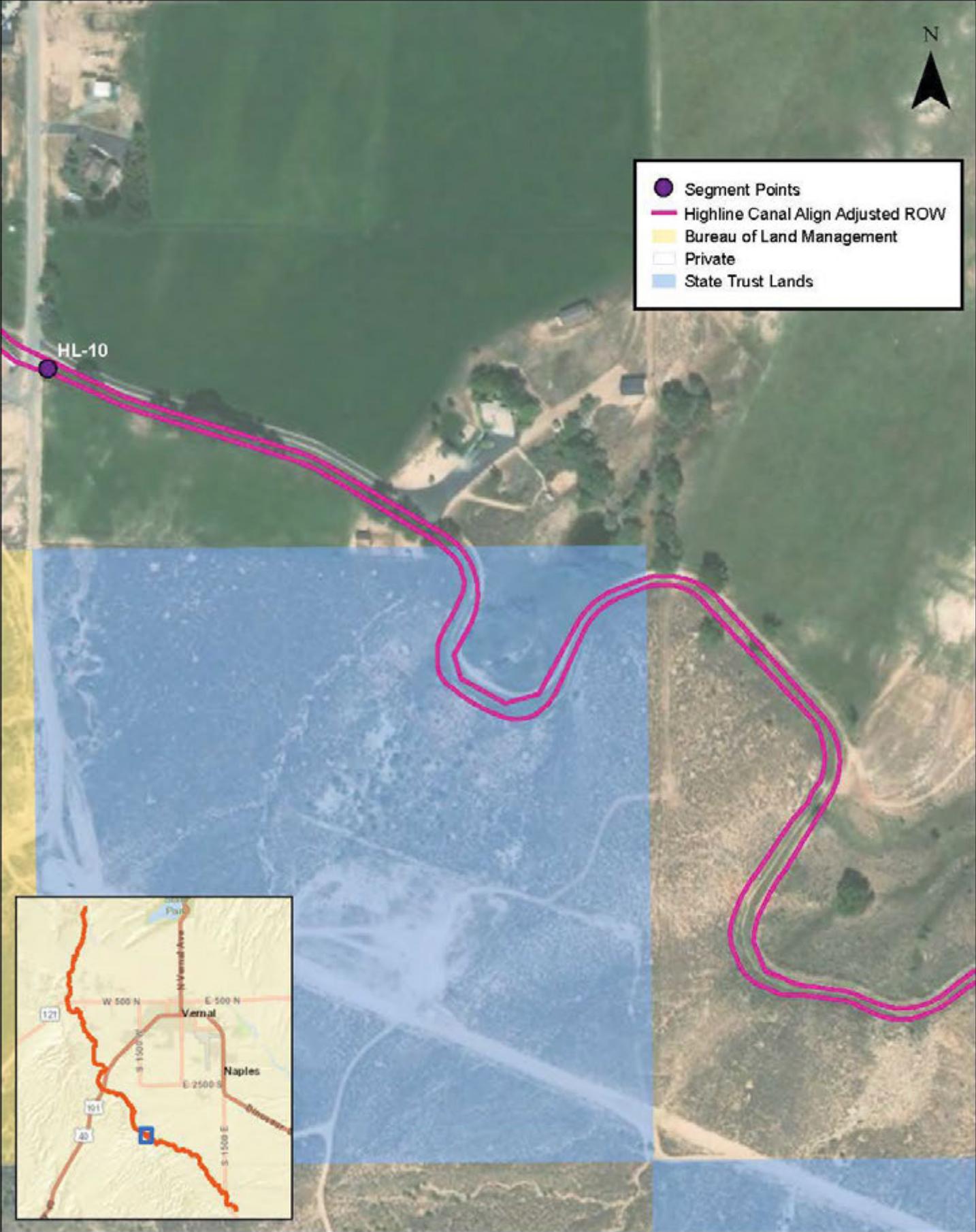
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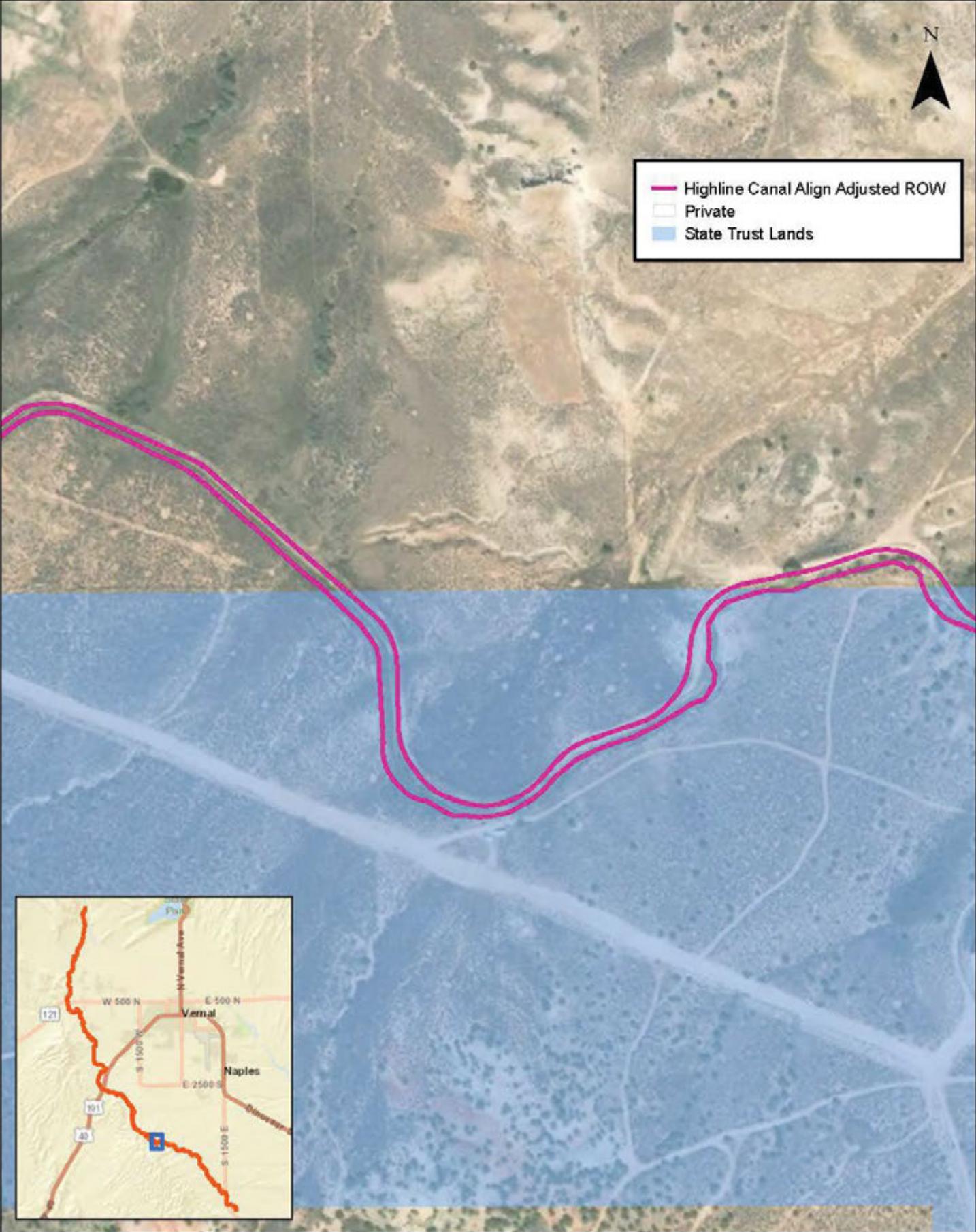
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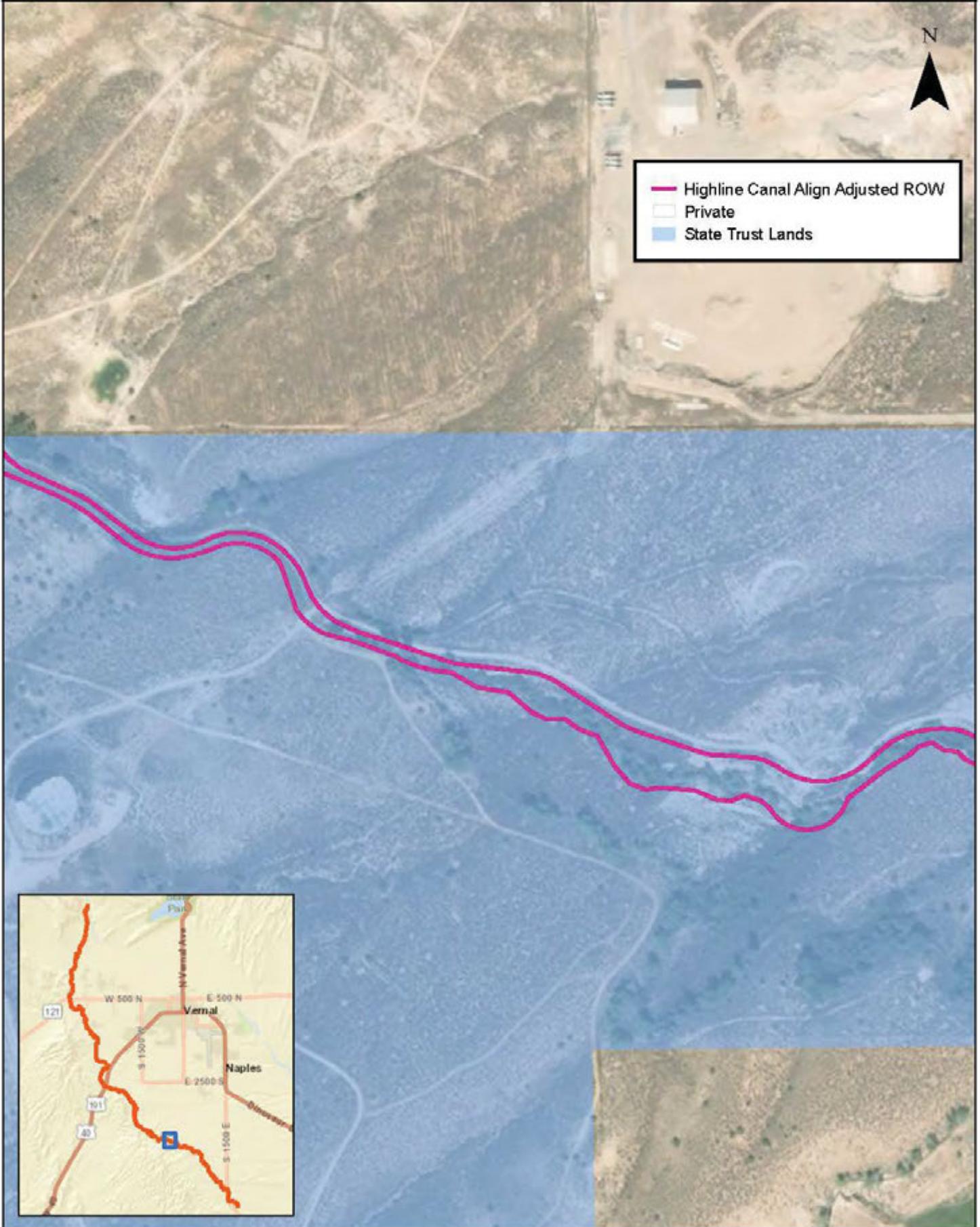
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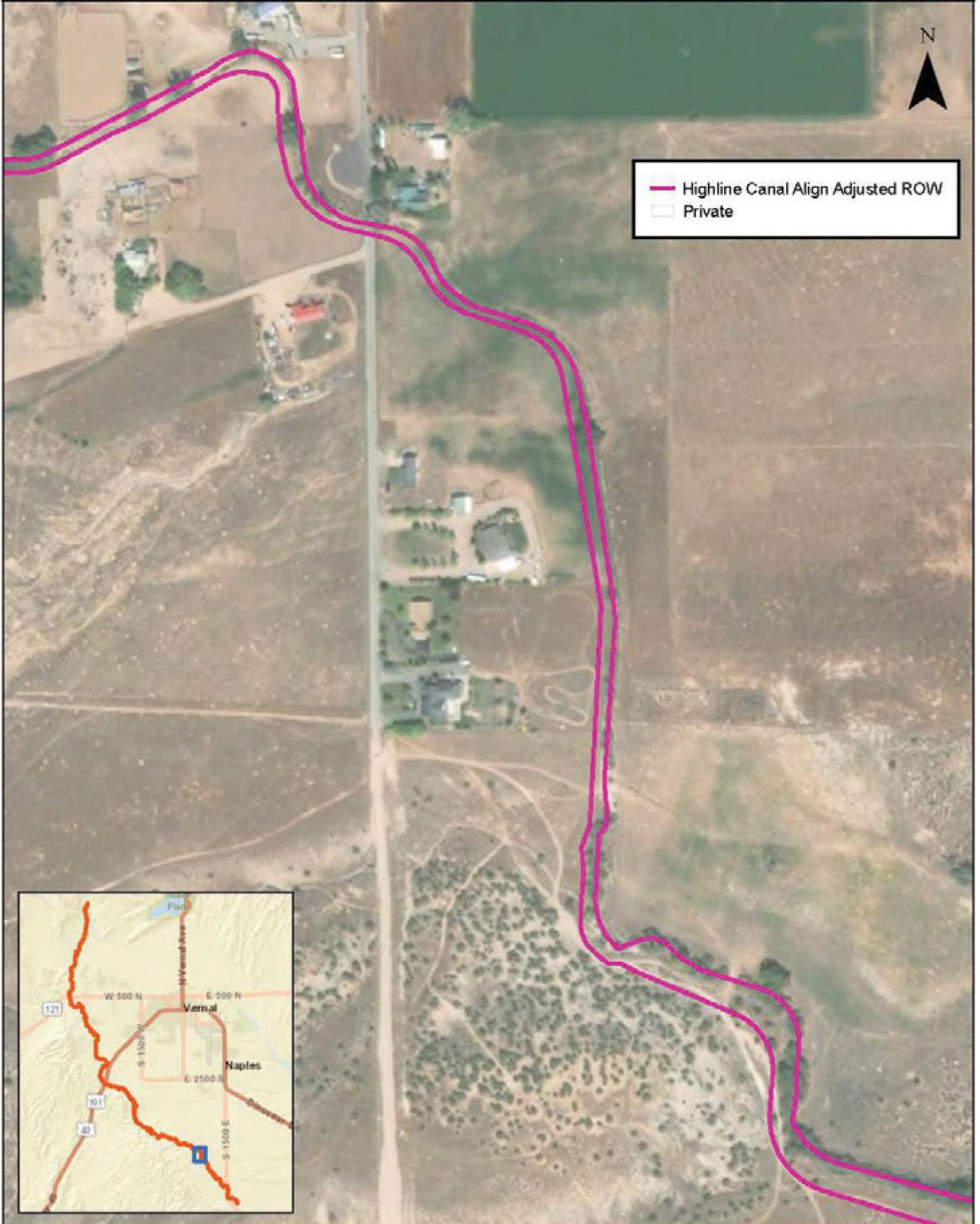
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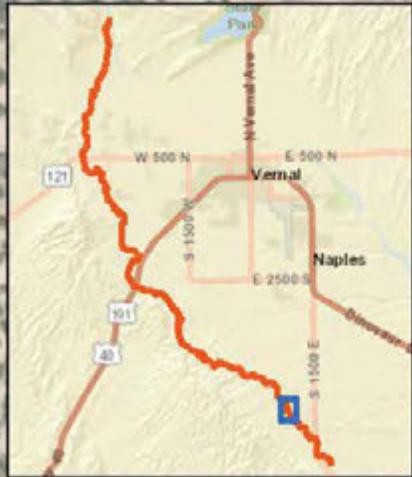
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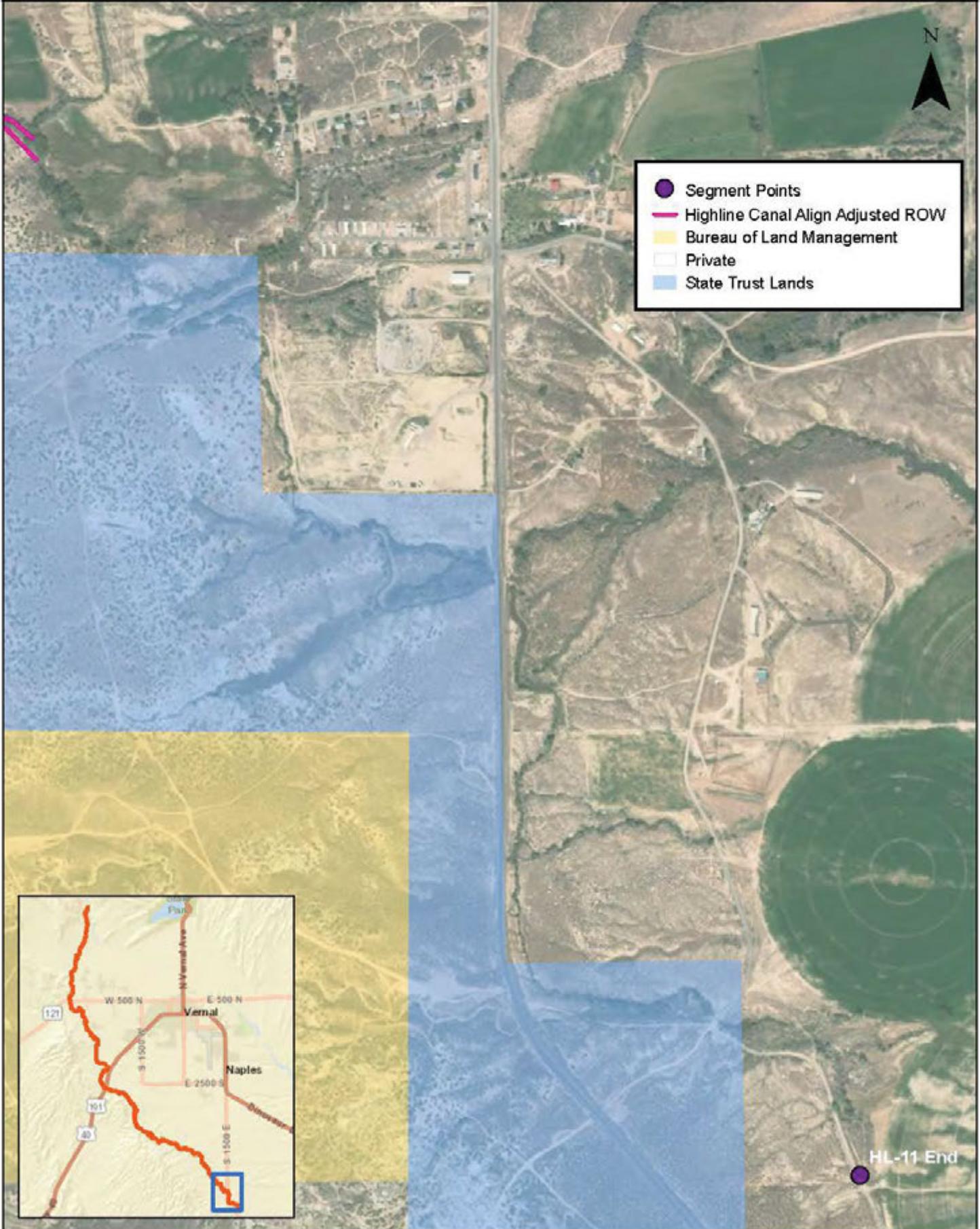
Segment: HL-11B



Segment: HL-11C



Segment: HL-11D



Appendix B
Ashley Upper Pipeline Proposed Alignment Maps

Segment: UA-1

- Segment Points
- ▨ Habitat Impact
- Ashley Upper Canal Align Adjusted ROW
- Bureau of Land Management
- Private



Segment: UA-1.5

- Segment Points
- ▨ Habitat Impact
- Ashley Upper Canal Align Adjusted ROW
- Bureau of Land Management
- Private



UA-1.5

UA-2



Segment: UA-2



Segment: UA-3a

- Segment Points
- ⊠ Habitat Impact
- Ashley Upper Canal Align Adjusted ROW
- Private



Segment: UA-3b

- Segment Points
- ▨ Habitat Impact
- Ashley Upper Canal Align Adjusted ROW
- Private



Segment: UA-4a

- Segment Points
- ▨ Habitat Impact
- Ashley Upper Canal Align Adjusted ROW
- Private



Segment: UA-4b



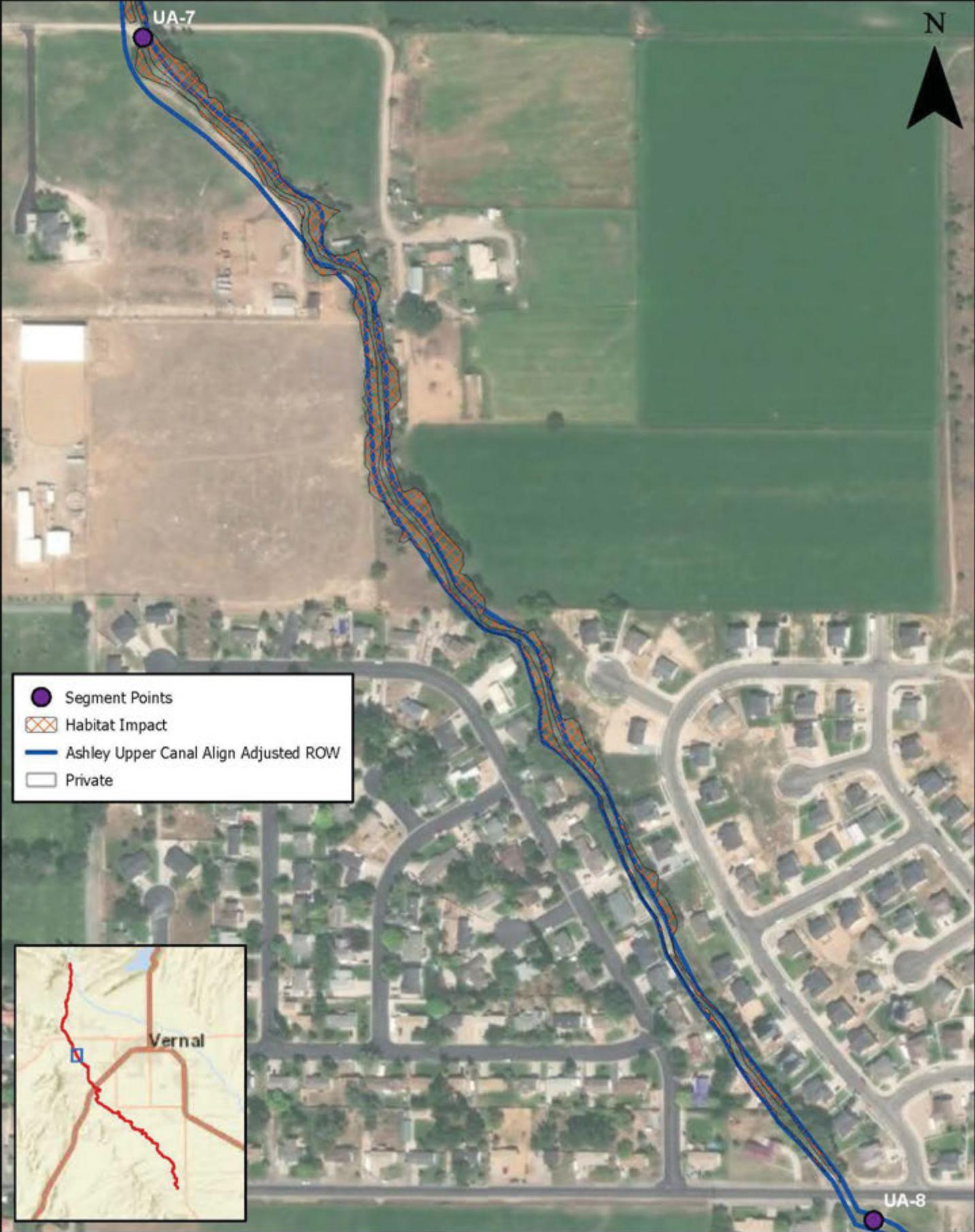
Segment: UA-5



Segment: UA-6



Segment: UA-7



Segment: UA-8



Segment: UA-9a



Segment: UA-9b



Segment: UA-10a



Segment: UA-10b



Segment: UA-10c



Segment: UA-10d



Segment: UA-11



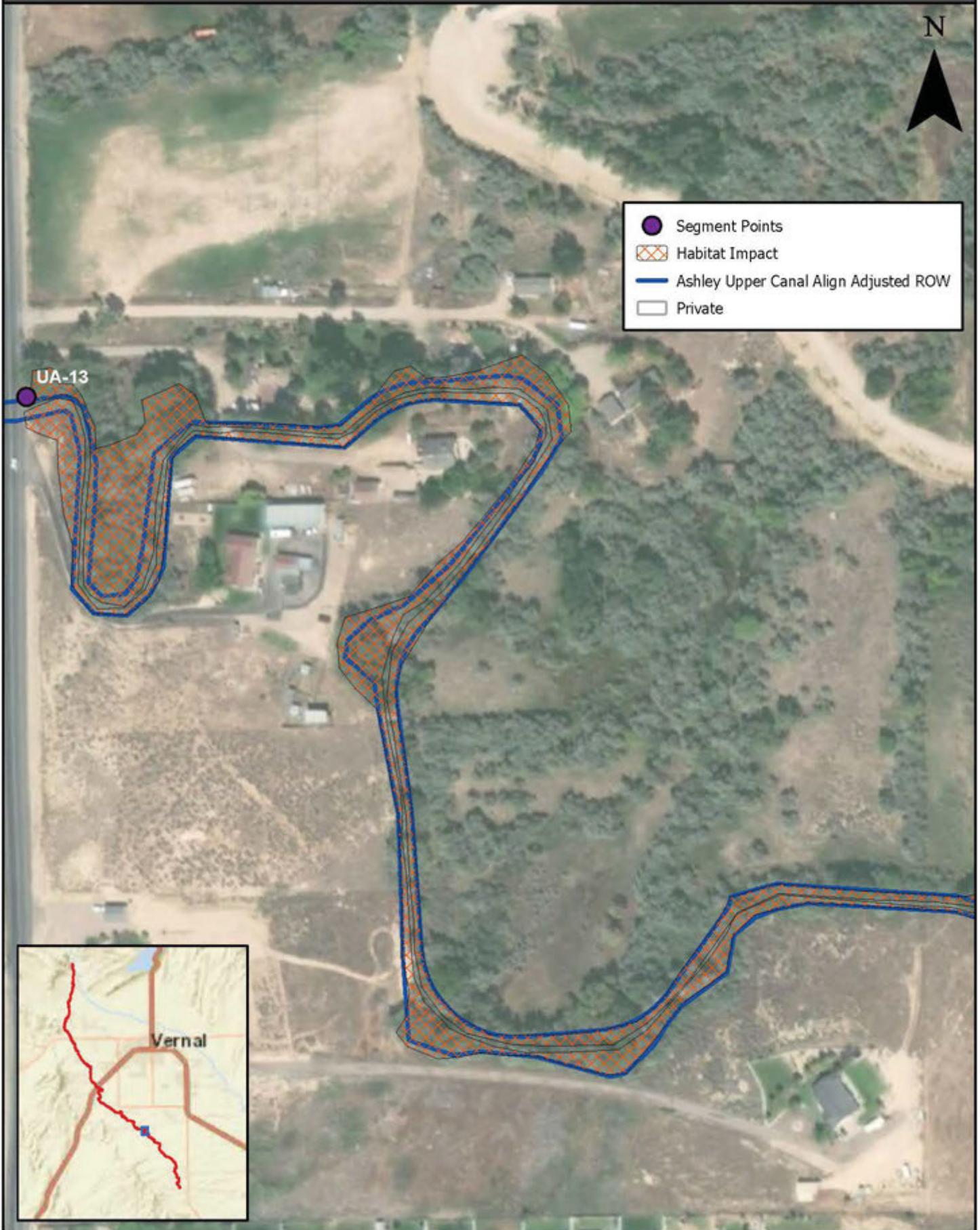
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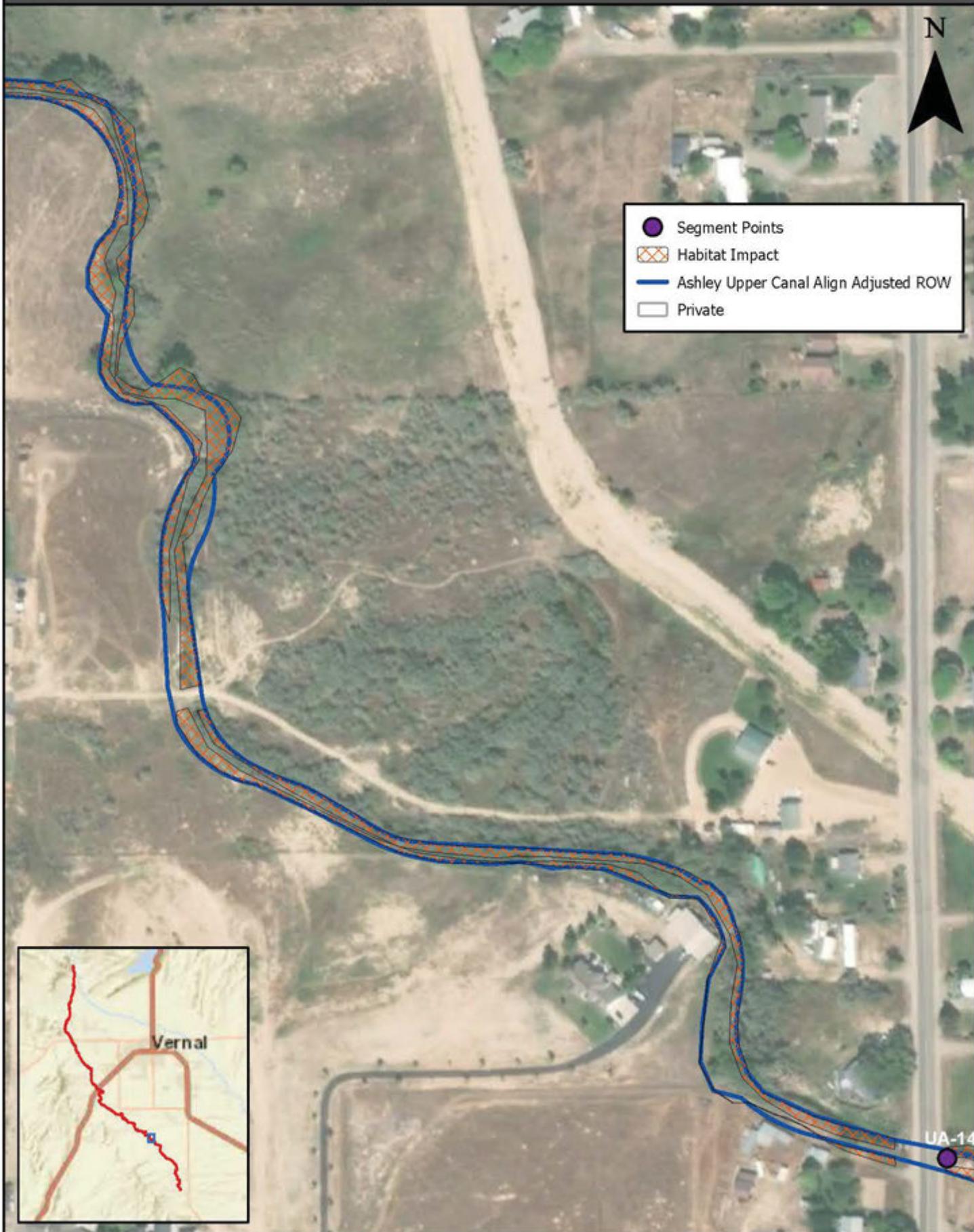
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Segment: UA-13a



Segment: UA-13b



Segment: UA-14a



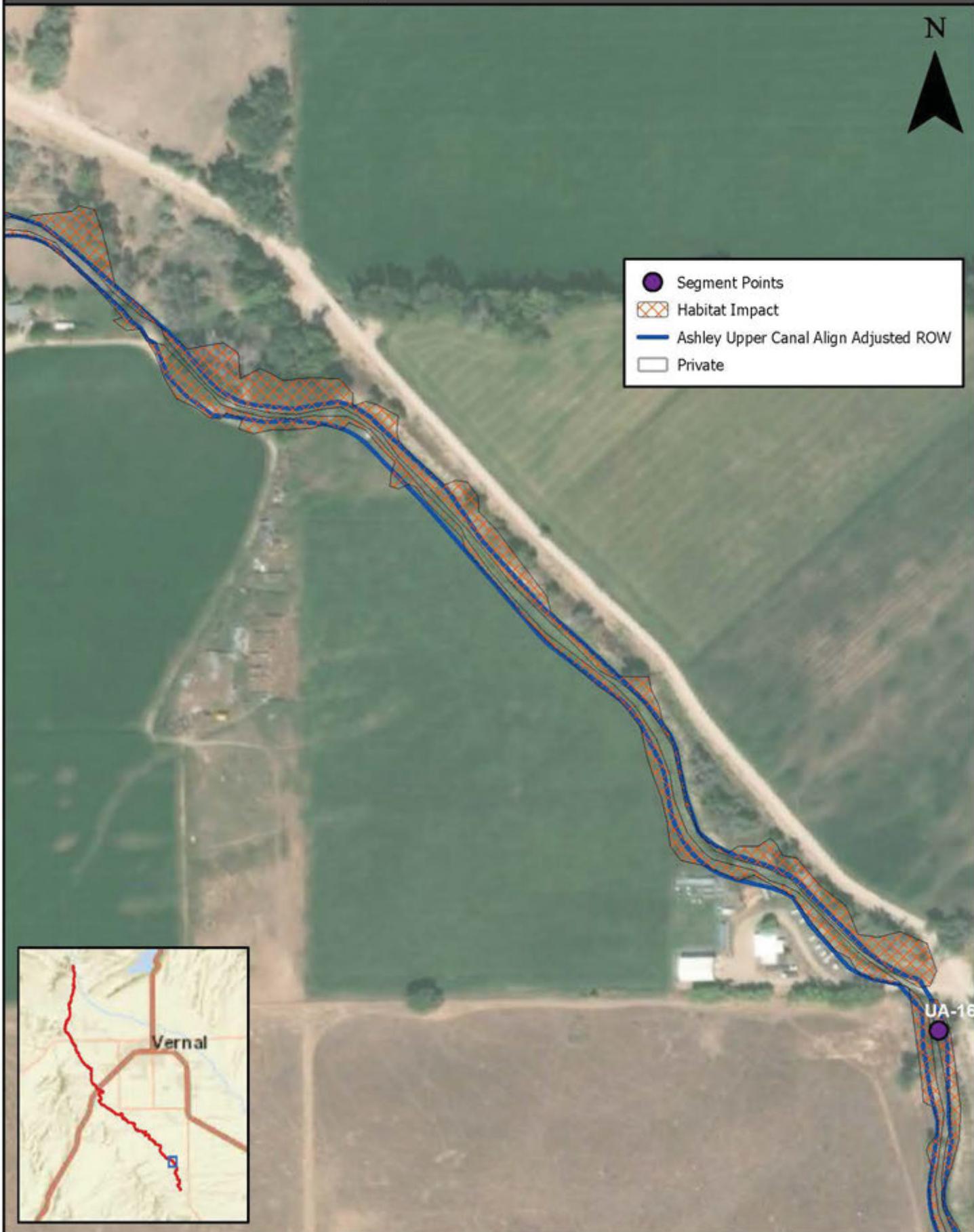
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Segment: UA-15a



Segment: UA-15b



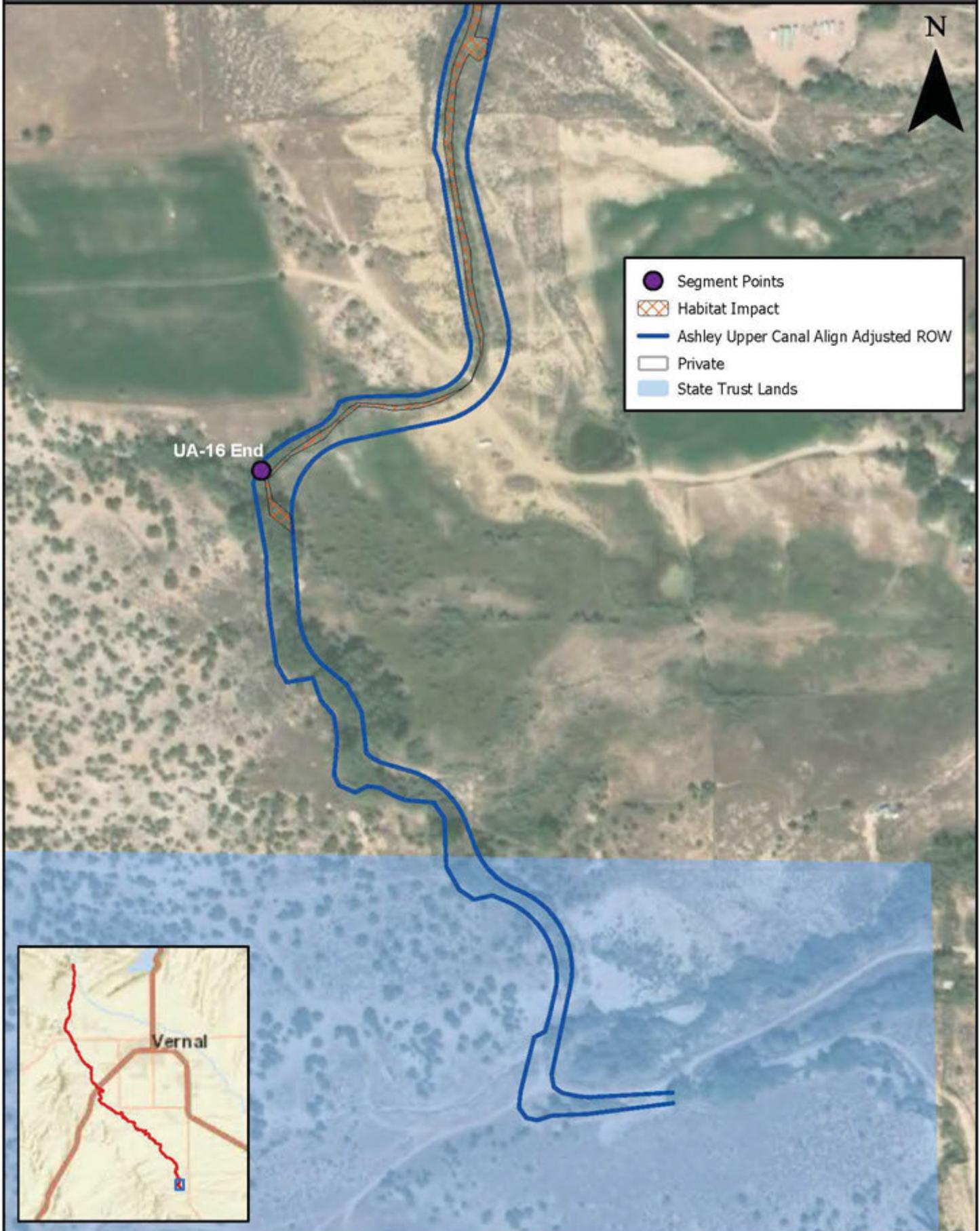
Segment: UA-16a



Segment: UA-16b



Segment: UA-16c



Attachment D

US Waters Determination

Highline and Ashley Upper Canals Piping Project near Vernal, Utah

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October 4, 2019

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Abbreviations

amsl	above mean sea level
cfs	cubic feet per second
CWA	Clean Water Act
GPS	Global Position System
SLBM	Salt Lake Base Meridian
NRPW	Non-Relatively Permanent Water
NRCS	Natural Resources Conservation Service
OHWM	ordinary high water mark
PJD	Preliminary Jurisdictional Determination
RPW	Relatively Permanent Water
sp.	species
TNW	Traditional Navigable Waterway
US	United States
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
USSCS	Soil Conservation Service

1.0 INTRODUCTION

Alpine Environmental Resources, LLC is sub-contracted by Sunrise Engineering, Inc. to prepare this US Waters Determination for the Highline and Ashley Upper Canals Piping Project proposed by the Ashley Upper Irrigation Company in Vernal, Utah. This report serves as the Preliminary Jurisdictional Determination (PJD) of potential U.S. Waters found within the project area that would likely be regulated by the U.S. Army Corps of Engineers (USACE) under the authority of the Clean Water Act (CWA).

1.1 DIRECTIONS TO THE SITE

The project site is located within the Uintah Basin. The Uinta Basin is bordered on the north by the Uinta Mountains, the Book Cliffs to the south, and the Blue Mountains to the east. The town of Vernal lies within the Ashley Valley in Uintah County. Vernal is approximately 175 miles east of Salt Lake City. Traveling by car from Salt Lake City travel east on I-80, then at exist #146 turn onto East bound I-40. The subject canals run southeasterly along the western edge of the valley. The canals are located within portions of Section 31 and 32 of Township 3 South, Range 21 East, Sections 5, 6, 7, 18, 19, 20, 29 and 32 of Township 4 South, Range 21 East, Sections 4, 5, 9, 10, 13, 14, 15 and 24 of Township 5 South Range 21 East, and Sections 19 and 30 of Township 5 South, Range 22 East, SLBM.

2.0 METHODOLOGY

This U.S. Waters Determination is based on the Clean Water Act Section 404 (33 CFR 1344), which regulates the dredge and fill actions within Waters of the U.S. This report also considers criteria and methods outlined in the *USACE Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Arid West* (2008a).

Along with site investigation, this wetland/Water of the U.S. determination was developed using publicly available resources including U.S. Geological Survey (USGS) topographic maps, NRCS soil survey, National Wetland Inventory (NWI) database, and aerial photography from Google Earth™ and USDA FSA, Earthstar Geographics.

On September 27, 2017, Jill Hankins representing Alpine conducted an initial site review to become familiar with the landscape and identify all water features within the project area. On September 28 and 29, 2017, Jill revisited the project area and completed the field verification for this report. On August 16, 2019, Jill completed additional site visits of proposed pipeline alignment changes to verify field conditions for potential wetlands as regulated Waters of the US.

2.1 SITE DESCRIPTION

2.2.1 Ashley Upper Canal Diversion

The Ashley Upper Canal Diversion is located on the west bank of Ashley Creek at approximately 40° 30'43.66" N 109° 35'40.04". The diversion off Ashley Creek has provided flood irrigation flows to the Vernal valley for over 100 years. Historically, the diversion on Ashley Creek and the Ashley Upper Canal was constructed to irrigate areas of the valley that were not directly adjacent to the creek. Ashley Creek and lands within the boundaries of the Ordinary High Water Mark are in fact Waters of the U.S. The State of Utah Water Rights Division regulates the diversion structure on Ashley Creek as the State Engineer regulates water rights under Utah Code Title 73. The State Engineer under joint permit authority that includes the CWA Section 404 Programmatic General Permit 10 authorizes stream diversions. The State Engineer governs the existing diversion structure; changes to the existing structure should be coordinated as permitted with the Utah State Engineer.

2.2.2 Highline Canal

The Highline Canal is approximately 22 feet wide and 4 feet in depth at the point of diversion with Ashley Upper Canal (Photo 1). It narrows slightly as it flows south, ranging in width from approximately 18 to 13 feet wide. It is a man-made, un-lined canal cut at the base of the western talus slope of the Ashley Valley (Photo 2). Lateral irrigation ditches are used to irrigate fields and pastures to the east of the canal. This canal is regularly maintained as spoils from historic dredging form the canal banks. The canal bottom is not vegetated; it is hard packed silty, clay, sand with some gravels. The banks are vegetated with native grasses, primarily reed canarygrass (*Phalaris arundinacea*) and horsetail (*Equisetum sp.*). Few trees and some shrubs line the canal banks at the northern end becoming less dense and more scattered as the canal flows to the south and irrigation water diversions reduce the amount of water in the canal. Discharge of dredge or fill material within the canal is non-prohibited under 33 CFR 1344 (f)(C) for the purpose of construction or maintenance of irrigation ditches. There are no wetlands associated with the canal that would be regulated as special aquatic sites under the regulations of the CWA.

2.2.3 Ashley Upper Canal

The Ashley Upper Canal is approximately 20 feet wide and 3 feet deep at the point of diversion off the Highline Canal. It narrows slightly as it flows south, ranging in width from approximately 20 to 13 feet wide (Photo 3). It is un-lined and historically cut into the meandering contours of the valley edge. It is roughly 800 to 2,000 feet east of the Highline Canal and flows parallel to it. The Ashley Upper Canal is mostly tree lined shading the canal water. Dominant tree species include cottonwood (*Populus fremontii*), quaking aspen (*Populus tremuloides*), silver poplar (*Populus alba*), black willow (*Salix goodingii*), boxelder (*Acer negundo*), and river birch (*Betula occidentalis*). Dense mid-story shrubs grow along the banks; dominant species include coyote willow (*Salix exigua*), woods rose (*Rosa woodsii*), goldenrod (*Solidago canadensis*), clematis (*Clematis ligusticifolia.*), cocklebur (*Xanthium strumarium*), and milkweed (*Asclepias speciosa*). The banks are vegetated with native grasses and broadleaf plants; dominant species include reed canarygrass, orchard grass (*Dactylis glomerata*), horsetail, sunflower (*Helianthus sp.*), wheatgrass (*Elymus spicata*), and Kentucky bluegrass (*Poa pratensis*). The canal bottom is

HIGHLINE AND ASHLEY UPPER CANALS PIPING PROJECT NEAR VERNAL, UTAH

unconsolidated sand, gravel, pebbles, and rocks. Flows in the canal ripple across the rocky bottom in some areas. Water in the canal is clear and cool at the north end, becoming cloudy and warmer as it flows south. The Ashley Upper Canal receives some tail water from fields on the west and laterals divert flows to flood irrigate fields on the east. The Ashley Upper re-joins the Highline canal at the southern end of the valley south of Naples just west of State Route 45. The canal crosses under State Route 45 and basically dries up. There is no surface flow connection to Ashley Creek or the Green River. Discharge of dredge or fill material within the canal is non-prohibited under 33 CFR 1344 (f)(C) for the purpose of construction or maintenance of irrigation ditches.

3.0 RESULTS & RECOMMENDATION

The project area was examined for potentially jurisdictional US waters and wetlands. Ashley Creek is relatively permanent water with surface connection to the Green River, which is presumed to be Traditionally Navigable Water regulated under the interstate commerce regulation of the Clean Water Act authority. Ashley Creek is seasonally intermittent through the town of Vernal. Other than the diversion structure, Ashley Creek is outside of the boundaries of the project area of anticipated impacts. The Utah Division of Water Rights State Engineer regulates actions to the diversion structure. Construction or changes to the diversion structure should be permitted through the State Programmatic General Permit 10 through notification to the State Engineer. The two canals within the project area are used for normal farming, silviculture, and ranching activities. Actions involving the dredge or fills within these canals are non-prohibited under the authority of the Clean Water Act.

There are no wetlands or Waters of the U.S. that would be regulated under the authority of the Clean Water Act (33 CFR 1344) within the boundaries of the project area that would be impacted by construction of the buried pipelines. The proposed buried pipeline alignments are within the existing canal prism or directly east of the existing canals which is down gradient of normal storm water surface flow. The existing canals intercept storm water surface flows. There are no ephemeral channels that would be impacted that have surface connection to Ashley Creek. Therefore, there are no Waters of the US or wetlands within the project area that are regulated under the Clean Water Act. Only construction or changes to the diversion structure on the west bank of Ashley Creek would require coordination or a permit from the State Engineer of the Utah Water Rights Division.

HIGHLINE AND ASHLEY UPPER CANALS PIPING PROJECT NEAR VERNAL, UTAH



Photo 1: View to the Southeast at Ashley Upper Canal Diversion



Photo 2: View to the South at Highline Canal



Photo 3: View of the Ashley Upper Canal



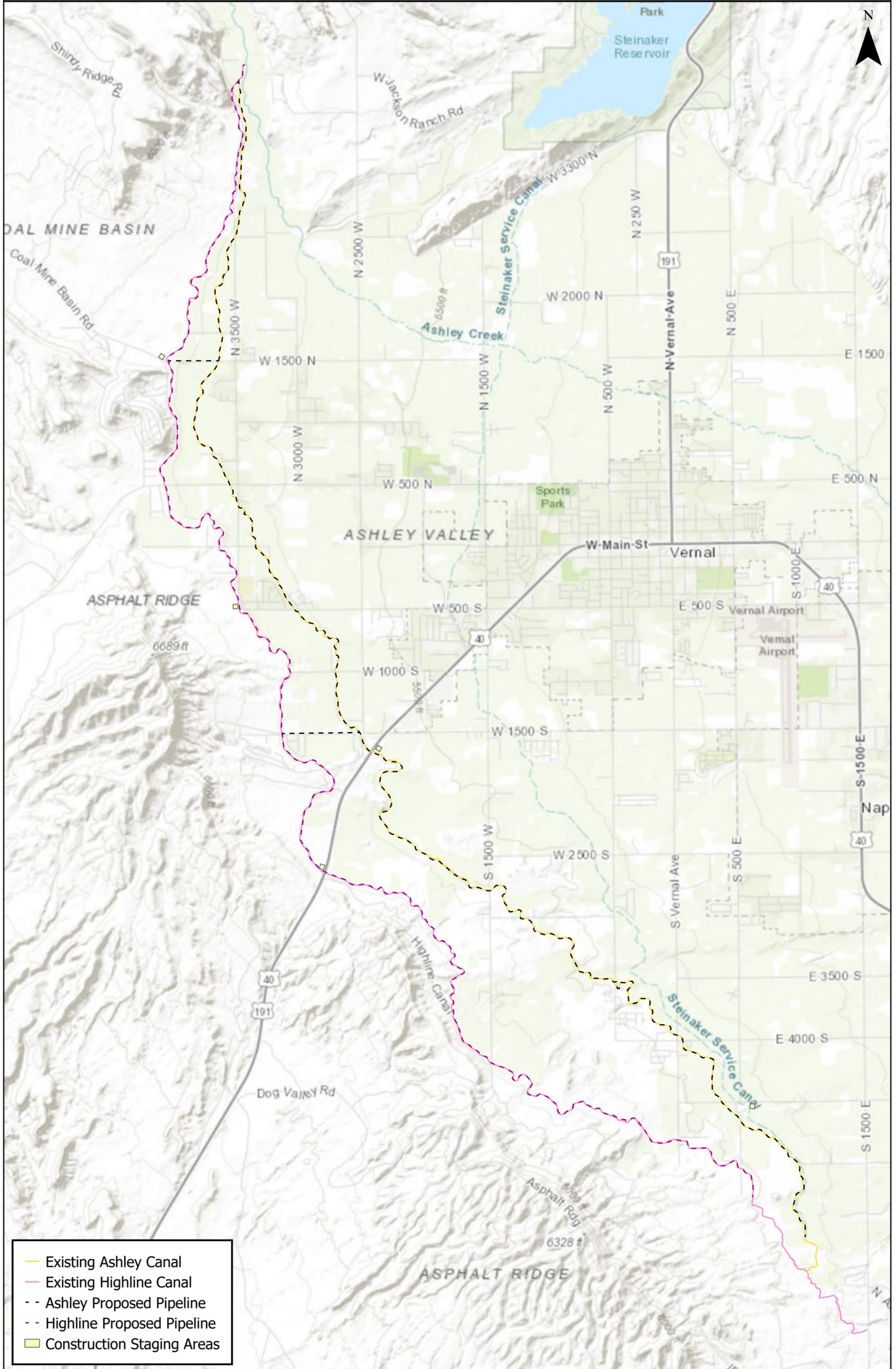
Photo 4: View of existing canal endpoint, no outfall to Ashley Creek

HIGHLINE AND ASHLEY UPPER CANALS PIPING PROJECT NEAR VERNAL, UTAH

REFERENCES

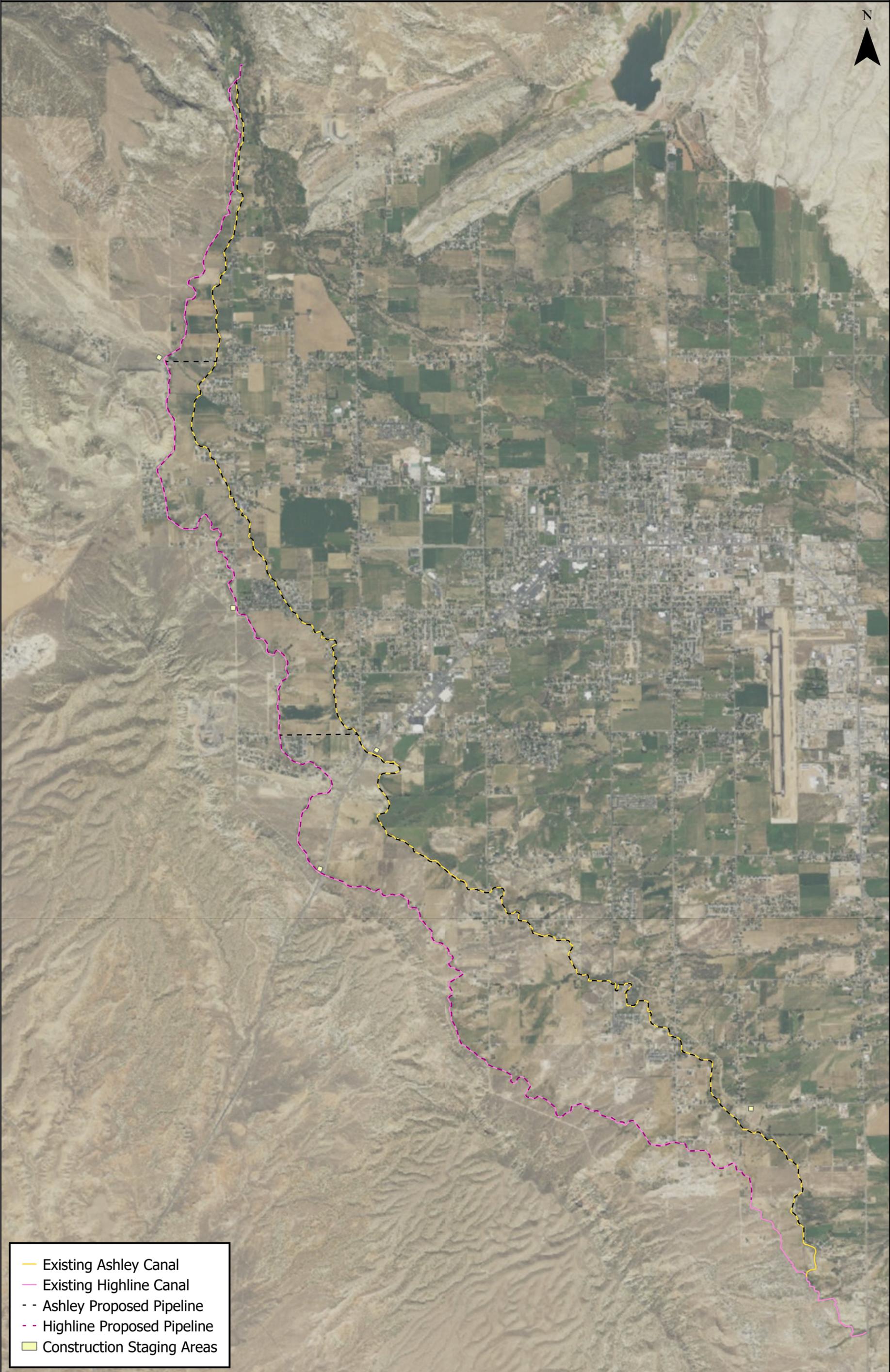
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Highline and Ashley Canal Overview



1 inch = 5,000 feet

Highline and Ashley Canal Overview



- Existing Ashley Canal
- Existing Highline Canal
- - Ashley Proposed Pipeline
- - Highline Proposed Pipeline
- Construction Staging Areas

1 inch = 5,000 feet

Attachment E

Wildlife Habitat Replacement Plan

Habitat Mitigation Plan for the Highline Canal Pipeline & Ashley Upper Canal Pipeline



Prepared by:

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435-668-6089

Prepared for:

Highline Canal Company
&
Ashley Upper Irrigation Company

December 18, 2019
Revised September 2020

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Appendix A

Figure 1: Project and Mitigation Site Location

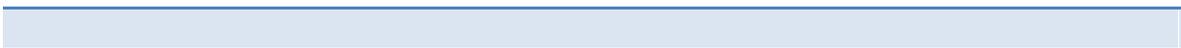
Figure 2: Mitigation Site

Figure 3: Proposed Year One Irrigation and Noxious Plant Control Plan

Figure 4: Proposed Year Two Willow, Riparian Tree, and Upland Shrub Planting Plan

Appendix B

Final Conservation Easement



1 Proposed Salinity Control Project

The Highline and Ashley Upper Canal Companies have applied for funding from the US Bureau of Reclamation (USBR) under the provisions of the Colorado River Basinwide Salinity Control Program to construct two, large buried irrigation pipelines to replace the use of the Highline Canal and the Ashley Upper Canal in Vernal, Utah (Figure 1, Appendix A). The buried pipelines would be used to deliver irrigation water rights from the Ashley Upper Diversion Structure on Ashley Creek to users within the Ashley Valley. The purpose of the project is to reduce salt loading of the Colorado River watershed caused by flood irrigation practices and to provide water conservation through the use of pressurized sprinkler irrigation.

Alpine Environmental Resources, LLC (Alpine) is sub-contracted by Sunrise Engineering, Inc. to prepare this Habitat Mitigation Plan the purpose of this plan is to compensate for the anticipated impacts to wildlife habitat associated with the proposed project to retire the use of the Highline Canal and the Ashley Upper Canal.

2 Anticipated Habitat Impacts of the Proposed Project

Alpine prepared a Habitat Value Analysis for the Highline and Ashley Upper Canal Piping Project, report dated March 5, 2018, which documents the methodology used to assign the Habitat Value Score of the canals utilizing the USBR Habitat Valuation Protocol. Habitat quality scores are based on the criteria outlined in the protocol (USBR, 2013). Habitat Analysis Datasheets documenting the existing habitat conditions and photos of each habitat assessment segment are provided in the Habitat Value Analysis.

After the proposed construction and operation plan as developed by CIVCO Engineering, Alpine prepared a Habitat Replacement Analysis for the Highline and Ashley Upper Pipeline Project (Alpine, 2019). The proposed construction alignment and operation plan avoids and minimizes habitat impacts to the greatest extent practicable while maintaining the project purpose.

The Habitat Replacement Analysis considers the short-term, construction impacts as well as the long-term impacts caused by the project. Short-term impacts include the removal of vegetation for construction, noise and presence during construction, re-contour of the existing canal prism post construction to provide storm water protection of adjacent fields, and reseeding the construction disturbance areas (a 10-foot wide maintenance easement over the pipeline will be maintained for the long term). Upgrade of the existing diversion structure to include a fish barrier and a sediment drop structure is also planned. Long-term impacts include the reduction and loss of regular irrigation water in the canals that currently support vegetation along the canal banks.

Based on this analysis the total habitat impact and replacement value for the Highline Pipeline is 48 Habitat Value Units (HVU) and for the Ashley Upper is 136 HVU. **Therefore, the combined total habitat replacement required by the USBR to compensate for the anticipated change to habitat is 184 HVU.**

3 Proposed Habitat Replacement Site

The proposed habitat replacement site is known as the Fresno Site, as named by the current landowner, Shon Massey. Mr. Massey currently owns and actively manages roughly 910-acres located southwest of the Ashley Creek/Green River confluence in the town of Jensen, Utah. Mr. Massey has owned the subject parcel and the parcels to the north and east since 2013 when he purchased the main farm; subsequently he has purchased a couple other adjacent parcels. He currently farms approximately 500-acres producing two cut crops annually.

The Fresno Site is adjacent to the Green River approximately 1.3-river miles downstream of the Ashley Creek confluence (Figure 2, Appendix A). The proposed mitigation parcel as recorded on the county plat is approximately 156-acres in size. This land is bordered on the south by the Green River that is actually flowing east to west defining southern property boundary. A historic, man-made levee, a ditch, and a fence run parallel to the river along the south parcel line inland of the existing riverbank and sand bar. A canal, fence, and power line run along the east parcel boundary (Photo 1). Mr. Massey also owns the east and west adjacent lands, which were also evaluated as a potential mitigation sites. However, after site inspection and comparison it was determined that the Fresno site had better enhancement potential and provided the most wildlife habitat diversity.

A canal, fence, and farm road border the northern parcel boundary. The north adjacent parcel is a circle crop irrigated field owned by Mr. Massey. Typically, this field is seeded twice a year; the first crop is a 4-way mix of wheat, barley, oats, and peas, then a 10-way seed mix for the second crop. The western boundary of the proposed mitigation site is arbitrary dividing the 156-acre parcel to achieve the required habitat replacement value for the canal pipeline project. The western boundary will need to be fenced to enclose and define the mitigation site if there is livestock use on adjacent land. A survey and legal description of the mitigation area will be prepared to accompany the conservation easement that will be recorded on the parcel deed with the County recorders office. The east and west adjacent lands could be used as mitigation sites for other future projects which would enhance the connectivity and size value of this mitigation site. Mr. Massey has expressed interest in the future use of these parcels as mitigation sites; however, at this time nothing is planned. Mr. Massey has also expressed potential agricultural use of the east adjacent parcel. Originally he planned to convert the subject site to a crop field as is evident by dredge of the canals around the site.

The proposed habitat mitigation area is approximately 40-acres. The size of the mitigation area was determined by analysis of the existing habitat conditions and analysis of the

anticipated habitat conditions after the proposed enhancement measures are completed and the site is stabilized. The expected site recovery and stabilization period is 3 to 8 years. The existing Habitat Quality Score (HQS) and THV of the mitigation site are subtracted from the anticipated enhanced HQS and THV. The difference between the existing THV and the enhanced THV is the replaced habitat value to compensate for lost habitat caused by the canal pipeline project. The analysis used on the proposed mitigation site is based on the USBR standardized habitat assessment protocol (USBR 2013) to replicate the methodology used for the project habitat impact analysis.



Photo 1: View to the southwest at the East parcel boundary, note the inundation of the mitigation site, the fence and overhead power line. The trees are along the Green River near the southern parcel boundary.

3.1 Habitat Replacement Site Assessment

3.1.1 Habitat Type

The project area is at the northern extent of the Colorado Plateau within a transition zone to the Uintah Mountains ecoregion. The habitat types found on the subject site include riparian woodlands, riparian shoreline, desert alkaline mud flat, and desert saline-wetland scrub therefore meeting the habitat type criteria for habitat replacement.

3.1.2 Vegetation Diversity

The subject site supports some vegetation diversity primarily due to the different habitat types found. Existing vegetation diversity HQS is 3 (low) as previous inundation, salt accumulation, grazing, wood harvest, and invasive non-native species impact vegetation diversity. It is anticipated that post-proposed planting plan and enhancement measures vegetation diversity could score 8 (high) resulting in an increased HQS of 5.



Photo 2: View to the south from the center of the Fresno mitigation site. Note the pond and mud flat in the center of the site. Note the riparian tree canopy along the Green River at the southern site boundary.

3.1.3 Stratification

Currently the mitigation site is missing 1 or 2 layers, and 1 or 2 layers are not functioning over most of the site. The HQS is 4 (1 – 2 layers missing and/or not functioning). Desert alkaline-saline wetland scrub habitat will only have 2 functioning layers while riparian woodland could be enhanced to support 3 functioning layers. Post proposed enhancement measures the site could recover to all functioning layers appropriate for the intended habitat type. The anticipated HQS could be 8 (all intended layers functioning) resulting in an increased HQS of 4.

3.1.4 Native Vs. Non-Native Species

The northern half of the subject site is invaded with tamarisk (*Tamarisk ramosissima*). The tamarisk shoots are young, 1 to 3 feet tall. It appears that the tamarisk invasion is result of changed hydrological regime on the site. It is critical that the tamarisks are controlled within the next year to prevent further establishment. Large mature and sapling Russian olive trees (*Elaeagnus angustifolia*) are found along the Green River. Proposed enhancement includes aggressive control of non-native trees and a planting plan of native trees and willows. Establishment of native species can outcompete the non-native tamarisk and Russian olive if dense enough cover is established. Active eradication efforts are prescribed for this site for the first five years. Long-term maintenance includes annual removal of young olive and tamarisk trees.

As result of historical grazing, many places in the intermountain west have been invaded by cheatgrass (*Bromus tectorum*), a non-native species that often outcompetes the native grasses and forbs. When cheatgrass dies in late summer it easily catches fire and can carry flames to the shrubs and/or adjacent woodlands. In absence of continued grazing to reduce biomass, cheatgrass invasion increases risk of wildfire. The native vs. non-native species density battle is arduous. Recovery of land to appropriate native species after invasion by non-native species requires active management. Measures to control the seed source and control soil disturbance must be identified and implemented in the long term. Wildlife, air, water, and wind will naturally introduce non-native seed from adjacent sources. Cattle, equipment, and man caused disturbances can be controlled on the mitigation site for the long term.

Currently the HQS for native vs. non-native species is 4 (40%), post enhancement measures it is anticipated that the native to non-native ratio could be increased to 4:1 resulting in a HQS of 8. The HQS would be improved by 4.

3.1.5 Noxious Weeds

Dyer's woad (*Isatis tinctoria*), perennial pepperweed (*Lepidium latifolium*), and tamarisk are Utah listed noxious weeds and found on the subject site. Currently, it is estimated that approximately 10-acres is invaded with tamarisk that will need aggressive treatment during the first and second years. Dyer's woad and pepperweed should be sprayed with a broadleaf herbicide prior to seed dispersal. It is likely that this site will need more than one year of treatment due to presence of these species on adjacent lands.

Subsequent native species planting as prescribed should recover the site to 80% cover with native species. The current HQS is 4; post treatment recovery the HQS could reach 8 providing an improved score by 4.

3.1.6 Overall Vegetative Condition

The overall condition of the existing vegetation on the subject is relatively good. Disease, infestation, and dying plants were not recorded upon site visits. Resident salt accumulations from evaporation limit vegetation diversity. Salt tolerant plants are currently dominant. The prescribed planting plan includes mostly saline tolerant species.

In 2001, the Department of Agriculture introduced and released the tamarisk leaf beetle (*Diohrabda spp.*) as a biological control to eradicate the non-native tamarisk. The beetle has been widely successful at repeat defoliation of tamarisk in the arid west. Some researchers claim the introduction was a colossal ecological mistake while others claim that the transition to native species takes active plantings and time. Riparian areas that have been defoliated by the leaf beetle are considered for now in the short-term as having lost wildlife habitat and a wildfire risk. Tamarisk leaf beetles have not been observed on the subject site. However, beetles have been recorded along the Green River and Ashley Creek. If tamarisk leaf beetles are observed during long-term monitoring, the prescribed treatment is to immediately remove defoliated tamarisk and initiate appropriate native species plantings with the goal of recovery to native species while the tamarisk are defoliated and vulnerable to die off.

Currently the HQS for vegetative condition is 6 as disease and infestations is not currently a problem. However, all areas with tamarisk are at risk of defoliation by beetles. The prescribed enhancement is rapid planting of riparian tree and willow saplings even if tamarisk leaf beetles are discovered in the next few years. The Department of Agriculture and other land management agencies are monitoring areas impacted by the tamarisk beetles along the Green River and its tributaries. Monitoring, identification of infestation, and vegetative treatment is a long-term management prescriptive of the mitigation site, with this directive; the HQS could be increased to 8 resulting in an enhanced score of 2.



Photo 3: View to the east from the center of the mitigation site. The vehicle is parked on the farm road along the east mitigation site boundary. Note the wet meadow across this portion of the site and the riparian trees along the banks of the Green River in the upper right portion of the photo. Note the riparian tree habitat on the east adjacent parcel beyond the vehicle.

3.1.7 Interspersion With Open Water

The US Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps indicate 3 wetland types on the subject parcel; lake, freshwater emergent wetland, and upland. The NWI inventory was completed in 1991, since then construction of the canals around the parcel, less irrigation return flows, and drought has resulted in less surface water on this site.

Currently, there is a small pond and alkali flat in the center of the parcel. This area is seasonally dry and provides good habitat for shore birds. This site can be inundated with water from the canals along the north and east parcel boundaries. It can also be dried out in the fall. Periodic inundation is an effective management strategy to control cattail and other invasive species.

Historically this site has been inundated at 5 to 10 year intervals. Currently, the canals can be used to manipulate water levels. The HQS is currently a 4 and can be restored to a 10, which would provide a replacement value of 6.

3.1.8 Habitat Uniqueness or Abundance

Riparian woodlands serve as vital corridors for migratory raptors, songbirds and waterfowl. Migratory birds utilize riparian corridors to provide water, cover, and forage during seasonal migrations. Linear, closed canopy riparian zones are the habitat type with the greatest need of conservation and re-establishment in Utah. Riparian zones in the inter-deserts of the arid west provide high priority habitat at elevations and latitudes that support the changing seasonal needs of many wildlife species. Dams, floodplain development, wood harvesting, grazing, and water diversions have resulted in significant loss of riparian woodland habitat along the Green River. Priority wildlife species use of riparian woodland in this area include; bald eagle, golden eagle, osprey, western screech owl, great-horned owl, short-eared owl, yellow-billed cuckoo, Bell's vireo, broad-tailed hummingbird, Say's phoebe, Gambel's quail, Lewis woodpecker, hairy woodpecker, northern flicker, Lincoln's sparrow, kit fox, elk, pronghorn, and mule deer.

Riparian shoreline with adjacent desert alkaline mud flat provides priority habitat for a large number of wildlife species. Sandy beach, shallow mud flats, tall tree canopy, mid-story cover, flowing water, and gravel bars provide diverse habitat. Priority wildlife species utilizing this habitat type include; American white pelican, black-necked stilt, bobolink, mountain plover, snowy plover, Virginia rail, willet, Wilson's phalarope, Caspian tern, great blue heron, sandhill crane, killdeer, long-billed curlew, snowy egret, beaver, and river otter.

Desert saline-wetland scrub provides unique habitat primarily for the abundance of insect prey populations. Wetland fringe transition to upland scrub habitat provides cover for rodents and amphibians. Adjacent agricultural fields support additional prey populations and provide thermal cover for many species. Target wildlife species using this habitat type include; Ferruginous hawk, Brewer's sparrow, Lucy's warbler, northern harrier, wild turkey, sage grouse, Townsends big-eared bat, pallid leaf-nosed bat, northern leopard frog, tiger salamander, western chorus frog, and woodhouse toad.

The current value for wildlife habitat is impacted primarily by the altered hydrologic regime and development of the floodplain resulting in lack of cover and non-native plants. A restored floodplain and the proximity to the river provide unique habitat restoration opportunity of the most severely degraded habitat types in the arid west. The current HQS is a 2 based upon degradation, post enhancement the site could be restored to score 10, as riparian habitat is highly valuable and scarce.

3.1.9 Water Supply

The entire site is within the 100-year floodplain of the Green River (FEMA 2010). River flows in this section of the Green River are subject to operations of the Flaming Gorge Dam that is located 110-river miles upstream. In 2012, operations of the Flaming Gorge Dam were changed to simulate seasonal flooding as part of the Colorado River Flood Resiliency Program. The purpose of the change in operations is to conduct hydrological simulations to mimic pre-dam riparian processes. The intent is to redistribute sediments and gravels throughout the riverine system to enhance fish habitat and to establish sand/gravel bars to restore riparian health. As result of the seasonal flood simulations and previously during

high water years, the Fresno parcel has been seasonally inundated. Mr. Massey said during conversation that the USBR intends to closely monitor the flood simulations hoping to prevent any future inundation of the subject parcel. Historically, a levee was dozed and pushed up along the north bank of the Green River to provide flood protection of the private property on the floodplain along this section of the Green River. This levee remains along the south parcel boundary of the Fresno site however; it is weathered and has not been maintained over the years as dams, water diversions, and climate change have resulted in changed hydrologic regime of the Green River. Evaluations of previous Google Earth satellite imagery show that the subject site was inundated in 1984, 1993, 1997, and 2011. Ground water monitoring wells have not been installed on the subject site. It is estimated that seasonal low ground water would not be greater than 4-feet below the natural surface.

Currently this site HQS for water supply is 4 whereas non-natural flows are seasonal and year round flows are uncertain. On-going flood simulations and periodic inundation from water delivery from the canals would guarantee seasonal natural and non-natural flows, this would provide a long-term water supply HQS of 8 resulting in an improved HQS of 4.

3.1.10 Human Alteration

Sometime after 2013 and before 2015, Mr. Massey excavated canals along the east, north and western parcel lines. He has a pump station on the Green River, upstream of the subject site, and is able to pump water into the canals and can manually flood the Fresno parcel. During high river flows, the Green River inundates the Ashley Creek confluence. River flows can back flow into the canal located north of the north adjacent circle field. The canals can be managed by head gates however water remains in the canals year round due to high ground water. During annual low river flows the canals act to drain ground water from the subject site. The natural hydrological regime has been altered with the original construction of levee, Flaming Gorge Dam, irrigation diversions on Ashley Creek and other upstream tributaries, and more recently the canals. Additional human alteration includes; fences, power line, and grazing use. The HQS is currently 0 as entire site has an altered hydrologic regime due to human alterations.

The proposed enhancements would restrict livestock grazing and agricultural use. The power line and fences would remain. The canals would be used to inundate the site for wet meadow and marsh habitat rather than agricultural uses. The site could be recovered to a HQS of 8 where less than 10% of the mitigation site and adjacent land is altered resulting in improved HQS of 8 for human alteration criteria.



Photo 4: View to the west from the eastern parcel boundary. Note the water in the canal from the pump station upstream on the Green River. This water supplements the floodplain hydrology. This water can be used to supply riparian tree plantings along the Green River, provide fish spawning habitat within the canal, provide water for large game and waterfowl, and inundate the mitigation site.

3.1.11 Habitat Quality Score and Total Habitat Value Summary

Table 1 below outlines the assessed Habitat Quality Score of the proposed mitigation site and the anticipated HQS after the proposed enhancement measures are implemented. The final column on the right reflects the perceived habitat replacement value. As mentioned, the required replacement Total Habitat Value for the pipeline project is 184 HVU. This habitat replacement plan with the proposed improvements is sufficient to replace lost habitat caused by construction of the Highline and Ashley Upper Pipeline Project.

In the event that this proposed mitigation site is not preserved with a conservation easement for wildlife habitat the landowner could opt to put the site into agricultural production as originally planned. According to the USBR Habitat Assessment Protocol (USBR 2013) $\frac{1}{4}$ of the total points earned in the criteria evaluation could be added to the score if the proposed replacement lands are faced with an imminent threat that could notably reduce their habitat value. As shown in Table 1 below the Habitat Replacement Value of the mitigation site with proposed enhancement measures is 212. When the imminent threat bonus points are included the Total Habitat Replacement Value is scored at 265, which would more than achieve the required habitat replacement for the project.

Table 1: Habitat Quality Score and Replacement Value Assessment of the 40-acre Fresno parcel.

Criteria	Current HQS	Potential HQS	Habitat Replacement Value
Vegetation Diversity	3	8	5
Stratification	4	8	4
Native vs. Non-Native	4	8	4
Noxious Weeds	4	8	4
Overall Vegetative Health	6	8	2
Interspersion with Open Water	4	10	6
Connectivity	3	10	7
Uniqueness or Abundance	2	10	8
Water Supply	4	8	4
Human Alteration	0	8	8
Sum/10=HQS	3.3	8.6	5.3
HQS(40-acres)=THV	132	344	212
Development threat bonus points	THV(.25)=Total Habitat Replacement Value		265

3.2 Proposed Site Improvements to Achieve Enhanced Habitat Value

Year One: Proposed Irrigation and Noxious Plant Control Plan (Figure 3, Appendix A)

1. Year 1 - Proposed 40-acre Habitat Enhancement Site. Noxious plant control. Cut and remove all tamarisk trees (*Tamarix ramosissima*) and Russian olive trees (*Eleagnus angustifolia*). Drill holes into stumps of large trees, treat stumps with Rodeo or Garlon 2:4D, cover with black biodegradable stump cloth.
2. Year 1 Spring and Summer Site Preparation – From the existing canal that runs south along the east parcel line, cut in four new lateral ditches running east/west across the mitigation site. Install headgates to allow flood irrigation. Cut in a new canal along the west parcel line to collect excess irrigation water. Flood irrigate then dry out each section 4 to 5 times over the first summer to leach salts from the soil. Excess irrigation water will be pumped from the western canal to be used on other agricultural fields if necessary. Mow each section when the soil is dry enough to avoid making ruts. Mowing will cut the tops off all tamarisk shoots and other invasive species to prevent fall seed dispersal.
3. At this time it is recommended that the site be inundated during cottonwood seed dispersal to induce additional cottonwood establishment. Water should be managed to mimic springtime inundation and late summer drying. Monitoring and adaptive water management techniques are key to the long-term success and diversity of this site. If cattails become established on the site, deep inundation (ponding greater than

- 4-feet) or long term drying techniques should be used to reduce cattail stands and maintain wetland species diversity.
4. Year 1 Fall Seeding – Upland grasses and forbs area. The northern most and southern most sections of the mitigation site will be drill or broadcast seeded with an upland grasses and forbs seed mix appropriate for the soil type. These sections are slightly higher in elevation (1 to 3 feet) than the center sections of the mitigation site. Upland plant species could include Indian rice grass (*Achnatherum hymenoides*), sand dropseed (*Sporobolus cryptandrus*), needle-and-thread (*Herperostipa comata*), foxtail (*Hordeum jubatum*), western wheatgrass (*Pascopyrum smithii*), wildrye (*Elymus sp.*), galleta (*Pleuraphis jamesii*), witchgrass (*Panicum capillare*), yarrow (*Achillea millefolium*), alkali mallow (*Malvella leprosa*), milkweed (*Asclepia syriaca*), and littlefoot mustard (*Thelypodium sagittatum*).
 5. Year 1 Fall Seeding - Wetland seed area. The alkali flat area in the center of the site should be drill or broadcast seeded with an approved weed-free wetland seed mix, species should include: sedge (*Carex sp.*), bulrush (*Scirpus sp*), rush (*Juncus balticus*), spikerush (*Eleocharis palustris*), alkali sacaton (*Sporobolus airoides*), alkali muhly (*Muhlenbergia asperifolia*) saltgrass (*Distichilis spicata*), buttercup (*Ranunculus sp*) swamp milkweed (*Asclepias incarnate*) red pickleweed (*Salicornia rubra*), and broom seepweed (*Suaeda calceoliformis*). The seed mix should be prepared appropriate to the existing soil type and ecological setting. Seeding should be done in a manner that does not leave ruts in the soil.
 6. Fencing. The mitigation site should be fenced with wildlife safe fence. Fence should be less than 5 feet in height, four-strand wire without barbs on the top and bottom wires. The bottom wire should be a minimum of 16-inches from the ground surface. The south parcel boundary, adjacent to the Green River should not be fenced unless to restrict cattle access from adjacent land. Sportsman access for hunting and fishing may be provided at the landowner's discretion.
 7. Cattle grazing should be restricted from the entire mitigation site. However, after four-years of successful vegetation treatment, the landowner may request limited fall cattle or goat grazing from the USBR as a land management tool to reduce accumulated biomass. The USBR or Alpine will evaluate the site specifically for limited grazing as a land management tool. It is unlikely grazing will be permitted on the mitigation site.

Year Two: Willows, riparian trees, and upland shrubs planting plan (Figure 4, Appendix A).

1. Willow plantings. During the dormant season, November thru April, plant 3-4 stem willow (*Salix exigua*, and *Salix boothii*) bundles spaced on 16-foot centers. Willows can be planted in clusters with pockets of open space or natural breaks in depressions or inundated areas. Willow bundles must be planted to the depth of ground water (minimum 3-feet deep) in muddy slurry providing adequate soil moisture contact with the stems. Stem ends should be fresh cut at 45-degree angle at the time of planting. Willow plantings should be 6 to 7 acres on the low terrace

adjacent to the river and on the dry areas around the wetland area. Willow cuttings should be from a local source.

2. Riparian tree planting. A mixture of tree saplings species could include; Cottonwood (*Populus fremontii*), lance-leaf cottonwood (*Populus acuminata*), silver poplar (*Populus alba*), black willow (*Salix goodingii*), Bebb's willow (*Salix bebbiana*), river hawthorn (*Crataegus douglasii*) and river birch (*Betula occidentalis*). Tree plantings should be a minimum of 1-inch caliper. Tree plantings need beaver protection fencing to be maintained for at minimum 10-years. Tree plantings should be spaced on 50-foot centers over 5 to 6 acres of the south and southeast section of the parcel on the low to upper terrace outside of the ordinary high water mark of the river channel.
3. Upland shrub plantings. Native upland shrubs, 1 to 5 gallon containers should be planted over approximately 7 acres of the north and northeastern section of the mitigation site. Shrubs should be clustered with areas of open space intermixed across the upland terrace to mimic natural occurring species richness and composition. Shrub plantings should be spaced to provide 50 to 70 percent ground cover at maturity. Species should include a variety of; four-wing saltbush (*Atriplex canescens*), shadscale (*Atriplex confertifolia*), iodinebush (*Allenrolfea occidentalis*), greasewood (*Sarcobatus vermiculatus*), antelope bitterbrush (*Purshia tridentata*), green ephedra (*Ephedra viridis*), and currant bush (*Ribes sp.*)
4. Water management. With the existing pump station and the canals, the mitigation site can be inundated as necessary. At this time it is recommended that the site be inundated during cottonwood seed dispersal to induce additional cottonwood establishment. Water should be managed to mimic springtime inundation and late summer drying. Monitoring and adaptive water management techniques are key to the long-term success and diversity of this site. If cattails become established on the site, deep inundation (ponding greater than 4-feet) or long term drying techniques should be used to reduce cattail stands and maintain wetland species diversity.
5. The landowner will notify the USBR and the irrigation companies upon the initiation and completion of the enhancement measures listed here.

Year Three:

1. Noxious plant control. All tamarisk and Russian olive should be treated again. New shoots should be clipped at the ground surface with stumps treated. Dry and mow grass areas to cut small tamarisk shoots and develop grass root mass. Perennial non-native species should be aerial sprayed prior to seed dispersal or controlled by manual removal of seed head prior to seed dispersal.
2. Dead planted trees should be replaced in a different location to achieve desired density.
3. Dead shrub plantings should be replaced to achieve desired density.

4. Willow plantings should achieve 80% survival of planted bundles. Additional bundles may need to be replanted to achieve desired survival rate and density.

Year Four:

1. Same as year three. Less effort for noxious plant control should be necessary. The landowner could provide osprey nesting platforms or other waterfowl habitat enhancements. The site should be evaluated for potential pronghorn, deer, and elk winter habitat enhancement measures. Measures could include seeding riparian area understory with forbs and bed straw or additional shrub cover of wetland fringe areas to achieve desired density.
2. Water management. The site should be inundated during the spring with ponded water in the center. The low spots in the center of the site should be saturated by high ground water and supplemental irrigation should not be necessary. The site should be mostly dry in the late summer. After it is determined that the site elevations and natural hydrologic conditions are sufficient to sustain the site for the long-term; the ditches can be retired, broken down, and leveled, or scrapped into small depressions for natural pond areas.

Year Five:

1. Site should be stable. Some noxious plant control may be necessary.

Year Six:

1. Site should be stable. Some noxious plant control may be necessary.

Seven to ten years:

1. Site should be stable. Some noxious plant control and fence repair may be necessary.

Ten to fifty years:

1. Site could experience a 100-year flood event or wildfire. An endowment to restore the riverbank and floodplain, vegetate, and re-fence the site should be established.

4 Conservation Easement and Site Ownership

The mitigation site will be surveyed to include a legal description of the site boundaries. The survey and a conservation easement to restrict land development and maintain the site for wildlife habitat will be recorded on the parcel deed at the county recorder's office. The conservation easement will be maintained in perpetuity on the land deed. The USBR and the irrigation companies will be named as the land stewards with oversight authority to ensure that the conservation easement as prescribed is maintained.

At this time, the current landowner would maintain ownership and would be the acting land manager. The landowner is responsible to ensure that wildlife enhancement measures are implemented and that the restoration goals are attained. The parcel could be sold or gifted

to a non-profit or government wildlife management organization. However, the conservation easement and the long-term management for wildlife habitat would be retained land management directives. The endowment fund would be assigned and gifted to the new owner.

Appendix B includes the final conservation easement. The USBR and the irrigation companies will maintain a notarized copy with the legal description.

5 Monitoring and Reporting

USBR will provide site monitoring and recording of restoration and enhancement measures implemented for a minimum of 5 years. Annual site monitoring events will occur late spring/early summer. An annual monitoring report will be prepared and provided to the land manager and the irrigation companies by October of each year. USBR or the irrigation companies may choose to hire Alpine or another independent consulting company to complete annual monitoring and reports.

The monitoring report will include:

1. A list of restoration efforts completed during the previous year with a summary of results and planting success rates.
2. A summary of water management activity completed by the land manager over the previous year.
3. A comprehensive plant list.
4. Vegetation cover estimates for each habitat type. Vegetation cover should be estimated using 3'x3' plots randomly spaced within each habitat type at sufficient intensity to achieve a standard deviation of less than 10 percent.
5. Delineation to map and quantify each habitat type.
6. Photos from established photo-monitoring stations.
7. Drone aerial footage of the mitigation site.

6 Adaptive Management and Contingency Plan

The landowner will hold a mitigation performance surety bond for 6-years upon purchase agreement with the irrigation company payable to the irrigation company. The bond amount will equal the bid amount of the proposed site enhancements plus an additional 20% contingency, and the long term monitoring and maintenance costs required for the first 6-year period site restoration period. The bond maybe released upon written notification to the landowner from the USBR that mitigation site is stabilized and sufficient Habitat Replacement Value Units have been achieved.

The land manager will adopt an adaptive management plan for the mitigation site based upon the results of the mitigation monitoring. If any of the HQS criteria are not being achieved, the land manger will engage in any combination of the following activities to restore the site to the desired Total Habitat Replacement Value.

1. Replanting of native vegetation to replace previous failed plantings.
2. Invasive and noxious weed species reduction and control through the application of herbicides or manual removal.
3. Removal of accumulated biomass through pre-approved methods by the USBR or Alpine. Methods could include mowing, pruning, inundation, grazing, and/or prescribed fire.

The Ouray National Wildlife Refuge is approximately 35 river miles downstream of the mitigation site. The Ouray National Wildlife Refuge is over 1,200 acres. It was established in 1960 and has been actively managed for a wide variety of wildlife species. It contains all 3-habitat types found on the mitigation site. It will serve as a reference site for enhanced habitat conditions of the mitigation site. Habitat management measures utilized at the refuge site will be incorporated in to the long-term adaptive management directives of the mitigation site.

The Utah Division of Wildlife Resources (UDWR) should be notified of the planned habitat enhancement measures on the subject site. This will provide the UDWR with the opportunity to comment and align other on-going wildlife habitat enhancement actions.

7 Long Term Operation and Maintenance

The irrigation companies will establish an endowment fund for the long-term operation and maintenance of the mitigation site. The land manager will apply to the irrigation company to release funds necessary for property taxes and annual maintenance activities.

The endowment fund should also include sufficient funds to conduct riverbank and floodplain stabilization using bioengineering methods and to vegetate the site with native species in the event of a catastrophic flood or fire. The endowment fund could include an insurance policy to cover such an event over a 50-year term.

References

Alpine Environmental Resources (Alpine), 2018. Habitat Value Analysis for the Highline and Upper Ashley Canal Piping Project near Vernal, Utah. March 5, 2018. 79p.

Alpine Environmental Resources (Alpine), 2019. Habitat Replacement Analysis for the Highline and Ashley Upper Pipeline Project near Vernal, Utah. Revised April, 25 2019. 80p.

Bureau of Reclamation (USBR), 2013. Basinwide Salinity Control Program : Procedures for Habitat Replacement. March 2013. On file Bureau of Reclamation Office and Project Record. 14p.

Bureau of Reclamation (USBR). 2017. Final Habitat Replacement Plan Outline. February 24, 2017. 8p.

Federal Emergency Management Agency (FEMA). 2010. National Food Hazard Layer Web Map Service (version 3.2) Panel 49047C0925D effective 10/6/2010.

Appendix A

Figure 1: Project and Mitigation Site Location

Figure 2: Mitigation Site

Figure 3: Proposed Year One Irrigation and Noxious Plant Control Plan

Figure 4: Year Two Willow, Riparian Trees, and Upland Shrubs Plan

Highline and Ashley Habitat Replacement Overview

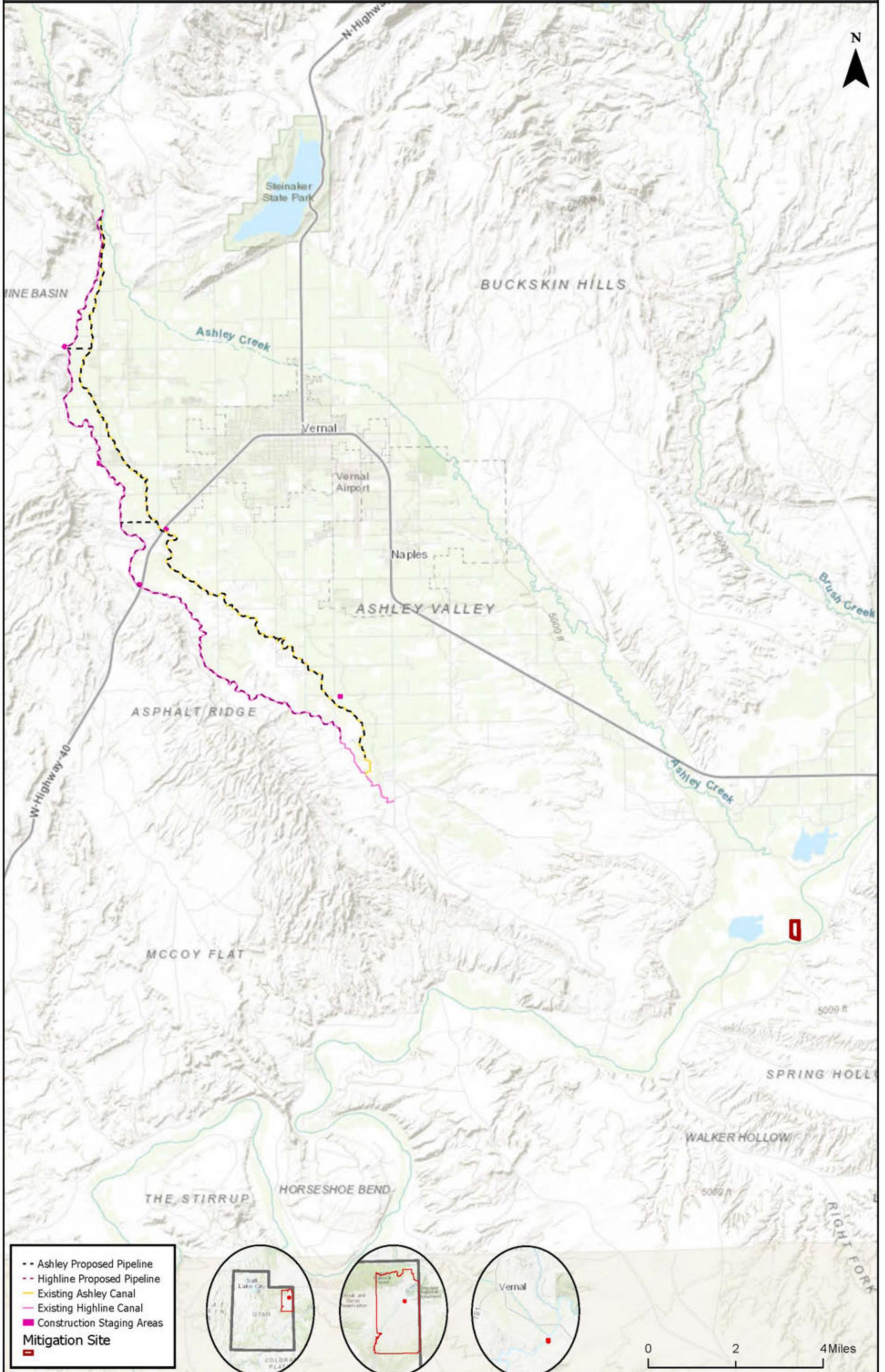


Figure 1: Proposed Habitat Replacement Site in Jensen, Utah

1 inch equals 2 miles

Habitat Replacement Site

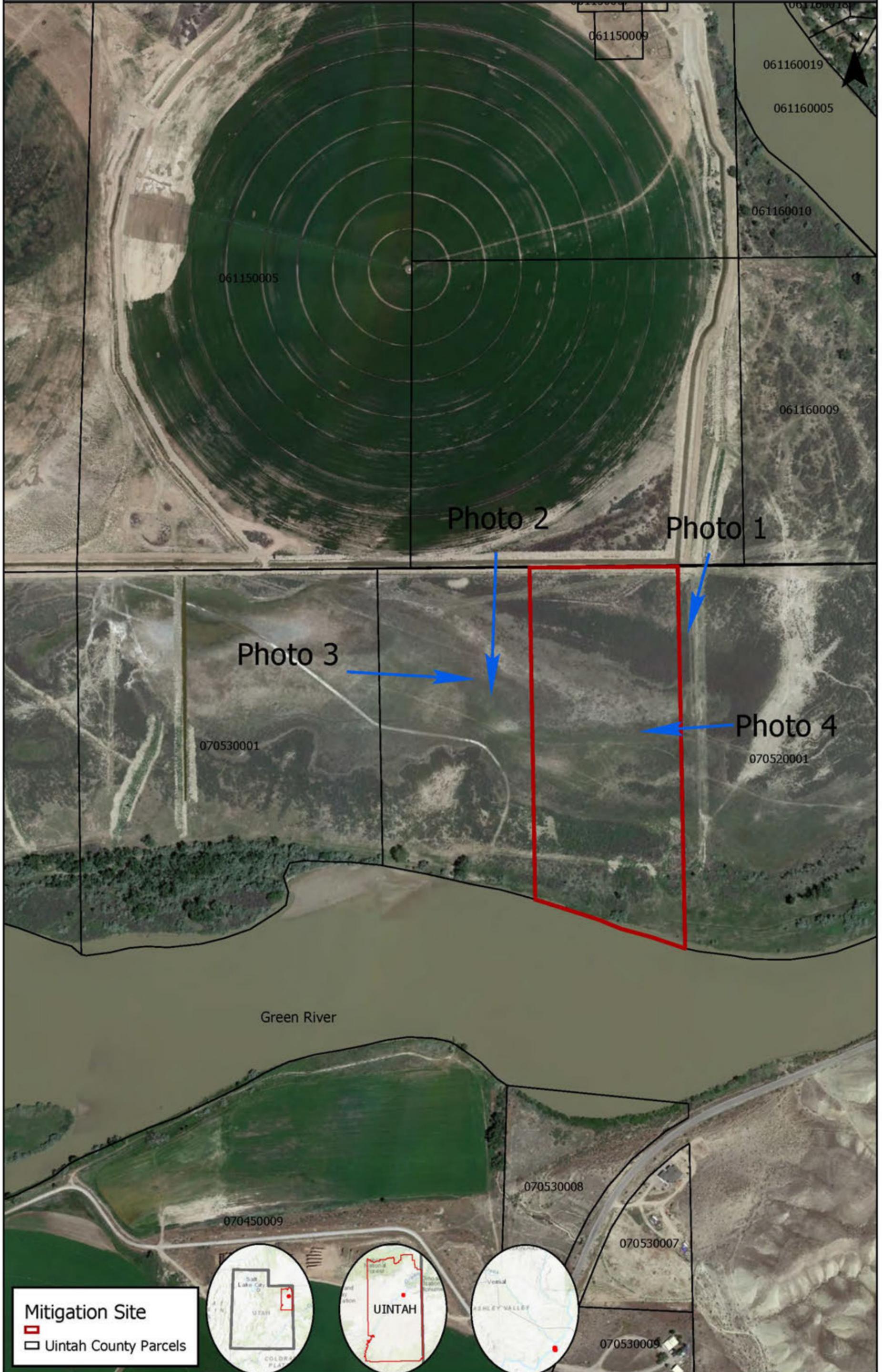
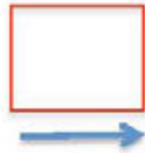
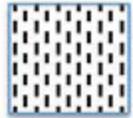


Figure 2: : Mitigation 40-Acre Portion of Parcel # 07:05:2001

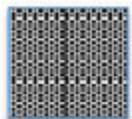
Figure 3: Proposed Year One Irrigation and Noxious Plant Control Plan



1. Year 1 - Proposed 40-acre Habitat Enhancement Site. Noxious plant control. Cut and remove all tamarisk trees (*Tamarix ramosissima*) and Russian olive trees (*Eleagnus angustifolia*). Drill holes into stumps of large trees, treat stumps with Rodeo or Garlon 2:4D, cover with black biodegradable stump cloth.
2. Year 1 Spring and Summer Site Preparation – From the existing canal that runs south along the east parcel line, cut in four new lateral ditches running east/west across the mitigation site. Install headgates to allow flood irrigation. Cut in a new canal along the west parcel line to collect excess irrigation water. Flood irrigate then dry out each section 4 to 5 times over the first summer to leach salts from the soil. Excess irrigation water will be pumped from the western canal to be used on other agricultural fields if necessary. Mow each section when the soil is dry enough to avoid making ruts. Mowing will cut the tops off all tamarisk shoots and other invasive species to prevent fall seed dispersal.



3. Year 1 Fall Seeding – Upland grasses and forbs area. The northern most and southern most sections of the mitigation site will be drill or broadcast seeded with an upland grasses and forbs seed mix appropriate for the soil type. These sections are slightly higher in elevation (1 to 3 feet) than the center sections mitigation site. Upland plant species could include Indian rice grass (*Achnatherum hymenoides*), sand dropseed (*Sporobolus cryptandrus*), needle-and-thread (*Herperostipa comata*), foxtail (*Hordeum jubatum*), western wheatgrass (*Pascopyrum smithii*), wildrye (*Elymus sp.*), galleta (*Pleuraphis jamesii*), witchgrass (*Panicum capillare*), yarrow (*Achillea millefolium*), alkali mallow (*Malvella leprosa*), milkweed (*Asclepia syriaca*), and littlefoot mustard (*Thelypodium sagittatum*).



4. Year 1 Fall Seeding - Wetland seed area. The alkali flat area in the center of the site should be drill or broadcast seeded with an approved weed-free wetland seed mix, species should include: sedge (*Carex sp.*), bulrush (*Scirpus sp.*), rush (*Juncus balticus*), spikerush (*Eleocharis palustris*), alkali sacaton (*Sporobolus airoides*), alkali muhly (*Muhlenbergia asperifolia*) saltgrass (*Distichilis spicata*), buttercup (*Ranunculus sp.*) swamp milkweed (*Asclepias incarnate*) red pickleweed (*Salicornia rubra*), and broom seepweed (*Suaeda calceoliformis*). The seed mix should be prepared appropriate to the existing soil type and ecological setting. Seeding should be done in a manner that does not leave ruts in the soil.
5. Fencing. The mitigation site should be fenced with wildlife safe fence. Fence should be less than 5 feet in height, four-strand wire without barbs on the top and bottom wires. The bottom wire should be a minimum of 16-inches from the ground surface. The south parcel boundary, adjacent to the Green River should not be fenced unless to restrict cattle access from adjacent land. Sportsman access for hunting and fishing may be provided at the landowner's discretion.
6. Cattle grazing should be restricted from the entire mitigation site. However, after four-years of successful vegetation treatment, the landowner may request limited fall cattle or goat grazing from the USBR as a land management tool to reduce accumulated biomass. The USBR or Alpine will evaluate the site specifically for limited grazing as a land management tool. It is unlikely grazing will be permitted on the mitigation site.

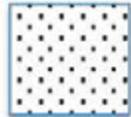


Figure 3. Year One irrigation and seeding plan.

Figure 4: Year Two – Willows, riparian trees, and upland shrubs planting plan



7. Year 2 - Willow plantings. During the dormant season, November thru April, plant 3-4 stem willow (*Salix exigua* and/or *Salix boothii*) bundles spaced on 16-foot centers. Willow plantings can be clustered to mimic naturally occurring composition. Bundles must be planted to the depth of ground water (minimum 4-feet deep) in muddy slurry providing adequate soil moisture contact with the stems. Stem ends should be fresh cut at 45-degree angle at the time of planting. Willow plantings should be 6 to 7 acres on the low terrace adjacent to the river and on the dry areas around the wetland area. Willow cuttings should be from a local source.



8. Year 2 - Riparian tree planting. A variety of tree saplings species could include; Cottonwood (*Populus fremontii*), lance-leaf cottonwood (*Populus acuminata*), silver poplar (*Populus alba*), black willow (*Salix goodingii*), Bebb's willow (*Salix bebbiana*), river hawthorn (*Crataegus douglasii*) and river birch (*Betula occidentalis*). Tree plantings should be a minimum of 1-inch caliper. Tree plantings need beaver protection fence to be maintained for a minimum of 10-years. Tree plantings should be spaced on 50-foot centers over 5 to 6 acres of the south and southeast section of the parcel on the low to upper terrace outside of the ordinary high water mark of the river channel.



9. Year 2 - Upland shrub plantings. Native upland shrubs, 1 to 5 gallon containers should be planted over approximately 5 acres of the north and northeastern section of the mitigation site. Shrubs should be clustered with areas of open space intermixed across the upland terrace to mimic natural occurring species richness and composition. Species should include a variety of; four-wing saltbush (*Atriplex canescens*), shadscale (*Atriplex confertifolia*), iodinebush (*Allenrolfea occidentalis*), greasewood (*Sarcobatus vermiculatus*), antelope bitterbrush (*Purshia tridentata*), green ephedra (*Ephedra viridis*), and currant bush (*Ribes sp.*)
10. Year 2 – If necessary, aerial spray non-native species including; Perennial pepperweed (*Lepidium latifolium*), bull and Canada thistle (*Cirsium sp.*), Dyer's woad (*Isatis tinctoria*), and White top (*Cardaria draba*) prior to seed dispersal with aquatic safe, broadleaf herbicide (Rodeo). Cut and treat Tamarisk and Russian olive trees and stumps. It is estimated that 22 to 40 acres needs noxious plant control.

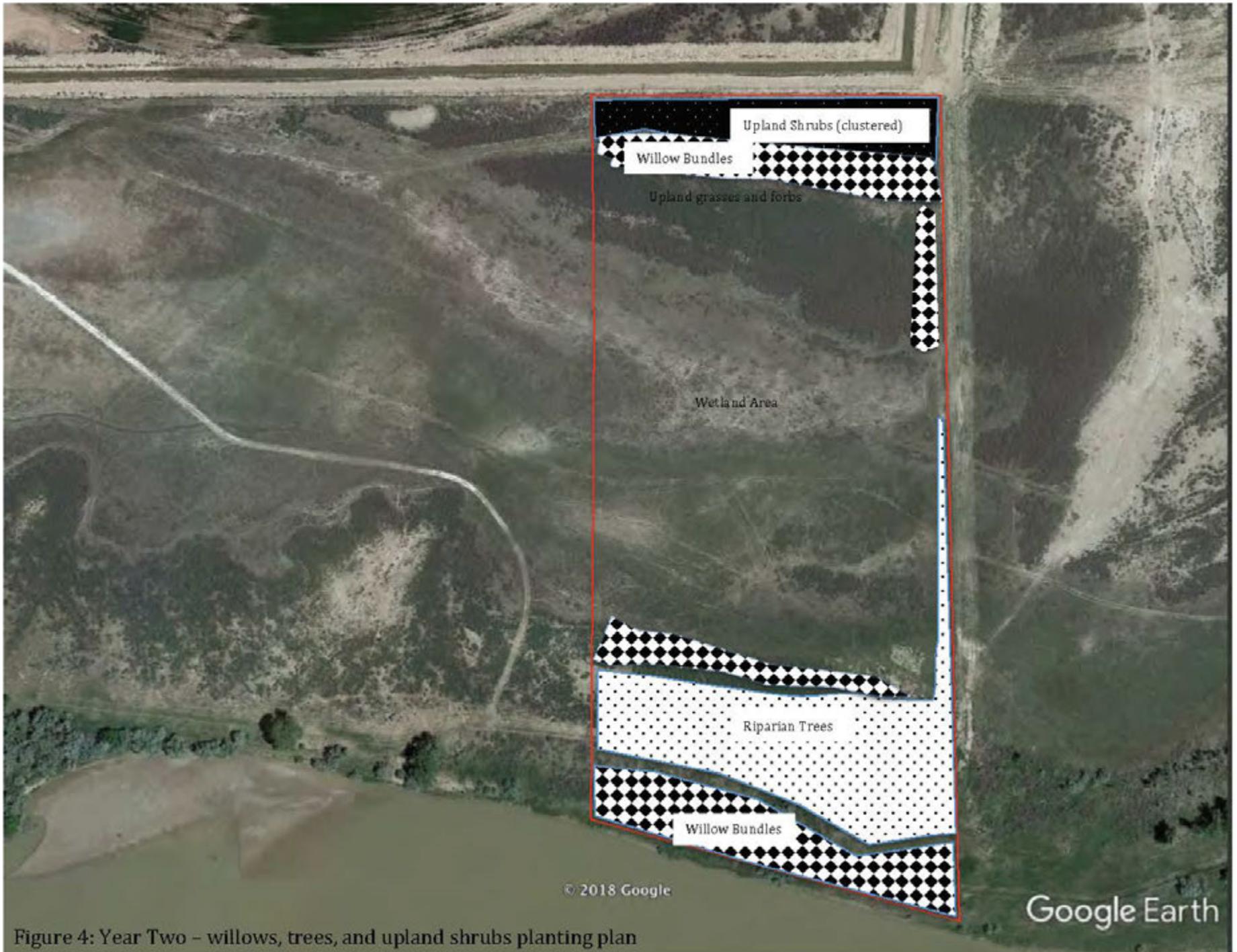


Figure 4: Year Two – willows, trees, and upland shrubs planting plan

Appendix B
Final Conservation Easement

Contract No. _____

Parcel No. _____

Serial No. 07:052:0001

CONTRACT AND GRANT OF
CONSERVATION EASEMENT

This CONTRACT AND GRANT OF CONSERVATION EASEMENT is made this ____ day of _____, 2020 pursuant to COLORADO RIVER BASIN SALINITY CONTROL ACT of 1974 (P.L. 93-320) as amended, by and between the UNITED STATES OF AMERICA, BUREAU OF RECLAMATION (Grantee), hereinafter styled Reclamation, acting through such offices as is authorized therefore by the Secretary of the Interior, and Shon and Tamra Massey, Owners (Grantor). Grantor and Grantee may be jointly referred to as the "Parties."

WITNESSETH

WHEREAS, The purpose of the CONTRACT AND GRANT OF CONSERVATION EASEMENT (Conservation Easement) is to replace or mitigate incidental wildlife values foregone due to the construction of salinity control units and the implementation of the Colorado River Basin Salinity Control Program.

WHEREAS, This Conservation Easement is required as part of the Habitat Replacement Plan, which dictates how the land would be enhanced to improve wildlife habitat value as per a requirement of the Grantee's federal grant provided to the Ashley Upper Irrigation Company through the Upper Colorado River Basin Salinity Control Act.

WHEREAS, Grantor is the owner in fee simple of certain real property more particularly described in Exhibit A attached hereto and incorporated by this reference ("Property"); and

WHEREAS, Grantor agrees to restrict the agricultural and development use of the Property and manage the Property in accordance with the Habitat Replacement Plan for the Highline Canal and Ashley Upper Canal Pipelines.

NOW THEREFORE, in consideration of the mutual covenants contained herein, Grantor hereby donates, conveys, and warrants to Reclamation this Conservation Easement in perpetuity over the Property to the extent hereinafter set forth.

Contract No. _____

Parcel No. _____

1. Grantor, by this Contract and Grant of Conservation Easement and with covenants of warranty, hereby grants to the United States and it assigns, free of lien or encumbrance, except as otherwise provided herein, this Conservation Easement on the following-described interest in real property, situated in the County of Uintah, State of Utah, to-wit:

A perpetual Conservation Easement for a freshwater littoral wetland in a 40-acre portion of Parcel 05:07:2001 located in Jensen, Uintah County, Utah as per plat thereof recorded in the office of the Uintah County Recorder, State of Utah.

2. Grantor will confine the use of the Property to such habitat replacement activities described in this Conservation Easement and manage the Property in accordance with the Habitat Replacement Plan for the Highline Canal and Ashley Upper Canal Pipelines, herein incorporated by reference, for the purpose of wildlife habitat.
3. Following execution of this Conservation Easement by the Parties, Grantor will record the Conservation Easement, which shall be an encumbrance upon the Property.
4. Prohibited Uses.
 - a) Any activity that has a negative impact on wildlife habitat value of the Property.
 - b) Grantor agrees that, within the easement area described herein: (i) no buildings will be constructed; (ii) no dikes, dams, levees, or other structures will be restored or constructed that would limit or prevent flooding except as outlined in the habitat replacement plan; (iii) future easements to third parties on, over, or across the area (exhibit A) will be subject to the approval of the United States, its agents and assigns
 - c) It is understood and agreed that the rights herein conveyed to Reclamation, as described in Article I hereof, shall be free from lien or encumbrance, except: (i) coal, oil, gas, or mineral rights reserved to or outstanding in third parties as of the date of this contract; (ii) rights- of-way for roads, railroads, telephone lines, transmission lines, ditches, conduits, or pipelines on, over, or across said lands in existence on such date; (iii) court liens, judgments, or financial

Contract No. _____

Parcel No. _____

encumbrances, such as Deeds of Trust, for which a formal consent has been obtained from the lien holder.

5. Rights of Reclamation. To accomplish the purpose of this Conservation Easement the following rights are conveyed to Reclamation by this Conservation Easement:

- a) To enter upon the Property at reasonable times to monitor Grantor's compliance with and otherwise enforce the terms of the Conservation Easement, provided that such entry shall be upon prior reasonable notice to the Grantor no less than 48 hours beforehand, and Reclamation shall not unreasonably interfere with Grantor's use and quiet enjoyment of the Property;
- b) The right of ingress and egress to the Property by foot, boat, or vehicle, for surveys and any other purposes Reclamation may deem necessary. Reclamation and its assigns will make all reasonable attempts to notify the landowner(s) prior to entering the Property.
- c) To remedy any violation of this Conservation Easement as set forth below

6. Reserved Rights. Grantor reserves to itself, and to its representatives, heirs, successors, and assigns, all rights accruing from its ownership of the Property, including the right to engage in, permit, or invite others to engage in all uses of the Property that are not expressly prohibited herein.

7. General Provisions.

- a) Duration of Conservation Easement. This Conservation Easement shall continue in perpetuity.
- b) Successors. This Conservation Easement shall be binding upon, and inure to the benefit of, the Parties hereto and their respective personal representatives, heirs, successors, and assigns and shall continue as a servitude running in perpetuity with the Property.

8. Violations and Remedies. Reclamation may enforce the terms and conditions of this Conservation Easement as follows:

- a) Remedies. If Reclamation believes that Grantor is in violation of the terms of the Conservation Easement or that violation is threatened, Reclamation shall

Contract No. _____

Parcel No. _____

give written notice to Grantor of the alleged or threatened violation and request corrective action. Grantor and Reclamation agree to endeavor in good faith to resolve any dispute regarding any alleged or threatened violation of the Conservation Easement. If Grantor and Reclamation are unable to resolve a dispute regarding an alleged or threatened violation within 45 days from Grantor' receipt of written notice, Grantor shall pay to Reclamation any amount necessary to restore the Property in violation of this Conservation Easement and bring it into compliance with the Habitat Replacement Plan.

- b) Costs of Enforcement. The Parties shall bear their own costs, including attorney's fees, in any action brought to enforce this Conservation Easement.
 - c) Waiver. A delay in enforcement shall not be construed as a waiver of Grantee's right to enforce the terms of this Conservation Easement.
9. Grantor reserves to Grantor, Grantor' heirs and assigns, all rights and privileges as may be used and enjoyed without interfering with or abridging the terms of this Conservation Easement.
 10. Grantor agrees to manage the Conservation Easement in accordance with the Ashley Upper and Highline Pipelines Habitat Replacement Plan, attached hereto.
 11. Reclamation may later identify a separate agency or organization to monitor habitat values and recommend management actions. This managing partner would coordinate management activities with Reclamation and Grantor.
 12. The terms of this contract will survive the conveyances provided for herein.

TO HAVE AND TO HOLD unto Reclamation, its successors, and assigns forever.

IN WITNESS WHEREOF, Grantor have set his/her hand on the day and year first above written.

Contract No. _____

Parcel No. _____

THE UNITED STATES OF
AMERICA

Field Solicitors Office

By: _____

**Realty Officer
Bureau of Reclamation
Upper Colorado Region**

Shon Massey
Shon Massey

Tamra Massey
Tamra Massey

(Owners)

State of Utah)

§

County of Uintah)

On this 20th day of June in the year 2000, before me, Jacoy Jones a notary public,
personally appeared Shon Massey and Tamra Massey, proved on the basis of
satisfactory evidence to be the persons whose names are subscribed to this instruments,
and acknowledges they executed the same.

Witness my hand and official seal.

Jacoy Jones
Notary Public



Contract No. _____

Parcel No. _____

EXHIBIT A

A 40-acre portion of Parcel 05:07:2001 located in Jensen, Uintah County, Utah as per, plat thereof recorded in the office of the Uintah County Recorder, State of Utah. More exactly shown below:



Attachment F

FWS IPaC Information

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Ashley Upper and Highline Canal Pipeline Project

LOCATION

Uintah County, Utah



DESCRIPTION

The Ashley Upper and Highline Canals would be piped to reduce water losses due to seepage and evaporation.

Local office

Utah Ecological Services Field Office

☎ (801) 975-3330

📅 (801) 975-3331

2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603

<http://www.fws.gov>

<http://www.fws.gov/utahfieldoffice/>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.

2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened
There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8196	

Yellow-billed Cuckoo *Coccyzus americanus* Threatened
There is **proposed** critical habitat for this species. Your location is outside the critical habitat.
<https://ecos.fws.gov/ecp/species/3911>

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/530	Endangered

Flowering Plants

NAME	STATUS
------	--------

Ute Ladies'-tresses *Spiranthes diluvialis*
No critical habitat has been designated for this species.

Threatened

<https://ecos.fws.gov/ecp/species/2159>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

- Measures for avoiding and minimizing impacts to birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds
<http://www.fws.gov/migratorybirds/pdf/management/nationwidestar>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF
A BREEDING SEASON
IS INDICATED FOR A
BIRD ON YOUR LIST,

THE BIRD MAY BREED
IN YOUR PROJECT
AREA SOMETIME
WITHIN THE
TIMEFRAME
SPECIFIED, WHICH IS A
VERY LIBERAL
ESTIMATE OF THE
DATES INSIDE WHICH
THE BIRD BREEDS
ACROSS ITS ENTIRE
RANGE. "BREEDS
ELSEWHERE"
INDICATES THAT THE
BIRD DOES NOT
LIKELY BREED IN
YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
<https://ecos.fws.gov/ecp/species/1626>

Breeds Dec 1 to
Aug 31

Brewer's Sparrow *Spizella breweri*
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
<https://ecos.fws.gov/ecp/species/9291>

Breeds May 15 to
Aug 10

Golden Eagle *Aquila chrysaetos*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31

Rufous Hummingbird *selasphorus rufus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

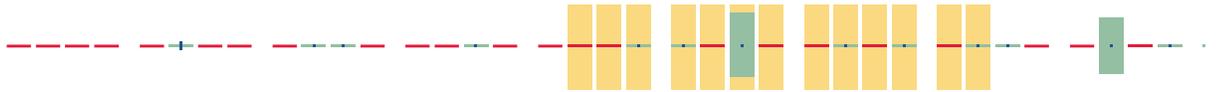
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

Brewer's

Sparrow

BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Golden Eagle

BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Rufous

Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful

impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary.

[Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for

to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1A](#)

[PEM1C](#)

[PEM1Ah](#)

[PEM1Ch](#)

[PEM1Jh](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1B](#)

FRESHWATER POND

[PUSJx](#)

[PUBFx](#)

[PUBGh](#)

[PABFh](#)

[PUSAh](#)

[PUSJh](#)

[PUSCx](#)

[PABFx](#)

OTHER

[Pf](#)

RIVERINE

[R4SBCx](#)

[R3RBG](#)

[R4SBJ](#)

[R4SBA](#)

[R4SBC](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and

nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Attachment G

Biological Assessment



— BUREAU OF —
RECLAMATION

Biological Assessment Highline and Ashley Upper Canal Pipeline Project

EA-16-023

**Ashley Upper and Highline Canals Project, Utah
Interior Region 7, Upper Colorado Basin**

Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

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.

Biological Assessment Highline and Ashley Upper Canal Pipeline Project

EA-16-023

**Ashley Upper and Highline Canal, Utah
Interior Region 7, Upper Colorado Basin**

prepared by

*Thomas Davidowicz
Fish and Wildlife Biologist
Bureau of Reclamation
Provo Area Office
Provo, Utah*

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1.0 Introduction

This Biological Assessment (BA) has been prepared to assess the potential effects of replacing the Highline and Ashley Upper Canals (i.e. Proposed Action) with buried pipelines to convey irrigation water to users of Ashley Valley in Uintah County, Utah, on threatened and endangered species and designated critical habitat pursuant to Section 7(a)(2) of the Endangered Species Act of 1973, as amended (ESA). This consultation is between the U.S. Fish and Wildlife Service (FWS) and the Bureau of Reclamation as Reclamation is providing funding through a cooperative agreement to the project proponent; the Ashley Upper Irrigation Company.

An Information, Planning and Conservation (IPaC) report was obtained from FWS on February 11, 2020. The species list fulfills the requirements of FWS under Section 7(c) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The list included Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), yellow-billed cuckoo (*Coccyzus americanus*), Ute ladies'-tresses (*Spiranthes diluvialis*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), razorback sucker (*Xyrauchen texanus*) and Ute ladies'-tresses (*Spiranthes diluvialis*). This BA examines the effects of the Proposed Action on these species.

1.1 Abbreviations List

Abbreviation	Meaning
BA	Biological Assessment
CFR	Code of Federal Regulations
cfs	cubic feet per second
ESA	Endangered Species Act
FR	Federal Register
IPaC	Information, Planning, and Conservation
km	kilometers
NEPA	National Environmental Policy Act
O&M	operation and maintenance
ROW	rights-of-way
UDWR	Utah Division of Wildlife Resources
ULT	Ute ladies'-tresses
Reclamation	U.S. Bureau of Reclamation
FWS	U.S. Fish and Wildlife Service

1.2 Background

The Highline and Ashley Upper Canals convey irrigation water from the Ashley Upper Diversion structure located on Ashley Creek in Vernal, Utah. The Highline and Ashley Upper Canals are

maintained and operated by the Highline Canal Company and the Ashley Upper Canal Company, respectively.

The existing Highline Canal begins at the point of diversion off the west bank of Ashley Creek located at 40° 30'43.66" N, 109° 35'40.04"W (Figure 1). This canal is an earthen irrigation ditch approximately 14 miles long. It flows generally southward from the point of diversion along the toe of slope on the west side of Ashley Valley. Flows in the canal are diverted to lateral ditches and canals to irrigate adjacent agricultural fields. Near Naples, UT the canal's termination is at an ephemeral wash just south of the town, east of State Route 45 (40°21'14.25" N, 109°29'26.71" W).

Ashley Upper Canal starts at a headgate structure on Highline Canal, approximately 820 linear feet downstream of the Ashley Diversion Structure (40°30' 36.44" N, 109°35'43.58" W) (Figure 1). This canal flows generally southward along the east side of the Highline Canal for approximately 12 miles and rejoins the Highline Canal just south of the town of Naples (40°22' 12.25" N, 109°30" 27.58" W).

2.0 Project Description

2.1 Proposed Action Purpose and Need

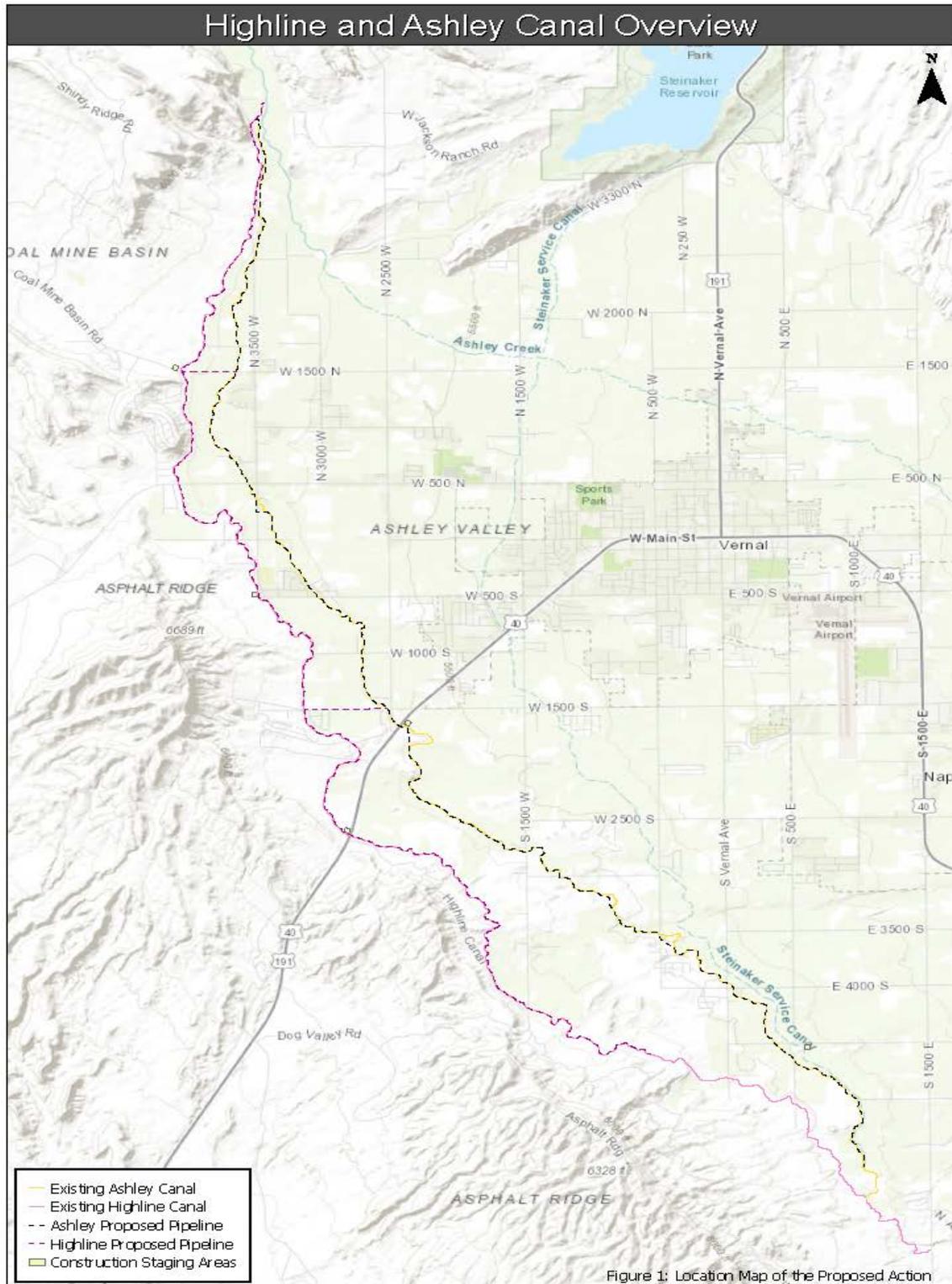
The Proposed Action purpose is to replace the Highline and Ashley Upper Canals with pressurized buried pipelines to reduce watershed salt loading and increase irrigation water delivery efficiency to local farms. This is achieved by converting to pipeline, which will prevent water from leaching salt from soil as it flows over and through the earthen canals, and, would eliminate water loss along canal conveyance that results from seepage, evaporation and evapotranspiration. Under current conditions, salts are eventually carried downstream, via return flows, eventually entering Colorado River Basin streams.

The Proposed Action includes 25.48 miles of pipeline to replace the canal systems. Pipeline long-term operation and maintenance (O&M) will be funded through annual water-user assessments.

Partial funding is provided by Reclamation under the provisions of the Colorado River Basinwide Salinity Control Program (Public Law 93-320), which requires salt reduction in the Colorado River Basin. The threat of salinity loading in the Colorado River Basin is a major concern in both the United States and Mexico (Reclamation 2017). Salinity affects water quality, which in turn affects downstream users by threatening the productivity of crops, degrading wildlife habitat, and corroding residential and municipal water distribution infrastructure. From 2005 to 2015, an average of 7.5 million tons of salt flowed into the Colorado River annually, and by the year 2035 it is estimated that 1.68 million tons of salt per year will need to be diverted from the system to meet water quality standards in the Colorado River Basin (Reclamation 2017). Irrigated agriculture contributes approximately 37 percent of the salinity in the system (Reclamation 2017).

The Proposed Action improvements are anticipated to reduce the salinity contributions to the Colorado River Basin by 2,713 tons annually.

Figure 1 - Project Location



2.2 Proposed Project Components

The Proposed Action (Figure 2) includes two buried irrigation pipelines to be installed adjacent to the existing Highline Canal and the Ashley Upper Canal. The pipelines will be up to 48 inches in diameter and will be approximately 25.48 miles in length (12.99 miles of the Ashley Upper Canal and 12.49 miles of the Highline Canal). After the pipelines are installed, irrigation water will be transmitted within the buried, pressurized pipelines and the existing canals will be maintained in in their current condition to accommodate secondary use for stormwater runoff management during snowmelt and localized high magnitude precipitation events.

Within the project area (Figure 2), alternative pipeline alignments were evaluated that included alignments within the existing canals rights-of-way (ROW), within the existing canal prisms, adjacent private fields, and adjacent existing roads. The final proposed pipeline alignments have been identified, in part, to minimize unavoidable environmental impacts to the maximum extent practicable.

Generally, the proposed construction corridor width will be 100 feet. An area near the Ashley Creek diversion structure will be wider to include the use of an existing access road, an equipment and materials staging area, and for constructing a settling basin, which will be used to filter material via a trash screen before entering the pipelines. Five other construction staging areas (approximately 200 feet by 200 feet in area) will be utilized. These are located along the proposed construction corridor.

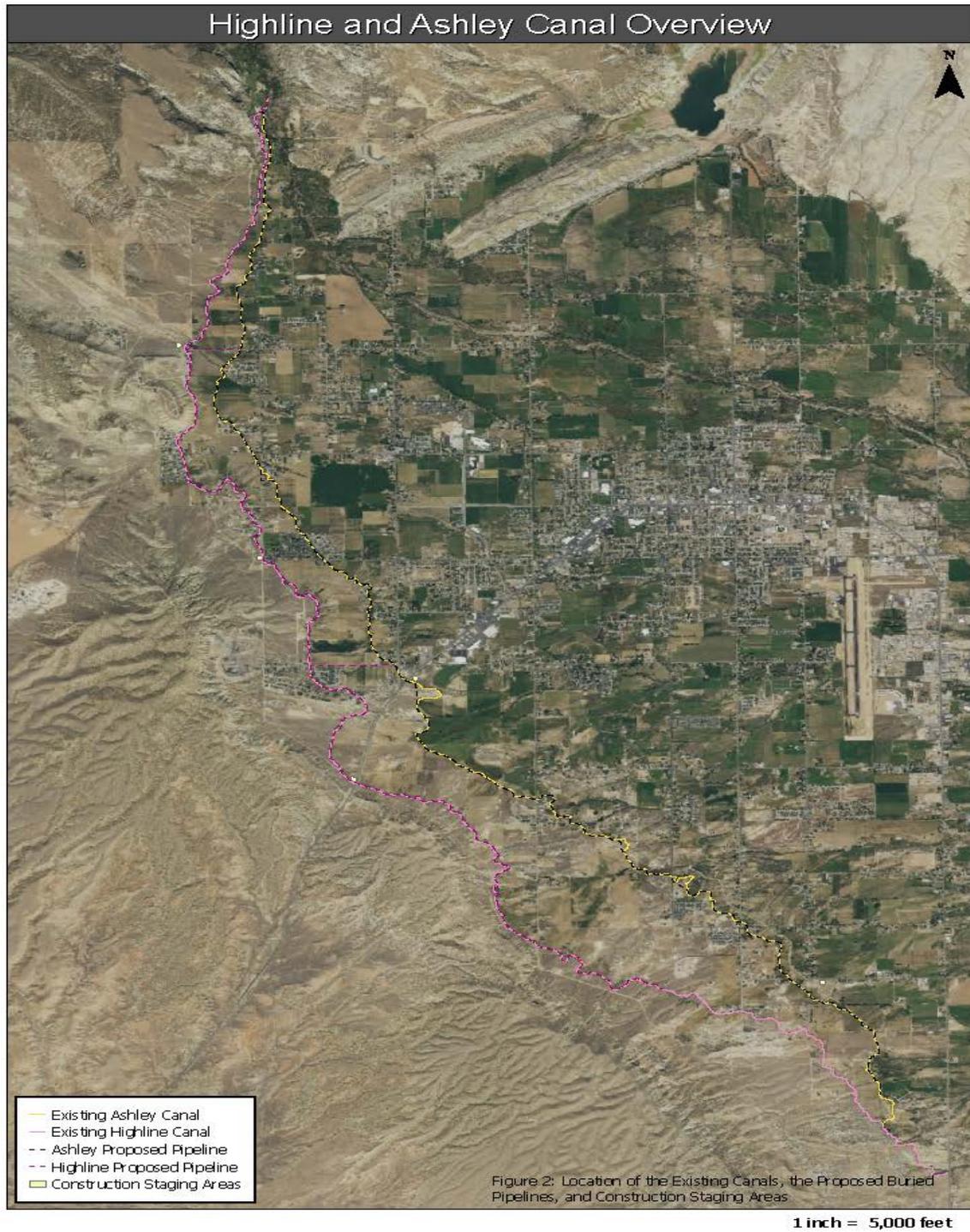
The settling basin and its trash screen [located in the southwestern quarter of sec. 32, T. 4 S., R. 21 E. will be installed to prevent debris carried by Ashley Creek from entering the proposed Highline Pipeline segment. This basin will be constructed in the existing canal alignment, resulting in a slightly larger excavated area than the canal, where the settling basin will match canal depth, but be slightly wider. Water that does not enter the proposed Highline Pipeline will overflow the basin's inlet structure and return to Ashley Creek.

To clean the trash screen, debris will be removed from the basin and hauled to an approved disposal area. The project proponent currently maintains a trash screen near the diversion structure. Based on past maintenance practices, the existing trash screen experiences little debris accumulation, which is estimated to be 160-cubic yards annually. Debris volume is not anticipated to change during the Proposed Action's M&O phase.

The pipelines will primarily be installed within the corresponding canal, which requires excavating a trench and installing the pipe below the canal bottoms. Where the pipeline is not installed within the canals, it will be placed immediately outside and adjacent to them. All excavated material will be stockpiled to the side of the trench, then used as backfill around the pipeline. Pipe sections will be fused together and lowered in the excavated trench using the smallest suitable excavator to minimize ground compaction and construction corridor disturbance width. Pipe diameter size will be determined during final design phase but is planned to range in size from to 48 to 18-inches.

The existing canal prism will be re-contoured to the preconstruction configuration and maintained open for stormwater management. For future maintenance, a 10-foot-wide permanent easement

Figure 2 - Project Area



will be maintained, centered over the pipelines. Disturbed ground will be reseeded with an approved upland species seed mix.

Two interconnections will be installed to transmit water between the two main pipelines and will serve the purpose of equalizing flow demands for each pipeline. One interconnection will be installed within the ROW of 1500 South Street while the other will follow the ROW of 1500 North Street. Each interconnection will be approximately 0.5 miles long with a pipe diameter sized from 18 to 24 inches.

2.2.1 Project Construction Schedule

Construction is planned to occur from June 1, 2020, through June 30, 2021. This timeframe includes construction shutdown during winter months (January through March). Construction during winter months may continue at the contractor's discretion.

2.2.2 Quality Control Procedures

The construction contractor is responsible for all construction quality control. Required hydrostatic testing will be performed during construction to ensure that the pipelines operate to design specifications.

2.2.3 Operation and Maintenance

Standard Operating Procedures during the O&M phase will be followed to avoid or minimize adverse impacts on people and natural resources.

2.2.4 Conservation Measures

The following are avoidance, minimization, and compensatory/mitigation measures that are included as part of the Proposed Action.

2.2.4.1 Avoidance and Minimization

1. Temporarily disturbed areas will be restored during the post-construction period. Disturb ground will be reseeded using a seed mix approved by Reclamation.
2. Vegetation removal will not exceed the amount necessary to complete the project.
3. To reduce the potential spread of noxious weeds, all construction equipment and vehicles will be cleaned of soil, seeds, vegetative matter, and other debris prior to entering the project area.

2.2.4.2 Mitigation

Through coordination with the FWS, compensation for anticipated adverse effects to Ute ladies'-tresses (ULT) is being provided based on the requirements of a developing ULT mitigation program. This program will use a 6:1 ratio (habitat enhancement area to impacted habitat area) to calculate the compensatory fee. The final fee will be confirmed by the FWS as part of Section 7 consultation. This fee will fund future habitat enhancement projects performed by the State of Utah's Watershed Restoration Initiative Program.

The Proposed Action is anticipated to remove 0.06 acres of ULT habitat, which was identified during 5 years of surveys (2015-2019). Required mitigation at 6:1 ratio results in 0.36 acres of enhanced ULT habitat area; a per-acre fee will be established. Since the ULT mitigation program

has not been initiated as of March 2020, the FWS has identified that Proposed Actions participating in this mitigation program will be given a 1-year grace period from the Biological Opinion issuance date. During this period, it is anticipated that the State of Utah and the FWS will formally establish the mitigation program. If this period expires before a program is established, Reclamation will reinitiate Section 7 consultation with the FWS to develop an alternative compensation effort.

2.3 Alternatives Considered and Eliminated from Further Study

The following alternative was evaluated but eliminated because it did not meet the purpose of or need for the project.

2.3.1 Piping Only One Canal with Possible Additional Laterals

Under this alternative, only one canal would be piped. To meet the project intent, several new lateral pipelines would be constructed to supply water from the singular main pipeline to the other canal. The new lateral pipelines need to serve all points of diversion, which would be costly, negating the savings that may have been achieved by constructing the two main pipelines. This alternative was evaluated during the project feasibility stage, then eliminated from further analysis.

2.4 Action Area

The action area is defined as all areas that may be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. It encompasses the geographic extent of environmental changes (i.e., the physical, chemical, and biotic effects) that will result directly and indirectly from the action.

For the Proposed Action, this includes the existing Highline and Ashley Upper Canals and the construction area needed for the proposed pipeline alignments, two interconnection pipelines, and five staging areas in Vernal, Utah (Figures 1 and 2).

3.0 Environmental Baseline

The environmental baseline represents the past and present impacts of all federal, state, or private actions and other human activities in an action area, the anticipated impacts of all proposed federal projects in an action area that have already undergone formal or early Section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process.

As such, the environmental baseline for this BA is represented by the current conditions within Ashley Valley, specifically the area directly affected by the construction of the buried pipelines and the existing condition of both canals as they will be retired from regular, seasonal transmission of irrigation water. The existing canals will be left in place to continue to provide stormwater management.

3.1 Past Impacts

Anthropogenic impacts in the Ashley Valley watershed began in the mid to late 1800s with settlement of the Uintah Basin. Canals began to be constructed in the late 1800s, giving rise to agriculture in Ashley Valley. Although generally dry with low precipitation, the corridor along Ashley Creek provided adequate conditions for farming. Historical accounts of agricultural production began along the creek as early as the 1890s and agricultural production continues to increase as rangeland is converted to cropland.

During the time period of 2012 through 2017, Ashley Valley experienced significant economic activity with an increase in oil and gas development of the Uintah Basin. During this time period the population of Uintah County grew by 5 to 7 percent annually, while historically the population has grown by 1 to 2 percent annually. In 2017, Uintah County population was 36,343 with a projected annual growth of nearly 1 percent (US Census 2020).

3.2 Existing Conditions of the Action Area

The diversion structure on Ashley Creek has provided flood irrigation flows to the valley for over 100 years. Historically, the diversion on Ashley Creek and the original Ashley Upper Canal were constructed to irrigate areas of the valley that were not directly adjacent to Ashley Creek. The Highline Canal was constructed to irrigate land west of the Ashley Upper Canal. Both canals were designed for and historically carried more water than they do now. The available water in Ashley Creek has shown a general decrease over the past few decades.

The Highline Canal is approximately 22-feet-wide and 4 feet in depth at the point of diversion. It narrows in width as it flows south from approximately 18 to 5 feet. It is a manmade, unlined canal cut at the western slope base of Ashley Valley. Lateral irrigation ditches are used to irrigate fields and pastures to the east. This canal is regularly maintained as spoils from historic dredging form the canal banks. The canal bottom is not vegetated; it is hard packed silty, clay, sand with some pebble

and cobble. The banks are vegetated with native grasses, primarily reed canarygrass (*Phalaris arundinacea*) and horsetail (*Equisetum sp.*). Few trees and some shrubs line the canal banks at the northern end becoming less dense and more scattered as the canal flows to the south and irrigation diversions to lateral canals reduce the amount of carried water.

The Utah Division of Water Rights maintains records of water distribution from the Ashley Upper diversion structure. The monthly summary of mean daily discharge in cubic feet per second (cfs) at the diversion is converted to acre-feet to quantify delivery of water rights. The mean annual water delivery in the Highline Canal for the years of records 1962 through 2017 is 5,325 acre-feet. Water available for the canal is dependent upon the natural flows in Ashley Creek. Water delivery in the canal can be started as early as April and continue through October during high water years. During drought years, water is proportioned within the Ashley Creek Distribution System according to water rights. The system has some pump back options built in with delivery from available water in the lower canals. However, water delivery is mostly dependent upon flows within Ashley Creek. Water delivery in the Highline Canal normally starts mid-May and flows through mid-July.

The Ashley Upper Canal is approximately 20-feet-wide and 3-feet-deep at the point of diversion off the Highline Canal. It narrows in width as it flows south from approximately 20 to 5 feet. It is unlined and historically cut into the meandering contours of the valley edge. It is roughly 800 to 2,000 feet east of the Highline Canal and flows parallel to it. The Ashley Upper Canal is mostly tree lined shading the canal water. Dominant tree species include cottonwood (*Populus fremontii*), quaking aspen (*Populus tremuloides*), silver poplar (*Populus alba*), black willow (*Salix goodingii*), boxelder (*Acer negundo*), and river birch (*Betula occidentalis*). Dense mid-story shrubs grow along the banks; dominant species include coyote willow (*Salix exigua*), woods rose (*Rosa woodsii*), goldenrod (*Solidago canadensis*), clematis (*Clematis ligusticifolia*), cocklebur (*Xanthium strumarium*), and milkweed (*Asclepias speciosa*). The banks are vegetated with native grasses and broadleaf plants; dominant species include reed canarygrass, orchard grass (*Dactylis glomerata*), horsetail, sunflower (*Helianthus sp.*), annual wheatgrass (*Eremopyrum triticeum*), and Kentucky bluegrass (*Poa pratensis*). The canal bottom is unconsolidated sand, gravel, pebbles, and rocks. Flows in the canal ripple across the rocky bottom in some areas. Water in the canal is clear and cool at the north end, becoming cloudy and warmer as it flows south. The Ashley Upper Canal receives some tail water from fields on the west and laterals divert flows to flood irrigate fields on the east.

The mean annual water delivery in the Ashley Upper Canal for the years of records 1962 through 2017 is 19,519 acre-feet. Water delivery in the Ashley Upper Canal typically starts early May and continues through late August. Again, flows in the canal are dependent upon the natural stream flows in Ashley Creek; refer to Table 1 for canal shutdown dates over the previous 10 years of record.

Table 1
Highline and Ashley Upper Canal Shut Down Dates

Year	Highline Canal Shut Down Date	Ashley Upper Canal Shut Down Date
2018	15-July	17-August
2017	15-August	10-Oct
2016	23-August	12-September
2015	10-September	21-October
2014	03-July	29-July
2013	07-August	25-August
2012	29-August	23-September
2011	13-October	23-October
2010	07-September	30-September
2009	18-September	14-October

4.0 Listed Species and Critical Habitat In The Action Area

4.1 Introduction

This chapter presents the federally listed species and critical habitats considered in this BA. All species presented here were listed on the FWS Official IPaC report, obtained on February 11, 2020, (Section 9). Each species listed on the IPaC report is considered and either eliminated from further analysis or included in Chapter 5 Effects Analysis. This report documents analysis of potential adverse impacts on these listed species as a result of the Proposed Action. Species analysis is summarized in Table 2 and Section 4.2. Effects analysis on each of the listed species and designated critical habitat is provided Chapter 5 with effects determination provided in Chapter 6.

4.2 Species Eliminated from Further Analysis

Federal listed species that are eliminated from further analysis are presented in Table 2. Table 2 also documents the species' current federal status, known occurrence in the action area, the presence of suitable habitat in the action area and the final effects determination.

**Table 2
Federal Listed Species Considered and Eliminated from Further Analysis**

Species	Federal Status	Known Occurrence in the Action Area	Suitable Habitat Present in the Action Area	Effects Determination
Canada lynx (<i>Lynx Canadensis</i>)	Threatened	None	No	No effect
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Threatened	None	No	No effect
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Threatened	None	No	No effect
Bonytail chub (<i>Gila elegans</i>)	Endangered	None	No	No effect
Colorado Pikeminnow (<i>Ptychocheilus lucius</i>)	Endangered	None	No	No effect
Humpback Chub (<i>Gila cypha</i>)	Endangered	None	No	No effect
Razorback Sucker (<i>Xyrauchen texanus</i>)	Endangered	None	No	No effect

4.2.1 Canada Lynx

In March 2000 the FWS listed the Canada lynx as threatened under the ESA. Designated critical habitat was revised and recorded in the Federal Register October 2014 (79 FR 54782) designating approximately 38,954 square miles (mi²) or 100,891 square kilometers (km²) of critical habitat in five units in the States of Idaho, Maine, Minnesota, Montana, Washington, and Wyoming. The distribution of lynx in North America is closely associated with the distribution of North American boreal forest. The range of lynx populations extends south from the classic boreal forest zone into the subalpine forest of the western United States, and the boreal/hardwood forest ecotone in the eastern United States. Forests with boreal features extend south into the contiguous United States along the North Cascade and Rocky Mountain Ranges in the west, the western Great Lakes Region, and northern Maine. Within these general forest types, lynx are most likely to persist in areas that receive deep snow and have high-density populations of snowshoe hares, the primary prey of lynx.

The Proposed Action will have no impact on high mountain forests. No suitable habitat for the Canada lynx occurs in the action area. Therefore, the Proposed Action will have no effect on the Canada lynx.

4.2.2 Mexican Spotted Owl

In 1993 the FWS listed the Mexican spotted owl as threatened under the ESA. Critical habitat for the Mexican spotted owl was designated in 2004, comprising approximately 3.5 million hectares (8.6 million acres) on federal lands in Arizona, Colorado, New Mexico, and Utah (69 FR 53182). Although Mexican spotted owls have been observed to nest, roost, forage, and disperse among a diverse array of biotic communities, the owl is typically considered a "habitat specialist" in that roost and nest habitats classically occur in late serial forests or rocky canyon habitats.

Habitat for the Mexican spotted owl does not occur in the action area. Therefore, the Proposed Action will have no effect on the species. Since the designated critical habitat is not within the action area, the Proposed Action will have no effect on the designated critical habitat.

4.2.3 Yellow-billed Cuckoo

Due to low numbers and the designation of a distinct population segment in the western portion of its range, this species was federally listed as threatened in 2014. Critical habitat is currently proposed but not finalized. Proposed critical habitat is within the project region, the 100-year floodplain of the Green River near horseshoe bend west of State Route 45, which is more than 5 miles southwest of the action area. In May 2017 the FWS received a petition to delist the yellow-billed cuckoo due to an error in the FWS distinct population segment analysis. Also, the petition provided information indicating the species should be delisted as a result of its utilization of additional habitats. In June 2018 the FWS announced a status review of the species requesting information concerning the status of, or threats to the species or its habitat (83 FR 30092). To date, the western distinct population segment is listed threatened. The yellow-billed cuckoo uses dense, wooded habitat where water is available nearby. The primary prey of the yellow-billed cuckoo is caterpillars.

There is no suitable nesting habitat in the action area. Therefore, the Proposed Action will have no effect on the yellow-billed cuckoo or its proposed designated critical habitat.

4.2.4 Bonytail

The bonytail was listed as endangered under a final rule published on April 23, 1980. Critical habitat was designated on March 21, 1994 and includes Reaches 2 and 3 of the Green River. Threats to the species include stream flow regulation, habitat modification, and predation by nonnative fish species, hybridization, and pesticides and pollutants.

Bonytail are now rarely found in the Green and Upper Colorado River sub-basins and are the rarest of all the four endangered fish species in the Colorado River Basin. In fact, no wild, self-sustaining populations are known to exist upstream of Lake Powell. The middle Green River is currently part of the stocking program area (along with the Yampa River in Dinosaur National Monument) (FWS 2002a).

The Proposed Action will have no foreseeable effect on aquatic habitat of the Green River. There is no suitable habitat in the action area. Therefore, the Proposed Action will have no effect on the bonytail or its designated critical habitat.

4.2.5 Colorado Pikeminnow

The Colorado pikeminnow was first included in the List of Endangered Species issued by the Office of Endangered Species on March 11, 1967, and subsequently received protection under the Endangered Species Act of 1973. Critical habitat was designated on March 21, 1994, and includes the entire Green River downstream from Reach 1. Threats to the species include stream flow regulation, habitat modification, competition with and predation by nonnative fish species, and pesticides and pollutants.

The largest, most productive and most robust population of Colorado pikeminnow occurs in the mainstem Green River (combining the lower Green River, Desolation/Gray Canyon, and middle Green River populations). Colorado pikeminnow spawn in two principal sites: Gray Canyon in the lower Green River, and the lower Yampa River (FWS 2002b).

The Proposed Action will have no effect on aquatic habitat of the Green River. There is no suitable habitat in the action area. Therefore, the Proposed Action will have no effect on the Colorado pikeminnow or its designated critical habitat.

4.2.6 Humpback Chub

The humpback chub was first included in the List of Endangered Species issued by the Office of Endangered Species on March 11, 1967, and received protection as endangered under the Endangered Species Act of 1973. Critical habitat was designated on March 21, 1994, and included stretches of the Yampa, Colorado, and Green Rivers in the Upper Colorado River Basin. The canyon-bound reaches of the Green River between its confluence with the Yampa and Colorado Rivers (Reaches 2 and 3) are designated critical habitat. Threats to the species include streamflow regulation, habitat modification, predation by nonnative fish species, parasitism, hybridization with other native chubs, and pesticides and pollutants (FWS 2018a).

The Proposed Action will have no foreseeable effect on aquatic habitat of the Green River. There is no suitable habitat in the action area. Therefore, the Proposed Action will have no effect on the humpback chub or its designated critical habitat.

4.2.7 Razorback Sucker

The razorback sucker was federally listed as endangered on October 23, 1991, with critical habitat designated March 21, 1994. The entire Green River from its confluence with the Yampa River downstream to its confluence with the Colorado River (Reaches 2 and 3) is included in this designation. There is no critical habitat in Reach 1. Threats to the species include stream flow regulation, habitat modification, predation by nonnative fish species, and pesticides and pollutants. It is found in warm water reaches of the Green River and the lower portions of its major tributaries. It occurs primarily in the low gradient reaches between the confluences of the Yampa and Duchesne Rivers in Reach 2. Adult habitat includes runs, pools, eddies, and seasonally flooded lowlands (FWS 2018b).

The Proposed Action will have no effect on aquatic habitat of the Green River. There is no suitable habitat in the action area. Therefore, the Proposed Action will have no effect on the razorback sucker or its designated critical habitat.

4.3 Species Considered for Further Analysis

The ULT was federally listed as threatened in 1992, but no critical habitat has been designated for this species to date. This long-lived perennial forb likely reproduces exclusively by seed. Fruits are produced in late August or September, and seeds are shed shortly thereafter. Once the seed disperses to a suitable germination site and establishes a symbiotic mycorrhizal relationship, it remains dormant underground until roots are large enough to develop above-ground leafy shoots. The number of years that this takes is unknown (Fertig et al. 2005). Shoots are produced in October, persist through winter, and resume growth in spring. Flowering occurs from early July to late October. Observations of individual ULT plants have shown that they can demonstrate no aboveground growth for at least one growing season (FWS 1995). The lifespan of individual plants can be over 50 years (FWS 1995).

Habitat is primarily moist meadows associated with perennial streams, floodplains, and lakeshores between 4,700 and 7,000 feet above mean sea level. Human-made features such as irrigation canals, berms, levees, gravel pits, and reservoirs are also used when a surface hydrologic connection exists between natural waterways and these features. This orchid appears to require moisture in the root zone through the growing season, which is most often provided by a high groundwater table. ULT occur in central Washington, southwestern Montana, eastern Idaho, southeastern Nevada, southeastern Wyoming, northern and south-central Utah, central Colorado, western Nebraska, and British Columbia (Fertig et al. 2005).

Increased survey efforts since its listing in 1992 have resulted in an expansion of its known range, from Colorado, Utah, and Nevada to include Wyoming, Montana, Nebraska, Idaho, and Washington (Fertig et al. 2005). In 2005, 63 populations of ULT were recognized, comprising up to approximately 38,000 individuals (Fertig et al. 2005). Idaho and Wyoming contain a total of four populations each. Idaho contains an estimated 7,807 individuals (the most found in any state), and Wyoming has an estimated 1,212 individuals (Fertig et al. 2005). Population trends are very difficult to assess for this species due to great increases in survey efforts since listing in 1992 and surveys focusing on flowering plants, which underestimates true abundance by an unpredictable amount (Fertig et al. 2005).

5.0 Effects Analysis

5.1 Ute Ladies'-Tresses

Ashley Creek's riparian zone with naturally occurring sediment bars and oxbows contains suitable habitat. Seeds from ULT occurring upstream of the creek's water diversion structure can be dispersed into the canals. Opportunistic seeds may find suitable conditions and germinate along the canal banks, ditch banks, and on irrigated wet meadows, creating suitable habitat.

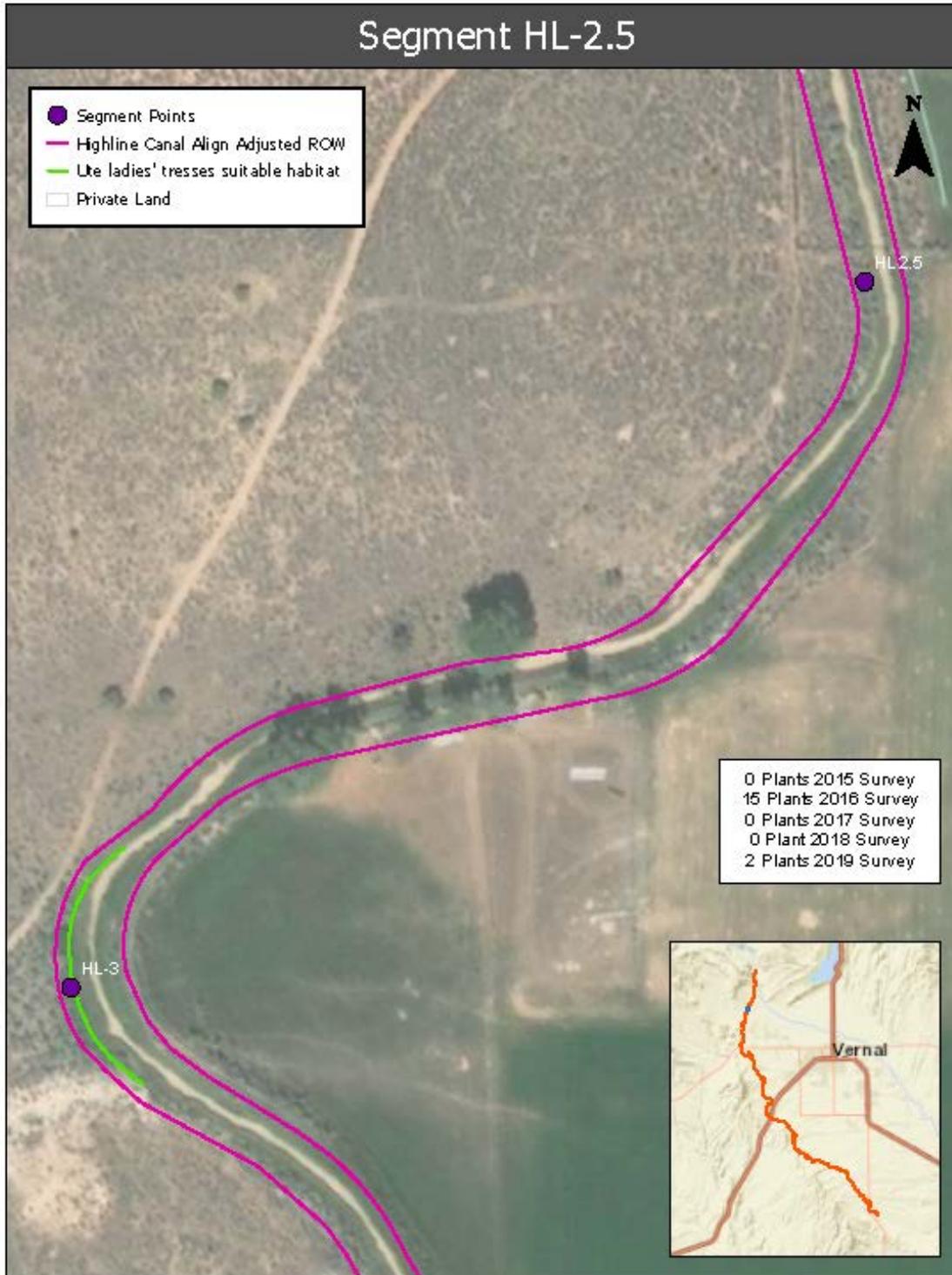
Within the action area, suitable, occupied habitat has been recorded along a 253-linear-foot section (0.06 acres) of the Highline Canal. This canal is dredged occasionally for maintenance and livestock graze the canal banks. The Highline Canal is located on private property, but the canal company holds a 70-foot wide ROW for O&M purposes. Canal flows are determined by irrigation water rights. Suitable habitat is created by soil saturation from canal flow, but not supported by natural surface water or groundwater.

Reclamation began surveys for flowering plants in 2015, following the FWS survey protocols (FWS 2011). No plants were observed, however, 15 individual ULT were recorded in August 2016 (Reclamation 2017). The following two annual surveys resulted in no observations (Reclamation 2018). Two plants were recorded during the last annual survey in 2019 (Hankins 2019).

Reclamation considered measures to protect the recorded ULT, which occur in a single 0.06-acre area. However, converting the canal to a pipeline removes the surface water flow from Ashley Creek, which eliminates the elevation of the adjacent groundwater table. While the canal will be maintained to accommodate snowmelt and stormwater runoff, Reclamation expects these flows to be inconsistent from year to year, and, most significantly, likely not to occur during the summer months when the plants need water to support reproduction and suitable habitat conditions. Therefore, Reclamation believes that this single 0.06-acre area of occupied ULT habitat would no longer persist after the proposed construction is complete. Reclamation considered construction-related protection measures for this area, however, since the hydrologic conditions supporting the habitat would be eliminated by the Proposed Action, those measures would not provide protection.

Because of the low ULT numbers in the action area and a lack of proximal non-connected habitat, the Proposed Action is unlikely to reduce appreciably the viability of the ULT population range wide.

Figure 3 - Occupied Habitat for Ute Ladies'-Tresses within the Action Area.



Google Imagery 2017

Figure 3: Suitable Habitat for ULT within the Action Area

1 inch = 150 feet

5.2 Effects of Interrelated or Interdependent Actions

The implementing regulations of ESA section 7 defines interrelated actions as those that are a part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Reclamation has determined that the Proposed Action is neither interrelated nor interdependent as it is functionally independent of any other action. Therefore, those potential effects are not considered here.

5.3 Cumulative Effects

The implementing regulations for ESA Section 7 define cumulative effects to include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area and those potential effects are considered here.

Reclamation could not identify any actions within the action area that, considered with the Proposed Action, would produce cumulative effects on the ULT.

5.4 Irreversible or Irretrievable Commitment of Resources

No irreversible or irretrievable commitment of resources has been made that will prevent Reclamation from implementing the reasonable and prudent measure(s) that may be identified in the FWS Biological Opinion.

6.0 Determination of Effect

Table 3 summarizes the determination of effects under the Proposed Action on federally listed species.

In short, all species except for the Ute ladies'-tresses, the proposed action has no effect. Conversely, as the project will dewater the existing habitat, rendering it unsuitable, the small number of individual plants supported here will not persist. Therefore, the proposed action may affect, likely to adverse effect the Ute ladies'-tresses (*Spiranthes diluvialis*)

Table 3
Summary of Effects Determination on Federally Listed Species

Species	Effect	Determination
Canada Lynx	None	No effect
Yellow-billed Cuckoo	None	No effect
Mexican Spotted Owl	None	No effect
Bonytail	None	No effect
Colorado Pikeminnow	None	No effect
Humpback Chub	None	No effect
Razorback Sucker	None	No effect
Ute Ladies'-tresses	Habitat loss due to removal of human-induced hydrologic conditions in the action area	May affect, likely to adversely affect

7.0 References

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U.S. Fish and Wildlife Service. 2018b. Razorback Sucker (*Xyrauchen texanus*) 5-year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, CO. 25 pages.

8.0 List of Contacts and Preparer

Contact Name	Organization	Date	Method	Subject
Paul Abate	FWS	December 2018	Phone Call/Email	Effects determination for ULT
Rita Reisor	FWS	January 2020	Phone Call	ULT Conservation Measures and Mitigation

Preparer	Position	Agency/Organization
Thomas Davidowicz	Fish & Wildlife Biologist	Reclamation

9.0 U.S. Fish and Wildlife Service iPaC Official Species List



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
Phone: (801) 975-3330 Fax: (801) 975-3331
<http://www.fws.gov>
<http://www.fws.gov/utahfieldoffice/>



In Reply Refer To:
Consultation Code: 06E23000-2017-SLI-0508
Event Code: 06E23000-2020-E-00877
Project Name: High Line Canal Dewatering

February 11, 2020

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (l)

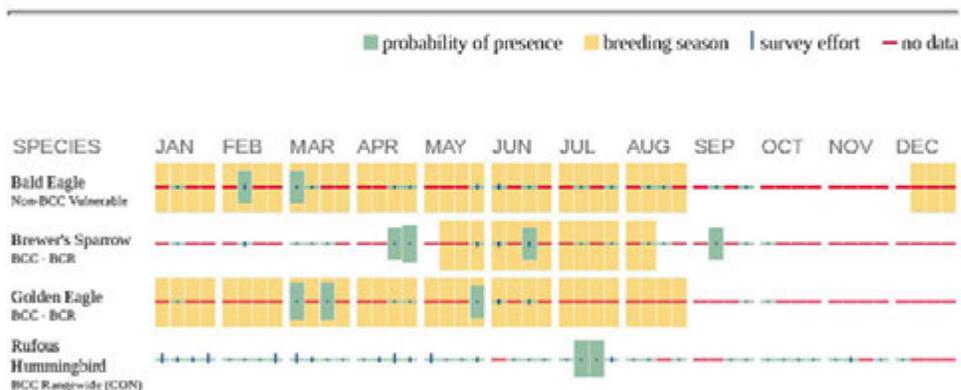
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Rufous Hummingbird <i>elasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Brewer's Sparrow <i>Spizella breweri</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses <i>Spiranthes diluvialis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2159 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/1073/office/65411.pdf	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
<p>Mexican Spotted Owl <i>Strix occidentalis lucida</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/129/office/65411.pdf</p>	Threatened
<p>Yellow-billed Cuckoo <i>Coccyzus americanus</i></p> <p>Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/6901/office/65411.pdf</p>	Threatened

Project Summary

Consultation Code: 06E23000-2017-SLI-0508

Event Code: 06E23000-2020-E-00877

Project Name: High Line Canal Dewatering

Project Type: WATER SUPPLY / DELIVERY

Project Description: Terminate use of the High Line Canal for irrigation purposes. Pressurize Highline Pipeline to use for irrigation water for salinity control program. 9 miles of canal will serve for storm water runoff and to sustain trees along canal. Spring 2020

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/40.438707252480974N109.58858030551299W>



Counties: Uintah, UT

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
(801) 975-3330

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds

Attachment H

FWS Biological Opinion



United States Department of the Interior

FISH AND WILDLIFE SERVICE
2369 West Orton Circle Suite 50
West Valley City, Utah 84119



In Reply Refer to:
FWS/R6
623000-2020-F-0520

May 20, 2020

Memorandum

To: Area Manager, Bureau of Reclamation, Provo Area Office 302 East 1860 South Provo, Utah 84606-7317

From: Acting Utah Field Supervisor, Ecological Services, U.S. Fish and Wildlife Service, West Valley City, Utah **LAURA ROMIN** Digitally signed by LAURA ROMIN
Date: 2020.05.21 13:01:49 -06'00'

Subject: Conclusion of formal section 7 consultation for the Ashley Upper and Highline Canals Piping Project

In accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402), this transmits our final biological opinion (BO) based on review of the Bureau of Reclamation's (BOR) Provo Area Office proposed Ashley Upper and Highline canals piping project (hereafter, Project) and its effects on Ute ladies'-tresses (*Spiranthes diluvialis*). This BO is based on information provided in your April 2020 request for formal consultation, biological assessment (BA), in-person meetings, and email correspondence (see Consultation History, below).

CONSULTATION HISTORY

This section summarizes significant steps in the consultation process:

April 1, 2020: We received the request for consultation and biological assessment from your office through email.

April 30, 2020: We sent an email to your office requesting copies of the species survey reports.

INTERIOR REGION 5
MISSOURI BASIN

KANSAS, MONTANA*, NEBRASKA, NORTH DAKOTA,
SOUTH DAKOTA

*PARTIAL

INTERIOR REGION 7
UPPER COLORADO RIVER BASIN

COLORADO, NEW MEXICO, UTAH, WYOMING

BIOLOGICAL OPINION

1. DESCRIPTION OF THE PROPOSED ACTION

The Project proponent proposes to replace approximately 25.48 miles (mi) (134, 534 feet (ft)) of open, unlined irrigation canal with buried pressurized pipelines, and construction of a settlement basin. The Project is located in Uintah County, Utah, starting at Ashley Creek northwest of Vernal, Utah and running south and east to the terminus south of Naples, Utah. The 48 inch pipelines will be buried adjacent to the existing Ashley Upper and Highline canals. Approximately 12.99 miles (68,587 feet) of pipeline will be placed along the Ashley Upper canal, and 12.49 miles (66,947 feet) of pipeline will be placed along the Highline canal. A settlement basin will be constructed at the Ashley Creek diversion structure. On average, the temporary right-of-way required for construction is 100 ft, and a 10-ft right-of-way will remain permanently to allow maintenance access. Existing canal ditches will be maintained for storm water and flood control. The Project includes long-term operation and maintenance of the pipelines.

The Project purpose is to replace the Highline and Ashley Upper Canals with pressurized buried pipelines to reduce watershed salt loading and increase irrigation water delivery efficiency to local farms. This will be achieved by converting to pressurized pipeline, which will prevent water from leaching salt from soil as it flows over and through the earthen canals, and will eliminate water loss along canal conveyance that results from seepage, evaporation, and evapotranspiration. Under current conditions, salts are carried downstream, via return flows, eventually entering Colorado River Basin streams. Additional details on the Project action can be found in the environmental Assessment (BOR 2020).

Construction is planned to occur from June 1, 2020, through June 30, 2021. Once construction is complete, disturbed areas will be reseeded with an approved upland species seed mix.

Applicant Committed Conservation Measures

The following applicant committed conservation measures will apply:

General

1. Temporarily disturbed areas will be restored during the post-construction period. Disturbed ground will be reseeded using a seed mix approved by BOR.
2. Vegetation removal will not exceed the amount necessary to complete the project.
3. To reduce the potential spread of noxious weeds, all construction equipment and vehicles will be cleaned of soil, seeds, vegetative matter, and other debris prior to entering the project area.

Ute ladies'-tresses

1. A minimum of three consecutive years of clearance surveys will be conducted by a qualified botanist.

2. Compensation for anticipated adverse effects to Ute ladies'-tresses is being provided based on the requirements of a developing Ute ladies'-tresses conservation fund program. This program will use a 6:1 ratio (habitat enhancement area to impacted habitat area) to calculate the compensatory fee. The final fee will be confirmed by our office as part of section 7 consultation. This fee will be held by State of Utah's Watershed Restoration Initiative Program and will be used to fund future Ute ladies'-tresses habitat enhancement projects performed by the Program.
3. Contribution to the Ute ladies'-tresses conservation fund will occur within 1 year of this BO.

1.1 Action Area

The project action area is defined in 50 CFR 402 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

For the purpose of our evaluation of impacts to Ute ladies'-tresses, we define the action area to include the direct Project footprint, right-of-way, all construction areas, staging areas, ingress and egress areas, spoils areas, and settling pond.

1. STATUS OF THE SPECIES

2.1 Regulatory Status

We listed Ute ladies'-tresses as threatened in its entire range under the Act on January 17, 1992 (USFWS 1992a). No critical habitat is designated for the species. A draft recovery plan was prepared, but not finalized (USFWS 1995). The descriptions that follow are derived from a draft recovery plan, a range-wide status review (Fertig et al. 2005), and additional sources as necessary.

2.2 Species Description and Taxonomy

Ute ladies'-tresses was first described as a species in 1984 by Dr. Charles J. Sheviak from a population discovered near Golden, Colorado (Sheviak 1984). The species is a perennial orchid (member of the plant family Orchidaceae) that first emerges above ground as a rosette of thickened leaves, and is very difficult to distinguish from other vegetation given the dense herbaceous vegetation where the species often grows. Its leaves are up to 1.5 cm (0.6 in.) wide and 28 cm (11 in.) long; the longest leaves are near the base. The usually solitary flowering stem is 20 to 50 cm (8 to 20 in.) tall, terminating in a spike of 3 to 15 white or ivory flowers. Flowering generally occurs from mid-July through August. However, in some locations the species may bloom in early July, or may still be in flower as late as early October, depending on elevation and timing of high water flows.

Ute ladies'-tresses looks most similar to hooded ladies'-tresses (*Spiranthes romanzoffina*), but differs in the detailed characteristics of the individual flowers. In hooded ladies'-tresses (which is more common), each individual flower has petals and sepals that are fused to form a covering, or "hood." In Ute ladies'-tresses, these floral parts are not fused, appearing instead to be widely spread, or "gaping" open.

2.3 Distribution and Status

When it was listed under the Act in 1992, Ute ladies'-tresses was known from 10 extant populations within portions of only two states (Colorado and Utah, USFWS 1992a). At that time, these 10 populations were estimated to encompass approximately 170 acres of occupied habitat. At listing, the species was presumed extirpated in Nevada.

Since listing, Ute ladies'-tresses was rediscovered in Nevada, and new populations were discovered in southern Idaho, southwestern Montana, western Nebraska, central and northern Washington, southeastern Wyoming (Fertig et al. 2005, Figure 1 of this BO), and south central

British Columbia (Bjork 2007). In 2005, 53 populations (encompassing 674-784 acres of habitat) were considered extant across the range of the species (Fertig et al. 2005); the British Columbia locations were discovered the following year (Bjork 2007). Utah had the most populations (23), the largest amount of occupied habitat (234-308 acres), and the highest number of reported plants (47,859 individuals) of any state (Fertig et al. 2005). The Spanish Fork watershed in Utah was assessed as having the highest recorded population estimate (28,825 plants), whereas the Upper Green-Flaming Gorge Reservoir population (which spans the Colorado-Utah border) spanned the most extensive area (117-126 acres). The majority of known populations (66 percent) occupied between 0.1 and 10 acres, whereas relatively few (4.9 percent) occupied more than 50 acres.



Figure 1. Ute ladies'-tresses in the Western United States. Source: Figure 5 (p.11) of Fertig et al. 2005.

2.4. Life History and Population Dynamics

Ute ladies'-tresses is a long-lived perennial herb that is thought to reproduce exclusively by seed (Fertig et al. 2005). Bees are the primary pollinators; however, because Ute ladies'-tresses provides only nectar as a food reward, other pollen-providing plant species must be present to attract and maintain pollinators (Sipes and Tepedino 1995, Sipes et al. 1995, Pierson and Tepedino 2000).

The life cycle of Ute ladies'-tresses consists of four main stages—seedling, dormant, vegetative, and reproductive (flowering or fruiting) (Fertig et al. 2005). Ute ladies'-tresses seedlings may develop slowly into larger, dormant mycorrhizal roots or grow directly into above-ground vegetative shoots (Wells 1981), but neither has been confirmed in the wild. The Cincinnati Zoo and Botanical Garden has grown plants from seed under laboratory and greenhouse conditions; germination took 6-8 months and development from a protocorm into a plant was slow (Pence 2009). Long-term demographic monitoring studies indicate that vegetative or reproductive Ute ladies'-tresses plants can revert to a below-ground existence for as many as four consecutive growing seasons before reemerging above ground (Arft 1995, Allison 2001, Heidel 2001). Flowering individuals are necessary to reliably distinguish Ute ladies'-tresses from other similar-looking plant species (esp. other *Spiranthes* species), and surveys during flowering season also maximize the likelihood of detecting Ute ladies'-tresses among dense stands of other herbaceous plant species. However, surveys in which only flowering stems are tallied are of limited value for assessing population trends, given that individual Ute ladies'-tresses plants do not flower consistently from one year to the next, and the relative proportion of individual Ute ladies'-tresses plants in each of the four life stages (seedling, dormant, vegetative, reproductive) can vary widely within and among years and between different colonies (Arft 1995, Pierson and Tepedino 2000, Allison 2001, Heidel 2001, Fertig et al. 2005).

Population trends are less variable when inferred from datasets where all life stages are counted (Arft 1995, Heidel 2001). However, because non-reproductive individuals are inherently difficult and laborious to detect, most surveys tend to focus on the detection (and counting) of flowering individuals (Fertig et al. 2005). As a result, knowledge of Ute ladies'-tresses population trends is severely hindered. This also suggests that available estimates (derived solely from flowering stem counts) are likely to represent conservative estimates of total population size.

With these and other caveats (discussed further in Fertig et al. 2005) in mind, the following statements can be made regarding rangewide abundance and trends in Ute ladies'-tresses. When the species was listed under the Act in 1992, the rangewide population was estimated to contain fewer than 6,000 individuals (USFWS 1992). In 1995, the draft recovery plan increased this estimate to 20,500 individuals, primarily the result of 21 new populations discovered over the previous 3 years (USFWS 1995). As of 2005, 53 populations were estimated to collectively contain more than 80,000 (83,316) individuals (Fertig et al. 2005). For these populations, available population estimates ranged in size from 1 to more than 28,000 plants. More than 80 percent of these populations contained fewer than 1,000 individuals, and 38 percent contained fewer than 100 individuals.

2.5. Habitat

Ute ladies'-tresses occurs in a variety of human-modified and natural habitats, including, seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, and lakeshores (Jennings 1989, USFWS 1992a, Fertig et al. 2005). Numerous populations also occur along irrigation canals, behind berms, within abandoned roadside borrow pits, along reservoir edges, and other human created or modified wetlands. Streamside populations of Ute ladies'-tresses typically occur on shallow alluvial soils overlying permeable cobbles, gravels, and sediments. Across the range of the species, populations occur at elevations ranging from 220 to 558 m (720 to 1,830 ft) in Washington and British Columbia to 2,134 m (7,000 ft) in northern Utah.

Most Ute ladies'-tresses sites have mid-successional vegetation (well-established grasses and forbs) communities that are maintained by human disturbances such as livestock grazing, mowing, ditch and irrigation maintenance, and prescribed fire (Allison 2001, Fertig et al. 2005). Ute ladies'-tresses may persist for some time in the grassy understory of woody riparian shrublands, but it does not appear to thrive under these conditions (Ward and Naumann 1998).

Nearly all streambank, floodplain, and abandoned ox-bow sites occupied by Ute ladies'-tresses have a high water table (usually within 12.5 to 45 centimeters (cm)(5 to 18 inches (in)) of the surface) augmented by seasonal flooding, snowmelt, runoff, and often irrigation (Jennings 1989, Arft 1995, Black et al. 1999, Riedel 2002). Soils must be sufficiently stable and moist in the summer flowering season to support the species (Ward and Naumann 1998). Sites located in springs or sub-irrigated meadows appear to be fed by groundwater rather than surface flows. Less is known about the average depths to groundwater in these locations, but it is reasonable to assume that (as with locations where groundwater depths have been quantified) groundwater must remain relatively close to the surface in order to sustain the moist soils consistently associated with Ute ladies'-tresses.

2.6 Threats to the Species

At the time of listing, we identified habitat loss and modification as the primary threat to the species, but also noted that small population sizes and low reproductive rates rendered Ute ladies'-tresses vulnerable to other threats (USFWS 1992a). Our listing rule identified several specific forms of habitat loss and modification as threats to Ute ladies'-tresses, including: urbanization, water development and conversion of lands to agriculture, excessive livestock grazing, excessive or inappropriate use of herbicides or other chemicals, and the proliferation of invasive exotic plant species. In addition, we concluded that the species may be subject to over-collection, given its status as an orchid and inquiries from orchid enthusiasts and wildflower collectors.

Today, many of these same threats affect Ute ladies'-tresses at least at the site-specific level (Figure 2; Fertig et al. 2005), and some newer stressors have emerged. For example, whereas over-collection had not materialized as a specific threat to Ute ladies'-tresses, vegetation succession, losses or reductions in pollinators, and changes in hydrology appeared to be new stressors. Current threats that remain include habitat loss and modification due to urbanization,

water development and conversion of lands to agriculture, excessive livestock grazing, excessive or inappropriate use of herbicides or other chemicals, and the proliferation of invasive exotic plant species.

Roadways and ground disturbance provide corridors and vectors for the introduction and spread of invasive and non-native species (Forman et al. 2003; Gelbard and Belnap 2003; Watkins et al. 2003; Flory and Clay 2006; Christen and Matlock 2009; Mortensen et al. 2009). Invasive species can affect individuals, populations, and ecosystems through competition, change in community composition, and changes in environmental conditions (Simberloff et al. 2013). The impacts of invasive species usually decline with increasing distance from disturbance (Gelbard and Belnap 2003; Forman et al. 2003).

The Bureau of Land Management Vernal field Office has identified infestations of six invasive weed species within Ute ladies'-tresses habitat including Russian knapweed (*Acroptilon repens*), teasel (*Dipsacus fullonum*), perennial pepperweed (*Lepidium latifolium*), Canada thistle (*Cirsium arvense*), Russian olive, and salt cedar (*Tamarix ramosissima*). Invasive weeds compete with Ute ladies'-tresses for resources via competition for sunlight and space which can then result in displacement of Ute ladies'-tresses plants. Since Ute ladies'-tresses is a small stature plant, it requires open riparian patches with low growing herbaceous vegetation that will not block sunlight.

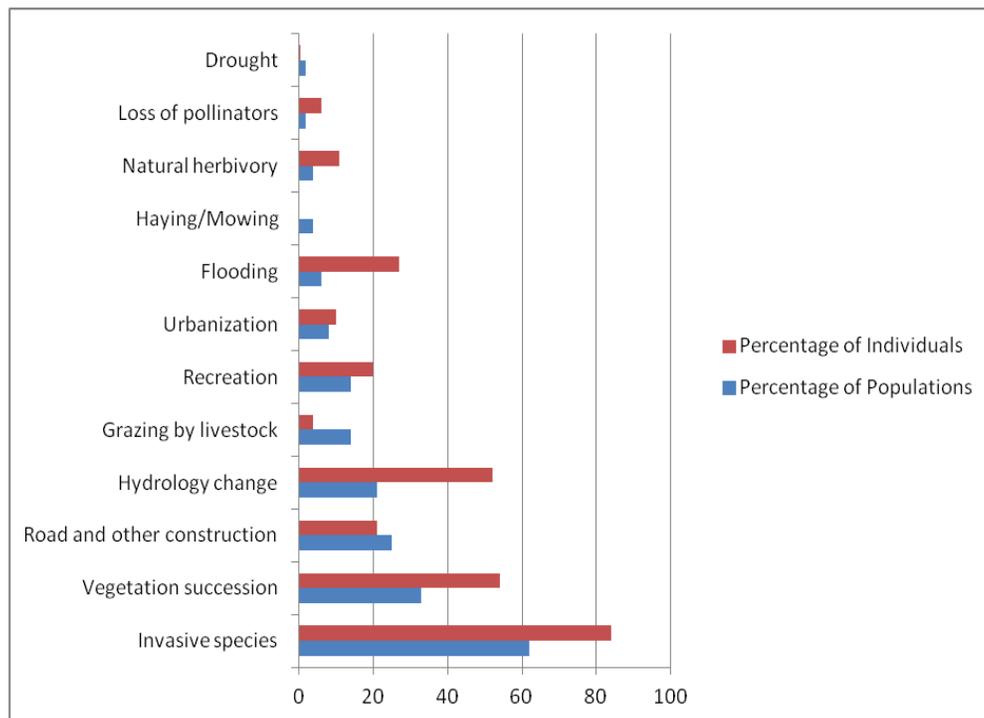


Figure 2. Ute ladies'-tresses stressors quantified as a percentage of known populations and known individuals (based upon the maximum count ever reported for all subpopulations comprising a given population). Adapted from Table 15 (p.81) of Fertig et al. (2005).

Conversion of irrigation water to municipal use, flood control (includes riverbank stabilization), water development or redevelopment, and restoration projects targeting stream and riparian corridors (includes in-stream and habitat alteration) contribute to altered hydrologic regimes across the species' range. However, Ute ladies'-tresses has proliferated in areas with greatly altered, but stable and predictable hydrology (Fertig et al. 2005). Prominent examples include the Green River along the Colorado-Utah border (Ward and Naumann 1998), Diamond Fork Creek in the Spanish Fork watershed of Utah (Black and Gruwell 2004), the Columbia River in Washington (Cordell-Stine and Pope 2008), and the South Fork Snake River in Idaho (Idaho Conservation Data Center 2007). The species is also frequently encountered along streams and canals and in wet hay pastures in the Uinta Basin of eastern Utah, even though an extensive irrigation canal system was constructed in the early 1900s and natural streams are nearly dry all summer (Fertig et al. 2005, Kendrick 1989). Ute ladies'-tresses has also colonized wetlands left behind when peat was mined, and the species occurs in drainage ditches alongside roads and railroad tracks (Fertig et al. 2005). In the summer of 2012, the species was rediscovered in Salt Lake County, Utah, after decades of unsuccessful attempts to relocate a historical collection of the species the county dating from 1953. The county property where the orchid was recently found has been managed as a flood control basin with permitted horse grazing for the past 50 years.

In summary, Ute ladies'-tresses occurs in more than 50 populations distributed across eight U.S. states and one Canadian province. These populations collectively contain some 80,000 individuals. Approximately 80 percent of known populations are associated with lands managed for agriculture or recreation, rivers regulated by dams, or other human-modified habitats (Fertig et al. 2005). Research, monitoring and management activities have demonstrated that ongoing patterns of land use across the range of the species are capable of mimicking or providing the conditions required for the species' persistence.

3. ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as follows:

- The past and present impacts of all Federal, state, or private actions and other human activities in the action area;
- The anticipated impacts of all proposed state or Federal projects in the action area that have already undergone formal or early section 7 consultation; and
- The impact of state or private actions which are contemporaneous with the consultation process.

3.1 Status of the Species within the Action Area

Within the action area, Ute ladies'-tresses occur along a portion of the Highline canal, with 15 individuals identified in 2015 and only two individuals identified in 2019. No individuals were found in the Ashley Upper irrigation canal area. The total occupied and suitable habitat in the action area is 0.06 acres.

The same threats, stressors, and impacts described in the Status of the Species section (see section 2.6) are also present throughout the action area. However, the primary threats to Ute ladies'-tresses in the action area include habitat loss due to changes in hydrology, competition from invasive species, and excessive grazing.

3.2 Factors Affecting the Species within the Action Area

The main threat to Ute ladies'-tresses within the action area is the alteration of hydrology within the canal system and the subsequent loss of habitat associated with the Project. Project activities are anticipated to destroy suitable and occupied habitat of Ute ladies'-tresses within the action area because the canal closure will remove the water source currently supporting the species.

3.3 Recent Section 7 Consultations

No formal section 7 consultations for Ute ladies'-tresses have occurred within the action area. However, some recent formal section 7 consultations have occurred within the same watershed, including:

- Steinaker Service Canal Modification project
- Crescent Point Energy Randlett 3D Seismic project
- BLM Vernal Field Office Invasive Weed Management Plan
- Mosby and White Rocks Canal enclosure project

4. EFFECTS OF THE ACTION

Regulations pursuant to section 7 of the Act define effects of the action as “the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the action, that will be added to the environmental baseline” (50 CFR § 402.02). Direct effects are defined as the direct or immediate effects of the action on the species or its habitat. Indirect effects are defined as those effects that are caused by or result from the proposed action, are later in time, and are reasonably certain to occur.

The effects of the Project will result in the complete loss of all 15 known Ute ladies'-tresses individuals and 0.06 acres of habitat within the Project action area. By transporting water via a pipe rather than an open canal, the hydrology of the canal will be altered sufficiently such that the species will not be supported in the short and long term. The open canal system supported riparian vegetation including Ute ladies'-tresses and removal of the water source will alter the vegetation within the action area. The dry soils surrounding the piped canal will no longer support riparian vegetation or Ute ladies'-tresses.

The Highline canal terminates into an ephemeral wash that does not directly support Ute ladies'-tresses habitat or populations. Since Ute ladies'-tresses requires a perennial water source the ephemeral stream is not considered suitable habitat. Therefore loss of the disconnected population along the northern reach of the Highline canal will not impact any downstream populations or reduce colonization potential.

5. CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Declines in the abundance or range of many special status species are attributable to various human activities on Federal, state, and private lands, such as human population expansion and associated infrastructure development; energy development and associated infrastructure; construction and operation of dams along major waterways; water retention, diversion, or dewatering of springs, wetlands, or streams; recreation, including off-road vehicle activity; expansion of agricultural or grazing activities, including alteration or clearing of native habitats for domestic animals or crops; and introductions of non-native plant, wildlife, or fish or other aquatic species, that can alter native habitats or out-compete or prey upon native species. Many of these activities are expected to continue on state and private lands within the range of various federally protected wildlife, fish, and plant species, and could contribute to cumulative effects to the species within the action area. Species with small population sizes, endemic locations, or slow reproductive rates will generally be more susceptible to cumulative effects.

Future non-Federal activities have the potential to cumulatively affect Ute ladies'-tresses, as a significant portion of the species' range occurs on state, private, and tribal lands without a Federal nexus, and are therefore not always subject to section 7 consultations. Quantified data on the future extent of these activities are difficult to obtain, but we must assume, for the purposes of this assessment, that some level of these activities are reasonably certain to occur, particularly energy and mineral exploration, development, infrastructure projects, livestock grazing, and salinity control projects. Where these future activities intersect Ute ladies'-tresses populations or habitat, they will cumulatively add to the existing and future impacts of activities authorized by Federal agencies. Ute ladies'-tresses individuals on non-Federal lands will be negatively impacted by direct loss and disturbance, as well as landscape-scale factors (i.e. habitat fragmentation and degradation) due to cumulative impacts in the action area.

6. CONCLUSION

After reviewing the current status of the Ute ladies'-tresses, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the Ute ladies'-tresses. No critical habitat is designated for this species and therefore none would be affected.

We base our conclusion on the following reasons:

- The total number of Ute ladies'-tresses individuals that will be impacted by the proposed Project is less than 15 individuals. This represents less than 0.01 percent of the total range-wide population of the species which is estimated to be 80,000 individuals (Fertig et al. 2005).
- The total amount of habitat lost is 0.06 acres and does not represent a substantial part of the current range.
- The impacted population is not directly connected via surface flow to a population downstream.
- The applicant's commitment to voluntarily contribute to the Ute ladies'-tresses Conservation Fund at a 6:1 ratio.

7. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-Federal areas in violation of state law or regulation or in the course of any violation of a state criminal trespass law.

8. REINITIATION NOTICE – CLOSING STATEMENT

This concludes formal consultation on the proposed Ashley Upper and Highline canals rehabilitation project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action is retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may impact listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion;

or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded or if the terms and conditions of this Biological Opinion are not fully implemented, any operations causing such take must cease immediately pending reinitiation.

We appreciate your commitment in the conservation of endangered species. If the project changes or it is later determined that the project affects listed species differently than identified above; it may become necessary to reinitiate section 7 consultation. If you require further assistance or have any questions, please contact Rita Reisor at (385)285-7923.

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- bcc: Project file – Formal File
Reading file
- Hard copy File Location: Formal Files - 06E23000-2020-F-0520
Electronic file location: Z:\Endangered Species\Species\Plants\Ute Ladies'-tresses\CONSULTATIONS\BOR\20_F_0520_Ashley and Highline canal\20_F_0520_L_202005020_Ashley and Highline Canal Final BO

REISOR/REYNA:

Attachment I

Utah Geological Survey
Paleontologist Letter



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Utah Geological Survey

R. William Keach II
State Geologist/Division Director

February 5, 2020

Carley Smith
U. S. Bureau of Reclamation
Provo Area Office
302 East Lakeview Parkway
Provo, UT 84606

RE: Paleontological File Search and Recommendations for the Ashley Upper and Highline Canal Piping Project, Uintah County, Utah
U.C.A. 79-3-508 compliance; literature search for paleontological specimens or sites

Dear Carley:

I have conducted a paleontological file search for the Ashley Upper and Highline Canal Piping Project in response to your request of February 4, 2020.

There are no paleontological localities recorded in our files for this project area. Quaternary and Recent alluvial deposits that are exposed along most of this project right-of-way have a low potential for yielding significant fossil localities (PFYC 2). However, there are also some exposures of the Mancos Shale and Mesaverde Group, mostly along the southern part of the Highland Canal, that have a moderate to high potential for yielding significant fossil localities (PFYC 3-4), so please be aware of potential impacts to paleontological resources if these deposits are disturbed. Otherwise, unless fossils are discovered as a result of construction activities, this project should have no impact on paleontological resources.

If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden
Paleontological Assistant



Attachment J

State Historic Preservation Office
Concurrence Letter



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Jill Remington Love
Executive Director
Department of
Heritage & Arts



Christopher Merritt
State Historic Preservation Officer

Kevin Fayles
Interim Director

March 24, 2020

Kent Kofford
Acting Area Manager
Bureau of Reclamation
302 East 1860 South
Provo, Utah 84606-7317

RE: A Cultural Resource Inventory for the Ashley Upper and Highline Canal Project, Uintah County, Utah

For future correspondence, please reference Case No. 20-0823

Dear Mr. Kofford,

The Utah State Historic Preservation Office received your request for our comment on the above-referenced undertaking on March 24, 2020.

We concur with your determinations of eligibility and Adverse Effect as well as the use of the Programmatic Agreement between our office and your agency on mitigation of adverse effects to 42UN2680 and 42UN2676 (irrigation infrastructure) for this undertaking.

This letter serves as our comment on the determinations you have made within the consultation process specified in §36CFR800.4. If you have questions, please contact me at 801-245-7246 or by email at sagardy@utah.gov.

Sincerely,

Savanna Agardy
Compliance Archaeologist