PRO-FONSI-12-001

FINDING OF NO SIGNIFICANT IMPACT
And Decision Document

Huntsville Irrigation Canal Piping Water Conservation Project
Weber County, Utah

United States Department of the Interior
Bureau of Reclamation
Upper Colorado Region
Provo Area Office
Provo, Utah

Recommended by:

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11/07/2012
Date

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11/8/12
Date

Approved by:

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Area Manager

11/8/2012

FINDING

The Bureau of Reclamation, Provo Area Office, has determined that implementing the proposed action analyzed in the Huntsville Irrigation Company Water Conservation Project Environmental Assessment (EA) would not have a significant impact on the quality of the human environment and an Environmental Impact Statement is not required. This decision was based on agency correspondence anda thorough review of the EA. This decision is in accordance with National Environmental Policy Act (NEPA) of 1969 (Public Law 91-90), as amended, the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), and the Department of the Interior's regulation implementing NEPA (43 CFR 46).

DECISION

Reclamation has decided to provide funding authorized under the WaterSMART Program to implement the Action Alternative described in the EA. This project would pipe existing open, unlined earthen canals of the Grow, North Field, Middle Field, and South Field ditches. The project would include the installation of 10 miles of pipeline and the construction of a new pipe intake.

The proposed project would allow the replacement for the piping of the Grow, North Field, Middle Field and South Field ditches while protecting the environmental resources described in Chapter 3 of the EA. The proposed piping would have an adverse effect on the Huntsville Irrigation Canal System, a cultural resource. A Memorandum of Agreement (MOA) between the Huntsville Irrigation Company, Reclamation, and the Utah State Historic Preservation Office would be prepared and implemented prior to the commencement of construction activities.

REASON FOR DECISION

The Finding of No Significant Impact and the decision to authorize funding for the project area based on the following:

1. The proposed project would have no significant effect on unique resources such as wilderness areas or wetlands.
2. The environmental effects of the proposed action are neither controversial nor do they involve exceptional or unknown risks.
3. The proposed action would have no effect on species either currently listed or proposed for listing as candidate, endangered, or threatened species.
4. The proposed action does not threaten to violate Federal, state, or local laws or requirements imposed for protection of the environment.

Reclamation has analyzed the environmental effects, agency comments, and the Action Alternative in detail. Reclamation believes that the Action Alternative best meets the purpose and need described in the EA.

PUBLIC INVOLVEMENT AND AGENCY COORDINATION

Reclamation conducted a scoping process to solicit information from individuals, groups, stakeholders, municipalities, organizations, and agencies regarding the proposed project. The Utah State Historic Preservation Office, the Utah Geological Survey, the Utah Division of Wildlife Resources, and the U.S. Army Corps of Engineers were contacted pursuant to applicable laws and coordination was completed with these agencies. Tribal consultation was conducted in accordance with 36 CFR 800 (c)(2).

SUMMARY OF ENVIRONMENTAL IMPACTS

The expected environmental impacts of the Action Alternative are described in Chapter 3 and summarized on pages 35 and 36 of the EA. The environmental analysis indicates that under the Action Alternative there would be an adverse effect on the Huntsville Irrigation Company Canal System. A large portion of this system would be replaced with a buried pipeline.

ENVIRONMENTAL COMMITMENTS

The environmental commitments described in Chapter 4 of the EA are an integral part of the proposed action and must be implemented. These commitments include:

1. **Standard Reclamation Best Management Practices (BMPs)** – Standard Reclamation BMPs would be applied during construction activities to minimize environmental impacts and would be detailed in plan sheets and contraction specifications. BMPs would be implemented by construction personnel.

2. **Cultural Resources** – In the case that any cultural resources, either on the surface or subsurface, are discovered during construction, Reclamation's Provo Area Office archaeologist shall be notified and construction in the area of the inadvertent discovery will cease until an assessment of the resource and recommendations for further work can be made by a professional archaeologist.

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

A MOA will be executed to mitigate for the adverse effect to site 42WB489. Mitigation for the adverse effect to the site, set forth in the stipulations of the MOA, must be completed before construction activities associated with the proposed action begin.

3. **Paleontological Resources** – Should vertebrate fossils be encountered by the proponent during ground disturbing activities, construction must be suspended until a permitted paleontologist can be contacted to assess the find.

4. **Roads** – Existing roads would be used whenever possible for project activities. The contractor shall obtain all necessary permits through Weber County for work within and adjacent to all county roads.

5. **Air Quality** – BMP's would be implemented to control fugitive dust during construction. The contractor would follow the Environmental Protection Agency's recommended control methods for aggregate storage pile emissions to minimize dust generation, including periodic watering of equipment, staging areas, and dirt/gravel roads. All loads that have the potential of leaving the bed of the truck during transportation would be covered or watered to prevent the generation of fugitive dust. Construction machinery and operation/maintenance vehicles would be routinely maintained to ensure that engines remain tuned and emission-control equipment is properly functioning as required by law. Additionally, the contractor would comply with all Utah State air quality regulations.

6. **Disturbed Areas** – Areas disturbed during construction would be contoured and reseeded to as near their pre-project condition as practicable. Seeding and planting would occur at appropriate times with weed-free seed mixes of native plants and agricultural grasses, distributed where appropriate.

7. **Construction Activities Confined to the Surveyed Corridor** – All construction activities would be confined to the 100-foot wide corridor that has been surveyed for cultural and biological resources.

8. **Noise Impacts** – BMP's would be implemented to control temporary noise impacts during construction including mufflers on heavy equipment. The contractor would follow all local noise ordinances, including Weber County's Code Ordinances which restricts excavation construction activities to the following timeframes: 7:00 a.m. to 6:00 p.m., Monday through Saturday. No excavation may take place on Sunday or legal holidays. All equipment and machinery used on the site of an excavation operation shall be constructed, maintained, and operated in such a manner as to minimize dust, noise, vibration, smoke, welding, lights, and odor. Access and haulage roads on the site shall be maintained in a dust-free condition by asphalt or dust-proof oil surfacing or other approved treatment as determined by an enforcement official.

9. **Additional Analysis** – If the proposed action were to change significantly from the alternative described in this EA, additional environmental analyses would be undertaken as necessary.

RECLAMATION
Managing Water in the West

Environmental Assessment
Huntsville Irrigation Canal Piping Water Conservation Project
Weber County, Utah

PRO-EA-12-001

Provo Area Office
Provo, Utah
Upper Colorado Region

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

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

Environmental Assessment Huntsville Irrigation Canal Piping Water Conservation Project Weber County, Utah

Huntsville Irrigation District, Weber County, Utah
Upper Colorado Region
Provo Area Office
Provo, Utah

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U.S. Department of the Interior
Bureau of Reclamation

October 2012

Acronyms and Abbreviations

AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CERLA	Comprehensive Environmental Response Compensation and Liability Act
CWA	Clean Water Act
EA	Environmental Assessment
E.O.	Executive Order
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
HDPE	High-density Polyethylene
HIC	Huntsville Irrigation Company
Interior	U.S. Department of the Interior
ITAs	Indian Trust Assets
MBTA	Migratory Bird Treaty Act
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	National Resources Conservation Service

NRHP	National Register of Historic Places
PM2.5	Particulate Matter 2.5 Micrograms for Cubic Meter
PM10	Particulate Matter 10 Micrograms for Cubic Meter
PRPA	Paleontological Resources Preservation Act
RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
SARA	Superfund Amendments and Reauthorization Act
SCADA	Supervisory Control and Data Acquisition System
SHPO	State Historic Preservation Office
SOP	Standard Operating Procedures
UDEQ	Utah Department of Environmental Quality
UGS	Utah Geological Survey
UPDES	Utah Pollution Discharge Elimination Permit
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

Contents

Appendices

Chapter 1: Purpose and Need for the Proposed Action

1.1. Introduction

This Environmental Assessment (EA) has been prepared for the U.S. Bureau of Reclamation (Reclamation) and the Huntsville Irrigation Company (HIC) to assess the potential environmental impacts of the proposed improvements to the HIC's irrigation delivery system, located in Weber County, Utah. The Federal action evaluated in this EA is whether Reclamation should authorize Federal funds to replace the existing open, unlined earthen canals of the Grow, North Field, Middle Field, and South Field ditches with buried pipelines.

This document has been prepared as required by the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and the U.S. Department of Interior (Interior) NEPA implementing regulations. As required by NEPA and associated Federal regulations, if potentially significant impacts to environmental resources are identified, an Environmental Impact Statement (EIS) will be prepared. If no significant impacts are identified, a Finding of No Significant Impacts (FONSI) will be issued.

1.2. Background

1.2.1 WaterSMART

In February 2010, U.S. Secretary of the Interior Ken Salazar established the WaterSMART program to meet the goals established in the Omnibus Public Land Management Act of 2009. Subtitle F of the Act, also known as the SECURE Water Act, established that Congress finds that "adequate and safe supplies of water are fundamental to the health, economy, and ecology of the United States" (SECURE iii). Furthermore, the law authorizes Federal agencies to work with local entities to address issues jeopardizing the security and supply of water in the United States (http://www.usbr.gov/WaterSMART/water.html). As the primary water management agency, Reclamation's WaterSMART program administers grants and scientific studies, as well as, provides technical assistance and scientific expertise to state and local entities.

1.2.2 The Huntsville Irrigation Company

First settled in 1860, the town of Huntsville, Utah is located twelve miles up Ogden Canyon at an approximate elevation of 5,000 feet above mean sea level (Figure 1.1: Project Location). The HIC was organized in 1861 and tasked with delivering water from the South Fork of the Ogden River to agricultural land along the benches of what is currently known as the "Ogden Valley". The majority of the existing canals and laterals within the HIC system are unlined, open ditches that were originally developed during the 1860s.

The HIC system is comprised of four primary ditches, the Grow Ditch, the North Field Ditch, the Middle Field Ditch, and the South Field Ditch. The system also includes structures, canal laterals, and controls associated with the four ditches. The conveyance system includes a little over 10 miles of open main ditches and several thousand feet of lateral ditches. The age and condition of the system makes it very difficult to efficiently deliver water to users, especially those along the lower portions of the system. The HIC water users have 2,613-acre feet of water rights. Only 1,576-acre feet of this water allotment is estimated to be received by the water users. To meet its irrigation demands, HIC diverts an average of 3,131 acre-feet of water annually; 2,613 acre-feet from the South Fork of the Ogden River and 518 acre-feet from the Causey Reservoir. Approximately 50 percent of the water traveling through the open water canals is lost, primarily due to seepage along the earthen lined and rock bottom laterals.

1.3. Purpose and Need for the Proposed Action

The purpose of the proposed action is to pipe the existing unlined earthen Grow, North Field, Middle Field and South Field ditches and provide a pressurized irrigation system for the users of the HIC water delivery system (Figure 1.2: Project Area). The need for the proposed action, consistent with the purpose of Reclamation's WaterSMART program, is to improve the efficiency of the existing system and reduce the amount of water lost through the system to seepage and evapotranspiration.

The project would include the installation of 53,301 linear feet of High-density Polyethylene (HDPE) pipe ranging in size from 4-inches to 32-inches in diameter. The project would include the construction of a new pipe intake structure near the existing Mountain Valley Canal diversion structure. This structure would include a diversion/overflow weir in the main ditch, level sensors to measure flows over weirs, a traveling screen and telemetry to allow for remote monitoring of flows. Flows in excess of what is used by shareholders would overflow back to the river.

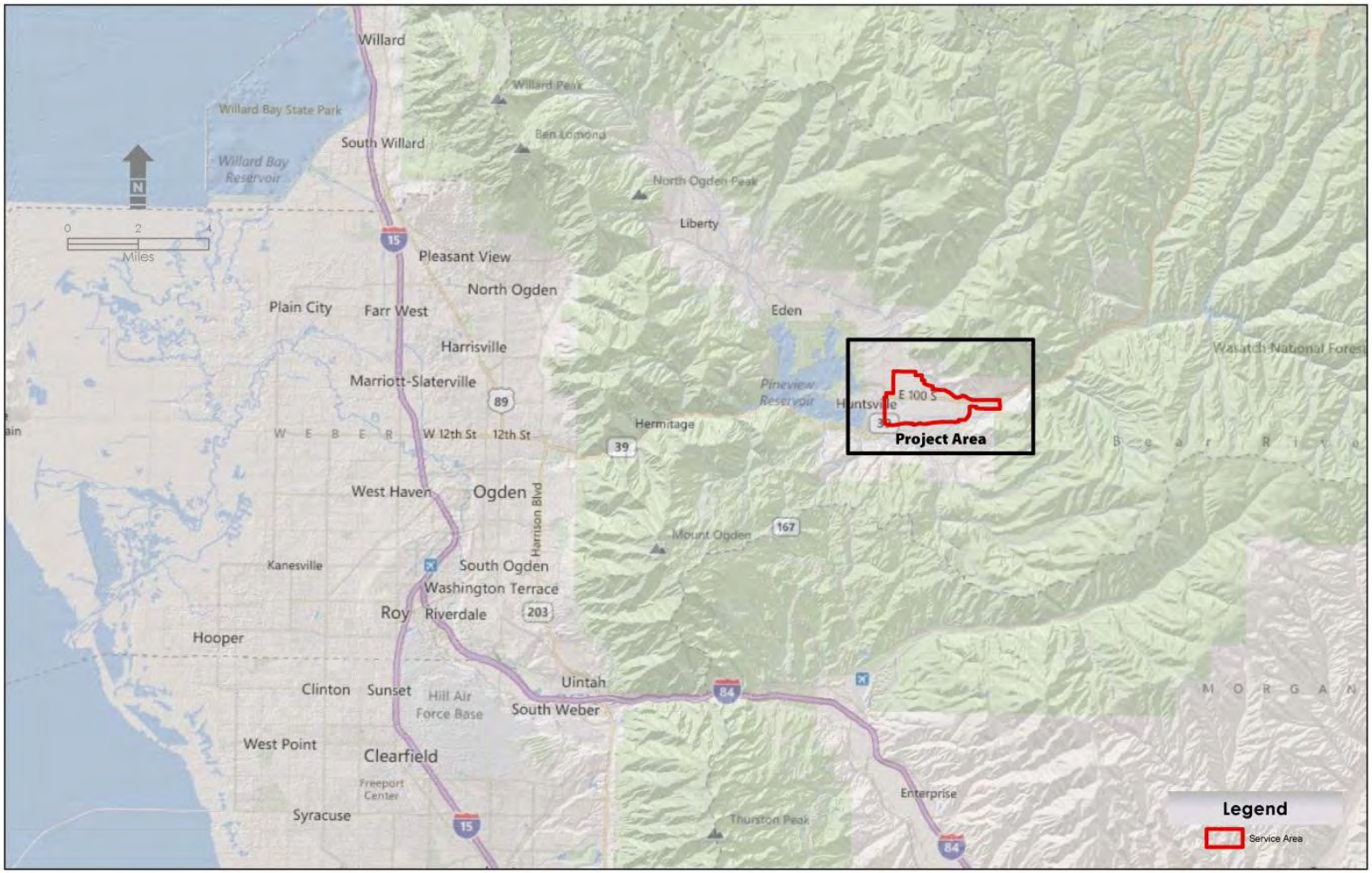

Figure 1.1: Project Location

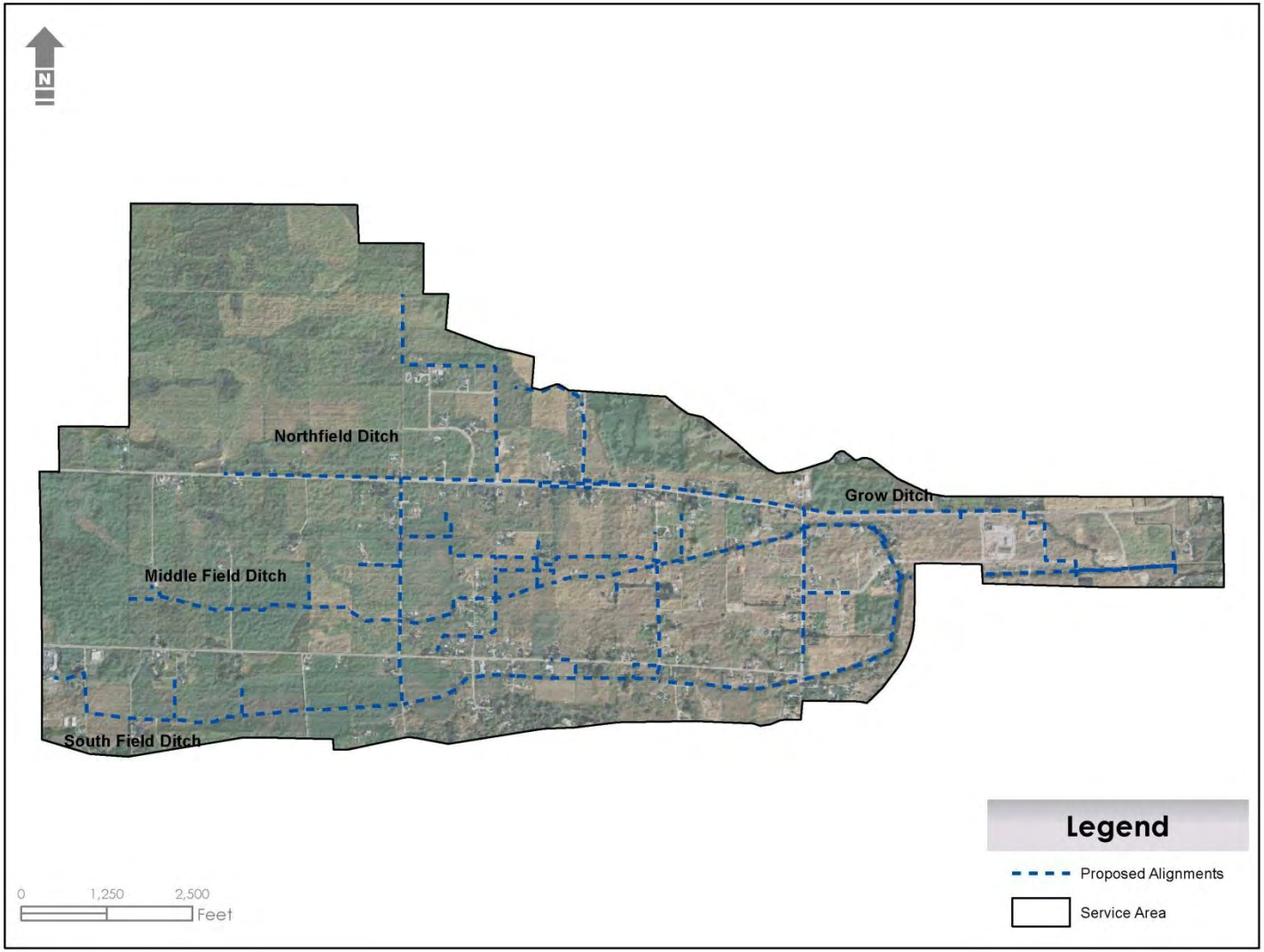

Figure 1.2: Project Area

1.4. Decision to be Made

Reclamation must decide whether to authorize the use of WaterSMART program funds by the Huntsville Irrigation Company (HIC) for the piping of the Grow, North Field, Middle Field, and South Field ditches and associated improvements to provide a pressured water delivery system.

1.5. Permits and Authorizations

If the proposed action is approved, the following permits may be required prior to project implementation:

- Section 404 Permit– This permit (if required) would be issued by the U.S. Army Corps of Engineers (USACE) and complies with Section 404 of the Clean Water Act (CWA) for actions on Waters of the United States and jurisdictional wetlands.
- Stream Alteration Permit – This permit (if required) would be issued to the applicant by the Utah Department of Environmental Quality (UDEQ) and would comply with Section 404 of the CWA for small projects not impacting wetlands.
- Utah Pollution Discharge Elimination Permit (UPDES) – This permit would be issued to the applicant by the Utah Division of Water Quality and would comply with Section 402 of the CWA for actions disturbing more than one acre of ground or for projects that discharge into Waters of the State of Utah.
- Easements with Landowners – Right-of-way would be obtained through Grants of Easement. These easements are required for the following project objectives:
    - Protect HIC's facilities from encroachment
    - Ensure the ability to access and perform operations and maintenance on HIC's facilities
- Construction permit from Weber County for excavation activities.

Compliance with the following laws and Executive Orders (E.O.) are also required prior to and during project implementation:

Natural Resource Protection Laws

- Endangered Species Act of 1973 (ESA) as amended, (16 U.S.C. 1531-1544, 87 Stat. 884)
- Clean Water Act (CWA) of 1972 as amended (33 U.S.C. 1251 *et seq.*)
- Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. 703-712)
- Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. 668-668c)
- Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) (42 U.S.C. 9601)
- Superfund Amendments and Reauthorization Act of 1986 (SARA) (6 U.S.C. Public Law 107-296)

- Resource Conservation and Recovery Act of 1979 (RCRA) (42 U.S.C. 9601)

Cultural Resource Laws

- National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470 *et seq.*)
- Archaeological Resources Protection Act (ARPA) of 1979 (16 U.S.C. 470aa-470mm *et seq*.)
- Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines (48 FR 44716)

Native American Laws

- American Indian Religious Freedom Act (AIRFA) of 1978 (42 U.S.C. 1996 and 1996a)
- Enhancing the Intergovernmental Partnership (E.O. 12875, October 26, 1993 [58 Federal Register 58093])
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 U.S.C. 3001 *et seq.*)
- Consultation and Coordination with Indian Tribal Governments (E.O. 13084, May 14, 1998 [63 Federal Register 27655])
- Indian Sacred Sites (E.O. 13007, May 24, 1996 [61 Federal Register 26771])

Paleontological Resource Laws

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

1.6. Relationship to Other Projects

There are no known projects or planned projects in that the area that are related to the proposed action.

Chapter 2: Alternatives

2.1. Introduction

The proposed action analyzed in this EA is Reclamation's authorization for the use of Federal funds for the enhancement deemed most suitable for the HIC system under the present conditions, including the execution of any easements for required land acquisition as described in Section 2.3 Action Alternative. This EA will be used to determine the potential effects on the human and natural environment and will serve to guide Reclamation's decision regarding whether or not to authorize funding for the implementation of the proposed action. The proposed action (Action Alternative) is analyzed in comparison to a No Action Alternative in order to determine potential environmental impacts.

If Reclamation decides to implement the proposed action, HIC would be authorized to proceed with the piping of the Grow, North Field, Middle Field, and South Field ditches including the construction of a new diversion structure, a new power line, and the associated water conveyance system improvements. If authorized to proceed, HIC would construct, operate and maintain the new pipelines in place of the existing open ditches. The new water conveyance system, existing easements and newly acquired easements would be owned and operated by the HIC.

2.2. No Action Alternative

Under the No Action Alternative, Reclamation would not authorize the use of Federal funds for the piping of the HIC ditches. The existing open, unlined ditches and laterals would continue to deliver irrigation water with no proposed improvements for reducing the amount of water lost to seepage and evapotranspiration. Currently, approximately 50 percent of irrigation water being delivered through the ditches and the associated laterals is lost to seepage, evaporation and vegetation uptake. Under the No Action Alternative, approximately 1,500 acre-feet of water would be lost annually through the existing HIC system. A larger than necessary water appropriation would continue to be required to meet water user needs due to the inefficiency of the existing unlined canal system.

2.3. Action Alternative

Under the Action Alternative, Reclamation would authorize the use of Federal funds to pipe the existing HIC water delivery system including the Grow, North Field, Middle Field, and South Field ditches and associated laterals (Figure 2.1 Proposed Alignment). This action is anticipated to increase the efficiency of the existing water delivery system by 50 percent and reduce the amount of water that would need to be diverted to the system by approximately 1,500 acre-feet annually.

Piping these laterals would also reduce the amount of ongoing system maintenance that is currently required for the system. Ongoing maintenance practices include removing debris from channels, clearing overgrown vegetation and replacing outdated valves and gates.

The project would be divided into three phases anticipated to be completed over a three year period. Construction would take place outside of the irrigation season when the water has been removed from the irrigation system. The first phase of construction would include the construction of a new pipe intake structure on the main ditch just west of the existing Mountain Valley Canal diversion structure. The new structure would include a traveling screen to prevent debris from flowing into the new HIC water conveyance system and into the existing Huntsville Water Works storage reservoir. These flows would be measured using transit-time flow meters on each of the respective pipes. Water bypassing the structure and continuing down the main channel would be measured through a parshall flume. Overflows back to the river would be monitored using pressure transducers and calibrated weirs. Power to operate the screen, run the telemetry and control the flow measuring devices would come from a new power pole that would be located approximately 300 feet to the north of the new diversion structure. The overhead power line extension would include two new poles, running roughly parallel to the Mountain Valley Canal.

Piping activities associated with the first phase of construction would include the installation of approximately 19,875 linear feet of HDPE pipe ranging in size from 32 inches to 2 inches in diameter. The construction of this main feed line would consist of 6,353 linear feet of 32-inch HDPE pipe that would follow the general alignment of the main ditch from the new intake structure to Highway 39. From Highway 39, it would follow the general alignment of the Grow Ditch west to 9500 East. At 9500 East the first branch pipe would split off from the main feed line crossing Highway 39 to the south. The main pipe would continue along the existing Grow Ditch alignment in a 20-inch HDPE for 4,518 linear feet to approximately 8800 East. From 8800 East, the pipe would split with a 12-inch HDPE line heading north and west for 4,040 feet where it would terminate with a drain line emptying into the existing ditch. The second branch would head west from 8800 East, along Highway 39, in a 10-inch HDPE pipe following the existing North Field Ditch alignment for approximately 3,811 feet. It would then terminate with a drain line tying into the existing North Field Ditch. Small sections of 4-inch and 2-inch HDPE would branch off of the 20-inch pipe and cross Highway 39 to service users on the south side of the road. A 6-inch pipe would branch off of the 10-inch pipe at 8600 East and would be stubbed across the highway where it would terminate. In addition to the main line piping, the first phase of construction would also include 200 linear feet of 32-inch HDPE pipe running from the pipe intake structure south to carry overflow water back to the river. A 20-inch pipe would be installed from the pipe intake structure to the main 32-inch pipe. This pipe would carry screened irrigation water from the intake structure to the existing Huntsville Water Works storage reservoir. Pipe sizes and lengths are detailed in Table 2.1 Phase One Piping.

Table 2.1 Phase One Piping

Pipe Size (diameter)	Anticipated Length (linear feet)
32-inch Main Line	6,353
32-inch Over Flow Line	200
20-inch Main Line	4,518
20-inch HWW supply	575
12-inch	4,040
10-inch	3,811
6-inch Branch Stub	75
4-inch Service Highway Crossing	90
2-inch Service Highway Crossing	213
Total	**19,875**

The second phase of the proposed action, anticipated to begin in the second year of construction, would include replacing the North Field Ditch, the Middle Field Ditch, and the laterals associated with those two ditches. Construction activities would generally take place from Highway 39 and 500 South between 9500 East and 7800 East. This phase of construction would include the installation of approximately 21,642 linear feet of HDPE pipe ranging in size from 32 inches to 4 inches in diameter. Pipe sizes and lengths are detailed in Table 2.2 Phase Two Piping.

Table 2.2 Phase Two Piping

Pipe Size (diameter)	Anticipated Length (linear feet)
32-inch	190
28-inch	2,232
20-inch	2,544
16-inch	3,004
12-inch	912
10-inch	5,077
6-inch	6,444
4-inch	1,239
Total	**21,642**

The third and final phase of the proposed action, anticipated to commence in the third year of construction, would replace the South Field Ditch. Construction would take place along the existing South Field Ditch alignment located south of 500 South from approximately 9200 East

to 7800 East. The third phase would install 11,784 linear feet of HDPE pipe. Pipe sizes and lengths are detailed in Table 2.3 Phase Three Piping.

Table 2.3 Phase Three Piping

Pipe Size (diameter)	Anticipated Length (linear feet)
20-inch	3,757
18-inch	1,725
14-inch	1,486
8-inch	3,167
6-inch	1,205
4-inch	444
Total	**11,784**

In all phases of construction, drains would be located at low spots throughout the system to allow drainage of the system. All drainage would be directed into existing irrigation ditches, allowing the water to follow historical paths back into existing waterways.

Easements

Easements would be required where the existing alignments and the proposed pipeline alignments deviate. All acquired easements would be obtained from landowners in the name of the HIC. Where deviations from the existing alignment occur a 15-foot wide permanent easement would be needed for operation and maintenance of the pipeline. The construction of the proposed action would result in the acquisition of approximately 8,280 linear feet of new permanent easements from private land owners. In addition, approximately 4,920 linear feet of new piping would be installed within the right-of-way of existing roads maintained by Weber County. Temporary easements for construction within the roadway right-of-way would be obtained from the County. No other easements from publicly owned local, state, or federal land would be required.

A 50-foot temporary construction easement is required for construction in areas where the proposed alignment deviates from the existing alignments. A 30-foot construction easement (15 feet off of the centerline of the existing alignment) is required for construction activities taking place along the existing alignment of the canal laterals. Construction of the proposed action would temporarily disturb 42 acres of land.

Meters, Service Laterals and Drains

A trash cleaning screen would be installed at the pipe intake structure to prevent debris from entering the irrigation system. A time-transit flow meter would be installed at the start of the pipeline to monitor and control distribution of irrigation water. Pressure transducers and weir equations would be used to monitor overflows back to the river and a parshall flume would be used to measure flows bypassing the pipe intake and providing flow to downstream users. Service laterals would have 1.5-inch and 4-inch diameter width connections installed depending on water allocations. Drains would be installed at the end of the pipelines and at key locations to facilitate the draining of the system.

Supervisory Control and Data Acquisition System
The proposed action would include the installation of a supervisory control and data acquisition (SCADA) system at the new diversion structure. The SCADA system would monitor flows and document water usage, allowing HIC to more effectively manage the irrigation system. The inclusion of a SCADA system would decrease administrative losses and increase the overall efficiency of the irrigation system. The SCADA system would also extend to monitoring of water being used by other downstream users beyond the HIC system.

2.3.1 Construction Procedures

The proposed action would include construction of three primary elements: the pipelines, the new diversion structure, and the new electrical alignment. Construction activities would begin with the staking of the construction zone, mobilization of construction equipment and delivery of the material. Other activities associated with the construction of the proposed action include the clearing of vegetation along the new alignment; excavation associated with the construction of trenches for the pipeline; the placement of the electrical poles and the construction of the new diversion structure; fusing of the pipe and placing it within the trenches; backfill and compaction over trenched areas; clean up and restoration work; and reseeding disturbed areas. Construction activities are described in more detail in the following sections.

2.3.1.1 Trench Excavation

Trenches ranging from three to five feet wide and four to eight feet deep would be excavated for the installation of the pipe. Excavation in all areas would be performed with the use of appropriately sized construction equipment to minimize disturbance to the surrounding area. All excavated material would be stockpiled to the side of the trenches and would be used as backfill after pipe and bedding installation. In critical areas, such as established agricultural lands and wetlands, topsoil would be separated from other material to preserve it and place it as the top soil layer during restoration activities.

2.3.1.2 Pipe and Appurtenance Installation

The pipes would be transported by a tractor-trailer from the manufacturer to the staging areas. From the staging areas, they would either be transported by a loader to the work site or fused into longer sections and transported to the work site. Existing access roads would be used to transport pipe to the work site. Each section of pipe would be fused together with a pipe fuser and then placed in the prepared trench.

At various points determined during design, construction would be required to install drain valves and combination air-vacuum valves. These valves would be installed to facilitate filling and operation of the system, and to allow any excess water at the end of the irrigation season to drain from the pipes. The air-vacuum valves are typically installed on top of the pipe to vent air during pipe filling and to allow air into the pipe while it drains. After installing the pipe, backfill would be placed around the pipe. In critical areas, including wetlands and established agricultural areas, the preserved topsoil would be placed last to minimize impacts and facilitate a speedy recovery. Backfill would be mechanically compacted. Soil in work areas would be spread evenly, to blend with the natural topography and maintain local drainage patterns. Stockpiled topsoil would then be spread evenly over previously vegetated areas and reseeded with native or agricultural vegetation species, as appropriate. In areas with a new alignment, the abandoned section of the laterals would be allowed to dry up naturally. In locations where there

is an excess or a shortage of material, a slight swale or hump would be incorporated into the cross section.

2.3.1.3 Crossings

Existing drainage crossings would be maintained during construction. Six crossings located under Highway 39 would be constructed as part of the proposed action. Two of these crossings would place a pipe in the location of an existing culvert. The other four crossing would be outside of the existing alignment. Of the six crossings, two would be open-cut, one would include sliding a new 2-inch pipe through an existing culvert and the remaining three would be reconstructed by boring beneath the roadway. The construction of the crossings would not require the closure of the roadway, although there may be some minor traffic impacts as construction vehicles enter and exit the roadway.

2.3.1.4 Quality Control Procedures

After backfilling, restoration activities and completion of construction activities, the contractor would provide quality control of construction through visual inspection.

2.3.2 Staging Areas

Construction staging areas have been identified throughout the project area (Figure 2.1 Proposed Alignment). The staging areas would be used to stockpile pipe, equipment, and construction vehicles. Staging areas have been assessed to determine potential project impacts during the duration of construction.

2.3.3 Land Disturbance

The proposed pipeline alignment described in Section 2.3 totals approximately 10.09 miles in length and requires a maximum construction easement width of 50 feet. Construction activities would be confined to a 30-foot width where there are existing easements. New easements for sections of the pipeline that deviate from the alignment of the existing canal laterals would be 50-feet wide for construction and 15-feet wide for operation and maintenance.

2.3.4 Transportation Requirements

Transportation to the project would follow existing ditches and access roads whenever possible to minimize disturbance to the existing vegetation. All transportation routes would be within the proposed construction easement. All areas of temporary disturbance would be contoured and re-vegetated with native plant or agricultural material, as appropriate, following completion of construction. A permanent access road exists at the location of the new diversion structure and would be used for ongoing operation and maintenance.

2.3.5 Standard Operating Procedures

Standard Operating Procedures (SOPs) would be followed (except in unforeseen conditions) during construction, operation, and maintenance of the proposed action. The SOPs and features of the proposed action have been designed to avoid or minimize adverse impacts on people and natural resources. A preconstruction meeting with Reclamation, the contractor, and HIC's representative would be held prior to commencing construction on the project to review and assess standard SOPs and other commitments. During construction, weekly project team meetings would be held to assess the progress of the work.

Specifics of restoration to disturbed areas would be outlined in the SOPs and/or right-of-way easements. Restoration procedures would include the determination of native vegetation, reseeding rates, landscaping, re-vegetation and noxious weed removal and control that would be appropriate for the construction zones. Monitoring and treatment would continue until the success criteria are met for two successive years without human intervention. These actions would provide that disturbed areas are returned to a natural state as appropriate. Chapter 3 presents the impact analysis for resources after SOPs have been successfully implemented.

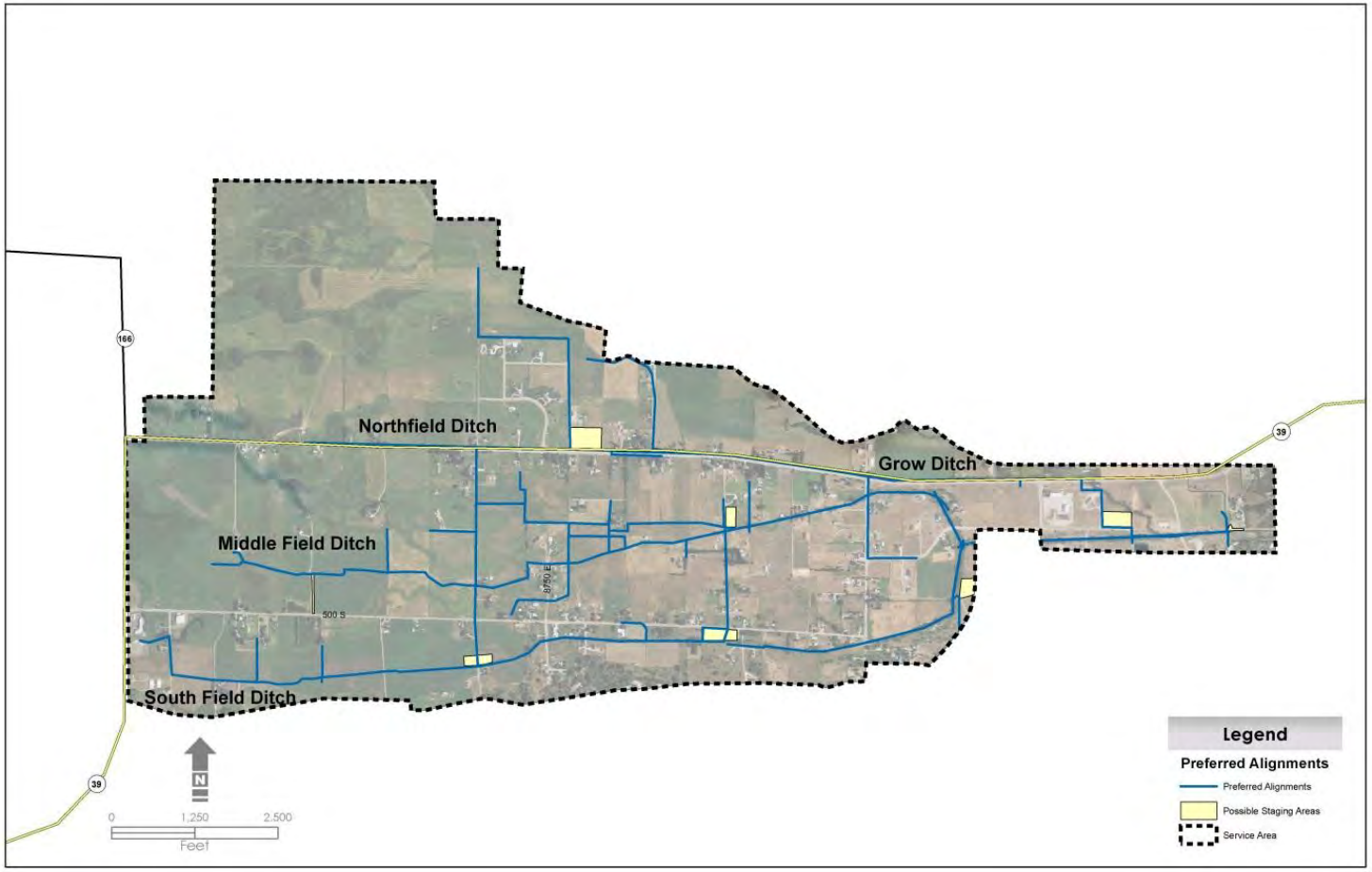

Figure 2.1: Proposed Alignment

Chapter 3: Affected Environment and Environmental Consequences

3.1. Introduction

This chapter describes the existing environment of the project area and potential impacts from the No Action and Action Alternatives to that environment. Resource areas examined in detail include: air and water resources, vegetation resources, biological resources, cultural resources, paleontological resources, Indian Trust Assets (ITAs), transportation resources, and socioeconomic resources. The present conditions and characteristics of each resource are described and followed by an analysis of the potential impacts under the No Action and Action Alternatives.

3.2. Resources Eliminated from Analysis

Resources that do not exist within the project area and/or would not be impacted by the No Action or Action Alternatives were not carried forward for additional analysis. These resources are described in Table 3.1 Resources Eliminated from Further Analysis.

Table 3.1 Resources Eliminated from Further Analysis

Resource	Rationale for Elimination from Further Analysis
Urban Quality and Design of the Built Environment	The project area is located within a rural setting, primarily along agricultural land. There are no urban resources within the project area and, therefore, there would be no impacts to urban quality and/or design of the built environment from the proposed action.
Wild and Scenic Rivers	There are no designated Wild and Scenic or Study Rivers within the vicinity of the project area.
Public Health and Safety	There would be no negative impacts on public health or safety from the proposed action. Furthermore, this project would reduce a potential public safety hazard by enclosing the open canal water conveyance system for the existing Grow, North Field, Middle Field, and South Field ditches.
Recreation Resources	There are no designated recreation resources in the project area and there would be no direct effects on recreation from the proposed action.

Table 3.1 Resources Eliminated from Further Analysis (Continued)

Resource	Rationale for Elimination from Further Analysis
Noise	There would be no long-term increases in noise levels from the proposed action. Short-term temporary increases in noise are anticipated in the project area due to construction activities. These noise impacts would be mitigated through the implementation of Best Management Practices (BMPs). Post-construction no new noise would be generated from the proposed project.
Visual	There would be no impacts from the proposed action on the visual resources within the project area.

3.3. Affected Environment

3.3.1. Air Quality

The Environmental Protection Agency (EPA) and the Utah Division of Air Quality regulate air quality in the State of Utah. The National Ambient Air Quality Standards (NAAQS) established by the EPA under the Clean Air Act (CAA) specify limits of air pollutants levels for carbon monoxide, particulate matter (PM10 & PM 2.5), ozone, sulfur dioxide, lead, and nitrogen.

The project area is in an EPA designated nonattainment area for PM 2.5 and is listed as an area of moderate concern for PM 10 as monitored by the EPA and Utah Division of Air Quality. These designations are not anticipated to change prior to or during the construction of the proposed action.

3.3.2. Water Resources

The project area is located within the Ogden River Basin. Reclamation's Causey Reservoir and Pineview Reservoir regulate the flow of the Ogden River through the area and are located in the general vicinity of the project area. Additional canals and laterals were also built within the vicinity of the project area as part of Reclamation's Ogden River Project.

The Pineview Reservoir is located approximately 0.50 mile to the west of the proposed project area. The Pineview Reservoir was completed in 1936 as a component of Reclamation's Ogden River Project and has a storage capacity of 44,000 acre-feet. Pineview Reservoir provides irrigation water to the South Ogden Highline Canal through the Ogden Canyon Conduit.

The Causey Reservoir, on the South Fork of Ogden River, has a total storage capacity of 7,870 acre-feet. Irrigation water released from this reservoir is diverted from the South Fork of Ogden River by the Ogden Valley Diversion Dam and conveyed through the Ogden Valley Canal to

lands in the Huntsville-Eden area. Causey Reservoir provides supplemental irrigation for agricultural use in the Huntsville Area through the HIC system.

The South Fork of the Ogden River runs from Pineview Reservoir to Causey Reservoir through the project area. The South Fork is one of three main branches of the Ogden River and provides recreation activities including fishing, swimming and tubing. The 35-mile long Ogden River is the largest tributary of the Weber River.

3.3.3. Water Quality

The South Fork of the Ogden River from Pineview Reservoir to its headwaters (past the Causey Reservoir) has been designated by the UDEQ as supporting all assessed beneficial uses. The water quality survey for this area did not assess recreation as a beneficial use for South Fork of the Ogden River.

The only known impaired waterway in the vicinity of the project area is Pineview Reservoir. Pineview Reservoir is currently designated as impaired under the State of Utah beneficial use designation Class 3A Cold Water Fisheries. This impaired classification is due to an exceedance of phosphorous in the Reservoir.

3.3.4. Upland Vegetation Resources

The proposed action area is located within the Intermountain Semi-desert and Desert Province of the Western United States. Land cover throughout the project area is dominated by agricultural fields and upland vegetation communities. The majority of the land is comprised of planted agricultural fields. This human-altered vegetation consists primarily of alfalfa, clover and other pasture grasses.

Upland vegetation in the project area includes big sagebrush (*Artemisia tridentate*), a tall rounded shrub with short branched, woody trunks with buds that form in June with flowering and seed formation taking place in the fall; rabbit brush (*Chrysothamnus spp*.), this member of the Asteracae family is a deciduous shrub with bright yellow or white flowers; and slender wheatgrass (*Elymus trachycaulus*), a tufted bunchgrass ranging in height from 2 to 2-1/2 feet.

3.3.5. Wetlands and Riparian Resources

The majority of the wetland hydrology within the project area is derived from irrigation waters that are drawn from the South Fork of the Ogden River. Several open and unlined irrigation ditches cross or parallel roadways contained in the project area. All of the irrigation induced ditches and the sloped wetland identified in the project study area are hydrologically linked to the Pineview Reservoir. The Pineview Reservoir is considered a navigable Water of the U.S. The outlet of the Pineview Reservoir is the Ogden River, which flows into the Weber River. The Weber River eventually flows into the Great Salt Lake (Appendix A , Wetland Report).

The project area contains 1,385 square feet of sloped wetlands and 29,425 linear feet of unlined irrigation ditches. Based on the connectivity to the Pineview Reservoir, the irrigation ditches and wetland areas located in the project area are likely to be deemed jurisdictional waterways. The jurisdictional authority stems to the USACE under Section 404 of the Clean Water Act (CWA).

Species occurring in the Palustrine wetlands located in the project area along the open laterals include reed canarygrass (*Phalaris arundinacea*) a vigorous, productive, long-lived, perennial with numerous broad, moderately harsh, erect leaves and stems that may reach a height of 6 to 8 feet; Baltic rush (*Juncus balticus*) a common rush that occurs most abundantly at low to mid elevations; and coyote willow (*Slix exigua nutt*) is a willow with long, slender stems almost exclusively found in riparian habitats.

3.3.6. Fish and Wildlife Resources

The project area contains three dominant types of wildlife habitat: upland, riparian and human-altered/agricultural environments. Upland habitat is found in open, undeveloped areas within and adjacent to the project area. The upland habitat is often located directly adjacent to the human-altered agricultural areas which facilitates use of both areas by wildlife. Species that may use the upland habitat and agricultural lands include mule deer (*Odocoileus hemionus*), raccoons *Procyon lotor*), California quail (*Callipepla californica*), and small rodents. No aquatic animal or fish species were identified in the laterals or canals within the project area. Habitat in the project action area can be characterized as pre-developed, since most of the project action area does not contain natural, undisturbed habitat. A large percentage of the new pipe alignment would be placed in existing agricultural fields. Fish bearing habitat is not present along the pipeline alignment.

3.3.7. Special Status Species

The Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1543) protects federally listed endangered, threatened, proposed, and candidate plant and animal species and their critical habitats. Candidate species are those for which the U. S. Fish and Wildlife Service (USFWS) has sufficient data to list as threatened or endangered, but for which proposed rules have not yet been issued. Threatened species are those that are likely to become endangered in the foreseeable future throughout all or a significant portion of their range. The USFWS has identified five federally listed species that may potentially exist within the proposed project area.

3.3.7.1. Federally Listed Species

The USFWS has five federally listed species in Weber County including one endangered, one threatened, and three candidate species.

Endangered Species

June Sucker

June suckers are federally listed as endangered and feed on zooplankton in the middle of the water column. June suckers inhabit shallow and protected areas of Utah Lake except when spawning (NatureServe 2010; Sigler and Sigler 1987). Spawning occurs in June in shallower riffles over coarse gravel and cobbles within lower portions of the Provo River (NatureServe 2010). Flow alterations, pollution, drought and introduction of nonnative fish have been identified as causes for decline (UDWR 2012).

The project area contains no habitat to support June suckers.

Threatened Species

Canada Lynx

The Canada lynx is normally found in dense forested areas with an abundance of windfalls, swamps and brushy thickets (Maas 1997). Lynx require heavy cover for concealment when stalking prey. In terms of their prey base, lynx depend of snowshoe hares. In addition, lynx are most likely to persist in areas that receive deep snow, for which the lynx is highly adapted (Maas 1997). In the western U.S., lynx occurrences generally are found only above 4,000 feet in elevation (McKelvey et al. 2000).

Dense forested areas that provide heavy coverage and foraging opportunities are lacking within the project action area. The project area also lacks a prey base of snowshoe hare.

Candidate Species

Greater Sage-grouse

The greater sage-grouse is a federally listed candidate species. As the name implies, greater sage-grouse are found only in areas where sagebrush is abundant (Colorado Division of Wildlife 2009). The largest of all grouse, the greater sage-grouse is up to 30 inches long, 2 feet tall, and weighs from 2 to 7 pounds (USFWS 2010). Diet consists of evergreen leaves, plain sagebrush shoots, blossoms, leaves, pods, buds, and insects (Alsop 2001). Dependent on sagebrush for food and cover, required habitat consists of relatively open flats or rolling sagebrush hills at elevations ranging from 4,000 to 9,000 feet above sea level (Colorado Division of Wildlife 2009, USFWS 2010). Land clearing and overgrazing by livestock are documented threats to this species' habitat.

Based on information obtained from the UDWR, there are recent documented occurrences of greater sage-grouse within the general vicinity of the proposed project area (see attached UDWR letter). However, habitat requirements for the greater sage-grouse are not present within the project action area. The project action area lacks the open areas with abundant sagebrush in which this species is dependent on for food and cover. A large percentage of the project action area is located in existing ditches adjacent to established roadways or along edges of cultivated fields.

Least Chub

The least chub is a federally listed candidate minnow that is native to the Bonneville Basin. Historically, least chub occurred throughout the Bonneville Basin. Population decline, attributed to the introduction of nonnative fish, has decreased distribution and known occurrence to scattered springs and streams in western Utah. Least chub are a schooling fish, approximately 6 cm in length, which prefer slow moving water and moderately-dense vegetation and clay, muck, mud, and peat substrate (NatureServe 2010). The species spawns during late spring and early summer. The eggs attach to vegetation or the substrate and begin to hatch after two days. The species feeds on algae and small invertebrates, including mosquito larvae (UDWR 2012).

The existing canals that are proposed to contain the new piping alignments do not contain fish habitat.

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo is a federally listed candidate species. It is a neotropical migrant, which winters in South America. Breeding often coincides with the appearance of massive numbers of cicadas, caterpillars, or other large insects (Ehrlich et al. 1992). Its incubation/nesting period is the shortest of any known bird because it is one of the last neotropical migrants to arrive in North America and chicks have very little rearing time before embarking on their transcontinental migration. Yellow-billed cuckoos arrive in Utah in extremely late May or early June and breed in late June through July. Cuckoos typically start their southerly migration by late August or early September. Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies.

Based on information obtained from the UDWR, there are no recent documented occurrences of yellow-billed cuckoo within the vicinity of the defined project area. Human disturbances associated with the surrounding existing land use make the area undesirable for the yellow-billed cuckoo. Suitable riparian habitat required by the yellow-billed cuckoo is not present within the project action area.

The list of threatened, endangered and candidate species that may potentially occur within the project area is found in Table 3.2 Federally Listed Species with Potential Habitat in the Project Area. There are no documented occurrences of these species within the project area and none were observed during site visits in June and August 2012. For additional information on these species refer to Appendix B, Biological Assessment.

Table 3.2 Federally Listed Species with Potential Habitat in the Project Area

Species/Critical Habitat	Status	Documented Occurrence in Project Area
Canada Lynx (*Lynx canadensis*)	Threatened	No
Greater Sage-grouse (*Centrocercus urophasianus*)	Candidate	No
June Sucker (*Chasmistes liorus*)	Endangered	No
Least Chub (*Lotichthys phlegenthintis*)	Candidate	No
Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)	Candidate	No

3.3.7.2. State Sensitive Species

Section 06D of the ESA defines State Sensitive Species as those species that could become endangered or extinct within the state. The Utah Division of Wildlife Resources (UDWR) has recent records of occurrence of State Sensitive Species within a two-mile radius of the project area. These species are the bald eagle (*Haliaeetus leucocephalus*), the Bonneville cutthroat trout (*Oncorhynchus clarki Utah*), the Lewis's woodpecker (*Melanerpes lewis*), and the smooth greensnake (*Opheodrys vernalis*).

Table 3.3 contains the list of State Sensitive Species with potential habitat in the project. The subsequent section contains information regarding each species and habitat conditions within the project area. For additional information on these species refer to Appendix B, Biological Assessment.

Table 3.3 State Sensitive Species with Potential Habitat in the Project Area

Species/Critical Habitat	Status	Documented Occurrence in Project Area
Bald Eagle (*Haliaeetus leucocephalus*)	Utah State Sensitive Species	Within a 2-mile radius of the project area.
Bonneville Cutthroat Trout (*Oncorhynchus clarki Utah*)	Utah State Sensitive Species	Within a 2-mile radius of the project area.
Lewis's Woodpecker (*Melanerpes lewis*)	Utah State Sensitive Species	Within a 2-mile radius of the project area.
Smooth Greensnake (*Opheodrys vernalis*)	Utah State Sensitive Species	Within a 2-mile radius of the project area.

Bald Eagle

Bald eagles are a large dark raptorial bird with a white head and a white tail when mature. They eat mostly fish but will eat some small mammals, such as rabbits (Stokes, 1996). The bald eagle constructs massive nests on cliff edges or in large trees. Eagles congregate in feeding areas in late winter and early spring. Bald eagles generally select habitat located near water. In a survey of 2,732 nests, 99% were within 200 meters (650 ft) of the water and averaged only 40 meters (130 ft) from the shoreline (Stalmaster 1987). Eagle perches are generally close to the water, especially those used for foraging. Nearly all birds will perch within 50 meters (165 ft) of a shoreline, because fish, waterfowl, seabirds, and other prey can be acquired there (Stalmaster 1987). Eagles select trees within that habitat for nesting and perching sites. The most important characteristic of the nesting tree is that it's the tallest in the forest stand. Selecting a tall tree ensures a structure that will adequately support a large nest, provide an open flight path to and from the nest, and have a panoramic view of the surrounding terrain (Stalmaster 1987). An eagle's nesting season is between the start of February, when they initiate construction of their nests and mid-August when the young fledge the nest. The incubation period ranges between 31 and 46 days (Alsop 2001). Hatchlings can remain in the nest for 70 to 98 days (Alsop 2001).

Based on information obtained from the UDWR, there are recent documented occurrences of the bald eagle within the vicinity of the defined project area.

Bonneville Cutthroat Trout

The Bonneville cutthroat trout is a subspecies of cutthroat trout native to the Bonneville Basin of Utah, Wyoming, Idaho, and Nevada. Habitat types this species inhabits include mountain

streams, lakes and grassland streams. Known populations of this species, in Utah, include Bear Lake and Strawberry Reservoir. Bonneville cutthroat trout are included on the Utah Sensitive Species List, as a result of habitat loss, predation and competition. The species feeds primarily on insects. Spawning occurs in spring over gravel substrate (UDWR 2012).

The existing canals in the project area do not contain fish habitat.

Lewis's Woodpecker

Lewis's woodpecker is a cavity nester that is mostly black with iridescent green highlights and a pinkish-red belly (Alsop 2001). This woodpecker frequents logged and recently burned mixed conifer forests, open park-like pine forests, riparian and oak woodlands, and orchards all where the understory of grasses and shrubs support sufficient insect prey populations (UDWR 2012). Nests are found in snags and stumps. The female generally lays six to seven white eggs and both partners incubate them for thirteen to fourteen days. Young fledge after approximately 28-34 days. Only one brood is produced each year. Forage includes insects during the breeding season and nuts and berries during the winter. Oak woodlands are the preferred wintering grounds (UDWR 2012).

Mixed coniferous or oak woodlands are not present within the project areas. A large percentage of the project action area is located in existing ditches adjacent to established roadways or along edges of cultivated fields.

Smooth Greensnake

The smooth greensnake is distributed throughout northeastern and western United States, southeastern Canada and Mexico but is uncommon in Utah and is included on the Utah Sensitive Species List. The smooth greensnake eats terrestrial invertebrates, mainly insects and spiders. In mid to late summer, the females lay an average of four to nine eggs that hatch several days to one month later. The species prefers moist areas, especially moist grassy areas and meadows where it is camouflaged due to its solid green dorsal coloration. This species, like many other snakes, is active spring, summer and fall, but hibernates during the winter (UDWR 2012).

Based on information obtained from the UDWR, there are recent documented occurrences of the smooth greensnake within the vicinity of the defined project area

3.3.7.3. Species of Special Concern

There are no known species of special concern within the project area.

3.3.7.4. Migratory Birds

The Migratory Bird Treaty Act of 1981 (MBTA) prohibits the take, capture, or killing of any migratory birds, and any parts, nests, or eggs of any such birds (16 U.S.C. 703 (a)). Under the MBTA, Federal agencies are liable for both intentional and unintentional takes of migratory birds. Migratory birds known to frequent the general vicinity of the project area include the yellow warbler (*Setophaga petechi*), lazulia bunting (*Passerina amoena*), white crowned sparrow (*Zonotrichia leucophrys*), American kestrel (*Falco sparverius*) and red-tailed hawk (*Buteo*

jamaicensis). No migratory bird nests were observed in the proposed project disturbance area during the biological evaluation site visits.

3.3.8. Cultural Resources

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

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

The affected environment for cultural resources is identified as the APE (area of potential effects), in compliance with the regulations to Section 106 of the NHPA (36 CFR 800.16). The APE is defined as the geographic area within which federal actions may directly or indirectly cause alterations in the character or use of historic properties. The APE for the proposed action consists of both a 100 foot wide linear corridor approximately 13.72 miles in length as well as six rectangular areas averaging 20,000 square feet each. The APE encompasses the areas of potential ground disturbance associated with proposed pipelines, powerline and staging areas.

3.3.8.1 Cultural Resources Status

A Class I literature review and a Class III cultural resource inventory were completed for the APE, defined in the action alternative and analyzed for the proposed action, by Sagebrush Consultants, L.L.C. (Sagebrush) in July and August 2012. A total of 170 acres were inventoried during the Class III inventory to determine if the proposed action would affect cultural resources. Four new cultural resource sites were identified during the inventory (Johnson 2012:11).

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

The quality of significance in American history, architecture, archeology, 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

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that 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

D. that have yielded, or may be likely to yield, information important in prehistory or history.

Sagebrush recommended two of the cultural resource sites (42WB489 and 42WB490) eligible for the NRHP, both under Criterion A (Johnson 2012:17). Site 42WB489 represents the historic Huntsville Irrigation Company Canal System and site 42WB490 represents a historic road known as SR-39/100 South. Site 42WB490 would be avoided by all construction activities associated with the proposed action. The proposed action, however, involves replacing the open, earthen canal system that comprises site 42WB489 with HDPE pipelines. The pipelines would be installed within the existing canal prisms and buried. The proposed action would cause an alteration to the characteristics of site 42WB489 which make it eligible for the NRHP and would, therefore, have an effect on the property according to 36 CFR 800.16(i).

Pursuant to 36 CFR 800.5, the criteria of adverse effect were applied to site 42WB489. An adverse effect is defined as an effect that could diminish the integrity of a historic property's location, design, setting, materials, workmanship, feeling, or association. The proposed action would diminish the integrity of site 42WB489 and would have an adverse effect to the historic property.

In compliance with 36 CFR 800.4(d)(2) and 36 CFR 800.11(e), a copy of the Class III cultural resource inventory report and a determination of historic properties affected have been submitted to the Utah State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation (ACHP), and tribes which may attach religious or cultural significance to historic properties possibly affected by the proposed action for consultation (Appendix C, Cultural Resources Correspondence).

Pursuant to 36 CFR 800.6(c), a Memorandum of Agreement (MOA) would be developed to resolve the adverse effects to site 42WB489. Signatories to the MOA would include all parties that assume a responsibility under the agreement, including, but not limited to, Reclamation, SHPO, the Huntsville Irrigation Company, and if they choose to participate, the ACHP.

3.3.9. Paleontological Resources

Paleontological resources are defined as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. Any materials associated with an archaeological resource as defined in Section 3(1) of the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470bb(1)) and any cultural item as defined in Section 2 of the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001) are not considered paleontological resources.

Section 6302 of the Paleontological Resources Preservation Act (PRPA) of 2009 (Sections 6301-6312 of the Omnibus Land Management Act of 2009 [Public Law 111-11 123 Stat. 991-1456]) requires the Secretary of the Interior to manage and protect paleontological resources on Federal land using scientific principles and expertise.

The APE for paleontological resources is consistent with the APE for cultural resources, as described in Section 3.3.8.

3.3.9.1 Paleontological Resources Status

A paleontological file search for the APE was conducted by Martha Hayden, Paleontological Assistant for the Utah Geological Survey (UGS). In a letter dated September 5, 2012, the UGS stated that no paleontological localities recorded in the UGS files are located in the APE. Further, Quaternary and Recent alluvial deposits that are exposed throughout much of the APE, have a low potential for yielding significant fossil localities. Otherwise, unless fossils are discovered as a result of construction activities, the UGS concluded that the proposed action should have no impact on paleontological resources. A copy of the UGS letter is located in Appendix D.

3.3.10. Soil Sedimentation and Erosion

The project area is situated within the Ogden River Valley. The geology of the area is comprised of the terrace and delta deposits from the Pleistocene Era. Silt deposits from the Pleistocene were deposited in the area during high stands of Lake Bonneville.

The project would be located in a highly disturbed area primarily planted in agricultural fields. The topography of the project study area is fairly flat (1-3% slopes). The elevation of the project action area falls within the range of 4,950 to 5,100 feet above sea level. Soils within the project area consist primarily of fine granular loams. Five soils make up two-thirds of the project study area. These mapped soils include: Canburn silt loam (Cb); Eastcan loam, 0 to 3 percent slopes (EaA); Parleys loam, high rainfall, 0 to 3 percent slopes (PaA); Phoebe fine sandy loam, 0 to 3 percent slopes (PhA); and, Utaba cobbly loam, warm (UbA) (Appendix E, Soil Survey).

3.3.11. Indian Trust Assets

ITAs are legal interests in property held in trust by the United States for federally recognized Indian tribes or individuals. Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members and to consult with the tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal safety (Interior manual, 512 DM 2). Under this ITA policy, Reclamation is committed to carrying out activities in a manner which 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 insignificant, must be discussed in the trust analyses in NEPA compliance documents and appropriate compensation or mitigation must be implemented.

ITAs may include lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. Impacts to ITAs are evaluated by assessing how the action affects the use and quality of ITAs. Any actions that adversely affects the use, value, quality or enjoyment of an ITA is considered to have an adverse impact on the resources.

3.3.11.1 Indian Trust Assets Status

Reclamation contacted the Bureau of Indian Affairs (BIA) Uintah and Ouray Agency in Fort Duchesne, Utah to identify any potential impacts to ITAs within the APE. No ITA impacts were identified by the BIA.

3.3.12. Environmental Justice

Environmental justice, established as a federal priority in E.O. 12898, ensures that minority and low income populations are not disproportionately impacted by federal actions. The information obtained from U.S. Census Bureau indicates that in 2010 the total population for Huntsville was 604 residents. Of these residents, 588 (97%) self-identified as white, 1 (less than 1%) as black, 2 (less that 1%) as American Indian and Alaskan native, 1 (less than 1%) as Asian, 6 (less than 1%) as Hispanic, and the remaining 8 (less than 1%) as multiple races or other ethnic minority. In 2010, the mean house income for Huntsville was $67,754 and 11.8% of residents in the city were below the poverty level.

The demographic information obtained from the U.S. Census Bureau indicates that it is possible that a minority population exists within the project area.

3.3.13. Public Safety, Access, and Transportation

Transportation resources in the area include state, county and local roads. Two major highways exist in the area: State Highway 39 which provides access from Ogden to Huntsville and State Highway 167 that provides access to Mountain Green. There are no emergency services located in the project action area. However, there are two fire departments located in the general vicinity of the project area at 7925 East 500 South and 7309 East 200 South.

3.3.14 Prime, Unique and Statewide Important Farmland

The Federal Farmland Protection Policy Act (FPPA) [Subtitled I of Title XV, Section 1539-1549 of the Agricultural and Food Act of 1981 (Public Law 97-98)] requires federal agencies to *minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with state, unit of local government, and private programs and policies to protect farmland*.

A review of the Natural Resources Conversation Service's (NRCS's) Soil Survey indicates that there are areas that contain farmland of statewide importance and land that would be considered prime farmland if irrigated or irrigated and drained within the project area (Appendix E, Soil Survey).

3.3.15 Energy Requirements and Conservation Potential

The proposed action would require the installation of a new power pole to deliver electricity to the new diversion structure to operate the screen, run the telemetry, and control the flow measuring devices. The new power pole would be located approximately 300 feet to the north of the new diversion structure. The overhead power line extension would include two new poles, running roughly parallel to the Mountain Valley Canal. No additional power lines would be required for the proposed action.

3.4. Environmental Consequences

The following environmental consequences section discusses potential impacts to the existing condition of resources within and adjacent to the project area. Impacts of both the No Action and Action Alternatives are analyzed.

3.4.1. Air Quality

No Action Alternative

There would be no adverse effects to air quality from the No Action Alternative.

Action Alternative

The Action Alternative would not result in any long-term impacts to air quality. Construction activities are likely to have a short-term temporary effect on the air quality. Fugitive dust would be generated from excavation activities and movement of construction equipment along unpaved roads. Best Management Practices (BMPs) such as watering for dust control would be implemented to minimize temporary impacts to air quality. Air quality impacts would be short-lived and would cease once construction activities are completed.

3.4.2. Water Resources

No Action Alternative

Under the No Action Alternative, the existing open unlined ditches and laterals would continue to deliver irrigation water with no proposed improvements for reducing or eliminating seepage or evapotranspiration. Currently, approximately 50 percent of irrigation water being delivered through the ditches and the associated laterals is lost to seepage, evaporation and vegetation uptake. Under the No Action Alternative, approximately 1,500 acre-feet of water that is diverted to the HIC system would continue to seep out of the ditches and canals. A larger than necessary water appropriation would continue to be required to meet water user needs due to the inefficiency of the existing unlined canal system.

Action Alternative

Under the Action Alternative, Reclamation would authorize the use of Federal funds to pipe the existing HIC water delivery system that includes the Grow, North Field, Middle Field, and South Field ditches and associated laterals. This action is anticipated to increase the efficiency of the existing water delivery system by 50 percent and reduce the amount of water that would need to be diverted to the system by approximately 1,500 acre-feet annually.

3.4.3. Water Quality

No Action Alternative

Long-term impacts to water quality may result from the No Action Alternative. The open unlined canals would continue to gain sediment and nutrients from adjacent agricultural activities. The tail water from the end of the irrigation system would continue to flow back into the South Fork of the Ogden River and then into Pineview Reservoir, an impaired water body. Therefore, the No Action Alternative is likely to have a minor adverse effect on water quality.

Action Alternative
The Action Alternative is anticipated to benefit water quality in the project area. Piping of the open canals will decrease nutrient loading of Pineview Reservoir. Enclosing the HIC irrigation system will prevent sediment and nutrient runoff into 10 miles of existing open canal. This is anticipated to reduce the amount of contaminated tail water generated from the agricultural uses located along the existing open ditch system. There will be no long term negative impacts on water quality from the Action Alternative.

3.4.4. Upland Vegetation Resources

No Action Alternative
Under the No Action Alternative, heavy equipment used during routine maintenance of the irrigation system would continue to have minor impacts on the upland vegetation in the project area. These plant communities would remain in their current condition, and are not anticipated to experience sizeable gains or losses from maintenance activities.

Action Alternative
Under the Action Alternative, much of the area disturbed by construction activities would take place in previously disturbed upland and agricultural areas. Construction activities would occur outside the growing season, between October and May, and would occur within a 30- to 50-foot wide construction easement. Upland areas would experience short-term losses. Brush and grasses would be impacted during construction by the operation of construction equipment, excavation, and the staging of materials.

Upland vegetation communities would likely be reestablished, and some previously disturbed areas may see an increase in native species. Areas that are disturbed may be more vulnerable to non-native species and noxious weed infestation. These non-native species typically recover more quickly after a disturbance than native species. To minimize impact to native vegetation, previously disturbed areas would be used for construction activities, where possible. Cultivated lands that are disturbed by construction activities would be reseeded with an appropriate agricultural mix.

BMPs would be followed to reduce impacts, including placing staging and material sources outside of sensitive areas. Construction materials and equipment would be washed to remove dirt, seeds from weeds, and to reduce the possibility of infestation by non-native species. After any surface disturbance, proper rehabilitation procedures would be followed to prevent the infestation of invasive species.

3.4.5. Wetlands and Riparian Resources

No Action Alternative
Under the No Action Alternative, operation and maintenance activities associated with the irrigation system would continue to have minor impacts on riparian resources in the project area. The existing conditions of the project area would remain and continue to experience minor fluctuations in quantity and quality wetland and riparian resources, as naturally occurring precipitation patterns vary.

Action Alternative
Under the Action Alternative, the identified sloped wetland located within the vicinity of the project area would be completely avoided. There would be no permanent impacts to wetlands from the Action Alternative.

To minimize impact to native vegetation, previously disturbed areas would be used for construction activities, where possible. BMPs would be followed to reduce construction impacts. After any surface disturbance, proper rehabilitation procedures would be followed to prevent the infestation of invasive riparian species. This would include seeding mixtures of desirable native riparian species.

The proposed piping under the Action Alternative would, however, temporarily impact 29,425 linear feet of irrigation ditches deemed to be jurisdictional waterways by USACE. Consultation with USACE is warranted prior to the construction to confirm whether the proposed project qualifies for an irrigation exemption as detailed in 33 CFR 323.4(a)(3) or if the project would require a Nationwide Permit for construction.

3.4.6. Fish and Wildlife Resources

No Action Alternative
Wildlife habitat would remain in its current condition experiencing no predictable gains or losses from the No Action Alternative.

Action Alternative
Disturbance to upland and agricultural lands from the construction activities related to the Action Alternative may result in short-term impacts to wildlife habitat. Construction would occur outside of critical nesting and fawning seasons for wildlife in the area. Construction would be contained to the 30- to 50-foot proposed action corridor. Most animals in the area would easily find alternative areas to forage and to find cover during construction. It is likely that they may return after construction activities are completed.

Impacts to small mammals, especially burrowing animals, could include direct mortality and displacement during construction activities. Most small mammal species would likely experience reduced populations in direct proportion to the amount of disturbed habitat. These species and habitats are relatively common throughout the area, so the loss would be minor.

Impacts to big game would include short-term disturbance and displacement of late fall incidental use during the construction period. It is anticipated, due to the minor amount of habitat disturbance, that no impact to wintering big game populations would occur.

Impacts to raptors and other avian species would include minor short-term disturbance and displacement during construction, with no long-term impacts after construction.

Those species, including avian and amphibian species, which are dependent on the open water ditches, would experience a long-term (greater than five years) loss of habitat as described above.

BMPs would be implemented throughout construction to minimize impacts to wildlife. Disturbed areas would be contoured, replanted, and reseeded, which would assist in the reestablishment of any wildlife habitat impacted during construction. Procedures to prevent the infestation of invasive species would also assist in the reestablishment of habitat.

3.4.7. Special Status Species

3.4.7.1. Federally Listed Species

No Action Alternative

The No Action Alternative would not impact any federally listed species.

Action Alternative

Endangered Species

June Sucker

The existing canals that are proposed to contain the new piping alignments do not contain fish habitat. Therefore, the Action Alternative would have no effect on the June sucker or its habitat.

Threatened Species

Canada Lynx

Dense forested areas that provide heavy coverage and foraging opportunities required for lynx habitat are lacking within the project area. The project area does not have a prey base of snowshoe hare and the scope of the Action Alternative would not impact any Canada Lynx passing through the project area. Therefore, the Action Alternative would have no effect on the Canada Lynx or its habitat.

Candidate Species

Greater Sage-grouse

Based on information obtained from the UDWR, there are recent documented occurrences of greater sage-grouse within the vicinity of the defined project area. However, habitat requirements for the greater sage-grouse are not present within the project action area. The project action area lacks the open areas with abundant sagebrush in which this species is dependent on for food and cover. A large percentage of the project action area is located in existing ditches adjacent to established roadways or along edges of cultivated fields. Therefore, the Action Alternative would have no effect on the greater sage-grouse and its habitat.

Least Chub

The existing canals that are proposed to contain the new piping alignments do not contain fish habitat. Therefore, the Action Alternative would have no effect on the least chub or its habitat.

Western Yellow-billed Cuckoo

Based on information obtained from the UDWR, there are no recent documented occurrences of yellow-billed cuckoo within the vicinity of the defined project area. Human disturbances associated with the surrounding existing land use make the area undesirable for the yellow-billed

cuckoo. Suitable riparian habitat required by the yellow-billed cuckoo is not present within the project area. The construction timeframe for the Action Alternative is outside of the typical migration pattern when the yellow-billed cuckoo could be present in Utah. Therefore, the Action Alternative would have no effect on the yellow-billed cuckoo or its habitat

3.4.7.2. State Sensitive Species

No Action Alternative

The No Action Alternative would not impact any state sensitive species.

Action Alternative

Bald Eagle

Based on information obtained from the UDWR, there are recent documented occurrences of the bald eagle within the vicinity of the defined project area. However, the Action Alternative would not impact any riparian areas along natural streams or lakes, including potential nesting or perching locations for the bald eagle. The bald eagle's prey base and foraging opportunities would also not be affected by this project. Therefore, the Action Alternative would have no effect the bald eagle.

Bonneville Cutthroat Trout

The existing canals that are proposed to contain the new piping alignments do not contain fish habitat. Therefore, the Action Alternative would have no effect on Bonneville cutthroat trout or its habitat.

Lewis's Woodpecker

Mixed coniferous or oak woodlands areas are not present within the project area. A large percentage of the project area is located in existing ditches adjacent to established roadways or along edges of cultivated fields. Therefore, the Action Alternative would have no effect on the Lewis's woodpecker or its habitat.

Smooth Greensnake

Based on information obtained from the UDWR, there are recent documented occurrences of the smooth greensnake within the vicinity of the project area. The Action Alternative would involve excavation in moist grassy areas, which are viable habitat for the smooth greensnake. Based on the scope and nature of the Action Alternative, the temporary construction actions are not likely to significantly affect the smooth greensnake. It is likely that the smooth greensnake would be hibernating during construction activities. No species handling is anticipated and the project would not significantly impact suitable habitat based on the overall scope of the project.

3.4.7.3. Migratory Birds

No Action Alternative

The No Action Alternative would have no impact to migratory birds in the area.

Action Alternative
Under the Action Alternative there would be no permanent long-term effects on migratory birds. Construction of the Action Alternative would take place outside of the irrigation season and would commence in the fall of each year with continuous construction taking place until the first April. Therefore construction would not commence during the nesting season and all vegetative clearing would take place in the fall when migratory birds are not likely to be in the project area. Migratory birds may experience minor short-term disturbance and displacement during construction. The area surrounding the proposed project area contains a large amount of open water habitat including the North Fork of the Ogden River and the Pineview Reservoir and associated wetlands. Birds that currently use the open canal laterals could move to adjacent wetlands and open water habitat during construction.

3.4.8. Cultural Resources

No Action Alternative
Under the No Action Alternative, there would be no foreseeable impacts to cultural resources. 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.

Action Alternative
Under the Action Alternative, there would be an adverse effect to the Huntsville Irrigation Company Canal System (42WB489). The open, earthen canal system would be replaced with HDPE pipelines and buried. Mitigation measures for the adverse effect to site 42WB489 would be outlined in an MOA in accordance with 36 CFR 800.6(c).

3.4.9. Paleontological Resources

No Action Alternative
Under the No Action Alternative there would be no foreseeable impacts to paleontological resources. 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

Action Alternative
Under the Action Alternative, there would be ground-disturbing activities which have the potential to impact subsurface fossil material. There are, however, no paleontological localities recorded in the UGS files in the APE. Therefore, the Action Alternative is not anticipated to have an impact on paleontological resources.

3.4.10. Soil, Erosion and Sedimentation

No Action Alternative
Under the No Action Alternative there would be no adverse effects to soil erosion and sedimentation. Soil erosion from water, wind and agricultural activities would continue in the area at the current rate.

Action Alternative
Under the Action Alternative, soil would be excavated, compacted and graded during construction. In the short-term period, during and immediately following construction, erosion and sedimentation may increase. BMPs would be employed to minimize the potential impacts

from erosion and sedimentation. The proposed pipeline alignment would be reseeded. Over the long-term the soil would return to a pre-project condition once vegetation is established.

3.4.11. Indian Trust Assets

No Action Alternative

Under the No Action Alternative, there would be no foreseeable impacts to ITAs. The existing conditions would remain intact and would not be affected.

Action Alternative

Under the Action Alternative, there would be no foreseeable impacts to ITAs. There are no identified ITAs in the APE and implementation of the Action Alternative would, therefore, likely have no effect on ITAs

3.4.12. Environmental Justice

No Action Alternative

The No Action Alternative would have no effect on environmental justice populations within the project area.

Action Alternative

The 2010 Census data indicates that there is a potential for a small environmental justice population to exist within or adjacent to the project area. Implementation of the Action Alternative would not disproportionately affect any low-income or minority communities in the area. Furthermore, the Action Alternative would not involve relocations, health hazards, hazardous waste, property takings, or substantial economic impacts. The Action Alternative would, therefore, have no adverse effects to human health or the environment and would not disproportionately affect environmental justice populations.

3.4.13. Public Safety, Access & Transportation

No Action Alternative

The No Action Alternative would have no impact on transportation resources within the project area.

Action Alternative

The proposed action may cause limited delays along roadways adjacent to the project area due to construction vehicles entering and exiting roadways. Service from the fire stations would not be impacted by the Action Alternative. Although no temporary road closures are planned, any temporary road or access closure would be coordinated with local law enforcement and emergency services. The public would also be notified of any road closures that take place due to the Action Alternative.

3.4.14 Prime, Unique and Statewide Important Farmland

No Action Alternative

There are no areas of prime or unique farmland in the project area. However, there are areas where prime farmland would exist if irrigated or irrigated and drained. There are areas of statewide important farmland within the project area. Approximately 50 percent of the water traveling through the open water canals is lost, primarily due to seepage along the earthen lined

and rock bottom laterals. This loss of water has the potential to adversely affect agricultural land in the project area if agricultural users are not able to obtain their water shares. Therefore, the No Action Alternative may result in a negative long-term impact to farmland within the project area.

Action Alternative
Implementation of the Action Alternative is anticipated to increase the efficiency of the existing water delivery system to these farmlands by 50 percent and reduce the amount of water that would need to be diverted to the system by approximately 1,500 acre-feet annually. Furthermore, the construction and implementation of the Action Alternative would have no long-term negative impact on farmlands within the project area. Therefore, the Action Alternative is likely to have a beneficial impact to farmland in the project area.

3.4.15 Energy Requirements and Conservation Potential

No Action Alternative
The No Action Alternative would have no effect on energy requirements and conservation potential in the project area.

Action Alternative
The Action Alternative would require the installation of a power pole to provide electricity for the operation of the new diversion structure. The energy requirements for the new diversion structure would be minimal and well within the capacity of the electrical system in Huntsville. The Action Alternative would have no impact on energy conservation or potential for conservation in the project area.

3.4.15. Summary of Environmental Consequences

Table 3.4 provides a summary of the environmental consequences for each resource evaluated in this EA. Resource impacts are outlined for both the No Action and Action Alternatives. Mitigation, if required, is also detailed under the description of the Action Alternative.

Table 3.4 Summary of Environmental Consequences

Resource Issue	Alternatives	
	No Action	**Action**
Air Quality	No Effect	Minor short-term effects due to fugitive dust and equipment exhaust from construction activity. Mitigate with BMPs including a dust mitigation plan.
Water Resources	No Effect	Likely beneficial impact to water resources from the increased efficiency of the water delivery system.
Water Quality	Long term adverse impacts to water quality.	Likely beneficial impact to water quality from the piping of the water delivery system.
Upland Vegetation Resources	No Effect	Short-term upland vegetation loss with the potential for an increase in invasive plants. BMPs would be employed to decrease the likelihood of invasive species introduction.
Wetland and Riparian Resources	No Effect	No Effect to sloped wetlands in the project area. Temporary impact to 29, 425 linear feet of irrigation ditches.
Fish and Wildlife Resources	No Effect	Minor short-term disturbance and displacement during construction.
Special Status Species-Federally Listed Threatened, Endangered, and Candidate Species	No Effect	No Effect
Special Status Species-State Sensitive Species	No Effect	No significant effect on the smooth greensnake.
Migratory Birds	No Effect	No long-term impact. Minor short-term disturbance and displacement during construction.

Table 3.4. Summary of Environmental Consequences (Continued)

Resource Issue	Alternatives	
	No Action	**Action**
Cultural Resources	No Effect	Adverse Effect to site 42WB489. An MOA outlining mitigation measures for the adverse effect will be signed and implemented prior to the commencement of construction activities.
Paleontological Resources	No Effect	Potential effects to subsurface fossil material.
Soil Erosion and Sedimentation	No Effect	Minor short-term effects due to runoff during and shortly after construction activity. Mitigate with BMPs.
Indian Trust Assets	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Public Safety, Access and Transportation	No Effect	No Effect
Prime, Unique, and Statewide Important Farmland	Potential long-term negative impact to farmland from water loss.	Potential benefit to farmland from increase water efficiency.
Energy Requirements and Conservation Potential	No Effect	No Effect
Cumulative Effects	No Effect	Cumulative impacts from the proposed action and related actions were assessed during the resource evaluation detailed in Chapter 3. This analysis determined that there were no adverse cumulative impacts.

Chapter 4: Environmental Commitments

This chapter details the environmental commitments associated with construction and operation of the proposed action. Implementation of the environmental commitments is an integral part of the proposed action for the HIC system.

1. **Standard Reclamation Best Management Practices (BMPs) –** Standard Reclamation BMPs would be applied during construction activities to minimize environmental impacts and would be detailed in plan sheets and contraction specifications. BMPs would be implemented by construction personnel.

   All equipment and machinery used on the site of an excavation operation shall be constructed, maintained and operated in such a manner as to minimize dust, noise, vibration, smoke, welding, lights and odor. Access and haulage roads on the site shall be maintained in a dust-free condition by asphalt or dust-proof oil surfacing or other approved treatment as determined by an enforcement official.

2. **Cultural Resources –** In the case that any cultural resources either on the surface of subsurface, are discovered during construction, Reclamation's Provo Area Office archaeologist shall be notified and construction in the area of the inadvertent discovery will cease until an assessment of the resource and recommendations for further work can be made by a professional archaeologist.

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

   An MOA will be executed to mitigate for the adverse effect to site 42WB489. Mitigation for the adverse effect to the site, set forth in the stipulations of the MOA, must be completed before construction activities associated with the proposed action begin.

3. **Paleontological Resources –** Should vertebrate fossils be encountered by the proponent during ground disturbing activities, construction must be suspended until a permitted paleontologist can be contacted to assess the find.

4. **Roads –** Existing roads would be used whenever possible for project activities. The contractor shall obtain all necessary permits through Weber County for work within and adjacent to all county roads.

5. **Air Quality –** Best management practices would be implemented to control fugitive dust during construction. The contractor would follow the EPA's recommended control methods for aggregate storage pile emissions to minimize dust generation, including periodic watering of equipment, staging areas, and dirt/gravel roads. All loads that have the potential of leaving the bed of the truck during transportation would be covered or watered to prevent the generation of fugitive dust. Construction machinery and operation/maintenance vehicles would be routinely maintained to ensure that engines remain tuned and emission-control equipment is properly functioning as required by law. Additionally, the contractor would comply with all State of Utah air quality regulations.

6. **Disturbed Areas –** Areas disturbed during construction would be contoured and reseeded to as near their pre-project condition as practicable. Seeding and planting would occur at appropriate times with weed-free seed mixes of native plants and agricultural grasses, distributed where appropriate.

7. **Construction Activities Confined to the Surveyed Corridor –** All construction activities would be confined to the 100-foot wide corridor that has been surveyed for cultural and biological resources.

8. **Noise Impacts -** Best management practice would be implemented to control temporary noise impacts during construction including mufflers on heavy equipment. The contractor would follow all local noise ordinances, including Weber County's Code Ordinances which restricts excavation construction activities to the following timeframes: 7:00 a.m. to 6:00 p.m. Monday through Saturday. No excavation may take place on Sunday or legal holidays.

9. **Additional Analysis** – If the proposed action were to change significantly from the alternative described in this EA, additional environmental analyses would be undertaken as necessary.

Chapter 5: Consultation and Coordination

5.1 Introduction

Reclamation's public involvement process presents the public with opportunities to obtain information about a given project and allows interested parties to participate in the project through written comments. The key objective is to create and maintain a well-informed, active public that assists decision makers throughout the process, culminating in the implementation of an alternative. This section of the EA discusses public involvement activities undertaken to date for the proposed action.

5.2 Native American Tribes

Reclamation conducted Native American consultation throughout the public involvement process. Consultation letters and copies of the Class III cultural resource inventory report were sent to the Ute Indian Tribe of the Uintah and Ouray Reservation, the Northwestern Band of Shoshoni Nation of Utah, the Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, and the Shoshone Tribe of the Wind River Reservation. This consultation was conducted in compliance with 36 CFR 800.2(c)(2) on a government-to-government basis. Through this effort each 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; to express their views on the effects of the proposed action on such properties; and to participate in the resolution of adverse effects. Reclamation received no response from the consulted tribes.

5.3 Utah Geological Survey

Reclamation requested a paleontological file search from the UGS to determine the nature and extent of paleontological resources within the APE. File search results and recommendations from the UGS were received in a letter dated September 5, 2012.

5.4 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 the SHPO. The SHPO concurred with Reclamation's determination of historic properties affected in a letter dated October 17, 2012. The SHPO will be a signatory to the forthcoming MOA to mitigate the adverse effects to site 42WB489.

5.5 Bureau of Indian Affairs

In a letter dated October 15, 2012, Reclamation's archeologist requested an evaluation of ITAs within the APE from the BIA, Uintah and Ouray Agency. Reclamation received no response from the BIA identifying any ITAs impacted by the proposed action.

Chapter 6: Preparers

The following table provides a list of the agency representatives and consultants who participated in the preparation of the Environmental Assessment.

Table 6.1 List of Preparers

Name	Title/Position	Contributions
Agency Representatives		
Jeff D'Agostino, BA	Environmental Protection Specialist, Bureau of Reclamation, Provo Area Office	Project Coordination and Environmental Oversight
Scott Blake, PE	Engineer, Bureau of Reclamation, Provo Area Office	Project Engineer
Brian Joseph, MA	Archaeologist, Bureau of Reclamation, Provo Area Office	Cultural Resources, Paleontological Resources, and Indian Trust Assets
Bryson Code, BS	Biologist, Bureau of Reclamation, Provo Area Office	Biological Resources and Wetland Resources
Consultants		
Paul Taylor, PE	Engineer, J-U-B Engineers, Inc.	Project Manager
Nate Smith, PE	Engineer, J-U-B Engineers, Inc.	Alternative Analysis
Marti Hoge, MA	Environmental Planner, J-U-B Engineers, Inc.	Environmental Project Manager, NEPA Oversight
Vincent Barthels, BS/MPA	Biologist, J-U-B Engineers, Inc.	Biological and Wetland Resources, Habitat Replacement
Roxann Hansen	Environmental Specialist, J-U-B Engineers, Inc.	Resource Evaluation
Jordan Hansen, BA	Designer, Gateway Mapping, Inc.	GIS, Document Graphics
Mike Polk, MA, RPA	Sagebrush Consultants	Cultural Resources

Chapter 7: References

Alsop, Fred J. 2001. Birds of North America. DK Publishers, Inc. NY: NY.

Johnson, Wendy Simmons. 2012. A Cultural Resources Inventory of the Huntsville Irrigation Company Proposed Alternate Pipe Alignments, Weber County, Utah. Sagebrush Consultants, L.L.C. Ogden, Utah.

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U.S. Environmental Protection Agency. Analysis of Individual Nonattaintment Areas, Utah. *www.epa.gov/air/urbanair/sipstatus/reports/**ut**_**area**bypoll.html.*

U.S. Environmental Protection Agency. USEPA approved Utah's 2010 Integrated Report on February 10, 2012. *http://www.waterquality.utah.gov/WQAssess/currentIR.htm.*

U.S. Environmental Protection Agency. Currently Designated Nonattainment Areas for All Criteria Pollutants US EPA Greenbook *http://www.epa.gov/oaqps001/greenbk/ancl.html*.

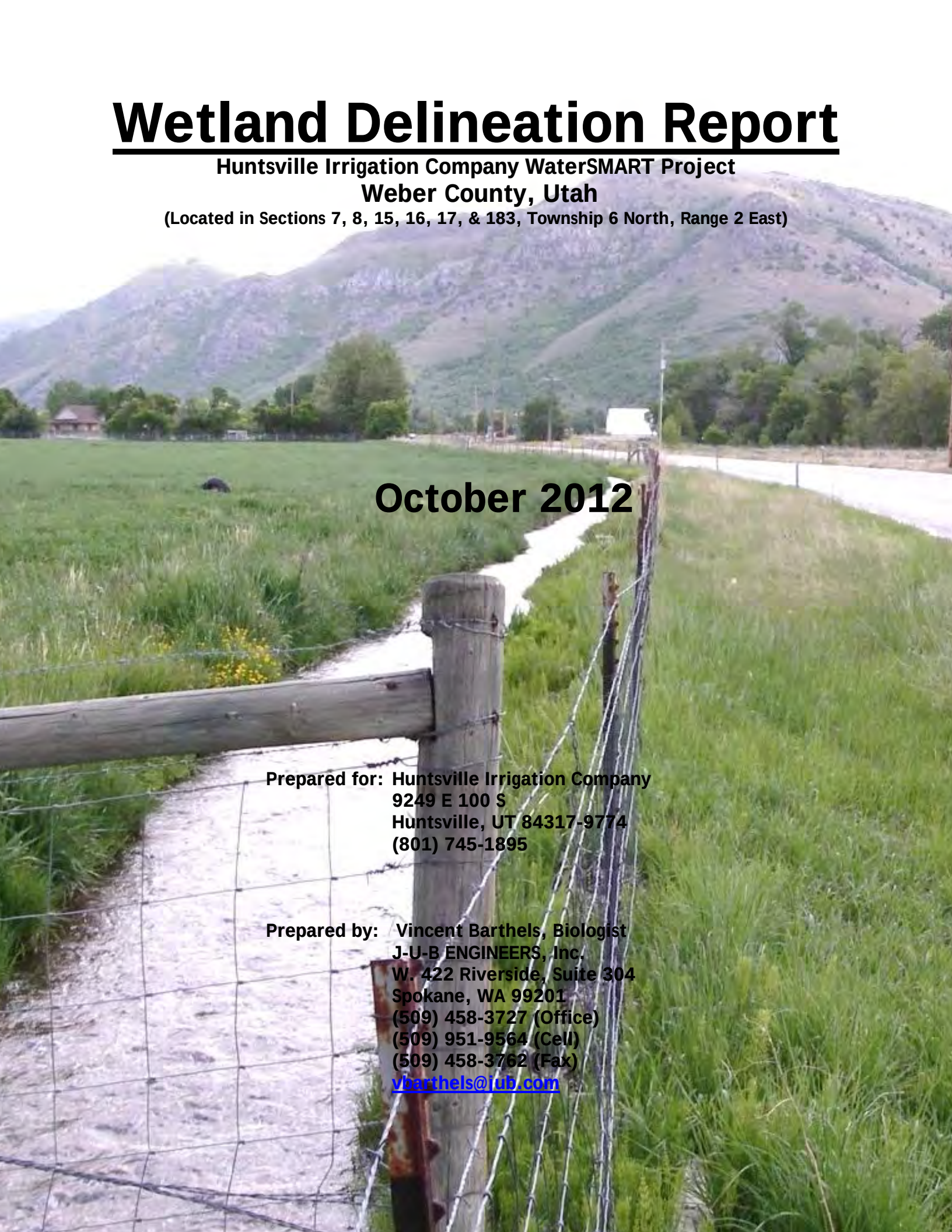
Appendix A
Wetland Report

Wetland Delineation Report

Huntsville Irrigation Company WaterSMART Project

Weber County, Utah

(Located in Sections 7, 8, 15, 16, 17, & 183, Township 6 North, Range 2 East)



October 2012

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Appendix

Introduction

This wetland delineation was authorized by the Huntsville Irrigation Company (HIC), in order to properly define the wetland boundaries within a 42-acre study area (see Wetland Delineation Maps (4) in the Appendix). The wetland delineation was prepared pursuant to the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual Technical Report Y-87-1 (1987 Manual) and the Arid West Regional Supplement (2008).

The defined study area is linked to the proposed WaterSMART piping project, which would install 53,301 linear feet (or approximately 10 miles) of new irrigation piping within three allocated phases. A detailed project purpose and description is presented in subsequent sections of this report.

This wetland investigation was performed to determine the presence or absence of wetland boundaries within the defined study area. Field investigations were conducted on August 16, 2012. It should be noted that the field conditions were observed near the end of the growing season. The primary investigator was Vincent Barthels, Biologist for J-U-B ENGINEERS, Inc.

This report includes a discussion of jurisdictional irrigation ditches and wetlands located within the defined project study area. The goal of this report is to identify and quantify existing irrigation ditches, wetlands and associated project related impacts.

Project Purpose and Need:

The Bureau of Reclamation has programmed the use of Federal funds to pipe the existing HIC water delivery system including the existing Grow, North Field, Middle Field, and South Field Ditches and associated laterals (please see the Overview Wetland Delineation Map). The proposed project action is anticipated to increase the efficiency of the existing water delivery system by 50 percent and reduce the amount of water that would need to be diverted to the system by approximately 1,500 acre-feet annually. Piping these laterals would also reduce the amount of ongoing system maintenance that is currently required for the system. Ongoing maintenance practices include removing debris from channels, clearing overgrown vegetation and replacing outdated valves and head gates.

General Project Description:

The project would be divided into three phases anticipated to be completed over a three year period. Construction would take place outside of the irrigation season when the water has been removed from the system. The first phase would include the construction of a new pipe intake structure on the main ditch just west of the existing Mountain Valley Canal Diversion structure. The new structure would include a traveling screen to prevent debris from flowing into the new HIC water conveyance system and into the existing Huntsville Water Works storage reservoir. These flows would be measured using transit-time flow meters on each of the respective pipes. Water bypassing the structure and continuing down the main channel would be measured through a parshall flume. Overflows back to the river would be monitored using pressure transducers and calibrated weirs. Power to operate the screen, run the telemetry and control the flow measuring devices would come from a new power pole that would be located approximately 325 feet to the north of the new diversion structure. The overhead power line extension would include two new poles, running roughly parallel to the Mountain Valley Canal.

Phase One Project Description:

Piping activities associated with the first phase of construction would include the installation of approximately 19,875 linear feet of high-density polyethylene (HDPE) pipe ranging in size from 32 inches to 2 inches in diameter. The construction of this main feed line would consist of 6,353 linear feet of 32-inch HDPE pipe that would follow the general alignment of the main ditch from the new intake structure to Highway 39. From Highway 39, it would follow the general alignment of the Grow Ditch west to 9500 East. At 9500 East the first branch pipe would split off from the main feed line crossing Highway 39 to the south. The main pipe would continue along the existing Grow Ditch alignment in a 20-inch HDPE for 4,518 linear feet to approximately 8800 East. From 8800 East, the pipe would split with a 12-inch HDPE line heading north and west for 4,040 feet where it would terminate with a drain line emptying into the existing ditch. The second branch would head west from 8800 East, along Highway 39, in a 10-inch HDPE pipe following the existing North Field Ditch alignment for approximately 3,811 feet. It would then terminate with a drain line tying into the existing North Field Ditch. Small sections of 4-inch and 2-inch HDPE would branch off of the 20-inch pipe and cross Highway 39 to service users on the south side of the road. A 6-inch pipe would branch off of the 10-inch pipe at 8600 East and would be stubbed across the highway where it would terminate. In addition to the main line piping, the first phase of construction would also include 200 linear feet of 32-inch HDPE pipe running from the pipe intake structure south to carry overflow water back to the river. A 20-inch pipe would be installed from the pipe intake structure to the main 32-inch pipe. This pipe would carry screened irrigation water from the intake structure to the existing Huntsville Water Works storage reservoir. Pipe sizes and lengths are detailed in Table 1, Phase One Piping Distribution.

Table 1 - Phase One Piping Distribution

Pipe Size (diameter)	Anticipated Length (linear feet)
32-inch Main Line	6,353
32-inch Over Flow Line	200
20-inch Main Line	4,518
20-inch HWW supply	575
12-inch	4,040
10-inch	3,811
6-inch Branch Stub	75
4-inch Service Highway Crossing	90
2-inch Service Highway Crossing	213
Total	**19,875**

Phase Two Project Description:

The second phase of the proposed action, anticipated to begin in the second year of construction, would include replacing the North Field Ditch, the Middle Field Ditch, and the laterals associated with those two ditches. Construction activities would generally take place from Highway 39 and 500 South between 9500 East and 7800 East. This phase of construction would include the installation of approximately 21,642 linear feet of HDPE pipe ranging in size from 32 inches to 4 inches in diameter. Pipe sizes and lengths are detailed in Table 2, Phase Two Piping Distribution.

Table 2 - Phase Two Piping Distribution

Pipe Size (diameter)	Anticipated Length (linear feet)
32-inch	190
28-inch	2,232
20-inch	2,544
16-inch	3,004
12-inch	912
10-inch	5,077
6-inch	6,444
4-inch	1,239
Total	**21,642**

Phase Three Project Description:

The third and final phase of the proposed action, anticipated to commence in the third year of construction, would replace the South Field Ditch. Construction would take place along the existing South Field Ditch alignment located south of 500 South from approximately 9200 East to 7800 East. The third phase would install 11,784 linear feet of HDPE pipe. Pipe sizes and lengths are detailed in Table 3, Phase Three Piping.

Table 3 - Phase Three Piping Distribution

Pipe Size (diameter)	Anticipated Length (linear feet)
20-inch	3,762
18-inch	1,725
14-inch	3,345
8-inch	3,167
6-inch	1,205
4-inch	444
Total	**11,784**

In all phases of construction, drains would be located at low spots throughout the system to allow drainage of the system. All drainage would be directed into existing irrigation ditches, allowing the water to follow historical paths back into existing waterways.

Easements would be required where the existing alignments and the proposed pipeline alignments deviate. All acquired easements would be obtained from landowners in the name of the HIC. Where deviations from the existing alignment occur a 15-foot wide permanent easement would be needed for operation and maintenance of the pipeline. The construction of the proposed action would result in the acquisition of approximately 8,280 linear feet of new permanent easements from private land owners. In addition, approximately 4,920 linear feet of new piping would be installed within the right-of-way of existing roads maintained by

Weber County. Temporary easements for construction within the roadway right-of-way would be obtained from the County. No other easements from publicly owned local, state, or federal land would be required. A 50-foot temporary construction easement is required for construction in areas where the proposed alignment deviates from the existing alignments. A 30-foot construction easement (15 feet off of the centerline of the existing alignment) is required for construction activities taking place along the existing alignment of the canal laterals. The construction footprint and the defined project study area for all there phases of the proposed action combined (including the 8 designated staging areas) encompasses 42 acres.

Directions to the defined project study area:
From Bountiful, Utah travel north on I-15 for approximately 7 miles and then take exit 324 onto US 89 North. Continue north on US 89 approximately 10.5 miles and merge onto I-84 East towards "Morgan/Evanston". Take exit 92 for UT-167 toward "Mountain Green/Huntsville". Travel approximately 1.5 miles and turn left onto UT-167 North. Continue on UT-167 North for approximately 9.5 miles and turn right onto UT-39. Travel east on UT-39 approximately 2 miles and turn right onto E 500 S. The end of 2600 North is the southern project limits for the proposed piping project (see the Wetland Delineation Map-Overview Sheet in the appendix).

Methods

The wetland delineation was conducted using methodology described in the USACE Wetland Delineation Manual (1987 Manual) and the Arid West Regional Supplement (2008). Specific investigations were performed at three individual soil test pits (STPs), scattered throughout the defined project study area. STPs were established in order to identify the presence/absence of hydrophytic plant communities, wetland hydrology and hydric soils. The STPs were marked with wooden lath and orange flagging. Professional land surveying was performed by J-U-B ENGINEERS, Inc. to capture the established STP markers and wetland boundaries set in the field using a Trimble R8 GNSS RTK (Real Time Kinematics) Global Positioning System (GPS) unit. This system has an accuracy of about +/- 10mm (0.03 feet) + 1ppm RMS Horizontal, and +/- 20mm (0.06 feet) + 1ppm vertical. The GPS points were downloaded into ACAD Civil 3D 2011 to convert established GPS waypoints into the developed Wetland Delineation Maps, which aided in the determination of wetland area within the study area. Additional STPs were not dug in or around existing irrigation ditch features. The presence of noticeable standing water and an entrenched or scoured channel was enough of an indication or physical characteristic to mark these features (via an Ordinary High Water Mark (OHWM)) in the field without additional STPs, which is consistent with the standards set forth in 33 CFR 328.3. Photos were taken to properly document pertinent locations throughout the defined study area (see appendix – photo inventory).

Sources of information used for this investigation included:

1) Web Soil Survey (USDA/NRCS 2012) (see appendix – soil survey map);
2) Huntsville, Utah and Browns Hole, Utah USGS 7.5 minute Quad Maps;
3) National List of Plant Species that Occur in Wetlands (Resource Management Group, Inc. 1994);
4) Plant identification references (see references);
5) National Wetland Inventory (NWI) Maps (see appendix);
6) Munsell soil chart (2000 Edition); and,
7) Hydric Soils Information (USDA/NRCS 2012).

Discussion

Topography

The topography of the project study area is fairly flat (1-3% slopes). Most of the land use is planted agricultural fields. The elevation of the project action area falls within the range of 4,950 to 5,100 feet above sea level.

Climate

The project area has an average annual temperature of 44.9 degrees Fahrenheit. The average annual rainfall is 22.73 inches; whereas, the average annual snowfall is 60.9 inches. The growing season typically falls between May 15th and September 22nd, 130 days (USDA/NRCS 2012).

Plant Communities

Plant communities primarily consisted of cultivated crops, assorted herbaceous vegetation, such as grasses and annual weeds, and a few scattered shrubs or trees. Table 4 illustrates the dominant plant species that were encountered within the study area and reports the individual species' wetland indicator status.

Table 4 – Common vegetation encountered within the study area vicinity.

Common Name	Scientific Name	Wetland Indicator Status
Alfalfa	*Medicago spp.*	NI- Suspected FAC
Austrian pine	*Pinus nigra*	NI- Suspected FACU
Baltic rush	*Juncus balticus*	FACW
Black locust	*Robinia pseudoacacia*	FACU
Black nightshade	*Solanum nigrum*	FACU
Box-elder	*Acer negundo*	FACW
Bulbous bluegrass	*Poa bulbosa*	FACU
Bull thistle	*Cirsium vulgare*	FAC
Cattail	*Typha latifolia*	OBL
Cheat grass	*Bromus tectorum*	FACU
Clover	*Trifolium spp.*	FAC
Cocklebur	*Xanthium strumarium*	FAC
Common hop	*Humulus lupulus*	NI- Suspected FACU
Common reed	*Phragmites australis*	FACW
Cottonwood	*Populus spp.*	FAC-FACW
Coyote willow	*Salix exigua*	OBL
Creeping thistle	*Cirsium arvense*	FACU
Curly dock	*Rumex crispus*	FACW
Dandelion	*Taraxacum officinale*	FACU
Douglas' hawthorn	*Crataegus douglasii*	FAC
Duckweed	*Lemna minor*	OBL
Dyer's woad	*Isatis tinctoria*	NI- Suspected FACU
Field bindweed	*Convolvulus arvensis*	NI- Suspected FACU
Field horsetail	*Equisetum arvense*	FAC
Field mint	*Mentha arvensis*	FACW
Flix-weed	*Descurainia sophia*	FACU

Fowl manna grass	*Glyceria striata*	OBL
Foxtail barley	*Hordeum jubatum*	FAC
Golden-rod	*Solidago spp*	FAC
Gumweed	*Grindelia squarrosa*	FACU
Horseweed	*Conyza Canadensis*	FACU
Houndestongue	*Cynoglossum officinale*	NI- Suspected FACU
Intermediate wheatgrass	*Thinopyrum intermedium*	NI- Suspected FACU
Kentucky bluegrass	*Poa pratensis*	FAC
Kochia	*Kochia scoparia*	FACU
Lambsquarter	*Chenopodium album*	FACU
Lilac	*Syringa spp.*	NI-Suspected FACU
Marsh elder	*Cyclachaena xanthifolia*	FAC
Mediterranean barley	*Hordeum geniculatum*	NI- Suspected FAC
Mountain-ash	*Sorbus scopulina*	NI- Suspected FACU
Muleears	*Wyethia spp.*	FACU
Mullein	*Verbascum thapsus*	UPL
Musk thistle	*Carduus nutans*	NI- Suspected FACU
Nightshade	*Solanum dulcamara*	FACW
Peach-leaf willow	*Salix amygdaloides*	FACW
Plantain	*Plantago major*	FAC
Prickly lettuce	*Lactuca serriola*	FACU
Quack grass	*Agropyron repens*	FAC
Quaking aspen	*Populus tremula*	FAC
Rabbit-foot	*Polypogon monspeliensis*	FACW
Reed canary grass	*Phalaris arundinacea*	OBL
Redtop	*Agrostis alba*	FACW
Russian olive	*Elaeagnus angustifolia*	FAC
Salt grass	*Distichlis spicata*	FAC
Scotch pine	*Pinus sylvestris*	NI-Suspected FACU
Sedges	*Carex spp.*	OBL
Shepherd's purse	*Capsella bursa-pastoris*	FACU
Slender wheatgrass	*Agropyron trachycaulum*	FACU
Smartweed	*Polgonum spp.*	FACW
Smooth scouring-rush	*Equisetum laevigatum*	FACW
Smooth brome	*Bromus inermis*	FACU
Squirreltail	*Elymus elymoides*	UPL
Sunflower	*Helianthus annuus*	FACU
Teasel	*Dipsacus sylvestris*	NI- Suspected FAC
Tumble mustard	*Sisymbrium altissimum*	FACU
Water pepper	*Polygonum hydropiperoides*	FACW
White sagebrush	*Artemisia ludoviciana*	FACU
Willow	*Salix spp.*	FACW
Wood's rose	*Rosa woodsii*	FACU

Hydrology

The majority of the wetland hydrology within the project area is derived from irrigation waters that are drawn from the South Fork River. Several open and unlined irrigation ditches cross or parallel roadways contained in the defined study area (see wetland delineation maps in the appendix).

All the irrigation induced ditches/waters and the sloped wetland identified in the project study area are hydrologically linked directly to the Pineview Reservoir. The Pineview Reservoir is a considered a navigable Water of the U.S. The outlet of the Pineview Reservoir is the Ogden River, which flows into the Weber River. The Weber River eventually flows into the Great Salt Lake.

Based on the connectivity to the Pineview Reservoir (and ultimately the Great Salt Lake), the irrigation ditches and wetland areas located in the defined project study area are likely to be deemed jurisdictional. The jurisdictional authority stems to the USACE under Section 404 of the Clean Water Act (CWA).

Soils

Soils within the project area consist primarily of fine granular loams. Five soils make up two-thirds of the project study area. These mapped soils include: Canburn silt loam (Cb); Eastcan loam, 0 to 3 percent slopes (EaA); Parleys loam, high rainfall, 0 to 3 percent slopes (PaA); Phoebe fine sandy loam, 0 to 3 percent slopes (PhA); and, Utaba cobbly loam, warm (UbA). General characteristics of the mapped soils can be examined via the Web Soil Survey (USDA/NRCS 2012). The soils within the project study area are all listed as either partially hydric or have an unknown hydric rating (USDA/NRCS 2012); none of which are listed as "hydric."

Wetland/Irrigation Ditch Classifications

The National Wetlands Inventory (NWI) Map classifies several pockets and channelized features as **PEMA** (palustrine, emergent, temporary flooded) systems throughout the project vicinity (see NWI maps in the appendix). Based on the hydrology (i.e. seasonally irrigation induced) coupled with the vegetation communities observed (i.e. mainly reed canary grass), a **PEMA** wetland characterization is consistent with the present day conditions that exist onsite.

Findings

Field data forms reflect the conditions as assessed in the field and can be found in the Appendix of this report. The following subsections summarize the findings at the individual STPs, how the wetland boundary was determined, and discusses the classification and functionality of the wetlands and existing irrigation ditches.

Summary of Field Investigations:

(STP # 1):

The location of STP # 1 is illustrated on the Wetland Delineation Map, Sheet 2. This STP is an upland location because none of the three parameters were fulfilled. The vegetative structure at this location was dominated by upland bunch grasses. The soil structure consisted of a cobbly silt loam, which lacked any redox features. This pit was completely dry. STP # 1 was dug to confirm the lack of any wetland feature landward of the OHWM linked to the Middle Field Ditch.

(STP # 2-3):
STPs # 2 and # 3 are located near the western terminus of the Phase One piping alignment of the North Field Ditch. These STPs are illustrated on the Wetland Delineation Map, Sheet 3. These paired STPs aided in delineating 1,385 square feet of sloped wetlands within the defined study area.

Wetland parameters were fulfilled at only STP #3. Hydrophytic vegetative structure consisted of reed canary grass, nightshade and a very small presence of sedges and a willow shrub. The wetland hydrology was evidenced by saturation 4-inches below the surface and a water table located 6-inches below grade. Hydric soil was indicated by common redox concentrations located throughout the soil profile. Conversely, STP # 2 did not fulfill any of the wetland parameters and consequently received an upland designation. STP# 2 contained a facultative-upland vegetative community. STP # 2 was completely dry to a depth of 25 inches. The elevation or relative topography of STP # 2 kicked this data point into an upland designation.

How the wetland and/or stream boundaries were chosen:
The wetland boundary was determined primarily by the distinct vegetation and topography shifts. Vegetation shifts were linked to the end of reed canary grass and/or the start of transitional species, such as teasel or smooth brome. Topography shifts were linked to the grade changes associated with the drainage way. Hydric soil indicators and wetland hydrology indicators further substantiated the delineated boundaries. Irrigation ditches were delineated based on the OHWM, in accordance with 33 CFR 328.3.

Summary of impacts to the critical areas identified within the defined project study area:
The identified sloped wetland located within the defined study area will be completely avoided. However, the proposed piping projects will temporarily impact several existing irrigation ditches (see Wetland Delineation Maps). Table 5 summarizes the anticipated temporary irrigation ditch impacts per piping phase.

Table 5 - Summary of project related, temporary, aquatic resource impacts linked to the three project piping phases.

Proposed Piping Phase	Feature Impacted (wetland or open irrigation ditch)	Permanent or Temporary Impact	Quantity of anticipated critical area to be impacted (area [acreage] of wetland or linear feet of irrigation ditch)
One	Grow Ditch and North Field Irrigation Ditches	Temporary	13,120 linear feet
Two	Middle Field Irrigation Ditch	Temporary	7,880 linear feet
Three	South Field Irrigation Ditch	Temporary	8,425 linear feet
Combined Total			**29,425 linear feet**

Proposed Project Implications linked to permitting:

Our understanding is that the Federal Regulation 33 CFR 323.4(a)(3) states that the construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance (but not construction) of drainage ditches does not require a Section 404 permit. This Federal regulation goes on to stipulate that discharges associated with siphons, pumps, head-gates, wing-walls, weirs, diversion structures, and such other facilities as are appurtenant and functionally related to irrigation ditches that are included in this exemption. In our opinion, the proposed WaterSMART Program piping projects should meet the intent of this aforementioned exemption. Consultation with the USACE is warranted to confirm whether this exemption is applicable.

If the exemption is not granted by the USACE, then it is possible that this proposed WaterSMART Program piping project would meet the conditions and intent of an USACE issued Nationwide Permit (NWP), administered under Section 404 of the CWA. Moreover, NWP # 12 is commonly issued by the USACE for piping projects of this scope and nature. Again, further consultation with the USACE is warranted.

Conclusion

The defined study area encompasses 42 acres, contains 1,385 square feet of sloped wetlands and 29,425 linear feet of existing, unlined, irrigation ditches. Portions of the following named irrigation ditches are contained within the defined study area: the Grow Ditch, the North Field Ditch, the Middle Field Ditch and the South Field Ditch. The enclosed wetland delineation maps (see appendix) illustrate the delineated wetland feature, the existing irrigation ditches that will contain portions of the piping alignments and the proposed three piping alignments located within the defined project study area. It is estimated that 29,425 linear feet of existing, unlined, irrigation ditches are anticipated to be temporarily impacted by the proposed piping projects.

Based on the nature and scope of this project, consultation with the USACE is warranted. It is possible that this WaterSMART project may qualify for the exemption outlined in the Federal regulation 33 CFR 323.4(a)(3). It should be noted, however, that final authority rests with the appropriate regulatory agencies.

Respectfully submitted by:

Vincent J. Barthels, Biologist
J-U-B ENGINEERS, Inc.

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APPENDIX

GPS POINT 609
PHOTO # 49

GPS POINT 608
PHOTO # 50

GPS POINT 610
PHOTO #'S 51,
52,53,54,55

SHEET 3

NORTH FIELD DITCH

8650 EAST

8750 EAST

UT 39

GPS POINT 607
PHOTO #'S
45,46,47,48

GPS POINT 592
PHOTO #'S
9,10,11,12

GPS POINT 593
PHOTO # 13

GPS POINT 590
PHOTO #'S 1,
2,3,4,5

GPS POINT 594
PHOTO #'S
14,15

GPS POINT 606
PHOTO #'S
42,43,44

GPS POINT 598
PHOTO #'S
21,22,23,24,25,26

MAIN DITCH

GPS POINT 597
PHOTO # 16

GPS POINT 611
PHOTO #'S 56,
57,58

8600 EAST

9200 EAST

9500 EAST

SHEET 2

SHEET 1

MIDDLE FIELD DITCH

7800 EAST

GPS POINT 591
PHOTO #'S
6,7,8

GPS POINT 604
PHOTO # 39

GPS POINT 605
PHOTO #'S 40,41

GPS POINT 599
PHOTO #'S 27,
28,29

GPS POINT 596
PHOTO #'S 19,20

SOUTH FIELD DITCH

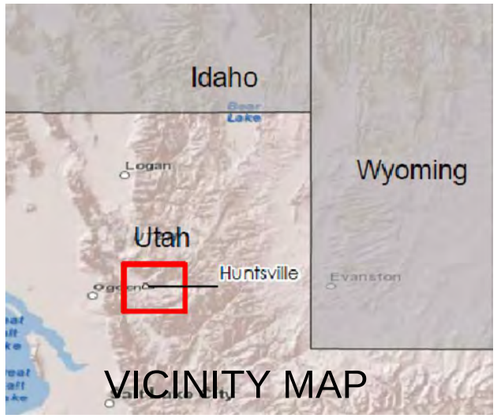
GPS POINT 603
PHOTO #'S 37,38

GPS POINT 600
PHOTO # 30

GPS POINT 595
PHOTO #'S 17,18

GPS POINT 602
PHOTO #'S 35,36

GPS POINT 601
PHOTO #'S 31,32,33,34



SHEET INDEX OVERVIEW MAP

LEGEND

EXISTING, OPEN, UNLINED IRRIGATION DITCH (29,425 LF)
NEW POWER LINE ALIGNMENT LINKED TO PHASE 1 (325 LF)
PROPOSED PIPELINE ALIGNMENT PHASE 1 (19,875 LF)
PROPOSED PIPELINE ALIGNMENT PHASE 2 (21,642 LF)
PROPOSED PIPELINE ALIGNMENT PHASE 3 (11,784 LF)
IDENTIFIED WETLAND FEATURES FROM THE NATIONAL WETLANDS INVENTORY MAP
STAGING AREA BOUNDARY (8 TOTAL)
ESTABLISHED GPS POINT (SEE PHOTO INVENTORY)

N

0 600 1200
SCALE IN FEET

LAST UPDATED: 10/1/2012
PLOT DATE: 10/1/2012
FILE: 55-12-018_G-001(ENVIRO)

J-U-B Environmental Group

WETLAND DELINEATION MAP
HUNTSVILLE IRRIGATION PROJECT
HUNTSVILLE, WEBER COUNTY, UTAH

SHEET
INDEX AND
OVERVIEW

LEGEND

- EXISTING, OPEN, UNLINED IRRIGATION DITCH
- NEW POWER LINE ALIGNMENT (325 LF)
- PROPOSED PIPELINE ALIGNMENT PHASE 1
- STAGING AREA BOUNDARY
- PROJECT STUDY AREA (TYPICAL WIDTH=30 FT ENCOMPASSING 42 ACRES TOTAL)
- NEW DIVERSION STRUCTURE
- #1 PHOTO POINT

N

0 50 100

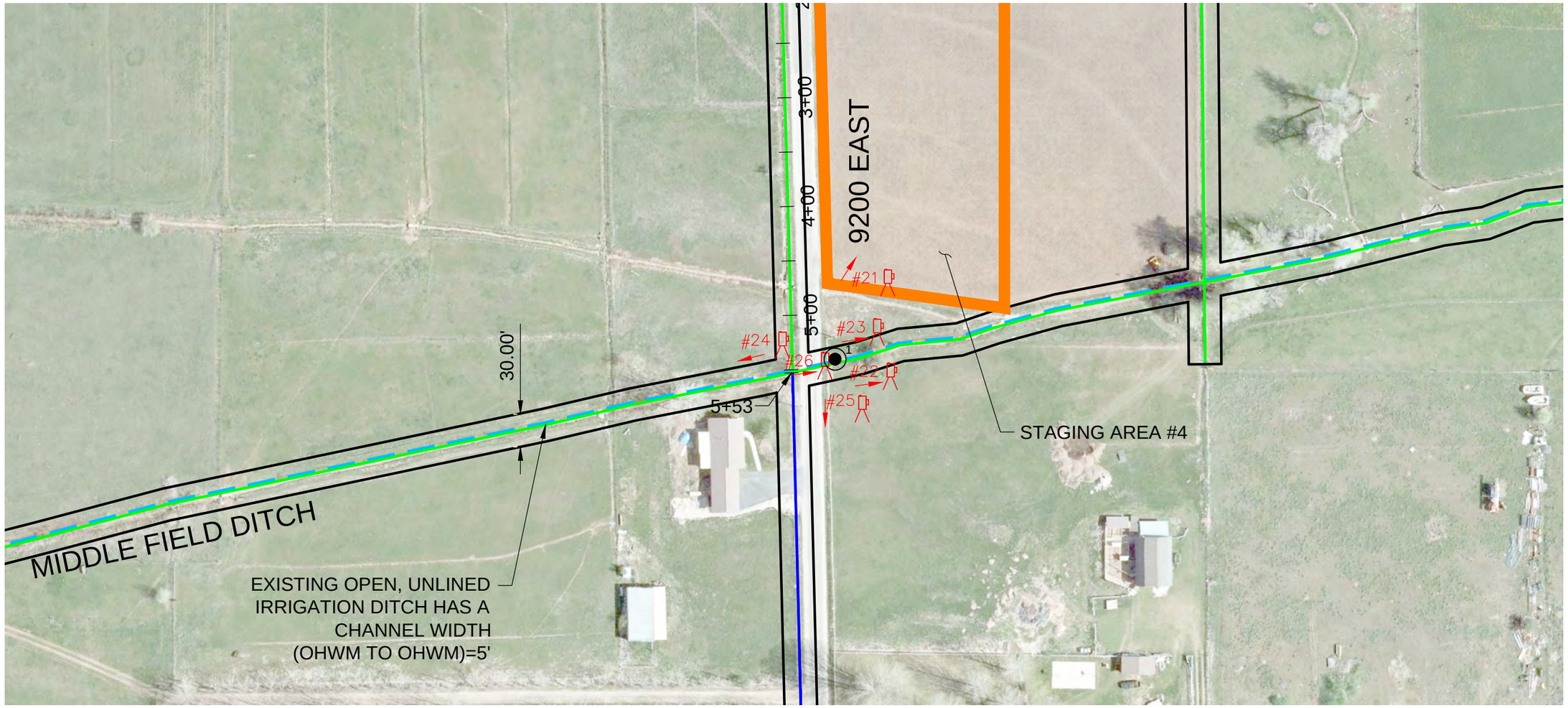
SCALE IN FEET

LAST UPDATED: 10/1/2012
PLOT DATE: 10/1/2012
FILE: 55-12-018_C-101X

J-U-B Environmental Group

WETLAND DELINEATION MAP
HUNTSVILLE IRRIGATION PROJECT
HUNTSVILLE, WEBER COUNTY, UTAH

SHEET 1



LEGEND

- EXISTING, OPEN, UNLINED IRRIGATION DITCH
- PROPOSED PIPELINE ALIGNMENT PHASE 2
- PROPOSED PIPELINE ALIGNMENT PHASE 3
- PROJECT STUDY AREA (TYPICAL WIDTH=30 FT ENCOMPASSING 42 ACRES TOTAL)
- STAGING AREA BOUNDARY
- SOIL TEST PIT #1
- PHOTO POINT

N

0 50 100

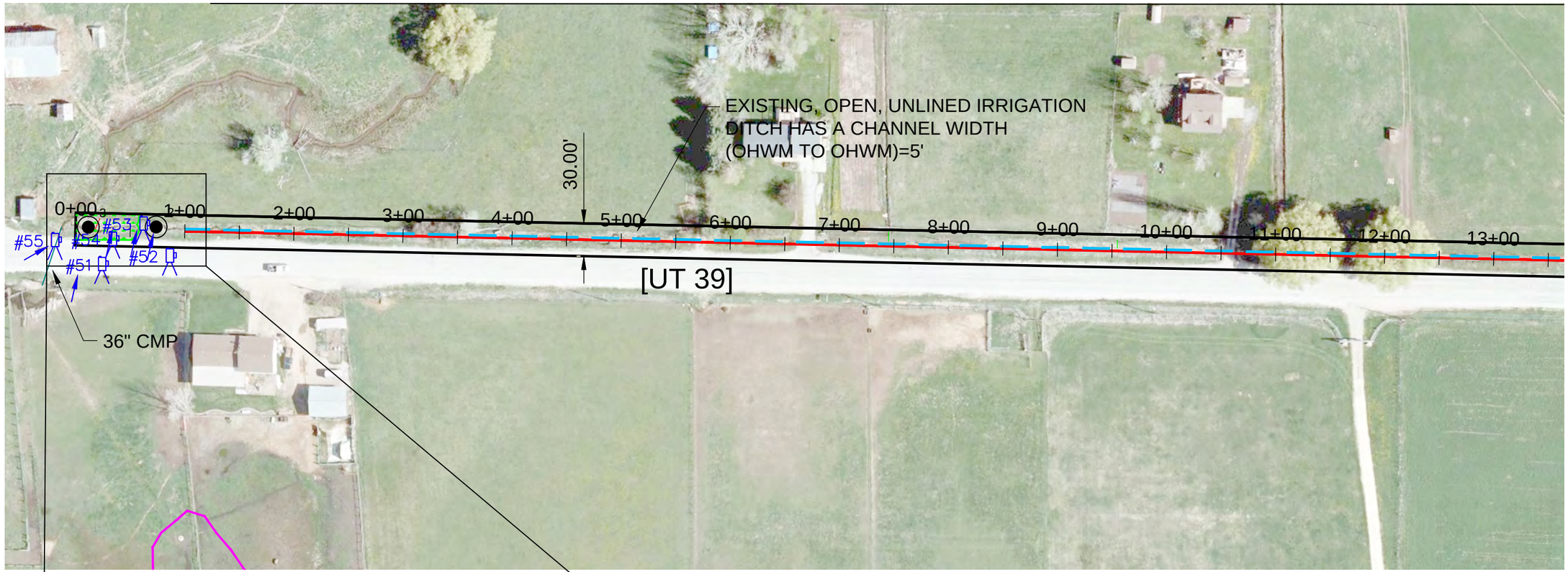
SCALE IN FEET

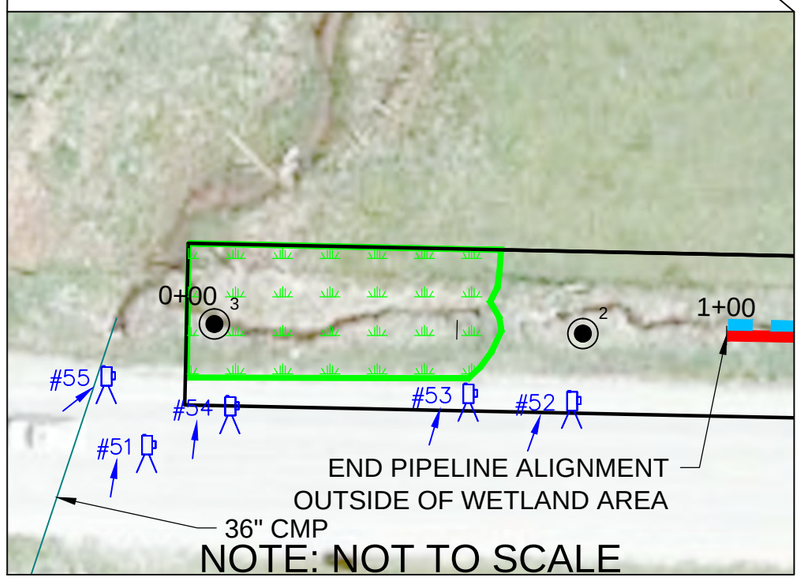
LAST UPDATED: 10/1/2012
PLOT DATE: 10/1/2012
FILE: 55-12-018_C-101X

J-U-B Environmental Group

WETLAND DELINEATION MAP
HUNTSVILLE IRRIGATION PROJECT
HUNTSVILLE, WEBER COUNTY, UTAH

SHEET 2





0 50 100

SCALE IN FEET

LEGEND

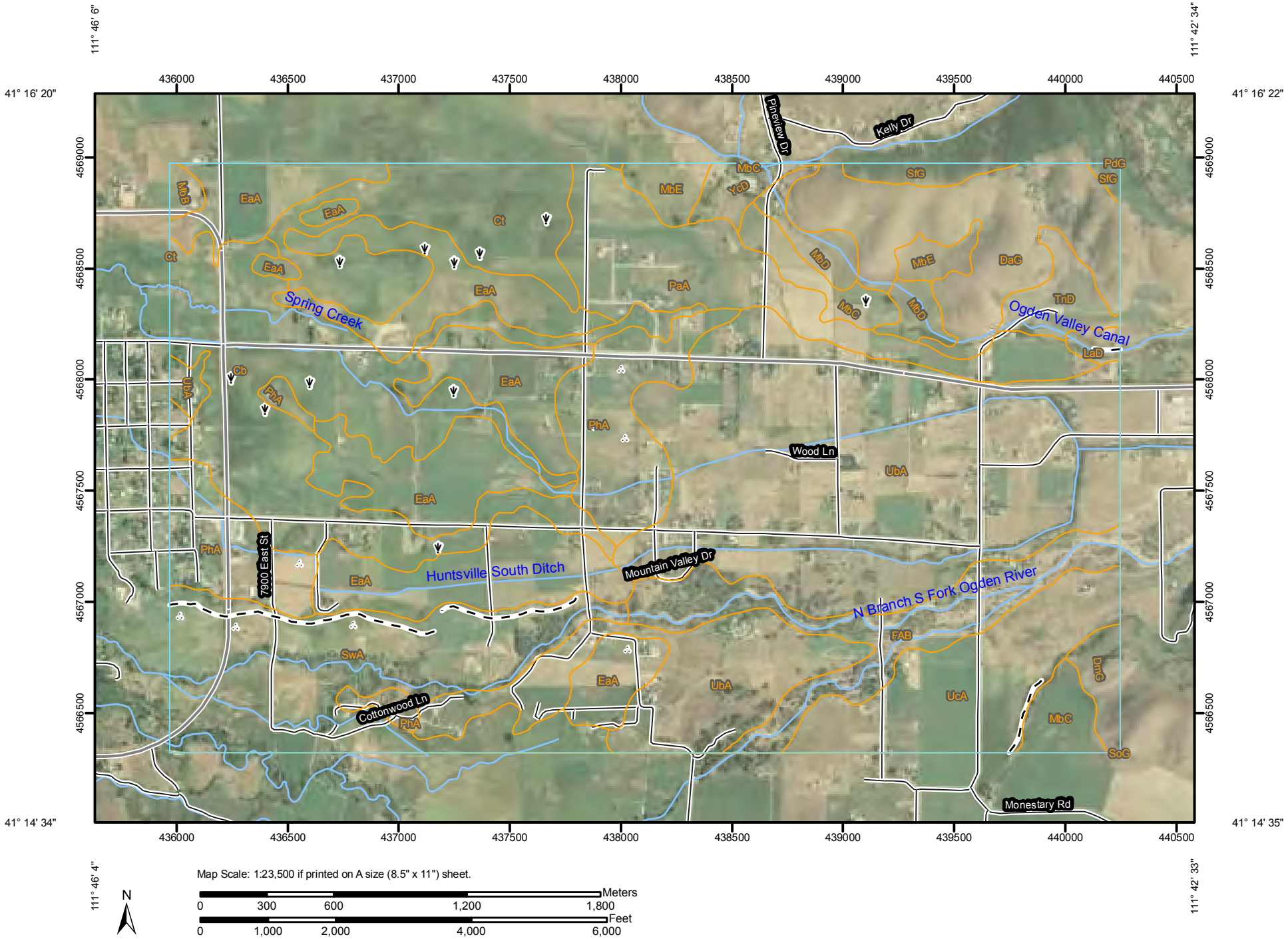
- EXISTING, OPEN, UNLINED IRRIGATION DITCH
- PROPOSED PIPELINE ALIGNMENT PHASE 1
- IDENTIFIED WETLAND FEATURES FROM THE NATIONAL WETLANDS INVENTORY (NWI) MAP
- DELINEATED SLOPED WETLAND (1,385 SF) WITHIN THE PROJECT STUDY AREA
- PROJECT STUDY AREA (TYPICAL WIDTH=30 FT ENCOMPASSING 42 ACRES TOTAL)
- 2 SOIL TEST PIT
- #51 PHOTO POINT

J-U-B Environmental Group

LAST UPDATED: 10/1/2012
PLOT DATE: 10/1/2012
FILE: 55-12-018_C-101X

WETLAND DELINEATION MAP
HUNTSVILLE IRRIGATION PROJECT
HUNTSVILLE, WEBER COUNTY, UTAH

SHEET 3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41° 16' 22"
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440000
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4568500
4568000
4567500
4567000
4566500
Pineview Dr
Kelly Dr
MbC
MbE
YdD
SfG
PdG
MbB
EaA
Ct
PaA
MbD
DaG
TnD
Spring Creek
Ogden Valley Canal
LaD
Cb
SwA
PhA
Wood Ln
UbA
7900 East St
Huntsville South Ditch
Mountain Valley Dr
N Branch S Fork Ogden River
FAB
DmG
UcA
Cottonwood Ln
SoG
Monestary Rd
41° 14' 34"
41° 14' 35"
111° 46' 4"
111° 42' 33"
Map Scale: 1:23,500 if printed on A size (8.5" x 11") sheet.
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Meters
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300
600
1,200
1,800
Feet
0
1,000
2,000
4,000
6,000

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:23,500 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morgan Area, Utah - Morgan County and Part of Weber County
Survey Area Data: Version 6, Oct 28, 2011

Date(s) aerial images were photographed: 7/17/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

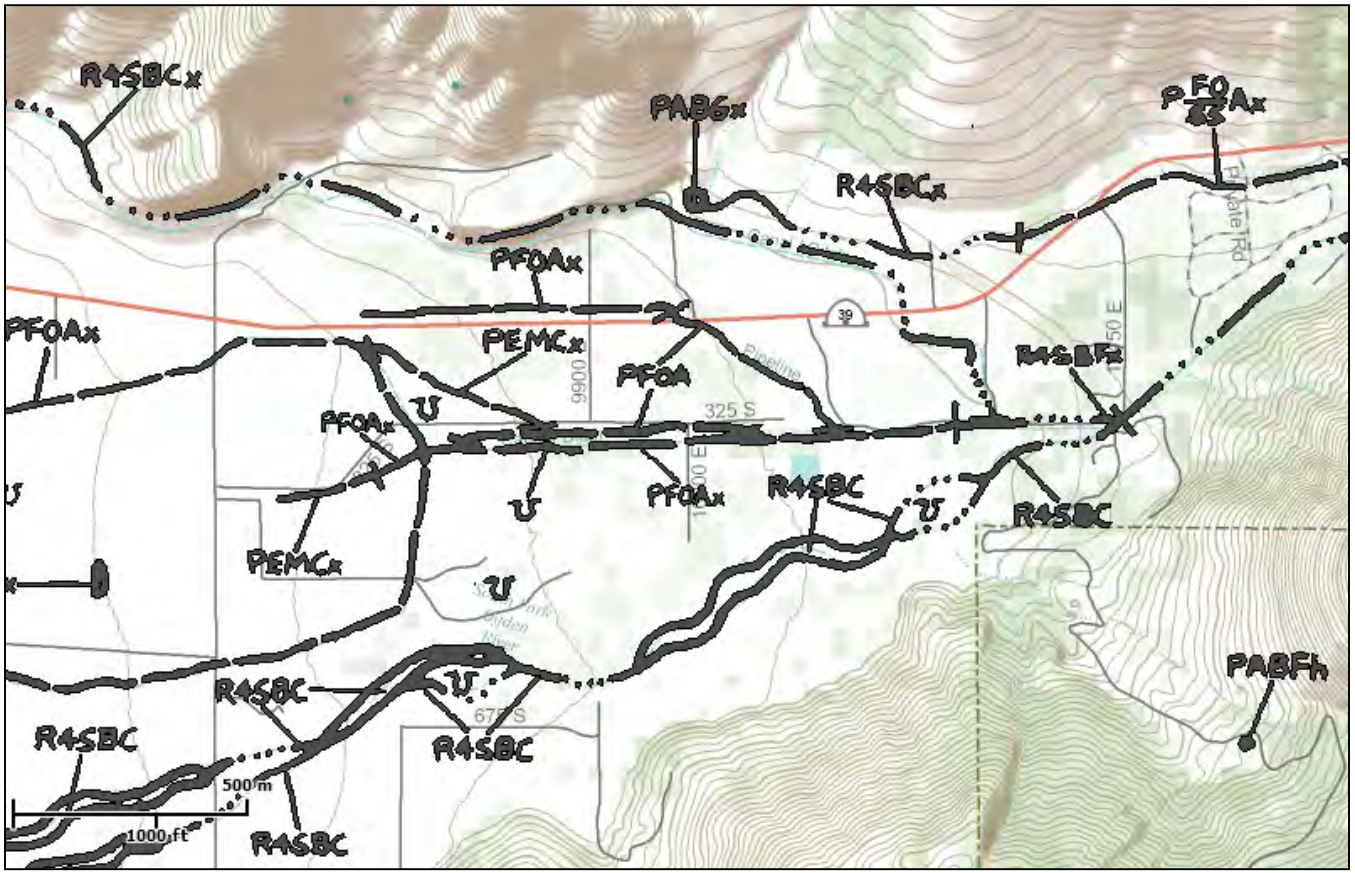
Morgan Area, Utah - Morgan County and Part of Weber County (UT609)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cb	Canburn silt loam	311.5	11.1%
Ct	Crooked Creek silty clay loam	142.0	5.1%
DaG	Donner cobbly loam, 30 to 50 percent slopes	164.5	5.9%
DmG	Durfee-Moweba complex, 30 to 70 percent slopes	20.3	0.7%
EaA	Eastcan loam, 0 to 3 percent slopes	409.6	14.6%
FAB	Fluvaquentic Haploborolls-Fluventic Haploxerolls complex, 1 to 6 percent slopes	129.0	4.6%
LaD	Lamondi stony loam, 3 to 15 percent slopes	8.1	0.3%
MbB	Manila loam, 3 to 6 percent slopes	7.4	0.3%
MbC	Manila loam, 6 to 10 percent slopes	55.2	2.0%
MbD	Manila loam, 10 to 25 percent slopes	36.4	1.3%
MbE	Manila loam, 25 to 40 percent slopes	33.3	1.2%
PaA	Parleys loam, high rainfall, 0 to 3 percent slopes	156.4	5.6%
PdG	Patio gravelly loam, 40 to 60 percent slopes	0.1	0.0%
PhA	Phoebe fine sandy loam, 0 to 3 percent slopes	182.6	6.5%
SfG	Smarts loam, 40 to 60 percent slopes	18.2	0.6%
SoG	St. Marys cobbly loam, 30 to 50 percent slopes	0.0	0.0%
SwA	Sunset loam, very gravelly substratum	264.1	9.4%
TnD	Trojan loam, warm, 8 to 15 percent slopes	33.1	1.2%
UbA	Utaba cobbly loam, warm	678.4	24.1%
UcA	Utaba loam, warm	140.3	5.0%
YcD	Yeates Hollow very stony loam, 10 to 30 percent slopes	19.2	0.7%
Totals for Area of Interest		**2,809.7**	**100.0%**

U.S. Fish and Wildlife Service

National Wetlands Inventory

Huntsville Irrigation

Aug 14, 2012



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

User Remarks:

Map 1 Topo

U.S. Fish and Wildlife Service

National Wetlands Inventory

Huntsville Irrigation

Aug 14, 2012

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

User Remarks:

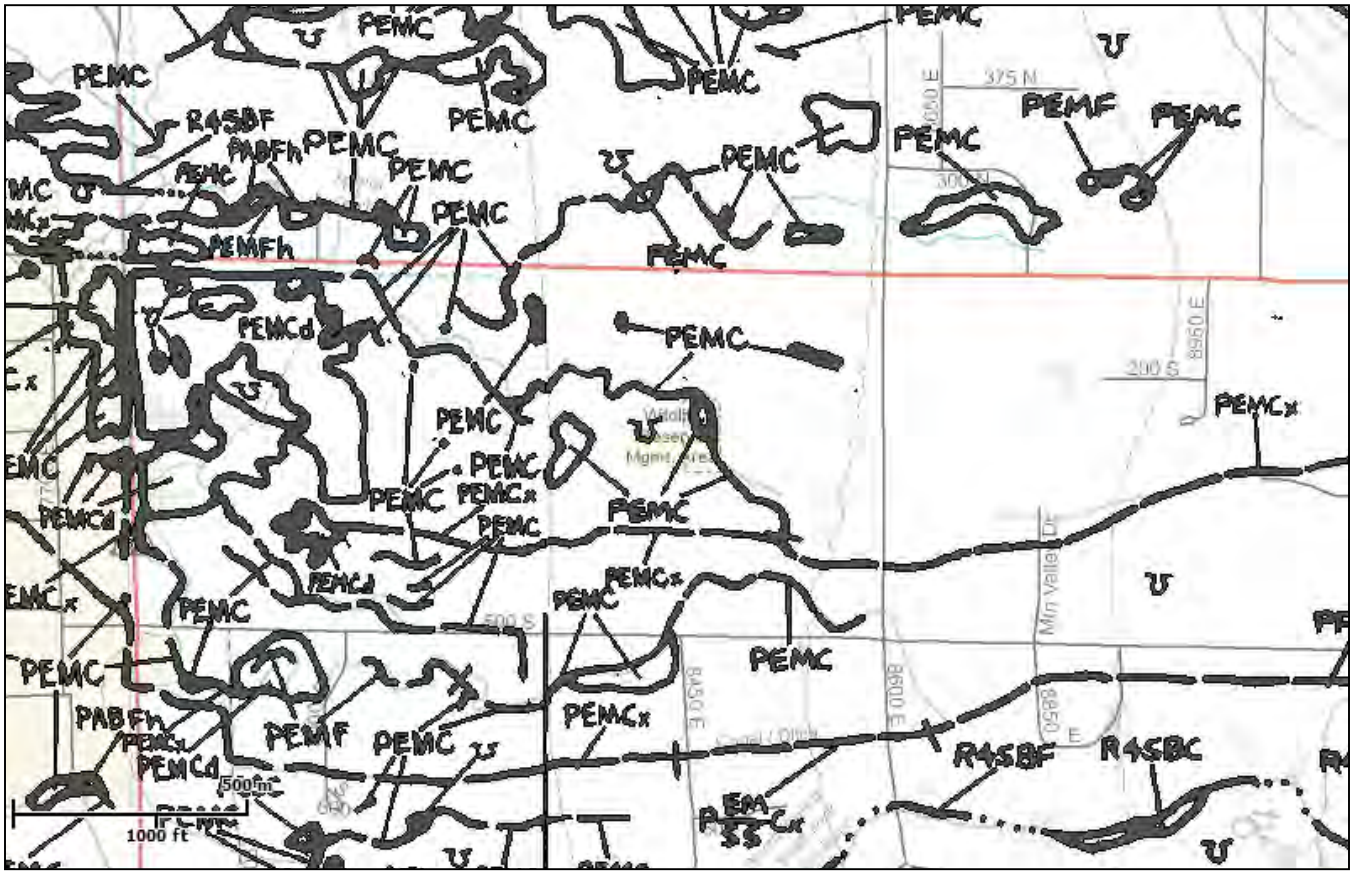
Map 2 Topo

U.S. Fish and Wildlife Service

National Wetlands Inventory

Huntsville Irrigation

Aug 14, 2012



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

User Remarks:

Map 3 Topo

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Huntsville Irrigation Company Proposed Pipe Alignments City/County: Huntsville/Weber Sampling Date: 8-16-12

Applicant/Owner: Huntsville Irrigation Company State: UT Sampling Point: STP#1 (Upland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: N1/2 Sec. 16, T6N, R2E

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR): D Lat: 041° 15' 32.32" N Long: 111° 43' 39.84" W Datum: NAD 27

Soil Map Unit Name: Utaba cobbly loam, warm (UbA) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes _____** **No X**
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

This STP is located east of 9200E, between the northern arm of Middle Field Ditch and main stem of the canal. The width of both canals is 5 feet. Wetlands are not present landward of the OHWM of the Middle Fork Ditch.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Bromus inermis*	50	YES	FACU
2. *Bromus tectorum*	20	YES	FACU
3. *Agropyron trachycaulum*	10	NO	FACU
4. *Artemisia ludoviciana*	5	NO	FACU
5. *Dipsacus sylvestris*	5	NO	NI-FAC
6. *Verbascum thapsus*	5	NO	UPL
7. *Wyethia spp*	5	NO	FACU
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	90	x 4 =	360
UPL species	5	x 5 =	25
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes _____** **No X**

Remarks:

FACU vegetative community present. Vegetative parameter not fulfilled.

SOIL

Sampling Point: STP# 1 (Upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	5YR 3/3	100					Silt Loam	20% gravels and cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed at this STP.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

STP dry to a depth of 18 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Huntsville Irrigation Company Proposed Pipe Alignments City/County: Huntsville/Weber Sampling Date: 8-16-12

Applicant/Owner: Huntsville Irrigation Company State: UT Sampling Point: STP#2 (Upland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: N 1/2 Sec. 17, T6N, R2E

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR): D Lat: 041° 15' 44.59" N Long: 111° 45' 2.88" W Datum: NAD 27

Soil Map Unit Name: Cabburn Silt Loam (Cb) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes _____ No X**
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

This STP is located along HWY 39 near the western end of the Northfield Ditch; upland setting present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Bromus inermis*	25	YES	FACU
2. *Dipsacus sylvestris*	20	YES	NI-FAC
3. *Cirsium arvense*	15	NO	FACU
4. *Equisetum laevigatum*	*10*	NO	FACW
5. *Lactuca serriola*	10	NO	FACU
6. *Carduus nutans*	5	NO	NI-FACU
7. *Cynoglossum officinale*	5	NO	NI-FACU
8. *Taraxacum officinale*	5	NO	FACU
9. *Verbascum thapsus*	5	NO	UPL
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	10	x 2 =	20
FAC species	20	x 3 =	60
FACU species	65	x 4 =	260
UPL species	5	x 5 =	5
Column Totals:	100 (A)		345 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes _____ No X**

Remarks:

FACU vegetative community present. Vegetative parameter is not fulfilled.

SOIL

Sampling Point: STP#2 (Upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-25	10YR 2/1	100					Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed at this STP.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

STP completely dry to a depth of 25 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Huntsville Irrigation Company Proposed Pipe Alignments City/County: Huntsville/Weber Sampling Date: 8-16-12

Applicant/Owner: Huntsville Irrigation Company State: UT Sampling Point: STP# 3 (Wetland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: N 1/2 Sec. 17, T6N, R2E

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR): D Lat: 041° 15' 44.59" N Long: 111° 45' 2.88" W Datum: NAD 27

Soil Map Unit Name: Cabburn Silt Loam (Cb) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

This wetland STP is paired with upland STP (#2) along an east/west oriented transect. A sloped wetland exists at this location. Waters flow southerly at this location and are conveyed south of SR-39 via a 36" CMP.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Salix amygdaloides*	5	YES	FACW
2.			
	5 = Total Cover		
Herb Stratum (Plot size:)			
1. *Phalaris arundinacea*	25	YES	OBL
2. *Carex spp.*	15	NO	OBL
3. *Juncus balticus*	15	NO	FACW
4. *Glyceria striata*	10	NO	OBL
5. *Mentha arvensis*	10	NO	FACW
6. *Nasturtium officinale*	10	NO	OBL
7. *Solanum nigrum*	10	NO	FACU
8. *Rumex crispus*	5	NO	FACW
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		160 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Dominated by hydrophytic vegetation; parameter is fulfilled.

SOIL

Sampling Point: STP# 3 (Wetland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/2	95	10YR 4/6	5	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Prominent mottling observed; parameter fulfilled.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrogen sulfide odor and high water table present at this STP; parameter fulfilled.

Photo Inventory

The following 58 photos were taken on August 15, 2012.

Photo 1 (GPS point 590): Looking easterly at staging area # 1 along the existing canal service road.

Photo 2 (GPS point 590): Looking north at the existing power pole (approximately 325 feet away) situated northwesterly of the new diversion structure. Power lines from this pole will power the new diversion structure.

Photo 3 (GPS point 590): Looking east, upstream of the new diversion structure. The canal width is 28'. Upstream of the new diversion, the irrigation canal is dominated by reed canary grass.

Photo 4 (GPS point 590): Looking south from the new diversion structure at the future overflow alignment. The new overflow pipe alignment (connected to the South Fork River) traversers through uplands.

Photo 5 (GPS point 590): Looking west, downstream of the new diversion structure. The channel width is 28'. Willows dominate the banks of the irrigation canal.

Photo 6 (GPS point 591): Looking northeast at Staging Area #2. An upland area is present.

Photo 7 (GPS point 591): Looking east at the southern boundary of Staging Area #2, as well as, the location of the future pipe alignment.

Photo 8 (GPS point 591): Looking north at the western edge of Staging Area #2 and the future pipe alignment.

Photo 9 (GPS point 592): Looking north at existing 3-sided, concrete box culvert (3' wide by 18" tall). The upstream channel width is 9'. Scouring rush and Kentucky bluegrass are the most common species along the canal edge.

Photo 10 (GPS point 592): Looking south (from centerline of SR-39) at the future pipe alignment. Wetlands are lacking outside or landward of the irrigation canal's ordinary high water mark (OHWM).

Photo 11 (GPS point 592): Looking north at the outlet of the box culvert, shown in photo 9.

Photo 12 (GPS point 592): Looking westerly from the top of a 30" concrete pipe outlet (75'downstream of the box culvert shown in photo 9) at the irrigation canal that will contain the new pipeline. Channel width is 12'. Species along the canal (below OHWM) are reed canary grass and teasel. Transitional species include box elders, black locust, ash, smooth brome, field horsetail, wild hops, and Wood's rose.

Photo 13 (GPS point 593): Looking south at the proposed spur alignment across SR-39. No wetlands are outside of the existing irrigation canal located north of SR-39. The irrigation canal channel width is 7'.

Photo 14 (GPS point 594): Looking west (downstream) of the Grow or Main Ditch. The channel width is 8'. The shrubs along the right edge of this photo are lilacs. Reed canary grass was observed below the OHWM.

Photo 15 (GPS point 594): Looking south at the future pipe alignment from the southeast intersection of Highway 39 and 9500 East. The upland field is dominated by smooth brome.

Photo 16 (GPS point 597): Looking westerly on top of a 30 "CMP" crossing, which allows the Middle Field Ditch to flow beneath 9500 east.

Photo 17 (GPS point 595): Looking east at the new alignment along 400 South. No wetlands are present along the alignment.

Photo 18 (GPS point 595): Looking south at the new alignment along 9500 East. No wetlands are present along the alignment.

Photo 19 (GPS point 596): Looking southeast of Staging Area #3 from the southwest proposed corner.

Photo 20 (GPS point 596): Looking northeast at the proposed Staging Area #3. No wetlands are present; it is a sagebrush/rabbit-brush community.

Photo 21 (GPS point 598): From southwest corner of Staging Area #4, looking northeast at Staging Area #4. Staging Area #4 is an upland pasture for horses. Slender wheatgrass is the dominant grass; some smooth brome is also located in the field.

Photo 22 (GPS point 598): Looking east at upstream arm of the Middle Field Ditch. There is a 30" CMP at the 9200 East crossing. The channel width is 5'.

Photo 23 (GPS point 598): Looking east and upstream at Middle Field Ditch. There is a 42" CMP at the 9200 East crossing. The channel width is 5'.

Photo 24 (GPS point 598): Looking west at downstream segment of Middle Field Mainstream Canal, west of 9200 East.

Photo 25 (GPS point 598): Looking south of Middle Field Canal along the eastside of 9200 east along the proposed alignment.

Photo 26 (GPS point 598): Soil Test Pit (STP) #1 is an upland test pit located between Middle Field Ditch north-arm and mainstem canals, just east of 9200 East. This STP is located 10' east of fence-line.

Photo 27 (GPS point 599): Looking east from the midpoint of the western limits of Stage Area #5. The staging area is an upland, flat field dominated by uncut and un-grazed smooth brome.

Photo 28 (GPS point 599): Looking west at the South Field Ditch nearest the new pipe tie-in point (looking downstream).The channel width is 11'.

Photo 29 (GPS point 599): Photo from corner of 9200 East and 500 South. Looking south at the "new alternate" easement alignment. There are no wetlands present. The alignment is in an upland field dominated by smooth brome.

Photo 30 (GPS point 600): Looking west (downstream) at South Field Ditch. Channel width is 11'. Reed canary grass, Wood's rose, Austrian and Scotch pines, hawthorn and coyote willow all were observed near the canal.

Photo 31 (GPS point 601): Looking east (upstream) at the South Field Ditch. Reed canary grass, Wood's rose, Scotch pine, teasel, hawthorn, coyote willow all were observed near the canal.

Photo 32 (GPS point 601): Looking northeast from southwest corner of Staging Area #6 located east of 8600 east.

Photo 33 (GPS point 601): Looking northwest from southeast corner of Staging Area #6 located west of 8600 east. A planted alfalfa field is present.

Photo 34 (GPS point 601): Looking west (downstream) at the South Field Ditch, which is dominated by reed canary grass. The channel width is 10'. Planted alfalfa fields are present on either side of the ditch.

Photo 35 (GPS point 602): Looking east (upstream) at the South Field Ditch. Vegetation is dominated by reed canary grass. The channel width is 8'.

Photo 36 (GPS point 602): Looking west (downstream) at the South Field Ditch. Both sides of the ditch are planted in alfalfa.

Photo 37 (GPS point 603): Looking east (upstream) at the South Field Ditch. The ditch is dominated by reed canary grass (90%) and cattails (10%). The channel width is 6'.

Photo 38 (GPS point 603): Looking north at the South Field Ditch, which parallels the west side of 7900 East. This ditch is dominated by reed canary grass; the transition species is smooth brome.

Photo 39 (GPS point 604): Looking north at the Staging Area #7, which exists along a farm road, immediately east of the entrance to "Parry Ranch." The cut pasture is dominated by slender wheatgrass.

Photo 40 (GPS point 605): Looking east (upstream) of the Middle Field Ditch. Planted aspens, reed canary grass, and Kentucky bluegrass are present along the canal.

Photo 41 (GPS point 605): Looking west (downstream) at the Middle Field Ditch. Reed canary grass, golden rod, & teasel are the dominant vegetation. North of crossing to Highway 39, both sides of the road contain a mixture of planted pasture grasses (alfalfa & clover).

Photo 42 (GPS point 606): Looking east (upstream) at a piped segment of the North Field Ditch. The pipe is a 2' concrete pipe which continues east of the "Grows Driveway" addressed @ 8826 East HWY 39.

Photo 43 (GPS point 606): Looking west (downstream) at an unlined portion of the North Field Ditch. There is a 2' CMP that crosses beneath the driveway. The channel width is 5'. Planted aspens and reed canary grass are present below the OHWM.

Photo 44 (GPS point 606): Looking southerly down 8600 East. No wetlands exist along the proposed new alignment.

Photo 45 (GPS point 607): Looking upstream at the North Field Ditch, immediately before a 2' concrete inlet. The channel width is 5'. Some reed canary grass is present, but mostly open channel exists. Transitional species include teasel and prickly lettuce.

Photo 46 (GPS point 607): Looking downstream (west) of piped portion (2' concrete) of the North Field Ditch.

Photo 47 (GPS point 607): Looking northeast at Staging Area #8 from southwest corner. The field is a mixture of oats/alfalfa. No wetlands are present.

Photo 48 (GPS point 607): Looking north along proposed new pipe alignment. This is a highly disturbed upland site. Kochia, prickly lettuce, and lamb's quarter are the dominant vegetation present.

Photo 49 (GPS point 609): An upland site is present along the proposed new pipe alignment. Smooth brome, bindweed, dyer's woad, prickly lettuce, cockbur, teasel, creeping thistle, and slender wheatgrass are some of the vegetation encountered.

Photo 50 (GPS point 608): Looking east at a proposed new alignment off of the North Field Ditch. The field present is planted in alfalfa.

Photo 51 (GPS point 610): Sloped wetlands are present. Hydrology passing through this wetland is piped (via a 36" CMP) beneath HWY 39.

Photo 52 (GPS point 610): Looking at STP #2 (upland), which is paired with STP #3 (wetland). Teasel, prickly lettuce and several thistles make-up the dominant vegetation cover here.

Photo 53 (GPS point 610): The wetland boundary was marked along the fence line, where the sedges stopped and teasel began.

Photo 54 (GPS point 611): STP #3 is a wetland test pit. Night shade is in the background. Several sedges and other hydrophytic vegetation were also observed here.

Photo 55 (GPS point 610): Looking northeast (upstream) at the sloped wetland feature.

Photo 56 (GPS point 611): Looking west behind barn (downstream) at the end of the Middle Field Ditch. The channel width is 5'.

Photo 57 (GPS point 611): Looking southwest at the northern fork of Middle Field Ditch. This photo is the inverse of photo #56.

Photo 58 (GPS point 611): Looking straight west from the fork in the end of the Middle Field Ditch. All of the channel widths at this "Y" are 5' wide.

Appendix B
Biological Assessment

BIOLOGICAL ASSESSMENT
FOR
2012 Huntsville Irrigation Company WaterSMART Project (Weber County, Utah)

The following Biological Assessment (BA) has been prepared, as required by Section 7(c) of the Endangered Species Act (ESA), for the proposed 2012 Huntsville Irrigation Company WaterSMART Project located in Weber County, Utah. A site review was conducted on August 16th, 2012 by Vincent Barthels, qualified biologist. This report will serve as the effects analysis of potential impacts resulting from the proposed project on species listed as endangered, threatened, proposed, or candidate and designated or proposed critical habitat protected under the ESA. In addition, state sensitive species that could potentially be affected by the proposed project action will also be analyzed as part of this report.

Proposed Action

The Bureau of Reclamation (BOR) has programmed the use of federal funds, under their WaterSMART Program, to allow the project proponent (i.e. Huntsville Irrigation Company (HIC)) to replace several existing unlined earthen canals and laterals with a pipeline. The proposed action would install approximately 53,301 linear feet of HDPE pipe. The proposed new piping alignments are illustrated on the attached Aerial Project Summary Exhibit. This would also include the construction of a new pipe intake structure near the existing Mountain Valley Canal diversion structure, which would include a diversion/overflow weir in the main ditch, level sensors to measure flows over weirs, a traveling screen and telemetry to allow for remote monitoring of flows. Flows in excess of what is being used by shareholders will overflow back to the river. This action is anticipated to increase the efficiency of the of the existing water delivery system by 50% and reduce the amount of water that would need to be diverted into the system by approximately 1,500 acre-feet.

The project would be divided into three phases, anticipated to be completed over a three year period, starting as early as November of 2012. Construction would take place outside of the irrigation season (May 1st through September 30th) when the water has been removed from the irrigation system. Pipe installation will be performed with the use of equipment consisting of excavators, backhoes, dump trucks, compaction equipment, and paving equipment (as needed).

The first phase of construction would include the construction of a new pipe intake structure on the main ditch just west of the existing Mountain Valley Canal Diversion structure. The new structure would include a traveling screen to prevent debris from flowing into the new HIC irrigation system and into the existing Huntsville Water Works storage reservoir. These flows would be measured using transit-time flow meters on each of the respective pipes. Water bypassing the structure and continuing down the main channel would be measured through a partial flume. Overflows back to the river would be monitored using pressure transducers and calibrated weirs. Power to operate the screen, run the telemetry and control the flow measuring devices would come from a new power pole that would be located approximately 300 feet to the north of the new diversion structure. The overhead power line

extension would include two new poles, running roughly parallel to the Mountain Valley Canal.

Piping activities associated with the first phase of construction would include the installation of approximately 19,875 linear feet of HDPE pipe ranging in size from 32 inches to 2 inches in diameter. The construction of this main feed line would consist of 6,353 linear feet of 32-inch HDPE pipe that would follow the general alignment of the main ditch from the new intake structure to Highway 39. From Highway 39, it would follow the general alignment of the Grow Ditch west to 9500 East. At 9500 East the first branch pipe would split off from the main feed line crossing Highway 39 to the south. The main pipe would continue along the existing Grow Ditch alignment in a 20-inch HDPE for 4,518 linear feet to approximately 8800 East. From 8800 East the pipe would split with a 12-inch HDPE line heading north and west for 4,040 feet where it would terminate with a drain line emptying into the existing ditch. The second branch would head west from 8800 East, along Highway 39, in a 10-inch HDPE pipe following the existing North Field Ditch alignment for approximately 3,811 feet. It would then terminate with a drain line tying into the existing North Field Ditch. Small sections of 4-inch and 2-inch HDPE would branch off of the 20-inch pipe and cross Highway 39 to service users on the south side of the road. A 6-inch pipe would branch off of the 10-inch pipe at 8600 East and would be stubbed across the highway where it would terminate. In addition to the main line piping, the first phase of construction would also include 200 linear feet of 32-inch HDPE pipe running from the pipe intake structure south to carry overflow water back to the river. A 20-inch pipe would be installed from the pipe intake structure to the main 32-inch pipe. This pipe would carry screened irrigation water from the intake structure to the existing Huntsville Water Works storage reservoir. Pipe sizes and lengths are detailed in Table 2.1 Phase One Piping.

Table 1 Phase One Piping

Pipe Size (diameter)	Anticipated Length (linear feet)
32-inch	6,543
20-inch	4,682
12-inch	4,040
10-inch	3,811

The second phase of the proposed action, anticipated to begin in the second year of construction, would include replacing the North Field Ditch, the Middle Field Ditch, and the laterals associated with those two ditches. Construction activities would generally take place from Highway 39 and 500 South between 9500 East and 7800 East. This phase of construction would include the installation of approximately 21,642 linear feet of HDPE pipe ranging in size from 32 inches to 4 inches in diameter. Pipe sizes and lengths are detailed in Table 2.2 Phase Two Piping.

Table 2 - Phase Two Piping

Pipe Size (diameter)	Anticipated Length (linear feet)
28-inch	2,232
20-inch	2,544
16-inch	2,041

10-inch	4,120
6-inch	9,657
4-inch	1,239

The third and final phase of the proposed action, anticipated to commence in the third year of construction, would replace the South Field Ditch. Construction would take place along the existing South Field Ditch alignment located south of 500 South from approximately 9200 East to 7800 East. The third phase would install 11,784 linear feet of HDPE pipe. Pipe sizes and lengths are detailed in Table 2.3 Phase Three Piping.

Table 3 - Phase Three Piping

Pipe Size (diameter)	Anticipated Length (linear feet)
20-inch	3,762
18-inch	1,725
14-inch	3,345
8-inch	3,167
6-inch	1,205
4-inch	444

In all phases of construction, drains would be located at low spots throughout the system to allow drainage of the system. All drainage would be directed into existing irrigation ditches, allowing the water to follow historical paths back into existing waterways.

The proposed action would include construction of three primary elements: the pipelines, the new diversion structure, and the new electrical alignment. Construction activities would begin with the flagging of the construction zone, mobilization of construction equipment and delivery of the material. Other activities associated with the construction of the proposed action include the clearing of vegetation along the new alignment; excavation associated with the construction of trenches for the pipeline, the placement of the electrical poles and the construction of the new diversion structure; fusing of the pipe and placing it within the trenches; backfill and compaction over trenched areas; clean up and restoration work; and reseeding disturbed areas.

Construction staging areas have been identified throughout the project area on the attached Aerial Project Summary Exhibit. The staging areas would be used to stockpile pipe, equipment, and construction vehicles. Staging areas have been assessed to determine potential project impacts during the duration of construction.

Easements would be required where the existing alignments and the proposed pipeline alignments deviate. All acquired easements would be obtained from landowners in the name of the HIC. Where deviations from the existing alignment occur a 15-foot wide permanent easement would be needed for operation and maintenance of the pipeline. The construction of the proposed action would result in the acquisition of approximately 8,280 linear feet of new permanent easements from private land owners. In addition, approximately 4,920 linear feet of new piping would be installed within the right-of-way of existing roads maintained by

Weber County. Temporary easements for construction within the roadway right-of-way would be obtained from the County. No other easements from publicly owned local, state, or federal land would be required.

A 50-foot temporary construction easement is required for construction in areas where the proposed alignment deviates from the existing alignments. A 30-foot construction easement (15 feet off of the centerline of the existing alignment) is required for construction activities taking place along the existing alignment of the canal laterals. Construction of the proposed action would temporarily disturb approximately 42 acres.

Transportation to the project would follow existing ditches and access roads whenever possible to minimize disturbance to the existing vegetation. All transportation routes are within the proposed construction easement. All areas of temporary disturbance would be contoured and re-vegetated with native plant or agricultural material, as appropriate, following completion of construction. A permanent access road exists at the location of the new diversion structure and would be used for ongoing maintenance.

The proposed pipeline alignment spans approximately 10.09 miles in total length and would require a maximum construction width of 30 feet. Construction activities would be confined to this 30-foot width where there are existing easements. New easements for sections of the pipeline that deviate from the alignment of the existing canal laterals would be 50-feet wide for construction and 30-feet wide for operation and maintenance.

Standard Operating Procedures (SOPs) would be followed (except for in under unforeseen conditions) during construction, operation, and maintenance of the proposed action. The SOPs and features of the proposed action have been designed to avoid or minimize adverse impacts on people and natural resources. A preconstruction meeting with the BOR, the contractor, and HIC's representative would be held prior to commencing construction on the project to review and assess standard SOPs and other commitments. During construction, weekly project team meetings would be held to assess the progress of the work.

Specifics of restoration to disturbed areas will be outlined in the SOPs and/or right-of-way easements. Specifics of restoration procedures include the determination of what native vegetation, reseeding rates, landscaping, re-vegetation and noxious weed removal and control is appropriate for the construction zones. Monitoring and treatment would continue until the success criteria are met for two successive years without human intervention. These actions would provide that disturbed areas are returned to a natural state as appropriate.

General Project Location and Habitat Descriptions

The proposed project is located in Sections 7, 8, 15, 16, 17, and 18 of Township 6 North, Range 2 East, Weber County, Utah. Land use within the project vicinity is primarily agricultural. The project action area falls in the elevation range of 4,900 to 5,100 feet above sea level.

Description of the Ecoregions of the United States describes the proposed action area as an Intermountain Semidesert and Desert Province (Bailey 1995). The undeveloped land cover is dominated by sagebrush communities. Soils throughout the project action area consist of sandy textured aridisols. In this ecoregion, streams are not abundant, and when they are present, they are typically ephemeral or intermittent.

The habitat in the project action area can be characterized as pre-developed, since most of the project action area does not contain natural, undisturbed habitat. A large percentage of the new pipe alignment would exist in planted agricultural fields. Fish bearing habitat is not present along the pipeline alignment. As a separate technical report, a wetland delineation report was completed for the entire proposed alignment. The wetland report details the vegetation assemblages that were encountered.

The photos below illustrate the project action area from two different vantage locations. The left photo illustrates the existing Grow Ditch crossing at HWY 39, nearest the eastern project terminus; at this location, the new alignment is situated with the existing ditch. The existing box culvert under HWY 39 will be replaced to accommodate the new pipe. The right photo was taken looking easterly, along the proposed North Field alignment, and nearest the western project terminus. A large percentage of the project action area is confined to be adjacent to existing roadways and along edges of cultivated fields (planted in pasture grasses).

Endangered Species Act (ESA) Consultation

The US Fish and Wildlife Service's (USFWS) list of Utah's Endangered, Threatened, Proposed, and Candidate Species lists five species for Weber County.

Table 4 – A summary of ESA listed species for the defined project area (USFWS Weber County Lists, dated January 6, 2012)

Common Name	Scientific Name	ESA Status	Effect Determination
Canada lynx	*Lynx canadensis*	Threatened	No Effect (NE)
Greater sage-grouse	*Centrocercus urophasiunus*	Candidate	No Effect (NE)
June Sucker (3)	*Chasmistes liorus*	Endangered	No Effect (NE)
Least Chub (13)	*Iotichthys phlegethintis*	Candidate	No Effect (NE)
Western Yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate	No Effect (NE)

The Utah Division of Wildlife Resources (UDWR) maintains a central database for species of concern in Utah. Their database is geared to produce records geographically for areas of interest. On July 3, 2012 the UDWR provided a response letter (see attached) regarding information on ESA species and state listed species of special concern within the proposed project action area. The UDWR has no recent or historical records any threatened, endangered, or sensitive species within the project area, however, there are recent records of occurrence of four species of concern within a two- mile radius of the project action area: the bald eagle (*Haliaeetus leucocephalus*), the Bonneville cutthroat trout (*Oncorhynchus clarki Utah),* greater sage-grouse, Lewis's woodpecker (*Melanerpes lewis*), and the smooth greensnake (*Opheodrys vernalis*).

Species Specific Habitat Requirements and Determination of Effect

The following subsection briefly discusses the species mentioned above and their habitat description in an alphabetical order per common name; and, then provides an effect determination for each individual species.

Bald Eagle

Bald eagles are a large dark raptorial bird with a white head and a white tail when mature. They eat mostly fish but will eat some small mammals, such as rabbits (Stokes, 1996). The bald eagle constructs massive nests on cliff edges or in large trees. Eagles congregate in feeding areas in late winter and early spring. Bald eagles generally select habitat located near water. In a survey of 2,732 nests, 99% were within 200 meters (650 ft) of the water and averaged only 40 meters (130 ft) from the shoreline (Stalmaster 1987). Eagle perches are generally close to the water, especially those used for foraging. Nearly all birds will perch

within 50 meters (165 ft) of a shoreline, because fish, waterfowl, seabirds, and other prey can be acquired there (Stalmaster 1987). Eagles select trees within that habitat for nesting and perching sites. The most important characteristic of the nesting tree is that it's the tallest in the forest stand. Selecting a tall tree ensures a structure that will adequately support a large nest, provide an open flight path to and from the nest, and have a panoramic view of the surrounding terrain (Stalmaster 1987). An eagle's nesting season is between the start of February, when they initiate construction of their nests and mid-August when the young fledge the nest. The incubation period ranges between 31 and 46 days (Alsop 2001). Hatchlings can remain in the nest for 70 to 98 days (Alsop 2001).

Based on information obtained from the UDWR, there are recent documented occurrences of the bald eagle within the vicinity of the defined project area (see attached UDWR letter). The proposed project action does not impact any riparian areas along natural streams or lakes, including potential nesting or perching locations for the bald eagle. The bald eagle's prey base and foraging opportunities will also not be affected by this project. Therefore, a no effect determination is warranted for the bald eagle.

Bonneville cutthroat Trout

The Bonneville cutthroat trout is a subspecies of cutthroat trout native to the Bonneville Basin of Utah, Wyoming, Idaho, and Nevada. Habitat types this species inhabits include mountain streams and lakes to grassland streams. Known populations of this species, in Utah, include Bear Lake and Strawberry Reservoir. Bonneville Cutthroat trout are included on the Utah Sensitive Species List, as a result of habitat loss, predation and competition. The species feeds primarily on insects. Spawning occurs, in spring, over gravel substrate (UDWR 2012).

The existing canals that are proposed to contain the new piping alignments do not contain fish habitat. This project would have no effect on Bonneville cutthroat trout or its habitat.

Canada lynx

The Canada lynx is normally found in dense forested areas with an abundance of windfalls, swamps and brushy thickets (Maas 1997). Lynx require heavy cover for concealment when stalking prey. In terms of their prey base, lynx depend of snowshoe hares. In addition, lynx are most likely to persist in areas that receive deep snow, for which the lynx is highly adapted (Maas 1997). In the western U.S., lynx occurrences generally are found only above 4,000 feet in elevation (McKelvey et al. 2000).

Dense forested areas that provide heavy coverage and foraging opportunities are lacking within the project action area. The project action area lacks suitable habitat for lynx, does not have a prey base of snowshoe hare, and the scope and nature of the proposed construction activity would not impact any Canada Lynx passing through the project area. This project would have no effect on the Canada Lynx or its habitat.

Greater Sage-Grouse

The greater sage-grouse is a federally listed candidate species. As the name implies, greater sage-grouse are found only in areas where sagebrush is abundant (Colorado Division of Wildlife 2009). The largest of all grouse, the greater sage-grouse is up to 30 inches long, 2 feet tall, and weighs from 2 to 7 pounds (USFWS 2010). Male greater sage-grouse have a white breast ruff, mottled gray-brown overall, a black belly, black throat and bib, and long stiff

spikelike tail feathers. Females have a mottled gray-brown overall, a black belly, a white throat, and lack the yellow eye comb seen in the males. Diet consists of evergreen leaves, plain sagebrush shoots, blossoms, leaves, pods, buds, and insects (Alsop 2001). Dependent on sagebrush for food and cover, required habitat consists of relatively open flats or rolling sagebrush hills at elevations ranging from 4,000 to 9,000 feet above sea level (Colorado Division of Wildlife 2009, USFWS 2010). Land clearing and overgrazing by livestock are documented threats to this species' habitat.

Based on information obtained from the UDWR, there are recent documented occurrences of greater sage-grouse within the vicinity of the defined project area (see attached UDWR letter). Habitat requirements for the greater sage-grouse are not present within the project action area. The project action area lacks the open areas with abundant sagebrush in which this species is dependent on for food and cover. A large percentage of the project action area is located in existing ditches adjacent to established roadways or along edges of cultivated fields. A no effect determination is warranted for the greater sage-grouse and its habitat.

June Sucker

June suckers, federally listed as "endangered", are members of the sucker family; however, they are not bottom feeders (NatureServe 2010). Primarily, they feed on zooplankton in the middle of the water column. June suckers inhabit shallow and protected areas of Utah Lake except when spawning (NatureServe 2010; Sigler and Sigler 1987). Spawning occurs in June in shallower riffles over coarse gravel and cobbles within lower portions of the Provo River (NatureServe 2010). Flow alterations, pollution, drought and introduction of nonnative fish have been identified as causes for decline (UDWR 2012).

The existing canals that are proposed to contain the new piping alignments do not contain fish habitat. This project would have no effect on the June Sucker or its habitat.

Least Chub

The least chub is a federally listed "candidate" minnow that is native to the Bonneville Basin. Historically, Least Chub occurred throughout the Bonneville Basin. Population decline, attributed to the introduction of non-native fishes, has decreased distribution and known occurrence to scattered springs and streams in western Utah. Least chub are a schooling fish, approximately 6 cm in length, which prefer slow moving water and moderately-dense vegetation and clay, muck, mud, and peat substrate (NatureServe 2010). The species spawns during late spring and early summer. The eggs attach to vegetation or the substrate, begin to hatch after two days. The species feeds on algae and small invertebrates, including mosquito larvae (UDWR 2012).

The existing canals that are proposed to contain the new piping alignments do not contain fish habitat. This project would have no effect on the least chub or its habitat.

Lewis's woodpecker

Lewis's woodpecker is a cavity nester that is mostly black with iridescent green highlights and a pinkish-red belly (Alsop 2001). This woodpecker frequents logged and recently burned mixed conifer forests, open park-like pine forests, riparian and oak woodlands, and orchards all where the understory of grasses and shrubs support sufficient insect prey populations (UDWR 2012). Nests are found in snags and stumps. The female generally lays six to seven

white eggs and both partners incubate them for thirteen to fourteen days. Young fledge after approximately 28-34 days. Only one brood is produced each year. Forage ranges from insects during the breeding season to nuts and berries during the winter. Oak woodlands are the preferred wintering grounds (UDWR 2012).

The mixed coniferous or oak woodlands are not present within the project areas. A large percentage of the project action area is located in existing ditches adjacent to established roadways or along edges of cultivated fields. This project would have no effect on the Lewis's Woodpecker or its habitat.

Smooth greensnake

The smooth greensnake is distributed throughout northeastern and western United States, southeastern Canada, Texas, and Mexico but is uncommon in Utah and is included on the Utah Sensitive Species List. The smooth greensnake eats terrestrial invertebrates, mainly insects and spiders. In mid to late summer, the females lay an average of four to nine eggs that hatch several days to one month later. The species prefers moist areas, especially moist grassy areas and meadows where it is camouflaged due to its solid green dorsal coloration. This species, like many other snakes, is active spring, summer and fall, but hibernates during the winter (UDWR 2012).

The proposed action does involve excavation in moist grassy areas, which is viable habitat for the smooth greensnake. Based on information obtained from the UDWR, there are recent documented occurrences of the smooth greensnake within the vicinity of the defined project area (see attached UDWR letter). Based on the scope and nature of the proposed piping project, the temporary construction actions "may affect, but are not likely to adversely affect" the smooth greensnake.

The proposed piping project "may affect" smooth greensnake because:

- The smooth greensnake may be present within the project action area. It is likely that the smooth greensnake will be hibernating during construction activities.

The proposed piping project is "not likely to adversely affect" the smooth greensnake because:

- No species handling is anticipated during the construction process.
- This project will not significantly impact suitable habitat based on the overall scope of the project.

Western Yellow-billed cuckoo

The yellow-billed cuckoo is a federally listed candidate species. As the name suggests, it has a yellow lower mandible. It has rufous wings that contrast against the gray-brown wing coverts and upperparts. The underparts are white and they have large white spots on a long black undertail (Alsop 2001). It is a neotropical migrant, which winters in South America. Breeding often coincides with the appearance of massive numbers of cicadas, caterpillars, or other large insects (Ehrlich et al. 1992). Its incubation/nesting period is the shortest of any known bird because it is one of the last neotropical migrants to arrive in North America and chicks have very little rearing time before embarking on their transcontinental migration. Yellow-billed cuckoos arrive in Utah in extremely late May or early June and breed in late

June through July. Cuckoos typically start their southerly migration by late August or early September. Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies (below 33 ft).

Based on information obtained from the UDWR, there are no recent documented occurrences of yellow-billed cuckoo within the vicinity of the defined project area (see attached UDWR letter). Human disturbances associated with the surrounding existing land use make the area undesirable for the yellow-billed cuckoo. Suitable riparian habitat required by the yellow-billed cuckoo is not present within the project action area. The project construction timeframe is outside of the typical migration pattern when the yellow-billed cuckoo could be present in Utah. A no effect determination is warranted for the yellow-billed cuckoo and its habitat.

Conclusion

In summary, the anticipated construction activities linked to the piping project "may affect, but are not likely to adversely affect" the smooth greensnake. This determination is based on the fact that the project action involves ground disturbing construction activities that are occur in viable habitat for the smooth greensnake. Based on the scope and nature of the project, the project actions should not yield a "take" situation linked to the smooth greensnake. "Take," as defined under ESA, is an activity that includes: killing, harming, wounding, shooting or harassing a listed species. This project will have "no effect" on the bald eagle, Bonneville cutthroat trout, Canada lynx, greater sage-grouse, June sucker, least chub, Lewis's woodpecker, and yellow-billed cuckoo or their respective habitats. Table 5 is a summary of the effect determinations correlated to this BA. Lastly, it should be noted that the final authority rests with the appropriate regulatory authority.

Table 5 - Summary of Effect Determinations

Species	Status	Effect Determination
Bald eagle	Utah Sensitive Species	No effect
Bonneville cutthroat trout	Utah Sensitive Species	No effect
Canada lynx	ESA listed Threatened	No effect
Greater sage-grouse	ESA Candidate	No effect
June Sucker	ESA Listed Endangered	No effect
Least chub	ESA Candidate	No effect
Lewis's woodpecker,	Utah Sensitive Species	No effect
Smooth greensnake	Utah Sensitive Species	May affect, but are not likely to adversely affect
Yellow-billed cuckoo	ESA Candidate	No effect

Respectfully Submitted by:

Vincent Barthels, Biologist
J-U-B ENGINEERS, Inc.

List of Attachments:

1. Aerial Project Summary Exhibit
2. ESA Species Listings for Duchesne and Uintah Counties, Utah (dated: January 6, 2012)
3. UDWR Response Letter (dated: July 3, 2012)

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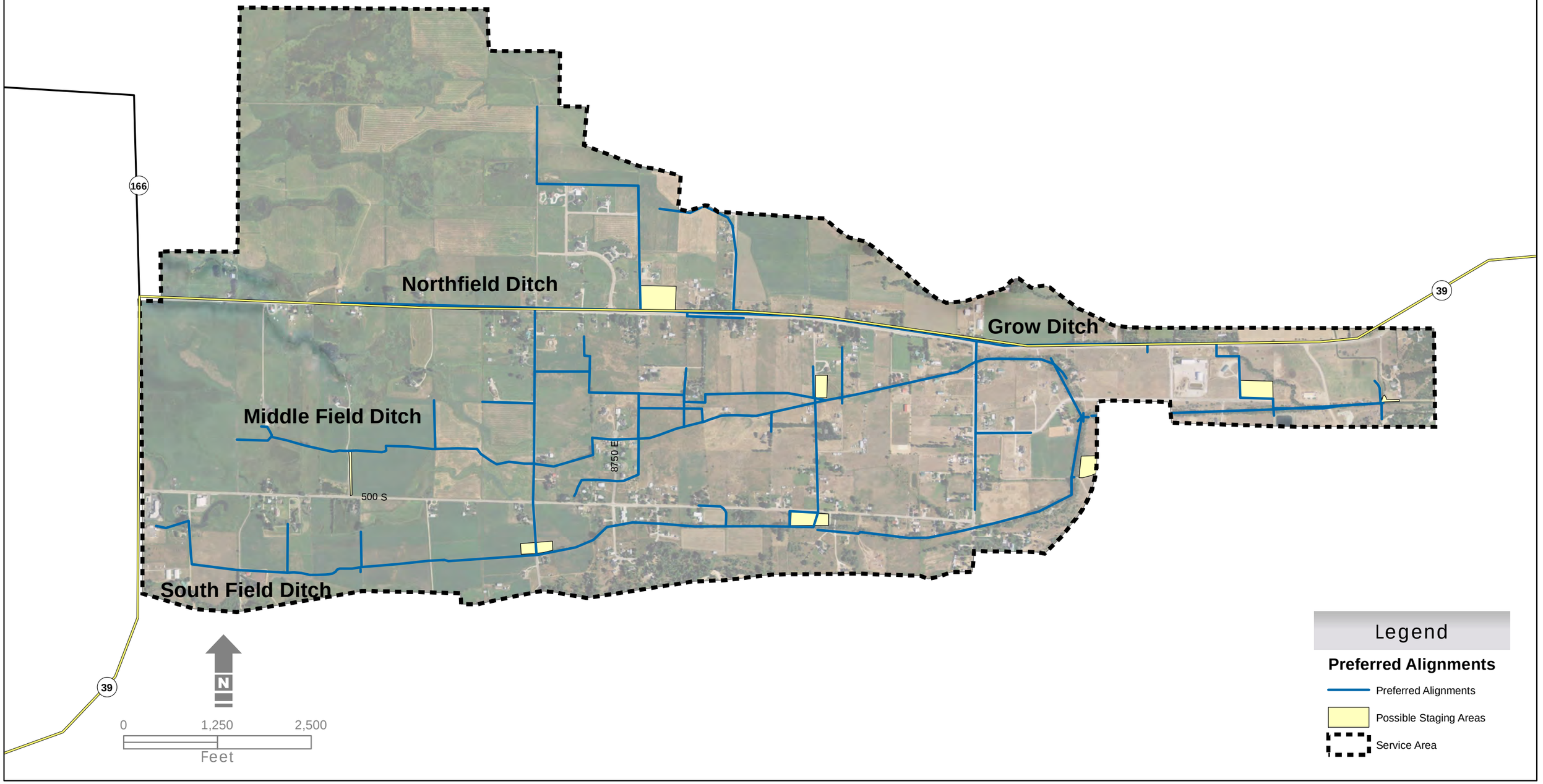

166
39
Northfield Ditch
Grow Ditch
Middle Field Ditch
8750 E
500 S
South Field Ditch
N
0
1,250
2,500
Feet
Legend
Preferred Alignments
Preferred Alignments
Possible Staging Areas
Service Area

FEDERALLY LISTED AND PROPOSED ENDANGERED, THREATENED AND CANDIDATE SPECIES AND CRITICAL HABITAT IN UTAH - SPECIES LIST BY COUNTY

Friday, January 06, 2012

County	Common Name	Scientific Name	Federal Status
BEAVER			
	California condor (2)	*Gymnogyps californianus*	Endangered
	Frisco buckwheat	*Eriogonum soredium*	Candidate
	Frisco clover	*Trifolium friscanum*	Candidate
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Ostler's peppergrass	*Lepidium ostleri*	Candidate
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
BOX ELDER			
	Goose Creek milkvetch	*Astragalus anserinus*	Candidate
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	June sucker (3)	*Chasmistes liorus*	Endangered
	Lahontan cutthroat trout	*Oncorhynchus clarkii henshawi*	Threatened
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
CACHE			
	Canada lynx	*Lynx canadensis*	Threatened
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Maguire primrose	*Primula maguirei*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
CARBON			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Graham's beardtongue	*Penstemon grahamii*	Proposed
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered

County	Common Name	Scientific Name	Federal Status
CARBON			
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
DAGGETT			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (6)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6)	*Ptychocheilus lucius*	Endangered
	Gibbens' beardtongue	*Penstemon gibbensii*	Petitioned
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6)	*Gila cypha*	Endangered
	Razorback sucker (6)	*Xyrauchen texanus*	Endangered
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Wolverine (16)	*Gulo gulo luscus*	Candidate
DAVIS			
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
DUCHESNE			
	Barneby ridge-cress	*Lepidium barnebyanum*	Endangered
	Black-footed ferret (4,7)	*Mustella nigripes*	Endangered
	Bonytail (6)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6)	*Ptychocheilus lucius*	Endangered
	Graham's beardtongue	*Penstemon grahamii*	Proposed
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6)	*Gila cypha*	Endangered
	Mexican spotted owl (8)	*Strix occidentalis lucida*	Threatened
	Pariette cactus	*Sclerocactus brevispinus*	Threatened
	Razorback sucker (6)	*Xyrauchen texanus*	Endangered
	Shrubby reed-mustard	*Schoenocrambe suffrutescens*	Endangered

County	Common Name	Scientific Name	Federal Status
DUCHESNE			
	Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
EMERY			
	Barneby reed-mustard	*Schoenocrambe barnebyi*	Endangered
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered
	California condor (2)	*Gymnogyps californianus*	Endangered
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Jones cycladenia	*Cycladenia jonesii*	Threatened
	Last Chance townsendia	*Townsendia aprica*	Threatened
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	San Rafael cactus	*Pediocactus despainii*	Endangered
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Utah prairie dog (15)	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Winkler cactus	*Pediocactus winkleri*	Threatened
	Wright fishhook cactus	*Sclerocactus wrightiae*	Endangered
GARFIELD			
	Autumn buttercup	*Ranunculus aestivalis*	Threatened
	Bonytail (5,6)	*Gila elegans*	Endangered
	California condor (2)	*Gymnogyps californianus*	Endangered
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Jones cycladenia	*Cycladenia jonesii*	Threatened
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered

County	Common Name	Scientific Name	Federal Status
GARFIELD			
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
GRAND			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered
	California condor (2)	*Gymnogyps californianus*	Endangered
	Cisco milkvetch	*Astragalus sabulosus*	Petitioned
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Isely milkvetch	*Astragalus iselyi*	Petitioned
	Jones cycladenia	*Cycladenia jonesii*	Threatened
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
IRON			
	California condor (2)	*Gymnogyps californianus*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Virgin River chub (13)	*Gila seminuda*	Endangered
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Woundfin (13)	*Plagopterus argentissimus*	Endangered
JUAB			
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Utah prairie dog (4)	*Cynomys parvidens*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened

County	Common Name	Scientific Name	Federal Status
JUAB			
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
KANE			
	Bonytail (6,9)	*Gila elegans*	Endangered
	California condor (2)	*Gymnogyps californianus*	Endangered
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Coral Pink Sand Dunes tiger beetle	*Cicindela albissima*	Candidate
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6,9)	*Gila cypha*	Endangered
	Jones cycladenia	*Cycladenia jonesii*	Threatened
	Kanab ambersnail (10)	*Oxyloma haydeni kanabensis*	Endangered
	Kodachrome bladderpod	*Lesquerella tumulosa*	Endangered
	Las Vegas buckwheat	*Eriogonum corymbosum var. nilesii*	Candidate
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Razorback sucker (6,9)	*Xyrauchen texanus*	Endangered
	Siler pincushion cactus	*Pediocactus sileri*	Threatened
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Virgin River chub (13)	*Gila seminuda*	Endangered
	Welsh's milkweed (5)	*Asclepias welshii*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Woundfin (13)	*Plagopterus argentissimus*	Endangered
MILLARD			
	California condor (2)	*Gymnogyps californianus*	Endangered
	Frisco clover	*Trifolium friscanum*	Candidate
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Utah prairie dog (4)	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
MORGAN			
	Canada lynx	*Lynx canadensis*	Threatened
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (13)	*Iotichthys phlegethontis*	Candidate

County	Common Name	Scientific Name	Federal Status
MORGAN			
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
PIUTE			
	California condor (2)	*Gymnogyps californianus*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
RICH			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
SALT LAKE			
	Canada lynx	*Lynx canadensis*	Threatened
	June sucker (3)	*Chasmistes liorus*	Endangered
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
SAN JUAN			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered
	California condor (2)	*Gymnogyps californianus*	Endangered
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Greenback cutthroat trout	*Oncorhynchus clarkii stomias*	Threatened
	Gunnison sage-grouse	*Centrocercus minimus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Isely milkvetch	*Astragalus iselyi*	Petitioned
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Navajo sedge	*Carex specuicola*	Threatened
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
SANPETE			
	Bonytail (6,9)	*Gila elegans*	Endangered

County	Common Name	Scientific Name	Federal Status
SANPETE			
	Canada lynx (4)	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Heliotrope milkvetch (5)	*Astragalus montii*	Threatened
	Humpback chub (6,9)	*Gila cypha*	Endangered
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Razorback sucker (6,9)	*Xyrauchen texanus*	Endangered
	Utah prairie dog (4)	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
SEVIER			
	California condor (2)	*Gymnogyps californianus*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Heliotrope milkvetch	*Astragalus montii*	Threatened
	Last Chance townsendia	*Townsendia aprica*	Threatened
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Wright fishhook cactus	*Sclerocactus wrightiae*	Endangered
SUMMIT			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (6,9)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6,9)	*Gila cypha*	Endangered
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Razorback sucker (6,9)	*Xyrauchen texanus*	Endangered
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
TOOELE			
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened

County	Common Name	Scientific Name	Federal Status
TOOELE			
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
UINTAH			
	Black-footed ferret (7)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Clay reed-mustard	*Schoenocrambe argillacea*	Threatened
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Graham's beardtongue	*Penstemon grahamii*	Proposed
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Mexican spotted owl (8)	*Strix occidentalis lucida*	Threatened
	Pariette cactus	*Sclerocactus brevispinus*	Threatened
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	Shrubby reed-mustard	*Schoenocrambe suffrutescens*	Endangered
	Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	White River penstemon	*Penstemon scariosus albifluvis*	Candidate
UTAH			
	Bonytail (6,9)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Clay phacelia	*Phacelia argillacea*	Endangered
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Deseret milkvetch	*Astragalus desereticus*	Threatened
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6,9)	*Gila cypha*	Endangered
	June sucker (5)	*Chasmistes liorus*	Endangered
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Razorback sucker (6,9)	*Xyrauchen texanus*	Endangered
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
WASATCH			

County	Common Name	Scientific Name	Federal Status
WASATCH			
	Bonytail (6,9)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6,9)	*Gila cypha*	Endangered
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Razorback sucker (6,9)	*Xyrauchen texanus*	Endangered
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
WASHINGTON			
	California condor	*Gymnogyps californianus*	Endangered
	Desert tortoise	*Gopherus agassizii*	Threatened
	Dwarf bear-poppy	*Arctomecon humilis*	Endangered
	Gierisch mallow	*Sphaeralcea gierischii*	Candidate
	Holmgren milkvetch	*Astragalus holmgreniorum*	Endangered
	Las Vegas buckwheat	*Eriogonum corymbosum var. nilesii*	Candidate
	Mexican spotted owl	*Strix occidentalis lucida*	Threatened
	Shivwits milkvetch	*Astragalus ampullariodes*	Endangered
	Siler pincushion cactus	*Pediocactus sileri*	Threatened
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Virgin River chub	*Gila seminuda*	Endangered
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Woundfin	*Plagopterus argentissimus*	Endangered
WAYNE			
	Barneby reed-mustard	*Schoenocrambe barnebyi*	Endangered
	Bonytail (5,6,9)	*Gila elegans*	Endangered
	California condor (2)	*Gymnogyps californianus*	Endangered
	Colorado pikeminnow (5,6,9)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6,9)	*Gila cypha*	Endangered
	Last Chance townsendia	*Townsendia aprica*	Threatened

County	Common Name	Scientific Name	Federal Status
WAYNE			
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Razorback sucker (5,6,9)	*Xyrauchen texanus*	Endangered
	San Rafael cactus	*Pediocactus despainii*	Endangered
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Winkler cactus	*Pediocactus winkleri*	Threatened
	Wright fishhook cactus	*Sclerocactus wrightiae*	Endangered
WEBER			
	Canada lynx	*Lynx canadensis*	Threatened
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	June sucker (3)	*Chasmistes liorus*	Endangered
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate

1 Candidate species have no legal protection under the Endangered Species Act. However, these species are under active consideration by the Service for addition to the Federal List of Endangered and Threatened Species and may be proposed or listed during the development of the proposed project.

2 This species is designated a non-essential, experimental population east of I-15 to 191, and south of I-70. Animals occurring outside the designated areas are protected as Endangered.

3 Introduced, refugia population.

4 Historical range.

5 Critical habitat designated in this county. Critical habitat shapefiles are available on http://criticalhabitat.fws.gov

6 Water depletions from any portion of the occupied drainage basin are considered to adversely affect or adversely modify the critical habitat of the endangered fish species, and must be evaluated with regard to the criteria described in the pertinent fish recovery programs.

7 Non-essential, experimental population.

8 Suitable habitat occurs in southern Duchesne County, including Nine-Mile and Argyle canyon.

9 Eastern portions of these counties lie within the Upper Colorado River Basin. Any water depletion from the basin adversely affects these fish.

10 Critical habitat proposed in this county.

11 Nests in this county of Utah.

12 Range may be expanding northward into Nevada and Utah and into Grand Canyon in Mohave County, AZ.

13 The species is not present in this county. One or more hydrologic unit (8-digit HUC) in this county is occupied by the species in an adjacent county. Any water depletion from an occupied hydrologic unit may adversely affect this species.

14 The species occupies habitat in one or more hydrologic unit (8-digit HUC) within this county. Any water depletion from an occupied hydrologic unit may adversely affect the species.

15 The species is not known to be present in this county, however a portion of this county is within the survey area as defined by the Utah Division of Wildlife Resources.

16 Although wolverine are not listed as a candidate species in this state, there is an unconfirmed record of wolverine occuring in this county (Cowley pers. comm. 2011).

GARY R. HERBERT
Governor

GREGORY S. BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Wildlife Resources
JAMES F. KARPOWITZ
Division Director

July 3, 2012

Vincent Barthels
J-U-B Engineers, Inc.
W. 422 Riverside, Suite 304
Spokane, WA 99201

Subject: Species of Concern Near the Huntsville Irrigation Company WaterSMART Project, Huntsville, Utah

Dear Vincent Barthels:

I am writing in response to your letter dated June 21, 2012 regarding information on species of special concern proximal to the proposed Huntsville Irrigation Company WaterSMART Project located in Sections 7, 8, 15, 16, 17 and 18 of Township 6 North, Range 2 East, SLB&M in Huntsville, Weber County, Utah.

The Utah Division of Wildlife Resources (UDWR) does not have records of occurrence for any threatened, endangered, or sensitive species within the project area noted above. However, within a two-mile radius there are recent records of occurrence for bald eagle, Bonneville cutthroat trout, greater sage-grouse, Lewis's woodpecker and smooth greensnake. All of the aforementioned species are included on the *Utah Sensitive Species List*.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the northern region, Scott Walker, at (801) 476-2776 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Scott Walker

1594 West North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

Appendix C
Cultural Resources Correspondence

ORIGINAL

State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

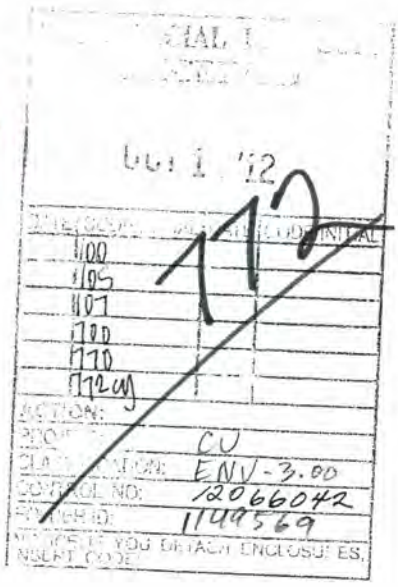
Department of Heritage and Arts

Julie Fisher
Executive Director

State History

Wilson G. Martin
Director

COPY



October 17, 2012

Jeffrey D'Agostino
Chief, Environmental Group
Bureau of Reclamation
Provo Area Office
302 East 1860 South
Provo Utah 84606-7317

RE: Huntsville Irrigation Company Proposed Alternate Pipe Alignments, Weber County, Utah
U-12-SJ-0610p

For future correspondence please reference Case No. 12-1998

Dear Mr. D'Agostino:

The Utah State Historic Preservation Office received your request for our comment on the above referenced undertaking on October 9, 2012.

We concur with your determinations of eligibility and effect 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 801-245-7241 or Jim Dykmann at 801-245-7234.

Sincerely,

Jim Dykmann
Archaeologist
USHPO
for Lori Hunsaker
Lori Hunsaker
Deputy State Historic Preservation Officer
Archaeology

Preserving America's Heritage

October 17, 2012

Mr. Jeffrey D'Agostino
Chief, Environmental Group
Bureau of Reclamation
Upper Colorado Region
Provo Area Office
302 East 1860 South
Provo, UT 84606-7317

Ref: Proposed Huntsville Irrigation Company Alternate Pipe Alignments Project
Weber County, Utah (U-12-SJ-0610p)

Dear Mr. D'Agostino:

On October 9, 2012, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the adverse effects of the referenced project on properties listed on and eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Utah SHPO, and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the opportunity to review this undertaking. If you have any questions, please contact Tom McCulloch at 202-606-8554, or via email at tmcculloch@achp.gov.

Sincerely,

Raymond V. Wallace

Raymond V. Wallace
Historic Preservation Technician
Office of Federal Agency Programs

Appendix D
Paleontological Resources Correspondence

GARY R. HERBERT
Governor
GREG BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Utah Geological Survey
RICHARD G. ALLIS
State Geologist/Division Director

September 5, 2012

Brian Joseph, Archaeologist
U. S. Bureau of Reclamation
Provo Area Office, PRO-772
302 East 1860 South
Provo, UT 84606-7317

RE: Paleontological File Search and Recommendations for the Huntsville Irrigation Company Canal Piping Water Conservation Project, Weber County, Utah
U.C.A. 79-3-508 compliance; literature search for paleontological specimens or sites

Dear Brian:

I have conducted a paleontological file search for the Huntsville Irrigation Company Canal Piping Water Conservation Project in response to your request of September 5, 2012.

There are no paleontological localities recorded in our files within this project area. Quaternary and Recent alluvial deposits that are exposed along this project right-of-way have a low potential for yielding significant fossil localities (PFYC 1–2). Unless fossils are discovered as a result of construction activities, this project should have no impact on paleontological resources.

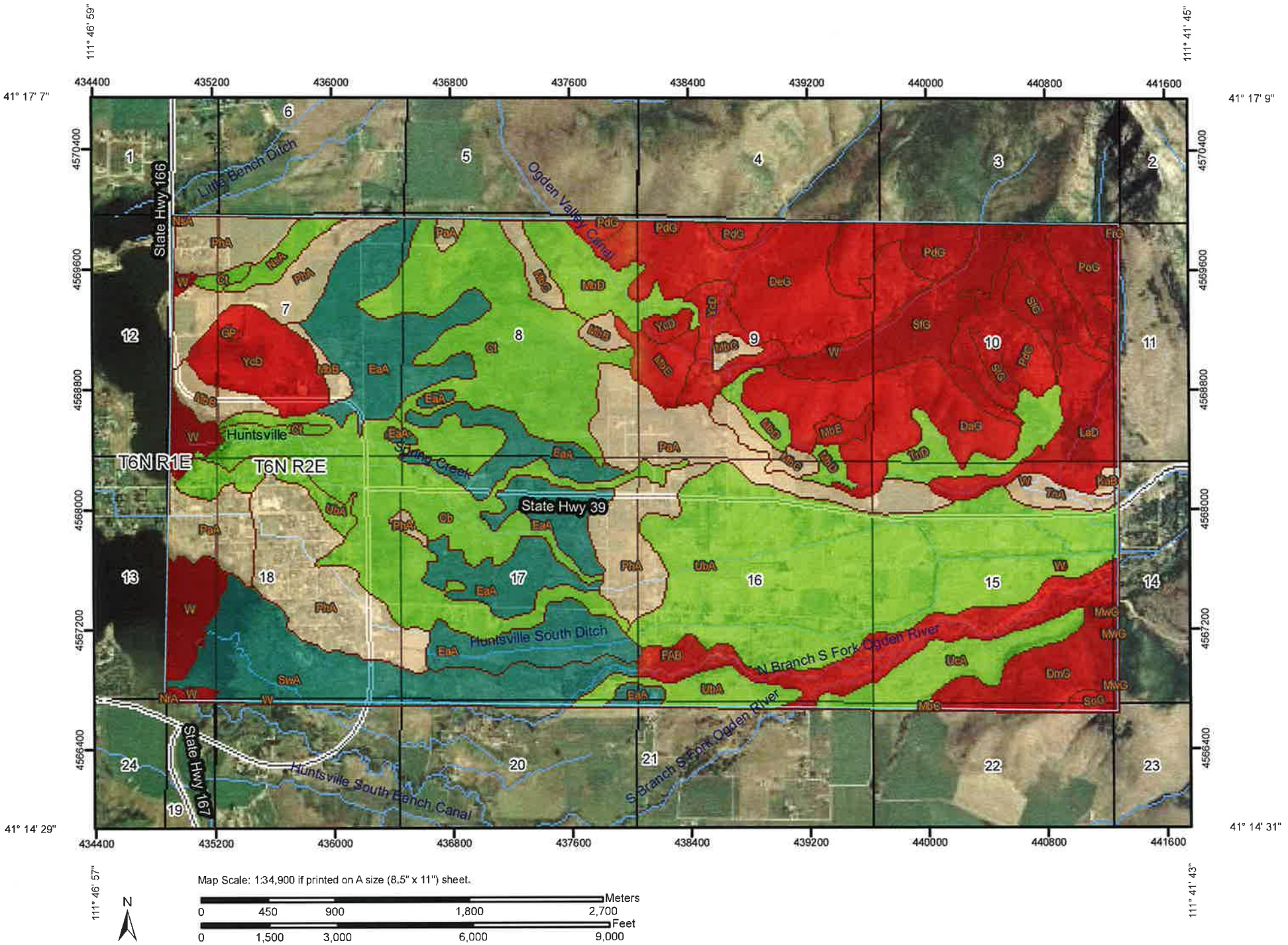
If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden
Paleontological Assistant

1594 West North Temple, Suite 3110, PO Box 146100, Salt Lake City, UT 84114-6100
telephone (801) 537-3300 • facsimile (801) 537-3400 • TTY (801) 538-7458 • *geology.utah.gov*

Appendix E
Soil Survey


111° 46' 59"
111° 41' 45"
41° 17' 7"
41° 17' 9"
434400
435200
436000
436800
437600
438400
439200
440000
440800
441600
4570400
4569600
4568800
4568000
4567200
4566400
State Hwy 166
Little Bench Ditch
Ogden Valley Canal
Huntsville
T6N R1E
T6N R2E
Stoney Creek
State Hwy 39
Huntsville South Ditch
N Branch S Fork Ogden River
S Branch S Fork Ogden River
State Hwy 167
Huntsville South Bench Canal
41° 14' 29"
41° 14' 31"
111° 46' 57"
111° 41' 43"
Map Scale: 1:34,900 if printed on A size (8.5" x 11") sheet.
N
Meters
0 450 900 1,800 2,700
Feet
0 1,500 3,000 6,000 9,000

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Soil Ratings
- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Political Features
- Cities
- PLSS Township and Range
- PLSS Section

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads

MAP INFORMATION

Map Scale: 1:34,900 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morgan Area, Utah - Morgan County and Part of Weber County
Survey Area Data: Version 6, Oct 28, 2011

Date(s) aerial images were photographed: 7/17/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification

Farmland Classification— Summary by Map Unit — Morgan Area, Utah - Morgan County and Part of Weber County (UT609)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Cb	Canburn silt loam	Farmland of statewide importance	368.3	7.2%
Ct	Crooked Creek silty clay loam	Farmland of statewide importance	367.5	7.2%
DaG	Donner cobbly loam, 30 to 50 percent slopes	Not prime farmland	191.7	3.7%
DeG	Durfee stony loam, 30 to 70 percent slopes	Not prime farmland	257.0	5.0%
DmG	Durfee-Moweba complex, 30 to 70 percent slopes	Not prime farmland	106.1	2.1%
EaA	Eastcan loam, 0 to 3 percent slopes	Prime farmland if irrigated and drained	531.5	10.4%
FAB	Fluvaquentic Haploborolls-Fluventic Haploxerolls complex, 1 to 6 percent slopes	Not prime farmland	163.9	3.2%
FrG	Foxol-Rock outcrop complex, 40 to 70 percent slopes	Not prime farmland	1.5	0.0%
GP	Gravel pits	Not prime farmland	2.6	0.0%
KaB	Kahler gravelly loam, 3 to 6 percent slopes	Prime farmland if irrigated	5.9	0.1%
LaD	Lamondi stony loam, 3 to 15 percent slopes	Not prime farmland	113.8	2.2%
MbB	Manila loam, 3 to 6 percent slopes	Prime farmland if irrigated	59.5	1.2%
MbC	Manila loam, 6 to 10 percent slopes	Prime farmland if irrigated	63.5	1.2%
MbD	Manila loam, 10 to 25 percent slopes	Farmland of statewide importance	123.0	2.4%
MbE	Manila loam, 25 to 40 percent slopes	Not prime farmland	56.7	1.1%
MwG	Moweba gravelly loam, 30 to 50 percent slopes	Not prime farmland	3.6	0.1%
NrA	Nebeker clay loam, 0 to 3 percent slopes	Prime farmland if irrigated	0.7	0.0%
NsA	Nicodemus gravelly loam, 0 to 3 percent slopes	Farmland of statewide importance	29.3	0.6%
PaA	Parleys loam, high rainfall, 0 to 3 percent slopes	Prime farmland if irrigated	234.2	4.6%
PdG	Patio gravelly loam, 40 to 60 percent slopes	Not prime farmland	234.1	4.6%
PhA	Phoebe fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated	438.6	8.6%
PoG	Poleline stony loam, 40 to 70 percent slopes	Not prime farmland	61.1	1.2%
SfG	Smarts loam, 40 to 60 percent slopes	Not prime farmland	180.8	3.5%

Farmland Classification— Summary by Map Unit — Morgan Area, Utah - Morgan County and Part of Weber County (UT609)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
SoG	St. Marys cobbly loam, 30 to 50 percent slopes	Not prime farmland	12.5	0.2%
SwA	Sunset loam, very gravelly substratum	Prime farmland if irrigated and drained	257.3	5.0%
TnA	Trojan loam, warm, 0 to 3 percent slopes	Prime farmland if irrigated	27.7	0.5%
TnD	Trojan loam, warm, 8 to 15 percent slopes	Farmland of statewide importance	71.6	1.4%
UbA	Utaba cobbly loam, warm	Farmland of statewide importance	775.2	15.2%
UcA	Utaba loam, warm	Farmland of statewide importance	98.9	1.9%
W	Water	Not prime farmland	98.3	1.9%
YcD	Yeates Hollow very stony loam, 10 to 30 percent slopes	Not prime farmland	178.6	3.5%
Totals for Area of Interest			**5,114.8**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower