



RECONNAISSANCE LEVEL SURVEY

PREPARED BY

Horrocks Engineers
Nancy Calkins

CONTACT

Nicole Tolley
Horrocks Engineers
2162 W. Grove Parkway, Suite 400
Pleasant Grove, Utah 84602

RECONNAISSANCE LEVEL SURVEY

I-15; Milepost 11 Interchange
Washington City, Washington County, Utah
PIN 14560, Project No. F-I15-1(116)11



Washington Ward Chapel Construction
1961 photograph of addition to the original 1877 building
Photo courtesy of Washington Historical Society

Report Prepared by Nancy Calkins, Horrocks Engineers
For Washington City and Utah Department of
Transportation October 2018

PROJECT SUMMARY

PROJECT NAME

I-15; Milepost 11 Interchange

PROJECT NUMBER AND PIN

PIN 14560, Project No. F-I15-1(116)11

PROJECT DESCRIPTION

The Utah Department of Transportation (UDOT) is conducting an Environmental Assessment to evaluate transportation needs and develop alternative solutions between Exit 10/Green Spring Drive and Exit 13/Washington Parkway in Washington City, Utah.

LOCATION

The project is located within the city boundaries of Washington and includes land under the jurisdiction of the Utah Department of Transportation (UDOT), School and Institutional Trust Lands Administration (SITLA), and private landowners.

USGS QUADS

Washington (1986-2017), St. George NE (1956)

LEGAL LOCATION OF SURVEY

Township 42S, Range 15W, Section 14

AREA SURVEYED

The survey boundaries include all properties adjacent to I-15, one property deep as well as properties adjacent to 300 East and Main Street, also one property deep on both sides of the street. The survey was conducted in these areas as they are most likely to be affected by roadway improvements. Historic boundaries for each property is the current parcel boundary.

DATE OF FIELDWORK

June 12, 2017

PROJECT DATA

12 Previously Recorded

29 Newly Recorded

17 Total Eligible for NRHP

FEDERAL AGENCY

Utah Department of Transportation for Federal Highway Administration

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

REPORT PREPARED FOR

Washington City and Utah Department of Transportation

AUTHOR/DATE OF REPORT

Nancy Calkins, Horrocks Engineers. October 10, 2018

SELECTIVE RECONNAISSANCE LEVEL SURVEY OF WASHINGTON CITY

PRE-FIELD RESEARCH

Twelve previously recorded sites within the survey boundaries were found in a search of SHPO's database, Preservation Pro. Nine of those properties were updated during the survey and are noted in the table below. Three of the previously recorded properties located at 10 E 300 North, 20 W. 300 North, and 120 N. Main Street have been demolished, which change has been noted in Preservation Pro.

During the time of the survey, the City of Washington was installing new water lines under city streets on which historic buildings were to be surveyed. In an attempt to avoid encounters with heavy equipment, the survey was conducted in early morning hours. This timing, however, created problems with vehicles parked in front of houses and direct early morning sunlight in the camera. Additionally heavy vegetation in front of several homes made them difficult to photograph.

HISTORIC CONTEXT

Please refer to the following previous survey of Washington City for historic context:

Ellis, Sheri Murray and Charles P. Easton, "Cultural Resource Reconnaissance Survey and Standard Reconnaissance Level Architectural Survey, Telegraph Road, 500 West to 300 East, Washington City, Washington County, Utah." 2004.

SURVEY RESULTS

Summary of Previously Recorded Properties

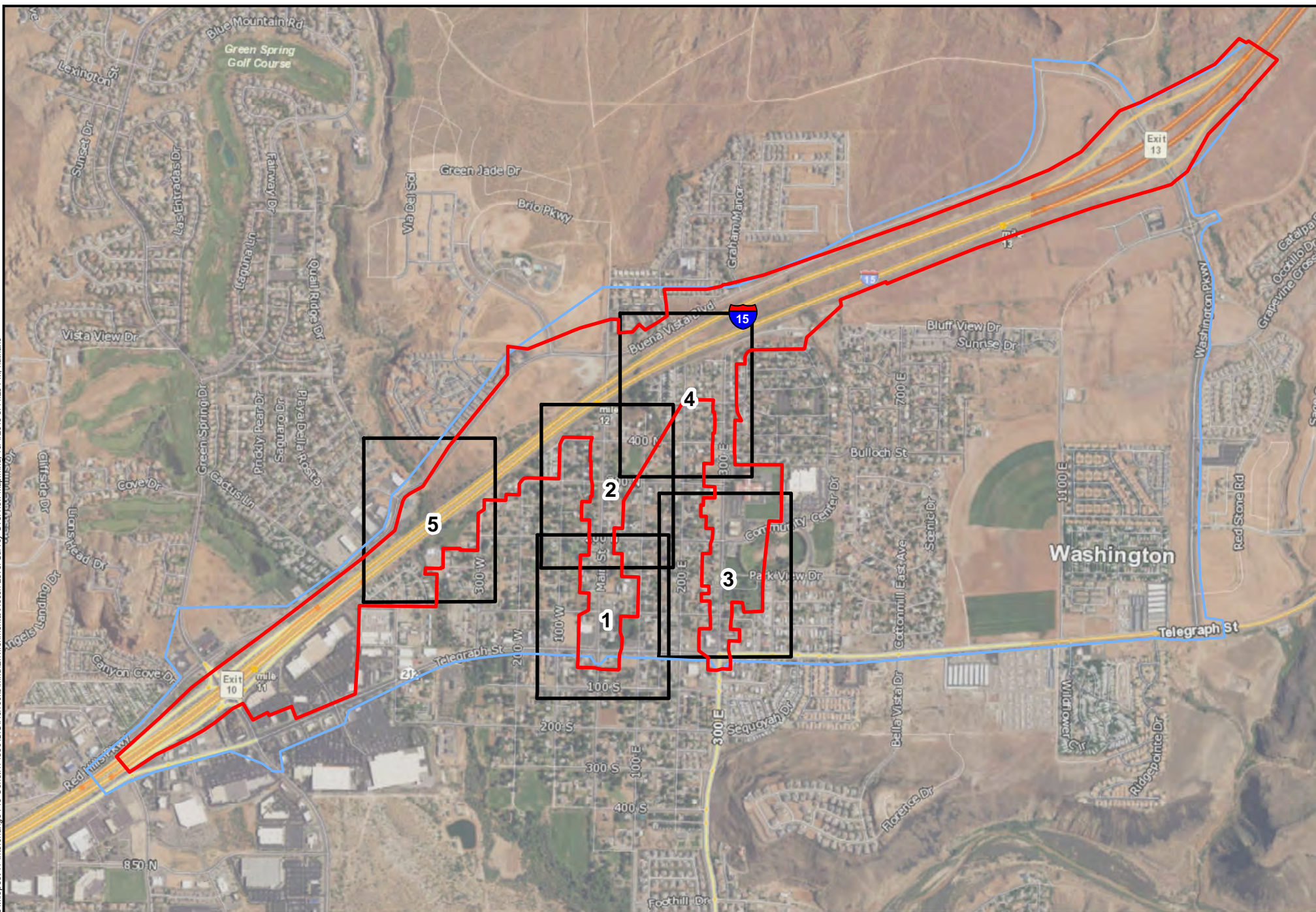
Address	Previous eligibility	Current Eligibility	Comments
25 E Telegraph St.	Eligible/Significant	Eligible/Listed	Prev. recorded as 11 E Telegraph
28 E Telegraph St.	Ineligible/ Non-con.	Eligible/Contributing	Alterations are now historic
107 N Main St.	Eligible/Significant	Eligible/Significant	
120 N Main St.	Eligible/Contributing	Demolished	
151 N Main St.	Ineligible/Non-con.	Ineligible/Non-con.	
175 N Main St.	Ineligible/Non-con.	Ineligible/Non-con.	
219 N Main St.	Eligible/Significant	Demolished	
253 N Main St.	Eligible/Significant	Ineligible/Non-con.	Altered style and materials
291 N Main St.	Eligible/Significant	Ineligible/Non-con.	Altered materials (vinyl)
10 E 300 North	Eligible/Significant	Demolished	
10 W 300 North	Ineligible/Non-con.	Ineligible/Non-con.	
177 N 300 West	Eligible/Contributing	Ineligible/Non-con.	Altered materials and additions

Summary of Newly Recorded Properties

Address	Description	Eligibility
82 N Main St.	1961 addition to 1863 church (demolished 1967)	Eligible/Contributing
90 N Main St.	Sandstone Monument, DUP Marker for Cotton Factory	Eligible/Contributing
133 N Main St.	1936 Other Residential Type with altered style and materials	Ineligible/Non-con.
141 N Main St.	1940 Other Residential Type with altered style and materials	Ineligible/Non-con.
150 N Main St.	1947 Striated Brick World War II-Era cottage	Eligible/Contributing
151 N Main St.	1893 Other Residential Type with altered style and materials	Ineligible/Non-con.
159 N Main St.	1960 Ranch with carport	Eligible/Contributing
160 N Main St.	1957 Other Residential Type with large addition	Ineligible/Non-con.
163 N Main St.	1961 Ranch with Garage with rear addition	Eligible/Contributing
178 N Main St.	1971 Manufactured Home	Eligible/Contributing
180 N Main St.	1930 Brick Bungalow	Eligible/Contributing
183 N Main St.	1960 Ranch/Rambler of Roman Brick	Eligible/Contributing
20 W 200 North	1905 Crosswing with altered style and materials	Ineligible/Non-con.
237 N Main St.	1953 Ranch with Garage with large addition and alterations	Ineligible/Non-con.
252 N Main St.	1970 Ranch with large addition and altered materials	Ineligible/Non-con.
262 N Main St.	1969 Brick Split Level with Carport	Ineligible/Non-con.
282 N Main St.	1972 Ranch with altered materials	Ineligible/Non-con.
337 N Main St.	1969 Manufactured Home with multiple additions	Ineligible/Non-con.
381 N Main St.	1951 Box Ranch with Roman Brick	Eligible/Contributing
14 N 300 East	1950 Concrete Block Ranch with c.1970 addition	Eligible/Contributing
319 E Village Way	1971 Ranch with Garage has altered materials (vinyl)	Ineligible/Non-con.
126 N 300 East	1969 Perpendicular Ranch	Eligible/Contributing
313 E Bulloch St.	1972 Ranch with original materials	Eligible/Contributing
583 N 300 East	1955 Early Ranch with multiple additions	Ineligible/Non-con.
501 N 200 E #1	1970 Manufactured Home with carport addition	Eligible/Contributing
501 N 200 E #30	1970 Manufactured Home w/ additions and altered materials	Ineligible/Non-con.
501 N 200 E #51	1965 Manufactured Home moved to this location	Eligible/Contributing
81 E Buena Vista	1970 Split Entry with additions and altered materials	Ineligible/Non-con.
135 E Buena Vista	1970 Ranch with large addition and altered style/materials	Ineligible/Non-con.

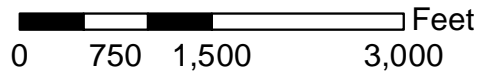
MAPS AND TABLE OF FULL SURVEY RESULTS

The location of the surveyed properties are indicated on the following maps with the specific data for each property found in the Table of Historic Structures Surveyed. For quick reference the map associated with each property is indicated under the address in the table.

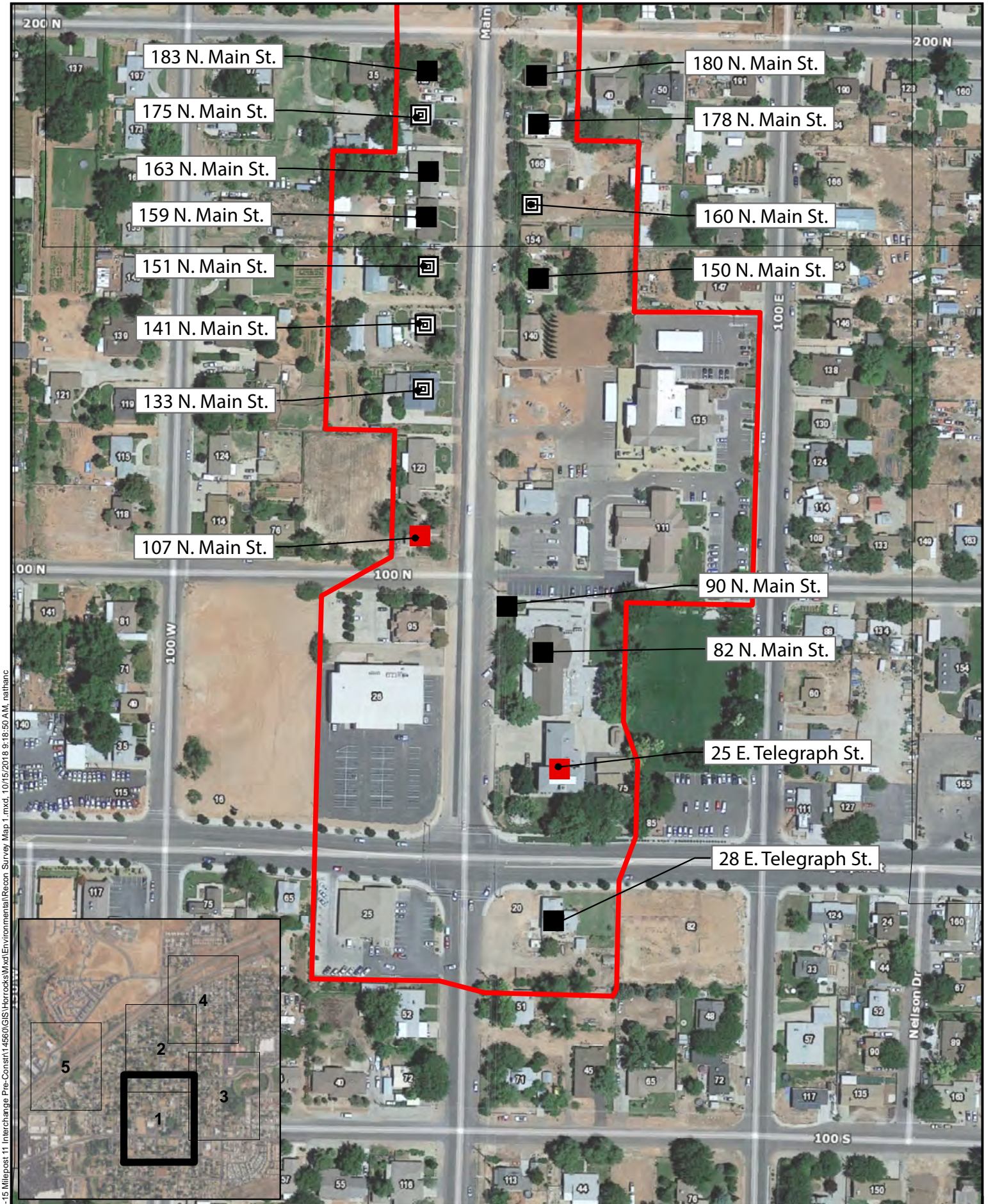


- Survey Area
- Pages
- Area of Potential Effect

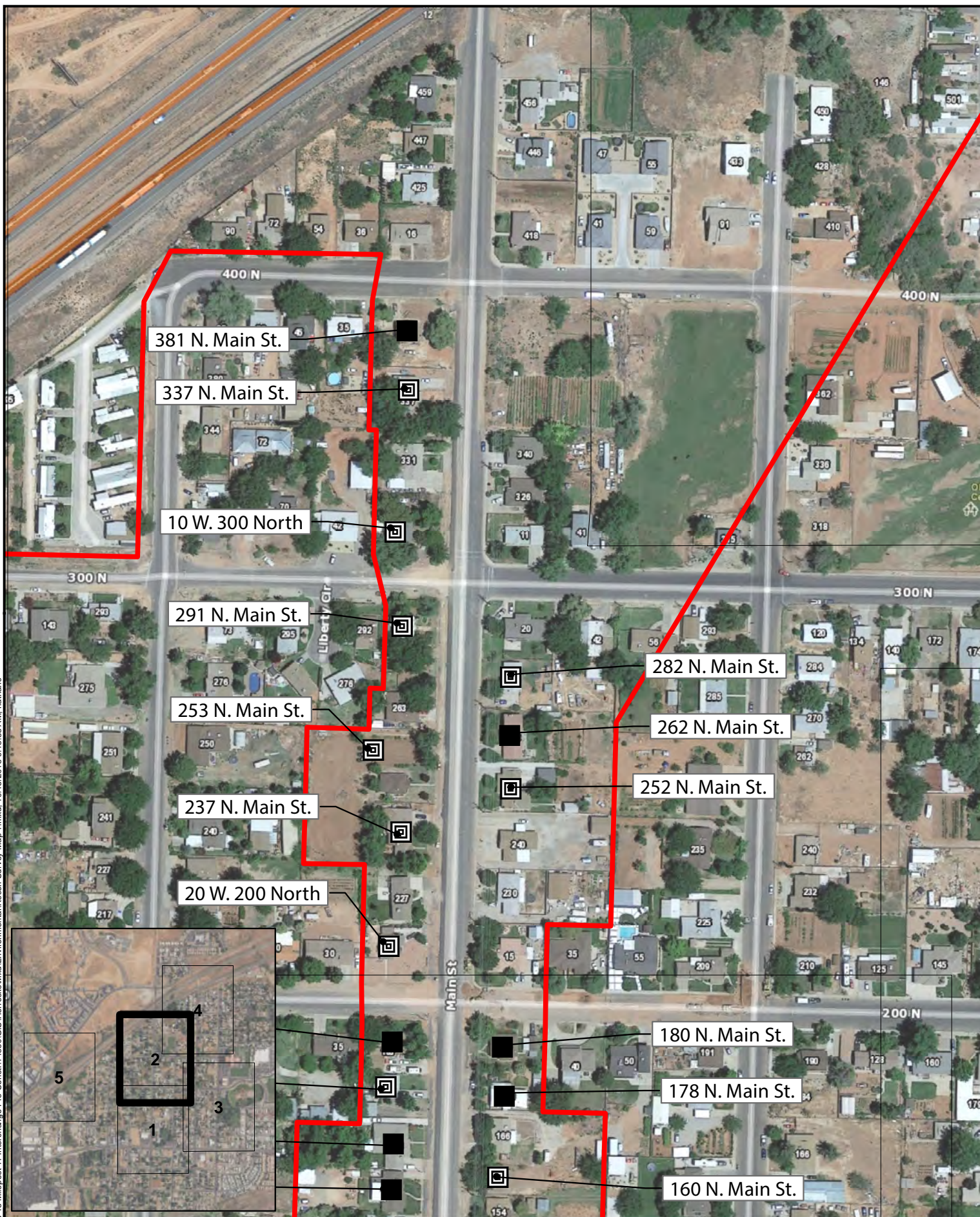
1 inch = 1,500 feet



Reconnaissance Level Survey
I-15 MP 11 Interchange
Washington, Washington County
 Overview Map



C:\2017\SG-488-1704-I-15 Milepost 11 Interchange Pie-Const\14560\GIS\Horrocks\Map\Environmental\Recon Survey Map 1.mxd, 10/15/2018 9:18:50 AM, nathanc

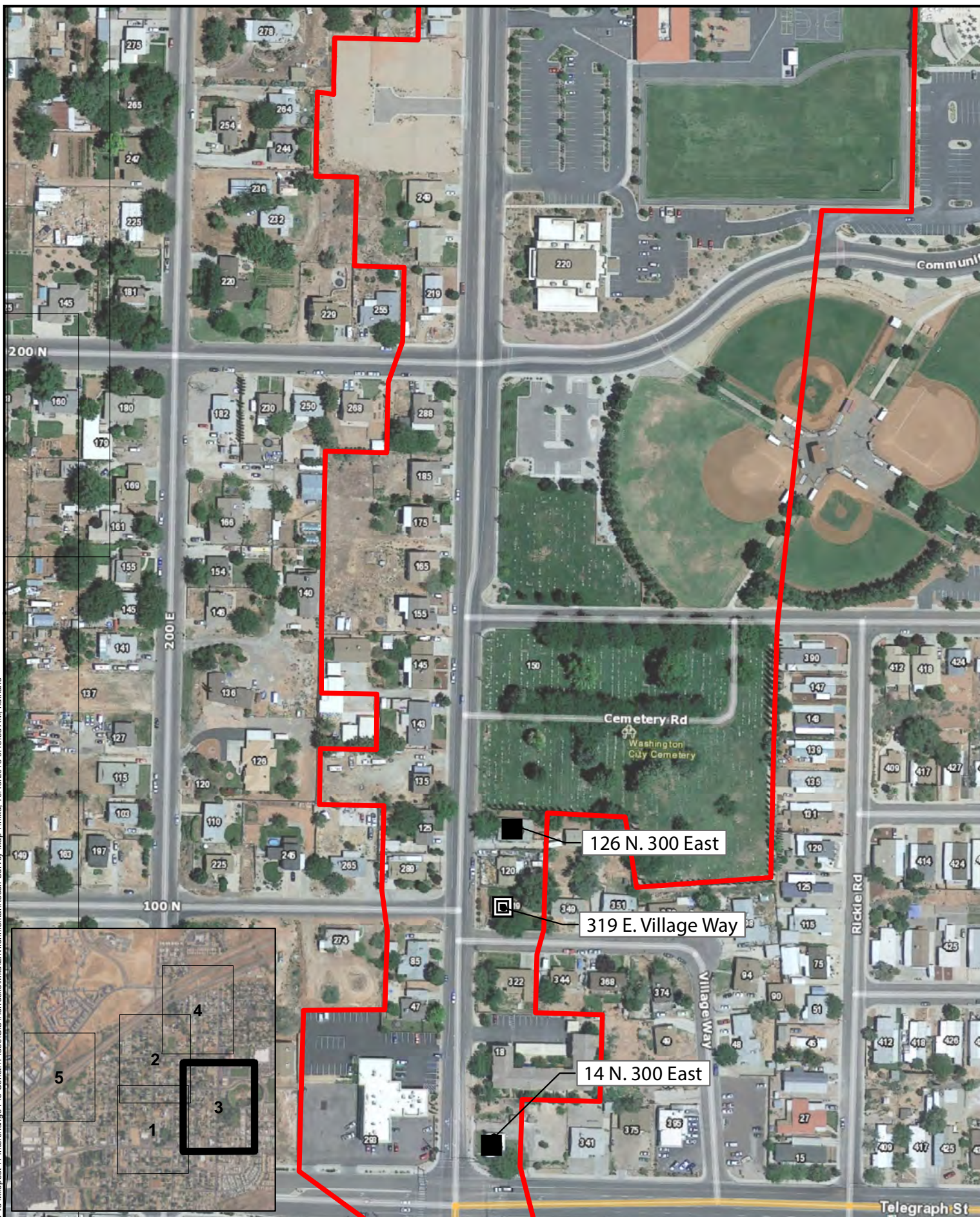


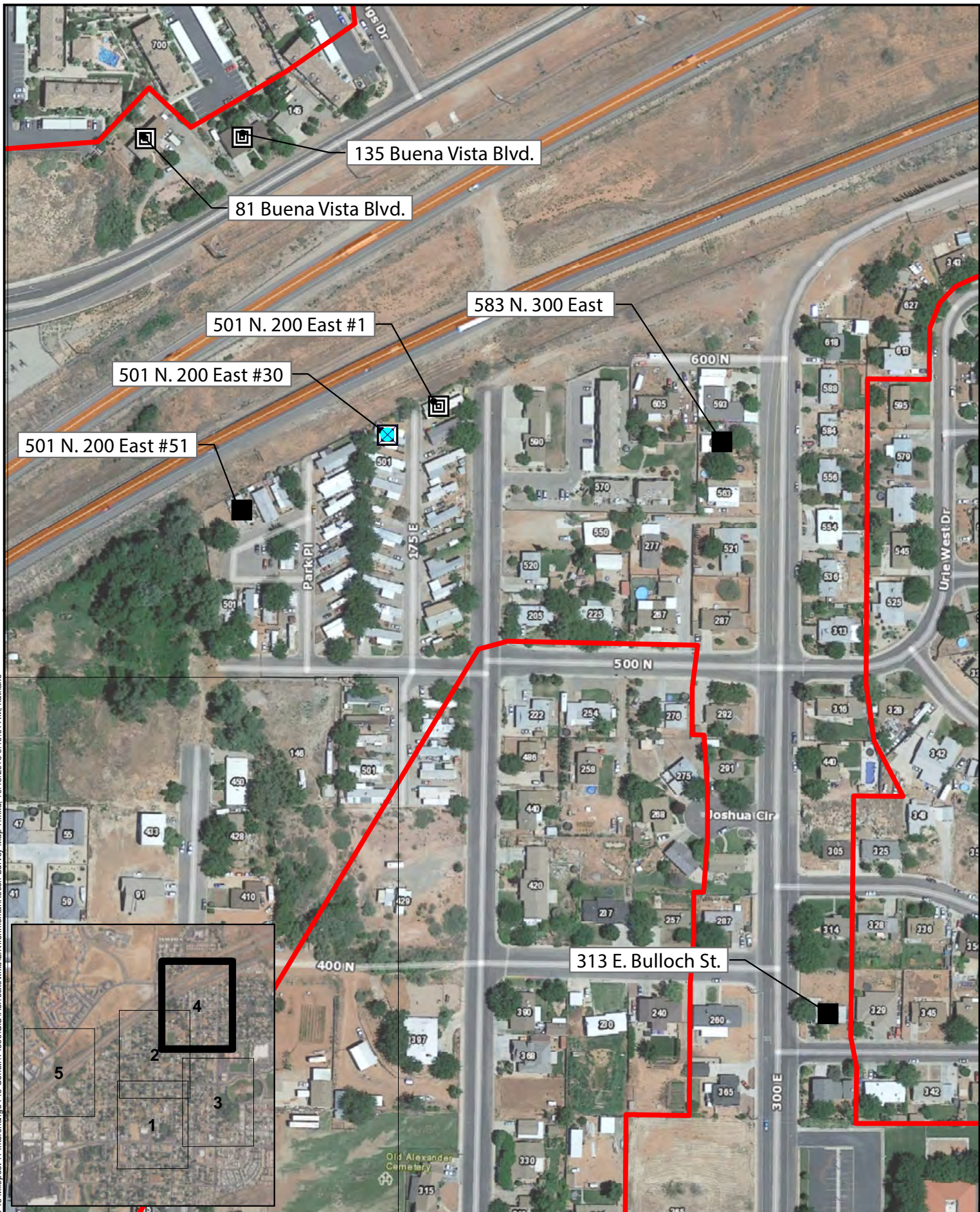
0 60 120 240 Feet



Reconnaissance Level Survey
I-15 MP 11 Interchange
Washington, Washington County
Map 2 of 5

C:\2017\SG-488-1704-1\5 Milepost 11 Interchange Pie-Const\14560\GIS\Horrocks\Map\Environmental\Recon Survey Map 1.mxd, 10/15/2018 9:18:58 AM, nathanc





- Eligible/Contributing
- Eligible/Significant
- Ineligible/Non-contributing
- Survey Area
- Area of Potential Effect
- Pages



0 60 120 240 Feet







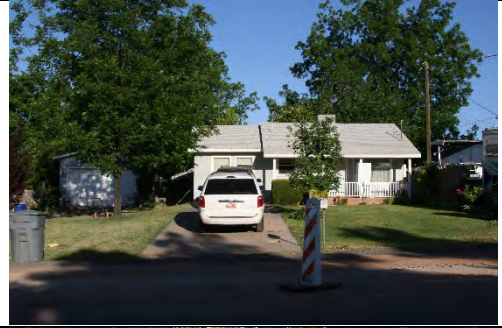


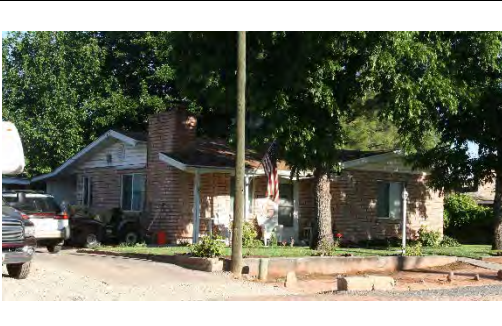
Reconnaissance Level Survey
I-15 MP 11 Interchange
Washington, Washington County
 Map 4 of 5





TABLE OF HISTORIC PROPERTIES SURVEYED





Address	Date	Description	NRHP Eligibility	Photograph
25 E Telegraph Street Map1	1909	School School Block 2 Story Richardsonian Romanesque National Register Listed. Windows have been replaced.	Eligible/Listed Previously recorded as Eligible/Significant	
28 E Telegraph Street Map1	1918	Single Dwelling Bungalow 1 Story Bungalow East addition prior to 1960 aerial, aluminum siding likely from that time period	Eligible/Contributing Previously recorded as Inelig./Non-contributing	
82 N Main Street Map1	1961	Religious Facility Church/Meetinghouse 1 Story Contemporary South half of this LDS Meetinghouse was a 1961 addition to the original 1863 building. The original building was demolished after 1967. The north and east additions were constructed before 1973.	Eligible/Contributing	
90 N. Main Street Map1	1955	Monument/Marker Sandstone DUP Monument- Cotton Factory	Eligible/Contributing	





Address	Date	Description	NRHP Eligibility	Photograph
107 N Main Street Map1	1876	Single Dwelling Central Passage 1.5 Story Victorian Eclectic/Period Cottage According to Washington history brick added and windows altered in the 1920s.	Eligible/Significant Previously recorded as Eligible/Significant	
133 N Main Street Map1	1936	Single Dwelling Other Residential Type 1.5 Story Other/Unclear Style Large 1.5 story addition on south half of house, altered materials in synthetic stucco, altered windows.	Inelig./Non-contributing	
141 N Main Street Map1	1940	Single Dwelling Other Residential Type 1 Story Late 20th C.: Other This style of this residence has been altered by a change in materials of over-sized brick during the 1980s. Also has possible addition of forward-projecting bays and vinyl windows.	Inelig./Non-contributing	
150 N Main Street Map1	1947	Single Dwelling WWII-Era Cottage 1.5 Story Minimal Traditional Although most windows have been replaced with vinyl, the house retains original style and character.	Eligible/Contributing	





Address	Date	Description	NRHP Eligibility	Photograph
151 N Main Street Map1	1893	Single Dwelling Other Residential Type 1 Story Early 21st C.: Other The type and style of this residence have been significantly altered with additions on the south, front porch, and north carport as well as altered materials throughout.	Inelig./Non-contributing Previously recorded as Inelig./Non-contributing	
159 N Main Street Map1	1960	Single Dwelling Ranch with Carport 1 Story Ranch/Rambler (Gen.) Except for the replacement of several windows with vinyl, this residence looks much like it did when constructed.	Eligible/Contributing	
160 N Main Street Map1	1957	Single Dwelling 1 Story Other/Unclear Style This residence is difficult to photograph due to heavy vegetation. There is a large porch addition on the primary elevation (south.)	Inelig./Non-contributing	
163 N Main Street Map1	1961	Single Dwelling Ranch with Garage 1 Story Ranch/Rambler (Gen.) There is a large addition on the rear of this residence which is visible in the altered roof line on the primary elevation.	Eligible/contributing	





Address	Date	Description	NRHP Eligibility	Photograph
175 N Main Street Map1	1947	Single Dwelling Other Residential Type 1 Story Late 20th C.: Other Constructed as a WWII-era Cottage. The roof has been altered from hipped to gable, porch added, garage added, then enclosed, as well as altered materials in vinyl and synthetic stucco.	Inelig./Non-contributing Previously recorded as Inelig./Non-contributing	
178 N Main Street Map1	1971	Single Dwelling Manufactured Home 1 Story Manufactured Home (Gen.) The windows on this manufactured home have been replaced with vinyl and the although the carport may be an addition it is visible on the 1981 aerial photograph.	Eligible/Contributing	
180 N Main Street Map1	1930	Single Dwelling Bungalow 1 Story Bungalow Some of the windows have been replaced but the house retains its original character.	Eligible/Contributing	
183 N Main Street Map1	1960	Single Dwelling Ranch 1 Story Ranch/Rambler (Gen.) Vinyl siding and vinyl windows	Eligible/Contributing	


Address	Date	Description	NRHP Eligibility	Photograph
20 W 200 North Map 2	1905	Single Dwelling Crosswing 1.5 Story Late 20th C.: Other Materials altered with vinyl siding and vinyl windows. The style is altered by the enclosure of the porch railing.	Inelig./Non-contributing	
237 N Main Street Map 2	1953	Single Dwelling Ranch with Garage 1 Story Ranch/Rambler (Gen.) The original garage has been enclosed for living space and a new garage has been built on the north elevation. The windows have been replaced with vinyl.	Inelig./Non-contributing	
252 N Main Street Map 2	1970	Single Dwelling Ranch with Carport 1 Story Ranch/Rambler (Gen.) The carport and the bay window section are additions are post-1981 aerial image. The house was likely clad in brick at the time of the additions.	Inelig./Non-contributing	
253 N Main Street Map 2	1931	Single Dwelling Box Bungalow 1 Story Bungalow Although this residence retains the original windows, It has been significantly altered application of synthetic stucco on the house and imitation stone on the front porch.	Inelig./Non-contributing Previously recorded as Eligible/Significant	

Address	Date	Description	NRHP Eligibility	Photograph
262 N Main Street Map 2	1969	Single Dwelling Split Level with Carport 1.5 Story Split Level (Gen.) Difficult to photograph due to vegetation and the sun. Although the siding has been replaced with vinyl, the dominant material on the house is brick and the style is not altered.	Eligible/Contributing	
282 N Main Street Map 2	1972	Single Dwelling Ranch 1 Story Ranch/Rambler (Gen.) Materials altered in vinyl siding and windows	Inelig./Non-contributing	
291 N Main Street Map 2	1877	Single Dwelling Central Passage 1.5 Story Gothic Revival Altered materials in vinyl siding, seamed metal roof and vinyl windows.	Inelig./Non-contributing Previously recorded as Eligible/Significant	
10 W 300 North Map 2	1885 1916 1960	Single Dwelling Ranch 1 Story Ranch/Rambler (Gen.) Windows have been altered and there are additions on the west and north. Washington County has 1916 construction date, city history has 1885 and says it used to be two stories.	Inelig./Non-contributing Previously recorded as Inelig./Non-contributing	

Address	Date	Description	NRHP Eligibility	Photograph
337 N Main Street Map 2	1969	Single Dwelling Manufactured Home 1 Story Late 20th C.: Other Center portion of this residence is a double wide manufactured home. Additions include south wing, porch, carport and roof.	Inelig./Non-contributing	
381 N Main Street Map 2	1951	Single Dwelling Box Ranch 1 Story Early Ranch (Gen.) There are storm windows over original, possible rear addition on south elevation and the front steps have been replaced with a ramp.	Eligible/Contributing	
14 N 300 East Map 3	1950 1970	Single Dwelling Ranch 1 Story County records indicate this residence was constructed in 1940, which the style and construction materials do not indicate. Historic aerials indicate the addition on north elevation constructed between 1967 and 1973. Windows replaced at that time with aluminum sliders.	Eligible/Contributing	
319 E Village Way Map 3	1971	Single Dwelling Ranch with Garage 1 Story Ranch/Rambler (Gen.) Altered materials in vinyl siding and vinyl windows. Garage, porch awning and chimney are possibly additions.	Inelig./Non-contributing	

Address	Date	Description	NRHP Eligibility	Photograph
126 N 300 East Map 3	1969	Single Dwelling Perpendicular Ranch 1 Story Ranch/Rambler (Gen.) Windows have been replaced.	Eligible/Contributing	
313 E Bulloch Street Map 4	1972	Single Dwelling Ranch 1 Story Ranch/Rambler (Gen.) This house retains original materials, including aluminum slider windows.	Eligible/Contributing	
583 N 300 East Map 4	1955	Single Dwelling Early Ranch / Rambler 1 Story Ranch/Rambler (Gen.) Difficult to photograph due to privacy fence and vegetation. There is a rear addition which extends on south elevation	Inelig./Non-contributing	
501 N 200 East #1 Map 4	1970	Single Dwelling Manufactured Home 1 Story Manufactured Home (Gen.) Trailer 1. Awning added on the north side of the trailer.	Eligible/contributing	

Address	Date	Description	NRHP Eligibility	Photograph
501 N 200 East #30 Map 4	1970	Single Dwelling Manufactured Home 1 Story Manufactured Home (Gen.) Trailer 30. The style of the trailer has been altered with several additions and the application of stucco.	Inelig./Non-contributing	
501 N 200 East #51 Map 4	1965	Single Dwelling Manufactured Home 1 Story Manufactured Home (Gen.) Trailer 51. This trailer was moved here and was not at this location during the historic period.	Eligible/contributing	
81 E Buena Vista Blvd. Map 4	1970	Single Dwelling Split Entry 1.5 Story Split Entry (Gen.) Garage addition on east, altered materials in vinyl siding and vinyl windows. Difficult to photograph due to vegetation.	Inelig./Non-contributing	
135 E Buena Vista Blvd. Map 4	1970	Single Dwelling Ranch 1 Story Other/Unclear Style Large RV garage added on west, materials and style altered with stucco	Inelig./Non-contributing	

Address	Date	Description	NRHP Eligibility	Photograph
177 N 300 West Map 5	1918 1920 1998	Single Dwelling Bungalow 1 Story There is a shed addition on the north elevation as well as a carport constructed on the primary facade. Materials have been altered with synthetic stucco and gables and dormers clad in wood sheet. The window have been replaced and some with altered openings.	Inelig./Non-contributing Previously recorded as Eligible/Contributing	



DETERMINATION OF ELIGIBILITY AND FINDING OF NO ADVERSE EFFECT WITH ADDENDUM

PREPARED BY

UDOT

Liz Robinson

CONTACT

Nicole Tolley

Horrocks Engineers

2162 W. Grove Parkway, Suite 400
Pleasant Grove, Utah 84602





GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Jill Remington Love
Executive Director
Department of
Heritage & Arts



Don Hartley
Director
State Historic Preservation Officer

December 11, 2018

Liz Robinson
Cultural Resources Program Manager
Utah Dept of Transportation (UDOT)
4501 Constitution Blvd
Salt Lake City, UT 84119

RE: PIN 14560_ I-15 MP11 Interchange_F-I15-1(116)11


For future correspondence, please reference Case No. 18-2672

Dear Ms Robinson,

The Utah State Historic Preservation Office received your submission and request for our comment on the above-referenced project on December 05, 2018. Based on the information provided to our office, we concur with your determination of eligibility and finding of No Adverse Effect for the proposed undertaking.

This information is provided to assist with Section 106 responsibilities as per §36CFR800. If you have questions, please contact me at (801) 245-7242 or by email at coryjensen@utah.gov.

Sincerely,



Cory Jensen
National Register & Survey Coordinator



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

SHANE M. MARSHALL, P.E.
Deputy Director of Engineering and Operations

TERIANNE S. NEWELL, P.E.
Deputy Director of Planning and Investment

December 3, 2018

Mr. Cory Jensen
Senior Historic Preservation Specialist
Utah Division of State History
300 Rio Grande
Salt Lake City, UT 84101-1182

RE: UDOT Project No. F-I15-1(116)11; I-15 Milepost 11 Interchange, Washington City, Washington County, Utah (PIN 14560).

Determination of Eligibility and Finding of No Adverse Effect.

Dear Mr. Jensen:

The Utah Department of Transportation (UDOT) is preparing to undertake the subject federal-aid project. In accordance with Parts 3.1.1 and 3.2 of the *Memorandum of Understanding Between the Federal Highway Administration and the Utah Department of Transportation Concerning State of Utah's Participation in the Surface Transportation Project Delivery Program Pursuant to 23 USC §327* (executed January 17, 2017), the UDOT assumes responsibility, assigned by the Federal Highway Administration (FHWA), for ensuring compliance with Section 106 of the NHPA and with Section 4(f) of the DOT Act of 1966, as amended. Also in accordance with the *Third Amended Programmatic Agreement among the FHWA, the Utah State Historic Preservation Officer, the Advisory Council on Historic Preservation, the USACE Sacramento District, and the UDOT Regarding Section 106 Implementation for Federal-Aid Transportation Projects in the State of Utah* (executed August 23, 2017), Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 300101 et seq.), and U.C.A.9-8-404, the UDOT has taken into account the effects of this undertaking on historic properties, and is affording the Utah State Historic Preservation Officer (SHPO) an opportunity to comment on the undertaking. Additionally, this submission is in compliance with Section 4(f) of the Department of Transportation Act of 1966, 23 U.S.C. § 138 (as amended) and 49 U.S.C. § 303 (as amended).

PROJECT DESCRIPTION

This project proposes to evaluate community needs and potential environmental, cultural, and socioeconomic impacts of proposed transportation improvements needed to address traffic problems affecting interstate access to and from Washington City and congestion at the Green Springs Drive Interchange. A range of alternatives were explored and may include construction of a new interchange at MP 11, reconfiguration and reconstruction of the Green Springs Drive Interchange, construction of new freeway frontage roads, and roadway design modifications to increase use of the Washington Parkway Interchange at milepost 13. The study will evaluate areas adjacent to both sides of I-15, from the Green Springs Drive Interchange at MP 10 to the Washington Parkway Interchange at MP 13; as well as potentially affected city street corridors. Current traffic congestion is likely to worsen with projected community growth if no improvements are made.

The area of potential affects (APE) has been defined as an area approximately 1250 acres in size that includes all project alternatives. The APE includes mostly private and municipal land and land managed by the Utah SITLA. The APE has been surveyed for archaeology by Horrocks Engineers, under State Antiquities Project Number U17HX593, and the results are reported in *An Archaeological Inventory for the I-15 Milepost 11 Interchange Project* (see enclosed report). An intensive level pedestrian survey was conducted using 15 meter transects to identify archaeological resources. A selective reconnaissance level survey was conducted to record architectural properties, and the results are reported in *Selective Reconnaissance Level Survey I-15; Milepost 11 Interchange Washington City, Washington County, Utah* (see enclosed report)

The surveys have resulted in the identification of 4 archaeological sites and 37 architectural properties. Of these, 2 archaeological sites and 18 architectural properties are eligible to the National Register of Historic Places (NRHP). The Determinations of Eligibility and Findings of Effects (for both Section 106 and Section 4(f)) are provided in Table 1 for archaeological resources and in Table 2 for architectural properties. Please see attached notification letter regarding Section 4(f) *de minimis* impacts.

ARCHAEOLOGICAL RESOURCES

Table 1. Determinations of Eligibility and Findings of Effect for Archaeological Resources

Site	Name or Description	NRHP Eligibility	Finding of Effect	Section 4(f) Use	Section 4(f) Impact
42WS2362	Prehistoric Lithic Scatter	Not Eligible	No Historic Properties Affected	N/A	N/A
42WS4283	Prehistoric Camp Site with Hearths	Eligible	No Historic Properties Affected	N/A	N/A
42WS5800	Historic Road	Not Eligible	No Historic Properties Affected	N/A	N/A
42WS6196	Washington City Ditch System	Eligible	No Adverse Effect	No	N/A

Description of Effect to Site 42WS6196: This proposed project impacts approximately 2,992 of 15,802 linear feet (19%) of this site. No other historic features are present within the impacted area and additional undocumented segments of this site are likely throughout the historic sections of Washington City. The project will affect a relatively small portion of the site and will not substantially impact or alter any contributing elements of the site or any of the character-defining features for which it was determined eligible for the NRHP. Thus, the proposed project will result in a finding of No Adverse Effect. Since the site does not warrant preservation in place, Section 4(f) does not apply.

ARCHITECTURAL PROPERTIES

Table 2. Determinations of Eligibility and Findings of Effect for Architectural Properties

Address	Date	Style	NRHP Eligibility/ SHPO Rating	Finding of Effect	Section 4(f) Use	Section 4(f) Impact
25 East Telegraph Street, Washington	1909	Richardsonian Romanesque school block.	Eligible/Listed	No Adverse Effect	Yes	<i>de minimis</i>
28 East Telegraph Street, Washington	1918	Bungalow	Eligible/Contributing	No Historic Properties Affected	No	N/A
82 North Main Street, Washington	1961	Contemporary Church/Meetingho use	Eligible/Contributing	No Historic Properties Affected	No	N/A
90 North Main Street, Washington	1955	Sandstone Daughters of the Utah Pioneers monument for the	Eligible/Contributing	No Historic Properties Affected	No	N/A

		Cotton Factory.				
107 North Main Street, Washington	1876	Victorian Eclectic/Period Cottage Central Passage house	Eligible/Significant	No Historic Properties Affected	No	N/A
133 North Main Street, Washington	1936	Other/unclear residence	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
141 North Main Street, Washington	1940	Late 20th Century Other residence	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
150 North Main Street, Washington	1947	Minimal Traditional WWII-Era Cottage	Eligible/Contributing	No Historic Properties Affected	No	N/A
151 North Main Street, Washington	1893	Early 21st Century Other Residence	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
159 North Main Street, Washington	1960	Ranch/Rambler with Carport	Eligible/Contributing	No Historic Properties Affected	No	N/A
160 North Main Street, Washington	1957	Other/Unclear Residence	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
163 North Main Street, Washington	1961	Ranch/Rambler with Garage	Eligible/Contributing	No Historic Properties Affected	No	N/A
175 North Main Street, Washington	1947	Late 20th Century other Residence	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
178 North Main Street, Washington	1971	Manufactured home	Eligible/Contributing	No Historic Properties Affected	No	N/A
180 North Main Street, Washington	1930	Bungalow	Eligible/Contributing	No Historic Properties Affected	No	N/A
183 North Main Street, Washington	1960	Ranch/Rambler	Eligible/Contributing	No Historic Properties Affected	No	N/A
20 West 200 North, Washington	1905	Late 20th Century Other Crosswing	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
237 North Main Street, Washington	1953	Ranch/Rambler with Garage	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
252 North Main Street, Washington	1970	Ranch/Rambler with Carport	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
253 North Main Street, Washington	1931	Box Bungalow	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
262 North Main Street, Washington	1969	Split Level with Carport	Eligible/Contributing	No Historic Properties Affected	No	N/A
282 North Main Street, Washington	1972	Ranch/Rambler	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
291 North Main Street, Washington	1877	Gothic Revival Central Passage residence	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
10 West 300 North, Washington	1885, 1916, c. 1960	Ranch/Rambler	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
337 North Main Street, Washington	1969	Late 20th Century Other Manufactured Home	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
381 North Main Street, Washington	1951	Early Box Ranch	Eligible/Contributing	No Historic Properties Affected	No	N/A
14 North 300 East, Washington	c. 1950, c. 1970	Ranch house	Eligible/Contributing	No Historic Properties Affected	No	N/A
319 East Village Way, Washington	1971	Ranch/Rambler with Garage	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A

126 North 300 East, Washington	1969	Perpendicular Ranch house	Eligible/Contributing	No Historic Properties Affected	No	N/A
313 East Bulloch Street, Washington	1972	Ranch/Rambler	Eligible/Contributing	No Historic Properties Affected	No	N/A
583 North 300 East, Washington	1955	Early Ranch/Rambler	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
501 North 200 East #1, Washington	1970	Manufactured home	Eligible/Contributing	No Historic Properties Affected	No	N/A
501 North 200 East #30, Washington	1970	Manufactured home	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
501 North 200 East #51, Washington	1965	Manufactured home	Eligible/Contributing	No Historic Properties Affected	No	N/A
81 East Buena Vista Boulevard, Washington	1970	Split Entry	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
135 East Buena Vista Boulevard, Washington	1970	Other/Unclear Ranch house	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A
177 North 300 West, Washington	1918 1920 1998	Bungalow	Ineligible/Non-contributing	No Historic Properties Affected	No	N/A

Description of Effects to 25 East Telegraph Street: This proposed project requires right of way acquisitions of approximately 636 square feet from this property eligible to the NRHP. Impacts to this property are limited to the property side. The associated construction affects a relatively small portion of this property and will not substantially impact or alter any contributing elements of the property or any of the character-defining features for which it was determined eligible for the NRHP. Thus, the proposed project will result in a finding of No Adverse Effect and a Section 4(f) use (*de minimis* impact) for this property.

CONSULTATION EFFORTS

Native American consultation was initiated through letters sent to the Uintah and Ouray Ute Tribes, Hopi Tribe, Paiute Indian Tribe of Utah, and the Cedar, Indian Peaks, and Shivwits Bands of Paiute (sent October 17, 2018). The Hopi Tribe responded with a request for consultation if any prehistoric resources were adversely affected by the project. As the project will not result in adverse effects, additional consultation is not necessary. Public meetings were held and the public was notified of the impacts to cultural resources. No responses or comments were received.

SUMMARY

To summarize, the project will result in a finding of No Adverse Effect and Section 4(f) *de minimis* impact for 1 architectural property, and a finding of No Historic Properties Affected for all remaining architectural properties and archaeological sites. Therefore, the Finding of Effect for the proposed UDOT Project No. F-I15-1(116)11; I-15 Milepost 11 Interchange, Washington City, Washington County, Utah is **No Adverse Effect**.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by UDOT pursuant to 23 USC §327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

Please review this document and, providing you agree with the findings contained herein, provide written concurrence. Should you have any questions or need additional information, please feel free to contact Liz Robinson at 801-910-2035 or lizrobinson@utah.gov; or Elizabeth Giraud at 801-965-4917 or egiraud@utah.gov.

Sincerely,



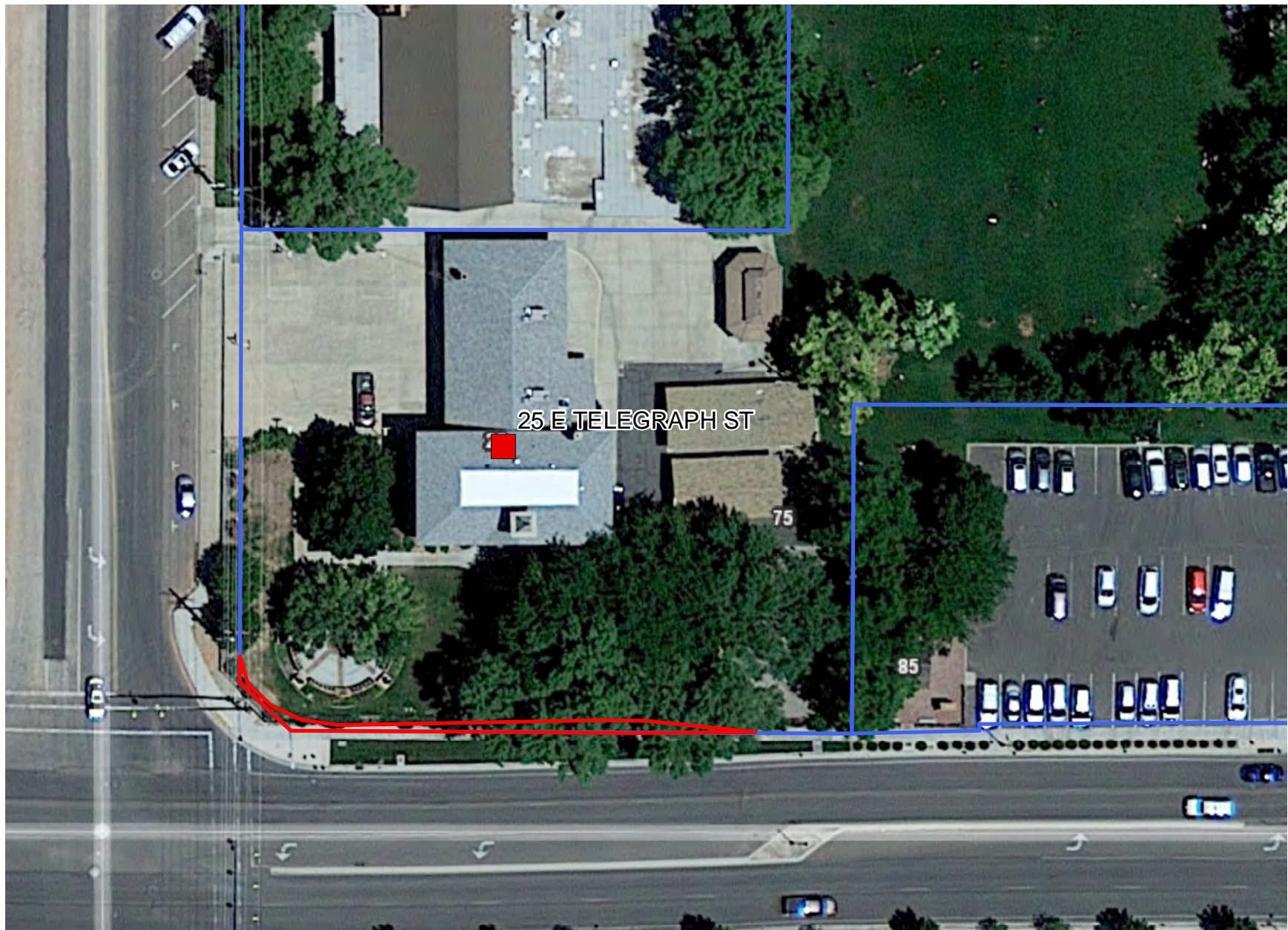
Liz Robinson, M.A., RPA
Cultural Resources Program Manager
UDOT Environmental Services



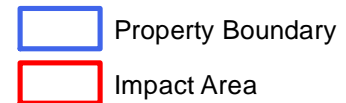
Elizabeth Giraud, AICP
Architectural Historian
UDOT Environmental Services

Enclosures

cc: Kim Manwill, Project Manager
Eric Hansen, Environmental Manager



I-15; Milepost 11 EIS
Alternative 4 Impact to 25 East Telegraph Street



0 50 100 Feet



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

SHANE M. MARSHALL, P.E.
Deputy Director

April 13, 2017

Mr. Brad Westwood
Deputy State Historic Preservation Officer
Utah Division of State History
300 Rio Grande
Salt Lake City, UT 84101-1182

RE: Section 4(f) De Minimis Determination Pursuant to SAFETEA-LU Section 6009

Dear Mr. Westwood:

In accordance with Parts 3.1.1 and 3.2.1 of the *Memorandum of Understanding Between the Federal Highway Administration and the Utah Department of Transportation Concerning State of Utah's Participation in the Surface Transportation Project Delivery Program Pursuant to 23 USC §327* (executed January 17, 2017), the Utah Department of Transportation (UDOT) assumes responsibility, assigned by the Federal Highway Administration (FHWA), for ensuring compliance with Section 4(f) of the DOT Act of 1966, as amended. This letter was prepared in accordance with FHWA Guidance regarding Section 6009(a) of the 2005 Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Section 6009 allows increased flexibility with respect to minor transportation impacts to Section 4(f) properties, including historic properties. It simplifies the processing and approval of federally funded transportation projects that have a *de minimis* impact on lands protected by Section (f). For historic properties, a finding of *de minimis* impact on a historic site may be made by the UDOT when Section 106 consultation results in the written concurrence of the State Historic Preservation Office (SHPO) with the determination of "no adverse effect" or "no historic properties affected".

SAFETEA-LU has no other Section 106 implications other than the requirement for written SHPO concurrence with Section 106 findings of effect for individual Section 4(f) properties. It does require UDOT to notify the SHPO of UDOT's intent to utilize the finding of "no historic properties affected" or "no adverse effect" for individual Section 4(f) properties as a basis for making a Section 4(f) *de minimis* use finding.

On December 13, 2005, FHWA issued guidance to implement the Section 6009 provision of SAFETEA-LU. The guidance (attached) includes *Questions and Answers on the Application of the Section 4(f) de minimis Impact Criteria* and offers several points of relevant direction. We refer you to Question 2 of the guidance titled: *De Minimis Impact Findings for Section 4(f) Uses of Historic Properties*.

Therefore, in accordance with the 2005 Guidance, and by transmittal of this letter, the FHWA is notifying your office of UDOT's intent to make the Section 4(f) *de minimis* use finding for properties where a determination of "no historic properties affected" or "no adverse effect" has been concurred in by your office or when your office has not replied within the appropriate timeframe with written concurrence.

Received
APR 19 2017
USHPO

Should you have any questions or need additional information, please feel free to contact Liz Robinson at 801-910-2035 or lizrobinson@utah.gov. Please return this signed letter to UDOT Central Environmental Division.

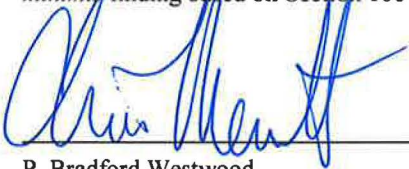
Sincerely,



Brandon Weston
Environmental Services Director
UDOT Central Environmental

Enclosures

By the following signature, the SHPO acknowledges it has been notified of the intent of the UDOT to make a *de minimis* finding based on Section 106 determinations of effect for specific properties.



P. Bradford Westwood
State Historic Preservation Officer


Date



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Jill Remington Love
Executive Director
Department of
Heritage & Arts



Don Hartley
Director
State Historic Preservation Officer

April 5, 2019

Liz Robinson
Cultural Resources Program Manager
Utah Dept of Transportation (UDOT)
4501 Constitution Blvd
Salt Lake City, UT 84119

RE: PIN 14560_I-15 Milepost 11 Interchange Addendum_F-I15-1(116)11

For future correspondence, please reference Case No. 19-0747

Dear Ms Robinson,

The Utah State Historic Preservation Office received your submission and request for our comment on the above-referenced project on April 03, 2019. Based on the information provided to our office, we concur with your determination of eligibility and finding of No Adverse Effect for the proposed undertaking.

This information is provided to assist with Section 106 responsibilities as per §36CFR800. If you have questions, please contact me at (801) 245-7242 or by email at coryjensen@utah.gov.

Sincerely,

Cory Jensen
National Register & Survey Coordinator



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

JASON E. DAVIS, P.E.
Deputy Director of Engineering and Operations

TERIANNE S. NEWELL, P.E.
Deputy Director of Planning and Investment

April 2, 2019

Mr. Cory Jensen
Senior Historic Preservation Specialist
Utah Division of State History
300 Rio Grande
Salt Lake City, UT 84101-1182

RE: UDOT Project No. F-I15-1(116)11, I-15 Milepost 11 Interchange, Washington City, Washington County, Utah (PIN 14560), UDSH Case No. 18-2672.

Amended Determination of Eligibility and Finding of Adverse Effect.

Dear Mr. Jensen:

The Utah Department of Transportation (UDOT) is preparing to undertake the subject federal-aid project. In accordance with Parts 3.1.1 and 3.2 of the *Memorandum of Understanding Between the Federal Highway Administration and the Utah Department of Transportation Concerning State of Utah's Participation in the Surface Transportation Project Delivery Program Pursuant to 23 USC §327* (executed January 17, 2017), the UDOT assumes responsibility, assigned by the Federal Highway Administration (FHWA), for ensuring compliance with Section 106 of the NHPA and with Section 4(f) of the DOT Act of 1966, as amended. Also in accordance with the *Third Amended Programmatic Agreement among the FHWA, the Utah State Historic Preservation Officer, the Advisory Council on Historic Preservation, the USACE Sacramento District, and the UDOT Regarding Section 106 Implementation for Federal-Aid Transportation Projects in the State of Utah* (executed August 23, 2017), Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 300101 et seq.), and U.C.A.9-8-404, the UDOT has taken into account the effects of this undertaking on historic properties, and is affording the Utah State Historic Preservation Officer (SHPO) an opportunity to comment on the undertaking. Additionally, this submission is in compliance with Section 4(f) of the Department of Transportation Act of 1966, 23 U.S.C. § 138 (as amended) and 49 U.S.C. § 303 (as amended).

PROJECT DESCRIPTION

The Utah Department of Transportation (UDOT) is preparing an Environmental Impact Statement (EIS) to evaluate potential transportation-related improvements on needed to address traffic problems affecting interstate access to and from Washington City and congestion at the Green Springs Drive Interchange. A range of alternatives were explored and may include construction of a new interchange at MP 11, reconfiguration and reconstruction of the Green Springs Drive Interchange, construction of new freeway frontage roads, and roadway design modifications to increase use of the Washington Parkway Interchange at milepost 13. The EIS identified Alternative 4, the Main Street Interchange (Preferred Alternative) and Alternative 5, the 300 East Interchange, for detailed resource analysis.

UDOT submitted a Determination of Eligibility/Finding of Effect (DOE/FOE) document to SHPO and received concurrence on December 11, 2018 (UDSH Case No. 18-2672). This addendum is necessary since although both alternatives were presented for the Determination of Eligibility, only the impacts of Alternative 4 were reported. This document will only describe the impacts of Alternative 5.

The original area of potential effects (APE) was defined as an area approximately 1250 acres in size that includes all project alternatives and extends into all adjacent properties. An intensive level archaeological survey and a selective-reconnaissance level architectural survey were conducted in the APE, and all reports were submitted with the original DOE/FOE.

Along Alternative 5, the surveys identified 10 architectural properties and no archaeological sites. The Determinations of Eligibility and Findings of Effects (for both Section 106 and Section 4(f)) for properties within Alternative 5 are provided in Table 1.

ARCHITECTURAL PROPERTIES

Table 1. Determinations of Eligibility and Findings of Effect for Architectural Properties for Alternative 5.

Address	Date	Style	NRHP Eligibility/ SHPO Rating	Alternative 5 Finding of Effect	Section 4(f) Use	Section 4(f) Impact
14 North 300 East, Washington	c. 1950, c. 1970	Ranch house	Eligible/Contributing	No Adverse Effect	Yes	<i>de minimis</i>
319 East Village Way, Washington	1971	Ranch/Rambler with Garage	Ineligible/Non- contributing	No Historic Properties Affected	No	N/A
126 North 300 East, Washington	1969	Perpendicular Ranch house	Eligible/Contributing	No Adverse Effect	Yes	<i>de minimis</i>
313 East Bulloch Street, Washington	1972	Ranch/Rambler	Eligible/Contributing	No Historic Properties Affected	No	N/A
583 North 300 East, Washington	1955	Early Ranch/Rambler	Ineligible/Non- contributing	No Historic Properties Affected	No	N/A
501 North 200 East #1, Washington	1970	Manufactured home	Eligible/Contributing	No Historic Properties Affected	No	N/A
501 North 200 East #30, Washington	1970	Manufactured home	Ineligible/Non- contributing	No Historic Properties Affected	No	N/A
501 North 200 East #51, Washington	1965	Manufactured home	Eligible/Contributing	No Historic Properties Affected	No	N/A
81 East Buena Vista Boulevard, Washington	1970	Split Entry	Ineligible/Non- contributing	No Historic Properties Affected	No	N/A
135 East Buena Vista Boulevard, Washington	1970	Other/Unclear Ranch house	Ineligible/Non- contributing	No Historic Properties Affected	No	N/A

Description of Effects to 14 North 300 East: This proposed project requires right of way acquisitions of approximately 215 square feet from this property eligible to the NRHP. Impacts to this property are limited to the frontage. The associated construction affects a relatively small portion of this property and will not substantially impact or alter any contributing elements of the property or any of the character-defining features for which it was determined eligible for the NRHP. Thus, the proposed project will result in a finding of No Adverse Effect and a Section 4(f) use (*de minimis* impact) for this property.

Description of Effects to 126 North 300 East: This proposed project requires right of way acquisitions of approximately 588 square feet from this property eligible to the NRHP. Impacts to this property are limited to the frontage. The associated construction affects a relatively small portion of this property and will not substantially impact or alter any contributing elements of the property or any of the character-defining features for which it was determined eligible for the NRHP. Thus, the proposed project will result in a finding of No Adverse Effect and a Section 4(f) use (*de minimis* impact) for this property.

CONSULTATION EFFORTS

Native American consultation was initiated through letters sent to the Confederated Tribes of the Goshute Reservation, Skull Valley Band of Goshute Indians, Uintah and Ouray Ute Tribes, Shoshone-Bannock Tribes, and

Northwestern Band of Shoshone Nation, Eastern Shoshone Tribe of the Wind River Reservation, and Cedar Band of Paiute Indians (sent *April 10, 2018*). An open house was held and the public was notified of the impacts to cultural resources. No responses or comments concerning cultural resources were received.

SUMMARY

To summarize, Alternative 5 will result in a finding of **No Adverse Effect** and Section 4f *de minimis* impact for 2 architectural properties. Therefore, the Finding of Effect for UDOT Project No F-I15-1(116)11, I-15 Milepost 11 Interchange, Washington City, Washington County, Utah, as a whole remains **No Adverse Effect**.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by UDOT pursuant to 23 *USC* §327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

Please review this document and, providing you agree with the findings contained herein, provide written concurrence. Should you have any questions or need additional information, please feel free to contact Liz Robinson at 801-910-2035 or lizrobinson@utah.gov; or Elizabeth Giraud at 801-965-4917 or egiraud@utah.gov.

Sincerely,



Liz Robinson, M.A., RPA
Cultural Resources Program Manager
UDOT Environmental Services





Elizabeth Giraud, AICP
Architectural Historian
UDOT Environmental Services

Enclosures

cc: Jessica Rice, Project Manager
Tyler Allen, Environmental Manager



I-15; Milepost 11 EIS
Alternative 5 Impact to 14 North 300 East

 Property Boundary
 Impact Area



0 25 50
Feet



I-15; Milepost 11 EIS
Alternative 5 Impact to 126 North 300 East

Property Boundary
Impact Area



0 25 50 Feet



UTAH GEOLOGICAL SURVEY CORRESPONDENCE

PREPARED BY

Department of Natural Resources
Utah Geological Survey
Martha Hayden

CONTACT

Nicole Tolley
Horrocks Engineers
2162 W. Grove Parkway, Suite 400
Pleasant Grove, Utah 84602





GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Utah Geological Survey

RICHARD G. ALLIS
State Geologist/Division Director

October 10, 2018

Peter Steele
Horrocks Engineers
2162 West Grove Parkway, Suite 400
Pleasant Grove UT 84062

RE: Paleontological File Search and Recommendations for the UDOT I-15 MP 11 Interchange Study Area Project, Washington County, Utah
U.C.A. 79-3-508 (Paleontological) Compliance; Request for Confirmation of Literature Search according to the UDOT/UGS Memorandum of Understanding.

Dear Peter:

I have conducted a paleontological file search for the I-15 MP 11 Interchange Project study area in response to your email of October 5, 2018. This project qualifies for treatment under the UDOT/UGS executed Memorandum of Understanding.

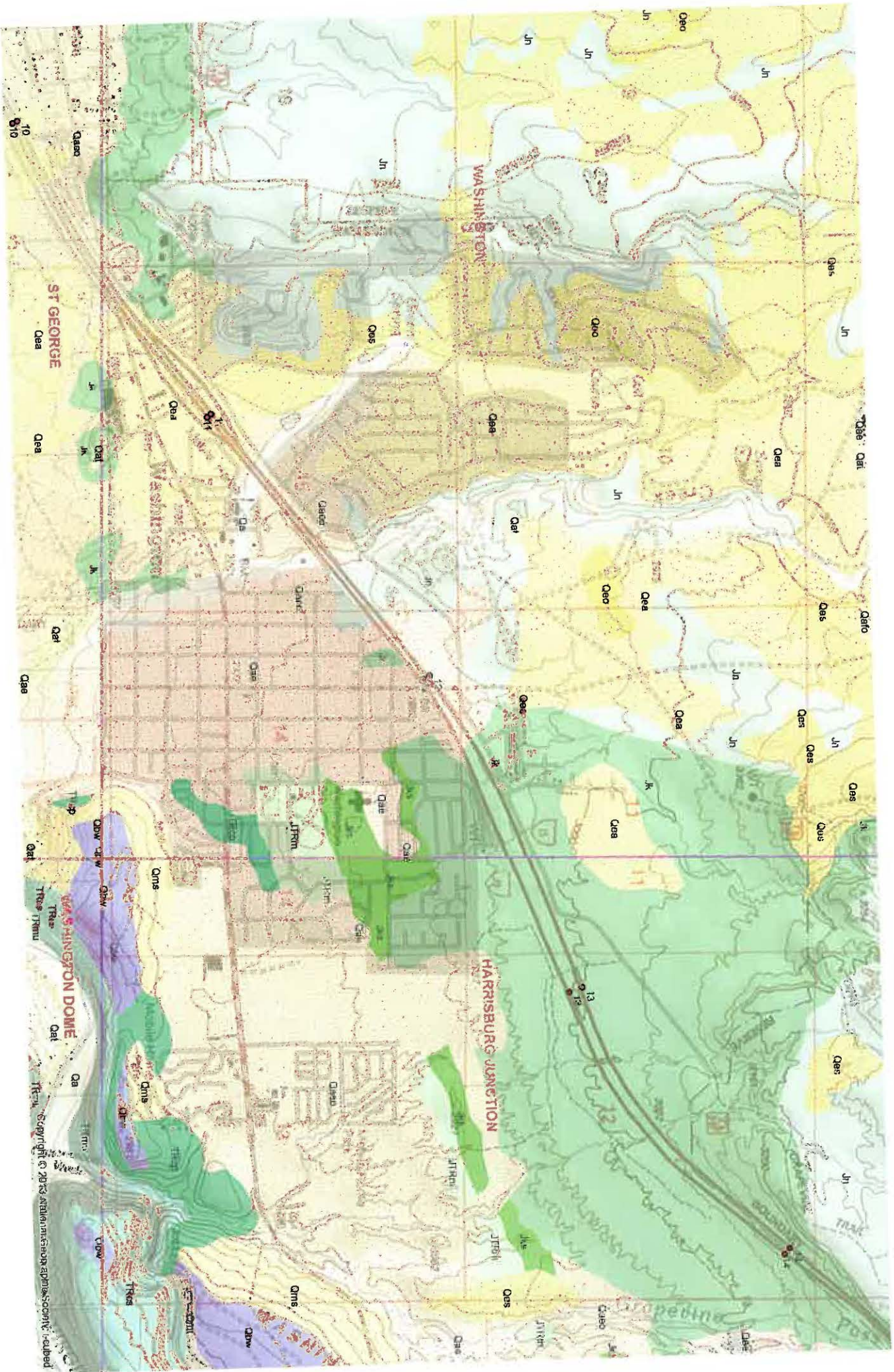
There are several paleontological localities recorded in our files in or near this project area near MP 13. Quaternary and Recent alluvial and eolian deposits that are exposed over much of this project area have a low potential for yielding significant fossil localities (PFYC 2). However, north of about MP 12.2, there are exposures of the Jurassic Kayenta Formation that have a moderate to high potential for yielding significant fossil localities (PFYC 3-4). If these deposits will be impacted by road improvements, we recommend an evaluation by a permitted paleontologist in order to determine and mitigate any potential impacts to paleontological resources. Otherwise, unless fossils are discovered as a result of construction activities, this project should have no impact on paleontological resources.

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

Sincerely,

Martha Hayden
Paleontological Assistant





Copyright © 2013 National Geographic Society. All rights reserved.



WARM SPRINGS PARK DE MINIMIS SECTION 4(F) FINDING

PREPARED BY

UDOT

Liz Robinson

CONTACT

Nicole Tolley

Horrocks Engineers

2162 W. Grove Parkway, Suite 400

Pleasant Grove, Utah 84602





State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

SHANE M. MARSHALL, P.E.
Deputy Director of Engineering and Operations

TERIANNE S. NEWELL, P.E.
Deputy Director of Planning and Investment

December 4, 2018

Mike Shaw
Director – Public Works Department
Washington City
111 North 100 East
Washington, UT 84780

RE: I-15 Milepost 11 Environmental Impact Statement, UDOT Project No. F-I15-1(166)11, PIN: 14560
Notification of Section 4(f) *De Minimis* Impacts Finding

Dear Mr. Shaw,

The Utah Department of Transportation (UDOT) is preparing to undertake the subject project. The purpose of this letter is to notify you that UDOT intends to make a *de minimis* impact finding regarding the proposed Warm Springs Park. This finding is made pursuant to Section 4(f) of the Department of Transportation Act of 1966, 23 CFR 774, and Section 6009 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The review, consultation and other actions required by these laws and rules are being carried out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding dated January 17, 2017, and executed by the Federal Highway Administration (FHWA) and UDOT.

UDOT has initiated an Environmental Impact Statement (EIS) on a proposal to address current and future transportation and safety needs at the Interstate 15 (I-15)/Green Spring Drive Interchange (Exit 10) and the surrounding roadway system in Washington City, Utah.

The EIS is studying the No-action Alternative and four build alternatives. One of the build alternatives, Alternative 4 (Main Street Interchange), has the potential to affect the proposed Warm Springs Park. Alternative 4 would construct a new interchange at the intersection of I-15 and Main Street in Washington, and widen Main Street to five lanes between I-15 and Telegraph Street. It would also include improvements to the Telegraph Street/Green Spring Drive intersection and surrounding roadway network.

The Section 4(f) resource affected by this project is the proposed Warm Springs Park, which is planned to be located north of I-15 at approximately 200 West. The land for this park, identified on the March 2015 Washington City Recreation Master Plan, is owned by Washington City and is thus publicly owned.

Construction of Alternative 4 (Main Street Interchange) would require an acquisition at the eastern corner of the proposed park totaling 0.03 acres (1,310 square feet). This acquisition qualifies as a use and *de minimis* impact under Section 4(f).

The transportation use of the resource does not adversely affect any of the activities, features, and attributes that qualify the future park for protection under Section 4(f). Please see the attached figure for an illustration of the impact.

UDOT is affording Washington City an opportunity to review and comment on the Section 4(f) evaluation for this project. UDOT is required to consult with the official with jurisdiction over Section 4(f) resources potentially affected by the undertaking.

Please review this document and, providing you agree with the findings contained herein, sign and date the signature line at the end of this letter. Should you have any questions concerning this matter, please contact me at (801) 910-2035 or lizrobinson@utah.gov.

Sincerely,



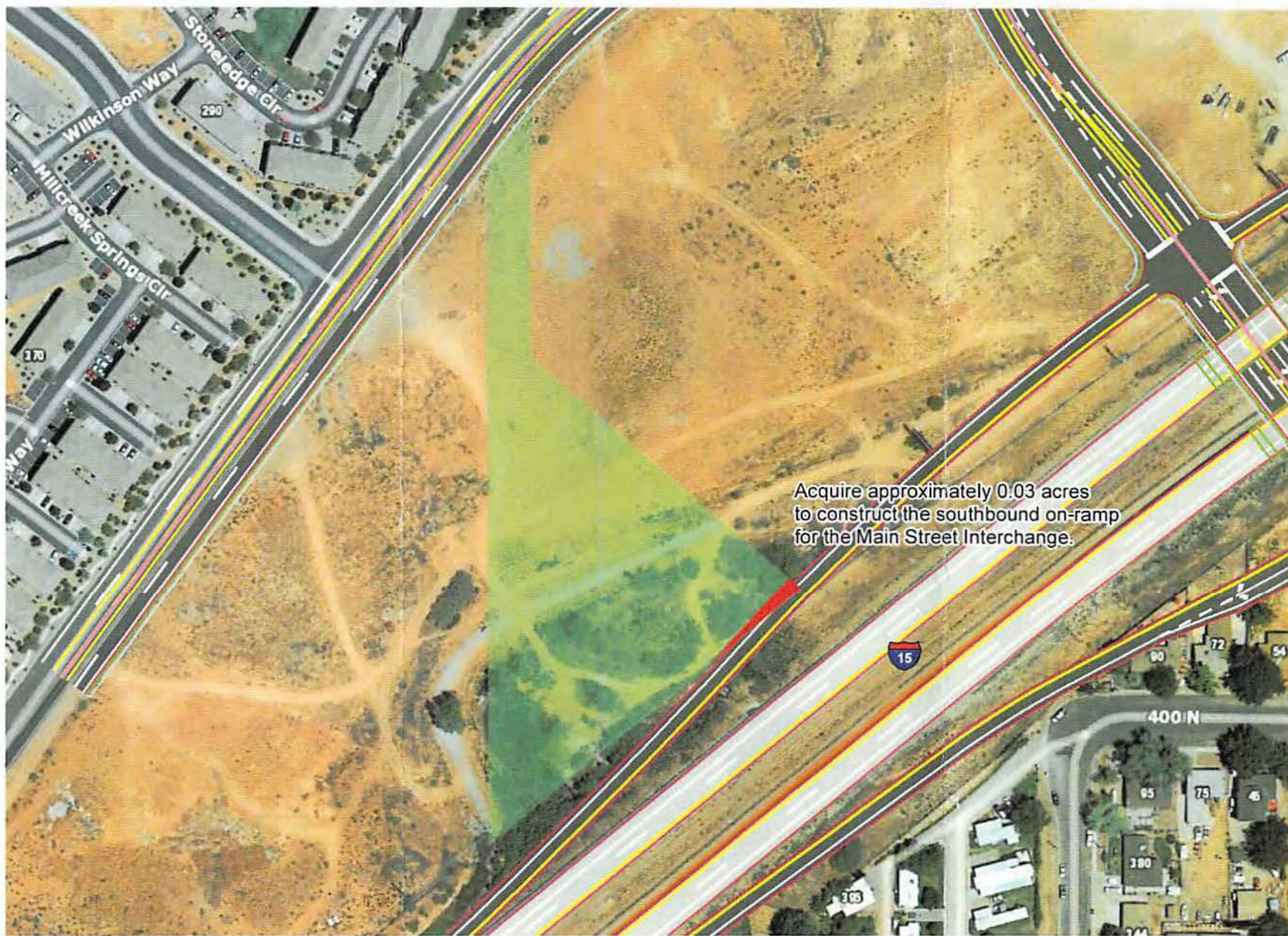
Liz Robinson
Cultural Resources Program Manager
Utah Department of Transportation

Regarding the proposed Warm Springs Park, located in Washington City, I concur with the Section 4(f) evaluation described above and understand UDOT's intent to make a Section 4(f) *de minimis* impact finding based on this written concurrence.



Mike Shaw
Director – Public Works Department
Washington City

12/18/18
Date



I-15; Milepost 11 EIS
Alternative 4 Impact to Warm Springs Park

Future Park

Impact Area

N

0

0.025

0.05

Miles



AQUATIC RESOURCES DELINEATION REPORT

PREPARED BY

Horrocks Engineers
Nathan Clarke

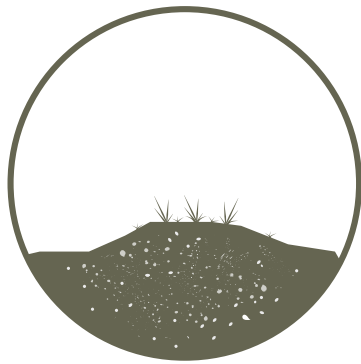
CONTACT

Ryan Pitts
Horrocks Engineers
2162 W. Grove Parkway, Suite 400
Pleasant Grove, Utah 84602

Aquatic Resources Delineation Report

In support of

I-15; Milepost 11 Interchange



Prepared for
Utah Department of Transportation
Region 4

Project No.F-I15-1(166)11
PIN 14560



Prepared by

HORROCKS
ENGINEERS

Horrocks Engineers
2162 West Grove Parkway, Suite 400
Pleasant Grove, UT 84062



May 2018

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

Table of Contents

Project Introduction	1
Directions to Delineation Area.....	1
Site Description	1
Vegetation	1
Soils	3
Hydrology	4
Existing Field Conditions.....	4
Aquatic Resources Delineation Methodology	4
Delineation Methodology for Wetlands.....	4
Delineation Methodology for Stream Channels.....	5
Delineation Results.....	5
Wetland Features.....	6
Other Waters of the U.S.....	8
Interstate or Foreign Commerce Connection.....	9
Contact Information for the Applicant and Owner	9
References	9
Appendix A: Maps	11
Appendix B: Data Forms and Photos.....	35
Appendix C: Soil Map and Legend.....	93
Appendix D: Aquatic Resources Excel Spreadsheet	99
Appendix E: Jurisdictional Determination	103

Table 1: Common Plants in the Delineation Study Area	2
Table 2: Soils in the Delineation Study Area.....	3
Table 3: Summary of Waters of the U.S.....	5
Table 4: Wetland Indicators for Each Sample Point.....	6

Project Introduction

Horrocks Engineers has prepared this Aquatic Resources Delineation Report in support of the Utah Department of Transportation (UDOT), with Washington City, in initiating the scoping process for the I-15 Milepost 11 Interchange Environmental Study in Washington County, Utah. The I-15/Green Spring Drive (Exit 10) Interchange and the surrounding roadway system (see enclosed Study Area Map) currently experiences, and is projected to experience increased, traffic congestion in the future. The purpose of the assessment is to identify the best solution to improve existing and future traffic congestion within the study area (I-15 between Green Spring Drive (Exit 10) and Washington Parkway (Exit 13) taking into account any potential impacts to the natural and built environment.

The project is located in Washington County, Utah in Sections 11, 12, 14, and 15 of Township 42 South, Range 15 West of the Salt Lake Meridian. The coordinates for the beginning and end of the project are Lat. 37.1255338301958 and Lng. -113.530275874004 and Lat. 37.1504705855364 and Lng. -113.483234743318 respectively.

The purpose of this report is to identify and map potential wetlands and other waters of the U.S. (WoUS) in the delineation study area. Impacts to these features from the proposed improvements, as well as strategies for avoidance and minimization, will need to be considered. See Appendix A for a project location map. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into navigable waters, which has been defined to include tributaries and adjacent wetlands. It is likely that the proposed new interchange project will have some impacts to wetlands and/or WoUS, thus a Section 404 permit will need to be obtained. The Corps will make final determinations of wetland boundaries and jurisdictions as waters of the U.S. All wetlands are considered protected by the Federal Highway Administration (FHWA) under Executive Order (EO) 11990. The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

Directions to Delineation Area

The proposed project site is along I-15, Main Street, and 300 East in Washington, Utah. To arrive at the project site from I-15 in St. George, Utah, travel a short distance north on I-15 to the Green Springs Drive Exit (Exit 10). This interchange is the beginning of the delineation study area. To arrive at the northern end of the project, continue north on I-15 to the Washington Parkway Exit (Exit 13). The project limits and delineation study area are located in UDOT right-of-way and extend into Washington City. The delineation results within UDOT right-of-way can be verified by Corps' personnel without permission. Portions of the study area occur on private property and Corp's personnel will need to be escorted by a project team member to verify the delineation on these properties.

Site Description

The delineation study area covers approximately 574 acres in the northern-most portion of the Mojave Desert. The proposed project is located on I-15 and dissects Washington City, which is a rapidly growing suburb of St. George and the second largest city in Washington County. The southwestern portion of the study area consists of commercial and residential developments, whereas the northeastern portion is more open. The elevation of the study area varies from 2760' (southwest) to 3060' (northeast).

Vegetation

The study areas' native vegetation community is warm desert shrub and plants typical to this community include; creosote bush, black-brush, cholla, desert willow, burro-brush, sand sagebrush, and galleta. Much of the existing upland vegetation occurring within the study area has been disturbed or has been developed. The undeveloped disturbed areas mainly support weedy grasses, forbs and woody species. The wetter areas associated with the Mill Creek and various seeps are dominated by willow, cottonwood, tamarisk, cattail, three-square, Baltic rush, and alkali muhly. Table 1 lists common plants found within the delineation study area and their associated wetland indicator status.

Table 1: Common Plants in the Delineation Study Area

Common Name	Scientific Name	Wetland Indicator Status*
Hydrophytic Plants		
Yerba Mansa	<i>Anemopsis californica</i>	OBL
Watercress	<i>Nasturtium officinale</i>	OBL
Narrowleaf Cattail	<i>Typha angustifolia</i>	OBL
Broadleaf Cattail	<i>Typha latifolia</i>	OBL
Three-square	<i>Schoenoplectus pungens</i>	OBL
Baltic Rush	<i>Juncus balticus</i>	FACW
Alkali Muhly	<i>Muhlenbergia asperifolia</i>	FACW
Fremont Cottonwood	<i>Populus fremontii</i>	FACW
Pacific Willow	<i>Salix lasiandra</i>	FACW
Dock-Leaf Smartweed	<i>Persicaria lapathifolia</i>	FACW
Annual Rabbit's foot Grass	<i>Polypogon monspeliensis</i>	FACW
Coyote Willow	<i>Salix exigua</i>	FACW
Showy Milkweed	<i>Asclepias speciosa</i>	FAC
Mule's Fat	<i>Baccharis salicifolia</i>	FAC
Tall Scouring Rush	<i>Equisetum hyemale</i>	FAC
Crack Willow	<i>Salix fragilis</i>	FAC
Five stem Tamarisk	<i>Tamarix chinensis</i>	FAC
Rough Cocklebur	<i>Xanthium strumarium</i>	FAC
Non-hydrophytic Plants		
Tree of Heaven	<i>Ailanthus altissima</i>	FACU
Bermuda Grass	<i>Cynodon dactylon</i>	FACU
Prickly Lettuce	<i>Lactuca serriola</i>	FACU
Common Panic Grass	<i>Panicum capillare</i>	FACU
Himalayan Blackberry	<i>Rubus armeniacus</i>	FACU
Madwort	<i>Asperugo procumbens</i>	UPL
Cheat Grass	<i>Bromus tectorum</i>	UPL
Single-leaf Ash	<i>Fraxinus anomala</i>	UPL
White Sweet-Clover	<i>Melilotus albus</i>	UPL
Dyer's Madder	<i>Rubia tinctorum</i>	UPL
Prickly Russian Thistle	<i>Salsola iberica</i>	UPL

*USACE 2016, National Wetland Plant List – Arid West

OBL: Obligate Wetland – Almost always occur in wetlands

FACW: Facultative Wetland – Usually occur in wetlands, but may occur in non-wetlands

FAC: Facultative – Occur in wetlands and non-wetlands

FACU: Facultative Upland – Usually occur in non-wetland, but may occur in wetlands

UPL: Obligate Upland – Almost never occur in wetlands

Soils

The dominant soil orders in this area are Aridisols and Entisols. These soils dominantly have a thermic soil temperature regime, an aridic soil moisture regime, and mixed or carbonatic mineralogy. They generally are well drained to excessively drained, loamy-skeletal or sandy-skeletal, and shallow to very deep. The soil survey information compiled by NRCS identifies 16 soil mapping units within the delineation study area. Two of these soils are included on the Utah Hydric Soils list (USDA 2010). See Table 2 for general soils information obtained from the NRCS Web Soil Survey. For attached soils map and legend, see Appendix C.

Table 2: Soils in the Delineation Study Area

Soil Series Name	Percent Coverage of Study Area	Acres in Delineation Study Area	Hydric Soil?
Badland	0.2%	1.2-acres	No
Borrow pits	1.5%	10.1-acres	No
Eroded land-Shalet complex, warm	36%	246.5-acres	No
Fluvaquents and torrifluvents, sandy	1.5%	10.4-acres	Yes
Gullied land	1.9%	13.2-acres	No
Harrisburg fine sandy loam, 1 to 5 percent slopes	8.2%	56.4-acres	No
Hobog-Rock land association	3.6%	24.8-acres	No
Junction fine sandy loam, 2 to 5 percent slopes	12.6%	86.7-acres	No
Laverkin fine sandy loam, 2 to 5 percent slopes	4.7%	32.1-acres	No
Leeds silty clay loam, 1 to 2 percent slopes	1.8%	12.1-acres	No
Pintura loamy fine sand, 1 to 5 percent slopes	2.8%	18.9-acres	No
Rock outcrop	0.2%	1.3-acres	No
St. George silty clay loam	19%	130.1-acres	No
St. George silty clay loam, shallow water table	1.2%	8.2-acres	Yes
Tobler fine sandy loam	3.9%	26.8-acres	No
Water	1%	6.6-acres	No
Totals	100%	685.4-acres	

NRCS Web Soil Survey (2017) websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Hydrology

The study area is located in the Upper Virgin watershed (HUC 15010008). Existing sources of hydrology include Mill Creek along with some small seeps and springs. Mill Creek, which flows north to south through the study area, has perennial flow, with widths that vary from 2 to 15 feet. Mill Creek joins with the Virgin River 1.5 miles south of I-15. Most of the rainfall for this area occurs in the winter months as low-intensity precipitation from Pacific storms that are frontal in nature. High-intensity, convective thunderstorms can occur during the summer and produce ephemeral flows in desert washes.

Existing Field Conditions

The delineation field work was conducted by Terry Johnson and Nathan Clarke on September 26 and 27, 2017. Weather data shows that 0.02 inches of precipitation fell between July 31 and August 30 in this area. The temperatures during the field visit was 82 degrees, which is average for this time of the year. The nearby weather station in Washington, Utah indicates that the area on average receives 9.7 inches of annual precipitation (U.S. climate data). Precipitation recorded for the area was 2.17 inches during the month of July, 0.40 inches in August, and 0.59 inches in September, totaling 3.16 inches, which is slightly above normal for the three-month period.

Aquatic Resources Delineation Methodology

Delineation Methodology for Wetlands

The wetland delineation was completed in accordance with the U.S. Army Corps of Engineers' (USACE) 1987 *Wetland Delineation Manual* (USACE 1987) and the *Regional Supplement: Arid West Region Version 2.0* (USACE 2008). All potential wetland areas were verified for wetland indicators as established in the above delineation manuals. The following procedures were implemented at each sample point to determine presence of wetland indicators, and the collected information was recorded on Arid West Supplement V2 Data Forms. Photographs were also taken to document the sample point (See Appendix B for data forms and photos).

Hydrophytic Vegetation: All plant species within a five-foot radius area of the sample point were recorded. The percent of relative cover for each species was determined by estimating aerial cover. The indicator status of each species was determined by using the 2016 National Wetland Plant List - Arid West (USACE 2016). Vegetation species comprising of at least twenty (20) percent of the total aerial cover in its stratum were considered dominant, following the guidelines of the USACE 50/20 rule. If more than fifty (50) percent of the dominant plant species had an indicator status of obligate wetland species (OBL), facultative wetland species (FACW), or facultative species (FAC), the sample point met the hydrophytic vegetation parameter.

Hydric Soils: At the sample point, a soil pit was dug to a minimum depth of 18 inches to assess soil characteristics and water conditions. A profile of the soil pit was used to determine soil color, texture and moisture at different depths within the soil profile. Colors of the soil profile and any redox features were identified by comparing a moistened soil sample to the Munsell® Soil Color Charts (Munsell® 2000). Soil texture and moisture were determined by feeling the soil samples. If the soil characteristics met one of the primary hydric soil indicators or two or more secondary hydric soil indicators, identified in the Arid West Regional Supplement (USACE 2008) and the Field Indicators of Hydric Soils in the U.S. Version 8.1 (USDA 2010), the sample point met the hydric soils parameter.

Wetland Hydrology: The soil pits were also examined for the presence or absence of hydrologic indicators. These hydrologic indicators are described in the Arid West Regional Supplement. If it was determined that at least one primary hydrologic indicator or two or more secondary hydrologic indicators were present, the sample point met the hydrologic parameter.

Wetland Boundary Determination Procedure: Sample points that met all three parameters, hydrophytic vegetation, hydric soils, and wetland hydrology were classified as occurring in a wetland. A second sample point, located in the adjacent upland, was then documented for the presence of the three indicators. If the

point did not meet all three parameters, the point was classified as occurring in upland. The next step was to define the wetland boundary occurring between the wetland sample point and the upland sample point. Boundaries were based on information gathered from the two sample points and observable changes in elevation and plant communities. Using a hand-held Trimble GeoExplorer XT global positioning system receiver, the wetland boundary and sample points were surveyed and data was downloaded into ArcMAP. The data was then used to produce a map that shows delineated wetland boundaries and sample point locations. Acreages for each wetland polygon were included on the map, and the Cowardin Classification System (Cowardin et al. 1979) was used to designate the wetland type.

Delineation Methodology for Stream Channels

Stream channels were delineated by using the USACE delineation manual, *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008). These stream channels within the project area were identified, and the OHWM for these waters was surveyed using a hand-held Trimble GeoExplorer XT global positioning system receiver. The survey data was downloaded into ArcMAP to produce a map that depicts the delineated WOUS. The acreage for each WOUS within the project area was included on the map and the Cowardin Classification System was used to designate the WOUS type.

Delineation Results

Six wetlands and eight other waters of the U.S. totaling 1.11 acres were identified within the delineation study area. Table 3 summarizes the delineated features (see Appendix A for maps and Appendix B for data forms and photos). All wetlands and waters of the U.S. within the study area were identified, documented, and mapped. Wetland 1, 2, 3, 4a, 4b, and 4c and WoUS 1, 2 and 4 would likely be non-jurisdictional because they are neither a tributary to a navigable WoUS nor a wetland abutting a tributary to a navigable WoUS, however the Corps is ultimately responsible for making jurisdictional determinations. Greater information about delineated features is provided in the paragraphs below the table.

Table 3: Summary of Waters of the U.S.

Feature Name	Cowardin Classification*	Acres	Linear Feet
Wetlands			
Wetland 1	PEM	0.04	NA
Wetland 2	PEM	0.02	NA
Wetland 3	PEM	0.05	NA
Wetland 4a	PEM	0.02	NA
Wetland 4b	PEM	0.03	NA
Wetland 4c	PSS	0.11	NA
Wetland 5a	PEM	0.02	NA
Wetland 5b	PEM	0.01	NA
Wetland 5c	PEM	0.01	NA
Wetland 5d	PEM	0.03	NA
Wetland 5e	PEM	0.19	NA
Wetland 6	PEM	0.01	NA
Wetland Total		0.54	
Other Waters of The U.S.			

Feature Name	Cowardin Classification*	Acres	Linear Feet
Mill Creek	R2UBH	0.20	1,751
WoUS 1 (Dev. Spring)	NA	0.003	20
WoUS 2 Warm Springs	PUBH	0.12	81
WoUS 3 Parallel to I-15	R2UBH	0.02	390
WoUS 4	NA	0.02	242
Wash 1	R4SBC	0.08	574
Wash 2	R4SBC	0.04	275
Wash 3	R4SBC	0.09	384
Other WoUS Total		0.57	
WOUS TOTAL		1.11	3,717

*PEM (Palustrine Emergent), PSS (Palustrine Scrub/Shrub), PUBH (Palustrine Unconsolidated Bottom, Permanently Flooded), R2UBH (Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded), R4SBC (Riverine Intermittent, Streambed, Seasonally Flooded)

Wetland Features

During the wetland delineation fieldwork, sample points were established in wetland and bordering upland vegetation communities for sampling of vegetation, soils, and hydrology characteristics. 13 sample points were taken within the delineation study area to determine the boundaries between wetlands and uplands (See Appendix A). Six of the 13 sample points met the three parameters indicative of wetlands. Table 4 summarizes the sample point data. Appendix A contains data point locations and mapping information. See Appendix B for sample point data forms and photographs.

Table 4: Wetland Indicators for Each Sample Point

Sample Point	Hydrophytic Vegetation Present	Hydric Soil Indicators Present	Hydrology Indicators Present	Is the Sample Point in a Wetland	Figure # (Appendix A)
1	Y	N	Y	N	Map 15 of 18
2	Y	Y	Y	Y	Map 15 of 18
3	N	N	N	N	Map 2 of 18
4	Y	Y	Y	Y	Map 4 of 18
5	Y	Y	Y	Y	Map 4 of 18
6	N	N	N	N	Map 4 of 18
7	Y	N	Y	N	Map 6 of 18
8	Y	Y	Y	Y	Map 4 of 18
9	N	N	N	N	Map 4 of 18
10	Y	Y	Y	Y	Map 3 of 18
11	N	N	N	N	Map 3 of 18
12	Y	Y	Y	Y	Map 3 of 18
13	N	N	N	N	Map 3 of 18

Wetland 1

Wetland 1 occurs on the corner of 200 East and 100 North in Washington City and is 0.04 acre in size. Vegetation cover in this wetland is mainly broadleaf cattail, crack willow, and Bermuda grass, which meets the hydrophytic vegetation indicator. Soil has been disturbed and is mixed with debris (wood, bricks, trash). Even in its disturbed condition, there is sufficient indication of depletion to call it wetland soil. Primary hydrology indicators of *Saturation (A2)* and *High Water Table (A3)* were present. The paired upland pit did not meet any indicators for the three parameters. This small wetland is likely isolated because there is no connection to a WoUS beyond the seep. Wetland 1 is classified as a palustrine emergent (PEM) wetland.

Wetlands 2

Wetlands 2, measured at 0.02 acre, occurs at the base of a hillside seep near 400 North. The vegetation cover in this wetland consists mainly of broadleaf cattail and mule's fat which met the hydrophytic vegetation indicator. The soil met the hydric soil indicator of *Depleted Matrix (F3)*. Primary hydrology indicators of *Saturation (A2)* and *High Water Table (A3)* were present. An old stone wall was built to contain the water coming from the seep, which has created the wetland. The wetland appears to be isolated as there is no surface water connection to a downstream WoUS. Wetland 2 is classified as a palustrine emergent (PEM) wetland.

Wetlands 3

Wetland 3, 0.08 acre in size, is located down-gradient from WoUS 4. The dominant presence of cattail in this area fulfills the hydrophytic vegetation indicator. The soil did not meet a hydric soil indicator, which is likely due to disturbance in and adjacent to the wetland. Secondary hydrology indicators of *Drainage Patterns (B10)* and *FAC-Neutral Test (D5)* were also present. Wetland 3 was likely connected to the Warm Spring on the north side of the freeway in the past, but historic connection has been severed by the I-15 freeway. Water from the springs currently flows under the freeway and is diverted into irrigation ditches and one leg, which flows near Wetland 3, appears to occasionally overflow and provide some water to this wetland depression. The paired upland pit was located on a steep bank adjacent to the wetland and did not meet any of the three indicators. No hydrologic connection to a WoUS was observed. Wetland 3 is classified as a palustrine emergent (PEM) wetland.

Wetlands 4a, 4b, 4c

Wetlands 4a, 4b, and 4c, measured at 0.363 acre, are wetlands occurring around the edge of Warm Springs. The vegetation cover in this wetland consists mainly of Baltic rush and three-square, which met the hydrophytic vegetation indicator. The soil did meet the hydric soil indicator of *Depleted Matrix (F3)*. Primary hydrology indicators of *High Water Table (A2)* and *Saturation (A3)* and were present. The paired upland pit was higher on the bank approximately adjacent to the wetland and did not meet any of the three parameters. The Corps has issued a non-jurisdictional call for these wetlands for being an intra-state isolated water with no apparent interstate or foreign commerce connection (see SPK-2015-00018-SG dated August 14, 2015). Wetland 4a and 4b are classified as palustrine emergent (PEM) wetlands. Wetland 4c is classified as a palustrine scrub-shrub (PSS) wetland.

Wetlands 5a, 5b, 5c, 5d, and 5e

Wetland 5 complex (5a, 5b, 5c, 5d and 5e) occurs adjacent to Mill Creek and along the drainage feeding Mill Creek between I-15 and Buena Vista Boulevard and combined is 0.26 acre in size. This area mainly supports a mix of cattail, Baltic rush, three-square, and tall scouring rush, with some coyote willow, which meets the hydrophytic vegetation indicator. The soil did meet the hydric soil indicator of *Hydrogen Sulfide (F6)* and came close to meeting *Stripped Matrix (S6)*. The soils on this vegetated sandbar are subject to annual deposition of new soil material. Primary hydrology indicators of *High Water Table (A2)*, *Saturation (A3)*, and *Hydrogen Sulfide Odor (C1)* were present. The paired upland pit was a few feet higher on a sloping terrace adjacent to the stream and did not meet any of the three indicators. These wetlands are mainly confined to the channel and were mapped separately from the open water where warranted. The Wetland 5 complex has a continuous connection to Mill Creek and the Virgin River and is classified as a palustrine emergent (PEM) wetland.

Wetlands 6

Wetland 6 occurs adjacent to Mill Creek on the south side of I-15 and is 0.01 acre in size. The vegetation cover was mainly narrowleaf cattail and dock-leaf smartweed; these varieties meet the hydrophytic vegetation indicator. The soil did not meet any hydric soil indicators, which is likely due to flood events occurring over the vegetated sandbar that have deposited layers of sediments that lack hydric soil indicators. Following USACE guidance, these problematic soils should still be considered hydric (See Arid West Delineation Manual pg. 97, par. 3). The paired upland pit was located on the stream terrace and did not meet any of the three indicators. Wetland 6 is classified as a palustrine emergent (PEM) wetland.

Other Waters of the U.S.

Mill Creek

Mill Creek is a perennial stream crossing under I-15 and was flowing at the time of the delineation. The OHWM was surveyed and the length of the stream channel within the study area is 1,751 feet, totaling 0.20 acre. The OHWM was determined by a break in the bank slope, change in vegetation and streambed substrate, and water marks (see OHWM data form in Appendix B). Mill Creek has a direct connection to the Virgin River. The Cowardin classification for Mill Creek is R2UBH (riverine, lower perennial, unconsolidated bottom, permanently flooded).

WoUS 1

WoUS 1 is a very small area in the median of I-15 near a Washington City developed spring and is 0.003 acre in size and 20 feet in length. There was a small amount of surface flow near the wellhead at the time of the delineation that percolated into the ground about 10 feet from where it surfaced. Some coyote willows were present, but the area had been disturbed, due to well maintenance, to where the soils did not meet hydric soil indicators. WoUS 1 does not have a surface connection to a navigable water.

WoUS 2- Warm Springs

WoUS 2 is a pond associated with Warm Springs, sometimes referred to as Boiler Springs, and is 0.12 acre and 81 linear feet in size. Regarding the spring, the Corps has issued a non-jurisdictional determination for being an intra-state isolated water with no apparent interstate or foreign commerce connection (see SPK-2015-00018-SG dated August 14, 2015, located in Appendix E). The Cowardin classification for WoUS 2 is PUBH (palustrine unconsolidated bottom, permanently flooded).

WoUS 3

Within the study area, WoUS 3 begins at a large culvert outlet near Warm Springs and then runs parallel to I-15, eventually flowing into Mill Creek. WoUS 3 is 0.02 acre and 390 linear feet in size. WoUS 3 was flowing at the time of the field visit and does have a surface connection to the Virgin River, which has been identified as a navigable water. The Cowardin classification for WoUS 3 is R2UBH (riverine, lower perennial, unconsolidated bottom, and permanently flooded).

WoUS 4

WoUS 4 flows from Warm Springs to the east side of I-15 via a concrete-line channel where the flow is divided into an irrigation ditch and a diversion box. Since the Corps has issued a non-jurisdictional determination on Warm Springs (see above), it is assumed that these ditches would likewise be non-jurisdictional.

Wash 1

Wash1 crosses under I-15 at approximately MP 13.46. The width of the channel ranges from 3-15 feet throughout the study area and totals 0.08 acre and 574 linear feet. The surveyed OHWM was identified by a break in the bank slope, drift deposits, and water marks (see OHWM data form in Appendix B). The Cowardin classification for Wash 1 is R4SBC (riverine, intermittent, streambed, seasonally flooded).

Wash 2

Wash 2 is 0.04 acre and 275 linear feet in size and is located at MP 13.2. The surveyed OHWM was identified by a break in the bank slope, drift deposits, and water marks (see OHWM data form in Appendix B). The Cowardin classification for Wash 2 is R4SBC (riverine, intermittent, streambed, seasonally flooded).

Wash 3

At 0.09 acre and 384 linear feet, Wash 3 crosses under I-15 at MP 12.92. The surveyed OHWM was identified by a break in the bank slope, drift deposits, and water marks (see OHWM data form in Appendix B). The Cowardin classification for Wash 3 is R4SBC (riverine, intermittent, streambed, seasonally flooded).

Interstate or Foreign Commerce Connection

The waters of the U.S., including wetlands, within the project area are not likely to have a connection to interstate or foreign commerce.

Contact Information for the Applicant and Owner

The applicant and owner for this project are the same:

Utah Department of Transportation, Region 4
Larry Johnson, Environmental Specialist, Region 4
210 West 800 South
Richfield, UT 84701
Ph. (801) 870-4298
lrjohnson@utah.gov

Contact Information for Aquatic Resources Delineation Consultant

Horrocks Engineers
Terry Johnson, PLA
4905 South 1500 West, Suite 100
Riverdale, UT 84405
Ph. (801) 633-1327
terryj@horrocks.com

Horrocks Engineers
Nathan Clarke
2162 West Grove Parkway, Suite 400
Pleasant Grove, UT 84062
Ph. (801) 763-5100
nathanc@horrocks.com

References

Accuweather. 2017. Washington, UT Weather for September 2017. Retrieved from <https://www.accuweather.com/en/us/washington-ut/84780/septemberweather/341198?monyr=9/1/2017&view=table>.

Munsell. 2000. Munsell Soil Color Charts. Gretamacbeth. New Windsor, New York.

U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual (Online Edition). Technical Report Y-87-1. U.S. Army Engineers Waterways Experiment Station. Vicksburg, Mississippi.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Delineation Manual: Arid West Region (Version 2.0). U.S. Army Corps of Engineer Research and Development Center. Vicksburg, Mississippi.

U.S. Army Corps of Engineers (USACE). 2016. Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 Update of wetland ratings. Retrieved from http://wetland_plants.usace.army.mil/

U.S. Army Corps of Engineers (USACE). 2015. Clean Water Rule: Definition of “Waters of the United States”. Retrieved from <https://www.epa.gov/cleanwaterrule/definition-waters-united-states-under-clean-water-act>.

Lichvar, R. W., and S. M. McColley. 2008. A field guide to the identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the western United States. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. (<http://www.crrel.usace.army.mil/library/technicalreports/ERDC-CRREL-TR-08-12.pdf>).

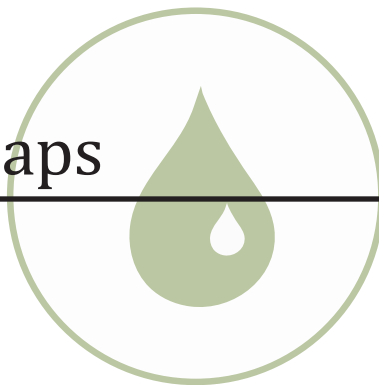
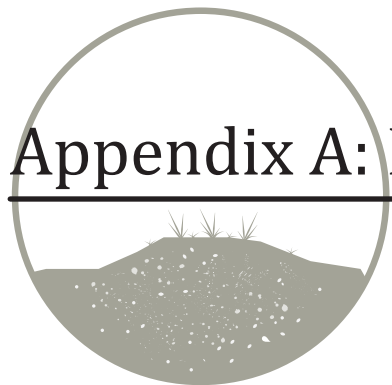
U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). Field Indicators of Hydric Soils in the United States. A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2016. Web Soil Survey. Accessed August 28, 2017. Retrieved from <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>.

U.S. Department of the Interior (USDOI), United States Fish and Wildlife Service (USFWS). 2016. The National Wetland Mapper. Accessed August 28, 2017. Retrieved from www.fws.gov/wetlands/Data/Mapper.html.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service. FWS/OBS-79/31. Washington, DC.

Appendix A: Maps





U.S. Fish and Wildlife Service





National Wetlands Inventory

MP 11 (1)



September 11, 2017

Wetlands

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

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



U.S. Fish and Wildlife Service

National Wetlands Inventory

MP 11(2)



U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

September 11, 2017

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

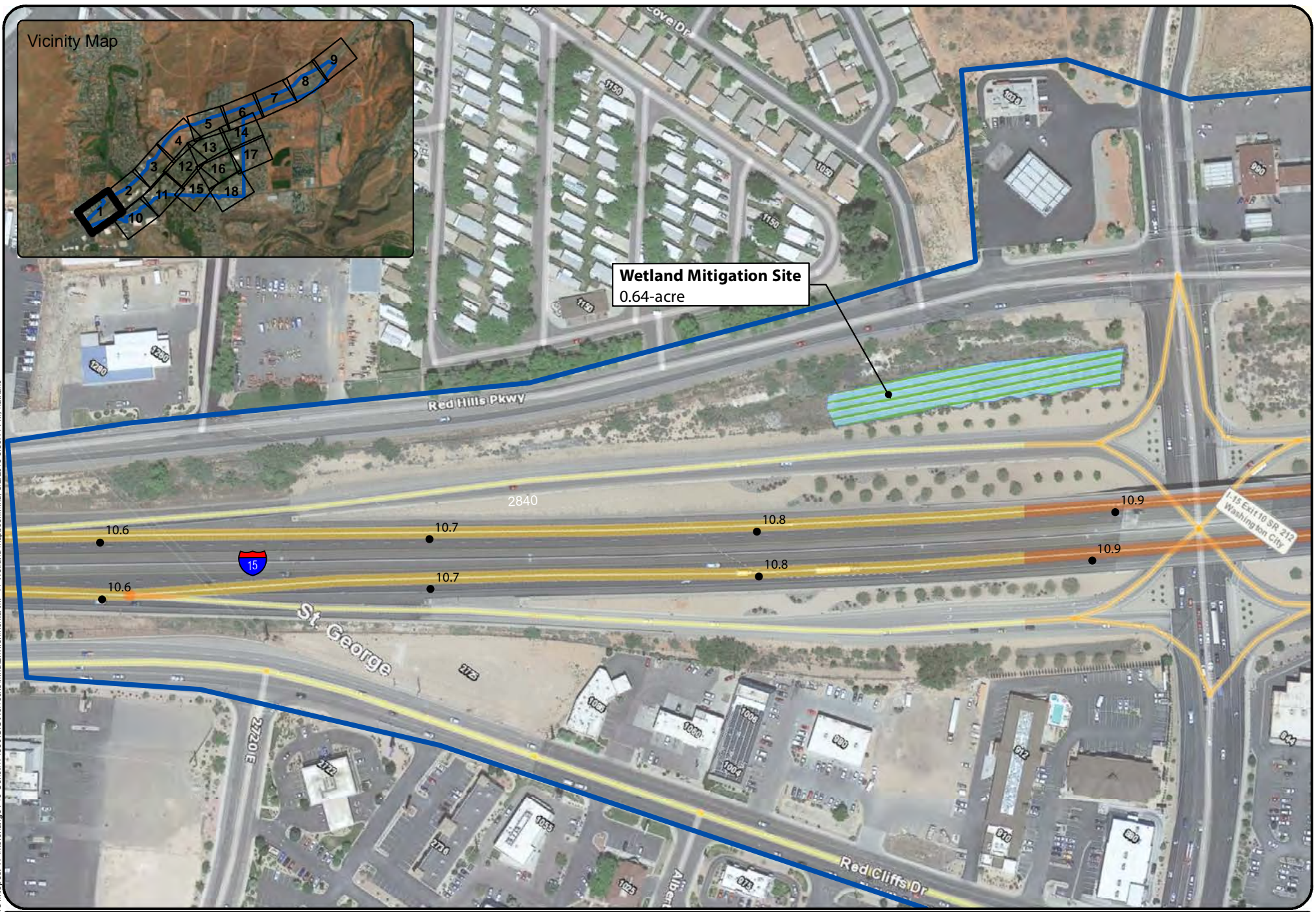
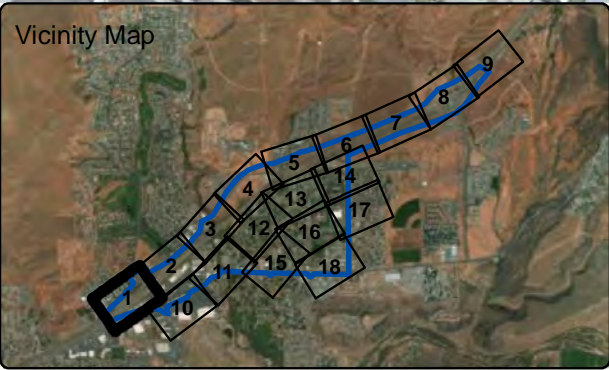
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

Key #13130

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

C:\2017\SG-488-1704\1-15 Milepost 11 Interchange Pre-Const\14560\GIS\Horrocks\MapaEnvironmental\M11 Wetland mapbook.mxd, 5/2/2018 3:56:44 PM, nathanc



Wetland Mitigation Site
0.64-acre

- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |






1 inch = 200 feet

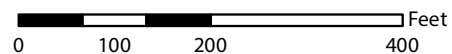


I-15; Milepost 11 Interchange
Aquatic Resources Delineation Map
Map 1 of 18



- | | | | | | |
|--|-------------------|--|------------------------|--|--------------|
|  | Study Area |  | Upland |  | PEM Wetland |
| | Culvert | | Wetland | | PSS Wetland |
| | OHWM Section Line | | UDOT Tenth Mile Points | | 40' Contours |
| | Developed Spring | | OHWM | | |

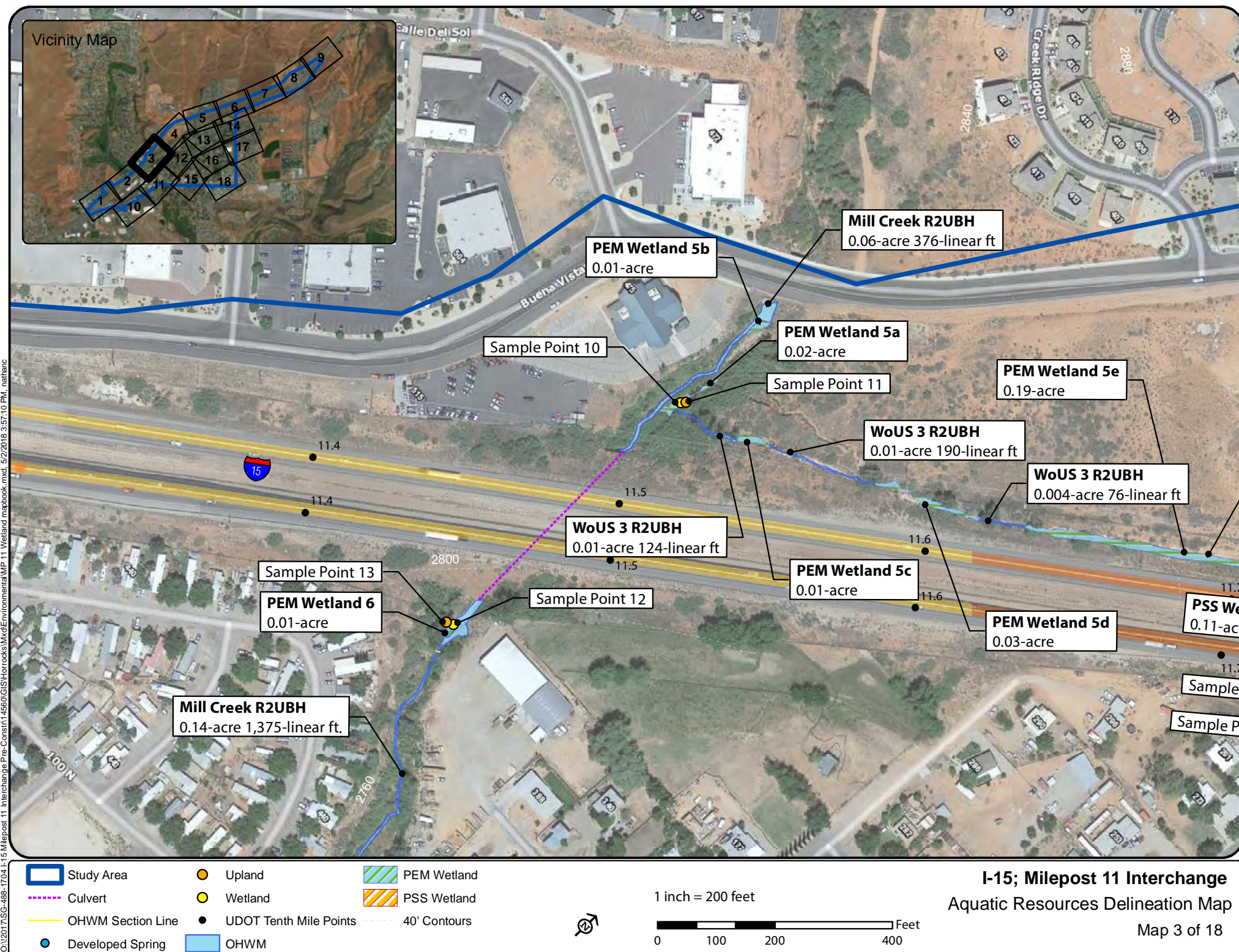
1 inch = 200 feet

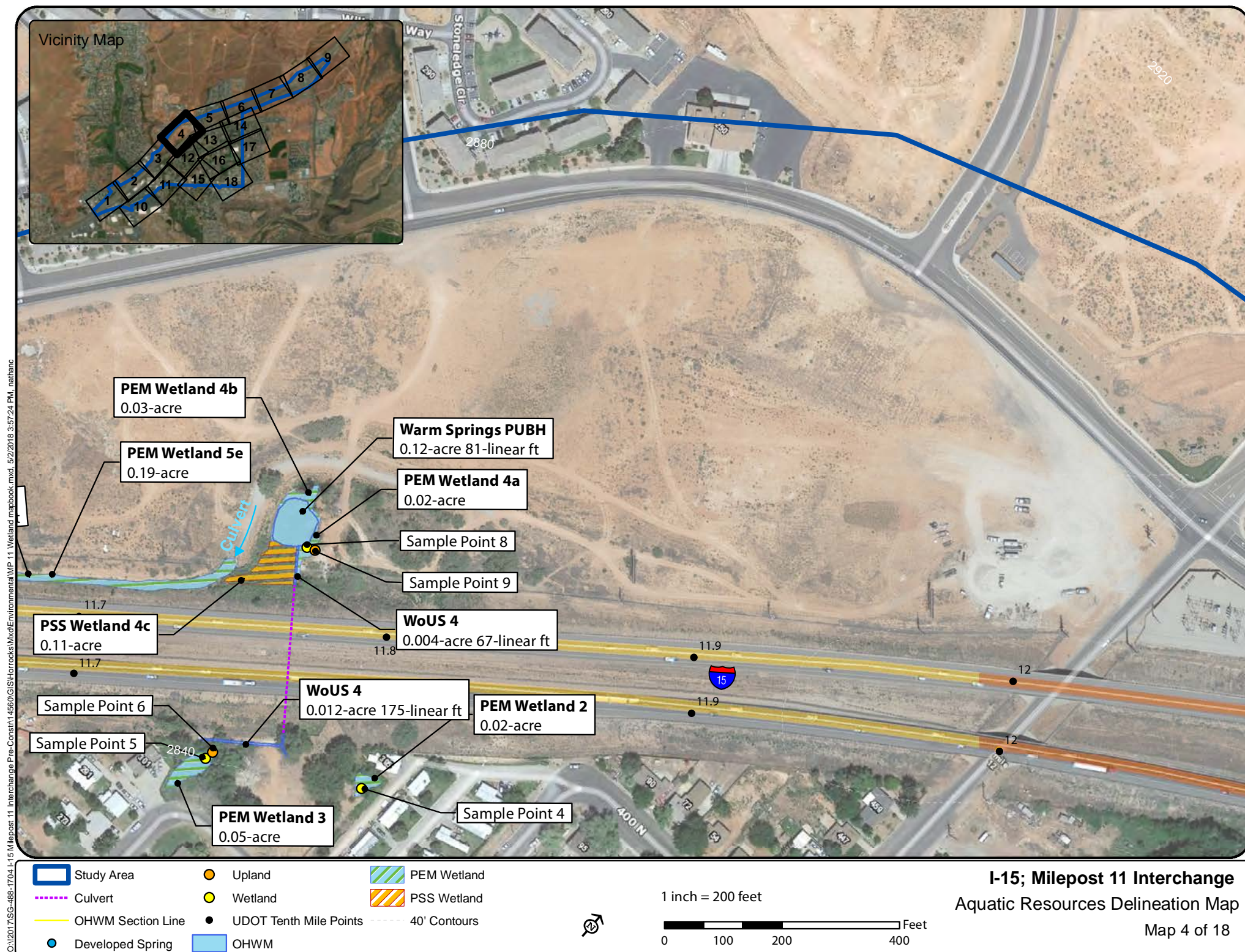


I-15; Milepost 11 Interchange
Aquatic Resources Delineation Map
Map 2 of 18

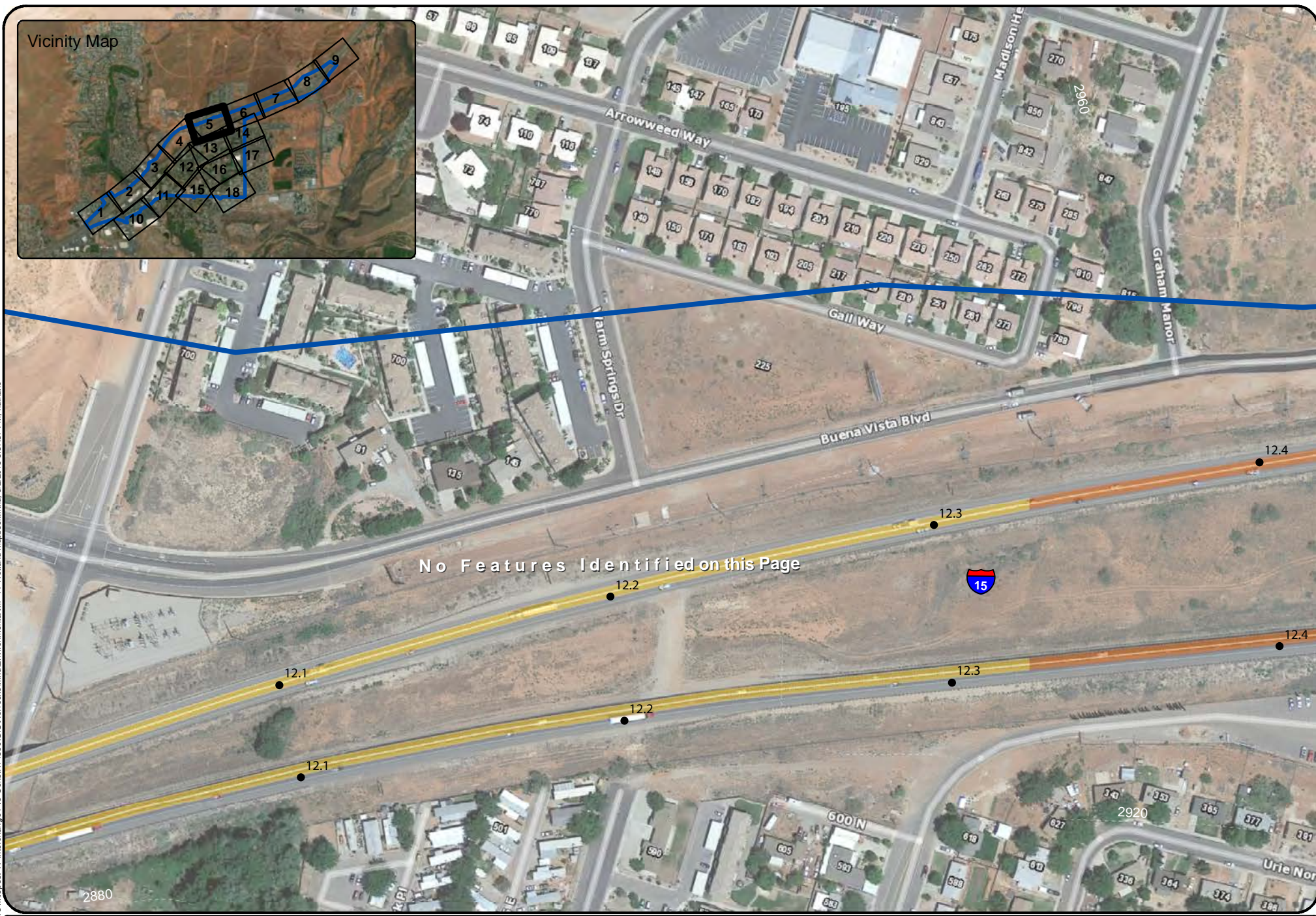
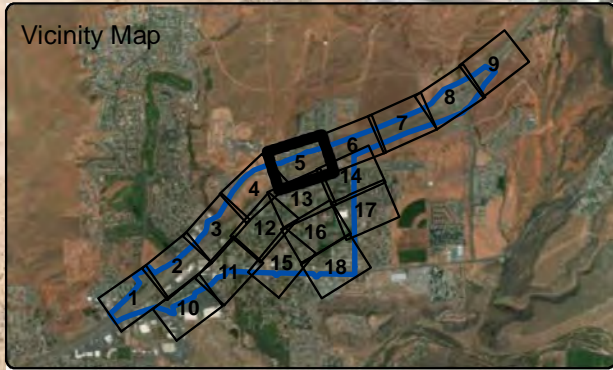
Aquatic Resources Delineation Map

Map 2 of 18





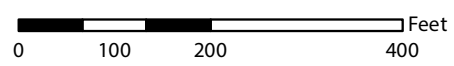
C:\2017\SG-488-1704-1-15 Milepost 11 Interchange Pre-Const\14560\GIS\Horrocks\Map\Environmental\M11 Wetland mapbook.mxd, 5/2/2018 3:57:37 PM, nathanc



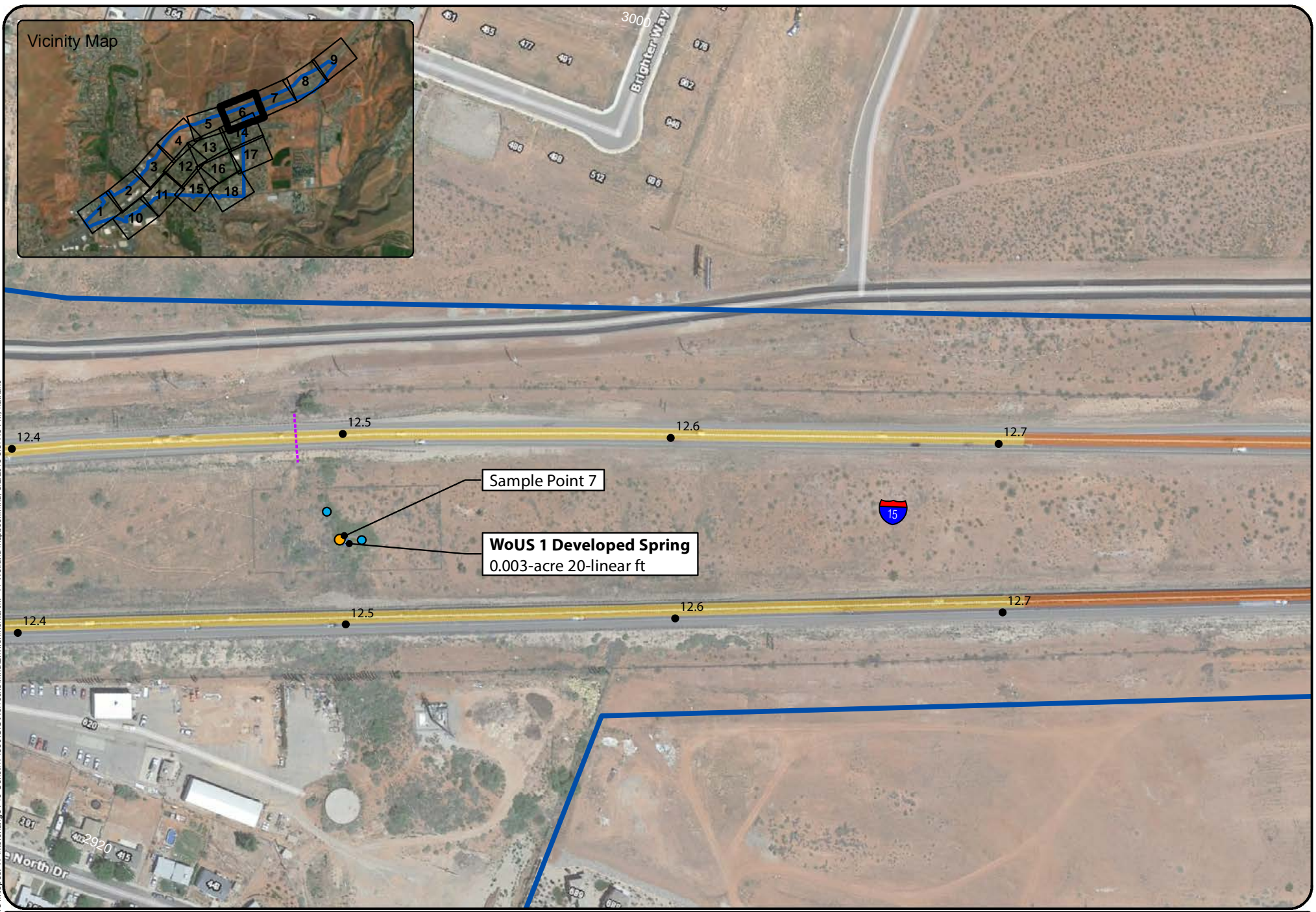
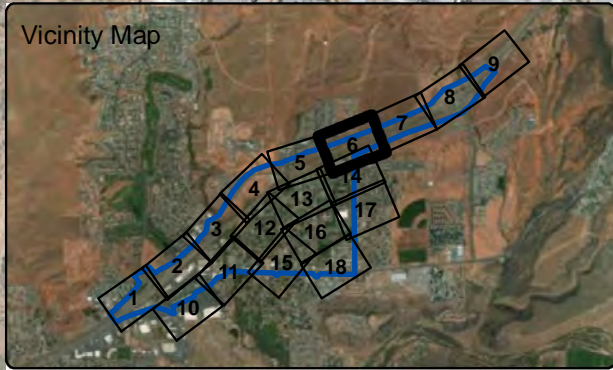
- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



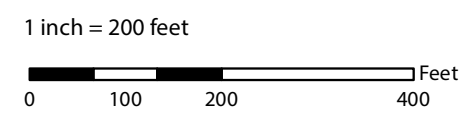
1 inch = 200 feet

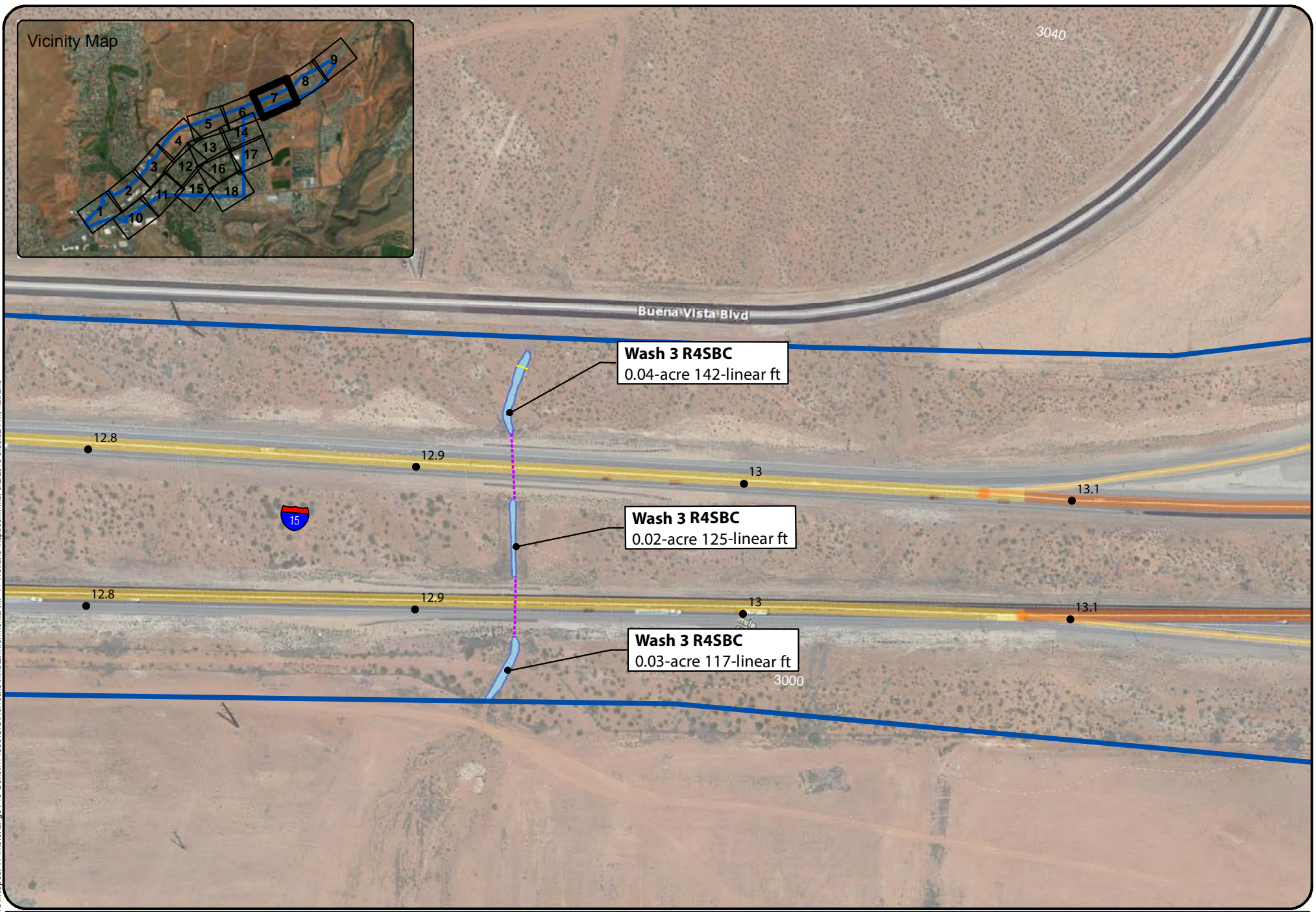
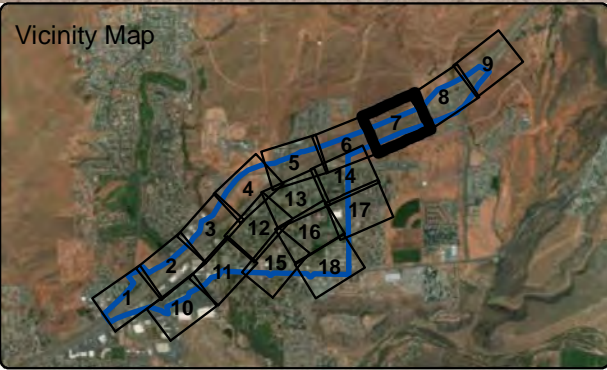


C:\2017\SG-488-1704-L-15 Milepost 11 Interchange Pre-Const\14560\GIS\Horrocks\Map\Environmental\MP 11 Wetland mapbook.mxd, 5/2/2018 3:57:49 PM, nathanc



- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |

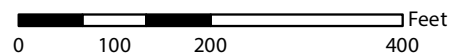


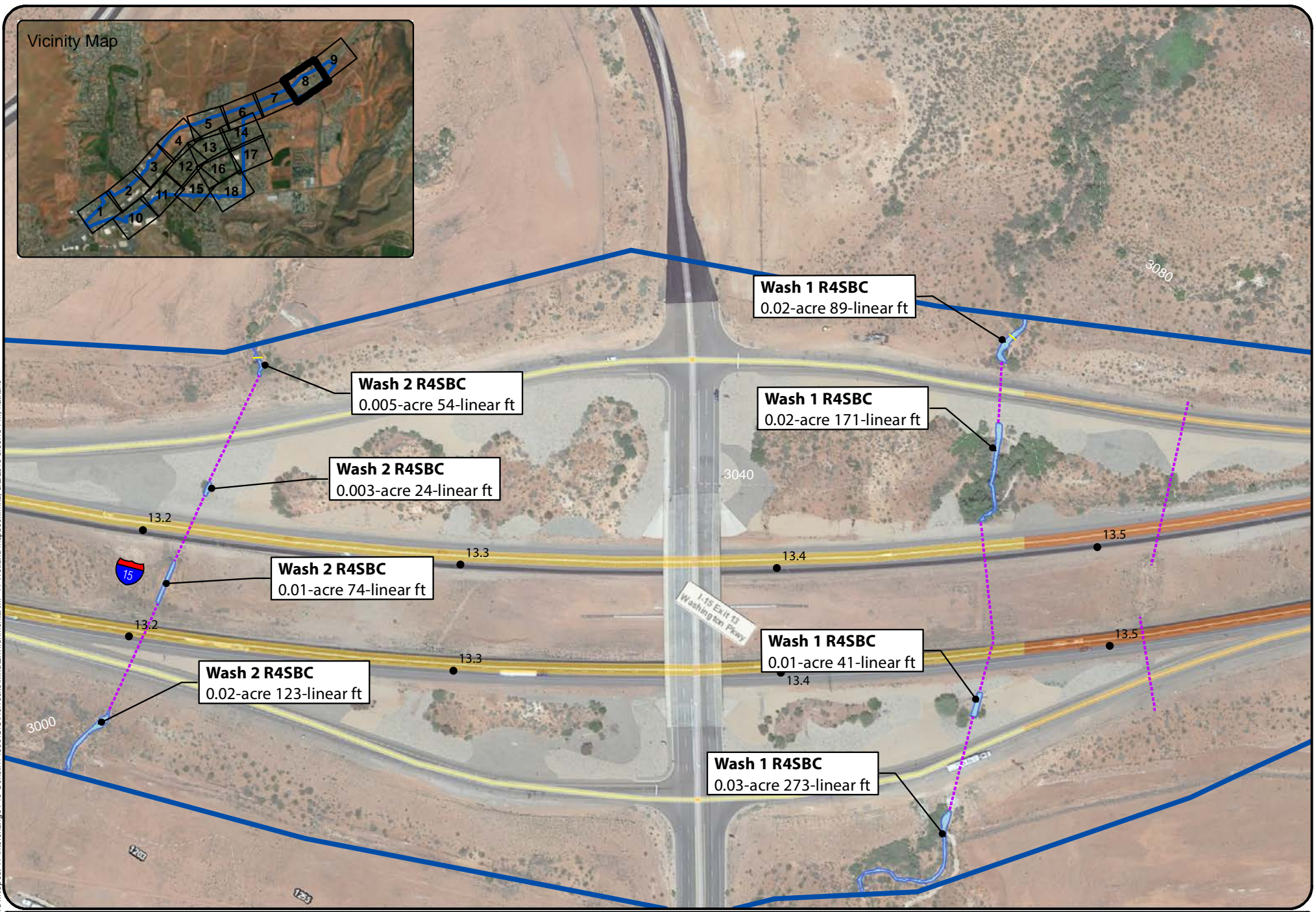
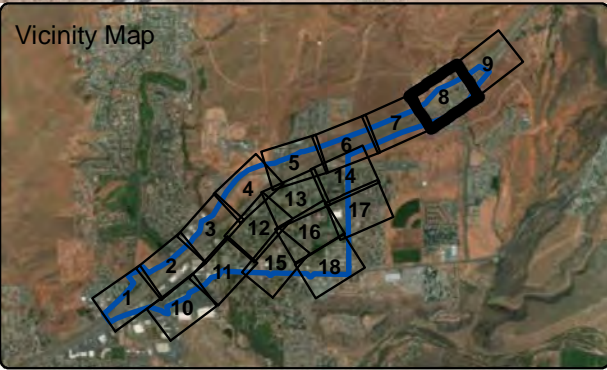


- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OWSM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |

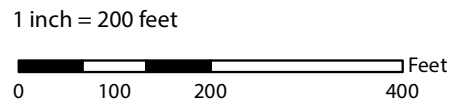


1 inch = 200 feet



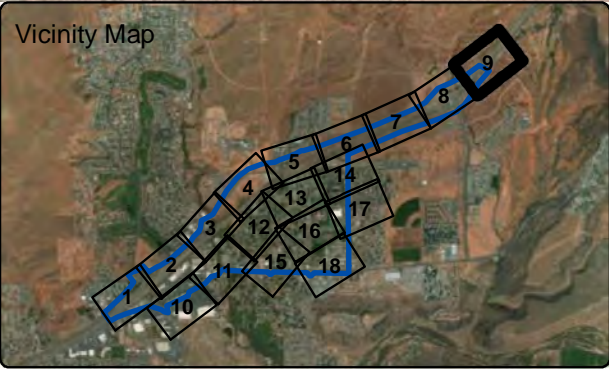


- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



O:\2017\SG-488-1704-1-15 Milepost 11 Interchange Pre-Const\14560\GIS\Horrocks\MapaEnvironmental\MP 11 Wetland mapbook.mxd, 5/2/2018 3:58:15 PM, nathanc

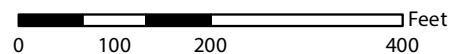
O:\2017\SG-488-1704-1-15 Milepost 11 Interchange Pre-Const\14560\GIS\Horrocks\Mxd\Environmental\MP 11 Wetland mapbook.mxd, 5/2/2018 3:58:30 PM, nathanc



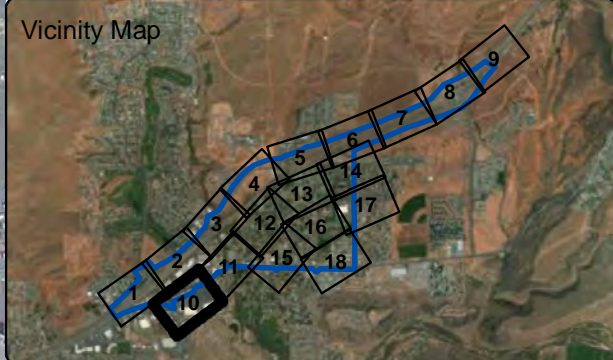
- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



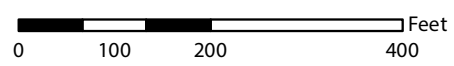
C:\2017\SG-488-1704-L-15 Milepost 11 Interchange Pre-Const(14560GIS\Horrocks)\MapEnvironmental\M11 Wetland mapbook.mxd, 5/2/2018 3:58:48 PM, nathanc



- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



C:\2017\SG-488-1704-1-15 Milepost 11 Interchange Pre-Const\14560\GIS\Horrocks\MapaEnvironmental\MP 11 Wetland mapbook.mxd, 5/2/2018 3:50:05 PM, nathanc



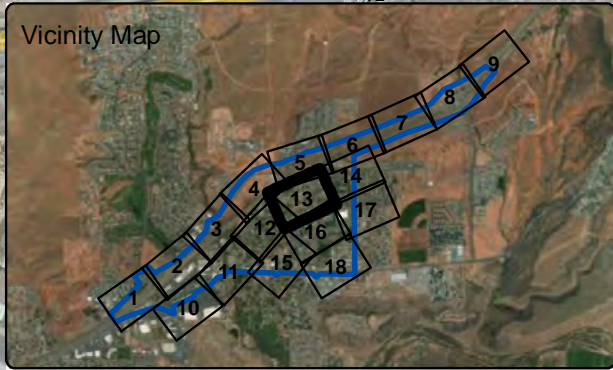
- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet

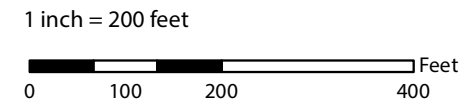


C:\2017\SG-488-1704\1-6 Milepost 11 Interchange Pre-Const\14660\GIS\Horrocks\Map\Environmental\MP 11 Wetland mapbook.mxd, 5/2/2018 3:59:38 PM, nathans



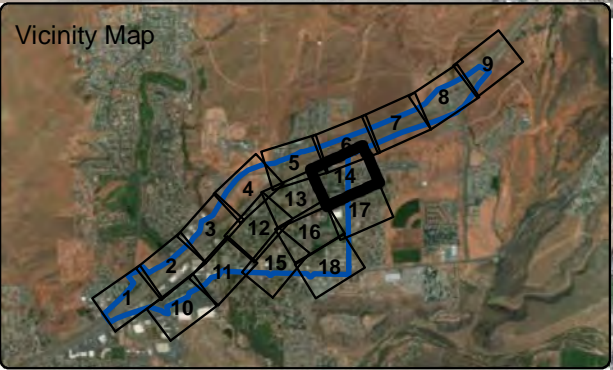
No Features Identified on this Page

- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



C:\2017\SG-488-1704\1-5 Milepost 11 Interchange Pre-Const\14660\GIS\Herrocks\Map\Environmental\MP 11 Wetland mapbook.mxd, 5/2/2018 3:59:54 PM, nathan

Vicinity Map

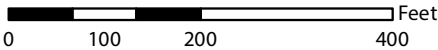


No Features Identified on this Page

- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



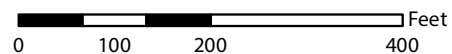
C:\2017\SG-488-1704\1-6 Milepost 11 Interchange Pre-Const\14660\GIS\Horrocks\MapaEnvironmental\MP 11 Wetland mapbook.mxd, 5/2/2018 4:00:12 PM, nathanc



- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |

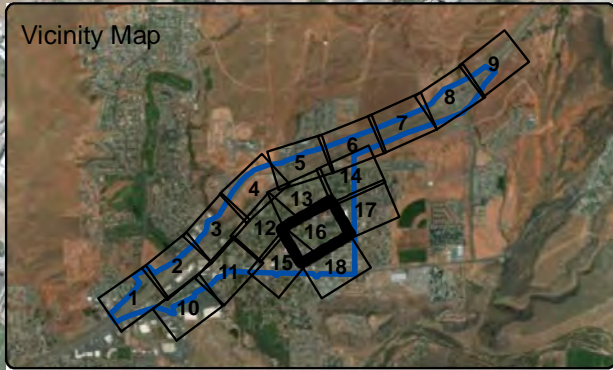


1 inch = 200 feet



I-15; Milepost 11 Interchange
Aquatic Resources Delineation Map
Map 15 of 18

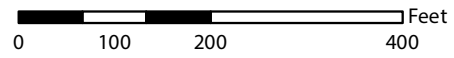
C:\2017\SG-488-1704\1-5 Milepost 11 Interchange Pre-Const\14560\GIS\Horricks\Map\Environmental\MP 11 Wetland mapbook.mxd, 5/2/2018 4:00:27 PM, natlanc



- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



C:\2017\SG-488-1704-1-6 Milepost 11 Interchange Pre-Const(14560)\GIS\Horrocks\MapEnvironmental\M11 Wetland mapbook.mxd, 5/2/2018 4:00:45 PM, nathanc



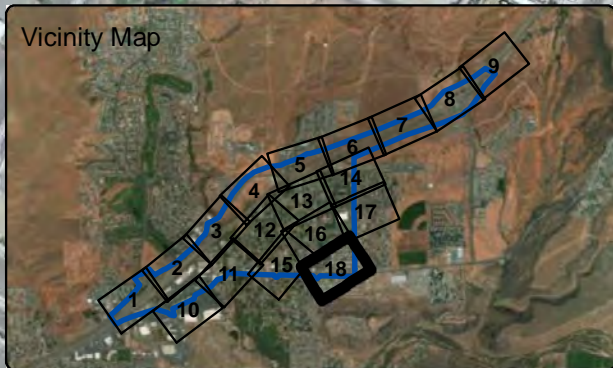
- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



Vicinity Map

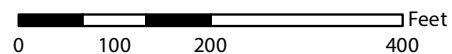


No Features Identified on this Page

- | | | |
|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |

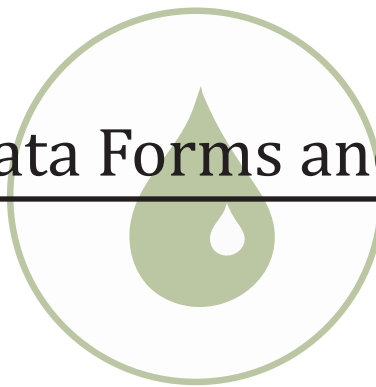
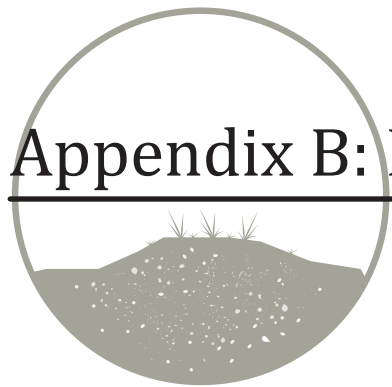


1 inch = 200 feet



I-15; Milepost 11 Interchange
 Aquatic Resources Delineation Map
 Map 18 of 18

Appendix B: Data Forms and Photos



Project/Site: <u>I-15; Milepost 11 Interchange</u>	City/County: <u>Washington, Washington</u>	Sampling Date: <u>9/26/2017</u>
Applicant/Owner: <u>Utah Department of Transportation</u>	State: <u>UT</u>	Sampling Point: <u>1</u>
Investigator(s): <u>Terry Johnson, Nathan Clarke</u>	Section, Township, Range: <u>S15 T42S R15W</u>	
Landform (hillslope, terrace, etc.): <u>Freeway culvert outlet</u>	Local relief (concave, convex, none): <u>Convex</u>	Slope (%): <u>5</u>
Subregion (LRR): <u>D - Interior Deserts</u>	Lat: <u>37.1313151877</u>	Long: <u>-113.520790258</u>
Datum: <u>NAD 83</u>		
Soil Map Unit Name: <u>St. George silty clay loam, shallow water table</u>		NWI classification: <u>none</u>

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>	
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>	
Remarks: Area is at a pipe culvert outlet that experiences some flow during storm events. No OHWM is present up the channel or down the channel.			

Tree Stratum	(Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
Total Cover:		%		
Sapling/Shrub Stratum				
1.				
2.				
3.				
4.				
5.				
Total Cover:		%		
Herb Stratum				
1.	<i>Muhlenbergia asperifolia</i>	65	Yes	FACW
2.	<i>Juncus balticus</i>	25	Yes	FACW
3.	<i>Asclepias speciosa</i>	5		FAC
4.	<i>Xanthium strumarium</i>	5		FAC
5.				
6.				
7.				
8.				
Total Cover:		100%		
Woody Vine Stratum				
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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100	(A)	210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0¹

☐ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Small patch of wetland vegetation at a pipe outlet.

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-3	7.5 YR 3/2	100					Loamy Sand	
3-18	7.5 YR 3/3	90					Loamy Sand	
3-18	5 YR 5/6	10					Loamy Sand	Native red sand, not redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Although wetland vegetation is present, the soils do not exhibit any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☐ No ☒

Depth (inches): _____

Saturation Present? Yes ☐ No ☒
(includes capillary fringe)

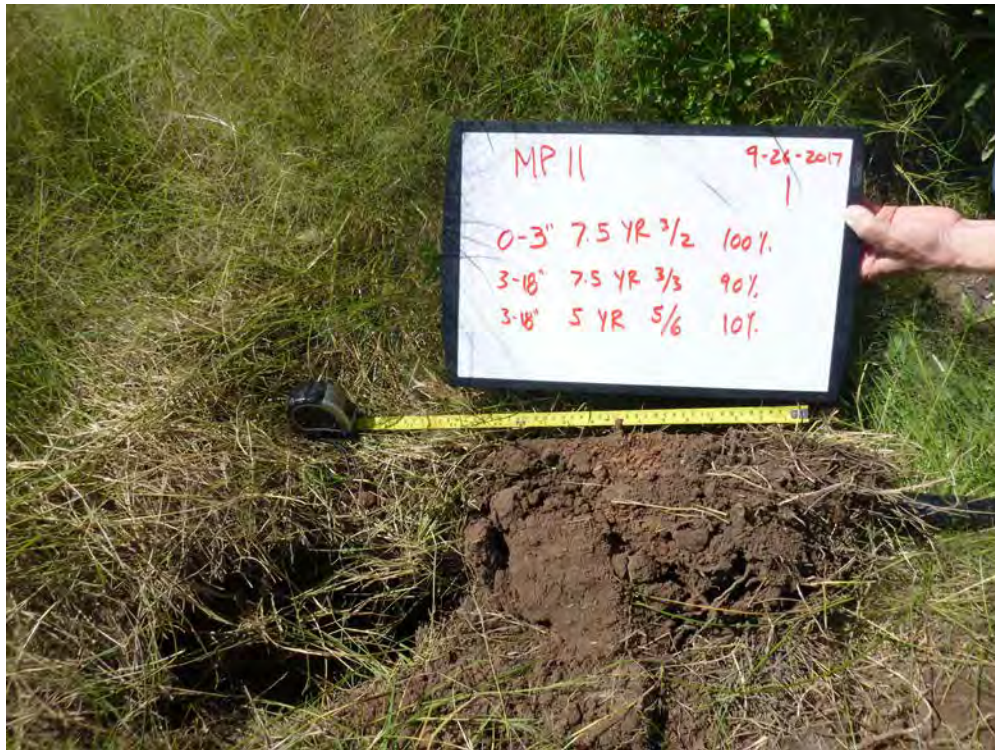
Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: No primary indicators present. Two secondary indicators were present. Culvert only flows during large storm events.

Sample Point 1



Soil Profile



General Condition

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/26/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 2
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S15 T42S R15W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): D - Interior Deserts Lat: 37.1313076379 Long: -113.506289872 Datum: NAD 83
 Soil Map Unit Name: St. George silty clay loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: Seep on a hillside. Water surfaces within the wetland, but no evidence of flow down gradient from the seep.					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)			
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)			
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.0 %</u> (A/B)			
4. _____	_____	_____	_____	Total Cover: <u> </u> %			
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet:			
1. <i>Tamarix chinensis</i>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____			
2. <i>Salix fragilis</i>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	OBL species	<u>60</u>	x 1 =	<u>60</u>
3. _____	_____	_____	_____	FACW species	_____	x 2 =	<u>0</u>
4. _____	_____	_____	_____	FAC species	<u>25</u>	x 3 =	<u>75</u>
5. _____	_____	_____	_____	FACU species	<u>40</u>	x 4 =	<u>160</u>
Total Cover: <u>25 %</u>				UPL species	_____	x 5 =	<u>0</u>
<u>Herb Stratum</u>				Column Totals:	<u>125</u>	(A)	<u>295</u> (B)
1. <i>Typha latifolia</i>	<u>60</u>	<u>Yes</u>	<u>OBL</u>	Prevalence Index = B/A = <u>2.36</u>			
2. <i>Cynodon dactylon</i>	<u>25</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators:			
3. <i>Lactuca serriola</i>	<u>15</u>	_____	<u>FACU</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
4. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
5. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
6. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.			
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
Total Cover: <u>100 %</u>							
<u>Woody Vine Stratum</u>							
1. _____	_____	_____	_____				
2. _____	_____	_____	_____				
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u> </u> %		% Cover of Biotic Crust <u> </u> %					

Remarks:

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-18	5 YR 4/4	80	5 YR 6/1	20	C	M	Sandy	Mixed with gravels and debris

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil has been disturbed and is mixed with debris (wood, bricks, trash). Even in its disturbed condition, there is enough indication of soil depletion to call it wetland soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☒ No ☐

Depth (inches): 7

Saturation Present? Yes ☒ No ☐
(includes capillary fringe)

Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Sample Point 2



Soil Profile



General Conditions

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/26/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 3
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S14 T42S R15W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): D - Interior Deserts Lat: 37.1313067308 Long: -113.506334342 Datum: NAD 83
 Soil Map Unit Name: St. George silty clay loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: Upland area adjacent to seep.					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)			
2.				Total Number of Dominant Species Across All Strata: <u>1</u> (B)			
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0</u> % (A/B)			
4.							
Total Cover: <u> </u> %							
Sapling/Shrub Stratum				Prevalence Index worksheet:			
1.				Total % Cover of: Multiply by:			
2.				OBL species	<u> </u>	x 1 =	<u>0</u>
3.				FACW species	<u>5</u>	x 2 =	<u>10</u>
4.				FAC species	<u> </u>	x 3 =	<u>0</u>
5.				FACU species	<u>95</u>	x 4 =	<u>380</u>
Total Cover: <u> </u> %				UPL species	<u> </u>	x 5 =	<u>0</u>
				Column Totals:	<u>100</u>	(A)	<u>390</u> (B)
				Prevalence Index = B/A = <u>3.90</u>			
Herb Stratum				Hydrophytic Vegetation Indicators:			
1. <i>Cynodon dactylon</i>	<u>80</u>	<u>Yes</u>	<u>FACU</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. <i>Lactuca serriola</i>	<u>15</u>		<u>FACU</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
3. <i>Polypogon monspeliensis</i>	<u>5</u>		<u>FACW</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4.				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5.							
6.							
7.							
8.							
Total Cover: <u>100</u> %							
Woody Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.			
1.				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>			
2.							
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u> </u> %			% Cover of Biotic Crust <u> </u> %				

Remarks:

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	5 YR 4/6	100					Silty Clay	
9-18	5 YR 5/4	100					Sandy	mixed with gravel

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

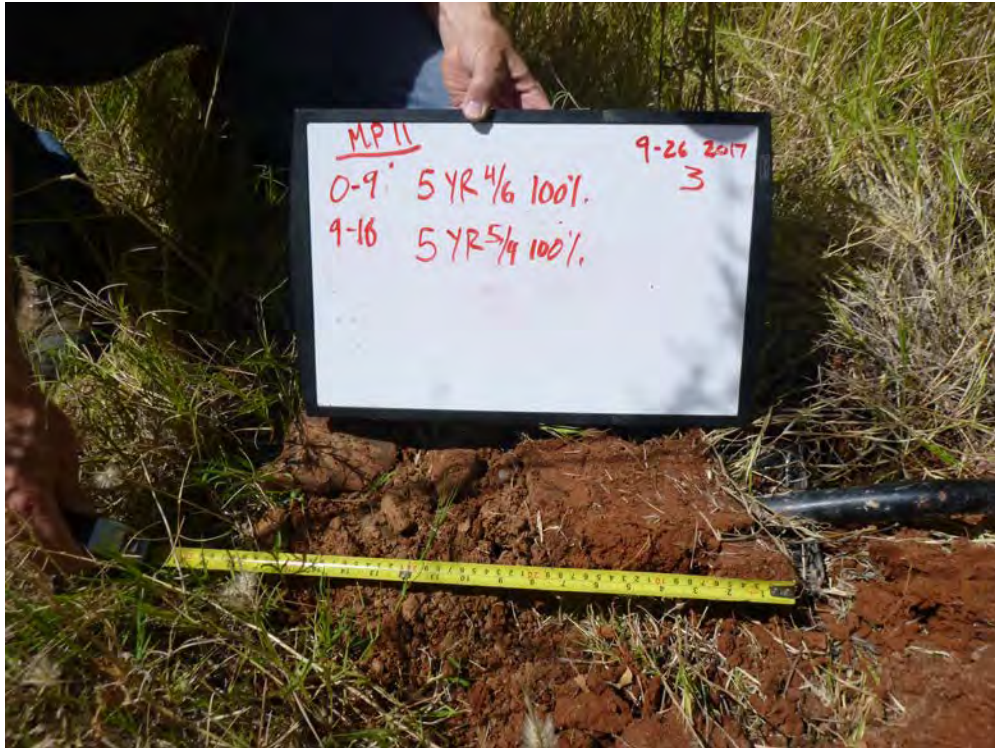
Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: No indicators present.

Sample Point 3



Soil Profile



General Condition

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/26/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 4
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S14 T42S R15W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR): D - Interior Deserts Lat: 37.1364327993 Long: -113.512392825 Datum: NAD 83
 Soil Map Unit Name: Laverkin fine sandy loam, 2 to 5 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>	
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>	
Remarks: <u>Wetland is in the bottom of a man-made pond with a wall built to retain water from a small hillside seep.</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <i>Populus angustifolia</i>	5	Yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:	3 (A)
2.				Total Number of Dominant Species Across All Strata:	3 (B)
3.				Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 % (A/B)
4.					
Total Cover:			5 %		
Sapling/Shrub Stratum					
1. <i>Baccharis salicifolia</i>	40	Yes	FAC	Prevalence Index worksheet:	
2.				Total % Cover of:	Multiply by:
3.				OBL species 30	x 1 = 30
4.				FACW species 10	x 2 = 20
5.				FAC species 40	x 3 = 120
Total Cover:			40 %	FACU species	x 4 = 0
				UPL species	x 5 = 0
				Column Totals:	80 (A) 170 (B)
				Prevalence Index = B/A = 2.13	
Herb Stratum					
1. <i>Typha latifolia</i>	30	Yes	OBL	Hydrophytic Vegetation Indicators:	
2. <i>Juncus balticus</i>	5		FACW	<input checked="" type="checkbox"/> Dominance Test is >50%	
3.				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
4.				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5.				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
6.				¹ Indicators of hydric soil and wetland hydrology must be present.	
7.					
8.					
Total Cover:			35 %		
Woody Vine Stratum					
1.				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
2.					
Total Cover:			%		
% Bare Ground in Herb Stratum 65 %			% Cover of Biotic Crust %		

Remarks: Bare ground was saturated and was disturbed.

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10 YR 3/2	100					Silty Clay Loam	
6-18	10 YR 4/2	95	10 YR 4/6	5	C	M	Silty Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☒ No ☐

Depth (inches): 7

Saturation Present? Yes ☒ No ☐
(includes capillary fringe)

Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: A small hillside seep produces the hydrology. Some ponding occurs in the bottom of the made-made pond.

Sample Point 4



Soil Profile



General Conditions

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/26/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 5
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S14 T42S R15W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR): D - Interior Deserts Lat: 37.1360424716 Long: -113.513180931 Datum: NAD 83
 Soil Map Unit Name: Laverkin fine sandy loam, 2 to 5 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: <u>Depression next to concrete ditch. Some water overflows from the ditch. Wetland was likely to be connected to the spring on the north side of the freeway in the past, but now the water has been diverted.</u>					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)			
2.				Total Number of Dominant Species Across All Strata: <u>1</u> (B)			
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)			
4.							
Total Cover: <u> </u> %							
Sapling/Shrub Stratum				Prevalence Index worksheet:			
1.				Total % Cover of: <u>100</u> Multiply by:			
2.				OBL species	x 1 =	<u>100</u>	
3.				FACW species	x 2 =	<u>0</u>	
4.				FAC species	x 3 =	<u>0</u>	
5.				FACU species	x 4 =	<u>0</u>	
Total Cover: <u> </u> %				UPL species	x 5 =	<u>0</u>	
				Column Totals:	<u>100</u> (A)	<u>100</u> (B)	
				Prevalence Index = B/A = <u>1.00</u>			
Herb Stratum				Hydrophytic Vegetation Indicators:			
1. <i>Typha latifolia</i>	<u>100</u>	<u>Yes</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
2.				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
3.				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4.				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5.							
6.							
7.							
8.							
Total Cover: <u>100%</u>							
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
1.							
2.							
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u> </u> %		% Cover of Biotic Crust <u> </u> %					

¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-18	5 YR 4/6	70					Sand	
0-18	5 YR 3/1	30					Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soils have been disturbed which has affected the observation of indicators. Given the presence of 100% obligate wetland vegetation (cattail), soils were assumed to be hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (2 or more required)

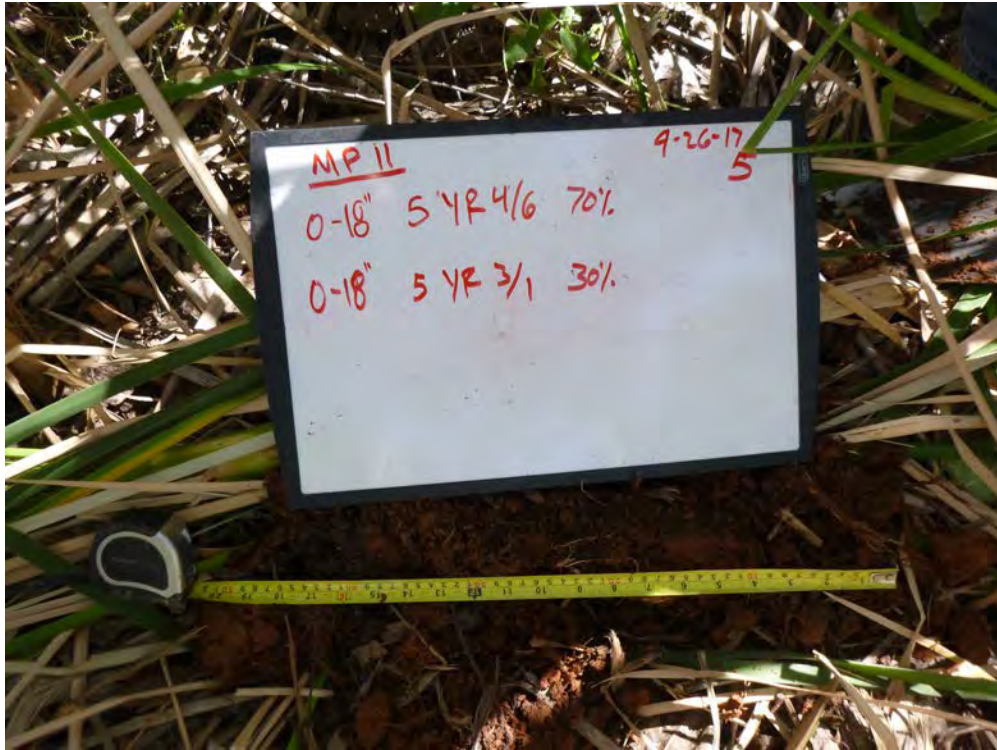
- ☐ Water Marks (B1) (Riverine)
☐ Sediment Deposits (B2) (Riverine)
☐ Drift Deposits (B3) (Riverine)
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☒ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____**Wetland Hydrology Present?** Yes ☒ No ☐

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

Remarks: Appears hydrology from spring on the other side of the freeway has been diverted to nearby ditches. Historically, the stream likely provided hydrology to this area. 100% obligate plant material.

Sample Point 5



Soil Profile



General Condition

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/26/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 6
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S14 T42S R15W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 30
 Subregion (LRR): D - Interior Deserts Lat: 37.1360853513 Long: -113.513175959 Datum: NAD 83
 Soil Map Unit Name: Laverkin fine sandy loam, 2 to 5 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: <u>On bank slope adjacent to a wetland.</u>					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. <i>Ailanthus altissima</i>	40	Yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)			
2. <i>Salix fragilis</i>	25	Yes	FAC	Total Number of Dominant Species Across All Strata: <u>4</u> (B)			
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.0 %</u> (A/B)			
4. _____							
Total Cover: <u>65 %</u>							
Sapling/Shrub Stratum				Prevalence Index worksheet:			
1. _____				Total % Cover of: _____ Multiply by: _____			
2. _____				OBL species	<u>10</u>	x 1 =	<u>10</u>
3. _____				FACW species		x 2 =	<u>0</u>
4. _____				FAC species	<u>25</u>	x 3 =	<u>75</u>
5. _____				FACU species	<u>40</u>	x 4 =	<u>160</u>
Total Cover: _____ %				UPL species	<u>90</u>	x 5 =	<u>450</u>
				Column Totals:	<u>165</u>	(A)	<u>695</u> (B)
				Prevalence Index = B/A = <u>4.21</u>			
Herb Stratum				Hydrophytic Vegetation Indicators:			
1. <i>Bromus tectorum</i>	65	Yes	UPL	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. <i>Rubia tinctorum</i>	25	Yes	UPL	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
3. <i>Anemopsis californica</i>	10		OBL	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5. _____							
6. _____							
7. _____							
8. _____							
Total Cover: <u>100%</u>							
Woody Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.			
1. _____							
2. _____				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>			
Total Cover: _____ %							
% Bare Ground in Herb Stratum _____ %			% Cover of Biotic Crust _____ %				

Remarks:

SOIL

Sampling Point: 6

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)				
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)		<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Water-Stained Leaves (B9)			<input type="checkbox"/> Shallow Aquitard (D3)	
			<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:				
Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
Saturation Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks:				

Sample Point 6



Soil Profile



General Conditions

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/26/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 7
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S11 T42S R15W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10
 Subregion (LRR): D - Interior Deserts Lat: 37.1420828772 Long: -113.501900357 Datum: NAD 83
 Soil Map Unit Name: Eroded land-Shalet complex, warm NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: Wet area below developed springs in median of I-15. Ended up mapping the small area where the water surfaced as a WoUS.					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)			
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)			
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)			
4. _____							
Total Cover: <u> </u> %							
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet:			
1. <i>Salix exigua</i>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	Total % Cover of:		Multiply by:	
2. _____				OBL species	<u> </u>	x 1 =	<u>0</u>
3. _____				FACW species	<u>100</u>	x 2 =	<u>200</u>
4. _____				FAC species	<u> </u>	x 3 =	<u>0</u>
5. _____				FACU species	<u> </u>	x 4 =	<u>0</u>
Total Cover: <u>100%</u>				UPL species	<u> </u>	x 5 =	<u>0</u>
<u>Herb Stratum</u>				Column Totals:	<u>100</u>	(A)	<u>200</u> (B)
1. _____				Prevalence Index = B/A = <u>2.00</u>			
2. _____				Hydrophytic Vegetation Indicators:			
3. _____				<input checked="" type="checkbox"/> Dominance Test is >50%			
4. _____				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
5. _____				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present.			
8. _____							
Total Cover: <u> </u> %							
<u>Woody Vine Stratum</u>				Hydrophytic Vegetation Present?			
1. _____				Yes <input checked="" type="radio"/> No <input type="radio"/>			
2. _____							
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u>30 %</u>		% Cover of Biotic Crust <u> </u> %					

Remarks: Salix was young saplings.

SOIL

Sampling Point: 7**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-18	5 YR 4/4	100					Silty Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil did not meet any indicators. Could have been impacted with spring development or doesn't flow often enough to produce hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☒ No ☐Depth (inches): 6Saturation Present? Yes ☒ No ☐
(includes capillary fringe)Depth (inches): 0**Wetland Hydrology Present?** Yes ☒ No ☐

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

Remarks: Excess flow near developed spring

Sample Point 7



Soil Profile



General Condition

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/27/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 8
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S14 T42S R15W
 Landform (hillslope, terrace, etc.): Bank of pond Local relief (concave, convex, none): Convex Slope (%): 10
 Subregion (LRR): D - Interior Deserts Lat: 37.1370877708 Long: -113.513581765 Datum: NAD 83
 Soil Map Unit Name: Pintura loamy fine sand, 1 to 5 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
Remarks: <u>Next to Warm Springs</u>				

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)			
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)			
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)			
4. _____	_____	_____	_____	Total Cover: <u> </u> %			
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet:			
1. <u>Populus angustifolia</u>	<u>5</u>	_____	FACW	Total % Cover of: _____ Multiply by: _____			
2. _____	_____	_____	_____	OBL species	<u>55</u>	x 1 =	<u>55</u>
3. _____	_____	_____	_____	FACW species	<u>45</u>	x 2 =	<u>90</u>
4. _____	_____	_____	_____	FAC species	<u>5</u>	x 3 =	<u>15</u>
5. _____	_____	_____	_____	FACU species	_____	x 4 =	<u>0</u>
Total Cover: <u>5</u> %				UPL species	_____	x 5 =	<u>0</u>
<u>Herb Stratum</u>				Column Totals:	<u>105</u>	(A)	<u>160</u> (B)
1. <u>Juncus balticus</u>	<u>35</u>	Yes	FACW	Prevalence Index = B/A = <u>1.52</u>			
2. <u>Schoenoplectus pungens</u>	<u>35</u>	Yes	OBL	Hydrophytic Vegetation Indicators:			
3. <u>Typha angustifolia</u>	<u>20</u>	Yes	OBL	<input checked="" type="checkbox"/> Dominance Test is >50%			
4. <u>Muhlenbergia asperifolia</u>	<u>5</u>	_____	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
5. <u>Xanthium strumarium</u>	<u>5</u>	_____	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
6. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.			
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
Total Cover: <u>100</u> %							
<u>Woody Vine Stratum</u>							
1. _____	_____	_____	_____				
2. _____	_____	_____	_____				
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u> </u> %		% Cover of Biotic Crust <u> </u> %					

Remarks:

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	7.5 YR 4/4	40					Sandy Loam	
0-8	7.5 YR 3/3	30					Sandy Loam	
0-8	5 YR 4/6	25					Sandy Loam	
0-8	10 YR 5/4	5					Sandy Loam	
8-18	5 YR 4/2	95	5 YR 5/6	5	C	M	Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☒ No ☐

Depth (inches): 8

Saturation Present? Yes ☒ No ☐
(includes capillary fringe)

Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: _____

Sample Point 8



Soil Profile



General Conditions

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/27/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 9
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S14 T42S R15W
 Landform (hillslope, terrace, etc.): Bank of pond Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR): D - Interior Deserts Lat: 37.137104603 Long: -113.513534533 Datum: NAD 83
 Soil Map Unit Name: Pintura loamy fine sand, 1 to 5 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: <u>Next to Warm Springs</u>					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>75.0 %</u> (A/B)
4. _____	_____	_____	_____		
Total Cover: <u>5</u> %					
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet:	
1. <i>Populus angustifolia</i>	<u>5</u>	<u>Yes</u>	<u>FACW</u>	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species	x 1 = <u>0</u>
3. _____	_____	_____	_____	FACW species	<u>25</u> x 2 = <u>50</u>
4. _____	_____	_____	_____	FAC species	x 3 = <u>0</u>
5. _____	_____	_____	_____	FACU species	<u>18</u> x 4 = <u>72</u>
Total Cover: <u>5</u> %				UPL species	<u>2</u> x 5 = <u>10</u>
<u>Herb Stratum</u>				Column Totals:	<u>45</u> (A) <u>132</u> (B)
1. <i>Juncus balticus</i>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.93</u>	
2. <i>Salsola iberica</i>	<u>5</u>		<u>FACU</u>	Hydrophytic Vegetation Indicators:	
3. <i>Cynodon dactylon</i>	<u>3</u>		<u>FACU</u>	<input checked="" type="checkbox"/> Dominance Test is >50%	
4. <i>Muhlenbergia asperifolia</i>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
5. <i>Medicago alba</i>	<u>2</u>		<u>UPL</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
6. <i>Panicum capillare</i>	<u>10</u>	<u>Yes</u>	<u>FACU</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____		
Total Cover: <u>40</u> %					
<u>Woody Vine Stratum</u>				Hydrophytic Vegetation Present?	
1. _____	_____	_____	_____	Yes <input type="radio"/>	No <input checked="" type="radio"/>
2. _____	_____	_____	_____		
Total Cover: _____ %					
% Bare Ground in Herb Stratum <u>60</u> %	% Cover of Biotic Crust _____ %				
Remarks:					

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-4	5 YR 4/6	100					Sand	
4-6	5 YR 4/4	100					Sand	
6-10	5 YR 4/6	100					Sand	
10-18	5 YR 3/3	100					Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☐ No ☒

Depth (inches): _____

Saturation Present? Yes ☐ No ☒
(includes capillary fringe)

Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: _____

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/27/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 10
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S15 T42S R15W
 Landform (hillslope, terrace, etc.): Sandbar Local relief (concave, convex, none): Convex Slope (%): 2
 Subregion (LRR): D - Interior Deserts Lat: 37.1348406834 Long: -113.517297461 Datum: NAD 83
 Soil Map Unit Name: Fluvaquents and torrifluvents, sandy NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
Remarks: <u>Vegetated sandbar near perennial stream.</u>				

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)			
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)			
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)			
4. _____	_____	_____	_____	Total Cover: _____ %			
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet:			
1. <i>Salix exigua</i>	<u>30</u>	<u>Yes</u>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____			
2. _____	_____	_____	_____	OBL species	<u>25</u>	x 1 =	<u>25</u>
3. _____	_____	_____	_____	FACW species	<u>50</u>	x 2 =	<u>100</u>
4. _____	_____	_____	_____	FAC species	<u>35</u>	x 3 =	<u>105</u>
5. _____	_____	_____	_____	FACU species	_____	x 4 =	<u>0</u>
Total Cover: <u>30 %</u>				UPL species	_____	x 5 =	<u>0</u>
<u>Herb Stratum</u>				Column Totals:	<u>110</u>	(A)	<u>230</u> (B)
1. <i>Juncus balticus</i>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.09</u>			
2. <i>Schoenoplectus pungens</i>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators:			
3. <i>Equisetum hyemale</i>	<u>35</u>	<u>Yes</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
4. <i>Anemopsis californica</i>	<u>5</u>	_____	<u>OBL</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
5. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
6. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.			
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
Total Cover: <u>80 %</u>							
<u>Woody Vine Stratum</u>							
1. _____	_____	_____	_____				
2. _____	_____	_____	_____				
Total Cover: _____ %							
% Bare Ground in Herb Stratum <u>20 %</u> % Cover of Biotic Crust _____ %							

Remarks:

SOIL

Sampling Point: 10

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-9	5 YR 4/6	100					Sand	
9-10	5 YR 3/4	100					Sand	
10-18	10 YR 5/2	100					Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Stripped layer does not occur within 6' of the surface to qualify as a S6. The soils on this vegetated sandbar are subject to annual deposition of new soil material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☒ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☒ No ☐

Depth (inches): 7

Saturation Present? Yes ☒ No ☐
(includes capillary fringe)

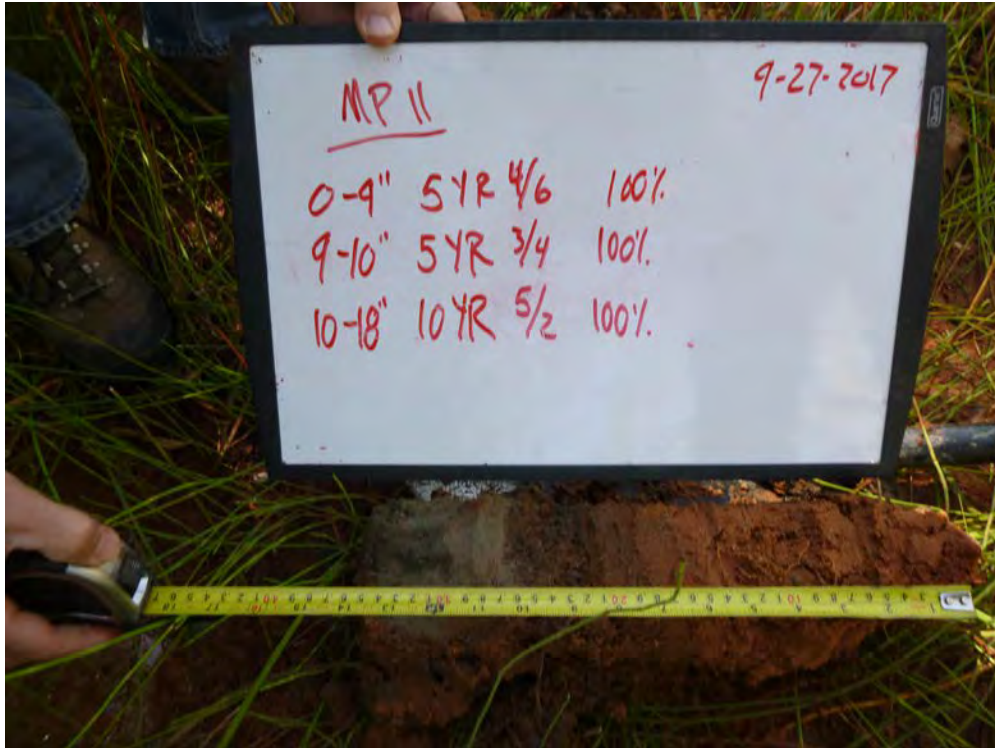
Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Flowing water in nearby stream.

Sample Point 10



Soil Profile



General Conditions

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/27/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 11
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S15 T42S R15W
 Landform (hillslope, terrace, etc.): stream terrace Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR): D - Interior Deserts Lat: 37.134861414 Long: -113.517277123 Datum: NAD 83
 Soil Map Unit Name: Fluvaquents and torrifluvents, sandy NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: Upland sample point of sloping terrace adjacent to stream.					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)			
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)			
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3 %</u> (A/B)			
4. _____	_____	_____	_____	Total Cover: <u>5 %</u>			
Sapling/Shrub Stratum				Prevalence Index worksheet:			
1. <i>Salix exigua</i>	5	Yes	FACW	Total % Cover of:		Multiply by:	
2. _____	_____	_____	_____	OBL species	<u>5</u>	x 1 =	<u>0</u>
3. _____	_____	_____	_____	FACW species	<u>10</u>	x 2 =	<u>10</u>
4. _____	_____	_____	_____	FAC species	<u>60</u>	x 3 =	<u>30</u>
5. _____	_____	_____	_____	FACU species	<u>75</u>	x 4 =	<u>0</u>
Total Cover: <u>5 %</u>				UPL species	<u>340</u>	x 5 =	<u>300</u>
Herb Stratum				Column Totals:	<u>75</u> (A)	<u>340</u> (B)	
1. <i>Medicago alba</i>	15	Yes	UPL	Prevalence Index = B/A = <u>4.53</u>			
2. <i>Bromus techtorum</i>	15	Yes	UPL	Hydrophytic Vegetation Indicators:			
3. <i>Asperugo procumbens</i>	15	Yes	UPL	<input checked="" type="checkbox"/> Dominance Test is >50%			
4. <i>Rubia tinctorum</i>	15	Yes	UPL	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
5. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
6. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.			
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>			
Total Cover: <u>60 %</u>							
Woody Vine Stratum							
1. <i>Rubus armeniacus</i>	10	Yes	FAC				
2. _____	_____	_____	_____				
Total Cover: <u>10 %</u>							
% Bare Ground in Herb Stratum <u>40 %</u> % Cover of Biotic Crust _____ %							

Remarks:

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-18	5 YR 4/6	100					Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (2 or more required)

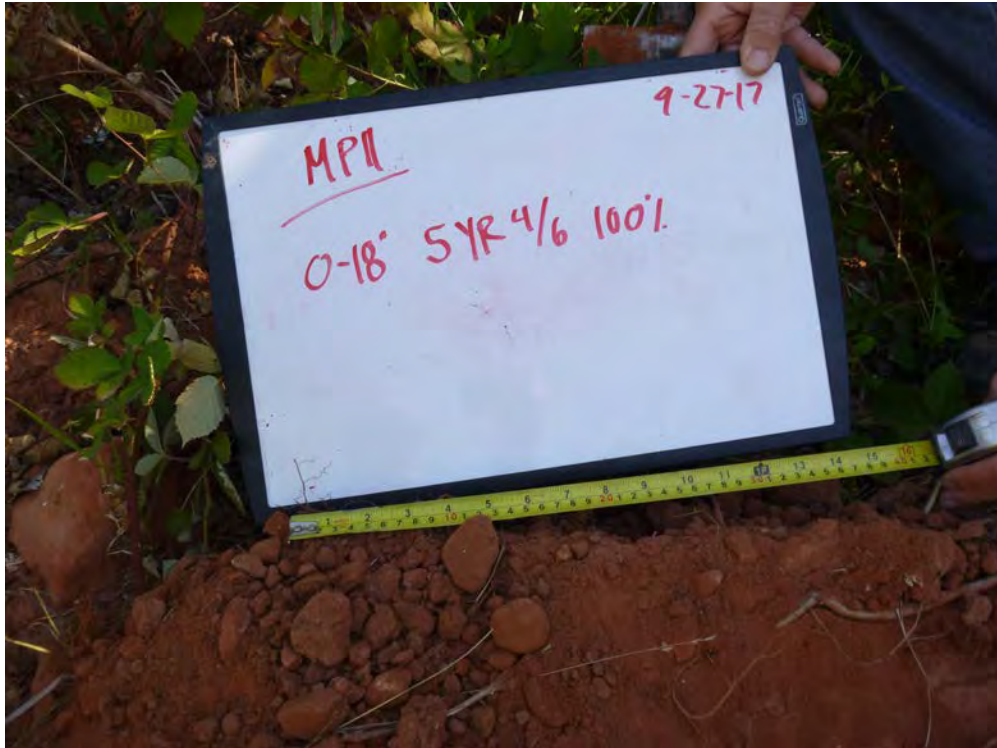
- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Upland sample was upslope from stream.

Sample Point 11



Soil Profile



General Condition

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/27/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 12
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S15 T42S R15W
 Landform (hillslope, terrace, etc.): Bank of creek Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): D - Interior Deserts Lat: 37.1333560213 Long: -113.517232188 Datum: NAD 83
 Soil Map Unit Name: Fluvaquents and torrifluvents, sandy NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
Remarks:				

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)			
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)			
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)			
4. _____	_____	_____	_____	Total Cover: <u> </u> %			
Sapling/Shrub Stratum				Prevalence Index worksheet:			
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____			
2. _____	_____	_____	_____	OBL species	<u>55</u>	x 1 =	<u>55</u>
3. _____	_____	_____	_____	FACW species	<u>30</u>	x 2 =	<u>60</u>
4. _____	_____	_____	_____	FAC species	_____	x 3 =	<u>0</u>
5. _____	_____	_____	_____	FACU species	<u>5</u>	x 4 =	<u>20</u>
Total Cover: <u> </u> %				UPL species	_____	x 5 =	<u>0</u>
Herb Stratum				Column Totals:	<u>90</u>	(A)	<u>135</u> (B)
1. <i>Typha angustifolia</i>	<u>40</u>	Yes	OBL	Prevalence Index = B/A = <u>1.50</u>			
2. <i>Persicaria lapathifolia</i>	<u>30</u>	Yes	FACW				
3. <i>Nasturtium officinale</i>	<u>15</u>		OBL				
4. <i>Cynodon dactylon</i>	<u>5</u>		FACU				
5. _____	_____	_____	_____				
6. _____	_____	_____	_____				
7. _____	_____	_____	_____				
8. _____	_____	_____	_____				
Total Cover: <u>90 %</u>							
Woody Vine Stratum				Hydrophytic Vegetation Indicators:			
1. _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
Total Cover: <u> </u> %				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
% Bare Ground in Herb Stratum <u>10 %</u> % Cover of Biotic Crust <u> </u> %				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
Remarks:				¹ Indicators of hydric soil and wetland hydrology must be present.			
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-1	5 YR 2.5/1	100					Sand	
1-3	5 YR 2.5/2	100					Sand	
3-18	5 YR 4/6	100					Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Comes close to meeting 1cm Muck (A9). Located on a sandbar that receives seasonal deposition that influences indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒

Depth (inches): _____

Water Table Present? Yes ☒ No ☐

Depth (inches): 3

Saturation Present? Yes ☒ No ☐
(includes capillary fringe)

Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Sample Point 12



Soil Profile



General Conditions

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: I-15; Milepost 11 Interchange City/County: Washington, Washington Sampling Date: 9/27/2017
 Applicant/Owner: Utah Department of Transportation State: UT Sampling Point: 13
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S15 T42S R15W
 Landform (hillslope, terrace, etc.): Stream terrace Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR): D - Interior Deserts Lat: 37.1333387405 Long: -113.517270104 Datum: NAD 83
 Soil Map Unit Name: Fluvaquents and torrifluvents, sandy NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: Upland sample point on stream terrace.					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. <i>Fraxinus anomala</i>	10	Yes	UPL	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)			
2.				Total Number of Dominant Species Across All Strata: <u>3</u> (B)			
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3 %</u> (A/B)			
4.							
Total Cover: <u>10 %</u>							
Sapling/Shrub Stratum				Prevalence Index worksheet:			
1. <i>Salix lasiandra</i>	5	Yes	FACW	Total % Cover of: Multiply by:			
2.				OBL species	<u>5</u>	x 1 =	<u>5</u>
3.				FACW species	<u>5</u>	x 2 =	<u>10</u>
4.				FAC species		x 3 =	<u>0</u>
5.				FACU species		x 4 =	<u>0</u>
Total Cover: <u>5 %</u>				UPL species	<u>105</u>	x 5 =	<u>525</u>
				Column Totals:	<u>115</u>	(A)	<u>540</u> (B)
				Prevalence Index = B/A = <u>4.70</u>			
Herb Stratum				Hydrophytic Vegetation Indicators:			
1. <i>Rubia tinctorum</i>	95	Yes	UPL	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. <i>Anemopsis californica</i>	5		OBL	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
3.				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4.				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5.							
6.							
7.							
8.							
Total Cover: <u>100 %</u>							
Woody Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.			
1.				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>			
2.							
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u> </u> %			% Cover of Biotic Crust <u> </u> %				

Remarks:

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	5 YR 3/3	100					Sand	
3-18	5 YR 4/6	100					Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils:⁴

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

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Sample Point 13



Soil Profile



General Conditions

General Conditions



Concrete-lined ditch east of I-15



Looking south at concrete-lined ditch

General Conditions



Looking west at PSS wetland near Warm Springs



Looking east at culvert under I-15 near Warm Springs

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: I-15; Milepost 11 Interchange Project Number: F-I15-1(166)11 Stream: Wash 1		Date: 27 September 2017 Time: 1430 Town: Washington County State: Utah Photo begin file#: Photo end file#:	
Investigator(s): Johnson, Clarke		Location Details:	
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?		Projection: Datum:	
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?		Coordinates:	
Potential anthropogenic influences on the channel system: Down stream culvert under roadway			
Brief site description: Desert wash with a few riparian trees. Stream bed hits bed rock at some locations. Fairly steep gradient to channel			
Checklist of resources (if available):			
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: </div> <div style="width: 50%;"> <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>			
<div style="text-align: center;"> Hydrogeomorphic Floodplain Units </div>			

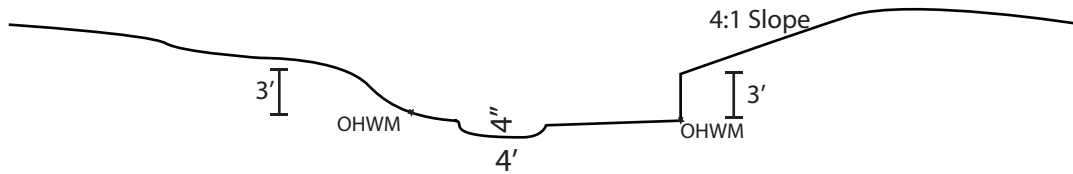
Project ID:

Cross section ID:

Date:

Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☒ Change in average sediment texture
☒ Change in vegetation species
☒ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _
☐ Other: _____

Comments:

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☒ Ripples
☒ Drift and/or debris
☒ Presence of bed and bank
☐ Benches
☐ Soil development
☐ Surface relief
☐ Other: _____
☐ Other: _____
☐ Other: _____

Comments:

The low flow channel is 4" deep and approximately 4' wide

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 80 % Tree: 10 % Shrub: 20 % Herb: 50 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☒ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☒ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

No low terrace is present.

Wash 1

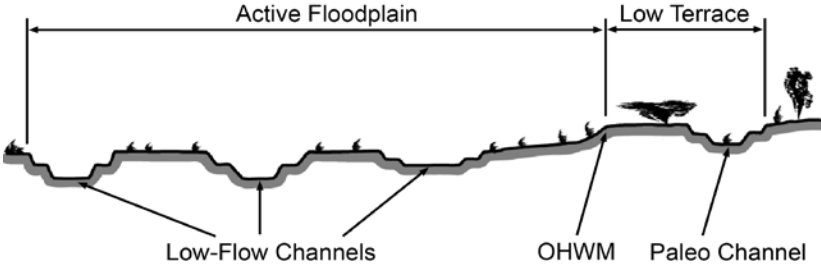


Looking west at Wash 1



Looking east at Wash 1

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: I-15; Milepost 11 Interchange Project Number: F-I15-1(166)11 Stream: Wash 2		Date: 27 September 2017 Time: 1130 Town: Washington County State: Utah Photo begin file#: Photo end file#:	
Investigator(s): Johnson, Clarke			
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?		Location Details: Projection: Datum: Coordinates:	
Potential anthropogenic influences on the channel system: Culverts are present upstream and downstream			
Brief site description: Small wash in a desert environment with a few riparian shrubs and trees			
Checklist of resources (if available):			
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>			
Hydrogeomorphic Floodplain Units 			
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:			
<ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div> <input type="checkbox"/> Mapping on aerial photograph <input type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 			

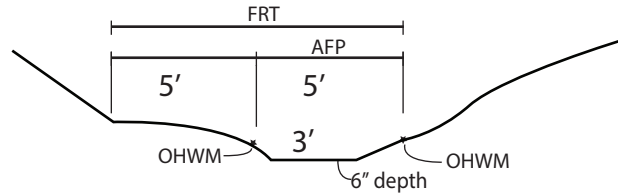
Project ID:

Cross section ID:

Date:

Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☐ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _
☐ Other: _____

Comments:

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☒ Ripples
☐ Drift and/or debris
☒ Presence of bed and bank
☐ Benches

- ☐ Soil development
☐ Surface relief
☐ Other: _____
☐ Other: _____
☐ Other: _____

Comments:

Low flow channel is approximately 6" deep and 3' wide. No vegetation was present in the low flow channel.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 80 % Tree: 20 % Shrub: 10 % Herb: 50 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☒ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☐ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Active floodplain is approximately 5-6 ' wide

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 80 % Tree: 30 % Shrub: 5 % Herb: 45 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☒ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☒ Benches

☒ Soil development

☒ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

The low terrace is approximately 10' wide.

Wash 2

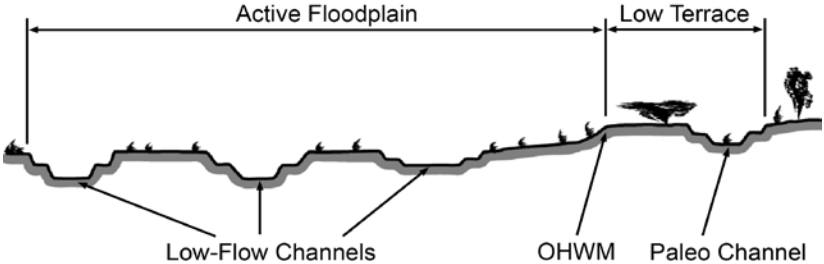


Looking west at Wash 2



Looking east at Wash 2

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: I-15; Milepost 11 Interchange Project Number: F-I15-1(166)11 Stream: Wash 3		Date: 27 September 2017 Time: 1530 Town: Washington County State: Utah Photo begin file#: Photo end file#:	
Investigator(s): Johnson, Clarke			
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?		Location Details: Projection: Datum: Coordinates:	
Potential anthropogenic influences on the channel system: Culvert upstream and downstream			
Brief site description: Small wash is a desert environment. No riparian shrubs or trees present near the wash.			
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>			
Hydrogeomorphic Floodplain Units 			
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div> <input type="checkbox"/> Mapping on aerial photograph <input type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 			

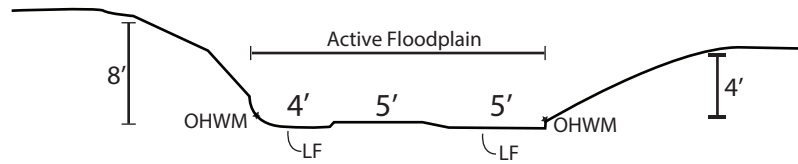
Project ID:

Cross section ID:

Date:

Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☐ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _
☐ Other: _____

Comments:

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand and gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☒ Ripples
☐ Drift and/or debris
☒ Presence of bed and bank
☐ Benches

- ☐ Soil development
☐ Surface relief
☐ Other: _____
☐ Other: _____
☐ Other: _____

Comments:

Two low flow channels were present at the sample cross section. One was 4 ' wide and the other was 5' wide. Both low flow channels lacked vegetation and were 3 - 4" deep.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 50 %

Community successional stage:

☐ NA

☒ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☒ Other: Small cobble

☐ Other: _____

☐ Other: _____

Comments:

The active floodplain is approximately 14 ' wide and contained by sloping banks

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

No presence of a low terrace

Wash 3

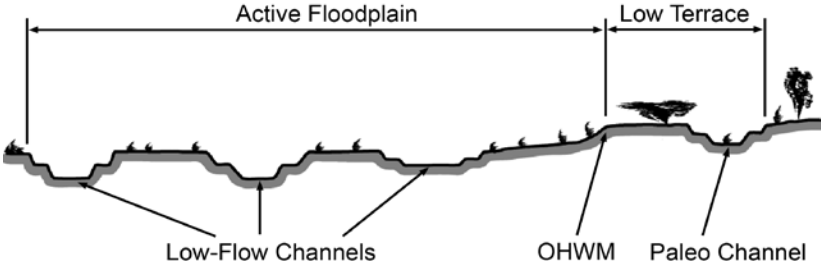


Looking west at Wash 3



Looking east at Wash 3

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: I-15; Milepost 11 Interchange Project Number: F-I15-1(166)11 Stream: Mill Creek Investigator(s): Johnson, Clarke		Date: 27 September 2017 Time: 1530 Town: Washington County State: Utah Photo begin file#: Photo end file#:	
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?		Location Details: Projection: Datum: Coordinates:	
Potential anthropogenic influences on the channel system: Freeway box culvert upstream. Irrigation diversion upstream.			
Brief site description: Steep sided ravine, perennial stream in desert ecosystem, stream is spring fed			
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>			
Hydrogeomorphic Floodplain Units 			
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div> <input type="checkbox"/> Mapping on aerial photograph <input type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 			

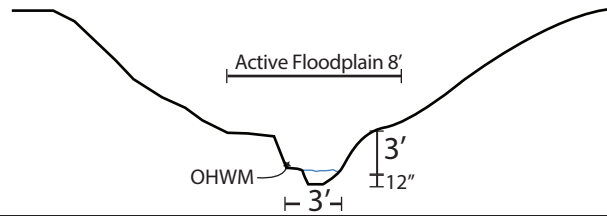
Project ID:

Cross section ID:

Date:

Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

☒

Change in average sediment texture

☒

Change in vegetation species

☒

Change in vegetation cover

☒

Break in bank slope

☐

Other: _

☐

Other: _____

Comments:

Stream was flowing during field visit and stream is perennial.

Floodplain unit:

☐

Low-Flow Channel

☒

Active Floodplain

☐

Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 100 % Tree: 15 % Shrub: 15 % Herb: 70 %

Community successional stage:

☐

NA

☐

Early (herbaceous & seedlings)

☐

Mid (herbaceous, shrubs, saplings)

☒

Late (herbaceous, shrubs, mature trees)

Indicators:

☐

Mudcracks

☐

Ripples

☒

Drift and/or debris

☒

Presence of bed and bank

☒

Benches

☒

Soil development

☒

Surface relief

☐

Other: _____

☐

Other: _____

☐

Other: _____

Comments:

No low flow channel due to perennial nature of stream. No low terrace present.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 50 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: Small cobble

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: % Tree: % Shrub: % Herb: %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Mill Creek

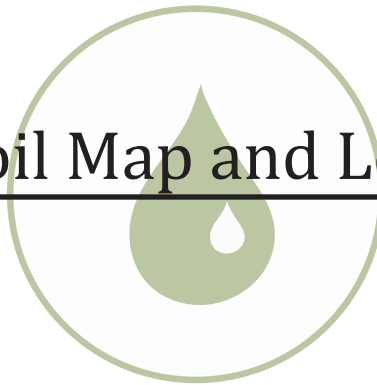
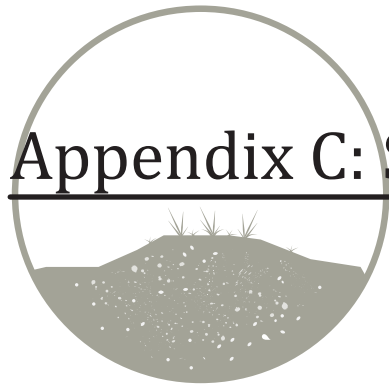


Looking west at culvert under I-15



Typical view of Mill Creek

Appendix C: Soil Map and Legend





United States
Department of
Agriculture

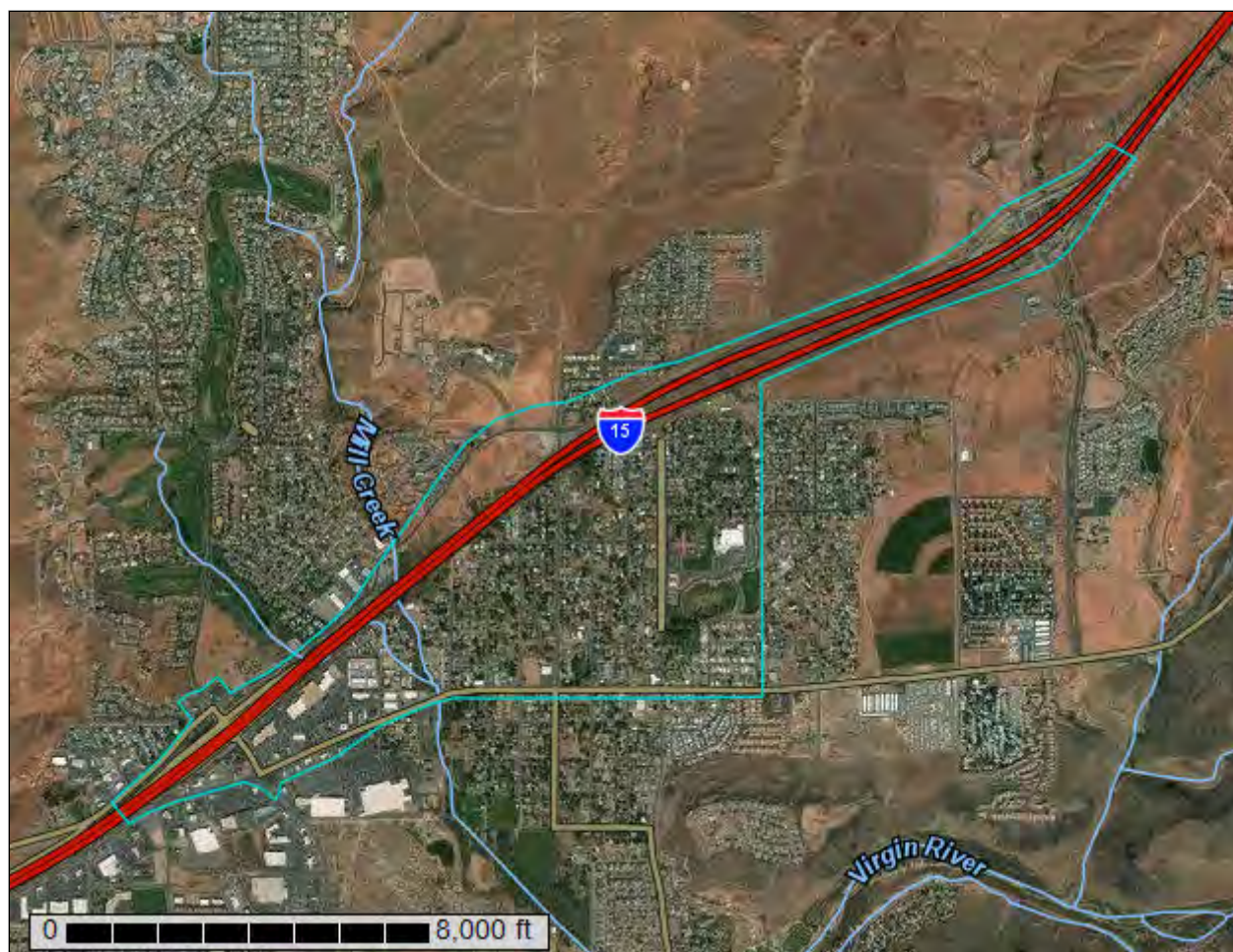
NRCS

Natural
Resources
Conservation
Service

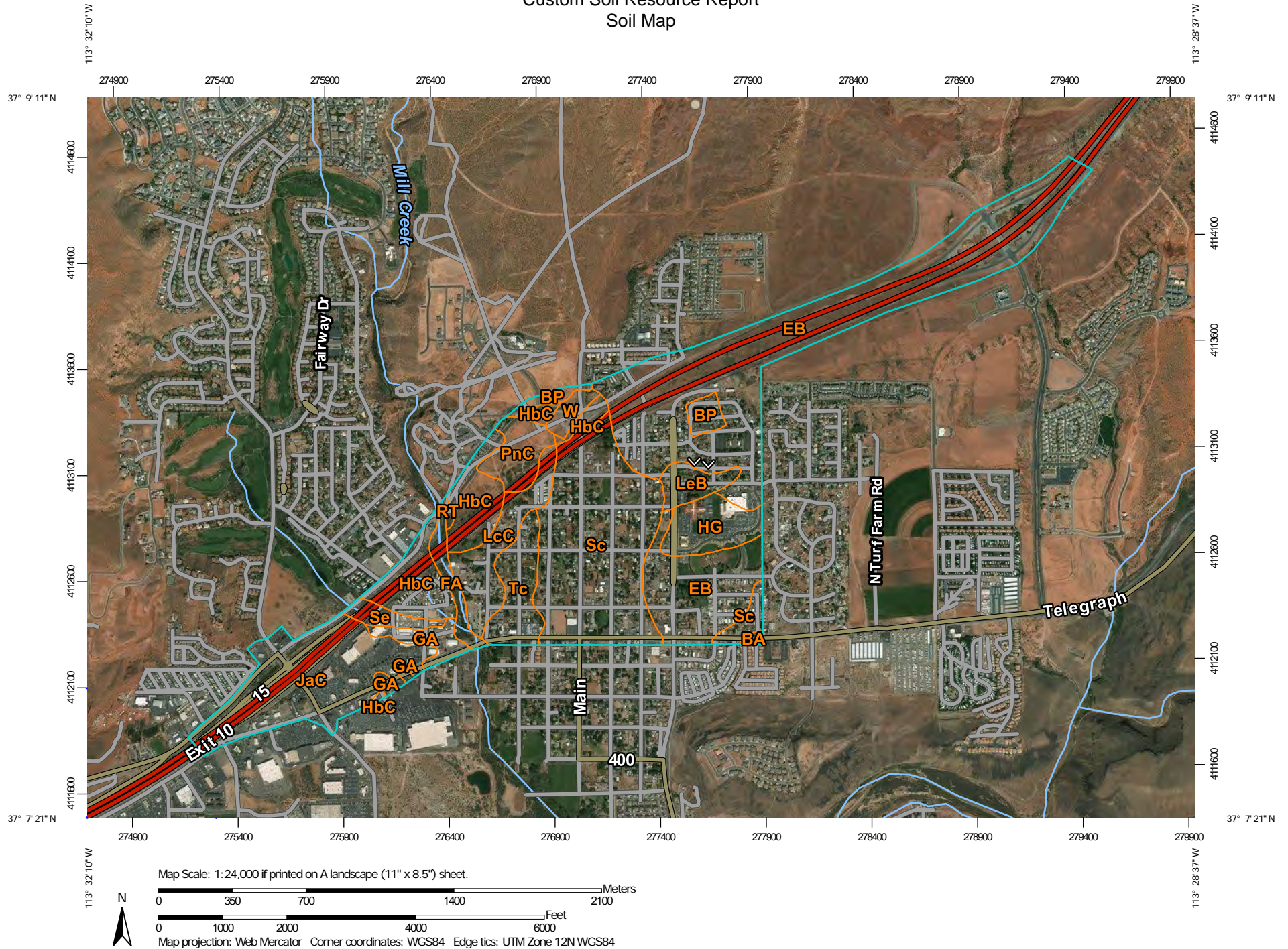
A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Washington County Area, Utah**

MP 11




Custom Soil Resource Report Soil Map



Custom Soil Resource Report


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

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

Water Features

 Streams and Canals


Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Washington County Area, Utah

Survey Area Data: Version 10, Sep 13, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

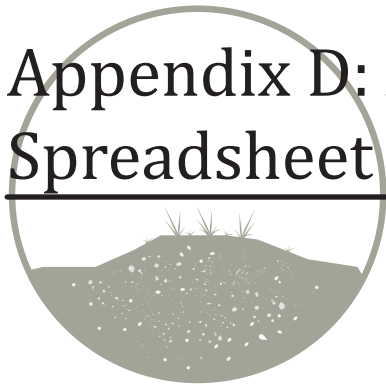
Date(s) aerial images were photographed: Feb 23, 2015—Mar 18, 2017

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

Washington County Area, Utah (UT641)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BA	Badland	1.2	0.2%
BP	Borrow pits	10.1	1.5%
EB	Eroded land-Shalet complex, warm	246.5	36.0%
FA	Fluvaquents and torrifluvents, sandy	10.4	1.5%
GA	Gullied land	13.2	1.9%
HbC	Harrisburg fine sandy loam, 1 to 5 percent slopes	56.4	8.2%
HG	Hobog-Rock land association	24.8	3.6%
JaC	Junction fine sandy loam, 2 to 5 percent slopes	86.7	12.6%
LcC	Laverkin fine sandy loam, 2 to 5 percent slopes	32.1	4.7%
LeB	Leeds silty clay loam, 1 to 2 percent slopes	12.1	1.8%
PnC	Pintura loamy fine sand, 1 to 5 percent slopes	18.9	2.8%
RT	Rock outcrop	1.3	0.2%
Sc	St. George silty clay loam	130.1	19.0%
Se	St. George silty clay loam, shallow water table	8.2	1.2%
Tc	Tobler fine sandy loam	26.8	3.9%
W	Water	6.6	1.0%
Totals for Area of Interest		685.4	100.0%

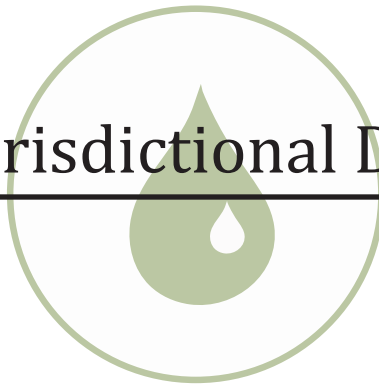
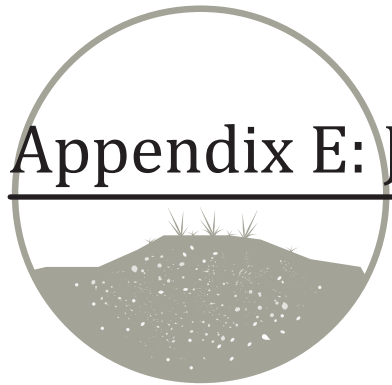
Appendix D: Aquatic Resources Excel Spreadsheet



Aquatic Resources

Waters Name	State	Cowardin Code	HGM Code	Meas Type	Amount	Units	Waters Type	Latitude	Longitude	Local Water-way
Wetland 1	Utah	PEM	Depressional	Polygon	0.04	Acres	Wetland	37.1313311303	-113.5062935	Virgin River
Wetland 2	Utah	PEM	Depressional	Polygon	0.02	Acres	Wetland	37.13646465	-113.5123996	Virgin River
Wetland 3	Utah	PEM	Depressional	Polygon	0.05	Acres	Wetland	37.13596333	-113.5132094	Virgin River
Wetland 4a	Utah	PEM	Depressional	Polygon	0.02	Acres	Wetland	37.13708136	-113.5135729	Virgin River
Wetland 4b	Utah	PEM	Depressional	Polygon	0.03	Acres	Wetland	37.13722833	-113.5137861	Virgin River
Wetland 4c	Utah	PSS	Depressional	Polygon	0.11	Acres	Wetland	37.1369093	-113.5136576	Virgin River
Wetland 5a	Utah	PEM	Depressional	Polygon	0.02	Acres	Wetland	37.13486556	-113.5172969	Virgin River
Wetland 5b	Utah	PEM	Depressional	Polygon	0.01	Acres	Wetland	37.13535234	-113.5173222	Virgin River
Wetland 5c	Utah	PEM	Depressional	Polygon	0.01	Acres	Wetland	37.13497186	-113.5168565	Virgin River
Wetland 5d	Utah	PEM	Depressional	Polygon	0.03	Acres	Wetland	37.13541391	-113.5158263	Virgin River
Wetland 5e	Utah	PEM	Depressional	Polygon	0.19	Acres	Wetland	37.1362424	-113.5144812	Virgin River
Wetland 6	Utah	PEM	Depressional	Polygon	0.01	Acres	Wetland	37.13333752	-113.5172282	Virgin River
Mill Creek	Utah	R2UBH		Polygon	0.20	Acres	WoUS	37.13507915	-113.5173482	Virgin River
WoUS 1 (Dev. Spring)	Utah	NA		Polygon	0.003	Acres	WoUS	37.14208157	-113.5018713	Virgin River
WoUS 2 Warm Springs	Utah	PUBH		Polygon	0.12	Acres	WoUS	37.13713207	-113.5137317	Virgin River
WoUS 3 Parallel to I-15	Utah	R2UBH		Polygon	0.02	Acres	WoUS	37.13513328	-113.5164677	Virgin River
WoUS 4	Utah	NA		Polygon	0.02	Acres	WoUS	37.13624005	-113.5130514	Virgin River
Wash 1	Utah	R4SBC		Polygon	0.08	Acres	WoUS	37.14898966	-113.486955	Virgin River
Wash 2	Utah	R4SBC		Polygon	0.04	Acres	WoUS	37.14705986	-113.4903172	Virgin River
Wash 3	Utah	R4SBC		Polygon	0.09	Acres	WoUS	37.1450692	-113.4950299	Virgin River

Appendix E: Jurisdictional Determination





REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

August 14, 2015

Regulatory Division SPK-2015-00018-SG

Washington City
Attn: Mr. Lester Dalton
1305 East Washington Dam Road
Washington, Utah 84780

Dear Mr. Dalton:

We are responding to your June 30, 2015, request for an approved jurisdictional determination for the Warm Springs Potential Unauthorized Activity site. The approximately 0.32-acre project site is located approximately 1 mile north of the Green Springs Drive; Buena Vista Road intersection, about 400 feet off the road between Buena Vista Boulevard and the I-15. The project area is located in Washington County, Utah and falls within Sections 14 of Township 42 South, Range 15 West, Latitude 37.137197°, Longitude -113.513818°, Washington City, Washington County, Utah (Enclosure 1).

Based on available information, the 0.32-acre water identified as "Boilers" on the enclosed "Boilers Wetland Delineation" figures prepared by Bowen Collins & Associates, Inc. (Enclosure 1) is an intrastate isolated water with no apparent interstate or foreign commerce connection. As such, this water is not currently regulated by the U.S. Army Corps of Engineers (Corps). This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities.

This determination is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331.

A Notification of Appeal Process (NAP) and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPDPDO, 1455 Market Street, 2052B, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date

of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*. For more information regarding our program, please visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Please refer to identification number SPK-2015-00018-SG in any correspondence concerning this project. If you have any questions, please contact Patricia McQueary, Senior Project Manager at the St. George Regulatory Office, 196 East Tabernacle Street Room 30, St. George, Utah 84770, by telephone at 435-986-3979, or by email at Patricia.L.McQueary@usace.army.mil.

Sincerely,



Kristine Hansen
Acting Branch Chief
Utah-Nevada Branch
Sacramento District




Enclosures

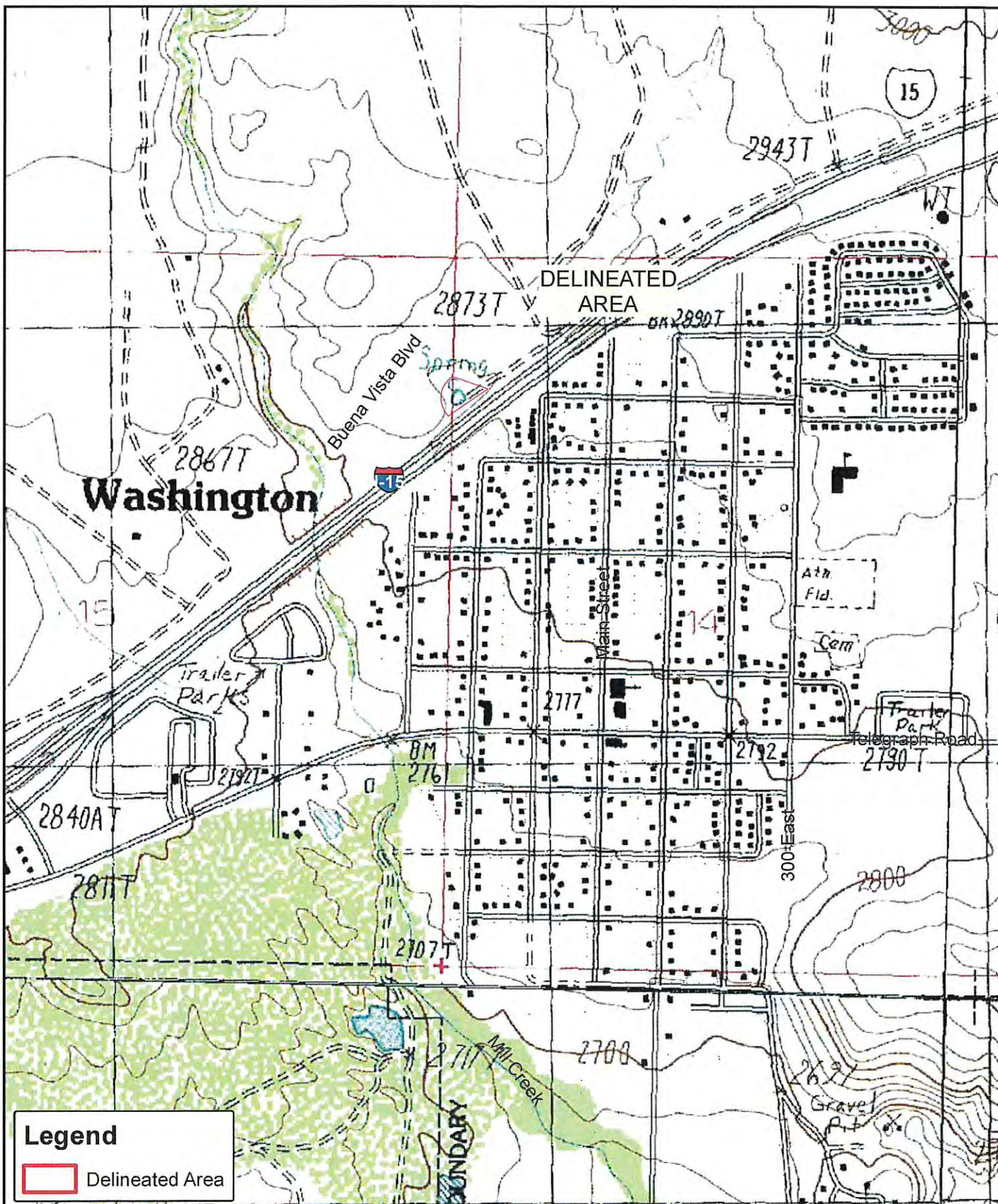
cc: (w/o encls)

Ms. Jamie Tsandes, Bowen Collins, 154 E 14000 S, Draper, UT 84020

Mr. Todd Olsen, Bowen Collins, 20 North Main Street, Suite 107, Saint George, Utah 84770



 <p>Bowen Collins & Associates, Inc. CONSULTING ENGINEERS</p>	<p>SITE LOCATION MAP</p> <p>WASHINGTON CITY</p> <p>BOILERS WETLAND DELINEATION</p>	<p>NORTH:</p>  <p>IMAGERY: ESRI</p>	<p>SCALE:</p> <p>0 500 1,000 Feet</p>  <p>FIGURE NO.</p> <p style="font-size: 2em;">1A</p>
---	--	--	--



Bowen Collins & Associates, Inc. CONSULTING ENGINEERS	SITE LOCATION MAP <small>WASHINGTON CITY</small> BOILERS WETLAND DELINEATION	NORTH: <small>USGS QUAD: WASHINGTON</small>	SCALE: 0 500 1,000 <small>Feet</small> FIGURE NO. <div style="font-size: 2em; font-weight: bold; text-align: center;">1B</div>
---	--	--	--

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Washington City, Attn: Mr. Lester Dalton	File No.: SPK-2015-00018-SG	Date: August 12, 2015
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/cecw/pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.



THREATENED AND ENDANGERED SPECIES, UTAH SENSITIVE SPECIES, AND MIGRATORY BIRD HABITAT EVALUATION

PREPARED BY

Horrocks Engineers
Craig Bown

CONTACT

Craig Bown
Horrocks Engineers
2162 W. Grove Parkway, Suite 400
Pleasant Grove, Utah 84602



Memorandum

Environmental Services

DATE: December 5, 2018
TO: Craig Bown, Environmental Specialist, Horrocks
FROM: Matt Howard, Natural Resources Manager
SUBJECT: I-15 MP 11 Interchange EIS; UDOT Project Number F-I15-1(166)11; PIN 14560

Dear Craig,

I have reviewed the biological summary for Interstate 15/Green Spring Drive Interchange (Exit 10) and the surrounding roadway system in Washington City, Utah concerning potential impacts to species protected by the Endangered Species Act (ESA) and concur with its findings. Based on the summary's findings, the road construction widening project would have a No Effect determination on species protected under the ESA. As migratory bird nesting substrate may be impacted under some of the build alternatives, it is recommended that any vegetation removal take place outside of the nesting season between April 15-August 30. If vegetation removal is necessary during the nesting season, a UDOT-approved biologist would need to conduct a survey to prevent take under the MBTA or BGEPA. I have also evaluated the project for impacts to greater sage-grouse. The project does not take place within a SGMA, nor does it take place within mapped habitat for sage-grouse and would therefore have no impact on sage-grouse or its habitat.

Sincerely,

Matt Howard
Natural Resource Manager

To: Matt Howard, UDOT Wildlife Biologist
From: Craig Bown, Environmental Specialist
Date: November 21, 2018
Subject: Threatened and Endangered Species, Utah Sensitive Species, & Migratory Birds
I-15 MP 11 Interchange EIS; UDOT Project No.: F-I15-1(166)11; PIN: 14560

Memorandum

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

Project Background

The Utah Department of Transportation (UDOT), in conjunction with Washington City, is preparing an Environmental Impact Statement (EIS) to evaluate the current and future transportation and safety needs at Interstate 15 (I-15)/Green Spring Drive Interchange (Exit 10) and the surrounding roadway system in Washington City, Utah. This area currently experiences traffic congestion which is projected to increase in the future. The purpose of the study is to identify the best solution to improve existing and future traffic congestion within the study area while taking into account any potential impacts to the natural and built environment.

The study area is located in Washington County within Washington City, Utah. The study area extends east and west along I-15 between the I-15/Green Spring Drive Interchange (Exit 10) and I-15/Washington Parkway Interchange (Exit 13). The extent of the study area is generally bound by Buena Vista Boulevard to the north and Telegraph Street to the south (see attached Study Area Map).

Following the alternatives screening process, the No-action and the Build Alternatives below have been recommend for further environmental analysis:

- Alternative 1: Northbound Green Spring Drive Widening
- Alternative 4: Main Street Interchange
- Alternative 5: 300 East Interchange
- Alternative 6: Through-turn

Design concepts maps for each build alternative are attached.

The No-action Alternative would maintain the current roadway configurations of the study area. This alternative assumes that short-term minor restoration (safety and maintenance) activities that maintain continued operation of the existing roadway facilities would be ongoing.

Alternative 1: Northbound Green Spring Drive Widening includes:

- Widen northbound Green Spring Drive/3050 East to four through lanes
- Widen southbound Green Spring Drive/ 3050 East to three through lanes
- Add a dedicated right-turn lane for southbound Green Spring Drive at Buena Vista Boulevard
- Widen Telegraph Street/Green Spring Drive intersection
- Widen Telegraph Street to seven lanes
- Widen/improve Telegraph Street/750 West intersection
- Install raised median along portions of Telegraph Street and Green Spring Drive/3050 East

Alternative 4: Main Street Interchange includes:

- Install a new interchange on I-15 at Main Street in Washington City
- Widen Main Street to five lanes between Buena Vista Boulevard and Telegraph Street
- Add a right-turn lane from Telegraph Street to Main Street
- Widen Green Spring Drive/ 3050 East to seven lanes
- Add a dedicated right-turn lane for southbound Green Spring Drive at Buena Vista Boulevard
- Widen Telegraph Street/Green Spring Drive intersection
- Widen Telegraph Street to seven lanes
- Widen/improve Telegraph Street/750 West intersection
- Install raised median along portions of Telegraph Street and Green Spring Drive/3050 East

Alternative 5: 300 East Interchange includes:

- Install a new interchange on I-15 at 300 East in Washington City
- Widen 300 East to five lanes between Buena Vista Boulevard and Telegraph Street
- Widen/Improve 300 East/Telegraph Street intersection
- Widen Green Spring Drive/ 3050 East to seven lanes
- Add a dedicated right-turn lane for southbound Green Spring Drive at Buena Vista Boulevard
- Widen Telegraph Street/Green Spring Drive intersection
- Widen Telegraph Street to seven lanes
- Widen/improve Telegraph Street/750 West intersection
- Install raised median along portions of Telegraph Street and Green Spring Drive/3050 East

Alternative 6: Through-turns includes:

- Install a through-turn intersection at Green Spring Drive/Telegraph Street, eliminating all left-turn movements. To counteract removal of the left-turns, traffic would pass through the intersection to a new light and make a U-turn, followed by a right-turn at the intersection.
- Widen Green Spring Drive/ 3050 East to seven lanes
- Add a dedicated right-turn lane for southbound Green Spring Drive at Buena Vista Boulevard
- Widen Telegraph Street/Green Spring Drive intersection
- Widen Telegraph Street to seven lanes
- Widen/improve Telegraph Street/750 West intersection
- Install raised median along portions of Telegraph Street and Green Spring Drive/3050 East

Evaluation Methods

The study area has been evaluated for federally listed species and their designated critical habitat protected under the Endangered Species Act (ESA) utilizing information obtained from U.S. Fish and Wildlife Service's (USFWS) Online Information, Planning, and Conservation system (IPaC) (see attached IPaC data). Utah Sensitive Species with potential to occur in Washington County were also accounted for within the study area. Additionally, known location data for both federally listed and state sensitive species was obtained from the Utah Division of Wildlife Resources, Utah Natural Heritage Program (UDWR/UNHP). A field visit, species ecology, and aerial imagery were also assessed to determine potential habitats.

Analysis of Affected Environment

Study Area Habitat

The study area is located within Washington City which is primarily urban with commercial and residential development. The majority of vegetation within the study area is consistent with commercial/residential plantings (e.g. trees, shrubs, and turf sod, etc.). Two arid open areas exist within the northern and northeastern quadrants of the study area. These areas are dominated by disturbed sandy soils supporting weedy grasses and forbs. An area known as Warm Springs is located within the northern portion of the study area. This area consists of disturbed sandy soils supporting grasses, forbs, and willow and cottonwood species with an isolated, non-jurisdictional pond (see attached USACE correspondence). Mill Creek also passes through the study area, north to south, near 300 West and is a tributary to the Virgin River. Associated Mill Creek vegetation is dominated by willow and cottonwood species. The study area is approximately 6,963 feet (1.32 miles) from the confluence of Mill Creek with the Virgin River.

Threatened and Endangered Species

IPaC data list 12 species for consideration in the study area; no associated critical habitats were identified within the study area. An evaluation of these species preferred habitats and their potential to occur within the study area can be seen in Table 1.

Table 1: IPaC Species for Consideration within the Study Area

Species Name	Status	Habitat Requirements	Suitable Habitat within Study Area?
Birds			
California Condor (<i>Gymnogyps californianus</i>)	Experimental Population, Non-Essential	Prefer mountainous country at low and moderate elevations, especially rocky and brushy areas near cliffs. Colonies roost in snags, tall open-branched trees, or cliffs, often near important foraging grounds.	The study area is mostly developed and not mountainous. Condors are known to travel long distances to find food (carrion), however, they tend to avoid humans while feeding. Therefore, it is unlikely they would use the study area for foraging. No suitable habitat is found within the study area.
Mexican Spotted Owl (<i>Strix occidentalis lucida</i>)	Threatened	Occupies a variety of habitats in different parts of its range, including various forest types, with steep rocky canyons habitat being the primary habitat used in Utah.	The study area is mostly developed and does not provide the required steep rocky canyons. No suitable habitat is found within the study area.
Southwestern Willow flycatcher (<i>Empidonax traillii extimus</i>)	Endangered	Found in riparian habitats, especially in areas of dense willow or shrubs with similar structure (i.e., alder, tamarisk) along rivers, streams, and wetlands.	Potential foraging habitat may exist along Mill Creek due to its vegetative connection with the Virgin River.

Species Name	Status	Habitat Requirements	Suitable Habitat within Study Area?
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	Threatened	Riparian patches varying in size and shape, ranging from a relatively contiguous stand of mixed native/exotic vegetation to an irregularly shaped mosaic of dense vegetation with open areas.	In accordance with USFWS UT Field Office guidance, suitable habitat has not been identified within 0.5 miles of the study area. No suitable habitat is found within the study area.
Reptiles			
Desert Tortoise (<i>Gopherus agassizii</i>)	Threatened	Inhabits warm upland plateaus and mountain slopes in western desert habitats.	The study area is within the Upper Virgin River Recovery Unit but outside the Red Cliffs Desert Reserve National Conservation Area. Data from UDWR/UNHP indicates the study area contains suitable habitat. However, these areas received frequent disturbance and have since been prepared for development and would no longer be considered suitable habitat.
Fishes			
Virgin River Chub (<i>Gila seminuda</i>)	Endangered	In Utah, this species is restricted to limited areas of the main-stem Virgin River in areas associated with deep, protected swift water.	The Virgin River is not found within the study area. No suitable habitat is found within the study area.
Woundfin (<i>Plagopterus argentissimus</i>)	Endangered	Restricted to the Virgin River system usually found in the main channel of swift, turbid, and warm streams over sand substrate.	The Virgin River is not found within the study area. No suitable habitat is found within the study area.
Flowering Plants			
Dwarf Bear-poppy (<i>Arctomecon humilis</i>)	Endangered	Endemic to Washington County, known to occur in the vicinity of St. George. Occurs on rolling low hills and ridge tops, often on barren, open sites in warm desert shrub communities with gypsiferous clay soils derived from the Moenkopi Formation.	The study area does not contain the required gypsiferous soil formations to support this species. No suitable habitat is found within the study area.
Holmgren milk-vetch (<i>Astragalus holmgreniorum</i>)	Endangered	Grows in warm desert shrub communities in topographic sites where water runoff occurs and where the soil surface is covered by a stony or gravelly erosional pavement. The soils are derived from the Moenkopi Formation.	The study area does not contain the required soil types to support this species. No suitable habitat is found within the study area.
Jones Cycladenia (<i>Cycladenia humilis</i> var. <i>jonesii</i>)	Threatened	Grows in gypsiferous soils that are derived from the Summerville, Cutler, and Chinle formations; they are shallow, fine textured, and intermixed with rock fragments. The species can be found in Eriogonum-Ephedra, mixed desert shrub, and scattered pinyon-juniper communities.	The study area does not contain the required gypsiferous soil formations to support this species. No suitable habitat is found within the study area.
Shivwits milk-vetch (<i>Astragalus ampullarioides</i>)	Endangered	Endemic in Washington County, grows on the unstable clay soil of Chinle Shale	The study area does not contain the required gypsiferous soil formations to

Species Name	Status	Habitat Requirements	Suitable Habitat within Study Area?
		in warm desert shrub and pinyon-juniper communities.	support this species. No suitable habitat is found within the study area.
Siler Pincushion cactus (<i>Pediocactus</i> (= <i>echinocactus</i> ,= <i>utahia</i>) <i>sileri</i>)	Threatened	Found on gypsiferous and calcareous sandy or clay soils derived from the various members of the Moenkopi Formation. Sometimes found, on the nearly identical Kaibab Formation. Occurs on rolling hills, often with a badlands appearance, in warm desert shrub, sagebrush-grass, and, at its upper limits, pinyon-juniper communities.	The study area does not contain the required gypsiferous soil formations to support this species. No suitable habitat is found within the study area.
¹ Sources: UDWR Utah Conservation Data Center (https://dwrcdc.nr.utah.gov/ucdc/) and USFWS Environmental Conservation Online System (ECOS) and Species Fact Sheets			

As seen in Table 1, Mill Creek may be used as potential foraging habitat for the southwestern willow flycatcher. However, based on UDWR/UNHP data there are no known occurrences of this species near Mill Creek.

No suitable habitat exist within the study area for the other species listed in Table 1 including: California condor, Mexican spotted owl, yellow-billed Cuckoo, desert tortoise, Virgin River chub, woundfin, dwarf bear-poppy, Holmgren milk-vetch, Jones cycladenia, Shivwits milk-vetch, and Siler pincushion cactus.

Utah Sensitive Species and Migratory Birds

Utah Sensitive Species habitat with potential to occur in Washington County were compared against available habitat within study area. Accordingly, due to the existing commercial/residential development and disturbed nature of remaining undeveloped areas, suitable habitat does not exist for a majority of state sensitive these species. Mill Creek may provide suitable habitat for frog/toad species. However, based on a review of known species location data from UDWR/UNHP no recent observations of state sensitive frog/toad species have occurred in this area. Migratory bird habitat (trees) is available near Mill Creek, Warm Springs, and within conventional landscaped areas of commercial/residential developments.

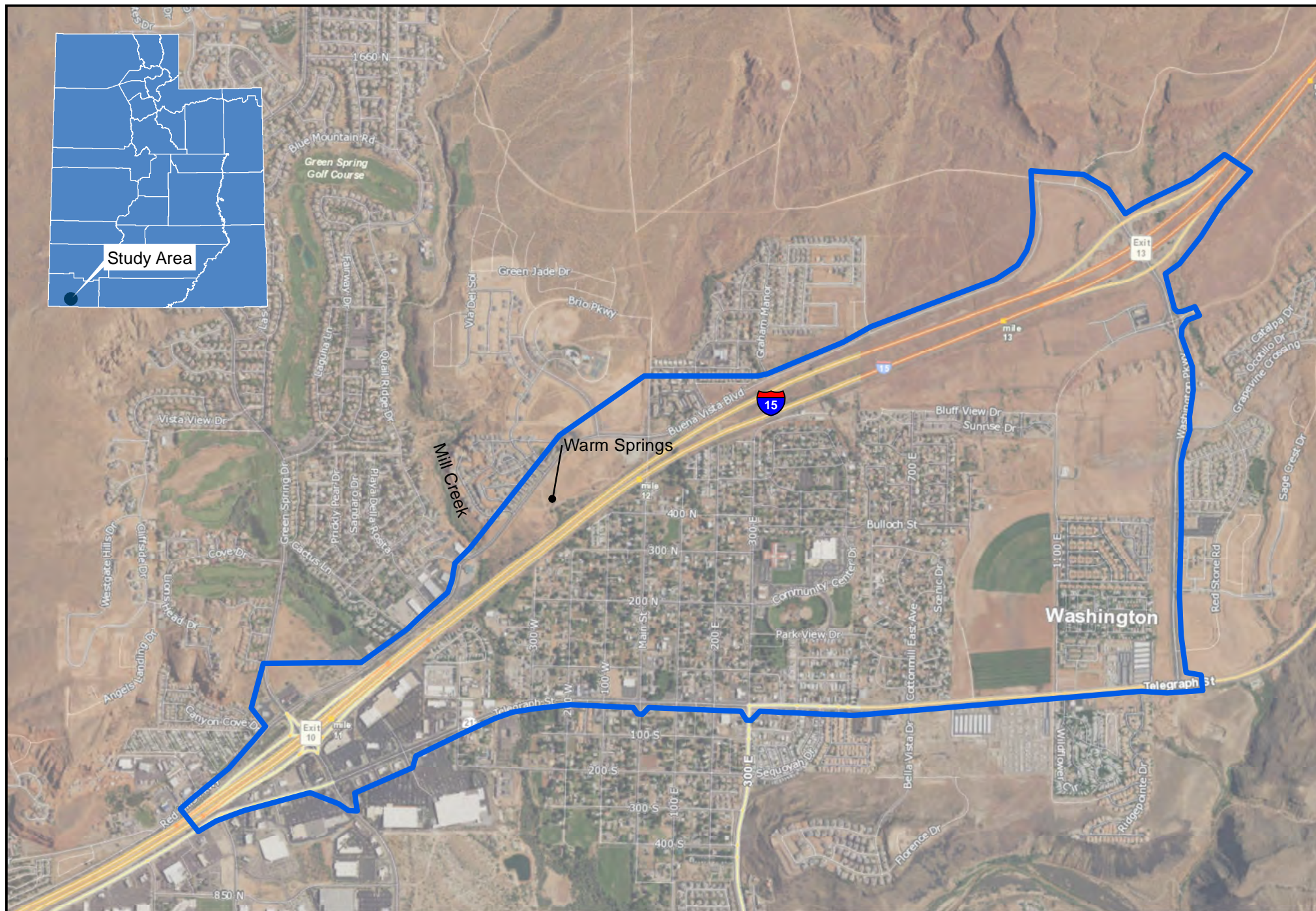
Conclusion - Impacts to Habitat

No-action Alternative


The No-action Alternative would not result in any major construction and would therefore have no impacts to identified habitat within the study area.

Build Alternatives

Implementation of Alternative 1, Alternative 4, Alternative 5, and Alternative 6 (Build Alternatives) would directly result in construction within the study area. However, the construction activities for each of these Build Alternatives would not require clearing or grubbing impacts to potential nesting or foraging substrate for the southwestern willow flycatcher at Mill Creek. Additionally, Mill Creek is within a highly developed area that experiences constant traffic noise from surrounding roadways. Therefore, construction noise would also have no impact on the Mill Creek habitat. The Build Alternatives do have potential to impact migratory bird habitat within conventional landscaped areas of commercial/residential developments. Furthermore, Alternative 4 would require removal of migratory bird habitat identified in the Warm Springs area.



I-15 MP 11 EIS
Study Area

 Study Area



0 0.125 0.25 0.5 0.75 1 Miles



I-15 MP 11 EIS
Alternative 1: Northbound Green Spring Drive Widening



1 inch = 500 feet
Miles
0 0.05 0.1 0.2



I-15 MP 11 EIS
Alternative 4: Main Street Interchange



1 inch = 750 feet
0 0.05 0.1 0.2 Miles



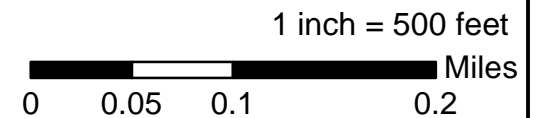
I-15 MP 11 EIS
Alternative 5: 300 East Interchange



1 inch = 750 feet
0 0.05 0.1 0.2 Miles



I-15 MP 11 EIS
Alternative 6: Through-Turns



IPaC resource list

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

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

Location

Washington County, Utah



Local office

Utah Ecological Services Field Office

☎ (801) 975-3330

📠 (801) 975-3331

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

<http://www.fws.gov>

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

Endangered species

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

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

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

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

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

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

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

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

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

Birds

NAME

STATUS

Endangered

California Condor *Gymnogyps californianus*

U.S.A. only, except where listed as an experimental population

There is **final** critical habitat for this species. Your location is outside the critical habitat.<https://ecos.fws.gov/ecp/species/8193>

EXPN

California Condor *Gymnogyps californianus*

U.S.A. (specific portions of Arizona, Nevada, and Utah)

There is **proposed** critical habitat for this species. The location of the critical habitat is not available.<https://ecos.fws.gov/ecp/species/8193>

Threatened

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

Endangered

Southwestern Willow Flycatcher *Empidonax traillii extimus*There is **final** critical habitat for this species. Your location is outside the critical habitat.<https://ecos.fws.gov/ecp/species/6749>

Threatened

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

Reptiles

NAME

STATUS

Desert Tortoise *Gopherus agassizii*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.<https://ecos.fws.gov/ecp/species/4481>

Fishes

NAME

STATUS

Virgin River Chub *Gila seminuda* (=robusta)

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.<https://ecos.fws.gov/ecp/species/1772>**Woundfin** *Plagopterus argentissimus*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.<https://ecos.fws.gov/ecp/species/49>

Flowering Plants

NAME	STATUS
Dwarf Bear-poppy <i>Arctomecon humilis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5492	Endangered
Holmgren Milk-vetch <i>Astragalus holmgreniorum</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4590	Endangered
Jones Cycladenia <i>Cycladenia humilis</i> var. <i>jonesii</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3336	Threatened
Shivwits Milk-vetch <i>Astragalus ampullarioides</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5840	Endangered
Siler Pincushion Cactus <i>Pediocactus (=Echinocactus,=Utahia)</i> <i>sileri</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3607	Threatened

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

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

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

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

Additional information can be found using the following links:

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

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

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

NAME

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

Bald Eagle *Haliaeetus leucocephalus*

Breeds Dec 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Brewer's Sparrow *Spizella breweri*

Breeds May 15 to Aug 10

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

<https://ecos.fws.gov/ecp/species/9291>

Burrowing Owl *Athene cunicularia*

Breeds Mar 15 to Aug 31

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

<https://ecos.fws.gov/ecp/species/9737>

Golden Eagle *Aquila chrysaetos*

Breeds Jan 1 to Aug 31

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

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

Lewis's Woodpecker *Melanerpes lewis*

Breeds Apr 20 to Sep 30

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

<https://ecos.fws.gov/ecp/species/9408>

Rufous Hummingbird *selasphorus rufus*

Breeds elsewhere

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

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

Willet *Tringa semipalmata*

Breeds elsewhere

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

Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that

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

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

Breeding Season (■)

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

Survey Effort (|)

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

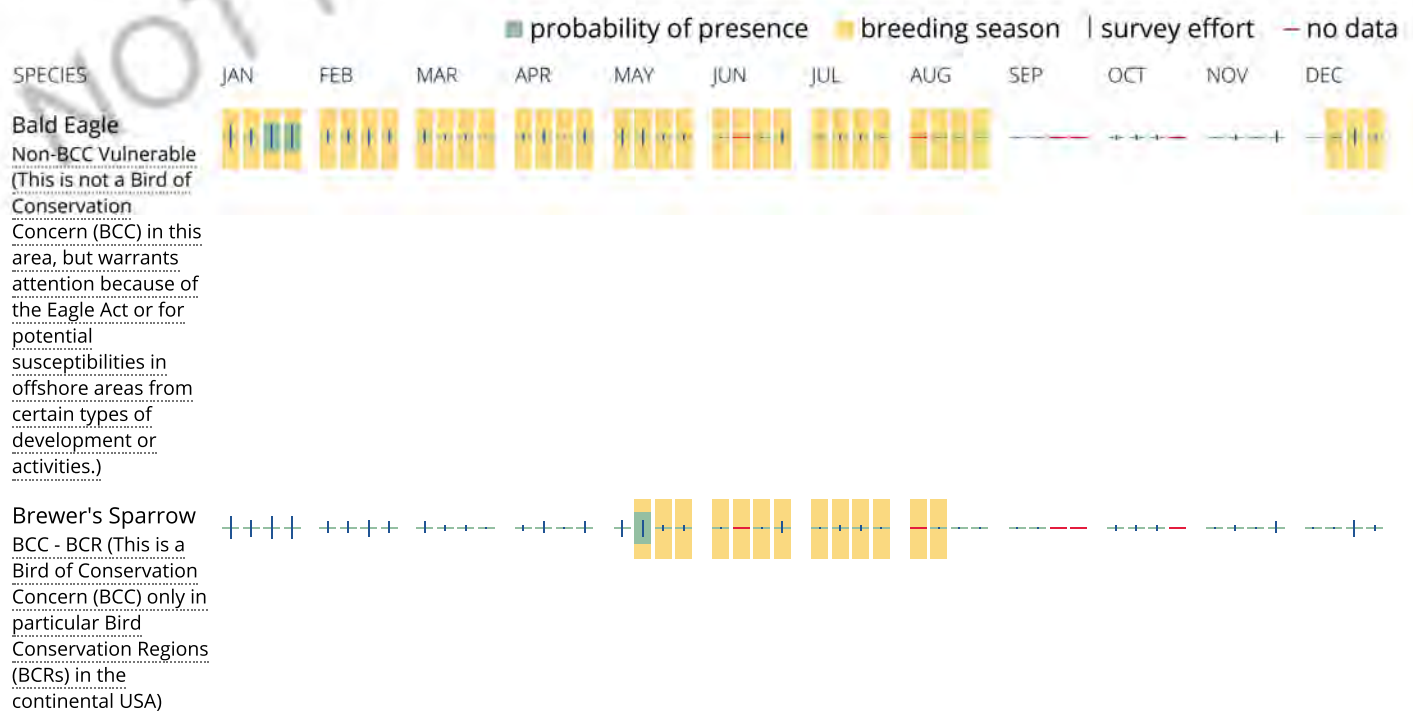
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

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

Survey Timeframe

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





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

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

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

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

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project

intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

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

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

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

This location overlaps the following wetlands:

RIVERINE

[R4SBC](#)

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

Data limitations

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

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

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

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

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



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

August 14, 2015

Regulatory Division SPK-2015-00018-SG

Washington City
Attn: Mr. Lester Dalton
1305 East Washington Dam Road
Washington, Utah 84780

Dear Mr. Dalton:

We are responding to your June 30, 2015, request for an approved jurisdictional determination for the Warm Springs Potential Unauthorized Activity site. The approximately 0.32-acre project site is located approximately 1 mile north of the Green Springs Drive, Buena Vista Road intersection, about 400 feet off the road between Buena Vista Boulevard and the I-15. The project area is located in Washington County, Utah and falls within Sections 14 of Township 42 South, Range 15 West, Latitude 37.137197°, Longitude -113.513818°, Washington City, Washington County, Utah (Enclosure 1).

Based on available information, the 0.32-acre water identified as "Boilers" on the enclosed "Boilers Wetland Delineation" figures prepared by Bowen Collins & Associates, Inc. (Enclosure 1) is an intrastate isolated water with no apparent interstate or foreign commerce connection. As such, this water is not currently regulated by the U.S. Army Corps of Engineers (Corps). This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities.

This determination is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331.

A Notification of Appeal Process (NAP) and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDO, 1455 Market Street, 2052B, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date

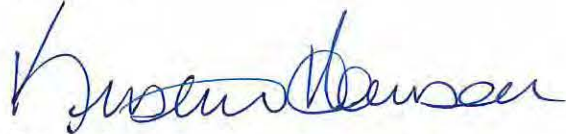
of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*. For more information regarding our program, please visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Please refer to identification number SPK-2015-00018-SG in any correspondence concerning this project. If you have any questions, please contact Patricia McQueary, Senior Project Manager at the St. George Regulatory Office, 196 East Tabernacle Street Room 30, St. George, Utah 84770, by telephone at 435-986-3979, or by email at Patricia.L.McQueary@usace.army.mil.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kristine Hansen", is written over a horizontal line.

Kristine Hansen
Acting Branch Chief
Utah-Nevada Branch
Sacramento District

Enclosures

cc: (w/o encls)

Ms. Jamie Tsandes, Bowen Collins, 154 E 14000 S, Draper, UT 84020

Mr. Todd Olsen, Bowen Collins, 20 North Main Street, Suite 107, Saint George, Utah 84770



Bowen Collins
& Associates, Inc.
CONSULTING ENGINEERS

SITE LOCATION MAP

WASHINGTON CITY

**BOILERS
WETLAND DELINEATION**

NORTH:



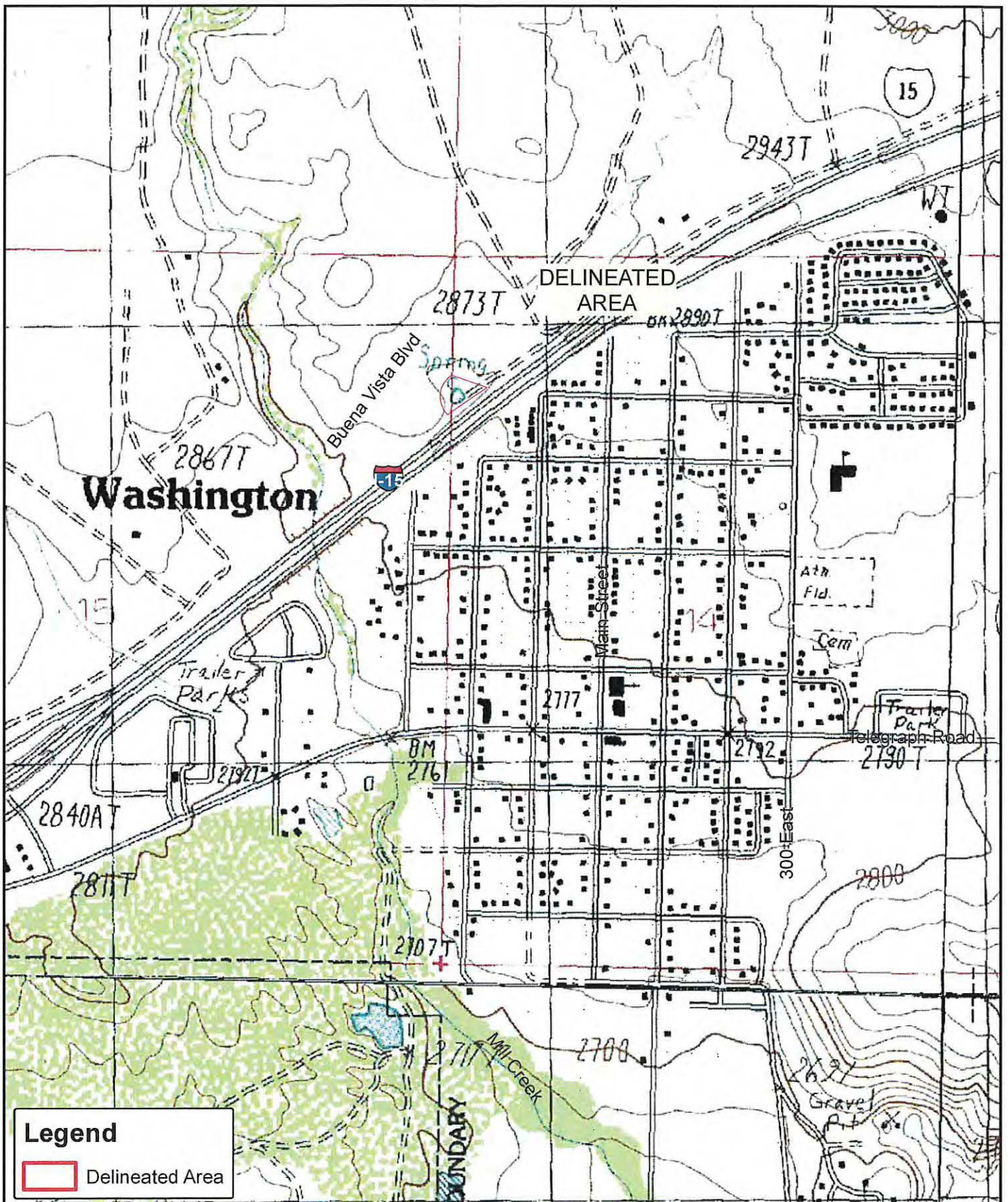
IMAGERY: ESRI

SCALE:



FIGURE NO.

1A



Bowen Collins & Associates, Inc. CONSULTING ENGINEERS	SITE LOCATION MAP <small>WASHINGTON CITY</small> BOILERS WETLAND DELINEATION	<small>NORTH:</small> <small>USGS QUAD: WASHINGTON</small>	<small>SCALE:</small> <div style="display: flex; align-items: center; justify-content: center;"> <div style="width: 100px; border-bottom: 1px solid black; position: relative; margin: 0 5px;"> 0 500 </div> <div style="width: 100px; border-bottom: 1px solid black; position: relative; margin: 0 5px;"> 0 1,000 </div> </div> <small>Feet</small> <small>FIGURE NO.</small> 1B
---	--	---	---

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Washington City, Attn: Mr. Lester Dalton	File No.: SPK-2015-00018-SG	Date: August 12, 2015
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/cecw/pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.