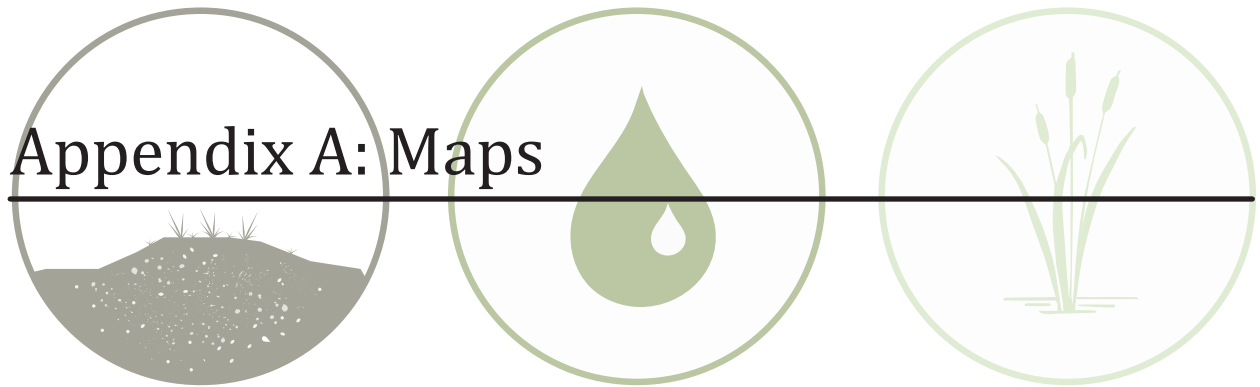
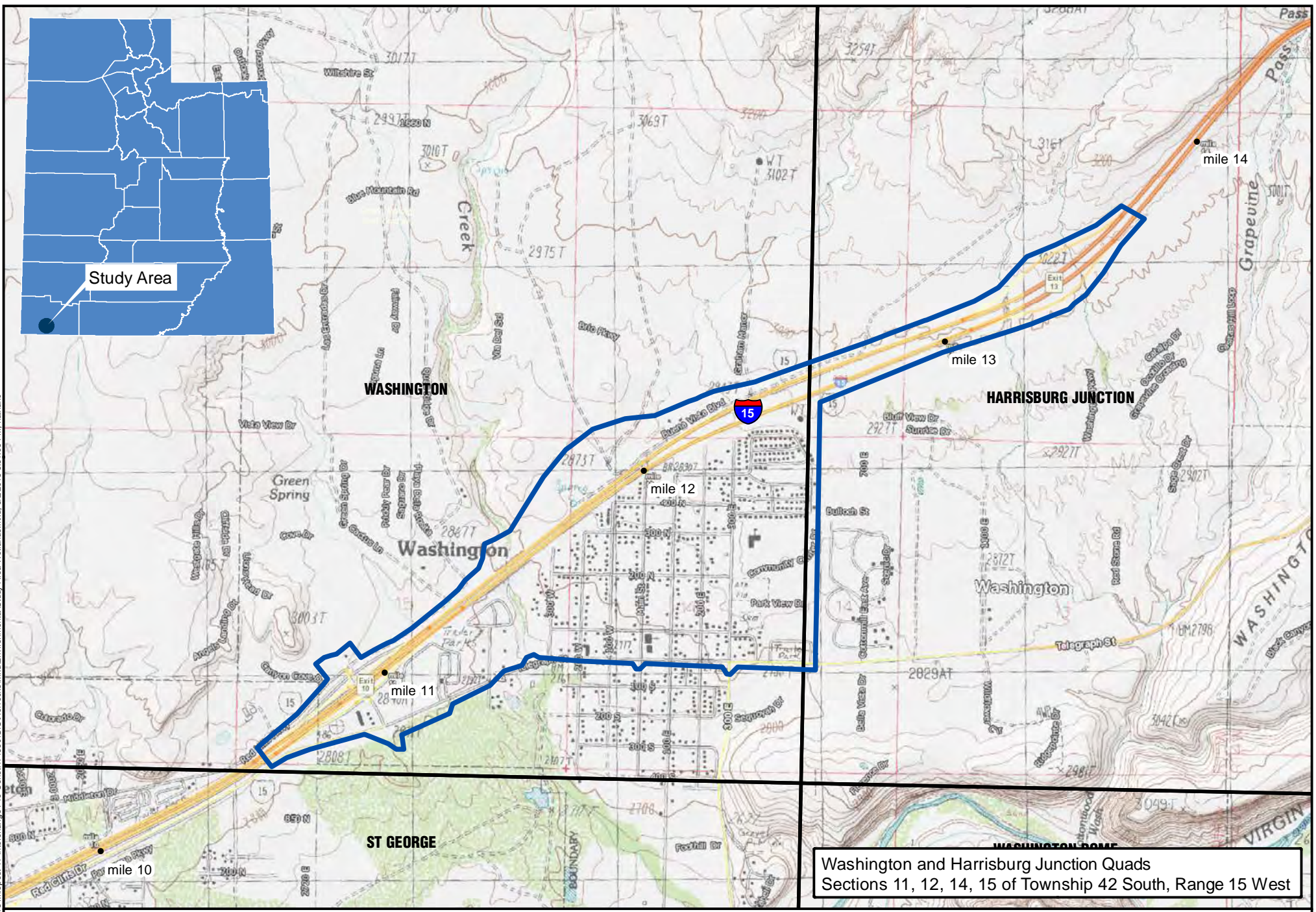


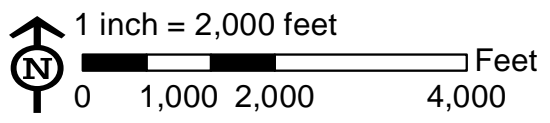
Appendix A: Maps





 Study Area

Coordinate System: NAD 1983 StatePlane Utah South FIPS 4303 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983



Washington and Harrisburg Junction Quads
Sections 11, 12, 14, 15 of Township 42 South, Range 15 West

I-15; Milepost 11 Interchange
Project Location Map

01/20/17SG-488-1704-L15 Milepost 11 Interchange Pre-Construct(14560GISHorrocks)MapEnvironmentalStudy Area Wetlands.mxd, 5/2/2018 3:51:06 PM, nathanc



U.S. Fish and Wildlife Service

National Wetlands Inventory

MP 11 (1)



September 11, 2017

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

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

- Lake
- Other
- 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)



September 11, 2017

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

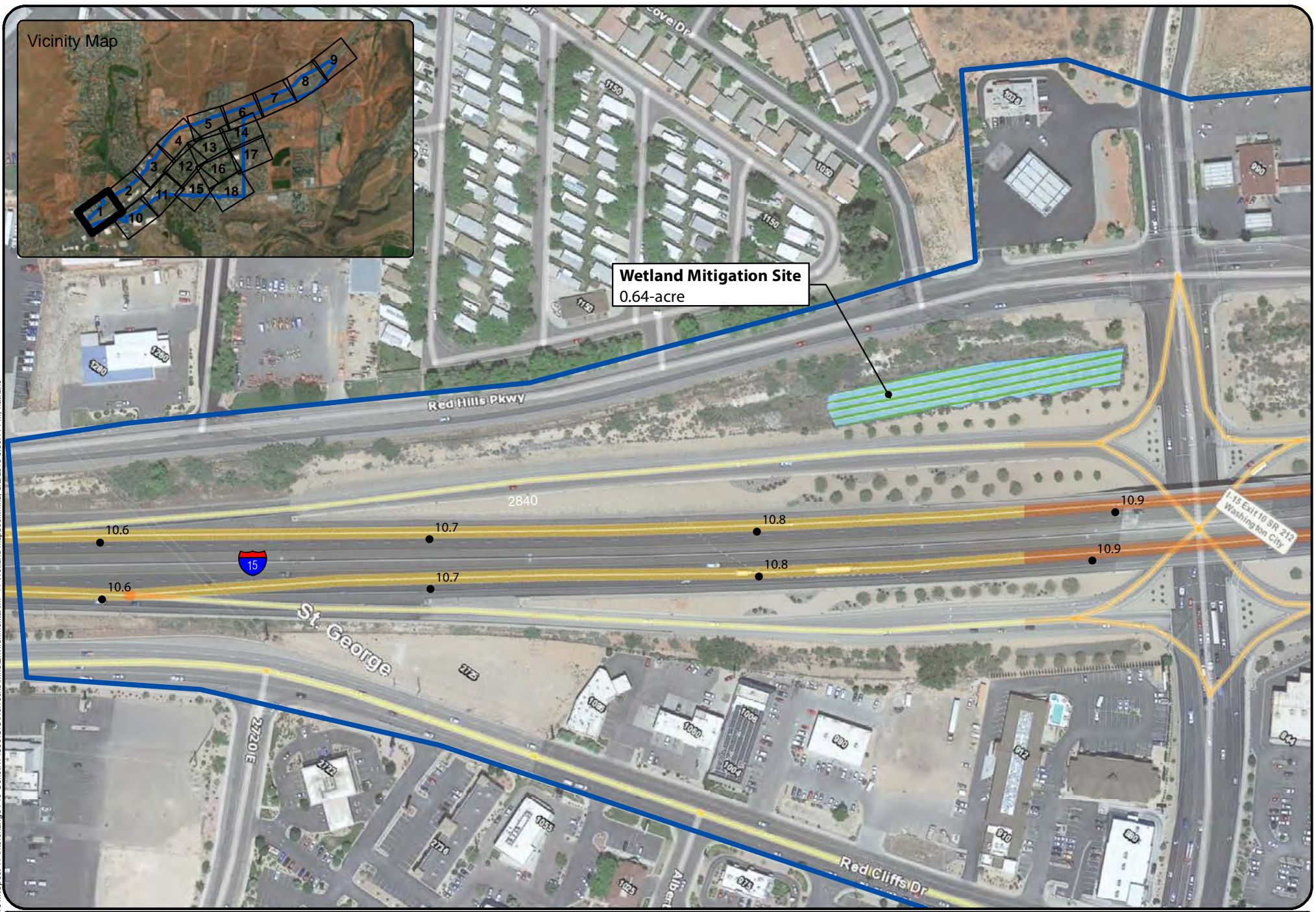
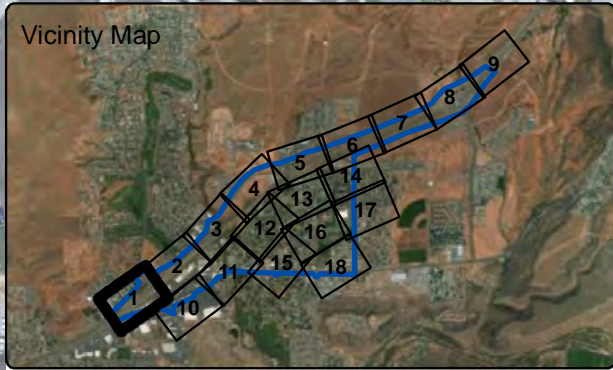
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

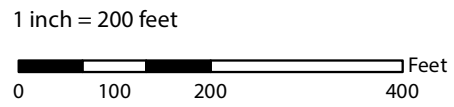
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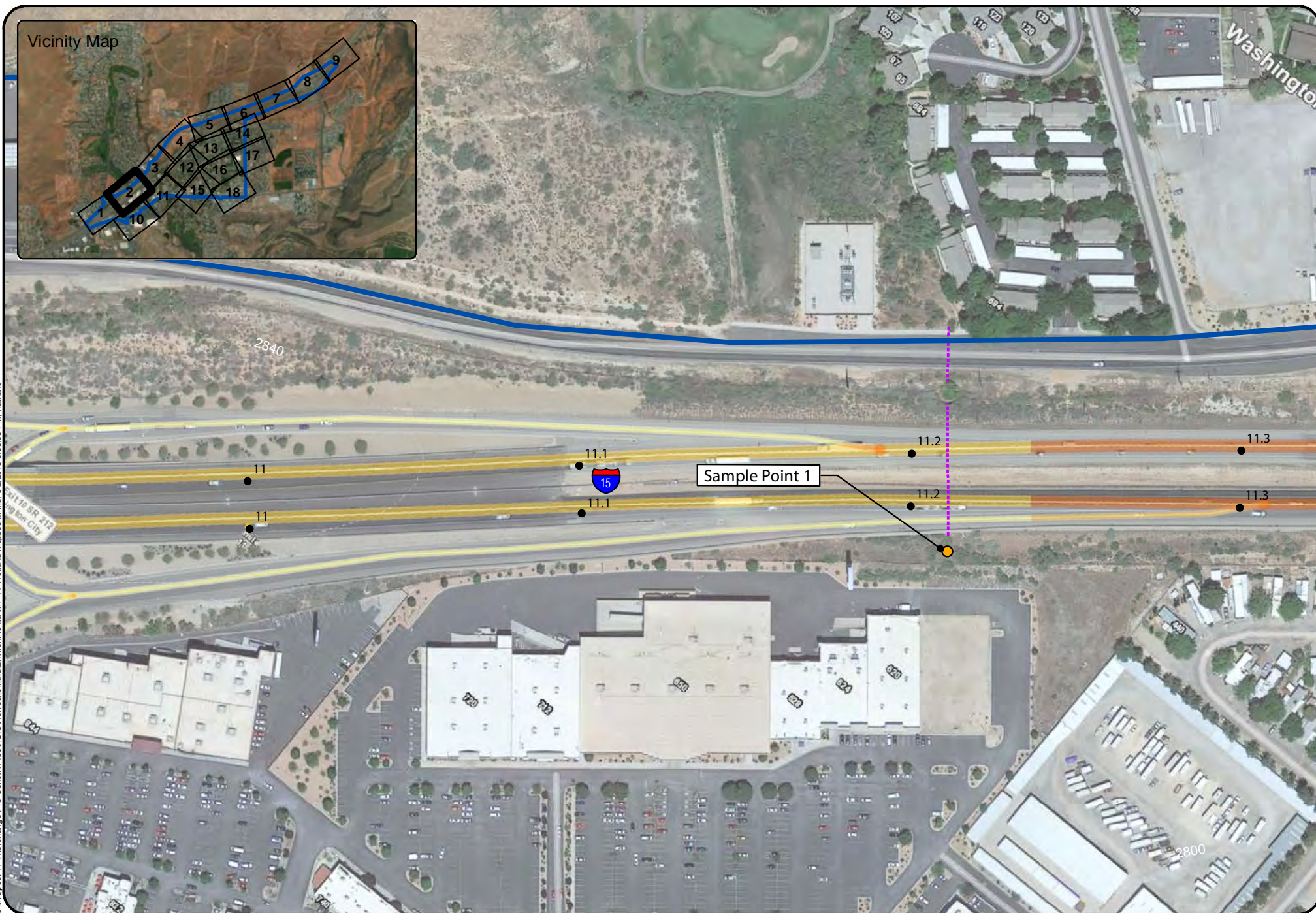
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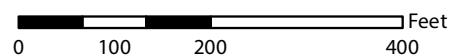
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|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |





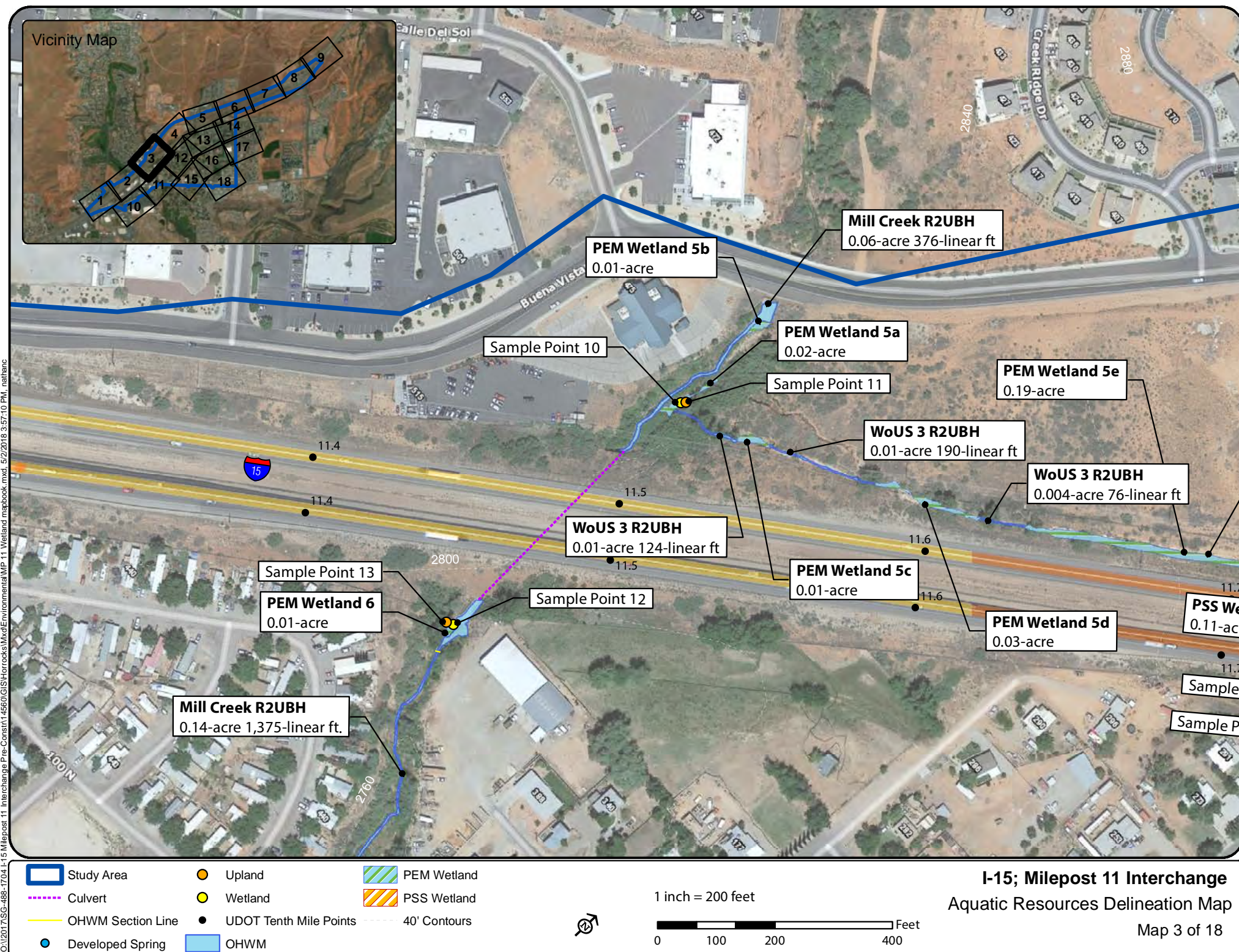
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|  | Study Area |  | Upland |  | PEM Wetland |
|  | Culvert |  | Wetland |  | PSS Wetland |
|  | OHWM Section Line |  | UDOT Tenth Mile Points |  | 40' Contours |
|  | Developed Spring |  | OHWM | | |

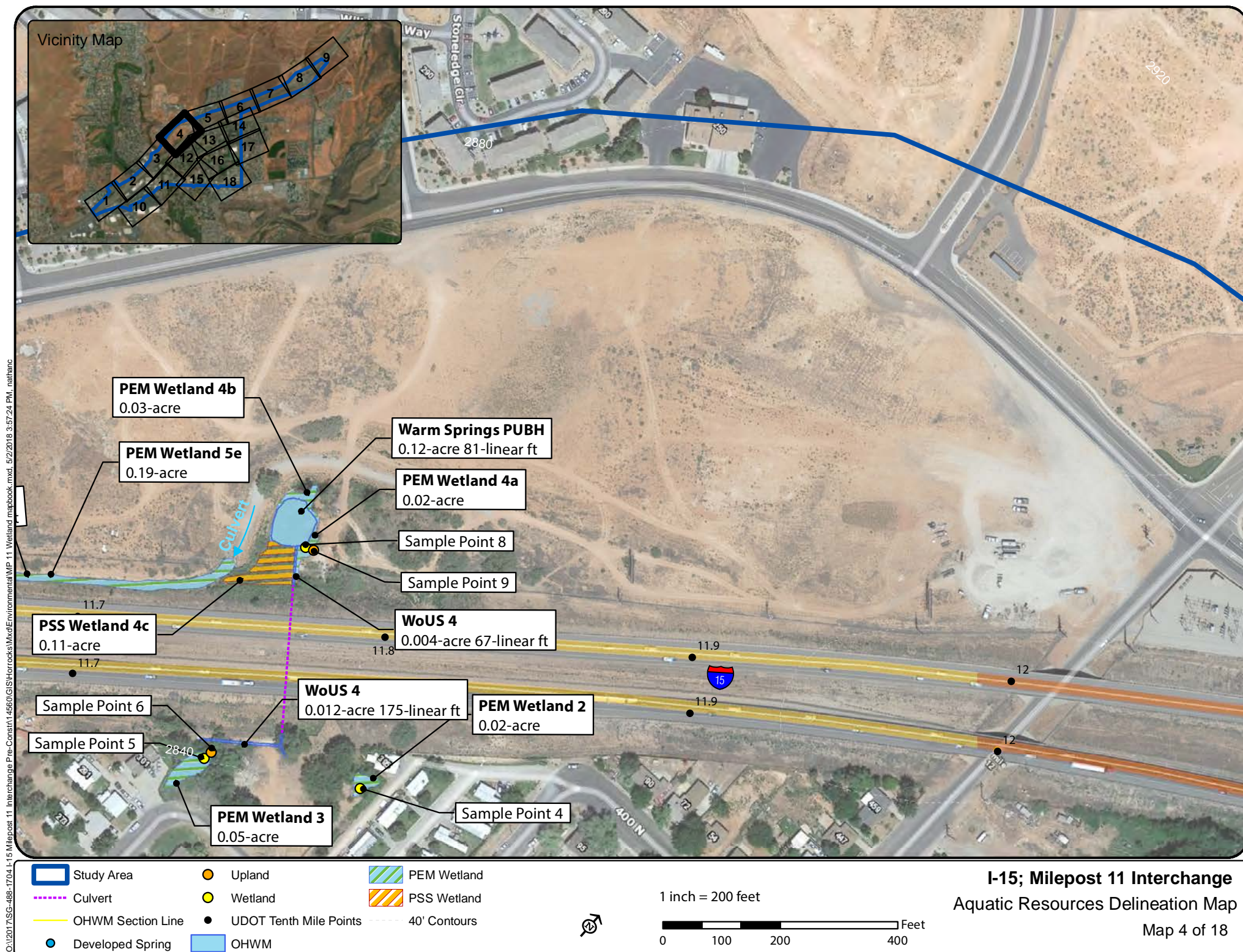
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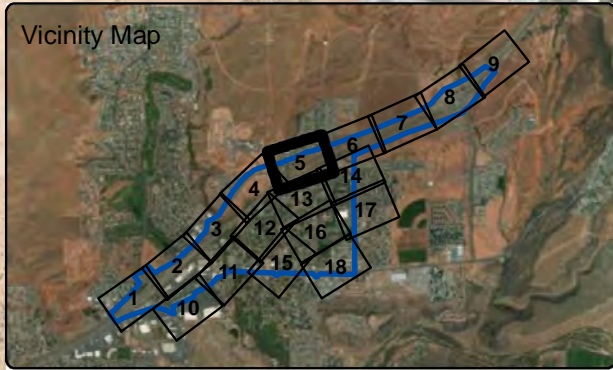
I-15; Milepost 11 Interchange
Aquatic Resources Delineation Map

Map 2 of 18

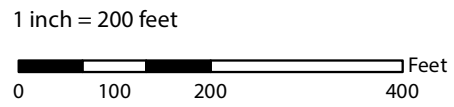




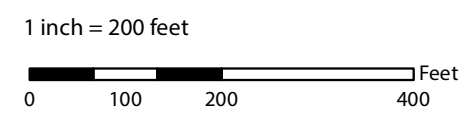
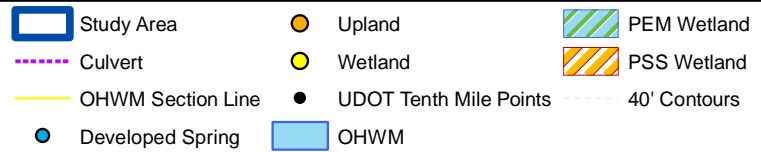
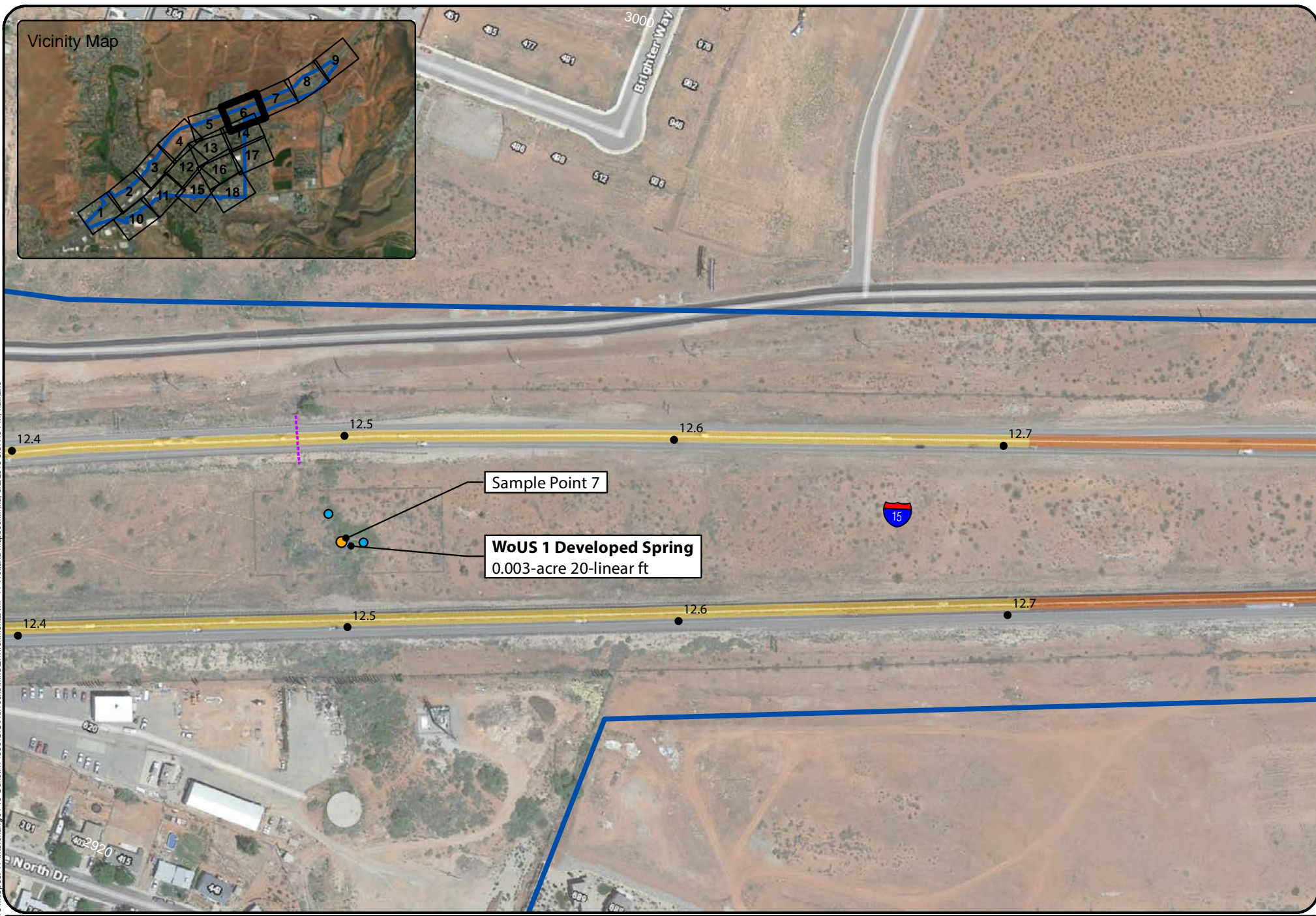
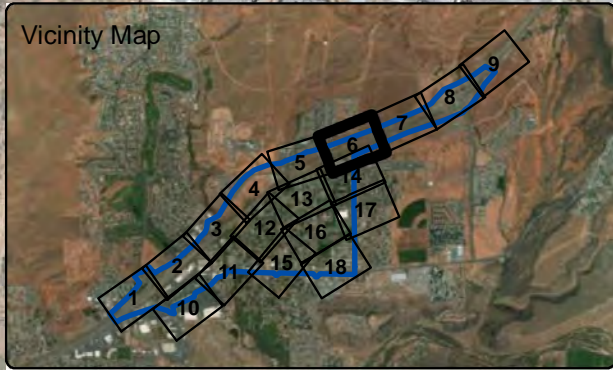
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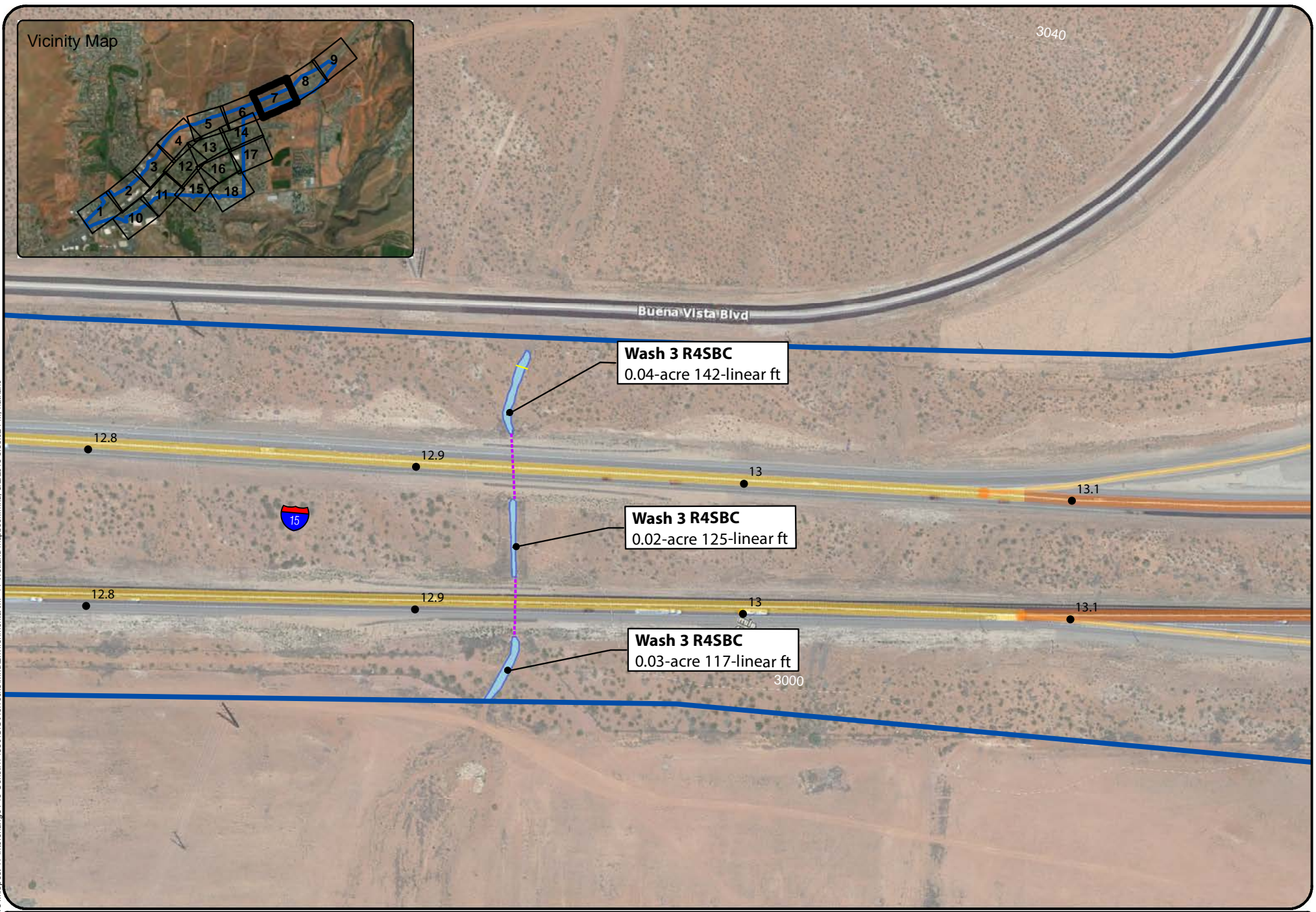
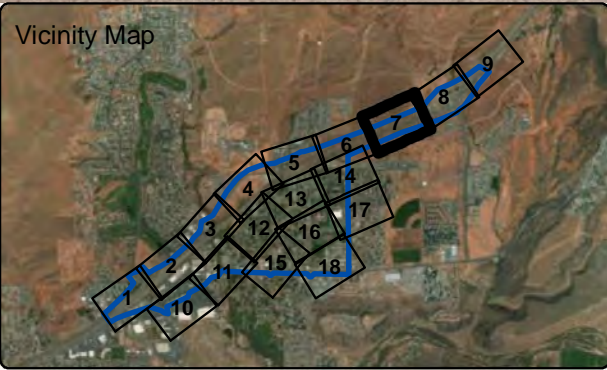


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|-------------------|------------------------|--------------|
| Study Area | Upland | PEM Wetland |
| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



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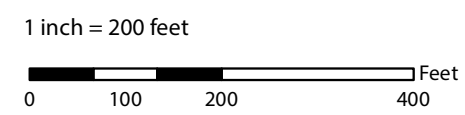


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0.04-acre 142-linear ft

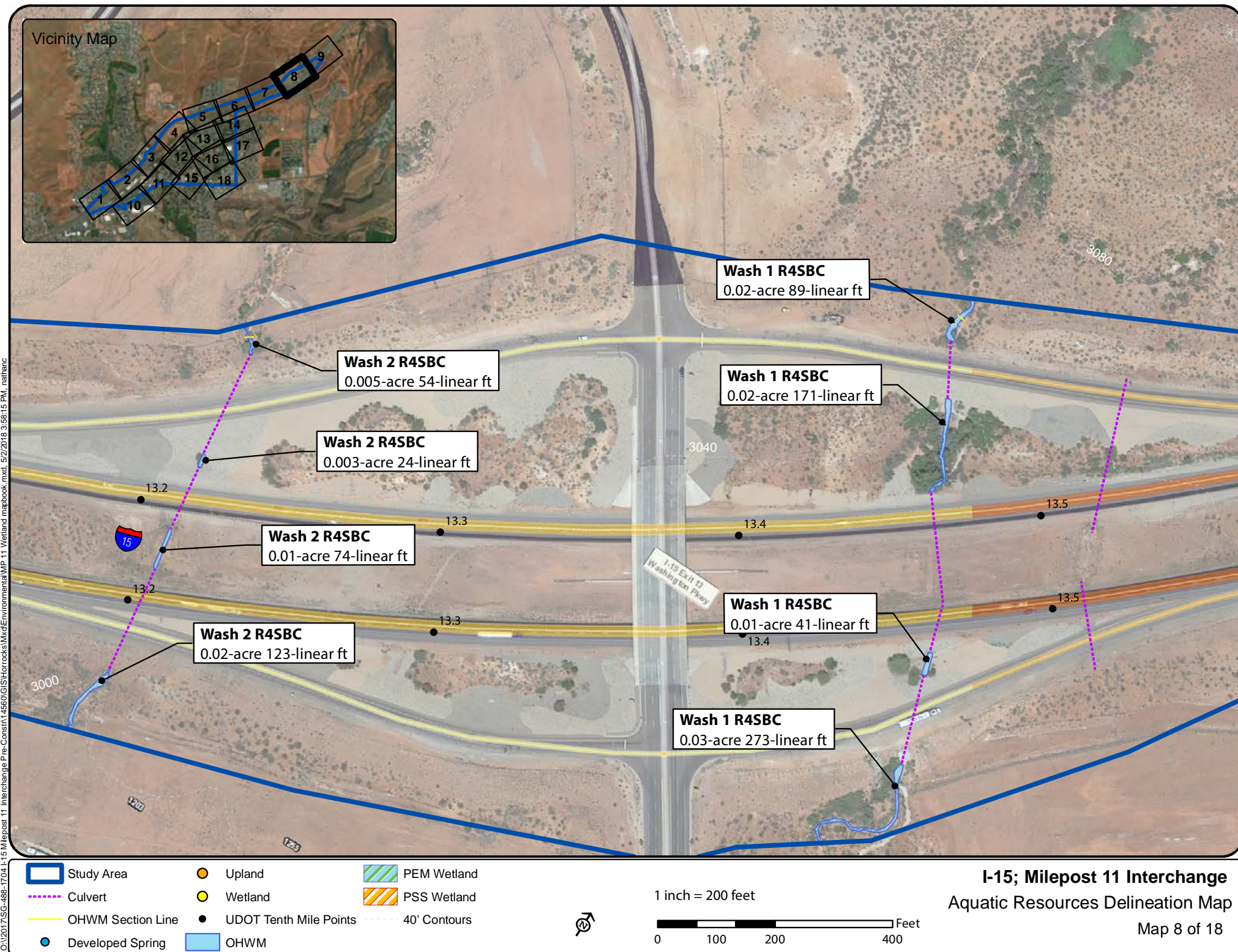
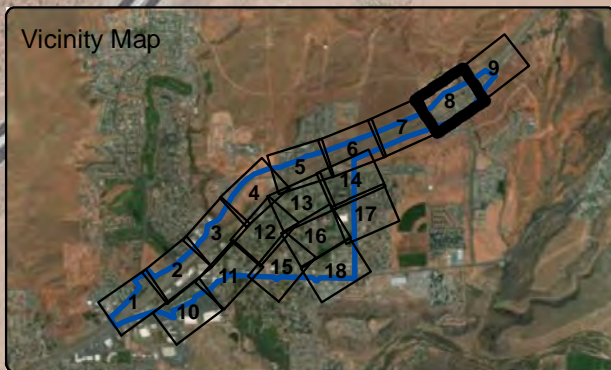
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0.02-acre 125-linear ft

Wash 3 R4SBC
0.03-acre 117-linear ft

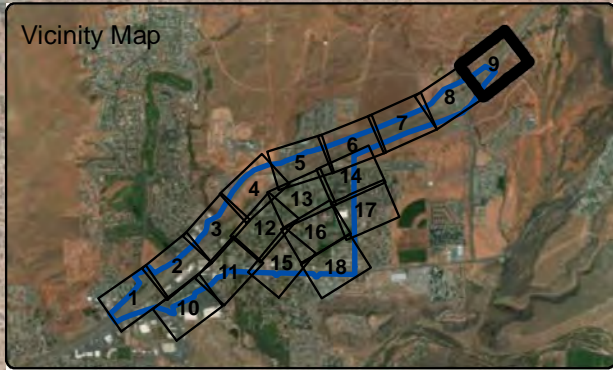
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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



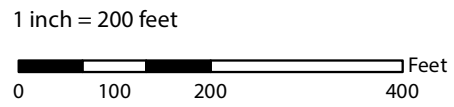
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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |

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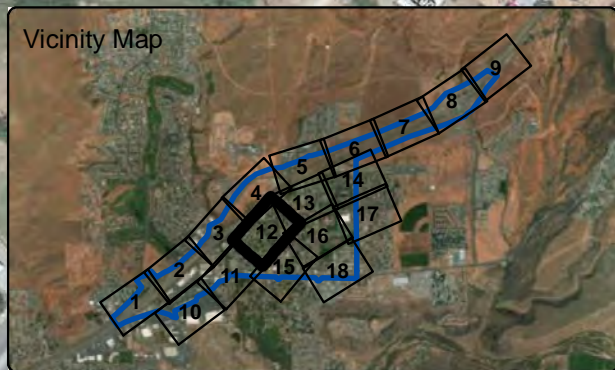
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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet

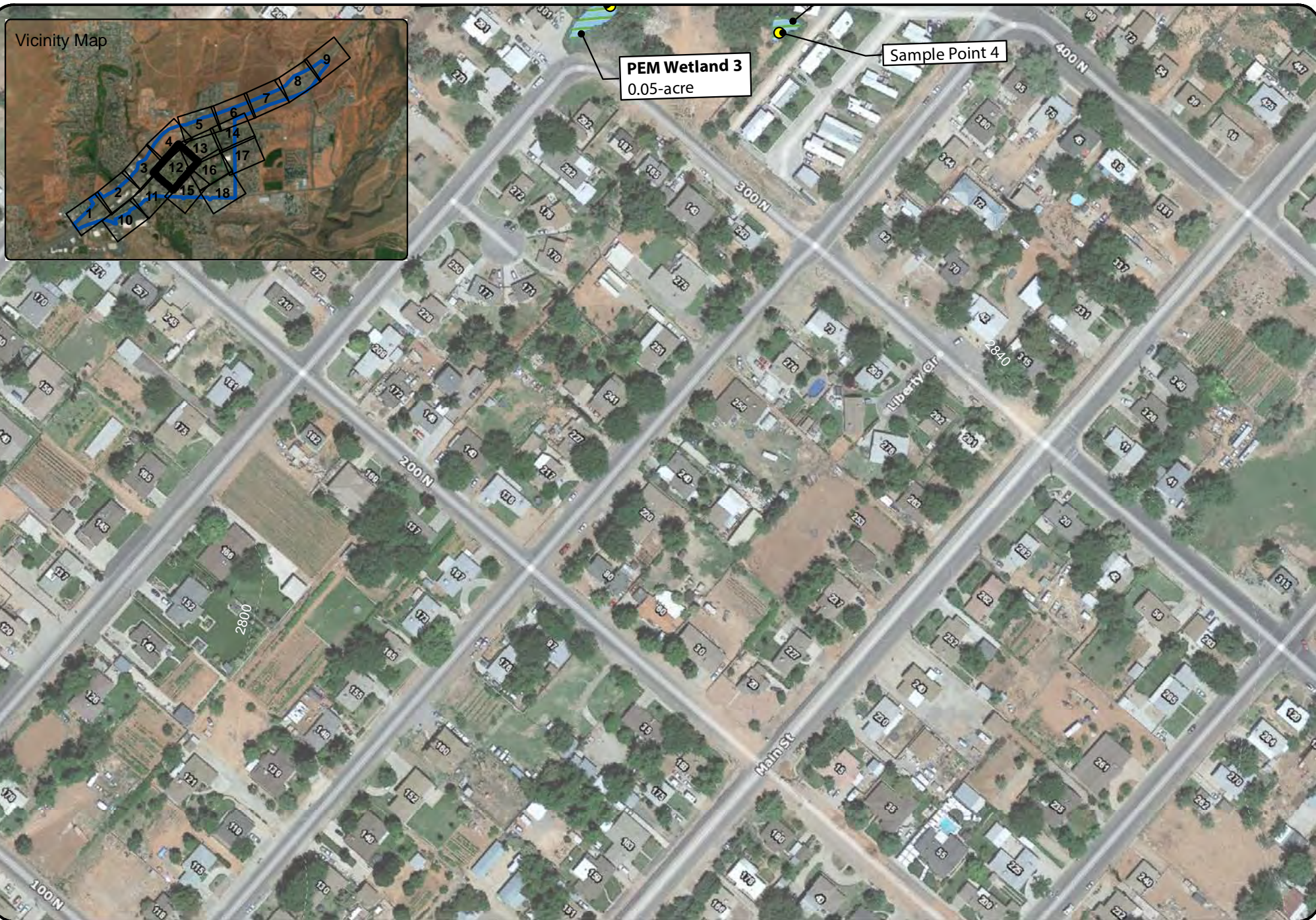


Vicinity Map



PEM Wetland 3
0.05-acre

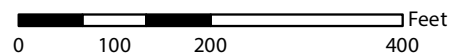
Sample Point 4



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



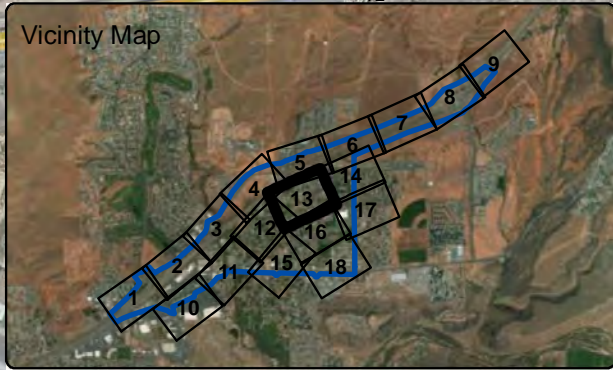
1 inch = 200 feet



I-15; Milepost 11 Interchange
Aquatic Resources Delineation Map

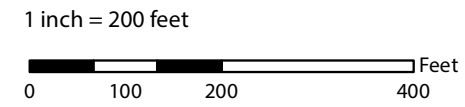
Map 12 of 18

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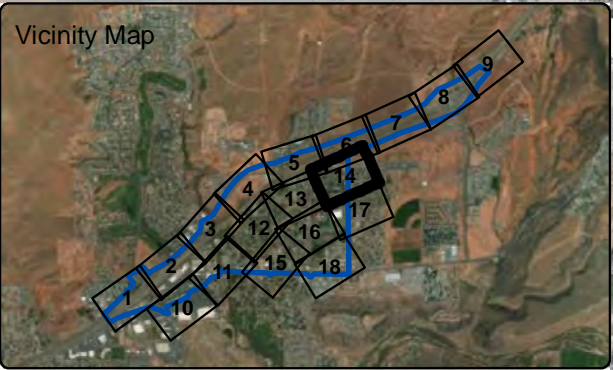
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| Culvert | Wetland | PSS Wetland |
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| Developed Spring | OHWM | |



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Vicinity Map



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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



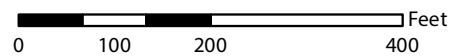
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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |

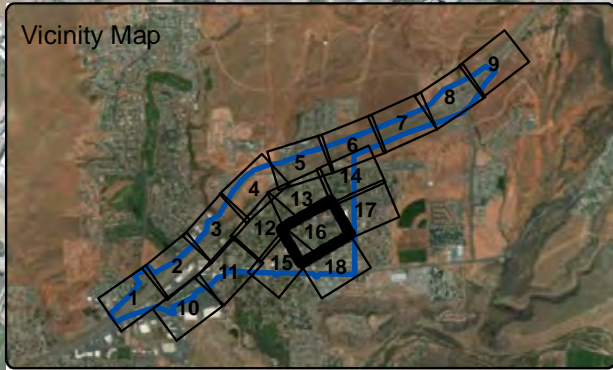


1 inch = 200 feet



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

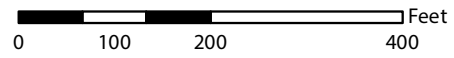
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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



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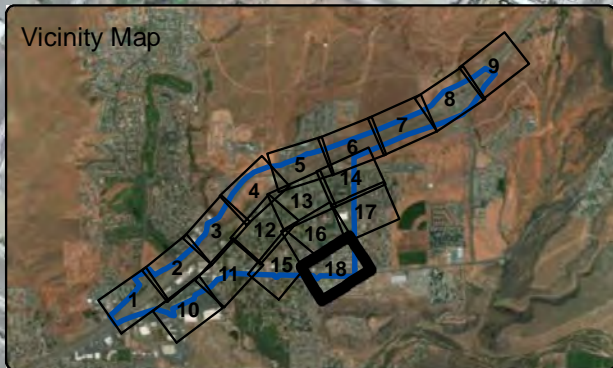
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| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |



1 inch = 200 feet



Vicinity Map

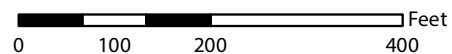


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| Culvert | Wetland | PSS Wetland |
| OHWM Section Line | UDOT Tenth Mile Points | 40' Contours |
| Developed Spring | OHWM | |

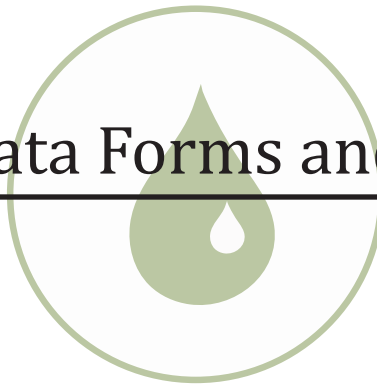
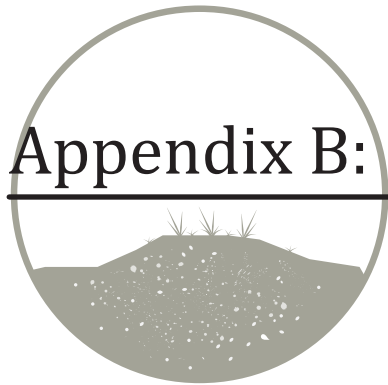


1 inch = 200 feet



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

Appendix B: Data Forms and Photos



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: 1
 Investigator(s): Terry Johnson, Nathan Clarke Section, Township, Range: S15 T42S R15W
 Landform (hillslope, terrace, etc.): Freeway culvert outlet Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR): D - Interior Deserts Lat: 37.1313151877 Long: -113.520790258 Datum: NAD 83
 Soil Map Unit Name: St. George silty clay loam, shallow water table 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: 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.			

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:	2 (A)
2.				Total Number of Dominant Species Across All Strata:	2 (B)
3.				Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 % (A/B)
4.					
Total Cover:			%		
Sapling/Shrub Stratum				Prevalence Index worksheet:	
1.				Total % Cover of:	Multiply by:
2.				OBL species	x 1 = 0
3.				FACW species	90 x 2 = 180
4.				FAC species	10 x 3 = 30
5.				FACU species	x 4 = 0
Total Cover:			%	UPL species	x 5 = 0
				Column Totals:	100 (A) 210 (B)
				Prevalence Index = B/A = 2.10	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <i>Muhlenbergia asperifolia</i>	65	Yes	FACW	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <i>Juncus balticus</i>	25	Yes	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
3. <i>Asclepias speciosa</i>	5		FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <i>Xanthium strumarium</i>	5		FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5.				¹ Indicators of hydric soil and wetland hydrology must be present.	
6.					
7.					
8.					
Total Cover:			100%	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Woody Vine Stratum					
1.					
2.					
Total Cover:			%		
% Bare Ground in Herb Stratum		%	% Cover of Biotic Crust		%

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)

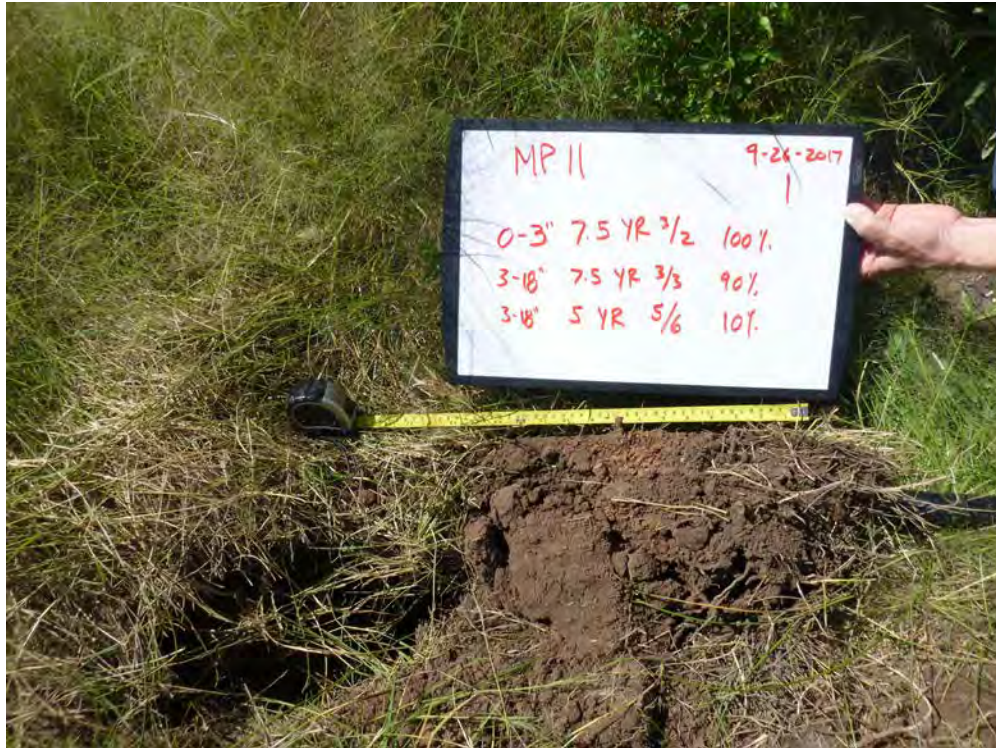
Depth (inches): _____

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>				
3. <i>Lactuca serriola</i>	<u>15</u>		<u>FACU</u>				
4. _____							
5. _____							
6. _____							
7. _____							
8. _____							
Total Cover: <u>100 %</u>							
<u>Woody Vine Stratum</u>				Hydrophytic Vegetation Indicators:			
1. _____				<input checked="" type="checkbox"/> Dominance Test is >50%			
2. _____				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
				¹ Indicators of hydric soil and wetland hydrology must be present.			
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
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 ☒
(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 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 %	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Woody Vine Stratum					
1.					
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): 7Saturation 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				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
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: <u>%</u>				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.				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: 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	x 1 = <u>0</u>
3. _____				FACW species	x 2 = <u>200</u>
4. _____				FAC species	x 3 = <u>0</u>
5. _____				FACU species	x 4 = <u>0</u>
Total Cover:	<u>100 %</u>			UPL species	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> %			Hydrophytic Vegetation Present?	
<u>Woody Vine Stratum</u>				Yes <input checked="" type="radio"/> No <input type="radio"/>	
1. _____					
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.)

[illegible]

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): 6

Saturation Present? Yes ☒ No ☐

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>		<u>FACW</u>	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>	<u>Yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>1.52</u>			
2. <u>Schoenoplectus pungens</u>	<u>35</u>	<u>Yes</u>	<u>OBL</u>				
3. <u>Typha angustifolia</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>				
4. <u>Muhlenbergia asperifolia</u>	<u>5</u>		<u>FACW</u>				
5. <u>Xanthium strumarium</u>	<u>5</u>		<u>FAC</u>				
6. _____	_____	_____	_____				
7. _____	_____	_____	_____				
8. _____	_____	_____	_____				
Total Cover: <u>100</u> %							
<u>Woody Vine Stratum</u>				Hydrophytic Vegetation Indicators:			
1. _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
				¹ Indicators of hydric soil and wetland hydrology must be present.			
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
% Bare Ground in Herb Stratum _____ % % Cover of Biotic Crust _____ % 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>
				Column Totals:	<u>45</u> (A) <u>132</u> (B)
				Prevalence Index = B/A = <u>2.93</u>	
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators:	
1. <i>Juncus balticus</i>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <i>Salsola iberica</i>	<u>5</u>		<u>FACU</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
3. <i>Cynodon dactylon</i>	<u>3</u>		<u>FACU</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <i>Muhlenbergia asperifolia</i>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <i>Medicago alba</i>	<u>2</u>		<u>UPL</u>		
6. <i>Panicum capillare</i>	<u>10</u>	<u>Yes</u>	<u>FACU</u>		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
Total Cover: <u>40</u> %					
<u>Woody Vine Stratum</u>				¹ Indicators of hydric soil and wetland hydrology must be present.	
1. _____	_____	_____	_____	Hydrophytic Vegetation Present?	
2. _____	_____	_____	_____	Yes <input type="radio"/> No <input checked="" type="radio"/>	
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 ☒ Depth (inches): _____
(includes capillary fringe)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. <u>Salix exigua</u>	<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. <u>Juncus balticus</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.09</u>			
2. <u>Schoenoplectus pungens</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators:			
3. <u>Equisetum hyemale</u>	<u>35</u>	<u>Yes</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
4. <u>Anemopsis californica</u>	<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)

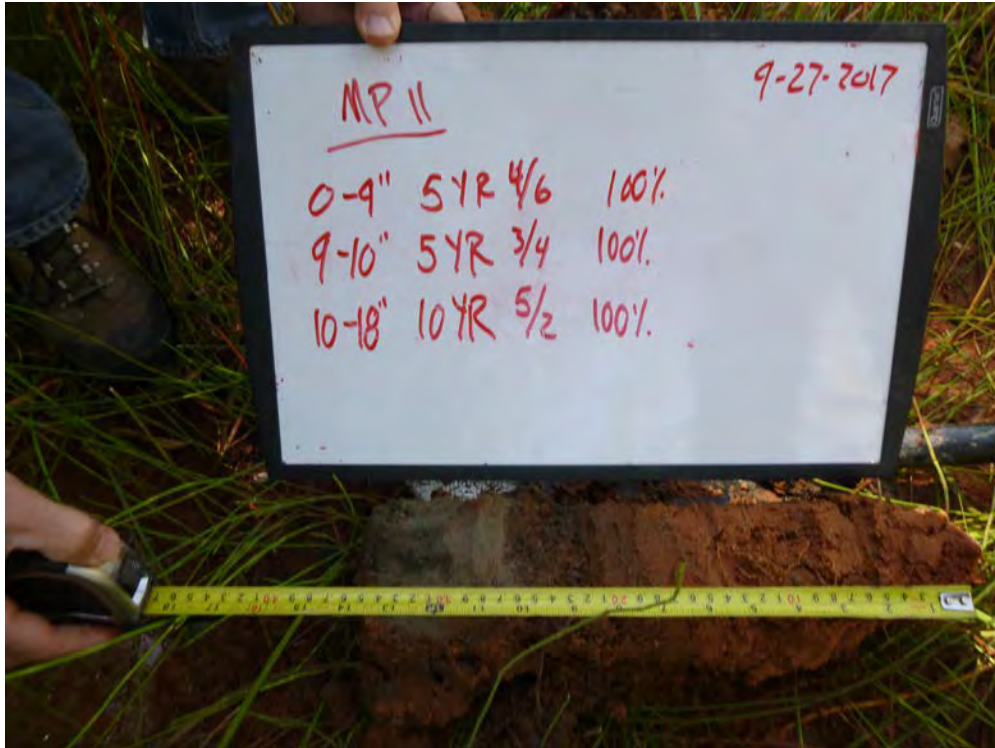
Depth (inches): 0

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>			
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet:			
1. <i>Salix exigua</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>5</u> x 2 = <u>10</u>			
4. _____	_____	_____	_____	FAC species <u>10</u> x 3 = <u>30</u>			
5. _____	_____	_____	_____	FACU species _____ x 4 = <u>0</u>			
Total Cover: <u>5 %</u>				UPL species <u>60</u> x 5 = <u>300</u>			
<u>Herb Stratum</u>				Column Totals: <u>75</u> (A) <u>340</u> (B)			
1. <i>Medicago alba</i>	<u>15</u>	<u>Yes</u>	<u>UPL</u>	Prevalence Index = B/A = <u>4.53</u>			
2. <i>Bromus techtorum</i>	<u>15</u>	<u>Yes</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators:			
3. <i>Asperugo procumbens</i>	<u>15</u>	<u>Yes</u>	<u>UPL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
4. <i>Rubia tinctorum</i>	<u>15</u>	<u>Yes</u>	<u>UPL</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 type="radio"/> No <input checked="" type="radio"/>			
Total Cover: <u>60 %</u>							
<u>Woody Vine Stratum</u>							
1. <i>Rubus armeniacus</i>	<u>10</u>	<u>Yes</u>	<u>FAC</u>				
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)

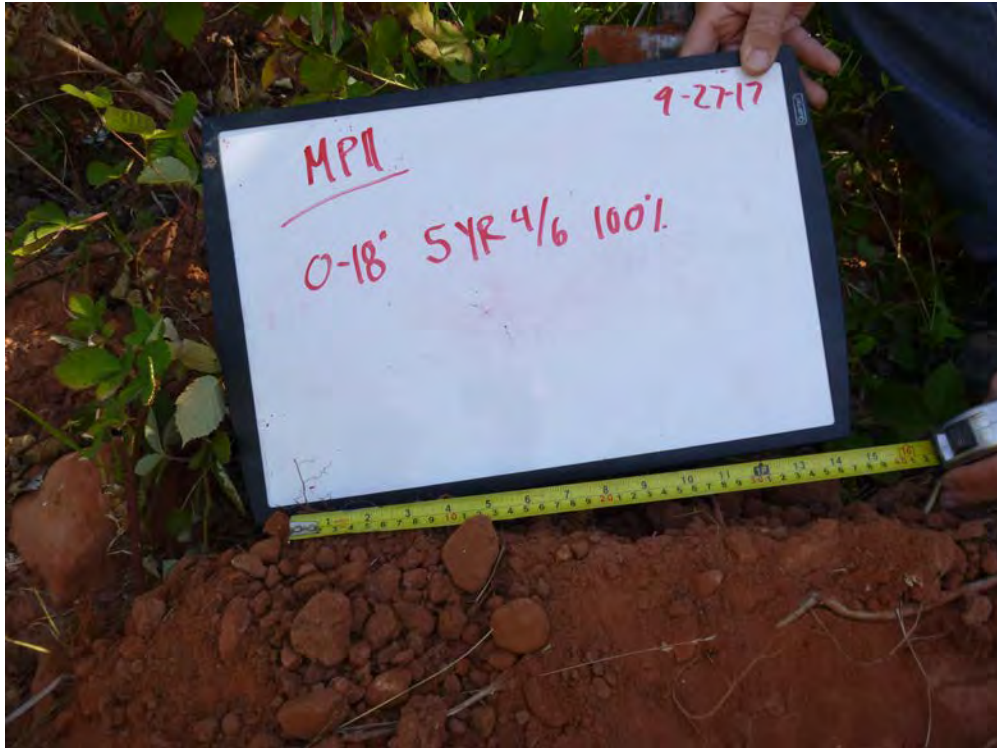
- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral 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	Hydrophytic Vegetation Indicators:			
3. <i>Nasturtium officinale</i>	<u>15</u>	_____	OBL	<input checked="" type="checkbox"/> Dominance Test is >50%			
4. <i>Cynodon dactylon</i>	<u>5</u>	_____	FACU	<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>90</u> %							
Woody Vine Stratum							
1. _____	_____	_____	_____				
2. _____	_____	_____	_____				
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u>10</u> %				% Cover of Biotic Crust <u> </u> %			
Remarks:							

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				Hydrophytic Vegetation Present?			
1.				Yes <input type="radio"/>			
2.				No <input checked="" type="radio"/>			
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: 13

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	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? (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:

Sample Point 13



Soil Profile



General Conditions

General Conditions



Concrete-lined ditch east of I-15



Looking south at concrete-lined ditch

General Conditions

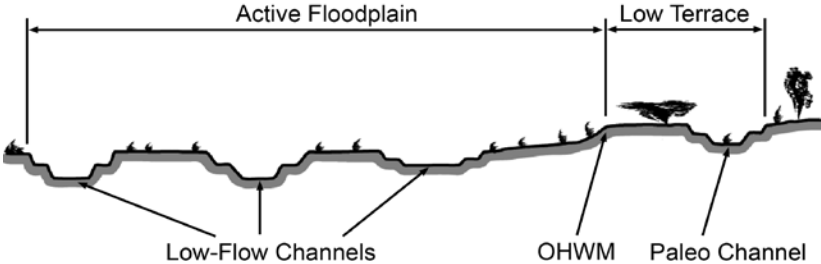


Looking west at PSS wetland near Warm Springs



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 Investigator(s): Johnson, Clarke		Date: 27 September 2017 Time: 1430 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: 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: <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> 			

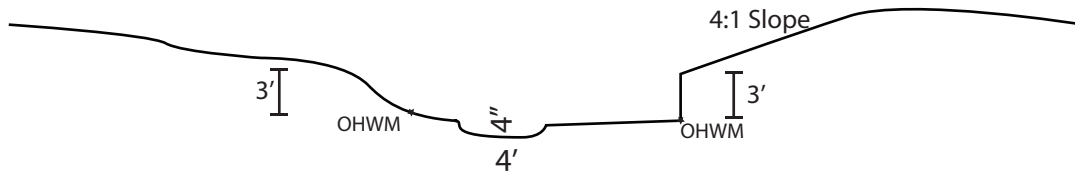
Project ID:

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

☐

Bench

☐

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

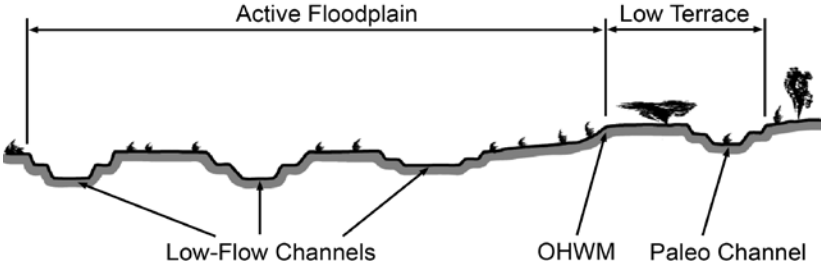


Looking west at Wash 1



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> 			

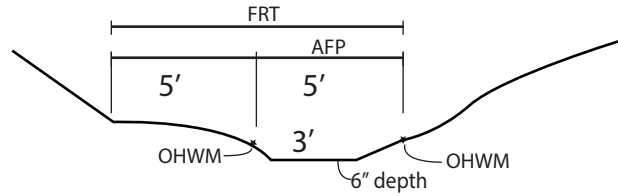
Project ID:

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> 			

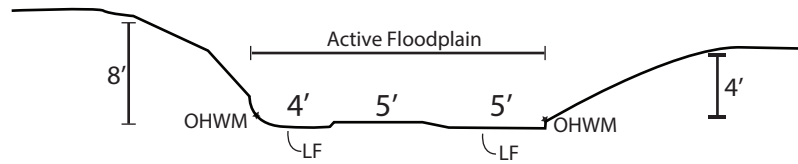
Project ID:

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

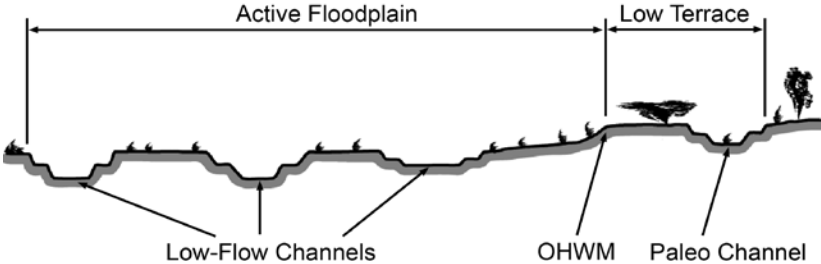


Looking west at Wash 3



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> 			

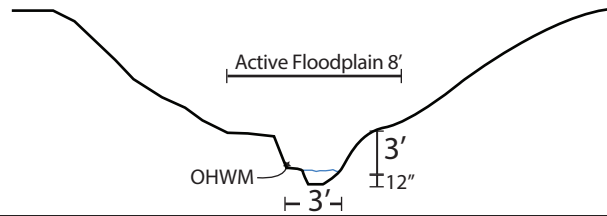
Project ID:

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

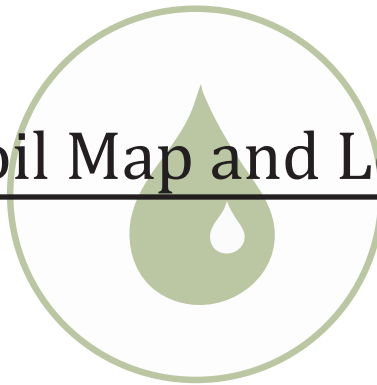
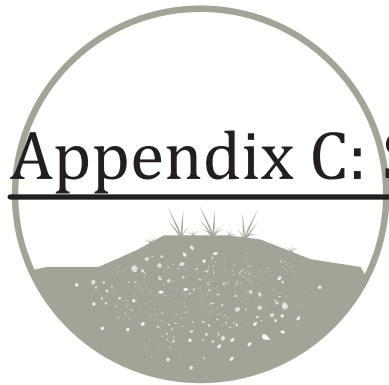


Looking west at culvert under I-15



Typical view of Mill Creek

Appendix C: Soil Map and Legend





United States
Department of
Agriculture

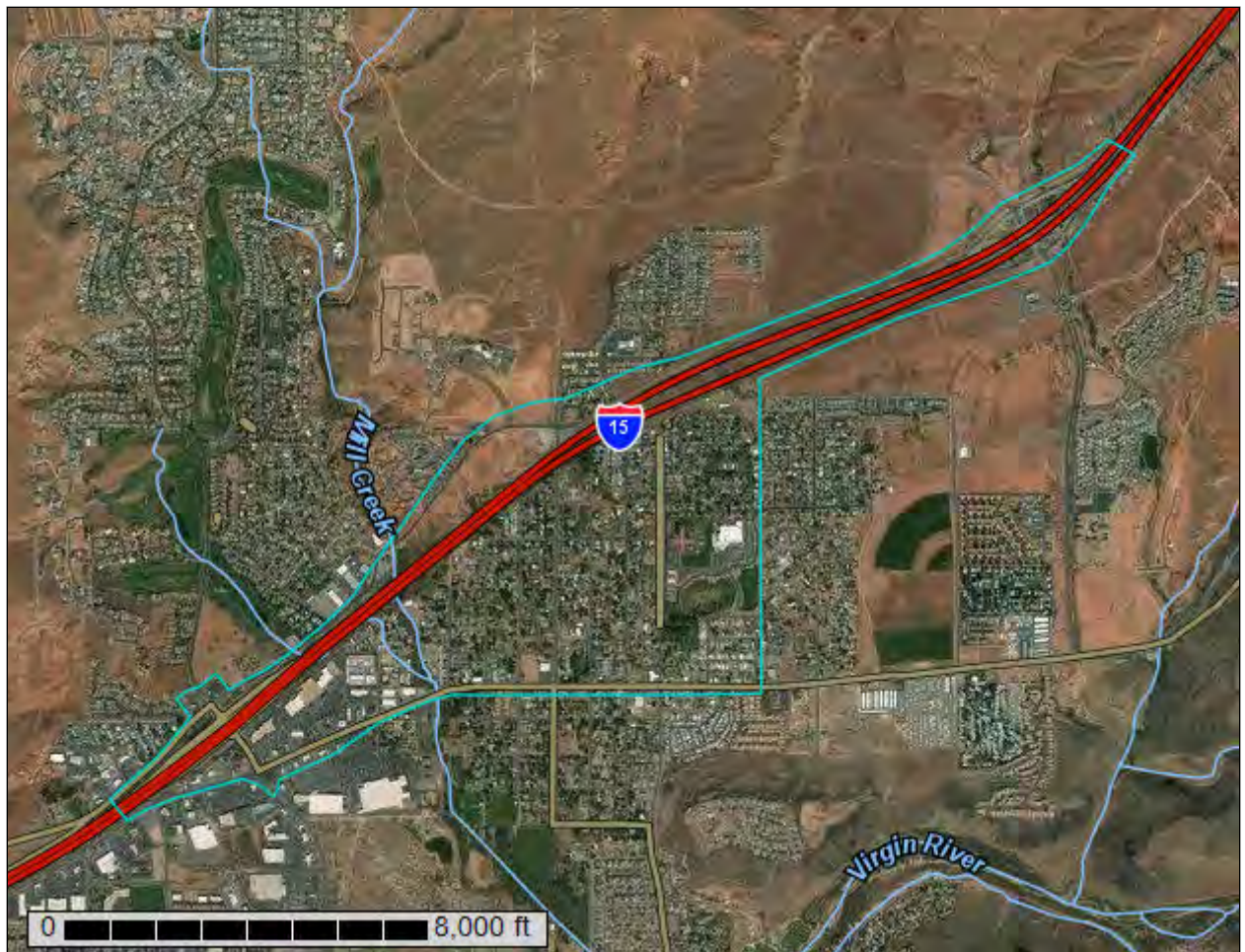
NRCS

Natural
Resources
Conservation
Service

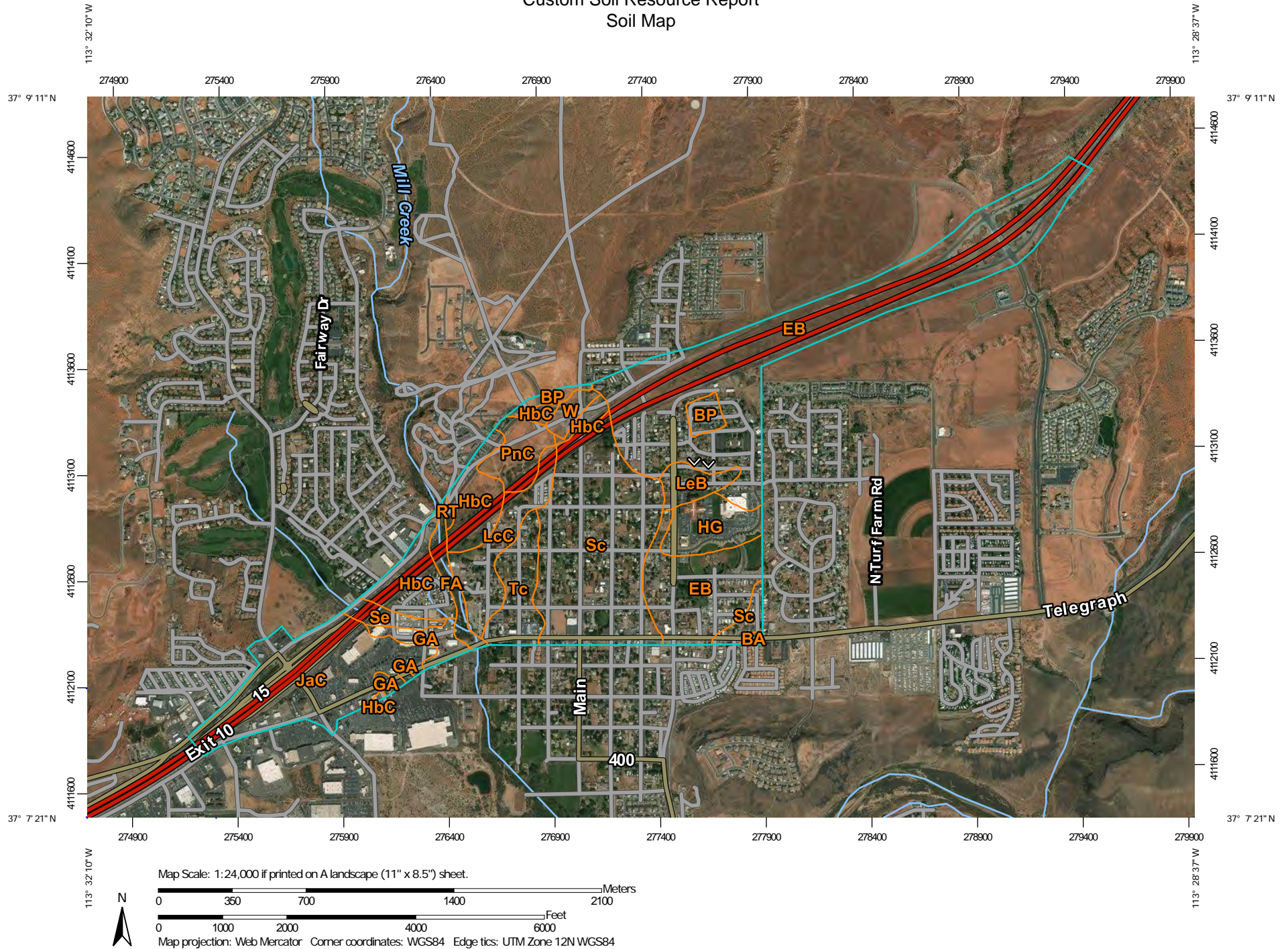
A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

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%

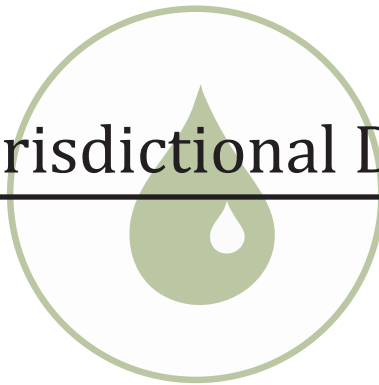
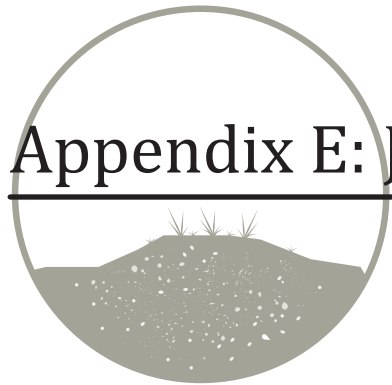
Appendix D: Aquatic Resources Excel Spreadsheet



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

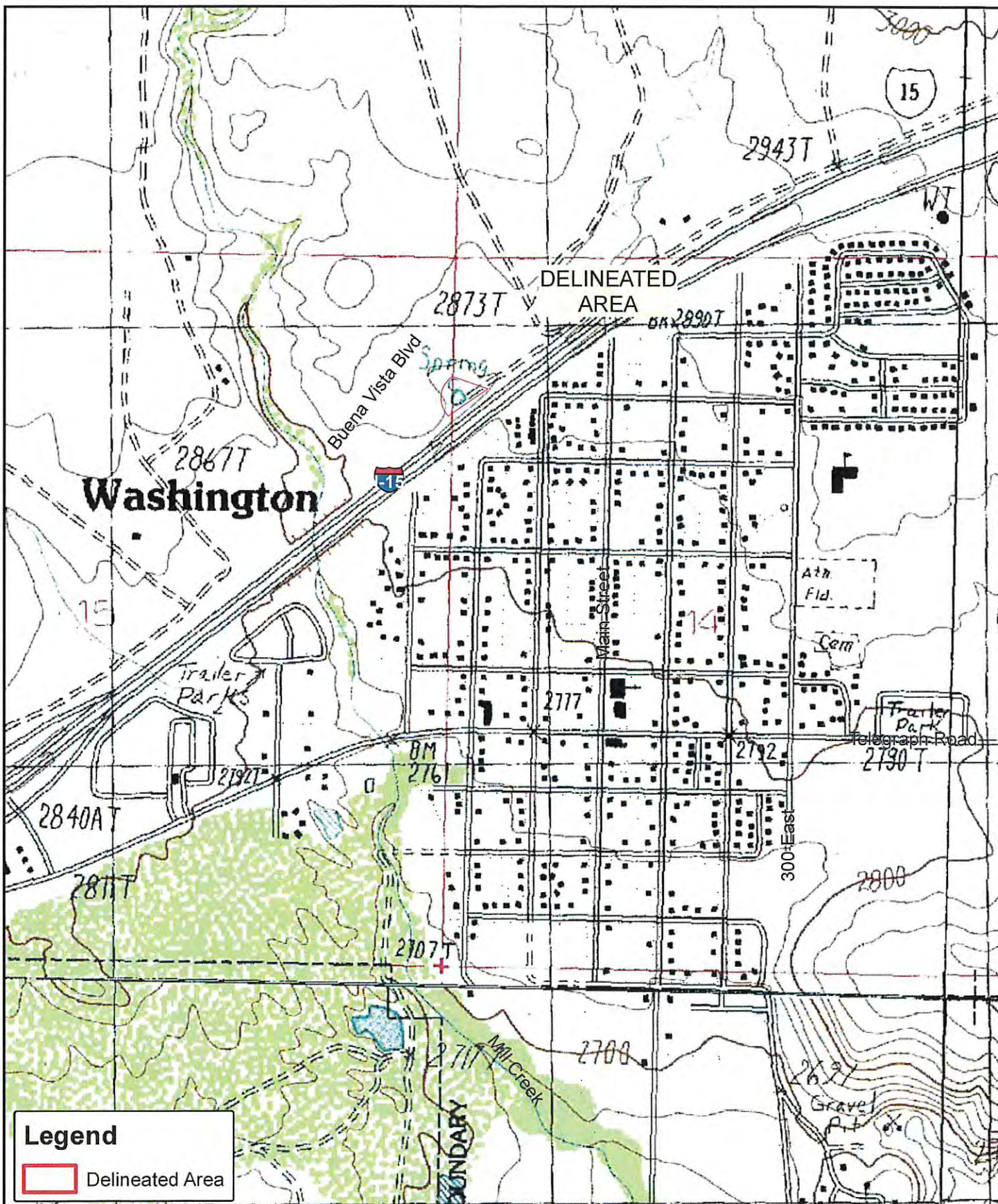
cc: (w/o encls)



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>
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 <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>USGS QUAD: WASHINGTON</p>	<p>SCALE: 0 500 1,000 Feet</p> <p>FIGURE NO. 1B</p>
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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.



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



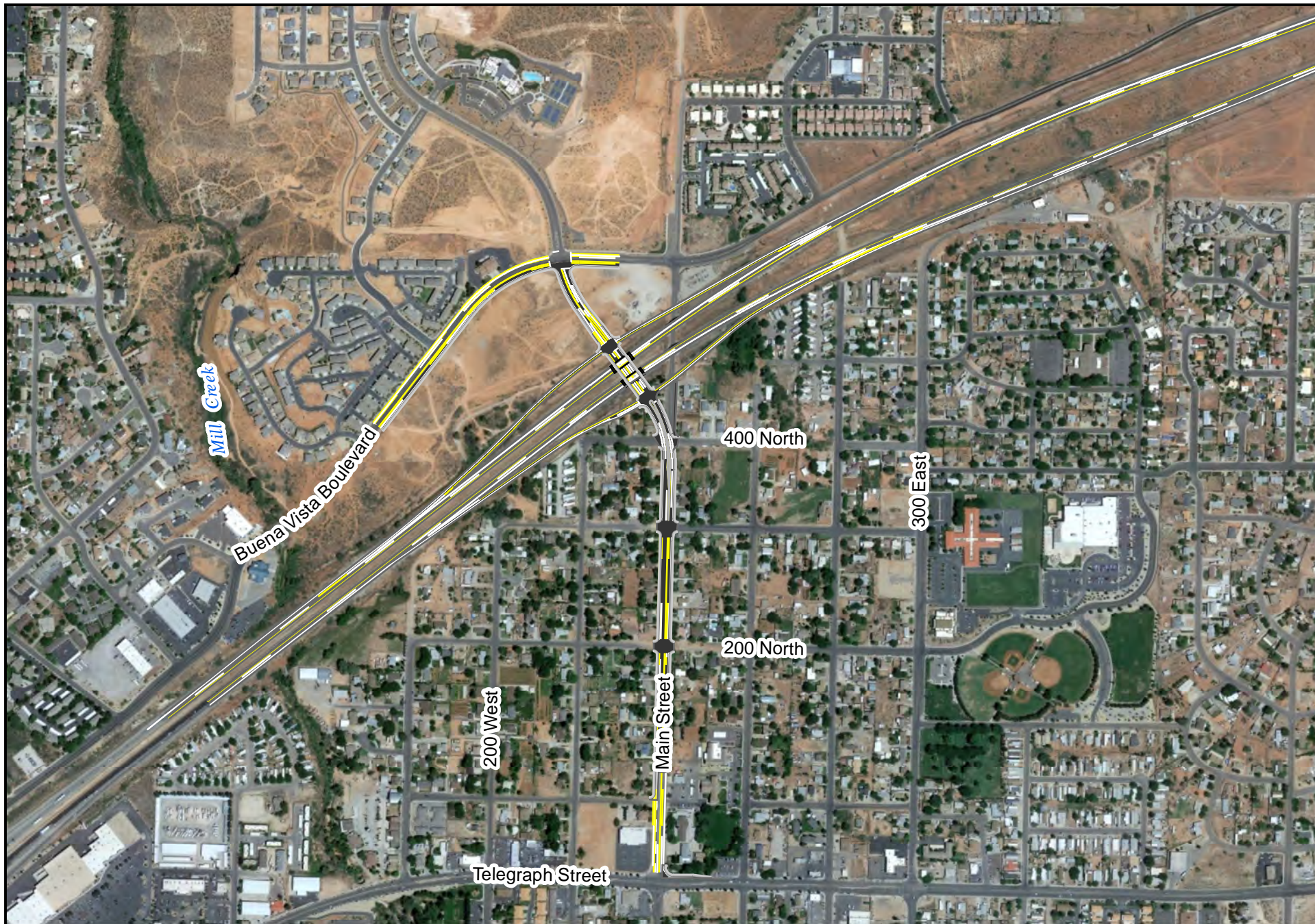
0 0.125 0.25 0.5 0.75 1 Miles



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



1 inch = 500 feet
0 0.05 0.1 0.2 Miles

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

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

Breeding Season (■)

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

Survey Effort (|)

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

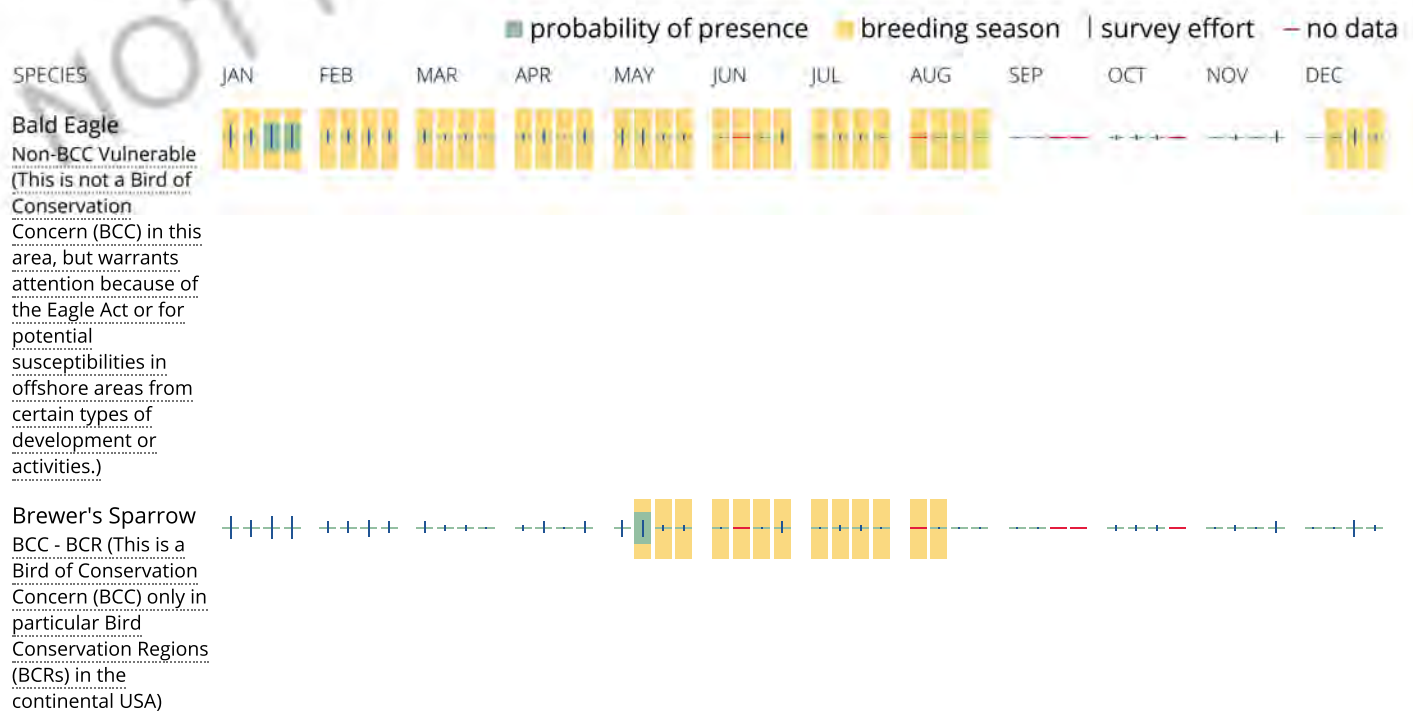
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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, 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

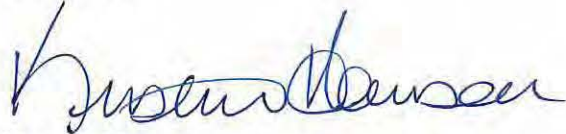
of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

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,

A handwritten signature in blue ink, appearing to read "Kristine Hansen", is written over a light blue circular stamp.

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**

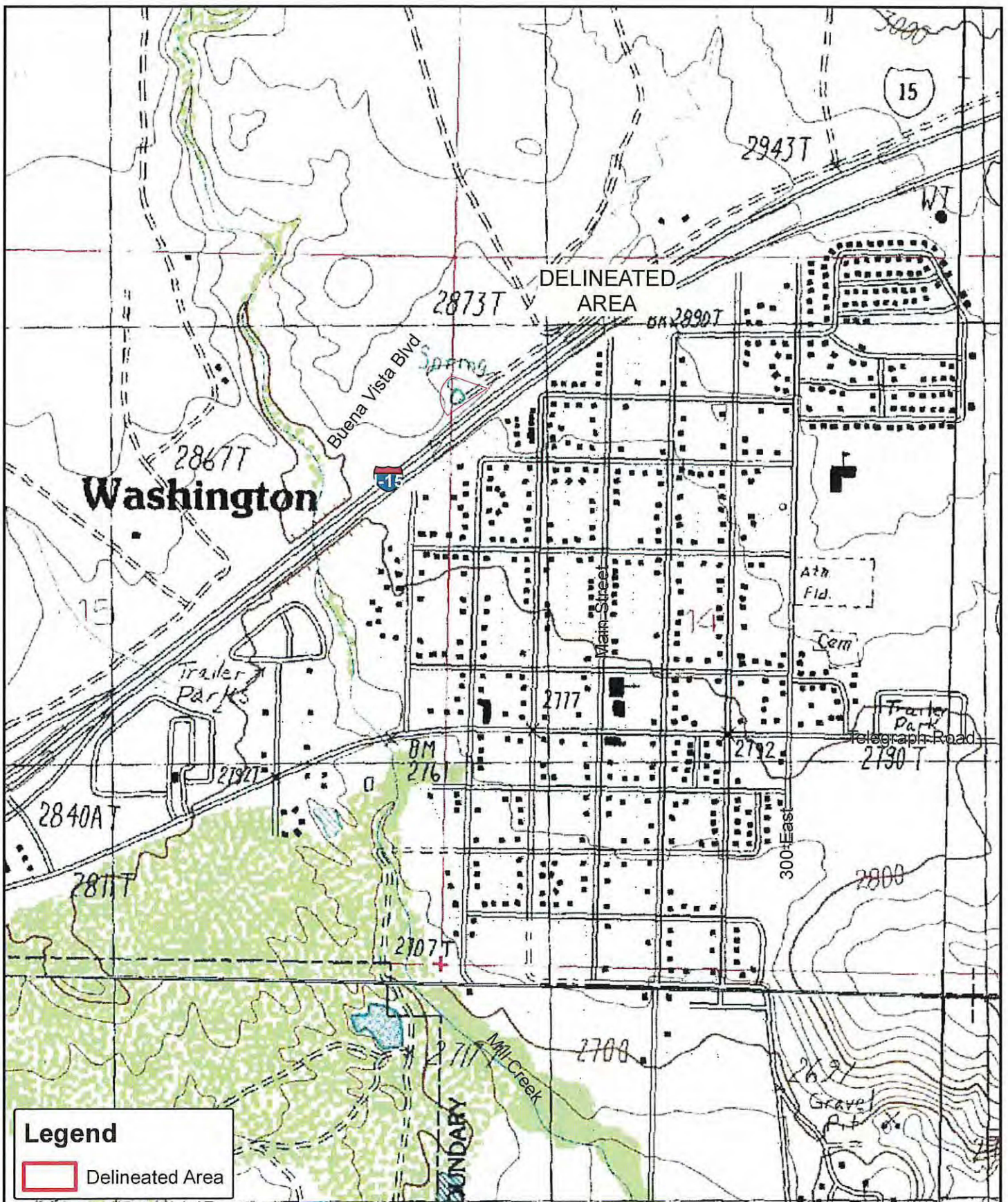
NORTH:



IMAGERY: ESRI

SCALE:
0 500 1,000
Feet

FIGURE NO.
1A



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 Feet FIGURE NO. <div style="font-size: 2em; font-weight: bold; text-align: center;">1B</div>
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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.