

Appendix E

Supporting Information

Waters of the U.S. and Wetlands Delineation Memorandum
Biological Assessment
Threatened and Endangered Plant Species Survey Reports
Desert Tortoise Survey Report
Scoping Report

**Waters of the U.S. and Wetlands
Delineation Memorandum**

Warner Draw Watershed Plan Wetland Delineation Report

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Executive Summary

The Warner Draw Watershed delineation was conducted according to the Corps of Engineers Wetlands Delineation Manual (ACOE 1987) and the Arid West Supplement (ACOE 2008).

A total of 1,090 acres were surveyed and evaluated as part of this delineation with field surveys focused on areas with potential aquatic resources. Twenty-two aquatic resources were identified during the delineation including 18.55 acres of wetlands and 47,095 feet of waterway, plus three irrigation ponds and two depressions (2.09 ac) not expected to be jurisdictional. The dominant aquatic resource classifications for the project area was open water (R5UB, R4SB, R4EM, PUB) and emergent marsh (PEM, PSS). The condition of the resources was typical at the time of the delineation, however, frequent flooding in many of the project area does contribute to regular changes to water levels, soils, and plants.

TABLE OF CONTENTS

	<u>Page No.</u>
INTRODUCTION	1
Site Location and Methodology	1
Hydrophytic Vegetation	1
Wetland Hydrology.....	2
Hydric Soils.....	2
MAIN STREET DEBRIS BASIN RESULTS	3
Vegetation	3
Hydrology	4
Soils.....	4
Sample Points	5
Wetland Boundaries	5
SEEGMILLER MARSH RESULTS.....	6
Vegetation	6
Hydrology	7
Soils.....	8
Sample Points	8
Wetland Boundaries	9
Y-DRAIN RESULTS	11
Vegetation	11
Hydrology	12
Soils.....	12
Sample Points	13
Wetland Boundaries	13
WARNER VALLEY DISPOSAL SYSTEM RESULTS	14
Vegetation	14
Hydrology	15
Soils.....	15
Sample Points	16
Wetland Boundaries	16
GOULD WASH RESULTS	18
Vegetation	18
Hydrology	19
Soils.....	20
Sample Points	20
Wetland Boundaries	21

HURRICANE RESULTS.....	23
Vegetation	23
Hydrology	24
Soils.....	24
Sample Points	25
Wetland Boundaries	25
REFERENCES.....	27

APPENDICES

Appendix A - Overall Site Location Map
Appendix B - Main Street Debris Basins Supporting Data
Appendix C - Seegmiller Marsh Supporting Data
Appendix D - Y-Drain Supporting Data
Appendix E - Warner Valley Disposal System Supporting Data
Appendix F - Gould Wash Debris Basin Supporting Data
Appendix G - Hurricane Water Efficiency Supporting Data
Appendix H - Aquatic Resources Spreadsheet
Appendix I - Signed Access Statement

INTRODUCTION

This document presents results of a delineation of jurisdictional waters of the United States conducted as part of the Warner Draw Watershed Plan for Washington County Utah (County) and the National Resource Conservation Service (NRCS) by Bowen Collins & Associates (BC&A). The County has proposed six sites for watershed protection, flood control, water efficiency improvements, and habitat enhancement as shown on Figure 1 in Appendix A. The purpose of this delineation is to determine potential wetland impacts from the proposed project.

SITE LOCATION AND METHODOLOGY

The projects are all located in Washington County, Utah, as described in the each of the site results sections below and as shown in the Project Locations Figure in Appendix A. Site specific location figures can also be found in Appendices B-G. Field work for this delineation was conducted on September 27-29, 2018, March 22, 2019, May 3, 2019, and September 6, 2019 by Merissa Davis and Cody Moultrie both of BC&A. The total area delineated was approximately 1,090 acres, however, the field time was focused on areas with potential wetlands, water, and streambeds. This focused area was all observed during the site visits. Field conditions during the surveys were clear and sunny each day.

A custom resource report for the Washington County Area, Utah (NRCS 2018) was used to determine soil types for the area. National Wetlands Inventory (NWI) data was also examined to obtain the location of possible jurisdictional wetlands on the site (see Soil and NWI maps for each project area in their associated appendices). The wetland delineation was conducted according to the Corps of Engineers Wetlands Delineation Manual (ACOE 1987), Arid West Supplement (ACOE 2008), with a minimum of one sampling point per wetland area. Upland points were also sampled to further confirm wetland boundaries. A total of eleven soil pits were sampled to delineate the wetlands on the site, and these were sufficient to determine the location of the wetland boundaries. Points and boundaries were recorded using a Trimble GeoXH GPS with sub-foot accuracy.

Based on the Manual, jurisdictional wetlands were identified using three criteria:

- Hydrophytic Vegetation
- Wetlands Hydrology
- Hydric Soils

All three criteria must be present for a wetland to be considered jurisdictional. An explanation of these wetland criteria follows.

Hydrophytic Vegetation

Hydrophytic plants are plants that are adapted to wet conditions. The National Wetland Plant List for the Arid West Region (ACOE 2012) was used to determine the wetland indicator status of dominant plant species encountered on sample plots. Sight-identification was used to determine most plant species.

Wetland Hydrology

Wetland hydrology is present when an area is inundated either permanently or periodically at mean water depths of two meters, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation. Primary hydrologic indicators also include high water tables, oxidized root channels, and sediment and drift deposits. Common secondary hydrologic indicators include watermarks, drainage patterns, and the FAC neutral test.

Hydric Soils

According to *Field Indicators of Hydric Soils in the U.S.* (NRCS 2010) the Natural Resources Conservation Service (NRCS) defines hydric soils as soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the top 12 to 20 inches of soil, depending on soil texture. Hydric properties of soils were assessed using a spade to excavate the soil pit, and Munsell soil color charts to determine soil color.

MAIN STREET DEBRIS BASINS RESULTS

The Main Street Debris Basin Site totals 23 acres is located in Section 11 of Township 42S, Range 15W (See Site Location Maps, Appendix B). Directions to the site are as follows: From U.S. Interstate 15 take Exit 13 for Washington Parkway and head north at the exit ramp light onto Washington Parkway then in 0.25 miles turn left (west) onto Buena Vista Boulevard. Travel 1.3 miles to Main Street and turn right (north). In 0.2 miles, just past the housing development, the project area will be on the right (west).

The delineated area includes two unnamed ephemeral washes in an area prone to flooding. The main wash only flows during storm events, however there is also a small spring immediately north of the project area that provides year-round hydrology for a small wetland area. This water flows for only a short distance (less than 300 feet) before it is absorbed back into the sandy wash. The smaller wash to the west also only flows during storm events. Typical vegetation includes tamarisk and seep willows near the spring and honey mesquite, creosote bush, rabbitbrush, and sage in the upland areas. There is no interstate or foreign commerce taking place on or within the delineated wetlands.

Note: After the initial delineation field work was completed for this project site, two emergency flood control basins were excavated in the spring of 2019. A site visit was conducted to document these changes on October 29, 2019 with appropriate updates made to the figures, wetland calculations, and photos reported herein.

Vegetation (*Main Street Debris Basins*)

Vegetation was identified primarily based on flowering parts and structural characteristics. Photographs of the general vegetation associated with photo points can be found in Appendix B. The plants within the delineated area are dominated by mesquite and rabbitbrush. Plants encountered during the field investigations are listed in Table 1 on the following page. The wetland plants listed were all identified outside the project area near the spring, but were included below for reference.

Table 1
Plants Observed at the Main Street Debris Basin Site

Latin Binomial	Common Name	Region 8 Indicator Status*
<i>Typha latifolia</i>	Broad-Leaf Cat-Tail	OBL
<i>Populus angustifolia</i>	Narrow-Leaf Cottonwood	FACW
<i>Salix exigua</i>	Narrowleaf Willow	FACW
<i>Baccharis salicina</i>	Seepwillow	FACW
<i>Tamarix Chinensis</i>	Five-stamen Tamarisk	FAC
<i>Erigeron elatior</i>	Tall Fleabane	FAC
<i>Prosopis glandulosa</i>	Honey Mequite	FACU
<i>Salsola tragus</i>	Russian Thistle	FACU
<i>Chrysothamnus nauseosus</i>	Rubber Rabbitbrush	UPL
<i>Crysothamnus viscidiflorus</i>	Yellow Rabbitbrush	UPL

*Indicator Status:

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67-99% of time

FAC = occurs in aquatic resources 34-66% of time

FACU = occurs in aquatic resources 1-33% of time

UPL = occurs in uplands > 99% of time

(Note: Hydrophytic plant species are shaded gray)

Hydrology (Main Street Debris Basins)

The main water source that creates the hydrologic zone at the project site are the ephemeral washes and a spring. Ordinary high water mark for the washes ranged between 2,924 feet at the northeast (upstream) end of the main wash and 2,920 feet at the northwest (upstream) end of the smaller wash and 2,912 feet at downstream end of the main wash and 2,911 at the downstream end of the smaller wash. The washes were dry at the time of the delineation field investigation so beyond evidence of the ordinary high water mark, no hydrologic indicators were present in the project area. In the spring of 2019, two emergency debris basin were excavated in the project area (See Figure B4, Appendix B), which reduced the length of these ephemeral washes as shown in the figure and as reported in the aquatic resource totals. There was a small length of surface water produced at the spring north of the project area which flows into the ephemeral channel but it is absorbed into the ground before it reaches the project area.

Soils (Main Street Debris Basins)

The soils at the site are primarily residuum weathered from shale and eolian deposits derived from tuff and/or eolian deposits derived from sandstone and siltstone over residuum weathered from sandstone. The Soil Survey of Washington County Area, Utah (NRCS 2019) was referenced to determine soil types for the area. The following soil types occur within the delineated area:

- Eroded land-Shalet complex, warm, well drained, no flooding
- Harrisburg fine sandy loam, 1 to 5 percent slopes, well drained, no flooding
- Pintura loamy fine sand, 1 to 5 percent slopes, somewhat excessively drained, no flooding

None of these soils are found on the state and national hydric soils lists (NRCS 2015). Soil properties such as texture and Munsell soil color generally matched the soil descriptions found in the Soil Survey of the Washington County Area, Utah (NRCS 2019) however the active flooding in this area contributes to lots of movement of soils, sands, and sediment throughout the project area. A custom soil resource report from the NRCS for the site is located in the same Appendix.

Sample Points (*Main Street Debris Basins*)

No sample points were taken in the project area as there were no potential wetlands or water encountered in the project area. The ordinary high water mark of the ephemeral washes were examined and determined based on topography, soils, debris, and other evidence of past flows. There were no indicators for wetlands in these channels which were dry except for the small section of water coming from the spring outside the project area.

Wetland Boundaries (*Main Street Debris Basins*)

The ephemeral stream beds where the delineation took place are at times flooded during storm events, but otherwise mostly dry. The soils are constantly changing due to flood-induced movement of the silts and sands in the floodplain. The ordinary high water mark is representative of the active stream channel and the water shifts regularly within that area depending on water levels and flooding. The small spring north of the delineated area appears to be active year-round and thus supports hydrophytic vegetation around it, however flows from the spring do not travel far (272 feet) before being absorbed into the dry sands of the stream bed and the wetland it appears to support is outside the project area.

Indicators for vegetation, hydrology, and hydric soils were clear and easily identified but not found within the project area. Within the delineated area 785 feet (0.24 ac) of waters of the U.S. (ephemeral stream) were found to be potentially jurisdictional as listed and classified in Table 2 below. These waters are shown in the Delineation Results Figure in Appendix B. Details related to these resources can be found in the Aquatic Resources spreadsheet in Appendix H.

Table 2
Aquatic Resources within the Main Street Debris Basins Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acres)	Aquatic Resource Size (linear feet)
	Cowardin	Location (UTM)		
W16	R4SBC	4113722.87847 / 277231.367455	0.13	400
W16B	R4SBC	4113743.91862 / 277149.336601	0.11	385
Totals			0.24 ac	785 lf

SEEGMILLER MARSH RESULTS

The Seegmiller Marsh Site totals 132 acres and is located in Sections 27, 28, 33, and 34 of Township 42S, Range 15W (See Site Location Maps, Appendix C). Directions to the site are as follows: From U.S. Interstate 15 take Exit 8 for St. George Boulevard and head east at the exit ramp light. Turn left (north) onto Red Cliffs Drive, travel one mile to Mall drive and turn right (south). In 1.7 miles you will reach a bridge crossing the Virgin River and Seegmiller Marsh project area is to the southwest of the bridge. Site can be accessed from pathway on north side of river or also from the downstream end of the project area via Springs Park.

The delineated area includes the Virgin River and as such, areas prone to flooding where frequent changes to the topography and vegetation have taken place as a result of the flooding in the recent years. Typical vegetation includes phragmites stands, tamarisk, and willows plus various upland shrubs (rabbitbrush) and trees. There is no interstate or foreign commerce taking place on or within the delineated wetlands.

Vegetation (*Seegmiller Marsh*)

Vegetation was identified primarily based on flowering parts and structural characteristics. Vegetation data collected and photographs of the general vegetation for each sample point can be found in the Wetland Determination Data Forms of Appendix C. The plants within the delineated area are dominated by cottonwoods, willows, tamarisk and phragmites in wet areas and mesquite, Russian olive, Russian thistle, and rabbitbrush in the dryer areas. Plants that occur at the sampling locations are listed in Table 3 on the next page.

Table 3
Plants Observed at the Seegmiller Marsh Site

Latin Binomial	Common Name	Region 8 Indicator Status*
<i>Populus angustifolia</i>	Narrow-Leaf Cottonwood	FACW
<i>Salix exigua</i>	Narrowleaf Willow	FACW
<i>Baccharis salicina</i>	Seepwillow	FACW
<i>Phragmites australis</i>	Common Reed	FACW
<i>Schoenoplectus acutus</i>	Hardstem Bulrush	OBL
<i>Typha latifolia</i>	Broad-Leaf Cat-Tail	OBL
<i>Elaeagnus angustifolia</i>	Russian Olive	FAC
<i>Erigeron elatior</i>	Tall Fleabane	FAC
<i>Tamarix Chinensis</i>	Five-stamen Tamarisk	FAC
<i>Prosopis glandulosa</i>	Honey Mesquite	FACU
<i>Salsola tragus</i>	Russian Thistle	FACU
<i>Helianthus annuus</i>	Common Sunflower	FACU
<i>Chrysothamnus nauseosus</i>	Rubber Rabbitbrush	UPL
<i>Crysothamnus viscidiflorus</i>	Yellow Rabbitbrush	UPL
<i>Atriplex anescens</i>	Saltbrush	UPL
<i>Atriplex canescens</i>	Fourwing Saltbush	UPL

*Indicator Status:

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67-99% of time

FAC = occurs in aquatic resources 34-66% of time

FACU = occurs in aquatic resources 1-33% of time

UPL = occurs in uplands > 99% of time

(Note: Hydrophytic plant species are shaded gray)

Hydrology (Seegmiller Marsh)

The main water source creating the hydrologic zone at the project site is the adjacent Virgin River and the three canals which drains into the river. Much of the area delineated falls within the river's flood zone and is at various times covered in water. Ordinary high water mark for the river ranged between 2,574 feet on the upper (north) end of the project and 2,562 feet on the lower (south) end of the project. Ordinary high water mark for the Washington Fields Canal ranged from 2,582 feet on the upper (east) end and 2,578 feet on the lower (west) end. The south channel of the Washington Fields Canal was dry at the time of the field survey but the ordinary high water mark was delineated.

The primary hydrologic indicator at the site was standing water. Hydrologic data collected at the sample points can be found in the Wetland Determination Data Forms (see Appendix C).

Soils (*Seegmiller Marsh*)

The soils at the site are primarily alluvium derived from limestone, sandstone, and shale. The Soil Survey of Washington County Area, Utah (NRCS 2019) was referenced to determine soil types for the area. In addition to Water, the following soil types occur within the delineated area:

- Fluvaquents and torrifluvents, poorly drained, frequent flooding
- St. George silty clay loam (shallow water table), poorly drained, no flooding
- St. George silty clay loam (moderately saline), moderately well drained, no flooding
- Stony colluvial land, well drained, no flooding
- Tobler silty clay loam, well drained, no flooding

The Fluvaquents/Torrifluvents, St. George Silty Clay Loam (shallow water table), and St. George Silty Clay Loam (moderately saline) soils are on the state and national hydric soils lists (NRCS 2015). Soil properties such as texture generally matched the soil descriptions found in the Soil Survey of the Washington County Area, Utah (NRCS 2019) however the active flooding in this area contributes to lots of movement of soils, sands, and sediment throughout the project area and typical of the St. George area, the red parents material was evident throughout the project area which influenced the soil colors. Soil data collected at the sample points and photos of the soil pits dug at each sample point can be found in the Wetland Determination Data Forms (see Appendix C). Additionally, a custom soil resource report from the NRCS for the site is located in the same Appendix.

Sample Points (*Seegmiller Marsh*)

Five of the twelve sample points taken at the site were located in wetlands. Three sample points (SP13, SP14, SP15) were taken below the ordinary high water mark of the river where wetlands appear to develop during low flows. These areas were dry at the time of the delineation field work but at other times of the year are likely under water. Two other sample points (SP7 and SP8) had standing water so no soil pit was dug.

Although some sample points met the vegetation criteria, they lacked hydrology and soils so did not appear to be fully functioning nor establish wetlands at these locations. Flooding and relic wetlands from changes in the river course over the past years have likely contributed to these vegetative features. The Delineation Results Figure in Appendix C displays the sample point locations and Table 4 below summarizes the sample point data.

Table 4
Seegmiller Marsh Sample Point Summary
and Determination Matrix

Sample Point	Hydrophytes Dominant?	Hydric Soils Present?	Primary Hydrologic Indicator(s) Present?	Is the Sample Point in a Wetland?
1	Yes	No	No	No
2	Yes	No	No	No
3	Yes	No	No	No
4	Yes	No	No	No
5	Yes	No	No	No
6	Yes	No	No	No
7	Yes	(See Data Form)	Yes	Yes
8	Yes	(See Data Form)	Yes	Yes
9	No	No	No	No
13	Yes	Yes	Yes	Yes
14	Yes	Yes	Yes	Yes
15	Yes	Yes	Yes	Yes

Wetland Boundaries (*Seegmiller Marsh*)

The floodplain where the delineation took place is seasonally saturated or inundated. The soils are constantly changing due to flood-induced movement of the silts and sands in the floodplain. The river's ordinary high water mark is representative of the active channel and the river typically moves seasonally and annually within that area. The pond and adjacent marsh are also inundated most of the year. Two excavated irrigation ponds are also present in the project area which hold irrigation water for the adjacent farms (IP1 and IP2 aquatic resources listed in Table 5), however it is not expected that these would be jurisdictional as they do not connect to any Waters of the U.S.

Indicators for vegetation, hydrology, and hydric soils were clear and easily identified. Within the delineated area 18.14 acres of emergent marsh wetlands, 2.5 acres of freshwater pond, and 6,830 feet (7.48 acres) of waters of the U.S. were found to be potentially jurisdictional as listed and classified in Table 5 on the next page. These waters are shown in the wetland delineation figures in Appendix C. Additional details related to these resources can be found in the Aquatic Resources spreadsheet in Appendix H.

Table 5
Aquatic Resources within the Seegmiller Marsh Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acres)	Aquatic Resource Size (linear feet)
	Cowardin	Location (UTM)		
W1	R5UBH	4108207.56 / 274624.72	6.45	4,600
W2	R4SBC	4108401.81 / 274553.83	0.3	700
W3	R5UBFx	4108484.25 / 275038.65	0.73	1,530
W4	PEM1F	4108125.73 / 274928.44	10.63	
W5	PUBF	4107975.14 / 274946.19	2.5	
W6	PEM1F	4107888.49 / 274858.01	1.58	
W7	PEM5C	4108385.52 / 274562.19	0.84	
W8	PEM5C	4108390.10 / 274547.25	0.51	
W9	PEM1C	4108034.98 / 274525.04	2.08	
IP1*	L2UB3Cx	4107817.51 / 274383.19	0.37	
IP2*	L2UB3Cx	4108561.11 / 274662.03	0.27	
Totals			25.53 ac	6,830 lf

* IP1 and IP2 are irrigation holding ponds and not connected to any Waters of the U.S.

Y-DRAIN RESULTS

The Y-Drain Site totals 5 acres is located in Section 27 of Township 42S, Range 15W (See Site Location Maps, Appendix D). Directions to the site are as follows: From U.S. Interstate 15 take Exit 8 for St. George Boulevard and head east at the exit ramp onto St. George Boulevard then take an immediate right onto River Road. Travel 1.0 miles south, then turn left (east) onto Foremaster Drive (700 S). Continue 1.2 miles to Riverside Drive, turning left (north) and traveling 0.3 miles then turning right (southeast) onto Mall Drive. In 0.9 miles turn left onto Sandia Road (3000 E) and the Y-drain canal will immediately be on your right.

The delineated area includes Y-drain canal which collects land drain and storm water from the surrounding area before continuing to the Virgin River approximately 2/3-mile downstream. Typical vegetation includes Russian olive, tamarisk, and phragmites in the canal plus various grasses and Russian thistle above the canal in the upland areas. There is no interstate or foreign commerce taking place on or within the delineated wetlands.

Vegetation (*Y-Drain*)

Vegetation was identified primarily based on flowering parts and structural characteristics. Photos and associated point points on the Y-Drain Delineation Results Figure can be found in Appendix D. The plants within the delineated area are dominated by Russian olive, tamarisk, and phragmites in the canal plus various grasses and Russian thistle above the canal in the dryer areas. Plants encountered during the delineation efforts are listed in Table 6 on the next page.

Table 6
Plants Observed at the Y-Drain Site

Latin Binomial	Common Name	Region 8 Indicator Status*
<i>Nasturtium officinale</i>	Watercress	OBL
<i>Typha latifolia</i>	Broad-Leaf Cat-Tail	OBL
<i>Phragmites australis</i>	Common Reed	FACW
<i>Polypogon monspeliensis</i>	Rabbit's Foot Grass	FACW
<i>Elaeagnus angustifolia</i>	Russian Olive	FAC
<i>Hordeum jubatum</i>	Foxtail Barley	FAC
<i>Rumex crispus</i>	Curly Dock	FAC
<i>Tamarix Chinensis</i>	Five-stamen Tamarisk	FAC
<i>Poa bulbosa</i>	Bulbous Blue Grass	FACU
<i>Lactuca serriola</i>	Prickly Lettuce	FACU
<i>Melilotus officinalis</i>	Yellow Sweet Clover	FACU
<i>Salsola iberica</i>	Prickly Russian Thistle	FACU
<i>Bromus tectorum</i>	Cheatgrass	UPL
<i>Festuca pratensis</i>	Meadow Fescue	UPL
<i>Halogeton glomeratus</i>	Saltlover	UPL
<i>Kochia scoparia</i>	Kochia	UPL

*Indicator Status:

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67-99% of time

FAC = occurs in aquatic resources 34-66% of time

FACU = occurs in aquatic resources 1-33% of time

UPL = occurs in uplands > 99% of time

(Note: Hydrophytic plant species are shaded gray)

Hydrology (Y-Drain)

The main water source at this project site is the Y-Drain canal which conveys water from land drains as well as storm water. Ordinary high water mark for the wash ranged between 2,997 feet at the northeast (upstream) end of the canal and 2,995 feet at the southwest (downstream) end of the canal. The primary hydrologic indicator at the site was surface water.

Soils (Y-Drain)

The soils at the site are primarily alluvium derived from sandstone, siltstone, and shale. The Soil Survey of Washington County Area, Utah (NRCS 2019) was referenced to determine soil types for the area. The following soil types occur within the delineated area:

- St. George silty clay loam (moderate saline), moderately well drained, no flooding
- Tobler silty clay loam, well drained, no flooding

St. George silty clay loam (moderately saline) is found on the state and national hydric soils lists (NRCS 2015). Soil samples were not taken in this area as all potential wetlands were below the

delineated ordinary high water mark. The custom soil resource report from the NRCS for this site is located in the same Appendix D (NRCS 2019).

Sample Points (*Y-Drain*)

No sample points were taken at the Y-drain site as all potential wetlands fell below the delineated ordinary high water mark of the canal. The Delineation Results Figure in Appendix D displays the photo points which were used in helping to determine the ordinary high water mark.

Wetland Boundaries (*Y-Drain*)

The ordinary high water mark delineated for the Y-drain canal is representative of the active channel which shifts seasonally and during flood events. This line was easy to identify based on current water levels, drift lines, vegetation shifting to grasses and other upland plants, and gravelly soils. There were not wetlands delineated above the ordinary high water mark

Within the delineated area 1125 feet (0.52 acres) of waters of the U.S. were found to be potentially jurisdictional as listed and classified in Table 7 below. These waters are shown in the Delineation Results Figure in Appendix D. Additional details related to this resource can also be found in the Aquatic Resources spreadsheet in Appendix H.

Table 7
Aquatic Resources within the Y-drain Survey Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acres)	Aquatic Resource Size (linear feet)
	Cowardin	Location (UTM)		
W11	R5UBFx	4108634.04 / 275958.85	0.52	1125
Totals			0.52 ac	1125 lf

WARNER VALLEY DISPOSAL RESULTS

The Warner Valley Disposal System (WVDS) Project Area totals 82 acres is located in Sections 1, 2, 9, 10, and 11 of Township 43S, Range 15W (See Site Location Maps, Appendix E). Directions to the site are as follows: From U.S. Interstate 15 take Exit 4 for Brigham Road and take appropriate lane at round about to head east onto Brigham Road. Travel 1.7 east then turn left (north) onto River Road. In 0.8 miles you will reach the east end of the WVDS where it outfalls into Fort Pearce Wash.

The delineated area includes the WVDS pipeline alignment as well as a small open channel section of the system on the east end. The WVDS transports discharge water from three existing NRCS debris basins in the Washington Fields east of the WVDS, including the Gypsum Debris Basin, the Warner Draw Debris Basin, and the Stucki Debris Basin. Irrigation tail water is also periodically conveyed through the system. The east end of the WVDS outfalls at Fort Pearce Wash which is an ephemeral stream which also receives storm water at various outlets along the wash. Finally, two small depressions near the middle of the alignment collect storm water but do not appear to have any connection to ground or surface water. Typical vegetation includes tamarisk and Russian thistle in the open channel and desert shrub and creosote bush plants in the sparsely vegetated upland areas. There is no interstate or foreign commerce taking place on or within the delineated wetlands.

Vegetation (*Warner Valley Disposal System*)

Vegetation was identified primarily based on flowering parts and structural characteristics. Photos and associated point points on the WVDS Delineation Results Figure can be found in Appendix E. Most of the surveyed area follows existing roads (dirt and paved) through pasture, agricultural land, and developed land which is sparsely vegetated by desert shrubs including saltbush, rabbitbrush, mesquite and creosote bush. The vegetation growing in and around the open canal portion is dominated by tamarisk, Russian thistle, and various weeds. Dominant plants encountered during the delineation efforts are listed in Table 8 on the next page.

Table 8
Dominant Plants Observed at the WVDS Site

Latin Binomial	Common Name	Region 8 Indicator Status*
<i>Tamarix Chinensis</i>	Five-stamen Tamarisk	FAC
<i>Prosopis glandulosa</i>	Honey Mequite	FACU
<i>Poa bulbosa</i>	Bulbous Blue Grass	FACU
<i>Salsola iberica</i>	Prickly Russian Thistle	FACU
<i>Sarcobatus vermiculatus</i>	Greasewood	FACU
<i>Atriplex canescens</i>	Fourwing Saltbush	UPL
<i>Bromus tectorum</i>	Cheatgrass	UPL
<i>Chrysothamnus viscidiflorus</i>	Yellow Rabbitbrush	UPL
<i>Ephedra nevadensis</i>	Mormon Tea	UPL
<i>Kochia scoparia</i>	Kochia	UPL
<i>Larrea tridentata</i>	Creosote Bush	UPL
<i>Lepidium montanum</i>	Mountain Pepperweed	UPL

*Indicator Status:

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67-99% of time

FAC = occurs in aquatic resources 34-66% of time

FACU = occurs in aquatic resources 1-33% of time

UPL = occurs in uplands > 99% of time

(Note: Hydrophytic plant species are shaded gray)

Hydrology (*Warner Valley Disposal System*)

The main water sources at this project site are the disposal system which conveys water from three debris basins and periodically irrigation tailwater plus Fort Pearce Wash at the west end of the disposal system which flows seasonally and also conveys storm water. Most of the alignment is already piped except a 1225-foot section of open channel near the east end. This open channel section has an ordinary high water mark ranging between 2,611 feet at the east (upstream) end of the channel and 2,608 feet at the west (downstream) end of the channel. The ordinary high water mark of Fort Pearce Wash outfall is 2,606 feet. The primary hydrologic indicator in the open channel and at Fort Pearce was surface water as was the case in the two small freshwater ponds. One of the ponds was dry at the time of the site visits.

Soils (*Warner Valley Disposal System*)

The soils at the site are derived from various sources as listed in the Custom Soil Resource Report found in Appendix E (NRCS 2019). This report was referenced to determine soil types for the area which include the following:

- Badland (very steep)
- Eroded land-Shalet complex (warm), well drained, no flooding
- Harrisburg fin sandy loam (1-5% slopes), well drained, no flooding

- Hobog-Rock land association, well drained, no flooding
- Isom cobbly sandy loam (3-30% slopes), well drained, no flooding
- Junction fine sandy loam (1 to 2% slopes), well drained, no flooding
- Leeds silty clay loam (1-2% slopes), well drained, no flooding
- St. George silty clay loam, moderately well drained, no flooding
- Tobler fine sandy loam, well drained, no flooding
- Tobler silty clay loam, well drained, no flooding

None of the soils in the project area are found on the state and national hydric soils lists (NRCS 2015). Soil samples were not taken in this area as all potential wetlands were below the delineated ordinary high water mark of the open channel section. No other potential wetland sites requiring sample pits were encountered.

Sample Points (*Warner Valley Disposal System*)

Only one sample point was taken at the WVDS site in one of the dry ponds which was found to be a wetland. Typically the pond area is bare surrounded by tamarisk, however some upland weeds had sprouted in the bare pond during a time when the pond was not inundated which skewed the vegetative data results as described in the sample point data form. The Delineation Results Figure in Appendix E displays the sample point locations and the photo points which were used in helping to determine the ordinary high water mark along Fort Pearce Wash and the dry channels as well as show other points along the alignment passing through uplands. Table 9 below summarizes the sample point data.

Table 9
WVDS Sample Point Summary
and Determination Matrix

Sample Point	Hydrophytes Dominant?	Hydric Soils Present?	Primary Hydrologic Indicator(s) Present?	Is the Sample Point in a Wetland?
SP12	(See Data Form)	Yes	Yes	Yes

Wetland Boundaries (*Warner Valley Disposal System*)

The ordinary high water mark delineated for the WVDS is representative of the active channel which shifts periodically as water is released from the debris basins. This line was easy to identify based on surface water, drift lines, water marks, and vegetation. Fort Pearce Wash flows seasonally and when storm water systems that drain into the wash. Slow flowing water was present during the September 2019 field work and all of the hydrophytic vegetation noted in the wash and at the WVDS outfall was within the water and below the ordinary high water mark. Two freshwater ponds (depressions) exist south of the alignment which do not have any connection to surface or ground water, but appear to just collect precipitation due to their topography and clay

in the soils. Water was present in one of the two ponds at the time of the site visit which appeared stagnant. There were no wetlands identified above the ordinary high water mark.

Within the delineated area 1,350 feet (0.45 ac) of waters of the U.S. were found to be potentially jurisdictional as listed and classified in Table 10 on the next page. The 0.23 acres of freshwater ponds listed below are not connected to any Waters of the U.S. and not expected to be jurisdictional. These waters are shown in the Delineation Results Figure in Appendix E. Additional details related to this resource can also be found in the Aquatic Resources spreadsheet in Appendix H.

Table 10
Aquatic Resources within the WVDS Survey Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acres)	Aquatic Resource Size (linear feet)
	Cowardin	Location (UTM)		
W12	R5UBFx	4104752.94 / 273933.49	0.27	1225
W13	R4SBC	4104501.79 / 273646.61	0.18	125
W14*	PUBC	4104623.84 / 275707.85	0.18	
W15*	PUBC	4104572.13 / 275718.14	0.05	
Totals			0.68 ac	1350 lf

** The water source for W14 and W15 is precipitation and these ponds are not connected to any Waters of the U.S.*

GOULD WASH RESULTS

The Gould Wash Debris Basins Project Area includes a potential basin site with associated borrow areas, spillway, staging, and access for that site, plus Gould Wash as it travels through the City of Hurricane which total 255 acres located in Sections 18, 19, and 30 of Township 42S, Range 12W and Sections 1, 2, 3, 12, 13 and 24 of Township 42S, Range 13W, and Sections 34 and 35 of Township 41S, Range 13W (See Site Location Maps, Appendix F). Directions to the basin and associated impact areas are as follows: From Main Street (Hwy 9) in Hurricane, Utah turn south onto 100 E. In 0.1 miles turn left onto UT-59. Continue 3.2 miles and turn right onto an unnamed road for access to Gould Wash as shown on the site location figures.

The delineated area includes a series of ephemeral washes that flow into Gould Wash and Gould Wash itself. Gould Wash and its tributaries only convey water during storm events. Vegetation is sparse but includes desert shrubs, cactus, and grasses with tamarisk and some willows present in the main wash. There is no interstate or foreign commerce taking place on or within the delineated wetlands.

Vegetation (*Gould Wash*)

Vegetation was identified primarily based on flowering parts and structural characteristics. Photos and associated point points on the Gould Wash Delineation Results Figures can be found in Appendix F. Most of the surveyed area consists of dry rangeland which is sparsely vegetated by desert shrubs including saltbush, rabbitbrush, big sage and greasewood plus cactus and upland grasses. Tamarisk, willows, and salt grass are present in some sections of the main Gould wash. Dominant plants encountered during the delineation efforts are listed in Table 11 on the next page.

Table 11
Dominant Plants Observed at the Gould Wash Sites

Latin Binomial	Common Name	Region 8 Indicator Status*
<i>Juncus balticus</i>	Baltic Rush	FACW
<i>Salix exigua</i>	Narrow-leaf Willow	FACW
<i>Tamarix Chinensis</i>	Five-stamen Tamarisk	FAC
<i>Distichlis spicata</i>	Salt Grass	FAC
<i>Sarcobatus vermiculatus</i>	Greasewood	FACU
<i>Sitanion hystrix</i>	Western Bottlebrush Grass	FACU
<i>Aristida purpurea</i>	Purple Threeawn	UPL
<i>Artemesia ludoviciana</i>	White Sage	UPL
<i>Artemesia tridentata</i>	Big Sage	UPL
<i>Astragalus lentiginosus</i>	Freckled Milkvetch	UPL
<i>Atriplex canescens</i>	Fourwing Saltbush	UPL
<i>Bromus tectorum</i>	Cheatgrass	UPL
<i>Chrysothamnus viscidiflorus</i>	Yellow Rabbitbrush	UPL
<i>Cirsium neomexicanum</i>	New Mexico Thistle	UPL
<i>Coleogyne ramosissima</i>	Blackbrush	UPL
<i>Cylindropuntia echinocarpa</i>	Wiggins' chola	UPL
<i>Datura wrightii</i>	Sacred Datura	UPL
<i>Echinocereus engelmannii</i>	Engelman's Hedgehog Cactus	UPL
<i>Ephedra nevadensis</i>	Mormon Tea	UPL
<i>Eriogonum inflatum</i>	Desert Trumpet	UPL
<i>Erodium cicutarium</i>	Redstem Stork bill	UPL
<i>Falugia paradoxa</i>	Apache Plume	UPL
<i>Gutierrezia microcephala</i>	Snakeweed	UPL
<i>Hilaria jamesii</i>	Galleta Grass	UPL
<i>Juniperus osteosperma</i>	Utah Juniper	UPL
<i>Mahonia fremontii</i>	Freemont's Mahonia	UPL
<i>Opuntia polyacantha</i>	Prickly Pear Cactus	UPL
<i>Sphaeralcea parviflora</i>	Globemallow	UPL
<i>Tetradymia axillaris</i>	Spiny Horsebrush	UPL
<i>Yucca baccata</i>	Banana Yucca	UPL

*Indicator Status:

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67-99% of time

FAC = occurs in aquatic resources 34-66% of time

FACU = occurs in aquatic resources 1-33% of time

UPL = occurs in uplands > 99% of time

(Note: Hydrophytic plant species are shaded gray)

Hydrology (Gould Wash)

The main water source in the project area is Gould Wash and its associated ephemeral wash tributaries. No hydrology was encountered during the fall 2018 delineation visits beyond a few small puddles, however water was running in Gould wash during the March 2019 visit which

followed several days of heavy rain in the area. Most times the washes are dry and only flow during storm events.

Ordinary high water mark was still evaluated for each of the washes and in Gould Wash as shown in the Delineation Results Figures in Appendix F. Ordinary High Water Mark ranged from 4,310 feet at the upper washes, to 3,132 feet on the downstream end of Gould Wash

Soils (*Gould Wash*)

The soils at the site are derived from various sources as listed in the Custom Soil Resource Report of the Washington County, Utah Area found in Appendix F (NRCS 2019). This report was referenced to determine soil types for the area which include the following:

- Eroded land-Shalet complex, well drained, no flooding
- Pastura-Esplin complex (0 to 10 % slopes), well drained, no flooding
- Rock land (stony)
- Schmutz loam, well drained, no flooding
- Stony colluvial land
- Yaki-Zukan complex (1 to 35% slopes), well drained, no flooding

None of the soils in the project area are found on the state and national hydric soils lists (NRCS 2015). Soil samples were not taken at the Gould Wash site as no potential wetlands nor water were encountered.

Sample Points (*Gould Wash*)

Despite the large area and extensive length of Gould Wash included in the delineated area, only three sample points were considered necessary at the Gould site because few potential wetland areas were to be found in the dry wash and its tributaries. Two of the three sample points were found to be wetlands. The upland point (SP18) had riparian vegetation characteristics but did not have the soils nor hydrology to qualify as wetland. The Delineation Results Figure in Appendix F displays the sample points as well as the photo points which were used in helping to determine the ordinary high water mark for Gould Wash and the other ephemeral washes encountered. Table 12 on the next page summarizes the sample point data.

Table 12
Seegmiller Marsh Sample Point Summary
and Determination Matrix

Sample Point	Hydrophytes Dominant?	Hydric Soils Present?	Primary Hydrologic Indicator(s) Present?	Is the Sample Point in a Wetland?
16	Yes	Yes	Yes	Yes
17	Yes	Yes	Yes	Yes
18	Yes	No	No	No

Wetland Boundaries (*Gould Wash*)

The ordinary high water mark delineated for Gould Wash and its tributaries is representative of the typical water levels present during storm events as shown on the Delineation Results Figures in Appendix F. This line was identified using drift lines, water marks, soil textures, silt deposits, topography, and vegetation as shown on the Delineation Results Figures in Appendix F. There was one section of the wash where emergent plants have developed below the ordinary high water mark. Unlike the rest of the wash that dries up between storm events, it appears that hydrology is present year-round in this area, likely from a spring source, although the spring was not located during the field visit in the dense vegetation. There are a few areas with willows creating riparian habitat along Gould Wash however, these have neither the hydrology nor soils to qualify as wetlands.

Within the delineated area 0.41 acres of wetlands and 37,005 feet (17.33 ac) waters of the U.S. (PEM1J and R4EMC) were found to be potentially jurisdictional as listed and classified in Table 13 on the next page. These waters are shown in the Delineation Results Figure in Appendix F. Additional details related to this resource can also be found in the Aquatic Resources spreadsheet in Appendix H.

Table 13
Aquatic Resources within the Gould Survey Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acres)	Aquatic Resource Size (linear feet)
	Cowardin	Location (UTM)		
W17A	R4SB4	4116608 / 295301	8.54	14,785
W17B	R4SB4	4111931 / 298597	4.01	5,240
W17C	R4SB4	4110378 / 300679	0.33	350
W18	R4SB4	4111603 / 299169	0.10	320
W19	R4SB4	4112262 / 298792	1.20	3,820
W20	PEM1J	4111667 / 300797	0.41	
W23	R4SB4	4109668 / 300531	0.91	4,410
W24	R4SB4	4109769 / 300796	1.64	5,460
W25	R4SB4	4114232 / 299357	0.5	1,570
W26	R4SB4		0.10	1,050
Totals			17.74 ac	37,005 lf

HURRICANE WATER EFFICIENCY RESULTS

The Hurricane Water Efficiency Project Area totals 281 acres is located in Sections 2, 3, 4, 9, and 10 of Township 42S, Range 13W and Sections 26, 27, 33, 34, and 35 of Township 41S, Range 13W (See Site Location Maps, Appendix G). Directions to the site are as follows: From U.S. Interstate 15 take Exit 16 for State Highway 9 and head east onto Highway 9 at the off-ramp. Travel 9.5 east to Hurricane where the project area encompasses much of the city.

The project area is spread throughout much of Hurricane City with impacts focused on existing canals. The irrigation canals were not delineated as part of this effort as they all end at private residences and do not connect to waters of the U.S. Gould Wash runs through the city and several canals intersect this area, however, Gould Wash was delineated for the Gould Wash Project as reported in the previous section. Typical vegetation throughout town includes weed and grasses, plus some willows and cottonwoods along the wash, and phragmites within the wash itself. There is no interstate or foreign commerce taking place on or within the delineated wetlands.

Vegetation (*Hurricane*)

Vegetation was identified primarily based on flowering parts and structural characteristics. Most of the project area is developed land in Hurricane City. Gould Wash which runs east to west through the city. The vegetation growing in and around the Gould Wash is limited but included various weeds and grasses plus some willows and cottonwoods along the edges, and phragmites in some sections of the wash. Plants encountered during the delineation efforts are listed in Table 14 on the next page.

Table 14
Plants Observed in the Hurricane Area

Latin Binomial	Common Name	Region 8 Indicator Status*
<i>Baccharis salicina</i>	Seepwillow	FACW
<i>Baccharis salicifolia</i>	Mulefat	FAC
<i>Phragmites australis</i>	Common Reed	FACW
<i>Salix exigua</i>	Narrowleaf Willow	FACW
<i>Helianthus annuus</i>	Common Sunflower	FACU
<i>Melilotus officinalis</i>	Sweetclover	FACU
<i>Schedonorus arundinaceus</i>	Tall Fescue	FACU
<i>Sisymbrium altissimum</i>	Tumble Mustard	FACU
<i>Atriplex canescens</i>	Fourwing Saltbush	UPL
<i>Gutierrezia microcephala</i>	Snakeweed	UPL
<i>Larrea tridentata</i>	Creosote Bush	UPL
<i>Opuntia polyacantha</i>	Pricklypear Cactus	UPL
<i>Populus fremontii</i>	Freemont Cottonwood	UPL
<i>Rubia tinctoria</i>	Dyer's Madder	UPL
<i>Secale cereale</i>	Cereal Rye	UPL
<i>Ulmus pumila</i>	Siberian Elm	UPL

*Indicator Status:

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67-99% of time

FAC = occurs in aquatic resources 34-66% of time

FACU = occurs in aquatic resources 1-33% of time

UPL = occurs in uplands > 99% of time

(Note: Hydrophytic plant species are shaded gray)

Hydrology (*Hurricane*)

The main water source in the Hurricane Project area is Gould Wash which conveys water from a multitude of ephemeral stream tributaries. Gould Wash has an ordinary high water mark ranging between 3,312 feet at the east (upstream) end of the wash and 3,132 feet at the west (downstream) end of the channel. Several small irrigation ponds are near the project including one on the west side that overlaps the delineated area.

Soils (*Hurricane*)

The soils at the site are derived from various sources as listed in the Custom Soil Resource Report of the Washington County Area found in Appendix G (NRCS 2019). This report was referenced to determine soil types for the area which include the following:

- Cinder land
- Fluvaquents and torrifluents (sandy), well drained, poorly/well drained, frequent flooding
- Hantz silty clay loam, well drained, no flooding
- Harrisburg fine sandy loam (1-5% slopes), well drained, no flooding

- Isom cobbly sandy loam (3-30% slopes), well drained, no flooding
- Junction fine sandy loam (1-2% slopes), well drained, no flooding
- Junction fine sandy loam (2-5% slopes), well drained, no flooding
- Leeds silty clay loam (1-2% slopes), well drained, no flooding
- Leeds silty clay loam (5-10% slopes), well drained, no flooding
- Nikey sandy loam (1-3% slopes), well drained, no flooding
- Nikey sandy loam (3-30% slopes), well drained, no flooding
- Pintura loamy fine sand (1-5% slopes), somewhat excessively drained, no flooding
- Rock outcrop
- St. George silty clay loam, moderately well drained, no flooding
- Stony colluvial land
- Tobler fine sandy loam, well drained, no flooding
- Tobler silty clay loam, well drained, no flooding
- Winkel gravelly fine sandy loam (1-8% slopes), well drained, no flooding
- Winkel-Rock outcrop complex (8-30% slopes), well drained, no flooding

The fluvaquents and torrifluvents soil is on the state and national hydric soils lists (NRCS 2015). Soil samples were not taken in this area as all potential wetlands were below the delineated ordinary high water mark of the wash. The custom soil resource report from the NRCS for this site is located in the Appendix G (NRCS 2019).

Sample Points (*Hurricane*)

No sample points were taken at the Hurricane site as Gould Wash was delineated as part of the Gould Wash project. The Delineation Results Figure in Appendix G displays some of the photo points which were used in helping to determine the ordinary high water mark.

Wetland Boundaries (*Hurricane*)

The ordinary high water mark delineated for Gould Wash is representative of the active channel which flows during storm events. This line was easy to identify based on drift lines, water marks, changes in soil and vegetation. No wetlands were encountered above the ordinary high water mark, however some phragmites do grow within the middle of the channel. An irrigation pond is present on the west side of the project area (IP3 aquatic resource listed in Table 12), however it is not expected that this would be jurisdictional as it do not connect to any Waters of the U.S.

Indicators for vegetation, hydrology, and hydric soils were clear and easily identified. Within the delineated area 14,785 feet (8.54 acres) of waters of the U.S. were found to be potentially jurisdictional as listed and classified in Table 15 on the next page and as described in the previous section. These waters are shown in the wetland delineation figures in Appendix G. Additional

details related to these resources can be found in the Aquatic Resources spreadsheet in Appendix H.

Table 15
Aquatic Resources within the Hurricane Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acres)	Aquatic Resource Size (linear feet)
	Cowardin	Location (UTM)		
W17A*	R4SB4	4116608 / 295301	8.54	14,785
IP3**	L2UB3Cx	4117236 / 294006	1.21	
Totals			9.75 ac	14,785 lf

* W17A is included in the previous section for the Gould Wash project

**IP3 is an irrigation pond and not connected to any Waters of the U.S.

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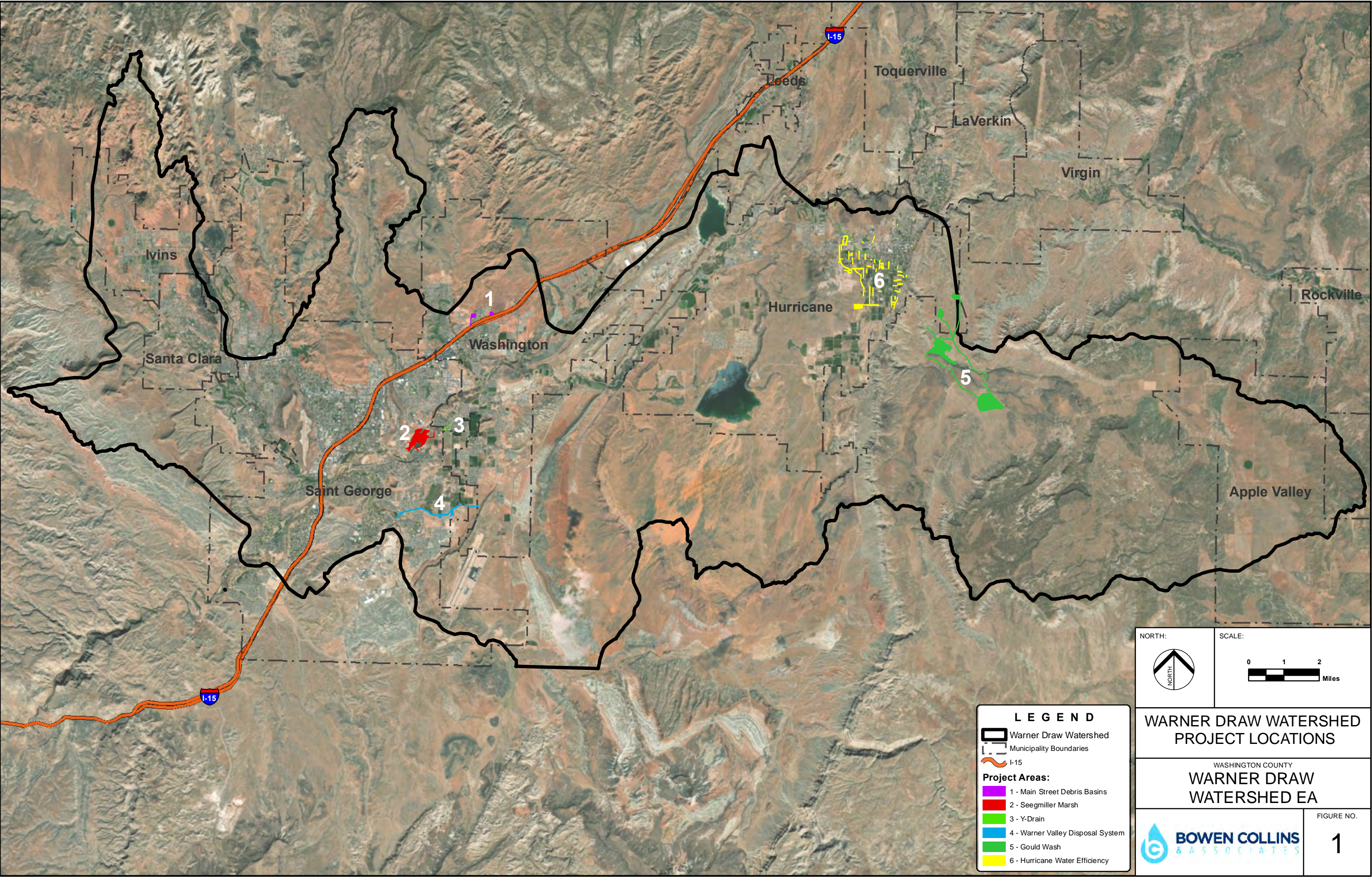
Appendix Pages in this report have been limited to the following:

- Appendix A Overall Site Location Map**
- Wetland Delineation Maps from Appendix B through G**
- Appendix H Aquatic Resource Spreadsheet**

Additional Appendix information can be provided upon request.

Appendix A

Overall Site Location Map



Appendix B through G

Wetland Delineation Maps

LEGEND

Delineated Area (23 acres)

(Note: Contours shown are from before the 2019 emergency excavation)

Minor Contours (2 -ft)

Major Contours (10-ft)

2019 Emergency Flood Control Excavation Area

Photo Points

Ordinary High Water Mark

Aquatic Resources

W16 - Dry Ephemeral Wash (400 LF / 0.13 ac)

W16B - Dry Ephemeral Wash (385 LF / 0.11 ac)

An aerial photograph of a residential area with a main street running diagonally from the bottom left to the top right. The map is overlaid with various technical features: a red line delineates a 23-acre area; orange-shaded regions represent the 2019 Emergency Flood Control Excavation Area, with two specific areas labeled W16B and W16; yellow dots indicate photo points (PP106, PP107, PP108, PP109, PP110, PP111, PP112, PP31, PP32, PP33, PP34, PP35, PP113, PP114, PP115, PP116); and dashed lines with labels indicate Ordinary High Water Marks (OHWM) at elevations of 2911 ft, 2912 ft, 2920 ft, and 2924 ft. Topographic contours are shown in grey, with major contours every 10 feet (2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030) and minor contours every 2 feet. The map also shows a multi-lane highway (Main Street) and surrounding residential lots with houses and trees.

NORTH:

SCALE:

0 200 400

Feet

DELINEATION RESULTS

WASHINGTON COUNTY

MAIN STREET

DEBRIS BASINS

BOWEN COLLINS
& ASSOCIATES

FIGURE NO.

B4

S:\Washington County\581-18-01 Warner Draw Watershed EA\4.0 GIS\4.1 Projects\Delineation\FigB4_MainStreetDebrisDelineationResults.mxd mdavis 11/12/2019

Imagery: Washington County 2018
Figure Created by
Merissa Davis 11/27/18
Updated 11/12/19

LEGEND

●

 Sample Points Sept 2019

●

 Sept 2019 Photo Points

Delineated Area (132 ac)

Minor Contours (2-ft)

Major Contours (10-ft)

●

 Sample Points

●

 Photo Points

Ordinary High Water Mark

Aquatic Resources

W1 - Virgin River (4,600 LF / 6.45 ac)

W2 - Unnamed Ephemeral Stream (700 LF / 0.3 ac)

W3 - Y-drain Canal (1,530 LF / 0.73 ac)

W4 - Semipermanently Flooded Emergent Marsh (10.63 acres)

W5 - Pond (2.5 acres)

W6 - Semipermanently Flooded Emergent Marsh (1.58 acres)

W7 - Seasonally Flooded Emergent Marsh (0.84 acres)

W8 - Seasonally Flooded Emergent Marsh (0.51 acres)

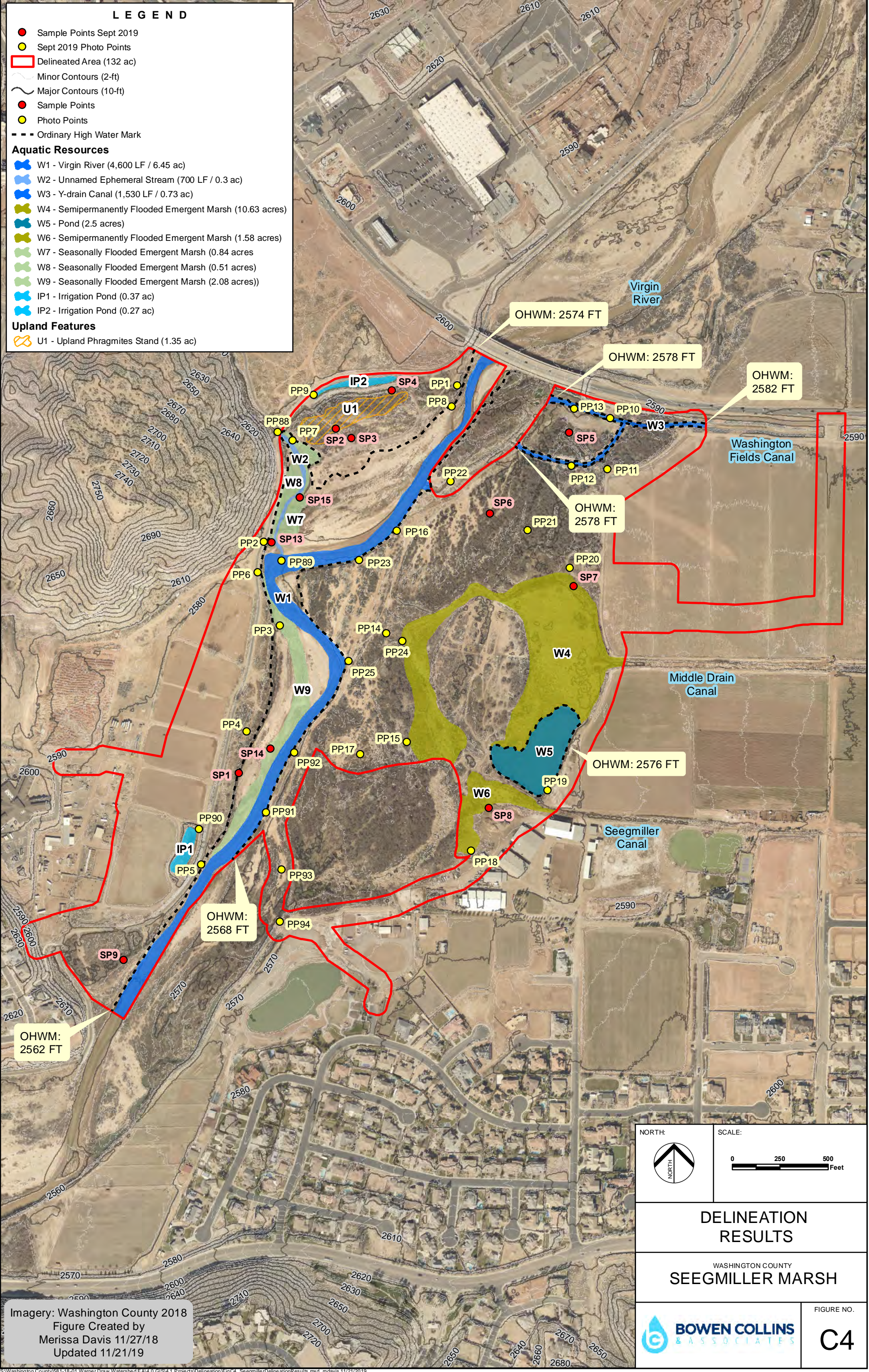
W9 - Seasonally Flooded Emergent Marsh (2.08 acres))

IP1 - Irrigation Pond (0.37 ac)

IP2 - Irrigation Pond (0.27 ac)

Upland Features

U1 - Upland Phragmites Stand (1.35 ac)



Imagery: Washington County 2018
Figure Created by
Merissa Davis 11/27/18
Updated 11/21/19

NORTH:

SCALE:

0

250

500

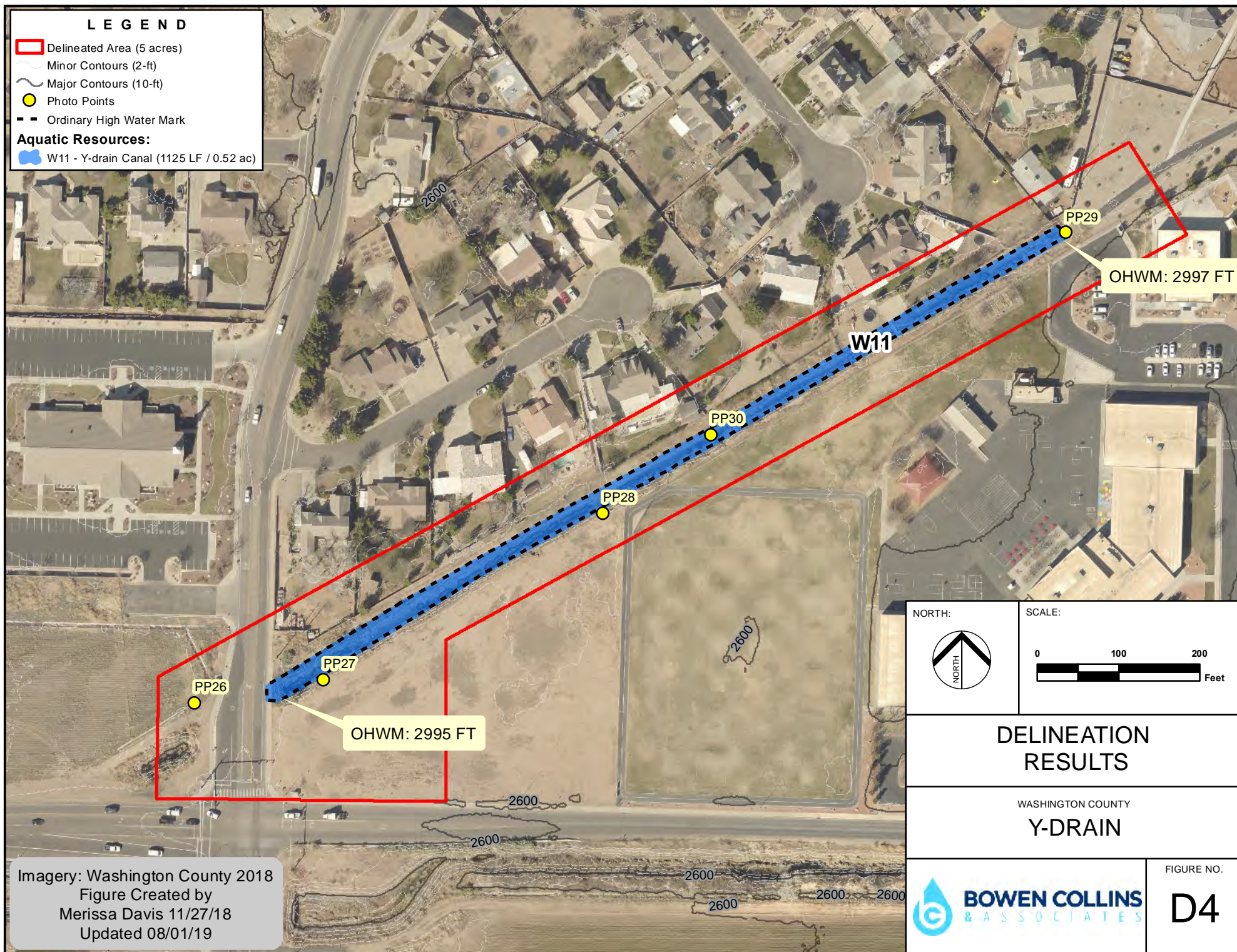
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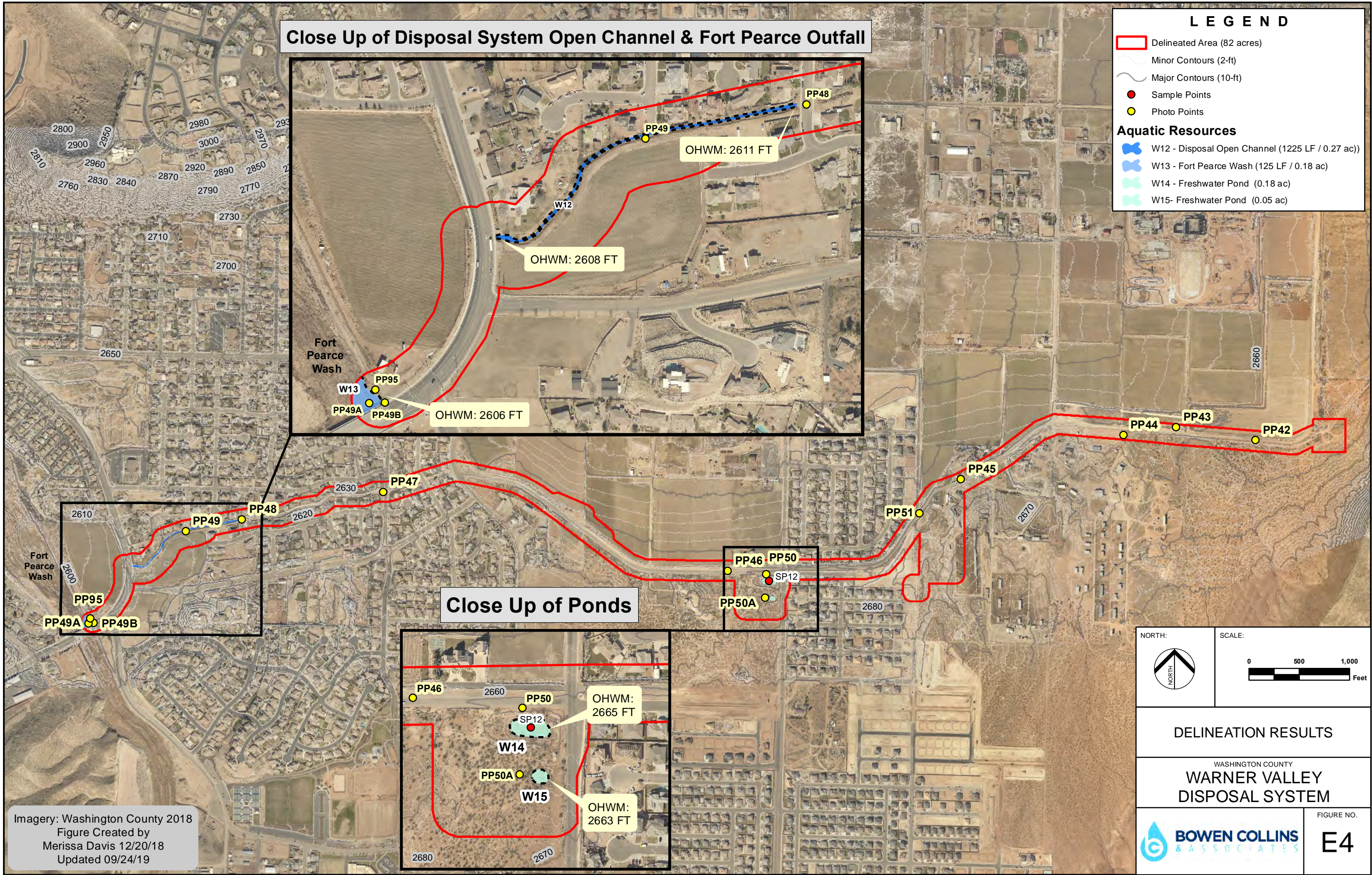
DELINEATION RESULTS

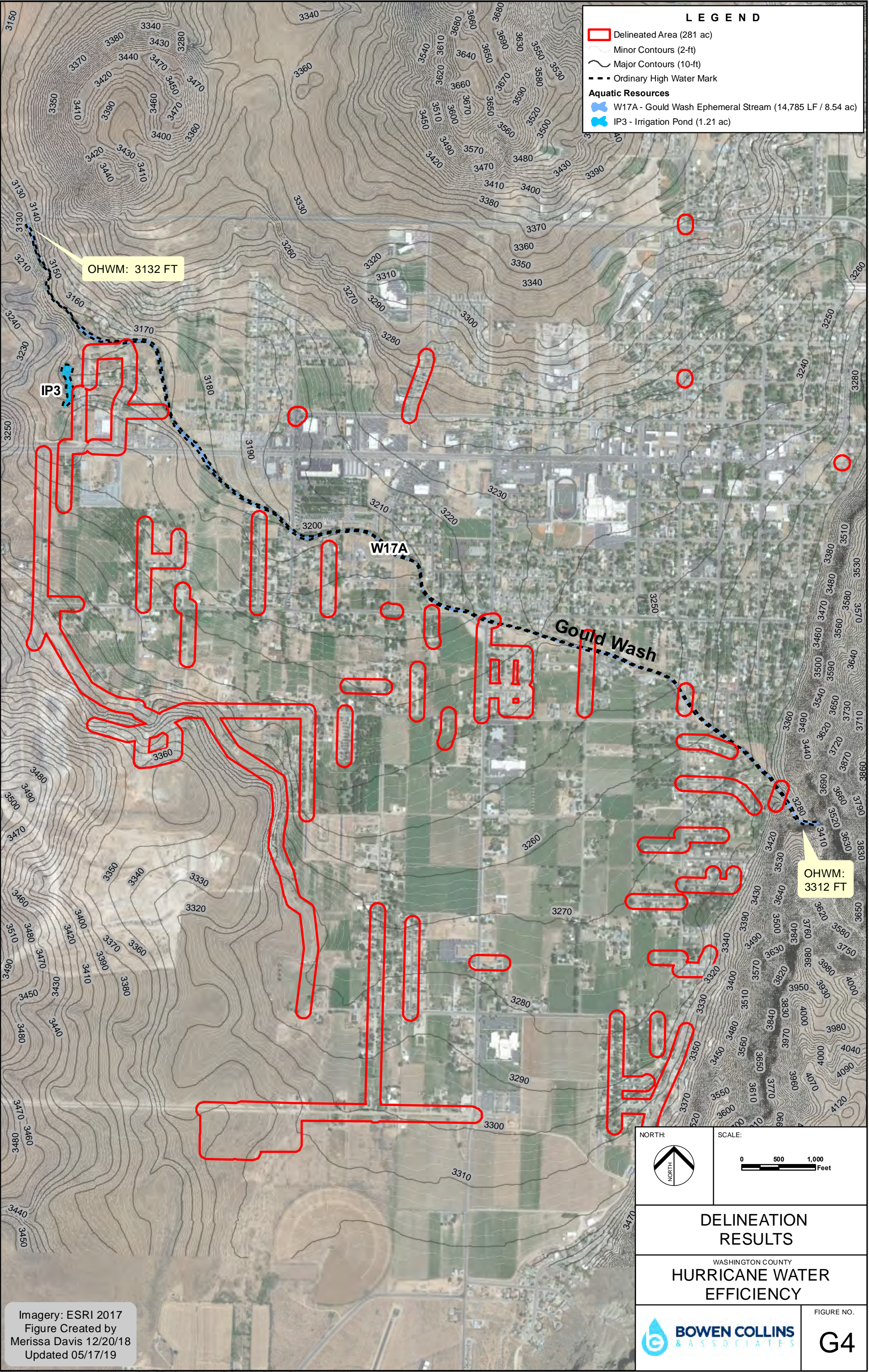
WASHINGTON COUNTY
SEEGMILLER MARSH

BOWEN COLLINS & ASSOCIATES

FIGURE NO.
C4







Appendix H

Aquatic Resource Spreadsheet

Warner Valley Watershed Aquatic Resources

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
IP1	Utah	LUB3Cx	Lacustrine	Area	0.37	Acres	IMPNDMNT	4107818	274383	Irrigation Pond
IP2	Utah	LUB3Cx	Lacustrine	Area	0.27	Acres	IMPNDMNT	4108561	274662	Irrigation Pond
IP3	Utah	LUB3Cx	Lacustrine	Area	1.21	Acres	IMPNDMNT	4117236	294006	Irrigation Pond
U1	Utah	U	DNA	Area	1.35	Acres	UPLAND	4108509	274642	Phragmites stand (no hydrology)
W1	Utah	R5UBH	Riverine	Linear	4,600	Feet	TNW	4108116	274577	Virgin River
W2	Utah	R5SBC	Riverine	Linear	700	Feet	NRPW	4108402	274554	Unnamed Ephemeral Stream
W3	Utah	R5UBFx	Riverine	Linear	1,530	Feet	RPW	4108485	275047	Canal/Land Drains
W4	Utah	PEM1F	Riverine	Area	10.63	Acres	RPWWD	4108117	274913	Virgin River/Ground Water/Land drains
W5	Utah	PUBF	Riverine	Area	2.50	Acres	RPW	4107975	274946	Virgin River/Ground Water/Land drains
W6	Utah	PEM1F	Riverine	Area	1.58	Acres	RPWWD	4107888	274863	Virgin River/Ground Water/Land drains
W7	Utah	PEM5C	Riverine	Area	0.84	Acres	NRPWW	4108386	274562	Unnamed Ephemeral Stream
W8	Utah	PEM5C	Riverine	Area	0.51	Acres	NRPWW	4108390	274547	Unnamed Ephemeral Stream
W9	Utah	PEM1C	Riverine	Area	2.08	Acres	TNWW	4108035	274525	Virgin River
W11	Utah	R5UBFx	Riverine	Linear	1125	Feet	RPW	4108634	275959	Canal/Land Drains
W12	Utah	R5UBFx	Riverine	Linear	1,225	Feet	RPW	4104753	273933	Debris Basin collections
W13	Utah	R4SBC	Riverine	Linear	125	Feet	NRPW	4104502	273641	Fort Pearce Wash
W14	Utah	PUBC	Depress	Area	0.18	Acres	DELINEATE	4104624	275708	Precipitation
W15	Utah	PUBC	Depress	Area	0.05	Acres	DELINEATE	4104572	275718	Precipitation
W16	Utah	R4SB4	Riverine	Linear	400	Feet	NRPW	4113723	277231	Unnamed Ephemeral Stream
W16B	Utah	R4SB4	Riverine	Linear	385	Feet	NRPW	4113744	277149	Unnamed Ephemeral Stream
W17A	Utah	R4SB4	Riverine	Linear	14,785	Feet	NRPW	4116609	295301	Gould Wash
W17B	Utah	R4SB4	Riverine	Linear	5240	Feet	NRPW	4111931	298597	Gould Wash
W17C	Utah	R4SB4	Riverine	Linear	350	Feet	NRPW	4110378	300680	Gould Wash
W18	Utah	R4SB4	Riverine	Linear	320	Feet	NRPW	4111603	299169	Unnamed Ephemeral Stream
W19	Utah	R4SB4	Riverine	Linear	3,820	Feet	NRPW	4112263	298793	Unnamed Ephemeral Stream
W20	Utah	PEM1J	Riverine	Area	0.41	Acres	NRPWW	4111667	298906	Gould Wash/Spring
W23	Utah	R4SB4	Riverine	Linear	4,410	Feet	NRPW	4109669	300531	Unnamed Ephemeral Stream
W24	Utah	R4SB4	Riverine	Linear	5,460	Feet	NRPW	4109769	300797	Unnamed Ephemeral Stream
W25	Utah	R4SB4	Riverine	Linear	1,570	Feet	NRPW	4113535	299382	Unnamed Ephemeral Stream
W26	Utah	R4SB4	Riverine	Linear	1,050	Feet	NRPW	4109984	300334	Unnamed Ephemeral Stream

Biological Assessment

BIOLOGICAL ASSESSMENT OF THE WARNER DRAW WATERSHED PLAN WASHINGTON COUNTY, UTAH

Prepared for:



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TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
INTRODUCTION	1
BACKGROUND/HISTORY	1
1. MAIN STREET DEBRIS BASINS	4
1.1 Background of Main Street Area	4
1.2 Proposed Main Street Actions	4
1.3 Main Street Action Area	5
1.4 Listed Species & Critical Habitat in the Main Street Action Area	5
1.5 Main Street Environmental Baseline Conditions.....	6
1.6 Effects of the Main Street Action	7
1.7 Main Street Conservation Commitments.....	10
1.8 Main Street Conclusions	11
2. SEEGMILLER MARSH.....	12
2.1 Background of the Seegmiller Marsh Area	12
2.2 Proposed Seegmiller Actions.....	12
2.3 Seegmiller Marsh Action Area	13
2.4 Listed Species & Critical Habitat in the Seegmiller Marsh Action Area	13
2.5 Seegmiller Environmental Baseline Conditions	14
2.6 Effects of the Seegmiller Marsh Action.....	16
2.7 Seegmiller Marsh Cumulative Effects	24
2.8 Seegmiller Marsh Conservation Commitments.....	24
2.9 Seegmiller Marsh Conclusions	25
3. Y-DRAIN	27
3.1 Background of the Y-Drain Area	27
3.2 Proposed Y-Drain Actions	27
3.3 Y-Drain Action Area.....	27
3.4 Listed Species & Critical Habitat in the Y-Drain Action Area.....	28
3.5 Y-Drain Environmental Baseline Conditions	29
3.6 Effects of the Y-Drain Action	29
3.7 Y-Drain Conservation Commitments.....	31

3.8	Y-Drain Conclusions.....	31
4.	WARNER VALLEY DISPOSAL SYSTEM.....	32
4.1	Background of the Warner Valley Disposal System Area.....	32
4.2	Proposed Warner Valley Disposal System Actions	32
4.3	Warner Valley Disposal System Action Area.....	33
4.4	Listed Species & Critical Habitat in the Warner Valley Disposal System Action Area	34
4.5	Warner Valley Disposal System Environmental Baseline Conditions	34
4.6	Effects of the Warner Valley Disposal System Action	35
4.7	Warner Valley Disposal System Conservation Commitments	37
4.8	Warner Valley Disposal System Conclusions.....	38
5.	HURRICANE WATER EFFICIENCY	39
5.1	Background of the Hurricane Water Efficiency Project	39
5.2	Proposed Hurricane Water Efficiency Actions	39
5.3	Hurricane Water Efficiency Action Area.....	39
5.4	Listed Species & Critical Habitat in the Hurricane Water Efficiency Action Area.....	40
5.5	Hurricane Water Efficiency Environmental Baseline Conditions	41
5.6	Effects of the Hurricane Water Efficiency Action	41
5.7	Hurricane Water Efficiency Conservation Commitments	42
5.8	Hurricane Water Efficiency Conclusions.....	43
6.	MITIGATION COMMITMENTS.....	44
7.	CONCLUSION	45
	LITERATURE CITED	47

LIST OF APPENDICES

APPENDIX A – Site Location Maps
 APPENDIX B – Official USFWS TES Species Lists
 APPENDIX C – Utah Natural Heritage Program Species Reports
 APPENDIX D – Vegetation Survey Reports
 APPENDIX E – Desert Tortoise Survey Report
 APPENDIX F – Habitat Figures
 APPENDIX G – Plan Figures
 APPENDIX H – Site Photos
 APPENDIX I – Federal & State Authority Correspondence
 APPENDIX J – Common Virgin River Applicant Committed Measures/BMPs
 APPENDIX K – Conservation Measures Spreadsheet

LIST OF TABLES

Table I.1	ESA Listed Species Potentially Occurring in the Project Areas	1
Table 1	Potential TES Species in Main Street Project Area	6
Table 2	Potential TES Species in the Seegmiller Project Area	14
Table 3	Seegmiller Critical Habitat Impacts	26
Table 4	Potential TES Species in the Y-Drain Project Area.....	28
Table 5	Potential TES Species in the Warner Valley Disposal System Project Area.....	34
Table 6	Potential TES Species in the Hurricane Water Efficiency Project Area	40
Table 7	Species & Critical Habitat Determinations.....	46

ACRONYMS & ABBREVIATIONS

BC&A - Bowen Collins & Associates
 BLM - Bureau of Land Management
 County - Washington County
 MBTA - Migratory Bird Treaty Act
 O&M - Operations & Maintenance
 NA - Not Applicable
 NRCS - National Resource Conservation Service
 PCE - Primary Constituent Elements
 RCP - Reinforced Concrete Pipe
 SITLA - State of Utah Institutional Trust Lands Administration
 SWFL - Southwestern Willow Flycatcher
 UDWR - Utah Division of Wildlife Resources
 UNHP - Utah Natural Heritage Program
 USFWS/Service - U.S. Fish & Wildlife Service
 WVDS - Warner Valley Disposal System
 YBCU - Yellow-billed Cuckoo

INTRODUCTION

This Biological Assessment has been prepared by Bowen Collins & Associates (BC&A), on behalf of Washington County (County) and the National Resource Conservation Service (NRCS) for five proposed watershed protection and restoration projects throughout Washington County, Utah (See Site Location Maps, Appendix A). The County and the NRCS have prioritized these five sites based on their need for flood and erosion control, water conservation, and habitat restoration and they are being included in the Warner Draw Watershed Plan-EA.

BACKGROUND/HISTORY

The purpose of this biological assessment (BA) is to assess the potential environmental impacts of the proposed projects on federally-listed plant and animal species in accordance with the requirements of Section 7 of the Endangered Species Act (ESA; 16 U.S.C. 460 et seq., as amended) (See official species lists for each site in Appendix B). The federal action agency is the NRCS as they intend to help fund the projects proposed in the Warner Draw Watershed Plan.

The objective of the proposed action is to provide flood and erosion control, improve water conservation, and restore or improve habitat which the County and NRCS have prioritized based on previous and recent flood damage, increasing erosion, and ever increasing development throughout the county. Additional details about the actions at each site is included in their associated sections below but in general the projects include the construction of debris and detention basins, irrigation system improvements, storm drain system improvements, and habitat restoration and enhancement throughout the county. These projects have the potential to impact the ESA-listed species that occur in these areas based on the U.S. Fish & Wildlife Service (Service) Information for Planning and Consultation (IPAC) online tool as well as reporting from the Utah Natural Heritage Species and are listed in Table I.1.

**Table I.1 – ESA Listed Species & Critical Habitat
Potentially Occurring in the Project Areas**

Common Name	Scientific Name	Critical Habitat
California Condor	<i>Gymnogyps californianus</i>	Not Designated
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	Present
Virgin River Chub	<i>Gila seminuda</i>	Present
Woundfin	<i>Plagopterus argentissimus</i>	Present
Dwarf Bear-poppy	<i>Arctomecon humilis</i>	Not Designated
Gierisch Mallow	<i>Sphaeralcea gierischii</i>	Not Present
Holmgren Milkvetch	<i>Astragalus holmgreniorum</i>	Not Present
Shivwits Milkvetch	<i>Astragalus ampullarioides</i>	Not Present
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Not Present
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Present
Desert Tortoise	<i>Gopherus agassizii</i>	Not Present
Siler Pincushion Cactus	<i>Pediocactus sileri</i>	Not Designated
Jones Cycladenia	<i>Cycladenia humilis var. jonesii</i>	Not Designated

Early coordination and pre-consultation with the Service was conducted with the following Biologists (See correspondence, Appendix C):

- Jena Lewinsohn (Botanist)
 - April 23, 2018 email
 - September 18, 2019 email
- Hilary Whitcomb (Biologist over Desert Tortoise)
 - July 13, 2018 email
 - July 12, 2018 meeting
 - July 17, 2018 email
 - October 12, 2018 email
 - December 12, 2018 meeting
- Amy Defreeze (Biologist over Yellow-billed Cuckoo)
 - April 25, 2018 email
 - April 30, 2018 email
 - December 12, 2018 meeting
 - December 14, 2018 email
- Stephanie Graham (Biologist over Southwestern Willow Flycatcher)
 - April 23, 2018 email
 - December 20, 2018 email
 - February 1, 2019 conference call
 - February 11, 2019 email
- George Weekley (Biologist over Virgin River Chub & Woundfin)
 - January 28, 2019 phone call
 - February 1, 2019 conference call

Additional consultation with Bureau of Land Management (BLM) and State Biologists included the following:

- John Kellam (BLM Wildlife Biologist)
 - April 24, 2018 email
 - December 5, 2018 phone call
 - December 6, 2018 email
- Christian Edwards (Utah Department of Wildlife Resources Native Aquatics Biologist)
 - April 24, 2018 email
 - April 30, 2018 email
 - December 6, 2018 email
 - December 10, 2018 phone call
 - February 1, 2019 conference call
 - March 4, 2019 email

This BA, prepared by BC&A, addresses the proposed action in compliance with Section 7 of the ESA. Section 7 assures that, through consultation (or conferencing for proposed species) with the Service, federal actions do not jeopardize the continued existence of any threatened, endangered or proposed species, or result in the destruction or adverse modification of critical habitat.

As the five sites discussed herein are geographically and biologically unique, the remainder of this assessment will review the proposed actions, action areas, listed species and critical habitats, baseline conditions, effects analysis, conclusions and conservation commitments in separate sections for each project site.

1. MAIN STREET DEBRIS BASINS

1.1 Background of Main Street Area

The proposed actions addresses uncontrolled floodwater originating from the Red Cliffs Desert Tortoise Reserve and additional catchment areas. High intensity storms in the drainage create erosive flows and transport sediment and debris to Washington City, impacting residential property, roads, bridges, agricultural parcels, pipelines and other infrastructure. Main Street in Washington City sees the most water and flood damage from these events where outdated or nonexistent curb and gutters leave these homes and structures more susceptible to flooding, even from minor rainfall events.

In a foreseeable flood event, standard practice is to sandbag residences and businesses to prevent flood damage. Unfortunately, even with diligent monitoring, unexpected flood events cause significant damage. Additionally, sandbagging provides little to no prevention of the downstream sedimentation and the unmetered flow volume causes frequent damage to floodwater infrastructure.

Over the last few years there have been a few large rainfall events on the Main Street drainage basin that have caused significant runoff events and flooding along Main Street. The two most recent flooding events occurred on July 13, 2018 and August 11, 2018. To avoid additional flooding in the spring of 2019, Washington City excavated two emergency debris basins in the area where these actions are being proposed. As such the County has prioritized this area for flood control.

1.2 Proposed Main Street Actions

The following actions are proposed for the Main Street Debris Basins Project (See Plan Figure B4.1, Appendix G1):

- Construct a new 46.5 acre-foot (ac-ft) debris basin adjacent to Main Street to reduce the 100-year peak runoff from approximately 576 cubic feet per second (cfs) to approximately 42 cfs to be conveyed by existing storm drain facilities.
- Construct a new principal spillway structure, trash rack and approximately 240 linear feet of new 48-inch RCP storm drain pipe to connect to the existing 54-inch storm drain.
- Construct new double catch basins and pipeline along Caddington Road to route storm water runoff to the new Main Street Debris Basin.
- Construct new catch basins and laterals on Main Street just prior to the I-15 crossing.
- Construct a new 13.2 ac-ft debris basin at the intersection of Tortoise Rock Drive and Buena Vista Blvd to reduce the 100-year peak runoff from approximately 223 cfs to approximately 12 cfs to be conveyed by existing storm drain facilities.
- Construct a new principal spillway structure, trash rack and approximately 285 linear feet of new 36-inch reinforced concrete pipe (RCP) storm drain pipe to connect to the existing 36-inch storm drain.
- Restoration and reseedling of disturbed areas, including the basin slopes will take place when construction is complete.

The basins will be created by excavating out the basin area with heavy equipment for the capacities mentioned above with a berm or embankment along the outside perimeter created with the excavated materials. Outlet structures will also be constructed at the downstream end of each basin which connect to an existing storm water system.

It is expected that the proposed basins will likely be empty and dry most of the time, but during storm and flood events they may fill to capacity while the County controls the outgoing flows rates to protect downstream infrastructure. The basin is designed to have 50-years of sediment storage, though it is likely the long-term maintenance will include sediment removal approximately every ten years when equipment may once again be present within the basins. An official Operations and Maintenance (O&M) manual will be written during final design to include details on inspections, reports, and procedures for maintenance.

The disturbed areas will be temporarily exposed to invasive species growth but will be re-seeded with approved native seed mix post-construction to deter weeds and encourage native plants to re-establish.

Timing of construction as well as maintenance is expected to take place outside the active tortoise season (March-June and Sept-Oct) in suitable habitat areas.

1.3 Main Street Action Area

The action area includes the two basins as shown on the Plan Drawings found in Appendix G, plus a half mile buffer to account for species evaluations and potential indirect effects such as construction disturbance, noise, and light or short term sedimentation and turbidity downstream during the construction activities. The majority of the proposed actions are located on State Trust Lands with some overlap onto private lands where access is proposed. As the embankment materials are coming from the soils excavated within the basin area, the construction footprint will mostly be contained within the basins outlined. Construction access will be via Main Street, Buena Vista Blvd, and Tortoise Rock Road. Potential effects beyond the basin action areas, include reduced downstream floodwater damage through metered floodwater flows as well as improved water quality in Mill Creek and the Virgin River downstream with the reduction of sedimentation.

1.4 Listed Species & Critical Habitat in the Main Street Action Area

The purpose of this section is to identify protected species and critical habitat that may be present within the Main Street Debris Basins action area. Table 2 on the next page includes all potential species on the official Service list of TES that may occur in or be affected by the proposed Main Street project (See Official Species List, Appendix B), with habitat determined within various boundaries from the site according to species and in consideration of direct and indirect effects. (See Figure F1, Appendix F). Note: Southwestern Willow Flycatcher was not included on the official TES list obtained from the Service however suitable stop over habitat near the action area was encountered during the site visits so this species was added to the evaluation. Only those species with potential habitat and/or presence will be reviewed for potential effects in Section 1.6.

Table 1
Potential TES Species and Habitat in Main Street Action Area

Species	Status	Habitat in Action Area	Critical Habitat in Action Area
Birds			
California Condor <i>Gymnogyps californianus</i>	Experimental Population (Non-Essential)	No	Not designated
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened	No nesting habitat in action area (marginal habitat present outside ½-mile buffer)	No
Southwestern Willow Flycatcher* <i>Empidonax traillii extimus</i>	Threatened	No nesting habitat present Suitable stopover habitat present nearby for migrants, presence unknown	No
Fish			
Virgin River Chub <i>Gila seminuda</i>	Endangered	No	No
Woundfin <i>Plagopterus argentissimus</i>	Endangered	No	No
Plants			
Dwarf Bear-poppy <i>Arctomecon humilis</i>	Endangered	No	Not designated
Holmgren Milkvetch <i>Arctomecon humilis</i>	Endangered	No	No
Jones Cycladenia <i>Cycladenia humilis var. jonesii</i>	Threatened	No	Not designated
Shivwits Milkvetch <i>Astragalus ampullarioides</i>	Endangered	No	No
Reptiles			
Desert Tortoise <i>Gopherus agassizii</i>	Threatened	Suitable habitat present, presence unknown	Present ½-mile from action

*Southwestern Willow Flycatcher was not included on the official TES list obtained from the Service however suitable stop over habitat near the action area was encountered during the site visits so this species was added to the evaluation.

1.5 Main Street Environmental Baseline Conditions

The Main Street Debris Basin action area is located on State of Utah Institutional Trust Lands Administration (SITLA) managed lands directly adjacent to the Warm Springs residential subdivision. The area is dominated by desert shrubs on sandy soils with very few trees present except immediately surrounding the spring and in residential properties. A complete list of plants found in this area can be found in the Vegetation reports in Appendix D.

A network of dirt roads and ATV trails crisscross the area several of which lead to two existing water tanks approximately 0.5 and one mile to the north respectively. Shot gun shells were

encountered frequently during site visits suggesting regular shooting in the area. A zip line has been set up in the treed spring area with signs of frequent use, most likely by Warm Springs residents. Two campers were encountered during one site visit whose tent was set up adjacent to the main stream bed and spring. Finally, in the spring of 2019, two emergency basins were excavated by Washington City within the action area to contain flood waters threatening infrastructure below.

Although there is a small area of suitable stopover habitat for southwestern willow flycatcher in the nearby spring area, frequent use by the Warm Springs residents and at times campers is likely to deter nesting at this location due to its limited size and isolated location from other suitable habitat.

The Red Cliffs Desert Reserve is located approximately 0.5 miles north of the project area which is also an area where critical habitat has been designated for desert tortoise. The Reserve has been set aside to protect the desert tortoise and its habitat however is also accessible to the public on designated trails. Although not paved past the project area, the unimproved Main Street road leads into the reserve and to the Mill Creek Trail.

1.6 Effects of the Main Street Action

This section documents the direct, indirect, and cumulative effects or impacts to habitat and species relevant to this project and overall effects to threatened, endangered, petitioned, or sensitive species. Effects will be analyzed for three species with potential habitat in the Main Street action area, including Mexican spotted owl, southwestern willow flycatcher, and desert tortoise.

1.6.1 Mexican Spotted Owl

The Mexican spotted owl (*Strix occidentalis lucida*) is a widespread subspecies found throughout the southwestern U.S. and Mexico with a disjunct and somewhat fragmented distribution. Habitat varies from isolated mountain ranges and canyon systems to forested land, often in mature or old-growth stands with complex structure. The breeding period for Mexican spotted owl typically takes place between March and August. (USFWS 2012)

Mexican spotted owls have no known occurrence within two miles of the project (UNHP, 2019a). The Mexican spotted owl is usually found at higher elevations in Washington County, especially around Zion National Park. Critical habitat is designated approximately 14 miles to the northeast. There is a small cliff formation known as Dino Cliffs approximately 0.75 miles north of the proposed basins with marginal nesting habitat, however suitable nesting habitat is not present in the project action area nor within the typical half-mile buffer for Mexican spotted owl. Due to lack of habitat the proposed project should have *no effect* this species or its habitat.

1.6.2 Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) is present in the southwestern United States and northwestern Mexico. It breeds in relatively dense riparian tree and shrub communities associated with rivers and other wetland habitats. Such habitat has become less common and more isolated, which has likely contributed to the declining distribution of this

species. Nests are typically constructed in a forked tree or shrub branch with breeding typically taking place between May and August. Critical habitat for flycatchers is designated approximately 1.5 miles to the south along the Virgin River. (USFWS 2013, Sogge 2010).

A 1.7-acre area of suitable flycatcher habitat was identified just outside but adjacent to the project area which includes a small spring with a network of trees and shrubs including cottonwoods, seep willows, tamarisk, and mesquite. This habitat is isolated by 1-2 miles from any other potential flycatcher habitat and there is no known occurrence for southwestern willow flycatchers within two miles of project area (UNHP, 2019a). No southwestern willow flycatchers were observed during the site surveys, however presence surveys were not completed. Proximity to homes and frequent human activity in this small habitat area by the Warm Springs residents is also likely to deter nesting at this location.

While southwestern willow flycatcher are unlikely to be using this location, construction outside the breeding season (April 15 - August 31) should minimize any potential effects. If, however, construction timing is expected to take place during the breeding season, presence surveys for flycatchers will take place the year prior to construction. If presence is confirmed, timing will be adjusted to avoid the nesting and breeding season. Neither proposed basin covers the suitable habitat area therefore no loss of trees is expected nor should habitat should be affected long term by the construction of or presence of the basins. As such, the project *may affect, but is not likely to adversely affect* this species.

1.6.3 Desert Tortoise

There are several types of desert tortoise (*Gopherus agassizii*) in Arizona, California, Nevada, and Utah, including the Beaver Dam Slope type which occurs in southwestern Utah. It can typically be found near water in the desert, semi-arid grasslands, canyon bottom, and rocky hillsides where they construct burrows in sandy or gravelly soils. Desert tortoise typically nest from May to July, hatching young in late summer or fall. (UDWR 2019)

No desert tortoise or their signs (ie: carcasses, shelter sites, scats, tracks, or mating rings) were observed during the survey beyond one small mammal burrow which did not appear to be large enough for a tortoise nor have been used recently, however suitable habitat was outlined as part of this survey (See 2018 Desert Tortoise Survey Report, Appendix E). Frequent vehicle and ATV travel in the project area likely deter tortoise from using the area, however proximity to the Reserve and recent occurrence of this species within a half mile of the action area (UNHP 2019a) makes their presence possible. Conservation measures explained in Section 1.7 below include pre-construction clearances, training literature for construction workers, trash control, checking backfill areas, and reduced speed limits. If any tortoise are encountered prior to or during construction further consultation with USFWS will be initiated with potential relocated in cooperation with the Washington County Habitat Conservation Plan and the Red Cliffs Reserve. Once complete, the basins should not deter tortoise from using the surrounding area. As the conservation measures are followed, the proposed Main Street project *may affect, but is not likely to adversely affect* desert tortoise.

1.6.4 Desert Tortoise Critical Habitat

Desert tortoise live in a variety of habitats from sandy flats to rocky foothills, including alluvial fans, washes and canyons where suitable soils for den construction might be found. They also depend on bushes for shade and protection from predators. Because they spend the majority of their life underground, they are not seen often, but can be found from near sea level to around 3,500 feet elevation (USFWS 2019h).

Critical Habitat for Desert Tortoise was designated in 1994 (USFWS 1994) and the Main Street Debris Basin project is located near the Upper Virgin River Recovery Unit. Desert lands that are used or potentially used by the desert tortoise for nesting, sheltering, foraging, dispersal, or gene flow typically contain one or more of the following Primary Constituent Elements (PCEs):

- 1) Sufficient space to support viable populations within each of the six recovery units and provide for movements, dispersal, and gene flow
- 2) Sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species
- 3) Suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites
- 4) Sufficient vegetation for shelter from temperature extremes and predators
- 5) Habitat protected from disturbance and human-caused mortality

Critical habitat for tortoise is located just under a half-mile north of the action area at the Red Cliffs Desert Reserve. The project actions are not expected to extend to this critical habitat either directly or indirectly, and as such it is expected that there should be *no effect* on desert tortoise critical habitat.

1.6.5 Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989). The MBTA prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. A list of potential migratory birds in the Main Street area is included in the list of species that may be affected by the proposed project included in Appendix B (USFWS 2019a).

Potential foraging and nesting trees exist in the riparian habitat area just above the proposed main debris basin. Tree removal is not planned as part of the construction but should it become necessary during the general migratory bird nesting season (February – September), a preconstruction survey will be completed in order to determine whether or not nesting birds are present (no more than five days prior to construction). In the event that migratory birds are found nesting in trees that would be removed, construction activities will be postponed until the non-

nesting season or until nestlings have fledged and/or the nest fails or breeding behaviors are no longer observed.

1.7 Main Street Conservation Commitments

1. Timing of construction as well as maintenance is expected to take place outside the active tortoise season (March-June and Sept-Oct) in suitable habitat areas.
2. The project area (and surrounding habitats within one mile) will be surveyed by a qualified biologist for active raptor nests no more than five days prior to the commencement of work. If active nests are found during surveys, spatial buffers will be established around each nest site in coordination with USFWS and NRCS. Construction activities within the buffer areas would be prohibited until a qualified biologist confirms that all nests are no longer active.
3. If any trees are to be removed during migratory bird breeding and nesting season (February through September), pre-construction surveys should take place (no more than 5-day prior). If active nests are found, construction activities will be postponed until after the nesting season or until nestlings have fledged and/or the nest fails or breeding behaviors are no longer observed.
4. All construction employees will be required to read a desert tortoise educational brochure prior to site entry. The brochure will describe the biology of desert tortoises, the characteristics of suitable habitat, and the appropriate measures to take upon potential discovery of an individual. All construction employees will sign an affidavit that they have read and understand the material presented in the brochure.
5. Suitable desert tortoise habitat in the project areas will be surveyed by a USFWS-approved desert tortoise survey biologist for the presence of individuals during the active season, and no more than 30 days prior to construction. If desert tortoise or their signs are discovered during presence surveys, USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
6. If desert tortoises are encountered during construction, the project will be halted and USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
7. Trenches, pits, and other excavation sites will be checked for desert tortoises prior to backfilling.
8. Trash will be contained to reduce the potential for attracting desert tortoise predators.
9. Construction equipment (including pick-up trucks) will not exceed 10 miles-per-hour to minimize collisions with desert tortoises and reduce fugitive dust.
10. Temporarily disturbed areas will be revegetated using a USFWS-approved seed-mix.

1.8 Main Street Conclusions

Construction of the two proposed Main Street debris basins is expected to take place in the next 2-5 years pending environmental clearance, funding priorities, permitting, contracts and agreements.

- Mexican Spotted Owl: **No Effect**
- Southwestern Willow Flycatcher: **May Affect, Not Likely To Adversely Affect**
- Desert Tortoise: **May Affect, Not Likely To Adversely Affect**
- Desert Tortoise Critical Habitat: **No Effect**

Critical habitat for desert tortoise is present approximately ½-mile to the north of the action area, however no temporary or permanent impacts are expected to this critical habitat. Potential habitat exists for three species in the action area that are federally listed as threatened. Species and critical habitat effect determinations for these species are as follows:

The proposed action would have **no effect** on the remaining federally-listed ESA species with potential to occur in this area.

2. SEEGMILLER MARSH

2.1 Background of the Seegmiller Marsh Area

Seegmiller Marsh is located in an abandoned river channel meander of the Virgin River and includes multiple depressions with wetlands, open water and upland areas with a mixture of native cottonwood, willow, phragmites, cattail, and dense stands of tamarisk in wet areas along with mesquite, Russian olive, Russian thistle and rabbitbrush in the dryer areas. It provides valuable habitat for a multitude of wildlife species including nesting southwestern willow flycatcher, woundfin, and spawning Virgin River chub, all federally-listed endangered species. The area appears to have been originally created by the Virgin River but has been modified with the construction of ditches and other low structures to control the flow of water.

The marsh currently receives water from three different open channels including the Washington Fields Canal (formerly known as the Y-drain), the Middle Drain, and the Seegmiller Drain as shown on Figure F2A in Appendix F. All of these channel convey irrigation return flow and precipitation flows from local storm drains. As the surrounding area converts to more urban uses, the quality, quantity, and timing of water inflows may change therefore protecting these water sources within the marsh is of utmost importance.

The marsh is a unique resource within the City of St. George. Community leaders and natural resource managers with the Virgin River Program and Utah Division of Wildlife Resources have expressed the desire to protect and enhance the Seegmiller Marsh for future generations and are pursuing a conservation easement. The proposed plan is based on the acquisition of the property for conservation easement and intends to enhance the existing habitat, protect the marsh and surrounding land from future flooding, and create more suitable nesting habitat for flycatchers and potentially yellow-billed cuckoo. Additionally, with proper planning the marsh provides the opportunity to provide education and aesthetics to the neighboring communities.

2.2 Proposed Seegmiller Actions

The following actions are proposed at Seegmiller Marsh (See Plan Figure B4.2A, Appendix G-2):

- Acquire property or permanent easements from impacted landowners.
- Excavate sediment from the Virgin River central channel area to improve flood conveyance and reduce erosion risk.
- Excavate sediment & finish grade proposed wetland & emergent marsh expansion areas within the marsh area protected by exiting erosion protection.
- Remove invasive species vegetation from the existing marsh & river overbank in phases to allow for vegetation continuity and establishment of new Southwestern Willow Flycatcher nesting sites.
- Construct a new asphalt public trail connecting Springs Park to the Mall Drive Trail to expand public recreation opportunities including a pedestrian bridge across the Mall Drive Drain and culvert crossings across the other drains.

- Construct a new unpaved pedestrian loop trail and pedestrian bridge through the marsh interior to expand public recreation and educational opportunities including bird viewing stations with information kiosks & benches.
- Repair the existing erosion protection maintenance access road between the Virgin River and the marsh to allow for construction and maintenance access.
- Install stormwater and irrigation return flow pretreatment facilities below Mall Drain discharge point including sediment removal, trash rack and fish barrier structures.
- Install flow diversion pipeline from the pretreatment facilities to the new marsh areas with outlet control structures to allow flows to be regulated and routed throughout the marsh.
- Restore native vegetation in all disturbed areas including the Virgin River central channel and expanded marsh areas.
- Install fencing and gates at marsh entry locations to limit public access to the marsh.
- Construct rock riprap erosion protection on the west side of the Virgin River.

After the above mentioned actions are completed, ongoing operation and maintenance for Seegmiller Marsh includes potential for additional sediment removal and trash rack cleaning as needed plus vegetation, trail, access road, or pipeline maintenance. It is expected that these activities will be conducted via the access road or trail so as not to create any new disturbances. An official O&M manual will be written during final design to include details on inspections, reports, and procedures for maintenance.

2.3 Seegmiller Marsh Action Area

All of the Seegmiller Marsh action area is located on private lands. The action area includes the floodplain of approximately 4,000 linear feet of the Virgin River immediately south of the Mall Drive Bridge plus a half mile buffer to account for species evaluations and potential indirect effects such as construction disturbance, noise, and light or short term sedimentation and turbidity downstream during the construction activities. The majority of habitat work will take place on the east side of the river where the existing marsh will be enhanced as described above. Work on the west side of the river includes the addition of a riprap wall similar to the existing one on the east side to protect agricultural fields as well as future homes and development being planned in that area (see project plans, Appendix G). Access roads and staging areas are also shown on the project plan.

The existing occupied Southwestern Willow Flycatcher (SWFL) habitat at Seegmiller has specifically been excluded from the proposed project area and will be avoided both spatially and seasonally, however, its close proximity means it may still receive direct effects from the project. Water flowing into and downstream in the Virgin River will also receive flows that have made their way through the updated marsh.

2.4 Listed Species & Critical Habitat in the Seegmiller Marsh Action Area

The purpose of this section is to identify protected species and critical habitat that may be present within the Seegmiller Marsh action area. Table 2 on the next page includes all potential species as listed on the official Service list of TES that may occur in or be affected by the proposed Seegmiller project (See Official Species List, Appendix B), with habitat or species presence

determined within various boundaries from the site according to species (See Figures F2b, F2c, and F2d, Appendix F). Only those species with potential habitat and/or presence will be reviewed for potential effects in Section 2.6.

Table 2
Potential TES Species & Habitat in the Seegmiller Action Area

Species	Status	Habitat in Action Area	Critical Habitat in Action Area
Birds			
California Condor <i>Gymnogyps californianus</i>	Experimental Population (Non-Essential)	No	Not designated
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened	No	No
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered	Yes	Yes
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	Threatened	Yes	Yes (Proposed)
Fish			
Virgin River Chub <i>Gila seminuda</i>	Endangered	No	Yes
Woundfin <i>Plagopterus argentissimus</i>	Endangered	No	Yes
Plants			
Dwarf Bear-poppy <i>Arctomecon humilis</i>	Endangered	No	Not designated
Holmgren Milkvetch <i>Arctomecon humilis</i>	Endangered	No	No
Jones Cycladenia <i>Cycladenia humilis</i> var. <i>jonesii</i>	Threatened	No	Not designated
Shivwits Milkvetch <i>Astragalus ampullarioides</i>	Endangered	No	No
Siler Pincushion Cactus <i>Pediocactus sileri</i>	Threatened	No	Not designated
Reptiles			
Desert Tortoise <i>Gopherus agassizii</i>	Threatened	No	No

2.5 Seegmiller Environmental Baseline Conditions

Seegmiller Marsh has historically been owned by a small number of private landowners who have used the area surrounding the river for ranching and agriculture. The majority of the marsh area is currently on the east side of the river where natural variation in topography with additional hydrology from the three contributing channels of water creates a network of wetlands and upland islands including several ponded or inundated areas (see Seegmiller Wetlands, Appendix F2a). The marsh is located adjacent to the City of St. George master planned community park and public trails.

Flooding and erosion damage are regular occurrences along the Virgin River including impacts at Seegmiller Marsh from lateral migration of the river. In 2006, Washington County in conjunction with the NRCS installed a rock riprap erosion protection along the west boundary of the marsh (east side of the river) as part of the Middle Virgin River Emergency Watershed Protection Project to protect the marsh from future erosion events. The rock riprap erosion protection is intended to keep lateral movement of the river channel away from the marsh while allowing the marsh to be inundated by major flood events in the river, as happened most recently in December 2010 with only minor damage in the marsh.

The main pond at Seegmiller Marsh covers an area of approximately 2.5 acre and is currently used by a variety of waterfowl including swan, ducks, and geese. An upland island in the middle of the inundated marsh areas is accessible by vehicle from the private property adjacent to the main pond. Over the past four to five years it been used for livestock including goats and seen the construction of several small livestock shelters and structures. It has also been used to store equipment and other refuse. Uplands just north of the pond have also been used for bee boxes for what appear to have been present for the past eight years.

On the south side of the marsh is a private equestrian park directly south of the occupied SWFL habitat and within a couple hundred feet of known nest sites. Also within 200-300 feet of the nest sites, on the east side of the marsh, is a composting waste site which is supposed to be limited to organic materials such as yard waste clippings, trench excavation, and tree chipper waste, however, site visits revealed other trash and construction debris also being dumped at this location (See Photos, Appendix H).

Public access to the river in this area has been quite limited until the construction of the Virgin River pathway in the early 2000s which allowed more public use of the northwest side of the river. The Springs Estates housing development and establishment of Spring Park by St. George City around the same time also brought more pedestrian traffic to the southeast side of river. Although there is not an official pathway on the southeast side, a dirt two track that was likely created with the construction of the existing riprap wall provides a path for people to travel further upstream from the Springs Park for fishing, birding, and exploring. In the more densely vegetated upland areas, a semi-permanent transient camp/shelter was encountered during one of the site visits.

The construction of Mall Drive and the associated bridge in 2014 on the north end of the marsh segmented the upper most part of the marsh and now brings regular vehicle traffic over the river. The drainage pattern of the Y-Drain was also adjusted at the same time for the road/bridge construction where it is now called the Washington Fields Channel. The marsh hydrology is currently dependent on return flows from this channel as well as the two irrigation ditches (Middle Drain and Seegmiller Drain) on the adjacent agricultural fields as well as precipitation runoff from developed areas and roadways east of the marsh. As the area converts to more urban uses, the quality, quantity, and timing of water inflows will change.

Agricultural return flows can contribute sediments and a variety of pollutants to the marsh. The concentration and/or impacts to the marsh from these flows has not been identified or quantified, however, high salt levels are common in the area and, when concentrated in the soils, reduces the potential diversity of native vegetation. Stormwater pollutants are also expected to become an

increasing problem as the surrounding agricultural fields are developed which could degrade the wetland function.

The Utah Division of Wildlife Resources (UDWR) has been conducting annual bird surveys at this Seegmiller area for the past 18 years, particularly focused on southwestern willow flycatcher which are known to nest in two areas on either end of the project (See occupied habitat on Figure F2b, Appendix F). UDWR biologists and field technicians conduct three to four SWFL surveys here annually, during the nesting season (Edwards, 2018-2019). Due to the density of vegetation and standing water, the occupied habitat is less likely to be accessed by the general public which provides the birds with some natural protection from regular pedestrian traffic although it is certainly present nearby.

Finally, with development pressures in the rapidly growing area of St. George City and Washington County, it is expected that the current agricultural fields surrounding Seegmiller Marsh would be converted to housing and commercial developments in the near future.

2.6 Effects of the Seegmiller Marsh Action

This section documents the direct, indirect, and cumulative effects or impacts to habitat and species relevant to this project and overall effects to threatened, endangered, petitioned, or sensitive species. Effects will be analyzed for four species with potential habitat and/or presence in the Seegmiller Marsh action area, including southwestern willow flycatcher, western yellow-billed cuckoo, Virgin River chub, and woundfin. Migratory birds are also addressed below.

2.6.1 Southwestern Willow Flycatcher

Southwestern willow flycatchers are present in Seegmiller Marsh and have been surveyed and monitored regularly by UDWR as described above. In anticipation of housing and commercial developments in the land surrounding the marsh, a conservation easement proposed by the City of St. George, the Virgin River Program, and the UDWR will help protect the marsh from development encroachment which could potentially isolate the SFWL habitat and eventually drive the birds out. Occupied habitat as shown on Figure F2b in Appendix F has intentionally been avoided in the project plans for this area but habitat enhancements have been proposed in marginal nesting/foraging habitat area.

The planned extension of the Virgin River South trail will intentionally veer from the river to avoid the occupied habitat and stay on the outside perimeter of the marsh. An unimproved loop trail will meander through the marginal habitat to allow birders access to the existing and planned ponds. This trail also avoids current occupied habitat and will have several designated bird viewing stations to limit public access within the marsh and wetlands. These bird viewing stations should also help provide more privacy for the birds while still allowing the public to view wildlife. Fencing, gates, and signs will be installed at the unimproved trail entrance as well as an existing two track maintenance road to keep the public out during nesting and breeding season.

Habitat improvements are also part of the project plans and include removing sediment buildup, diverting water to expanded channels and ponds within the marsh, and restoring native vegetation in a phased conversion from the tamarisk monoculture to native trees and shrub species with

limited tamarisk (30%). Per the Common Virgin River Applicant Committed Measures/Best Management Practices (Appendix J) any construction or project related work will take place outside the breeding season (April 15 - August 31). See additional conservation measures in Section 2.8.

Potential harm to this species is not expected as part of the proposed actions as they are not expected to be present during construction. Additionally, any ongoing operation and maintenance activities will be schedule outside the breeding season for the same purpose. There is, however, potential for harassment post-construction, likely as an indirect result of increased public access in the area. Although the loop gravel trail with birding stations will be closed during breeding season to limit public access, the south extension of the Virgin River bike/pedestrian trail on the outskirts of the action area will be open year round. Increased noise and presence of people have the potential to startle or alarm the birds, causing potential behavioral responses such as avoidance, abandonment, or displacement activities.

The overall goals for the Seegmiller project include improving riparian habitat as described above which should create more suitable nesting habitat for southwestern willow flycatchers than is currently present as well as protect this habitat into perpetuity from impending development. Although plans for a nearby park and new trails do bring the public closer to flycatcher habitat than has historically been accessible, the trails and public access have intentionally been planned on the outside perimeter of the marsh. As is currently the case, the vegetation density and standing water will also deter general pedestrians from using the main nesting areas. The project construction and related work will take place outside of nesting/breeding season to avoid any direct impacts to the birds, and with project plans to improve habitat and potentially create more suitable nesting and breeding habitat than is currently available, it is expected that any indirect impacts to flycatchers should be temporary. Placing the marsh into conservation easement also help designate protect the birds in this area for the future. With the potential temporary impacts in mind, however, the proposed actions *may affect*, and is *likely to adversely affect* the listed species.

2.6.2 Southwestern Willow Flycatcher Critical Habitat

Critical habitat was designated for the southwestern willow flycatcher in 2005 and includes areas in southern California; Arizona; New Mexico; Clark County, Nevada; and Washington County, Utah (USFWS 2005). The action area is located in the Virgin Management Unit of critical habitat and includes approximately 20 miles of the Virgin River and its associated 100-year floodplain from the Utah/Arizona border to approximately 6 miles northeast of St. George. The PCEs of designated critical habitat for the southwestern willow flycatcher include the following:

- 1) Riparian habitat in a dynamic successional riverine environment that provides opportunities for nesting, foraging, migration, dispersal, and shelter.
- 2) A variety of insect prey populations within or adjacent to riparian floodplains or moist environments.

The project includes plans to eliminate invasive plant species and replace them with vegetation intended to improve flycatcher habitat (willows and cottonwoods), direct more water through the

existing and potential habitat, and create more ponded areas. While the additional water and vegetation are planned to improve habitat, the removal and replacement of the existing vegetation will create temporary vegetative changes that may deter the birds from using the area until the new vegetation has become established. To reduce species avoidance, vegetation removal will be phased according to direction given from UDWR (Edwards 2018). With time, as the shrubs and trees grow, the quality of the habitat should be better than its present condition.

Within critical habitat, the temporary disturbances expected include recontouring within the marsh, pipeline installation, erosion protection installation (buried portion), equipment access and movement during construction, debris removal, and the vegetation changes mentioned above. Temporary impacts total 27.43 acres. Permanent impacts within critical habitat include the exposed riprap and associated access road, small portions of the paved Virgin River South Trail, the new gravel loop trail, the bird viewing stations, access bridges, and flow control devices which total 1.68 acres. Expected impacts to each PCE are as follows:

- 1) Riparian habitat in a dynamic successional riverine environment that provides opportunities for nesting, foraging, migration, dispersal, and shelter:
 - a. The project will result in a loss of approximately 1.68 acres of riparian habitat or areas that could potentially become riparian habitat over time. These permanently affected areas are unlikely to establish riparian trees in the future as a result of the trails and permanent above ground features in the 100-yr floodplain.
- 2) A variety of insect prey populations within or adjacent to riparian floodplains or moist environments:
 - a. The project is not expected to have long term effects to insect prey populations.

To avoid clear cutting and thus total elimination of foraging habitat as the vegetation replacement takes place, the removal of invasive species will be phased according to direction from UDWR (Edwards 2018). With time, as the shrubs and trees grow, the quality of the habitat should be better than its present condition and the quantity of vegetation available for flycatcher nesting should increase. Finally, plans to conserve the property under easement should protect the improved habitat into perpetuity. While the overall project should result in improved flycatcher habitat, due to permanent impacts within proposed critical habitat, the project *may affect, and is likely to adversely affect* proposed critical habitat for southwestern willow flycatchers. .

2.6.3 Western Yellow-billed Cuckoo

Although cuckoo are not known to nest in Seegmiller Marsh, there is potential and foraging habitat which could be used by nearby nesting birds. No cuckoos were observed during two site visits made during nesting/breeding season, however presence surveys were not conducted. The last known presence surveys for cuckoo at Seegmiller were conducted by the UDWR in 2013, the results of which did include some return calls from this species although no nesting was confirmed (Defreese 2018a).

Potential harm to this species is not expected as part of the proposed actions as they should not be present during construction. Additionally, any ongoing operation and maintenance activities will be scheduled outside the breeding season for the same purpose. There is, however, potential for harassment post-construction if cuckoo are indeed utilizing this area, likely as an indirect result of increased public access. Although the gravel loop trail with birding stations will be closed during breeding season to limit public access, the south extension of the Virgin River bike/pedestrian trail on the outskirts of the action area will be open year round. Increased noise and presence of people have the potential to startle or alarm the birds, causing potential behavioral responses such as avoidance, abandonment, or displacement activities.

The overall goals for the Seegmiller project include improving riparian habitat for western yellow-billed cuckoo which should create more suitable nesting habitat than is currently present. Although plans for a nearby park and trails do bring the public closer to potential cuckoo habitat than has historically been accessible, the trails and public access have intentionally been planned on the outside perimeter of the marsh. The project is expected to take place outside of nesting/breeding season but as the exact timing for the project becomes available, presence surveys are recommended in the season prior to construction to determine occupancy and further identify potential impacts. As of the writing of this assessment, however, with project plans to improve habitat and potentially create more suitable nesting and breeding habitat than is currently available, it is expected that the proposed actions *may affect*, but *not likely adversely affect* the listed species.

2.6.4 Western Yellow-billed Cuckoo Proposed Critical Habitat

Critical habitat was proposed for the western yellow-billed cuckoo in 2014 (USFWS 2014). The action area is located in the proposed UT-8 (Virgin River 2) critical habitat unit that includes approximately 13 miles of the Virgin River and its associated 100-year floodplain in the vicinity of St. George, Utah. The PCEs of designated critical habitat for the western yellow-billed cuckoo include the following:

- 1) Riparian Woodlands
- 2) Adequate Prey Base
- 3) Dynamic Riverine Environment

Much of the Seegmiller project falls within proposed critical habitat (See Figure F2c, Appendix F). While most of the project area does not contain the typical multilayered vegetation necessary for nesting and breeding habitat, a 15-acre area adjacent to and partially within the project area has marginal habitat for nesting (USFWS 2017). This habitat patch contains approximately twelve 20-ft tall cottonwoods so lacks a significant canopy and the understory is dominated by tamarisk (>50%) the density of which is less likely to support nesting cuckoo (Halterman 2016).

In anticipation of housing and commercial developments in the land surrounding the marsh, the conservation easement proposed by the City of St. George, the Virgin River Program, and the UDWR will help protect the marsh from development encroachment which could potentially isolate this cuckoo habitat and eventually drive the birds out. Additionally, the project includes plans to eliminate invasive plant species and replace them with vegetation likely to improve

cuckoo habitat (willows and cottonwoods), direct more water through the existing and potential habitat, and create more ponded areas. These improvements to riparian habitat should in turn improve potential cuckoo nesting and breeding habitat by creating more layered vegetation than is currently present, although it may take several years for the replacement vegetation to become established and fill in to the densities and heights cuckoo prefer.

Within proposed critical habitat, the temporary disturbances expected include recontouring within the marsh, pipeline installation, erosion protection installation (buried portion), equipment access and movement during construction, debris removal, and phased vegetation replacement. Temporary impacts total 26.92 acres. Permanent impacts within critical habitat include the exposed riprap and associated access road, small portions of the paved Virgin River South Trail, the new gravel loop trail, the bird viewing stations, access bridges, and flow control devices which total 1.53 acres. Expected impacts to each PCE are as follows:

- 1) Riparian Woodlands
 - a. The project will results in a loss of approximately 1.53 acres of riparian habitat or areas that could potentially become riparian habitat over time. These permanently affected areas are unlikely to establish riparian trees in the future as a results of the trails and permanent above ground features in the 100-yr floodplain.
- 2) Adequate Prey Base
 - a. The project is not expected to have long term effects to insect prep populations.
- 3) Dynamic Riverine Environment
 - a. The project would result in the temporary disturbance of approximately 27.1 acres of riverine habitat part of which includes potential stopover and/or foraging habitat.
 - b. The project is not expected to meaningfully disrupt the riverine conditions necessary to support breeding, nesting, or foraging habitat for western yellow-billed cuckoos.

To avoid clear cutting and thus total elimination of foraging habitat as the vegetation replacement takes place, the removal of invasive species will be phased according to direction from UDWR (Edwards 2018). With time, as the shrubs and trees grow, the quality of the habitat should be better than its present condition and the quantity and patch size of multistoried vegetation available for cuckoo nesting should increase. Finally, plans to conserve the property under easement should protect the improved habitat into perpetuity. While the overall project should result in improved cuckoo habitat, due to permanent impacts within proposed critical habitat, the project *may affect, and is likely to adversely affect* proposed critical habitat for western yellow-billed cuckoo.

2.6.5 Virgin River Chub

The Virgin River chub (*Gila seminude*) is an extremely rare minnow occurring only in the Virgin River System of southwestern Utah, southern Nevada, and northwestern Arizona. Numbers of fish

have been drastically reduced due to competition and predation from exotic fishes and alterations in flows. Although they are most common in deep, swift water, it tolerates a variety of conditions and therefore over 93 miles of river has been designated as critical habitat, including the floodplain where the Seegmiller Marsh has developed (See Figure F2d, Appendix F), (USFWS 2000).

A fish survey was not completed specifically for the proposed actions but fish presence, including Virgin River chub is assumed in the nearby river. To reduce potential impacts, construction timing for this project has been planned outside of spawning season (April 11 - July 31) to avoid spawning fish, however, as fish may be present at any time of year, potential effects during construction do exist. Direct effects to Virgin River chub are not expected as no construction will take place in the river itself, but indirect effects have the potential to occur if disturbed waters in any of the existing or rerouted channels remain turbid as they re-enter the river. As the rerouted water will travel approximately 1750 feet through undisturbed marsh, sediments should have time to naturally settle as they flow through the marsh as well as the through the existing riprap wall, therefore impacts from sedimentation and turbidity should be eliminated. As such, the proposed action *may affect, but is not likely to adversely affect* Virgin River chub.

2.6.6 Virgin River Chub Critical Habitat

Critical habitat was designated for the Virgin River chub on January 25, 2000 (USFWS 2000) and includes 87.5 miles of the Virgin River and its associated 100-year floodplain, extending from the confluence of La Verkin Creek, Utah, to Halfway Wash, Nevada. According to the Service, the PCEs of critical habitat determined necessary for the survival and recovery of the Virgin River chub include water, physical habitat, and the biological environment. The desired condition for each of these elements are as follows:

- 1) Water—a sufficient quantity and quality of water (i.e., temperature, dissolved oxygen, contaminants, nutrients, sedimentation, etc.) that is delivered to a specific location in accordance with a hydrologic regime that is identified for the particular life stage for each species. This includes:
 - Water quality characterized by natural seasonally variable temperature, turbidity, and conductivity
 - Hydrologic regime characterized by the duration, magnitude, and frequency of flow events capable of forming and maintaining channel and in-stream habitat necessary for particular life stages at certain times of the year;
 - Flood events inundating the floodplain necessary to provide the organic matter that provides or supports the nutrient and food sources for the listed fishes
- 2) Physical Habitat—areas of the Virgin River that are inhabited or potentially habitable by a particular life stage for Virgin River chub, for use in spawning, nursing, feeding, and rearing, or corridors between such areas:
 - River channels, side channels, secondary channels, backwaters, and springs, and other areas which provide access to these habitats.
 - Areas with slow to moderate velocities, within deep runs or pools, with predominately sand substrates, particularly habitats that contain boulders or other instream cover.

- 3) Biological Environment—food supply, predation, and competition are important elements of the biological environment and are considered components of this constituent element. Food supply is a function of nutrient supply, productivity, and availability to each life stage of the species. Predation and competition, considered normal components of this environment, are out of balance due to non-native fish species in many areas.

Components of this constituent element include the following:

- Seasonally flooded areas that contribute to the biological productivity of the river system by producing allochthonous organic matter (humus, silt organic detritus, colloidal matter, and plants and animals produced outside the river and brought into the river) which provides and supports much of the food base
- Few or no predatory or competitive non-native species in occupied Virgin River fishes' habitats or potential re-establishment sites

The installation of the riprap erosion protection wall, paved Virgin River South Trail on the habitat outskirts, the gravel loop trail, and several bird viewing stations, all within the Virgin River's 100-year floodplain, would result in the permanent loss of 3.53 acres of designated critical habitat for Virgin River Chub. Temporary disturbances are also expected during construction which total 34.49 acres within critical habitat in the 100-year floodplain. Direct disturbances are not expected within the actively flowing river channel. Expected impacts to each PCE are as follows:

- 1) Water
 - a. The project would not affect quantity or quality of water, nor would it change the duration, magnitude, or frequency of flow event.
- 2) Physical Habitat
 - a. The project would not affect the physical habitat for fish within the Virgin River.
- 3) Biological Environment
 - a. The project would install walls and armoring that although mostly buried, would prevent areas of the floodplain from contributing to the biological environment of the river during flood events through natural processes of scour and lateral movement. These areas contribute to the biological productivity of the river system by producing allochthonous organic matter which provides and supports much of the food base for Virgin River chub. The project would permanently limit the river's access to portions of the 100-year floodplain and may negatively affect future benefits to Virgin River chub and their food base.

The County anticipates coordinating with the Service, UDWR, and the Virgin River Program for project specific planning for this project in addition to following the Common Virgin River Applicant Committed Measures/Best Management Practices during construction (Appendix J). Section 2.8 below describes in more detail the measures and best management practices planned to minimize negative effects in critical habitat. Although the project is designed to improve habitat by increasing flows through the marsh, eliminating invasive species, and preserving the area from development and potential encroachments into important habitat, some permanent impacts are

expected and such it is expected that the proposed action *may affect, and is likely to adversely affect* critical habitat.

2.6.7 Woundfin

The woundfin (*Plagopterus argentissimus*) is small minnow occurring in the Colorado River basin, including the Virgin River which has seen decline through damming and water development throughout the region. It is usually found in swift, turbid, warm streams over sandy substrates and has critical habitat designated in the project area (See Figure F2d, Appendix F), (USFWS 2000).

As mentioned above, a fish survey was not completed specifically for this proposed actions, but woundfin are assumed to be present in the nearby river. To reduce potential impacts, construction timing for this project has been planned outside of spawning season (April 11 - July 31) to avoid spawning fish, however, as fish may be present at any time of year, potential effects during construction do exist. Direct effects to woundfin are not expected as no construction will take place in the river itself, but indirect effects may occur if disturbed waters in any of the existing or rerouted channels remain turbid as they re-enter the river. As the rerouted water will travel approximately 1750 feet through undisturbed marsh, sediments should have time to naturally settle as they flow through the marsh as well as the through the existing riprap wall, therefore impacts from sedimentation and turbidity should be eliminated. As such, the proposed action *may affect, but is not likely to adversely affect* woundfin.

2.6.8 Woundfin Critical Habitat

The installation of the paved Virgin River South Trail on the habitat outskirts, the gravel loop trail, and several bird viewing stations, all within the Virgin River's 100-year floodplain, would result in the permanent loss of 3.53 acres of designated critical habitat for woundfin. Temporary disturbances are also expected during construction which total 37.52 acres within critical habitat in the 100-year floodplain. Direct disturbances are not expected within the actively flowing river channel.

Critical habitat PCEs for woundfin and the potential impacts on each are the same as the Virgin River chub (See Section 2.6.6 above) and include 34.49 acres of temporary impact and 3.53 acres of permanent impact within designated critical habitat. Planning with agencies and the use of BMPs will be used to minimize negative effects in critical habitat. Although the project is designed to improve habitat by increasing flows through the marsh, eliminating invasive species, and preserving the area from development and potential encroachments into important habitat, due to the expected permanent impacts the proposed action *may affect, and is likely to adversely affect* critical habitat.

2.6.9 Migratory Birds

A list of potential migratory birds in the Seegmiller Marsh area is included in the list of species that may be affected by the proposed project included in Appendix B (USFWS 2019b). Potential foraging and nesting trees are abundant throughout the Seegmiller Marsh area. Construction timing is already planned outside the nesting/breeding season for the listed bird species described

above, but in the case that any tree removal is planned as part of the construction during the general migratory bird nesting season (February – September), a preconstruction survey will be completed in order to determine whether or not nesting birds are present (no more than five days prior to construction). In the event that migratory birds are found nesting in trees that would be removed, construction activities will be postponed until the non-nesting season or until nestlings have fledged and or the nest fails or breeding behaviors are no longer observed.

2.7 Seegmiller Marsh Cumulative Effects

Plans at Seegmiller Marsh are intended to improve riparian habitat and provide more nesting habitat for western yellow-billed cuckoo and southwestern flycatcher. Cumulative effects are expected to be positive over time and should not result in loss of species viability or habitat. Conversely, habitat improvements have the potential to benefit these species by creating more available nesting, breeding, and foraging habitat, and by protecting this unique marsh from local development through a conservation easement. As the St. George area continues to grow at a rapid rate, this preserve will help protect the limited habitat of these listed species.

2.8 Seegmiller Marsh Conservation Commitments

To minimize impacts and maximize conservation measures the County anticipates coordinating with the USFWS, UDWR, and the Virgin River Program on the planning and development of the Seegmiller Marsh project, as well as by following the Common Virgin River Applicant Committed Measures/Best Management Practices (Appendix J). Specific measures and plans known at this time include the following:

1. Construction will be scheduled between September 1st and March 31st to avoid spawning and breeding season for fish and birds. If the project is not complete during this time construction must be halted until after the breeding and spawning season is over, unless approved by USFWS.
2. The project area (and surrounding habitats within one mile) will be surveyed by a qualified biologist for active raptor nests no more than five days prior to the commencement of work. If active nests are found during surveys, spatial buffers will be established around each nest site in coordination with USFWS and NRCS. Construction activities within the buffer areas would be prohibited until a qualified biologist confirms that all nests are no longer active.
3. As removal of some existing invasive plant species is expected, a SWPP will be prepared by the contractor to include silt fencing to prevent run off during construction which has potential to be greater than usual during storm events with the removal of existing vegetation.
4. If construction materials are displaced by high flows the applicant will contact the UDWR or the Virgin River Program (Steve Meisner) as soon as possible to coordinate the least intrusive retrieval methods.
5. Care will be taken to minimize sedimentation resulting from bank or stream bed disturbance.
6. Equipment will be cleaned to remove noxious weeds/seeds and petroleum products prior to moving on site. Additionally, any chemical pollutants produced during the construction activities shall be disposed of according to the Common Virgin River Applicant Committed Measures/Best Management Practices (Appendix J)

7. Fueling machinery will occur off site or in a confined, designated area to prevent spillage into waterways and wetlands.
8. Materials will not be stockpiled in the riparian areas or other sensitive areas, i.e., wetlands or occupied TES habitat.
9. Fill materials will be free of fines, waste, pollutants, and noxious weeds/seeds.
10. Equipment will work from the top of the bank or from the channel to minimize disturbance to the riparian area and to protect the banks. Heavy equipment will avoid crossing and/or disturbing wetlands.
11. The number of ingress and egress routes to/from all project sites will be kept to a minimum.
12. Excavated soils will be sorted into mineral soils and top soils. When backfilling a disturbed site, top soils will be placed on top to provide a seed bed for native plants.
13. Excavated material and construction debris may not be wasted in any stream channel or placed in flowing waters or adjacent wetlands; this will include material such as grease, oil, joint coating, or any other possible pollutants. Excess material must be wasted at an upland site away from any channel or habitat of a federally listed or sensitive species. All construction materials must be removed from the active channel and from the 100-year floodplain at the end of the project.
14. The applicant will complete the project in as short of a timeframe as possible (taking into account the terms and conditions above) to minimize the potential for damage to the altered channel during high flows caused by storm events and to reduce the potential for birds to abandon use of the area.
15. When construction is complete, revegetation in the form of seeding and pole planting of riparian vegetation will be coordinated with USFWS, UDWR and including planting plans, techniques, and sources of vegetation material. General details including approved species can be found in the Common Virgin River Applicant Committed Measures/Best Management Practices (Appendix G). Revegetation efforts will be monitored for three years with replanting and reseeding required if not successful over that time.
16. Vegetation removal and replacement will be phased according to instructions from UDWR.
17. Continued surveys/monitoring of the nesting SWFL to determine any long term negative effects which may lead to potential adjustments to the project plans.

2.9 Seegmiller Marsh Conclusions

The Seegmiller Marsh project will likely be phased over the next 3-5 years as the land is acquired, the conservation easement is worked out, and all the other land owners and stake holders work together to put the proposed plan into effect. Environmental clearances, permitting, contracts and other agreements will also need to be in place prior to construction. Potential habitat exists for four species in the action area that are federally listed as threatened. Effect determinations for these species are as follows:

- Southwestern Willow Flycatcher: **May Affect, Likely To Adversely Affect**
- Virgin River Chub: **May Affect, Not Likely To Adversely Affect**
- Western Yellow-billed Cuckoo: **May Affect, Not Likely To Adversely Affect**
- Woundfin: **May Affect, Not Likely To Adversely Affect**

Critical habitat is present in the action area for southwestern willow flycatcher, Virgin River Chub, and woundfin. Proposed critical habitat is present in the action area for western yellow-billed cuckoo. Table 3 below summarizes the expected temporary and permanent impacts:

Table 3 – Seegmiller Critical Habitat Impacts

Habitat	Temporary Impacts (acres)	Permanent Impacts (acres)
Southwestern Willow Flycatcher Critical Habitat	27.43	1.68
Western Yellow-billed Cuckoo Proposed Critical Habitat	26.92	1.53
Virgin River Chub Critical Habitat	34.49	3.53
Woundfin Critical Habitat	34.49	3.53

Based on the potential temporary and permanent impacts the effect determinations for critical habitat are as follows:

- Southwestern Willow Flycatcher Critical Habitat: **May Affect, Likely To Adversely Affect**
- Virgin River Chub Critical Habitat: **May Affect, Likely To Adversely Affect**
- Western Yellow-billed Cuckoo Critical Habitat: **May Affect, Likely To Adversely Affect**
- Woundfin Critical Habitat: **May Affect, Likely To Adversely Affect**

The proposed action would have **no effect** on the remaining federally-listed ESA species with potential to occur in this area.

3. Y-DRAIN

3.1 Background of the Y-Drain Area

Historically the Y-Drain ditch has conveyed irrigation runoff and rainfall runoff from agricultural lands in the Washington Fields via open ditches and canals to the Seegmiller Marsh and eventually to the Virgin River. As residential development has occurred in the Washington Fields in recent years, irrigation runoff has been reduced and rainfall runoff discharges to the ditches and canals has increased. Many of the irrigation ditches have been replaced over time with underground storm drains. Portions of the Y-Drain ditch upstream and downstream of this project area have been replaced with underground storm drains. Currently, there remains only 350-feet of open unlined earthen ditch on this arm of the Y-Drain which is surrounding by houses on the north and Riverside Elementary on the southeast, and an empty lot on the southwest. Invasive species dominate the vegetation within and along lining the canal including Russian olive, tamarisk, and phragmites while various weeds, grasses and Russian thistle dominate the upland areas of the canal corridor. Storm drains from adjacent streets and developed areas enter the ditch from adjacent streets and developed areas.

3.2 Proposed Y-Drain Actions

To help mitigate the potential flooding along the Y-Drain ditch from expected storm water runoff generated in the Washington Fields area, improve the water quality and efficiency to the Seegmiller Marsh from the Y Drain ditch and to improve public safety and access to public trails for recreation the following actions have been proposed at the Y-Drain project (See Plan Figure B4.3, Appendix G3):

- Construct a new 54-inch diameter RCP storm drain pipeline and storm drain manholes to replace the existing pipe crossing Sandia Road.
- Enclose the open ditch section of the Y-Drain including connections to the existing storm drains adjacent to the new storm drain and rerouting existing utilities in Sandia Road as needed.
- Construct a 10-foot wide asphalt paved pedestrian/bicycle trail parallel to the pipeline to connect the existing trail to Sandia Road.

After construction of the above mentioned actions are complete, ongoing operation and maintenance for the Y-Drain area includes potential for trail or pipeline maintenance. An official O&M manual will be written during final design to include details on inspections, reports, and procedures for maintenance.

3.3 Y-Drain Action Area

All of the Y-drain action area is located on private lands. The Y-drain action area includes the existing 350-ft open channel which daylights at the north end of Riverside Elementary School where an existing pedestrian/bicycle trail ends and is piped again when it reaches the Sandia Road culvert on the downstream end. The action area also includes a half mile buffer to account for species evaluations and potential indirect effects such as construction disturbance, noise, and light or short term sedimentation and turbidity downstream during the construction activities. The existing canal crossing under Sandia Road will also be replaced as part of this project.

Construction access will take place from Sandia road directly to the ditch and staging is planned in the empty lot on the corner of Sandia and Merrill Roads adjacent to the ditch. The existing right-of-way for the canal and other utilities will be utilized during construction.

Water will be rerouted during construction to prevent work in water leading to increased turbidity and sediments flowing downstream during construction. As piping of the Y-Drain should increase water quality and efficiency, hydrology at the Seegmiller marsh about a half-mile downstream should be improved from this project (see Seegmiller Marsh, Section 2 of this document).

3.4 Listed Species & Critical Habitat in the Y-Drain Action Area

The purpose of this section is to identify protected species and critical habitat that may be present within the Y-Drain action area. Table 4 on the next page includes summarizes the official Service list of TES that may occur in or be affected by the proposed Y-Drain project (See Official Species List, Appendix B), with habitat or species presence determined within various boundaries from the site according to species (See Figure F3, Appendix F). Only those species with potential habitat and/or presence will be reviewed for potential effects in Section 3.6.

Table 4
Potential TES Species & Habitat in the Y-Drain Action Area

Species	Status	Habitat in Action Area	Critical Habitat in Action Area
Birds			
California Condor <i>Gymnogyps californianus</i>	Experimental Population (Non-Essential)	No	Not designated
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened	No	No
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered	Yes	Yes, 0.25 miles northeast of action
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	Threatened	Yes	Yes (Proposed) 0.25 miles northeast of action
Fish			
Virgin River Chub <i>Gila seminuda</i>	Endangered	No	Yes, 0.25 miles northeast of action
Woundfin <i>Plagopterus argentissimus</i>	Endangered	No	Yes, 0.25 miles northeast of action
Plants			
Dwarf Bear-poppy <i>Arctomecon humilis</i>	Endangered	No	Not designated
Holmgren Milkvetch <i>Arctomecon humilis</i>	Endangered	No	No
Jones Cycladenia <i>Cycladenia humilis var. jonesii</i>	Threatened	No	Not designated
Shivwits Milkvetch <i>Astragalus ampullarioides</i>	Endangered	No	No
Reptiles			
Desert Tortoise <i>Gopherus agassizii</i>	Threatened	No	No

3.5 Y-Drain Environmental Baseline Conditions

The Y-Drain ditch corridor is currently owned by the St. George and Washington Canal Company, but is maintained by the Washington City Public Works Department as part of the city storm drain system. Invasive species including Russian olive and phragmites choke the canal which requires regular maintenance and cleaning. An existing pedestrian/bicycle trail ends at the upstream end of the Y-Drain ditch on the west. The downstream end enters a culvert crossing under Sandia Road. There are various encroachments into the ditch including unpermitted pedestrian bridges, fences, undocumented fill and a concrete basketball court. The Y-Drain ditch is considered a public safety hazard because of its location between a residential neighborhood and an elementary school. The ditch is easily accessible to small children crossing between the neighborhood and the school.

3.6 Effects of the Y-Drain Action

This section documents the direct, indirect, and cumulative effects or impacts to habitat and species relevant to this project and overall effects to threatened, endangered, petitioned, or sensitive species. Effects will be analyzed for four species with potential habitat and/or presence in the Y-drain action area, including southwestern willow flycatcher, western yellow-billed cuckoo, Virgin River chub, and woundfin. Effects to critical or proposed critical habitat area included for each of these species. Migratory birds are also addressed below.

3.6.1 Southwestern Willow Flycatcher & Critical Habitat

Southwestern willow flycatchers are known to occupy Seegmiller Marsh a half-mile downstream of this section of the Y-drain. The overall goals for the Y-drain project includes improving water supplies that should in turn improve riparian habitat downstream. Downstream improvements that will potentially create more suitable nesting and breeding habitat than is currently available, are described in the above review of Seegmiller Marsh. Due to the distance plus plans for improving downstream habitat it is expected that any indirect impacts to flycatchers and should be limited and temporary. As such, the proposed actions *may affect*, but are *not likely to adversely affect* southwestern willow-flycatcher. No direct or indirect impacts are expected to proposed critical habitat or the associated PCEs, therefore it is expected that the proposed action should have *no effect* on critical habitat for southwestern willow-flycatcher.

3.6.2 Western Yellow-billed Cuckoo & Proposed Critical Habitat

Critical habitat has been *proposed* for western yellow-billed cuckoo and exists about a half-mile downstream of the Y-drain project area (See Figure F3, Appendix F) however no suitable nesting habitat is present within the half-mile buffer as shown on the same figure. The overall goals for the Y-drain project includes improving water supplies that should in turn improve riparian habitat downstream. Downstream improvements that will potentially create more suitable nesting and breeding habitat than is currently available, are described in the above review of Seegmiller Marsh. Due to the distance plus plans for improving downstream habitat is expected that any indirect impacts to cuckoo should be limited and temporary. As such, the proposed actions *may affect*, but are *not likely to adversely affect* western yellow-billed cuckoo. No direct or indirect impacts are

expected to proposed critical habitat or the associated PCEs, therefore it is expected that the proposed action should have *no effect* on critical habitat for western yellow-billed cuckoo.

3.6.3. Virgin River Chub & Critical Habitat

A fish survey was not completed specifically for the proposed actions but the Virgin River chub (*Gila seminude*) is assumed to be present in the Virgin River downstream. Direct effects to Virgin River chub are not expected as no construction will take place in the river itself, but indirect effects may occur if disturbed waters in the Y-drain remain turbid when they re-enter the river. As any flowing water in the canal is expected to be rerouted during construction and as potentially disturbed water will travel over a half mile through marsh habitat, sediments should have time to naturally settle before they reach the river. Section 3.7 below describes in more detail the measures and best management practices planned to minimize potential negative effects to downstream fish species and habitat. As such, the proposed action *may affect, but is not likely to adversely affect* Virgin River chub. No direct or indirect impacts are expected to critical habitat or the associated PCEs, therefore it is expected that the proposed action should have *no effect* on critical habitat for Virgin River chub downstream.

3.6.4 Woundfin & Critical Habitat

A fish survey was not completed specifically for the proposed actions but woundfin (*Plagopterus argentissimus*) presence is assumed in the Virgin River downstream. Direct effects to woundfin are not expected as no construction will take place in the river itself, but indirect effects may occur if disturbed waters in the Y-drain remain turbid when they re-enter the river. As any flowing water in the canal is expected to be rerouted during construction and as potentially disturbed water will travel over a half mile through marsh habitat, sediments should have time to naturally settle before they reach the river. Section 3.7 below describes in more detail the measures and best management practices planned to minimize take and other negative effects to downstream fish species and habitat. As such, the proposed action *may affect, but are not likely to adversely affect* woundfin. No direct or indirect impacts are expected to critical habitat or the associated PCEs, therefore it is expected that the proposed action should have *no effect* on critical habitat for woundfin downstream.

3.6.5 Migratory Birds

A list of potential migratory birds in the Y-drain area is included in the list of species that may be affected by the proposed project (Appendix B). Although bird habitat is limited in the potentially disturbed areas for this project, there are several Russian olive along the canal where migratory birds could potentially forage and nest. In order to avoid impacts to migratory birds protected under the MBTA, if any tree removal is planned as part of the construction during the nesting season (February - September), a preconstruction survey will be completed in order to determine whether or not nesting birds are present (no more than five days prior to construction). In the event that migratory birds are found nesting in trees that would be removed, construction activities will be postponed until the non-nesting season or until nestlings have fledged and or the nest fails or breeding behaviors are no longer observed.

3.7 Y-Drain Conservation Commitments

1. If any trees are to be removed during migratory bird breeding and nesting season (February through September), pre-construction surveys should take place (no more than 5-day prior). If active nests are found, construction activities will be postponed until after the nesting season or until nestlings have fledged and/or the nest fails or breeding behaviors are no longer observed.
2. No work shall take place in flowing water. The contractor shall reroute any flows during construction.

3.8 Y-Drain Conclusions

Piping of the above described section of Y-Drain is expected to take place in the next 2-3 years pending environmental clearance, funding priorities, permitting, contracts and agreements. Habitat exists for four species downstream of the project that are federally listed as threatened or endangered where presence of those species is likely. Effect determinations for these species are as follows:

- Southwestern Willow Flycatcher: **May Affect, Not Likely To Adversely Affect**
- Virgin River Chub: **May Affect, Not Likely To Adversely Affect**
- Western Yellow-billed Cuckoo: **May Affect, Not Likely To Adversely Affect**
- Woundfin: **May Affect, Not Likely To Adversely Affect**

Critical or proposed critical habitat exists for each of the abovementioned species downstream of the action area, however, no permanent impacts are expected, nor any direct, quantifiable temporary impacts. Effect determinations for critical habitat are as follows:

- Southwestern Willow Flycatcher Critical Habitat: **No Effect**
- Virgin River Chub Critical Habitat: **No Effect**
- Western Yellow-billed Cuckoo Proposed Critical Habitat: **No Effect**
- Woundfin Critical Habitat: **No Effect**

The proposed action would have **no effect** on the remaining federally-listed ESA species with potential to occur in this area.

4. WARNER VALLEY DISPOSAL SYSTEM

4.1 Background of the Warner Valley Disposal System Area

Warner Draw Disposal System (WVDS) collects and conveys discharge water from three existing NRCS constructed debris basins in the Washington Fields area of Washington County. These three basins include the Gypsum Debris Basin, the Warner Draw Debris Basin, and the Stucki Debris Basin (See Warner Disposal Location Map, Appendix G). The NRCS is currently working on projects to bring these three debris basins up to current design standards and to address the pipeline capacity concerns.

Prior to construction of the WVDS, storm water from the three Washington Fields Debris Basins was discharged into the Washington Fields Canal where it was routed through the canal and eventually discharged into the Fort Pearce Wash to the west. In 2007 the Washington Fields Canal was enclosed into a pressurized pipeline which collects storm water from portions of the City and from the three Washington Fields Debris Basins and conveys it to the Fort Pearce Wash as shown on the Warner Draw Disposal Location Map in Appendix G.

Currently the WVDS has capacity for the discharge flows expected from the three Washington Fields Debris Basins, but with the recent development pressure, the NRCS and St. George City would like to ensure that the WVDS will be able to convey both the NRCS Debris Basin flows and expected stormwater from surrounding developments (existing and planned) through the construction of two debris basins where excess flows could temporarily be contained with metered release. Additional improvements including updating the outfall headwall, removing existing sediment in the pipeline, piping a small section of remaining open channel, and incorporating a trail system into the pipeline alignment are also included in this project.

4.2 Proposed Warner Valley Disposal System Actions

The following actions are proposed for the WVDS (see Plan Figures B4.4A-C, Appendix G4):

- Install new headwall on 66-inch reinforced concrete pipe (RCP) with flap gate or Tideflex valve
- Install new flap gate or Tideflex valve on outlet pipe from storm drain inlet to prevent backwater from flooding roadway sag
- Remove sediment from pipeline between River Road Crossing and Fort Pearce Wash
- Enclose existing open channel using 72-inch RCP
- Construct proposed 4.7 ac-ft detention basin (West DB)
- Construct proposed 7.3 ac-ft detention basin (East DB)
- Require future developments to detain to pre-development conditions
- Remove existing 66-inch RCP constructed to create a belly in the pipeline and install new 66-inch RCP with constant downstream slope
- Install new multi-use asphalt and equestrian trail from River Road to 2350 East

- Install new multi-use asphalt and equestrian trail from Little Valley Road to 3000 East
- Install new multi-use asphalt and equestrian trail from 3210 East to 3870 East

The proposed actions for the WVDS include the construction of two detention/debris basins to help control flooding. The basins will be created by excavating out the basin area with heavy equipment for the capacities mentioned above with a berm or embankment along the outside perimeter created with the excavated materials. It is expected that the basins will likely be empty and dry most of the time, but during storm and flood events they may fill to capacity while flows rates are metered to protect downstream infrastructure. Long-term maintenance of the basins includes the potential for sediment removal when equipment may be present within the basins again. An official O&M manual will be written during final design to include details on inspections, reports, and procedures for maintenance.

Outlet structures will be constructed at the downstream end of each basin to connect the basins to the existing pipeline. Additionally, the outfall of the WVDS pipeline at the connection to Fort Pearce Wash will be upgraded with a new headwall. During normal operation there will be some maintenance required at the outfall of the WVDS both inside the pipeline and below the flap gate. Sediment that has settled out in the pipeline will need to be monitored and periodically removed so it does not accumulate and reduce pipe conveyance capacity. Finally, sediment from the Fort Pearce Wash that settles out just downstream of the headwall and flap gate will need to be monitored and periodically removed to allow proper operation of the gate.

The open channel section between 2110 East and River Road will be piped with 72-inch reinforced concrete pipe to allow for continuous trail development including a multi-use asphalt trail and earthen equestrian trail as shown on as shown in Sheets C-15 through C-10 in the Plan Drawings, Appendix G. A section of existing pipe along 2760 South where it meets 3870 East will also be replaced. Trail maintenance may take place as need as part of the ongoing upkeep of the trail system.

Areas disturbed as part of the proposed action construction may temporarily exposed to invasive growth but will be re-seeded with approved native seed mix post-construction to deter weeds and encourage native plants to re-establish.

Timing of construction as well as maintenance is expected to take place outside the active tortoise season (March-June and Sept-Oct) in suitable habitat areas.

4.3 Warner Valley Disposal System Action Area

The action area includes the basins described above, plus the pipeline improvements along the alignment as shown on the Location Map in Appendix G plus a half mile buffer to account for species evaluations and potential indirect effects such as construction disturbance, noise, and light or short term sedimentation and turbidity downstream during the construction activities. The proposed actions are all located on private lands, however a small portion of the half mile evaluation buffer overlaps some State Trust Lands on the southwest end of the project. As the WVDS drains into Fort Pearce Wash, this outfall area is expected to have better controlled water release at this connection site, reducing potential flooding and scouring that currently takes place.

4.4 Listed Species & Critical Habitat in the Warner Valley Disposal System Action Area

The purpose of this section is to identify protected species and critical habitat that may be present within the Warner Valley Disposal System action area. Table 5 includes all potential species as listed on the official Service list of TES that may occur in or be affected by the proposed Warner Valley Disposal System project (See Official Species List, Appendix B), with habitat or species presence determined within various boundaries from the site according to species (See Figure F4, Appendix F). Only those species with potential habitat will be reviewed for potential effects in Section 4.6.

Table 5
Potential TES Species & Habitat in the Warner Valley Disposal System Action Area

Species	Status	Habitat in Action Area	Critical Habitat in Action Area
Birds			
California Condor <i>Gymnogyps californianus</i>	Experimental Population (Non-Essential)	No	Not designated
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened	No	No
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered	No	No
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	Threatened	No	No
Fish			
Virgin River Chub <i>Gila seminuda</i>	Endangered	No	No
Woundfin <i>Plagopterus argentissimus</i>	Endangered	No	No
Plants			
Dwarf Bear-poppy <i>Arctomecon humilis</i>	Endangered	No	Not designated
Gierisch Mallow <i>Sphaeralcea gierischii</i>	Endangered	No	No
Holmgren Milkvetch <i>Arctomecon humilis</i>	Endangered	No	No
Jones Cycladenia <i>Cycladenia humilis</i> var. <i>jonesii</i>	Threatened	No	Not designated
Shivwits Milkvetch <i>Astragalus ampullarioides</i>	Endangered	No	No
Reptiles			
Desert Tortoise <i>Gopherus agassizii</i>	Threatened	Yes, suitable	No

4.5 Warner Valley Disposal System Environmental Baseline Conditions

The east end of the WVDS is at the base of a mostly undeveloped butte where it follows a dirt two-track road southwest along the butte with heavily disturbed ag lands (grazed/trampled or tilled/

planted) opposite the butte where extensive ATV and motorbike travel is also evident and was observed during multiple site visits. As the pipeline travels west it parallels the road (2760 South and 2630 South (also known as Seegmiller Road) past more disturbed ag lands and several housing developments. At the intersection of Little Valley Road (2500 E) and 2630 South the pipeline leaves the road and travels through a right-of-way corridor directly behind the houses rather than paralleling the road (20-50 feet from existing homes and directly abutting adjacent lot lines).

There are few naturally occurring trees beyond a few invasive Russian Olives along the open channel section, otherwise the landscape is developed (roads and houses), farm fields, or shrubby desert (creosote dominated). An approximately 700-ft section of asphalt pathway has already been installed over the pipeline ROW between Little Valley Road and 2350 East, although it is uncertain how much use it gets at present due to lack of connection with other established pathways.

The St. George Regional Airport is approximately one half mile to the southeast of the proposed actions and additional developments are expected to replace the surrounding ag lands in coming years.

4.6 Effects of the Warner Valley Disposal System Action

This section documents the direct, indirect, and cumulative effects or impacts to habitat and species relevant to this project and overall effects to threatened, endangered, petitioned, or sensitive species. Effects will be analyzed for four species with potential habitat in the WVDS action area, including desert tortoise, dwarf bear poppy, Holmgren's milkvetch, and Siler's pincushion cactus. Migratory birds are also addressed below.

4.6.1 Desert Tortoise

The nearest critical habitat for tortoise is located approximately four miles north of the action area at the Red Cliffs Desert Preserve. No desert tortoise or their signs (ie: carcasses, shelter sites, scats, tracks, or mating rings) were observed during the survey however suitable habitat was delineated as shown in the 2018 DT Survey Report (Appendix E) and on the WVDS TES Habitat Figure F4 in Appendix F. Frequent ATV travel in much of the suitable habitat likely deter tortoise from using the area, however their presence is possible. Conservation measures explained in Section 4.7 below include timing construction outside the active tortoise season in suitable habitat, (March-June and Sept-Oct), pre-construction clearances in suitable habitat, training literature for construction workers, trash control, checking backfill areas, and reduced speed limits. If any tortoise are encountered prior to or during construction further consultation with USFWS will be initiated with potential relocation in cooperation with the Washington County Habitat Conservation Plan and the Red Cliffs Preserve. Once complete, the basins and pipeline improvements should not deter tortoise from using the surrounding suitable habitat areas. As the conservation measures are followed, the proposed WVDS project *may affect, but is not likely to adversely affect* desert tortoise.

4.6.2 Dwarf Bear-Poppy

Dwarf Bear-Poppy (*Arctomecon humilis*) is only found in Washington County, Utah near St. George and is one of the oldest federally listed plant species dating back to 1979. It is a perennial

herb approximately 10 inches tall with a showy abundance of white flowers in spring. Rapid population growth producing more urban development is the main threat to the bearclaw-poppies which exist mainly on badland soil types specifically gypsiferous clay soils derived from the Moenkopi Formation.

As Moenkopi derived soils exist in the action area, thorough plant surveys were conducted in April 2018 during confirmed blooming of nearby offsite bear-poppies. The majority of the action area does not contain suitable habitat and vegetation transect surveys conducted in all potential habitat confirmed no poppies present in the WVDS action area (See WVDS TES Plant Survey Report, Appendix D). Due to lack of habitat, no record of the species presence in the area, a lack of findings during intensive surveys, and the majority of impacts expected from the WVDS project taking place on previously and recently disturbed lands it is expected that the proposed action should have *no effect* on this listed species.

4.6.3 Holmgren Milkvetch

Holmgren milkvetch (*Astragalus holmgreniorum*) is an endangered plant that occurs in Washington County, Utah and nearby Mohave County, Arizona where increasing urban sprawl is threatening its habitat. It is a small, short-lived, perennial herb with pinkish-purple flowers typical of other vetches with unique white-tipped wings blooming in late March and early May. Its unique elongated fruit is another identifying attribute which was evident on plants located at a nearby reference site visited on the same day as vegetation surveys in the WVDS area. It typically occurs on stony or gravelly soils derived from the Moenkopi Formation.

As Moenkopi derived soils exist in the action area, thorough plant surveys were conducted in April 2018 during confirmed fruiting of nearby offsite Holmgren milkvetch. The majority of the action area does not contain suitable habitat (heavily disturbed or developed) and vegetation transect surveys conducted in all potential habitat confirmed no Holmgren milkvetch present in the WVDS at the time of survey (See WVDS TES Plant Survey Report, Appendix D). There is no record of this species being present in the action area and due to limited habitat and a lack of findings during intensive surveys it is expected that the proposed action should have *no effect* on this listed species.

4.6.4 Siler Pincushion Cactus

Siler pincushion cactus (*Pediocactus sileri*) has federal status as a threatened plant (downlisted from endangered in 1993) and is found in southern Utah and northern Arizona, with the majority of known plants in Mohave County, Arizona. It is found on gypsiferous clay and sandy soils derived from the Moenkopi Formation such as those found in the WVDS action area, including Shnabkaib and Red members. Threats to this plant are similar to the above described plant species caused the population growth in Washington County, including urban development and increased use of off-road vehicles.

As Moenkopi derived soils exist in the action area, thorough plant surveys were conducted in April 2018 after relocating Siler pincushion cactus at a nearby reference site. The majority of the action area does not contain suitable habitat and vegetation transect surveys conducted in all potential habitat confirmed no Siler pincushion cactus present in the WVDS action area (See WVDS TES

Plant Survey Report, Appendix D). Due to lack of habitat, no record of the species presence in the area, a lack of findings during intensive surveys, and the majority of impacts expected from the WVDS project taking place on previously and recently disturbed lands it is expected that the proposed action should have *no effect* on this listed species.

4.6.5 Migratory Birds

A list of potential migratory birds in the WVDS area is included in the list of species that may be affected by the proposed project included in Appendix B (USFWS 2019d). Although bird habitat is limited in the potentially disturbed areas for this project, there are some tamarisk and cottonwoods along the open channel portion described above where migratory birds could potentially forage and nest. In order to avoid impacts to migratory birds protected under the MBTA, if any tree removal is planned as part of the construction during the nesting season (February - September), a preconstruction survey will be completed in order to determine whether or not nesting birds are present (no more than five days prior to construction). In the event that migratory birds are found nesting in trees that would be removed, construction activities will be postponed until the non-nesting season or until nestlings have fledged and or the nest fails or breeding behaviors are no longer observed.

4.7 Warner Valley Disposal System Conservation Commitments

1. Timing of construction as well as maintenance is expected to take place outside the active tortoise season (March-June and Sept-Oct) in suitable habitat.
2. If any trees are to be removed during migratory bird breeding and nesting season (February through September), pre-construction surveys should take place (no more than 5-day prior). If active nests are found, construction activities will be postponed until after the nesting season or until nestlings have fledged and/or the nest fails or breeding behaviors are no longer observed.
3. All construction employees will be required to read a desert tortoise educational brochure prior to site entry. The brochure will describe the biology of desert tortoises, the characteristics of suitable habitat, and the appropriate measures to take upon potential discovery of an individual. All construction employees will sign an affidavit that they have read and understand the material presented in the brochure.
4. Suitable desert tortoise habitat in the project areas will be surveyed by a USFWS-approved desert tortoise survey biologist for the presence of individuals during the active season, and no more than 30 days prior to construction. If desert tortoise or their signs are discovered during presence surveys, USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
5. If desert tortoises are encountered during construction, the project will be halted and USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
6. Trenches, pits, and other excavation sites will be checked for desert tortoises prior to backfilling.

7. Trash will be contained to reduce the potential for attracting desert tortoise predators.
8. Construction equipment (including pick-up trucks) will not exceed 10 miles-per-hour to minimize collisions with desert tortoises and reduce fugitive dust.
9. Temporarily disturbed areas will be revegetated using a USFWS-approved seed-mix.

4.8 Warner Valley Disposal System Conclusions

Construction of the WVDS basins and the associated pipeline improvements are expected to take place in the next 3-5 years pending environmental clearance, funding priorities, permitting, contracts and agreements. No critical habitat is present in the action area but potential habitat exists for four species that are federally listed as threatened. Effect determinations are as follows:

- Desert Tortoise: **May Affect, Not Likely To Adversely Affect**
- Dwarf Bear-Poppy: **No Effect**
- Holmgren Milkvetch: **No Effect**
- Siler Pincushion Cactus: **No Effect**

The proposed action would have **no effect** on the remaining federally-listed ESA species with potential to occur in this area.

5. HURRICANE WATER EFFICIENCY

5.1 Background of the Hurricane Water Efficiency Project

The Hurricane Water Efficiency Project is located in the central portion of Washington County, in and around Hurricane City, and extends from south of the Virgin River to the south end of the Hurricane City. Currently, irrigation water in this area is provided by two entities, Hurricane City Water, and the Hurricane Canal Company. Hurricane City provides pressurized irrigation water to some city residents, primarily north of Gould's Wash. The canal company provides flood irrigation water to city residents, primarily south of Gould's Wash. The goal of the project is to convert the canal company's system to pressurized irrigation and merge it with the city irrigation system to meet the demands of the expanding city service area while increasing the irrigation efficiency through improved water management and supply. The merged system would be operated and maintained by the Hurricane City Water Department.

5.2 Proposed Hurricane Water Efficiency Actions

The following actions are proposed as part of the Hurricane Water Efficiency Project (See Plan Figures 11 & 12, Appendix G5):

- Combine the current City and Hurricane Canal Company irrigation systems and install the necessary pipeline system and pressure reducing valves (creating two pressure zones)
- Add an additional 6 million gallons of active storage
- Add a 17,000 gallons per minute capacity pump station near the new storage ponds.

As listed above, the City of Hurricane is proposing the connection of the current Hurricane and Canal Company systems, which mostly consists of replacing irrigation ditches with a pressurized piping system. Additional water storage for the new system will be constructed in the form of two settling ponds which help account for sedimentation and allow for operational flexibility. Finally, a pump station will also be constructed at the new storage site.

Ongoing operation and maintenance of the new system will be provided by Hurricane City Water Department and is expected to include pipeline maintenance and sediment removal in the settling ponds. An official O&M manual will be written during final design to include details on inspections, reports, and procedures for maintenance.

Timing of construction as well as maintenance is expected to take place outside the active tortoise season (March-June and Sept-Oct) in suitable habitat areas.

5.3 Hurricane Water Efficiency Action Area

The action area for the Hurricane Water Efficiency Project as shown on Figure F5, Appendix F is spread throughout the southern portion of Hurricane City and includes a mix of developed areas with homes and business plus some undeveloped agriculture and pasture lands. There are also proposed sites for two storage ponds and an associated pump station located further south in the action area which are on undeveloped private land. The action area includes a half mile buffer to account for species evaluations and potential indirect effects such as construction disturbance,

noise, and light or short term sedimentation and turbidity downstream during the construction activities. The majority of the proposed actions are located on private lands, however a small portion of proposed piping overlaps onto State Trust Lands on the east end of the project. Additionally, some of the half-mile evaluation buffer extends onto more State Trust Lands as well as federally owned lands managed by the BLM.

5.4 Listed Species & Critical Habitat in the Hurricane Water Efficiency Action Area

The purpose of this section is to identify protected species and critical habitat that may be present within the Hurricane Water Efficiency action area. Table 6 below includes all potential species as listed on the official Service list of TES that may occur in or be affected by the proposed Hurricane Water Efficiency project (See Official Species List, Appendix B,) with habitat or species presence determined within various boundaries from the site according to species (See Figure F6, Appendix F). Only those species with potential habitat will be reviewed for potential effects in Section 6.6.

Table 6
Potential TES Species & Habitat in the Hurricane Water Efficiency Action Area

Species	Status	Habitat in Action Area	Critical Habitat in Action Area
Birds			
California Condor <i>Gymnogyps californianus</i>	Experimental Population (Non-Essential)	No	Not designated
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened	Yes, marginal	No
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered	No	No
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	Threatened	No	No
Fish			
Virgin River Chub <i>Gila seminuda</i>	Endangered	No	No
Woundfin <i>Plagopterus argentissimus</i>	Endangered	No	No
Plants			
Dwarf Bear-poppy <i>Arctomecon humilis</i>	Endangered	No	Not designated
Gierisch Mallow <i>Sphaeralcea gierischii</i>	Endangered	No	No
Holmgren Milkvetch <i>Arctomecon humilis</i>	Endangered	No	No
Jones Cycladenia <i>Cycladenia humilis var. jonesii</i>	Threatened	No	Not designated
Shivwits Milkvetch <i>Astragalus ampullarioides</i>	Endangered	No	No
Reptiles			
Desert Tortoise <i>Gopherus agassizii</i>	Threatened	Yes, suitable	Present 1000-ft from action

5.5 Hurricane Water Efficiency Environmental Baseline Conditions

Hurricane City has a population around 14,000. The project area is spread through the town and includes a mix of housing and commercial developments, along with some ag lands. Most of the roads are paved and include State Highway 9 near the north end of the project area which sees significant traffic as an access road to nearby Zion's National Park. The Hurricane Municipal Airport is located on the south end of town just outside of the project area.

Currently the open ditches delivering irrigation water to residents see excess runoff and flooding at times of high flows. These ditches can also be a safety hazard for vehicles and pedestrians, especially during flood conditions.

5.6 Effects of the Hurricane Water Efficiency Action

5.6.1 *Mexican Spotted Owl*

Mexican spotted owl have no known occurrence within two miles of the project (UNHP, 2019a). The Mexican spotted owl is usually found at higher elevations in Washington County, especially around Zion National Park. Critical habitat is designated approximately 5 miles to the northeast. There is a butte with cliffs along the east side of the city/project area with marginal nesting habitat but the proximity to development and lack of typical canyon-like habitat preferred by the owls makes it unlikely for them to nest in this area. Due to lack of habitat the proposed action would have *no effect* to this species or its habitat.

5.6.2 *Desert Tortoise*

No desert tortoise or their signs (ie: carcasses, shelter sites, scats, tracks, or mating rings) were observed during the survey however suitable habitat was delineated as shown in the 2018 DT Survey Report (Appendix E) and Hurricane TES Habitat Figure F6 in Appendix F. Conservation measures explained in Section 5.7 below include timing construction outside the active tortoise season in suitable habitat, pre-construction clearances in suitable habitat, training literature for construction workers, trash control, checking backfill areas, and reduced speed limits. If any tortoise are encountered prior to or during construction further consultation with USFWS will be initiated with potential relocation in cooperation with the Washington County Habitat Conservation Plan and the Red Cliffs Preserve. Once complete, the Hurricane City improvements should not deter tortoise from using the surrounding suitable habitat areas. As the conservation measures are followed, the proposed Gould Wash project *may affect, but is not likely to adversely affect* desert tortoise.

5.6.3 *Desert Tortoise Critical Habitat*

Critical habitat for tortoise is designated on the north end of the action area less than 1000 feet from the proposed improvements. The project actions are not expected to extend to this critical habitat either directly or indirectly and as such it is expected that there should be *no effect* on desert tortoise critical habitat.

5.6.4 *Migratory Birds*

A list of potential migratory birds in the WVDS area is included in the list of species that may be affected by the proposed project included in Appendix B (USFWS 2020). Although tree removal is not expected as part of this project, migratory birds should be considered as plans are being made. In order to avoid impacts to migratory birds protected under the MBTA, if any tree removal is planned as part of the construction during the nesting season (February - September), a preconstruction survey will be completed in order to determine whether or not nesting birds are present (no more than five days prior to construction). In the event that migratory birds are found nesting in trees that would be removed, construction activities will be postponed until the non-nesting season or until nestlings have fledged and or the nest fails or breeding behaviors are no longer observed.

5.7 Hurricane Water Efficiency Conservation Commitments

1. Timing of construction as well as maintenance is expected to take place outside the active tortoise season (March-June and Sept-Oct) in suitable habitat areas.
2. The project area (and surrounding habitats within one mile) would be surveyed by a qualified biologist for active raptor nests no more than five days prior to the commencement of work. If active nests are found during surveys, spatial buffers will be established around each nest site in coordination with USFWS and NRCS. Construction activities within the buffer areas would be prohibited until a qualified biologist confirms that all nests are no longer active.
3. If any trees are to be removed during migratory bird breeding and nesting season (February through September), pre-construction surveys should take place (no more than 5-day prior). If active nests are found, construction activities will be postponed until after the nesting season or until nestlings have fledged and/or the nest fails or breeding behaviors are no longer observed.
4. Suitable desert tortoise habitat in the project areas will be surveyed by a USFWS-approved desert tortoise survey biologist for the presence of individuals during the active season, and no more than 30 days prior to construction. If desert tortoise or their signs are discovered during presence surveys, USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
5. For construction where suitable tortoise habitat exists, all construction employees will be required to read a desert tortoise educational brochure prior to site entry. The brochure will describe the biology of desert tortoises, the characteristics of suitable habitat, and the appropriate measures to take upon potential discovery of an individual. All construction employees will sign an affidavit that they have read and understand the material presented in the brochure.
6. If desert tortoises are encountered during construction, the project will be halted and USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
7. Trenches, pits, and other excavation sites will be checked for desert tortoises prior to backfilling.

8. Trash will be contained to reduce the potential for attracting desert tortoise predators.
9. Construction equipment (including pick-up trucks) will not exceed 10 miles-per-hour to minimize collisions with desert tortoises and reduce fugitive dust.
10. Temporarily disturbed areas will be revegetated using a USFWS-approved seed-mix.

5.8 Hurricane Water Efficiency Conclusions

The proposed Hurricane Water Efficiency improvements and the construction of the associated ponds and pump station are expected to take place in the next 3-5 years pending environmental clearance, funding priorities, permitting, contracts and agreements. Critical habitat for desert tortoise is present less than 1000 feet to the north of the proposed actions, however no temporary or permanent impacts are expected to this critical habitat. Potential habitat exists for two species that are federally listed as threatened and effect determinations. Species and critical habitat effect determinations for these species are as follows:

- Mexican Spotted Owl: **No Effect**
- Desert Tortoise: **May Affect, Not Likely To Adversely Affect**
- Desert Tortoise Critical Habitat: **No Effect**

The proposed action would have **no effect** on the remaining federally-listed ESA species with potential to occur in this area.

6. MITIGATION COMMITMENTS

Seegmiller Marsh is the only action area with expected critical habitat impacts. The purpose and design of the proposed actions is to protect and improve existing habitat while also creating new habitat, and as such is expected to be a self-mitigating project. A concept restoration plan is included in Appendix G2. More detailed plans, including planting species and numbers will be part of the final design as guided by the USFWS mitigation agreement. The proposed mitigation is as follows.

Temporary impacts to critical habitat total 34.49 acres. Invasive species will be removed from these areas during project construction and will then be restored post-construction with a combination of seed mix or plantings approved by the NRCS, USFWS, and other marsh stakeholders. It is also expected that some natural colonization will take place from surrounding plants. With the removal of invasive species and replacement with desirable species, the temporary impact areas should be higher quality habitat after the project than before, therefore 34.49 acres of habitat should be improved as part of the proposed action.

Permanent critical habitat impacts overlap for a total loss of 3.53 acres of fish and bird habitat. New habitat created from the proposed project includes 4.30 acres of open water and 14.23 acres of marsh, therefore the ratio of new habitat to lost habitat is over 5:1. It is also expected that the new habitat will provide important PCEs including but not limited to the following:

- More riparian habitat in a riverine environment to provide nesting, foraging, and shelter for southwestern willow flycatcher.
- More riparian woodlands in a dynamic riverine environment for yellow-billed cuckoo.
- Additional water to increase the hydrology of the existing marsh for fish.
- Cleaner water provided as it is filtered through the newly established marsh for fish.
- Potential new habitat for fish as the dynamic river re-establishes in areas previously dominated by invasive species.

Despite potential critical habitat loss, it is expected that the proposed actions will create a net increase in quality habitat and therefore mitigate those losses.

7. WARNER DRAW WATERSHED PLAN CONCLUSION

The actions proposed as part of the Warner Draw Watershed Plan are diverse and span a variety of habitats throughout the county. Potential impacts to federally listed species have been minimized by a number of conservation measures at each site as summarized in the Conservation Measures Spreadsheet found in Appendix K. Mitigation commitments are also in place for the critical habitat impacts at Seegmiller Marsh.

Despite planning efforts to minimize impacts and the conservation measures presented, some impacts are still expected as part of the proposed actions. The most impactful actions to each species or critical habitats at each site have been considered when making the final determinations shown in Table 7 on the next page.

Table 7– Determinations for ESA Listed Species & Critical Habitat Potentially Occurring in the Warner Draw Watershed Action Areas

Species	Determination
California Condor <i>Gymnogyps californianus</i>	No Effect
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	May Affect, Likely to Adversely Affect
Virgin River Chub <i>Gila seminuda</i>	May Affect, Not Likely to Adversely Affect
Woundfin <i>Plagopterus argentissimus</i>	May Affect, Not Likely to Adversely Affect
Dwarf Bear-poppy <i>Arctomecon humilis</i>	No Effect
Gierisch Mallow <i>Sphaeralcea gierischii</i>	No Effect
Holmgren Milkvetch <i>Astragalus holmgreniorum</i>	No Effect
Shivwits Milkvetch <i>Astragalus ampullarioides</i>	No Effect
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	No Effect
Western Yellow-billed Cuckoo <i>Coccyzus americanus</i>	May Affect, Not Likely to Adversely Affect
Desert Tortoise <i>Gopherus agassizii</i>	May Affect, Not Likely to Adversely Affect
Siler Pincushion Cactus <i>Pediocactus sileri</i>	No Effect
Jones Cycladenia <i>Cycladenia humilis</i> var. <i>jonesii</i>	No Effect
Critical Habitats	Determination
Desert Tortoise	No Effect
Southwestern Willow Flycatcher	May Affect, Likely to Adversely Affect
Western Yellow-Billed Cuckoo (Proposed)	May Affect, Likely to Adversely Affect
Virgin River Chub	May Affect, Likely to Adversely Affect
Woundfin	May Affect, Likely to Adversely Affect

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Appendix Pages in this report have been limited to the following:

- Appendix A: Site Location Maps**
- Appendix F: Habitat Figures**
- Appendix J: Common Virgin River Applicant Committed Measure/BMPs**
- Appendix K: Conservation Measure Spreadsheet**

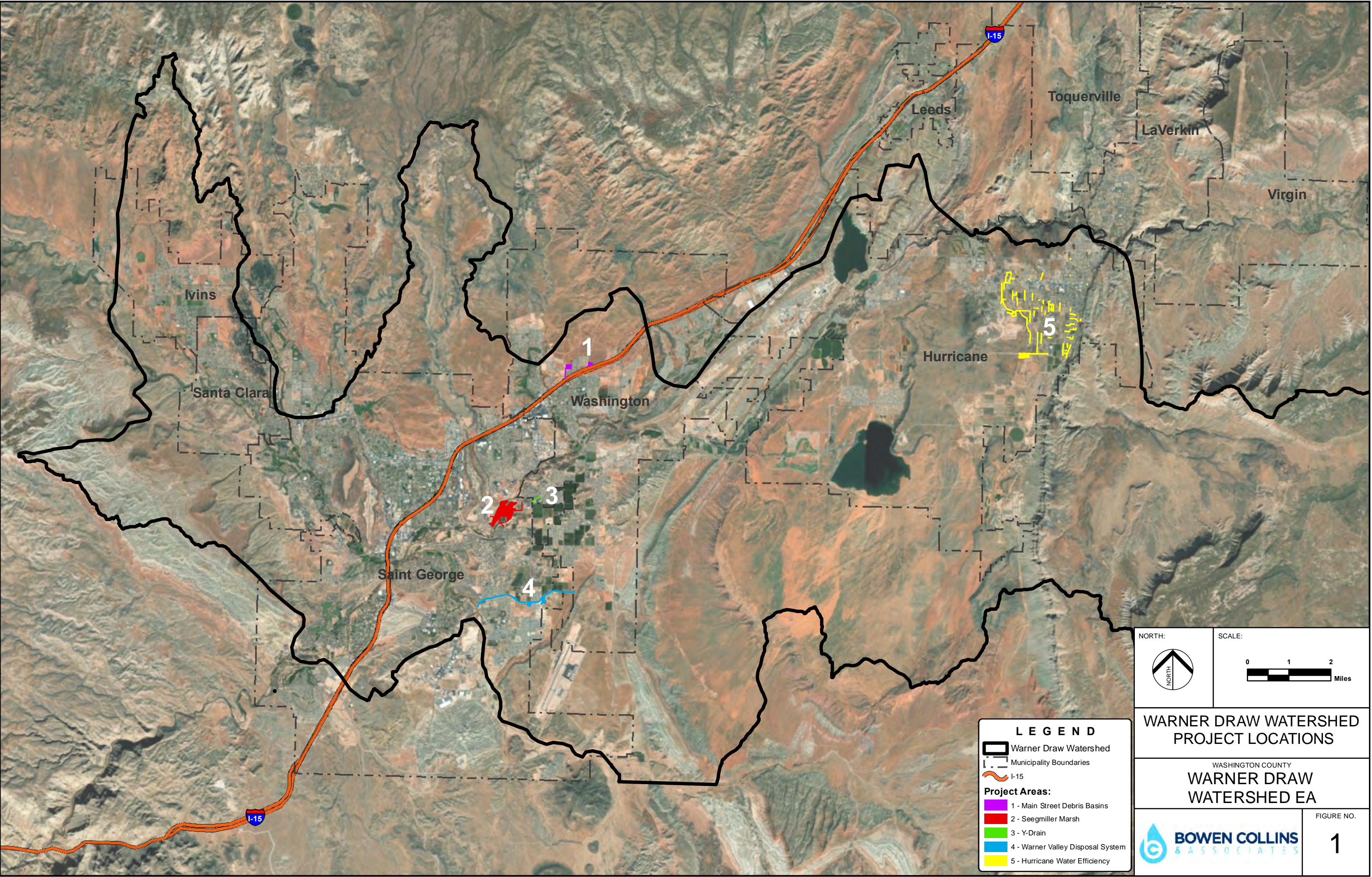
Additional Appendix information can be provided upon request

Appendix A

Site Location Maps

Fig 1 – Overall Project Locations Map

Fig 2 - Individual Sites Figure



NORTH:

SCALE:

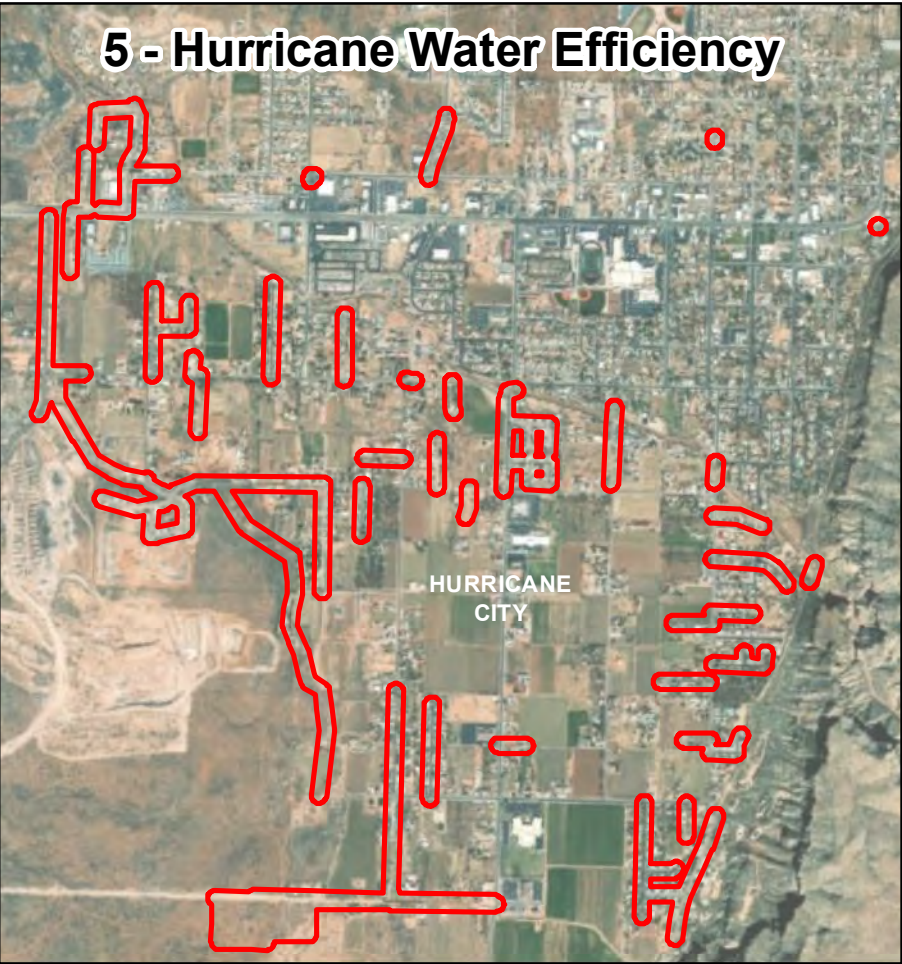
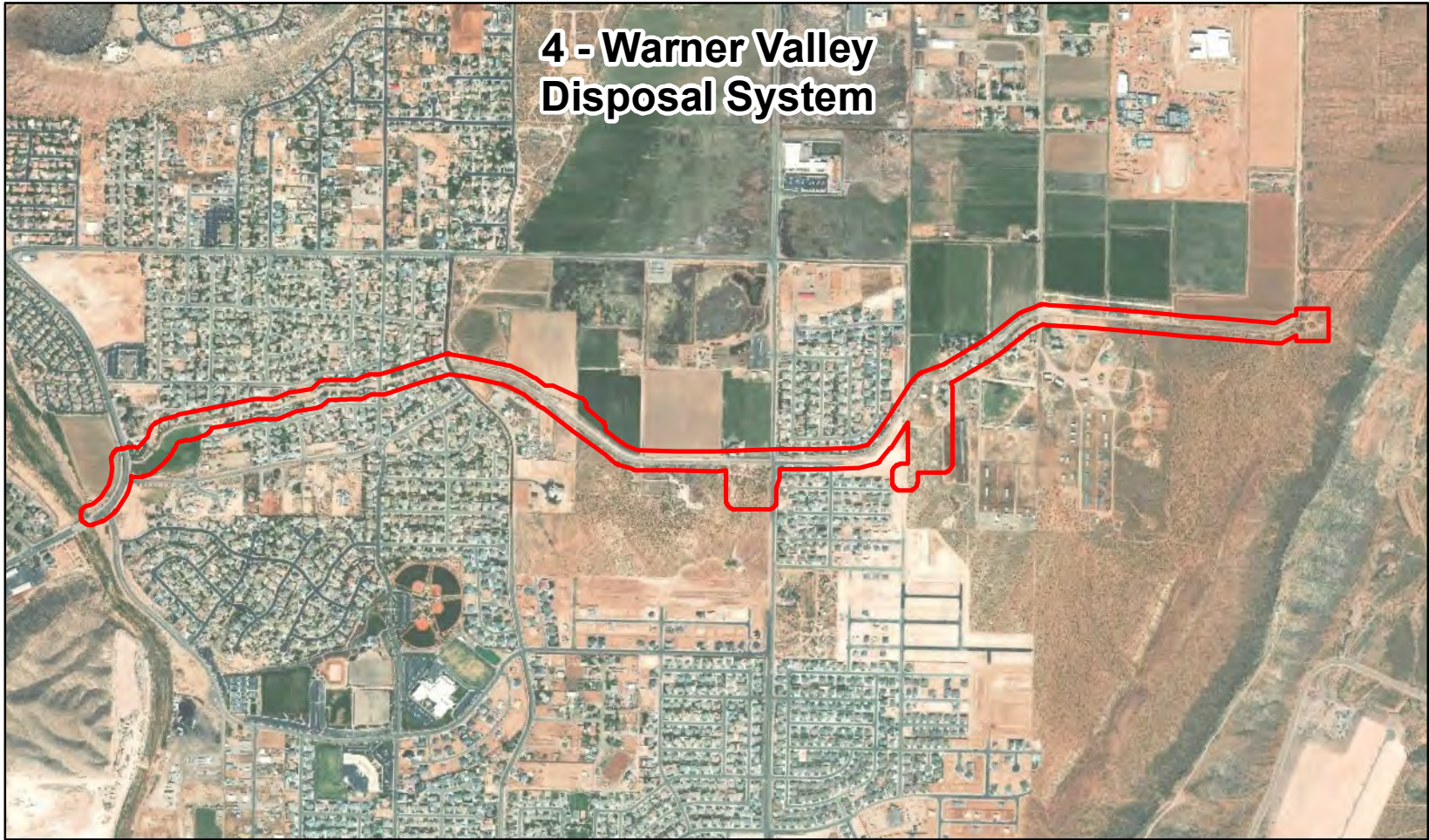
WARNER DRAW WATERSHED
PROJECT LOCATIONS

WASHINGTON COUNTY
WARNER DRAW
WATERSHED EA

BOWEN COLLINS
& ASSOCIATES

FIGURE NO.

1



L E G E N D

Project Areas

<div>NORTH:</div>	<div>SCALE:</div> <div>(NOT TO SCALE)</div>
<div>WARNER DRAW WATERSHED ENLARGED PROJECT AREAS</div>	
<div>WASHINGTON COUNTY</div> <div>WARNER DRAW WATERSHED EA</div>	
<div>BOWEN COLLINS & ASSOCIATES</div>	<div>FIGURE NO.</div> <div>2</div>

Appendix F

Habitat & Other Supporting Figures

Fig. F1 – Main Street Debris Basins Habitat

Fig. F2a – Seegmiller Wetlands 2

Fig. F2b – Seegmiller Marsh SWFL Habitat

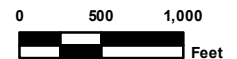
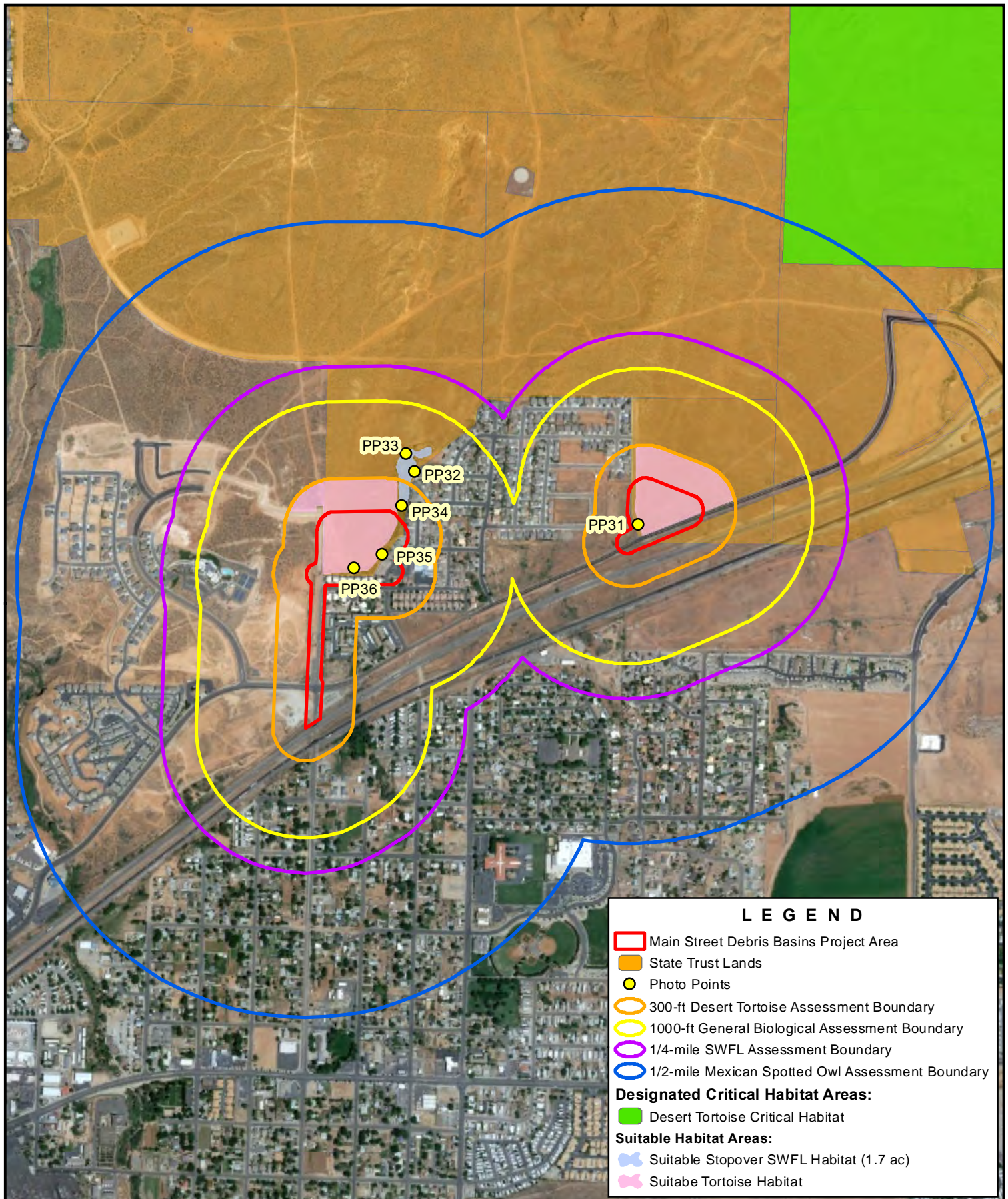
Fig. F2c – Seegmiller Marsh Cuckoo Habitat

Fig. F2d – Seegmiller Marsh Fish Habitat

Fig. F3 – Y-Drain Habitat

Fig. F4 – Warner Valley Disposal System Habitat

Fig. F5 – Hurricane Water Efficiency Habitat



LEGEND

Delineated Area (132 ac)

Photo Points

Ordinary High Water Mark

Aquatic Resources

W1 - Virgin River (3970 LF)

W2 - Unnamed Ephemeral Stream (700 LF)

W3 - Y-drain Canal (1530 LF)

W4 - Semipermanently Flooded Emergent Marsh (10.63 acres)

W5 - Pond (2.5 acres)

W6 - Semipermanently Flooded Emergent Marsh (1.6 acres)

W7 - Phragmites Wetland (0.79 acres)

W8 - Phragmites Wetland (0.52 acres)

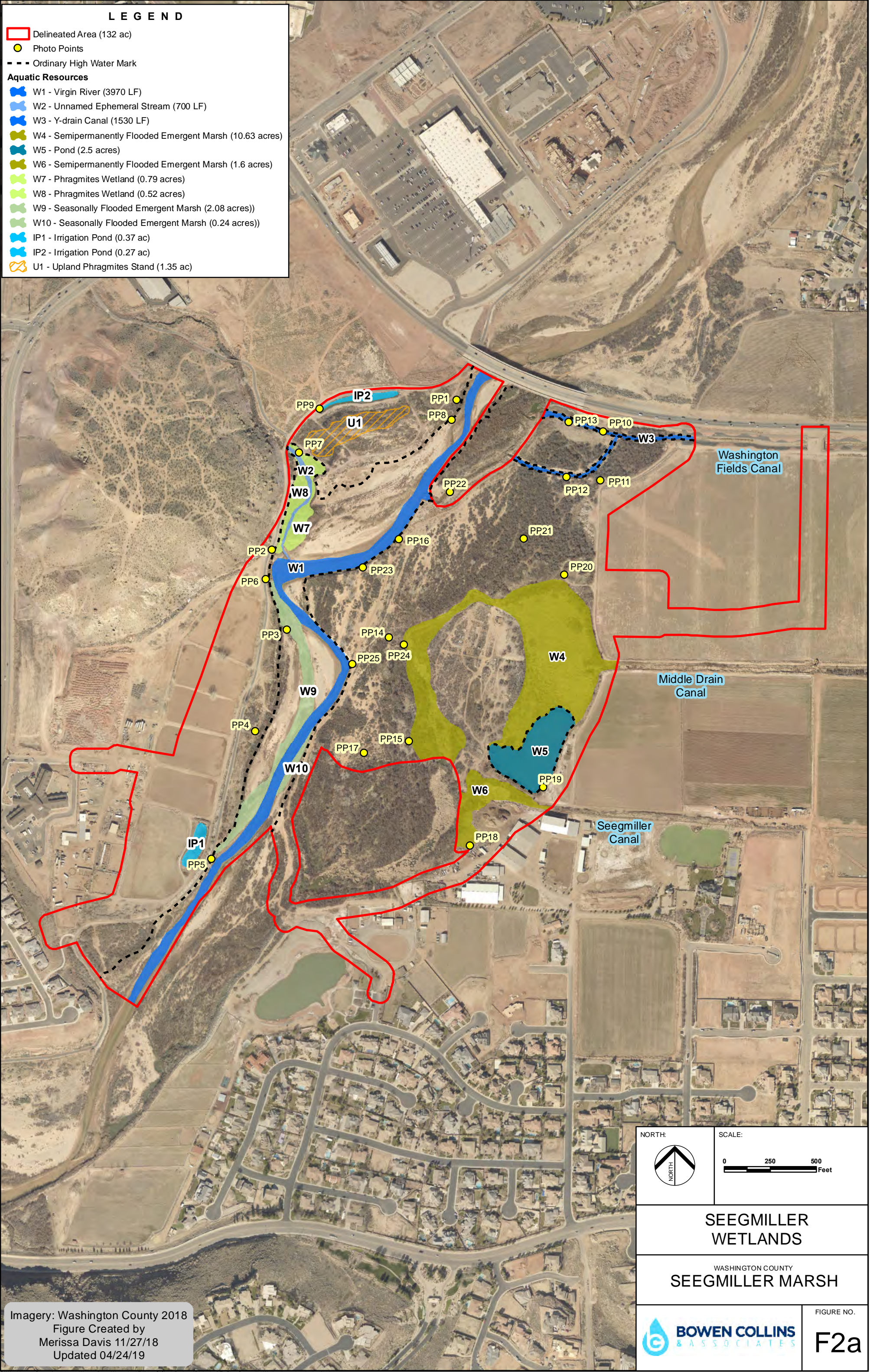
W9 - Seasonally Flooded Emergent Marsh (2.08 acres)

W10 - Seasonally Flooded Emergent Marsh (0.24 acres)

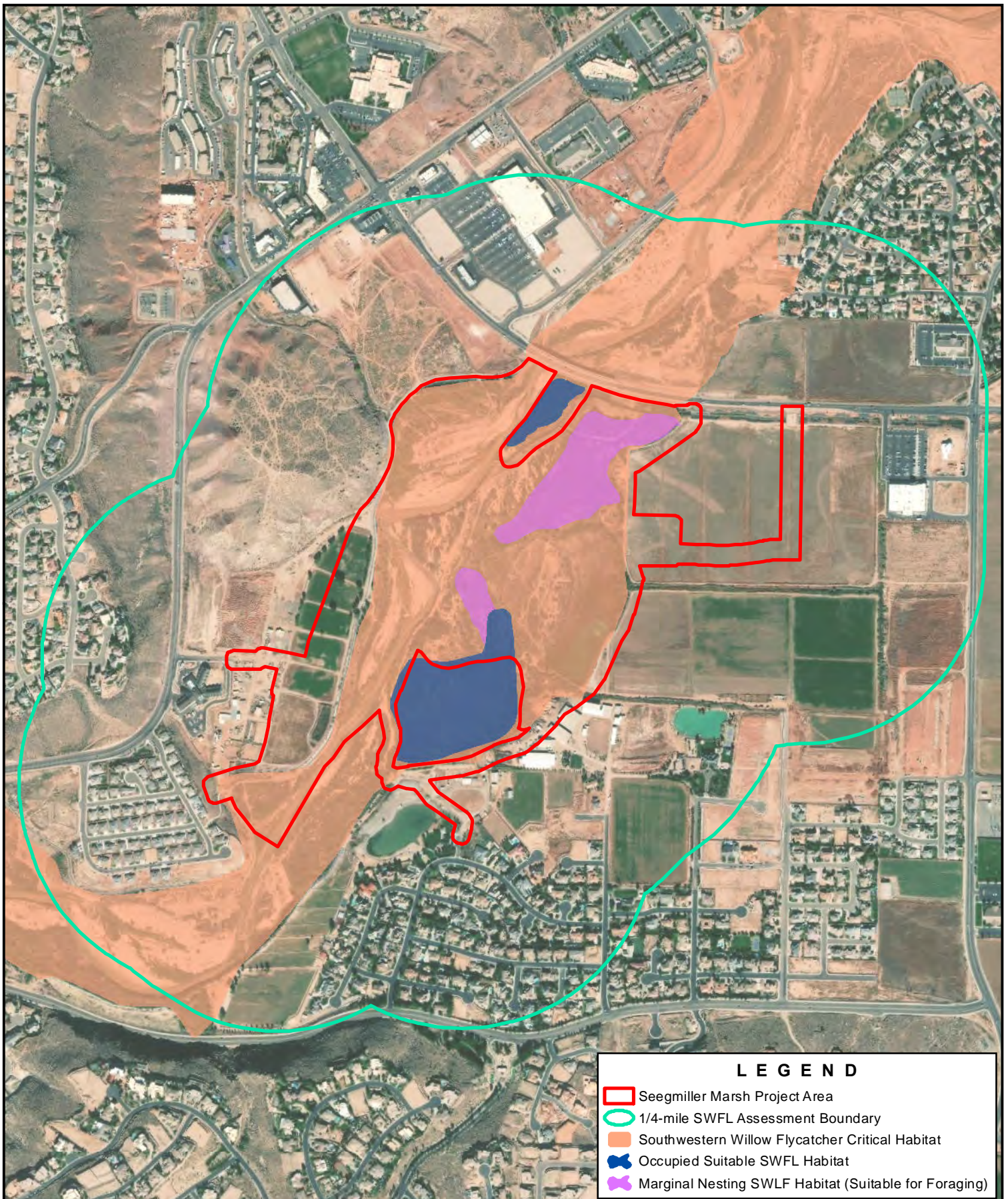
IP1 - Irrigation Pond (0.37 ac)

IP2 - Irrigation Pond (0.27 ac)

U1 - Upland Phragmites Stand (1.35 ac)



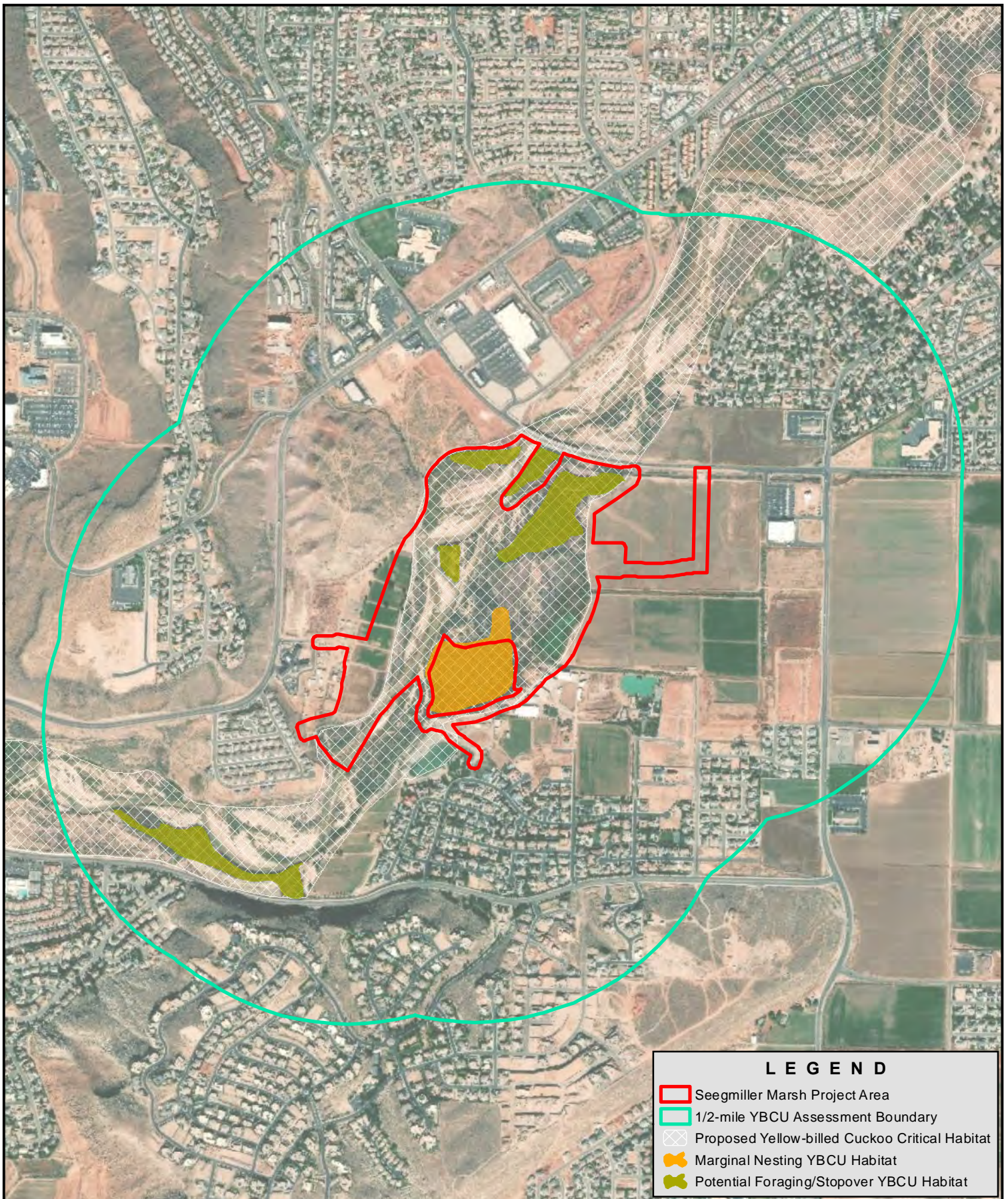
Imagery: Washington County 2018
Figure Created by
Merissa Davis 11/27/18
Updated 04/24/19



LEGEND

Seegmiller Marsh Project Area
 1/4-mile SWFL Assessment Boundary
 Southwestern Willow Flycatcher Critical Habitat
 Occupied Suitable SWFL Habitat
 Marginal Nesting SWLF Habitat (Suitable for Foraging)

	SOUTHWESTERN WILLOW FLYCATCHER HABITAT SEEGMILLER MARSH Washington County	NORTH: Imagery: ESRI 2017	SCALE: 0 500 1,000 Feet
	Warner Draw EA		



LEGEND

- Seegmiller Marsh Project Area
- 1/2-mile YBCU Assessment Boundary
- Proposed Yellow-billed Cuckoo Critical Habitat
- Marginal Nesting YBCU Habitat
- Potential Foraging/Stopover YBCU Habitat




BOWEN COLLINS
& ASSOCIATES

**YELLOW-BILLED CUCKOO HABITAT
SEEGMILLER MARSH**

Washington County
Warner Draw EA

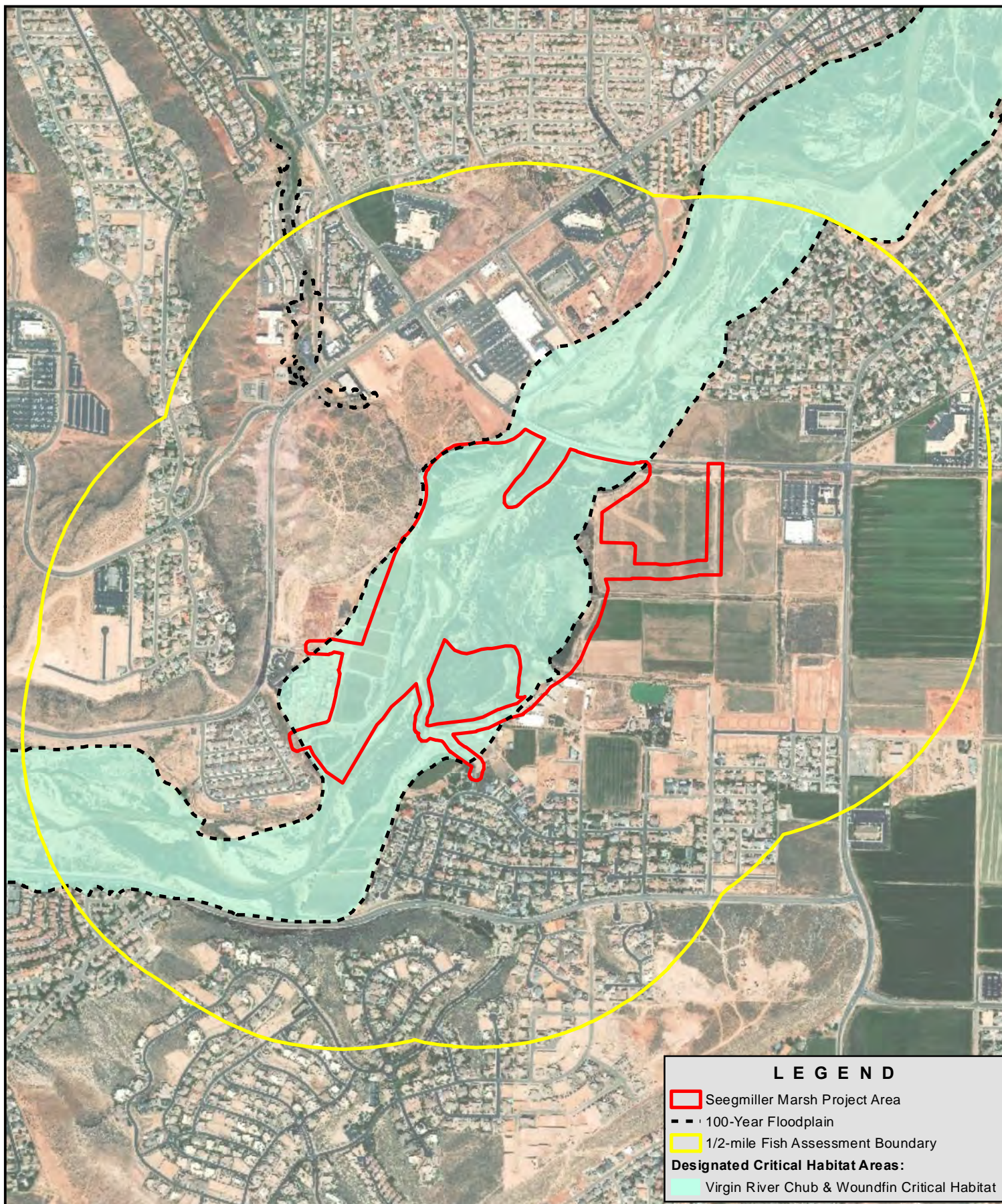
NORTH:



Imagery: ESRI 2017

SCALE:
0 500 1,000
Feet

FIGURE NO.
F2c



LEGEND

Seegmiller Marsh Project Area

100-Year Floodplain

1/2-mile Fish Assessment Boundary

Designated Critical Habitat Areas:

Virgin River Chub & Woundfin Critical Habitat



VIRGIN RIVER CHUB & WOUNDFIN HABITAT SEEGMILLER MARSH

Washington County

Warner Draw EA

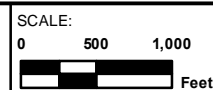
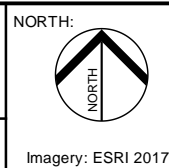
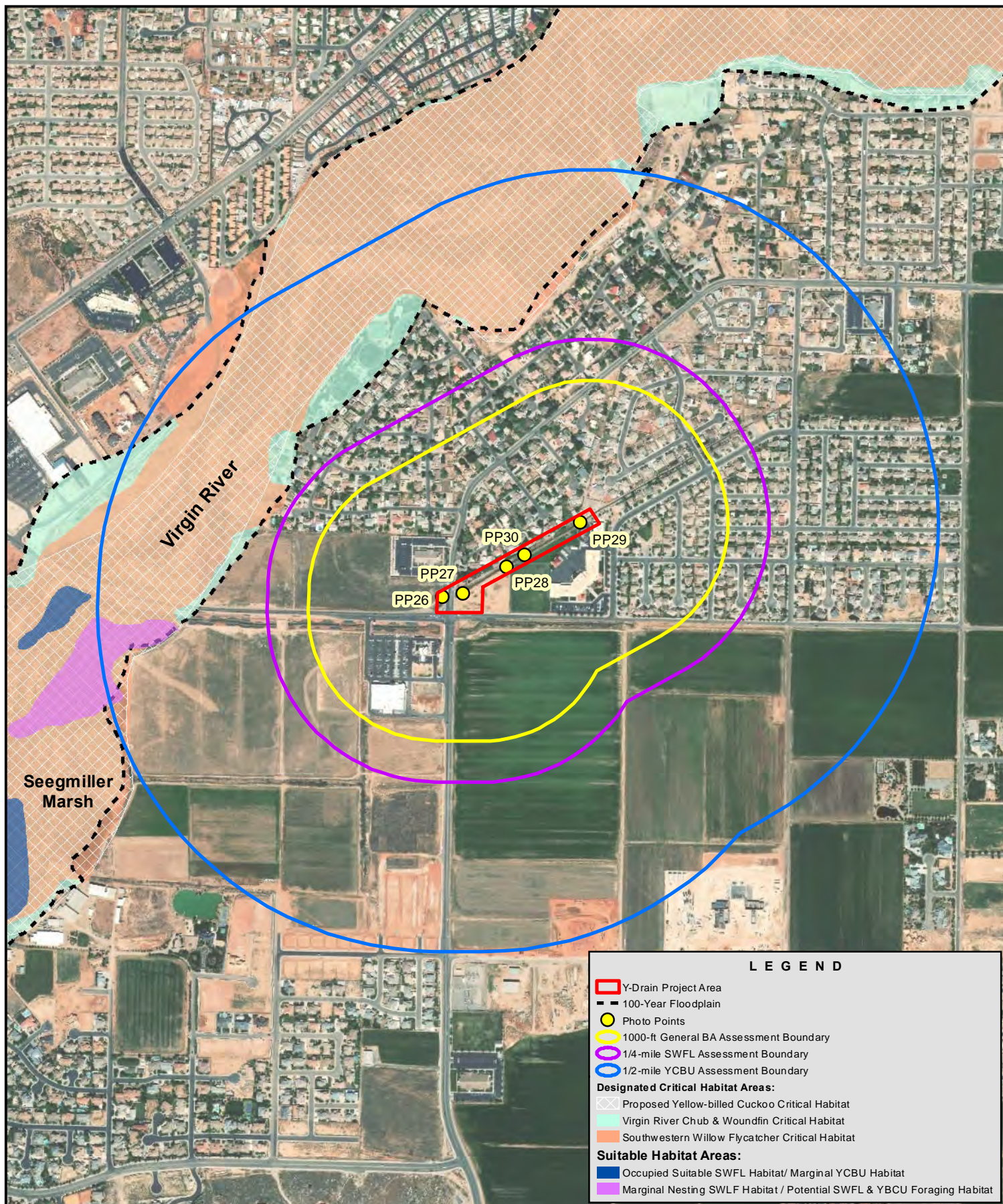
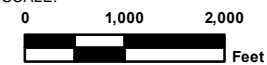
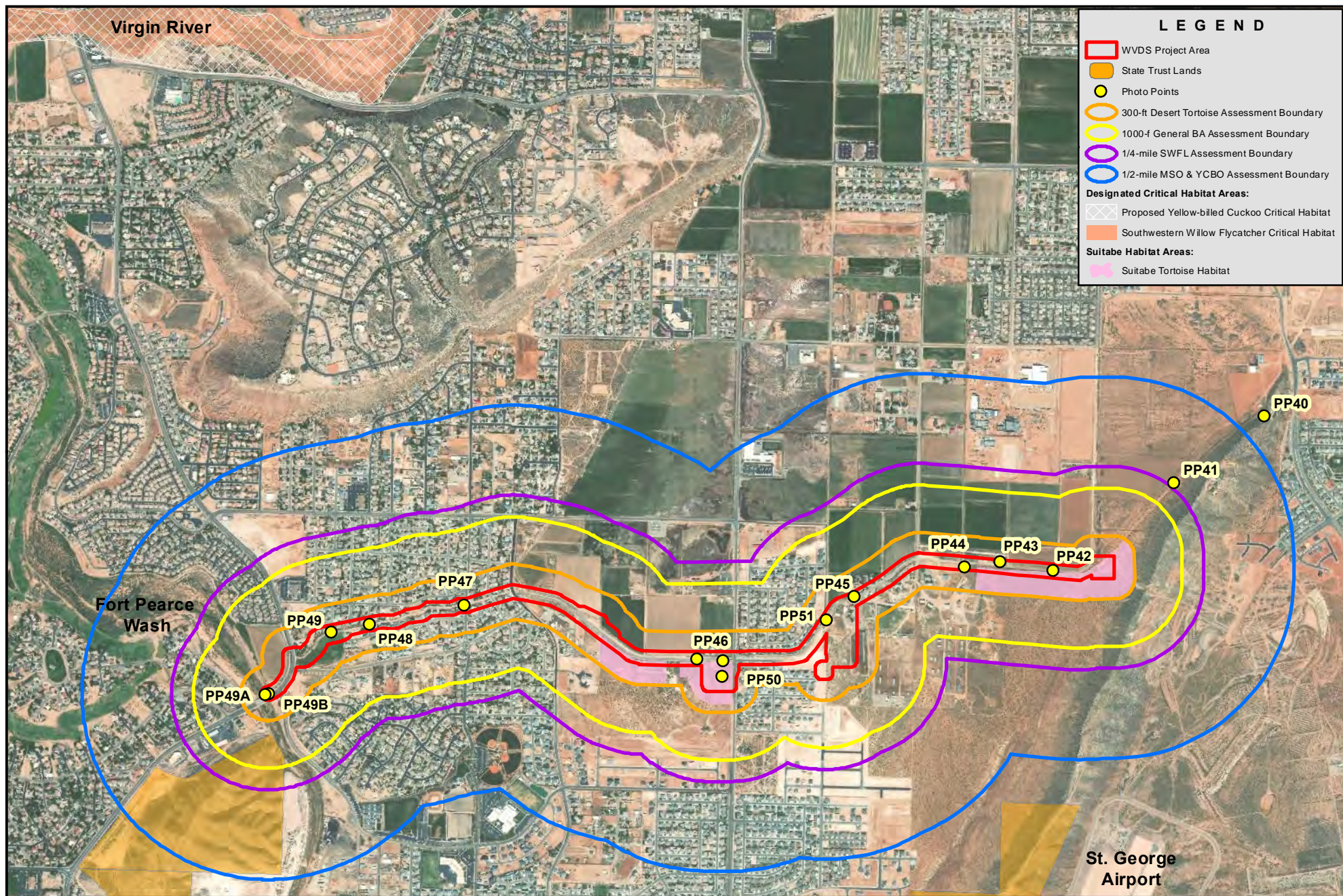
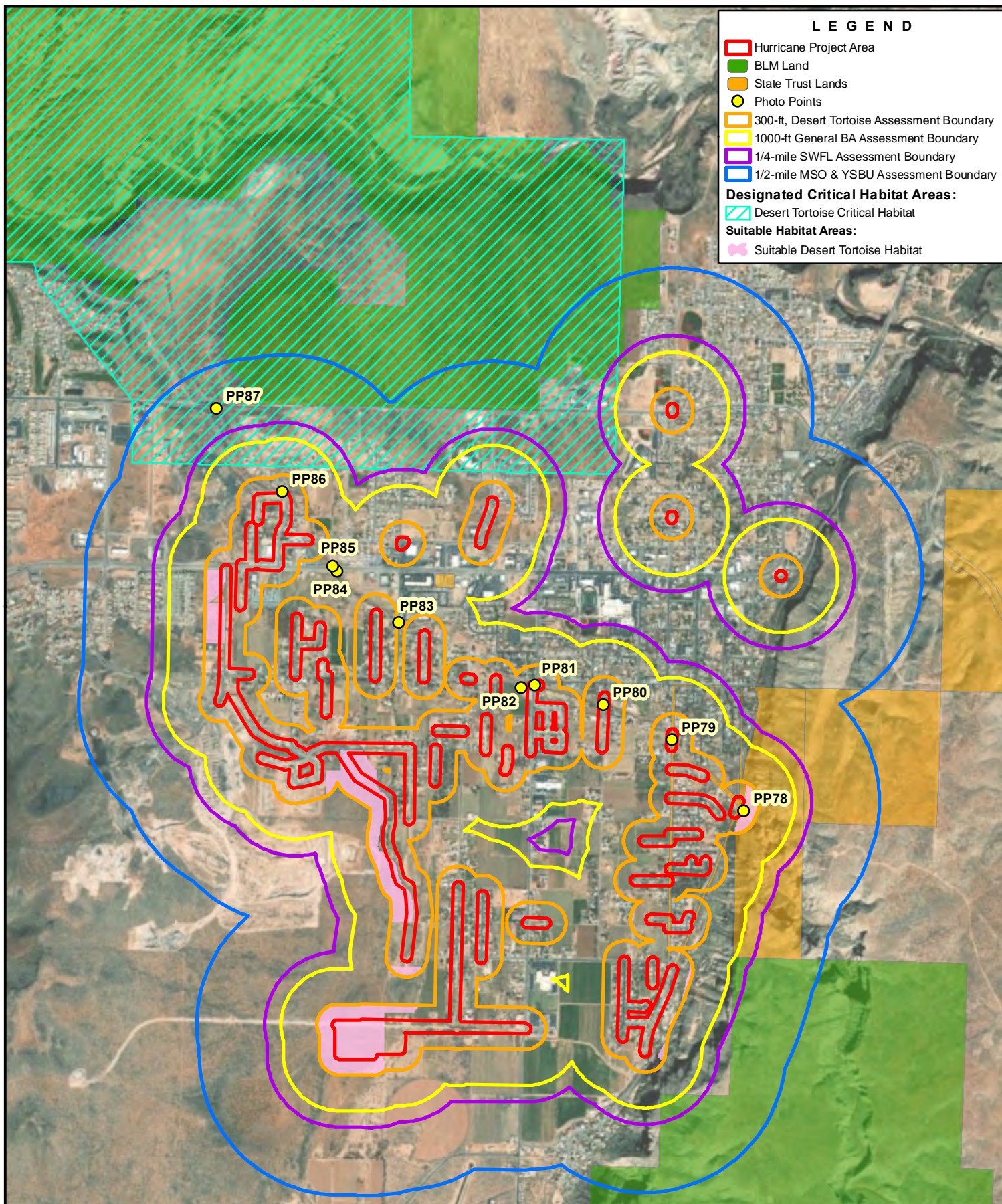





FIGURE NO.

F2d







 BOWEN COLLINS & ASSOCIATES	TES HABITAT HURRICANE WATER EFFICIENCY		NORTH:  Imagery: ESRI 2017	SCALE: 0 1,000 2,000 Feet 
	Washington County Warner Draw EA			

Appendix J

Common Virgin River Applicant Committed Measure/BMPs

Common Virgin River Applicant committed measures/best management practices

1. Chemical pollution prevention measures

The contractor or responsible representative shall provide watertight tanks or barrels to dispose of chemical pollutants that are produced as by-products of the construction activities, such as drained lubricating or transmission fluids, grease, soaps, concrete mixer wash water, or asphalt. At the completion of the construction work, these containers shall be removed and the area restored to its original condition.

Sanitary facilities, such as chemical toilets, shall not be located next to live streams, wells, or springs. They shall be located at a distance sufficient to prevent contamination of any water source. At the completion of construction activities, facilities shall be disposed of without causing pollution to the river or soils.

2. Revegetation

The federally listed fish and bird species occupying the Virgin River basin are dependent on a naturally functioning floodplain and riverine environment, and placement of hard structures, such as riprap, within this area can impact critical habitat. Riparian mitigation in the form of revegetation will be installed at a 3:1 ratio for permanent impacts and at a 2:1 ratio for temporary impacts.

Revegetation work shall be coordinated with UDWR, the Virgin River Resource Management and Recovery Program (Virgin River Program), and the Service. Contact Steve Meisner (435-673-3617; Virgin River Program) and the Utah Field Office (801-975-3330; Service) for technical input on the location of riparian mitigation sites, proper riparian revegetation techniques, and possible sources of vegetation materials.

Riparian vegetation, consisting of dormant season pole plantings of coyote willow (*Salix exigua*), Fremont cottonwood (*Populus fremontii*), Goodings willow (*Salix gooddingii*) and/or seepwillow (*Baccharis salicifolia*), will be planted in areas where sufficient water appears available at a rate of 1210 poles per acre. Specifications and planting layout designs will be developed for each mitigation and restoration site.

Cuttings shall be installed using the following methods. Pole plantings shall use dormant cuttings from all species listed above and shall be planted in the Bank and lower Overbank Zones. Pole plantings utilize multiple stems that are planted into holes excavated by an auger (chainsaw or equipment mounted). Pole plantings for coyote willow and seepwillow shall have 3 cuttings of the same species per hole and shall be spaced 12 feet on center. Multiple rows will be staggered. Cuttings should be buried no less than 4 feet into the ground, to reach the lowest water table of the year. With stems placed into the open hole, good soil-to-stem contact should be achieved by filling the hole with a mud-water slurry. Good soil-to-stem contact promotes root development. Once buried, stems should be cut to leave ~6-8 inches of stem above ground surface. Goodings willow and cottonwood cuttings should be planted immediately adjacent to

the toe of the bank stabilization, with willows closer to the stream. These species may be planted as single poles with 1-2 coyote willow stems in the hole as well. These poles should be planted 12 feet apart. Longer cottonwood poles (3-4 feet longer than the depth to water surface) can be planted behind bank stabilization and within gabion blankets and baskets.

High terrace areas that lack a sufficient water table to support riparian vegetation shall be seeded with upland species. Existing stream bank vegetation shall be protected except where its removal is absolutely necessary for the completion of repair work.

Disturbed areas (work sites, ingress, egress, stockpile sites, pit areas) shall be revegetated when appropriate after construction with native plants or certified weed-free native seed.

All revegetation efforts shall be monitored for success for three years and replanted/reseeded if not successful.

3. Southwestern Willow Flycatcher/Yellow-billed cuckoo

To avoid possible effects to the endangered southwestern willow flycatcher and the threatened western yellow-billed cuckoo, all work in the riparian zone in occupied critical habitat must avoid the period between April 15th and August 31 (activities disturbing these riparian areas must be conducted September 1 thru April 14).

4. Bank Stabilization

Concrete, asphalt, steel or other human-made materials shall not be used for bank stabilization or in the active stream channel. Boulders, root-wads and other natural materials found locally shall be used to stabilize stream banks.

The use of any streambank stabilization structures (i.e. rock riprap) in an active channel or the 100-year floodplain of any project related river shall be coordinated with UDWR and Service (801-975-3330, ext.137). During any cutting, filling, or grading of slopes, machinery and sedimentation shall not be allowed in the stream or adjacent wetlands unless specifically authorized in this biological opinion.

Where the construction or maintenance of stream bank stabilization structures is planned, the applicant or their contractor shall fill voids in the streambank stabilization structures (riprap or gabion baskets) in excess of 2-3 feet above the existing river bed to minimize potential nonnative fish species refuges (i.e. interstitial spaces). This shall be done for any project that is located downstream of Washington Fields Diversion. In addition, grout curtains or cutoff walls shall be constructed in riprap walls to halt downstream piping of ground or surface water through the structure. Walls shall be constructed at 200 to 300 feet intervals. Both of these measures (filling voids and grout curtains/cutoff walls) must be specified in any project related construction plans and any deviation from use of these measures must be approved by the Service.

Rock riprap structures that best survived the December 2010 floods were those that had substantial vegetation growing at the foot or toe of the structures (Jay Sandberg, pers. comm.,

April 2011). Because of this, riparian vegetation (see #3, above) should also be installed at the foot or toe of newly placed riprap structures.

5. Instream Structures

Any activities that alter or create an instream structure (diversion, elevated crossing, buried pipe crossing with substrate protection, etc.) that could either hinder the movement of native fish or facilitate the movement or colonization of nonnative fish species shall be coordinated with UDWR and the Service during the planning stage.

6. BMPs for all Projects

- If construction materials are displaced by high flows the applicant will contact the Utah Ecological Services Field Office (801-975-3330;) or Steve Meisner (435-673-3617; Virgin River Program) as soon as possible to coordinate the least intrusive retrieval methods.
- Care shall be taken to minimize sedimentation resulting from bank or stream bed disturbance.
- Equipment shall be cleaned to remove noxious weeds/seeds and petroleum products prior to moving on site.
- Fueling machinery shall occur off site or in a confined, designated area to prevent spillage into waterways and wetlands. Oil booms shall be on site and placed downstream of the project site prior to beginning work if equipment will be operating in the low flow channel.
- Materials shall not be stockpiled in the riparian area or other sensitive areas, i.e., wetlands.
- Fill materials shall be free of fines, waste, pollutants, and noxious weeds/seeds.
- Equipment shall work from the top of the bank or from the channel to minimize disturbance to the riparian area and to protect the banks. Heavy equipment shall avoid crossing and/or disturbing wetlands.
- The number of ingress and egress routes to/from all project sites shall be kept to a minimum.
- Excavated soils shall be sorted into mineral soils and top soils. When backfilling a disturbed site, top soils shall be placed on top to provide a seed bed for native plants.
- Excavated material and construction debris may not be wasted in any stream channel or placed in flowing waters or adjacent wetlands; this will include material such as grease, oil, joint coating, or any other possible pollutants. Excess material must be wasted at an

upland site away from any channel or habitat of a federally listed or sensitive species. All construction materials must be removed from the active channel and from the 100-year floodplain at the end of the project.

- The applicant shall complete the project in as short of a timeframe as possible (taking into account the terms and conditions above) to minimize the potential for damage to the altered channel during high flows caused by storm events.

Appendix K
Conservation Measures Spreadsheet

Conservation Measures By Species or Resource	Main Street	Seegmiller	Y-Drain	WVDS	Hurricane
Tortoise					
Timing of construction as well as maintenance is expected to take place outside the active tortoise season (March-June and Sept-Oct) in suitable habitat areas.	X			X	X
All construction employees will be required to read a desert tortoise educational brochure prior to site entry. The brochure will describe the biology of desert tortoises, the characteristics of suitable habitat, and the appropriate measures to take upon potential discovery of an individual. All construction employees will sign an affidavit that they have read and understand the material presented in the brochure.	X			X	X
Suitable desert tortoise habitat in the project areas will be surveyed by a USFWS-approved desert tortoise survey biologist for the presence of individuals during the active season, and no more than 30 days prior to construction. If desert tortoise or their signs are discovered during presence surveys, USFWS will be contacted and formal Section 7 ESA consultation will be initiated.	X			X	X
If desert tortoises are encountered during construction, the project will be halted and USFWS will be contacted and formal Section 7 ESA consultation will be initiated.	X			X	X
Trenches, pits, and other excavation sites will be checked for desert tortoises prior to backfilling.	X			X	X
Trash will be contained to reduce the potential for attracting desert tortoise predators.	X			X	X
Construction equipment (including pick-up trucks) will not exceed 10 miles-per-hour to minimize collisions with desert tortoises and reduce fugitive dust.	X			X	X
Birds					
Continued surveys/monitoring of the nesting southwestern willow flycatcher to determine any long term negative effects which may lead to potential adjustments to the project plans.		X			
Construction will be scheduled between September 1st and March 31st to avoid breeding season for birds. If the project is not complete during this time construction must be halted until after the breeding season is over, unless approved by USFWS.		X			
If any trees are to be removed during migratory bird breeding and nesting season (February through September), pre-construction surveys should take place (no more than 5-day prior). If active nests are found, construction activities will be postponed until after the nesting season or until nestlings have fledged and/or the nest fails or breeding behaviors are no longer observed.	X		X	X	X
The project area (and surrounding habitats within one mile) will be surveyed by a qualified biologist for active raptor nests no more than five days prior to the commencement of work. If active nests are found during surveys, spatial buffers will be established around each nest site in coordination with USFWS and NRCS. Construction activities within the buffer areas would be prohibited until a qualified biologist confirms that all nests are no longer active.	X	X			X
Fish					
Construction will be scheduled between September 1st and March 31st to avoid spawning season for fish. If the project is not complete during this time construction must be halted until after spawning season is over, unless approved by USFWS		X			
Vegetation					
Temporarily disturbed areas will be revegetated using a USFWS-approved seed-mix.	X			X	X
Excavated soils will be sorted into mineral soils and top soils. When backfilling a disturbed site, top soils will be placed on top to provide a seed bed for native plants.		X			
When construction is complete, revegetation in the form of seeding and pole planting of riparian vegetation will be coordinated with USFWS, UDWR and including planting plans, techniques, and sources of vegetation material. General details including approved species can be found in the Common Virgin River Applicant Committed Measures/Best Management Practices (Appendix G). Revegetation efforts will be monitored for three years with replanting and reseeding required if not successful over that time.		X			
Vegetation removal and replacement will be phased according to instructions from UDWR.		X			

Warner Draw Watershed Plan Conservation Measures

Conservation Measures By Species or Resource (continued)	Main Street	Seegmiller	Y-Drain	WVDS	Hurricane
Water Quality					
As removal of some existing invasive plant species is expected, a SWPP will be prepared by the contractor to include silt fencing to prevent run off during construction which has potential to be greater than usual during storm events with the removal of existing vegetation.		X			
If construction materials are displaced by high flows the applicant will contact the UDWR or the Virgin River Program (Steve Meisner) as soon as possible to coordinate the least intrusive retrieval methods.		X			
Care will be taken to minimize sedimentation resulting from bank or stream bed disturbance.		X			
No work shall take place in flowing water. The contractor shall reroute any flows during construction.			X		
General					
Equipment will be cleaned to remove noxious weeds/seeds and petroleum products prior to moving on site. Additionally, any chemical pollutants produced during the construction activities shall be disposed of according to the Common Virgin River Applicant Committed Measures/Best Management Practices		X			
Fueling machinery will occur off site or in a confined, designated area to prevent spillage into waterways and wetlands.		X			
Materials will not be stockpiled in the riparian areas or other sensitive areas, i.e., wetlands or occupied TES habitat.		X			
Fill materials will be free of fines, waste, pollutants, and noxious weeds/seeds.					
Equipment will work from the top of the bank or from the channel to minimize disturbance to the riparian area and to protect the banks. Heavy equipment will avoid crossing and/or disturbing wetlands.		X			
The number of ingress and egress routes to/from all project sites will be kept to a minimum.		X			
Excavated material and construction debris may not be wasted in any stream channel or placed in flowing waters or adjacent wetlands; this will include material such as grease, oil, joint coating, or any other possible pollutants. Excess material must be wasted at an upland site away from any channel or habitat of a federally listed or sensitive species. All construction materials must be removed from the active channel and from the 100-year floodplain at the end of the project.		X			
The applicant will complete the project in as short of a timeframe as possible (taking into account the terms and conditions above) to minimize the potential for damage to the altered channel during high flows caused by storm events and to reduce the potential for birds to abandon use of the area.		X			

**Threatened and Endangered Plant
Species Survey Reports**

***Main Street Debris Basin
Threatened & Endangered Plant Species
Survey Report
Washington County, Utah***

June 20, 2018

Prepared by:

*Bruce Glisson, Ph.D.
Botany & Ecology Consultant
315 Matterhorn Drive
Park City, Utah 84098
(435) 513-1134*

Introduction

The proposed Main Street Debris Basin project is located approximately 1.5 miles west and north of I-15 Exit 13 (Washington Parkway exit) in Washington County, Utah. Based on surface geology maps, the proposed Main Street Debris Basin project area as shown in Figure 1 does not contain potential suitable habitat for any federally listed Threatened and Endangered plant species. A wetland area and spring-fed stream channel were surveyed for the BLM Sensitive Species, Virgin River thistle (*Cirsium virginense*).

No Virgin River thistle plants were observed during the 2018 survey of the proposed project site.

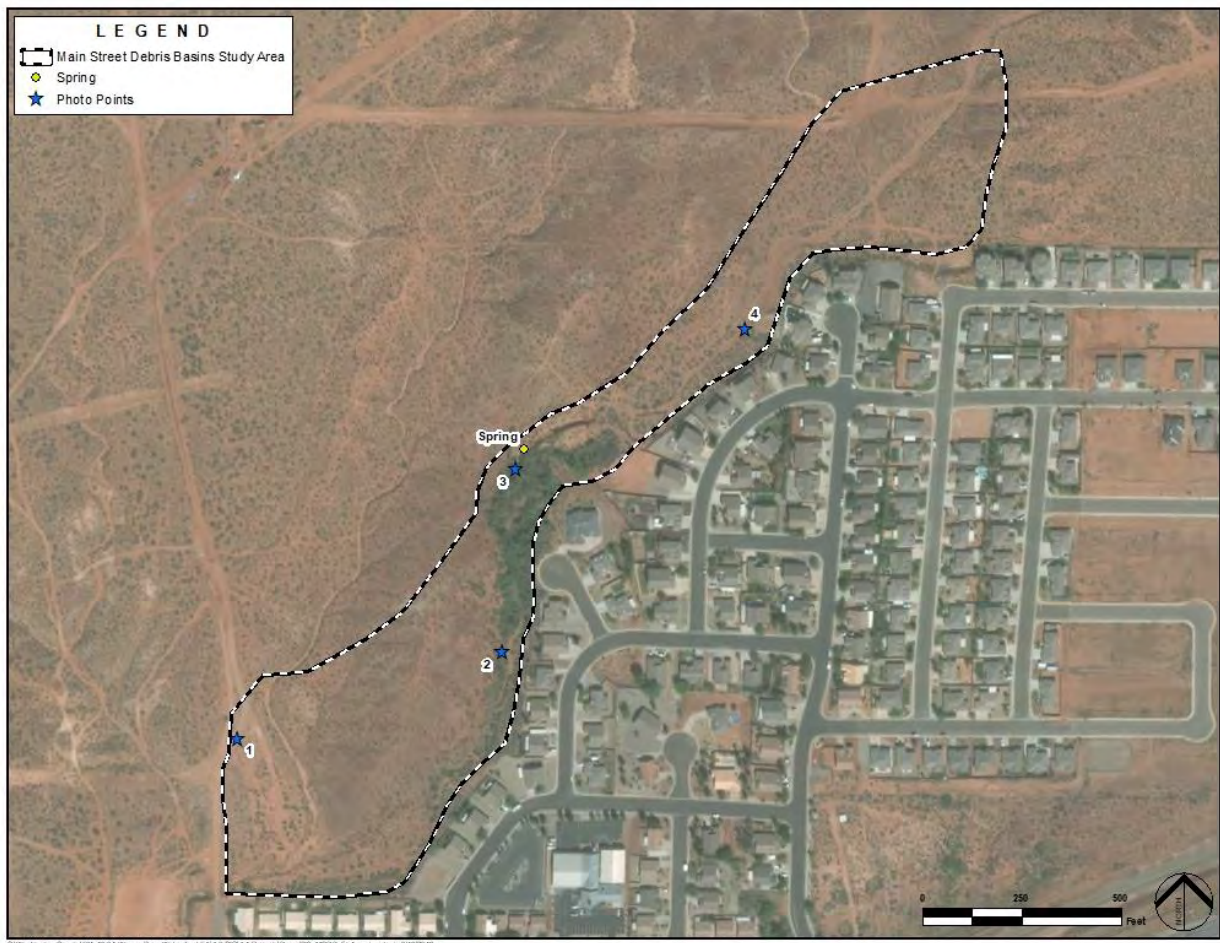


Figure 1: Main Street Debris Basin project area and photo point locations.

Reference Populations

In conjunction with on-site field surveys, nearby reference areas off-site from the project area (northeast of I-15 Exit 13 near Washington City and the Gould's Wash area near Hurricane) were visited to assess phenology and observability of *Cirsium virginense*. The species is distinctive and even non-flowering vegetative plants were readily discernible at off-site reference areas. A representative photo of *Cirsium virginense* from an off-site reference area is presented in Appendix A.

Methodology

A survey of the Main Street Debris Basin project area was conducted by Bruce Glisson on May 22, 2018. The survey consisted of broadly spaced meandering transects as part of a general floristic survey across the site, and focused surveys for *Cirsium virginense* through wetland and stream channel areas. The shrub dominated upland plant communities included *Larrea tridentata* (creosote bush), *Ambrosia dumosa* (bur-sage), *Artemesia filifolia* (sand sage), and *Coleogyne ramosissimum* (blackbrush). Stream channel areas supported *Tamarix chinensis* (tamarisk), *Populus fremontii* (Fremont cottonwood), *Salix gooddingii* (Goodding's black willow), and seepwillows (*Baccharis* sp.). Appendix B contains a list of plant species that were observed.

Results

No potentially suitable habitat for federally listed species was present on or near the project site. None of the BLM Sensitive Species, Virgin River thistle, were present on the project site.



Figure 2: Project site overview, view to northeast from photo point 1.



Figure 3: Project site overview, view to east from photo point 1.



Figure 4: Project site overview, view to southeast from photo point 1.



Figure 5: Project site overview, view of stream channel and potential Virgin River thistle habitat to north (upstream) from photo point 2.



Figure 6: Project site overview, view of stream channel and potential Virgin River thistle habitat to south (downstream) from photo point 2.



Figure 7: Project site overview, view of spring outflow channel and potential Virgin River thistle habitat to south (downstream) from photo point 3.



Figure 8: Project site overview, view to northeast of spring outflow channel and potential Virgin River thistle habitat from photo point 3.



Figure 9: Project site overview, view to northeast (up-wash) from photo point 4.



Figure 10: Project site overview, view to southwest (down-wash) from photo point 4.

Appendix A

Representative Photos of Target Species from Off-site Reference Areas

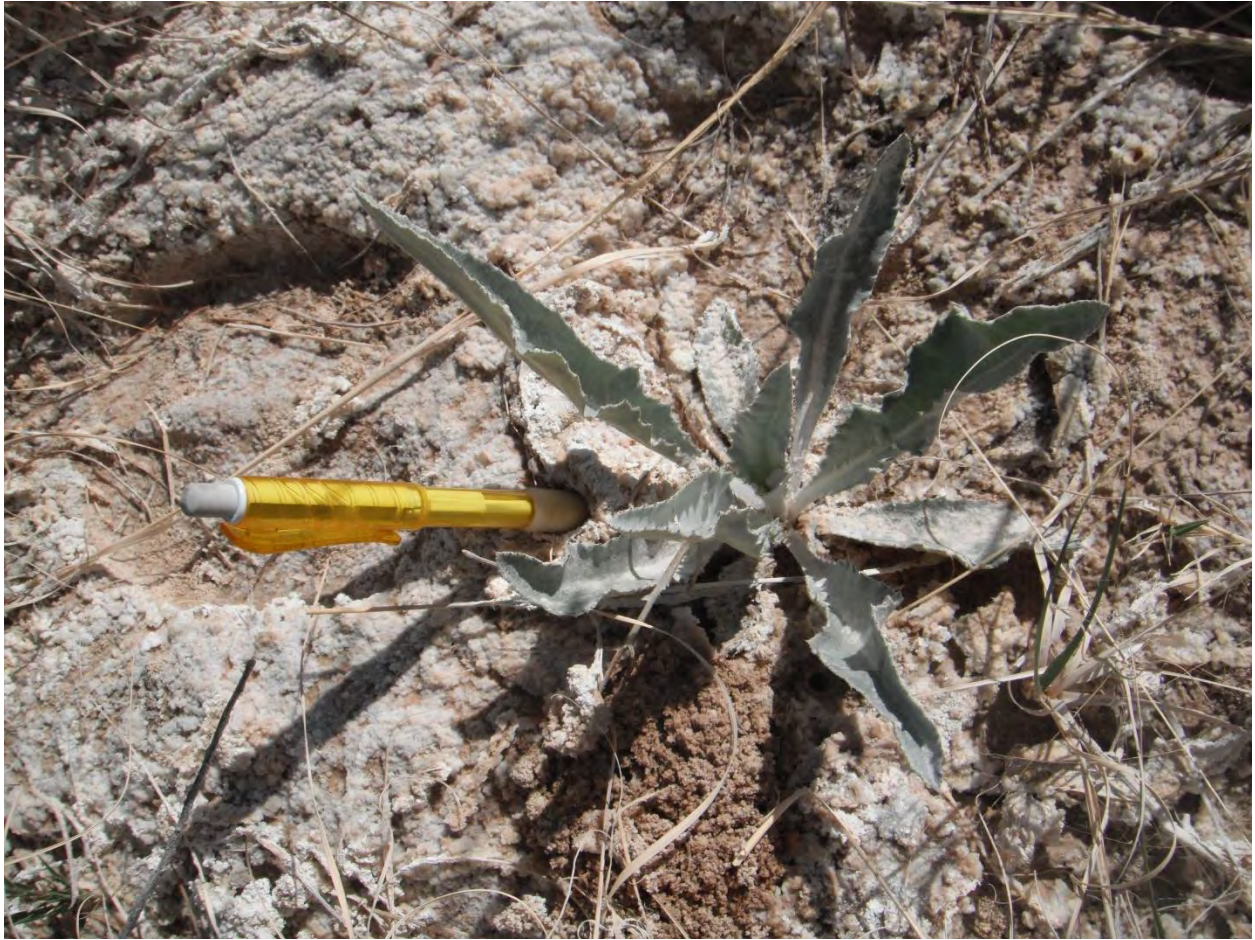


Figure A-1: *Cirsium virginense* (Virgin River thistle) from Gould's Wash area.

Appendix B

Plant Species Observed

* Locally Dominant

Trees

**Populus fremontii*

**Salix gooddingii*

Shrubs

Acamptopappus sphaerocephalus

**Ambrosia dumosa*

**Artemesia filifolia*

Atriplex canescens

**Baccharis salicifolia (glutinosa)*

**Baccharis salicina (emoryii)*

Baccharis viminea

Chrysothamnus nauseosus

Chrysothamnus viscidiflorus

**Coleogyne ramossissima*

Cylindropuntia echinocarpa

Encelia frutescens

Ephedra viridis

Gutierrezia microcephala

Hymenoclea salsola

Krameria grayii

**Larrea tridentata*

Lepidium fremontii

Opuntia polyacantha

Pluchea sericea

Prosopis glandulosa

Prunus fasciculata

Psorothamnus fremontii

Rhus aromatica v. tridentata

Salix exigua

**Tamarix chinensis*

Yucca utahensis

Forbs

Ambrosia acanthicarpa

Anemopsis californica

Artemesia dracunculus

Baileya multiradiata

Castilleja chromosa

Centaurea solstitialis

Chamaesyce albomarginata

Croton californica

Cucurbita palmata

Datura wrightii

Eriogonum inflatum

Erodium cicutarium
Gaura coccinea
Heliotropium curassavicum
Kochia scoparia
Lactuca serriola
Marrubium vulgare
Mentzelia pterosperma
Nicotiana trigonophylla
Onopordum acanthium
Psathyrotes annua
Salsola iberica
Senecio douglasii
Sonchus asper
Sphaeralcea parvifolia
Stephanomeria runcinata
Xanthium strumarium

Grasses

Aristida purpurea
**Bromus diandrus*
**Bromus tectorum*
Hilaria jamesii
Hilaria rigida
Hordeum murinum
**Juncus balticus*
Poa bulbosa
Polypogon monspeliensis
Setaria viridis
Sporobolus cryptandrus
Typha domingensis?

***Seegmiller Marsh
Threatened & Endangered Plant Species
Survey Report
Washington County, Utah***

June 20, 2018

Prepared by:

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Introduction

Based on surface geology maps and input from Jennifer Lewhinson at USFWS, portions of the proposed Seegmiller Marsh project area as shown in Figure 1 were determined to potentially contain suitable habitat for two federally listed Endangered plant species (Lewhinson, 2018). The federally listed species of potential concern were *Astragalus ampullarioides* (Shivwits milkvetch) and *Astragalus holmgreniorum* (Holmgren's milkvetch).

The mapped potential habitat area consisting of the Petrified Forest Member of the Chinle Formation shown in Figure 1 had been previously eroded away by the Virgin River and/or graded and stabilized for a recreational trail through the area.

No suitable habitat remained and neither of the target species were observed during a survey of the proposed project site.

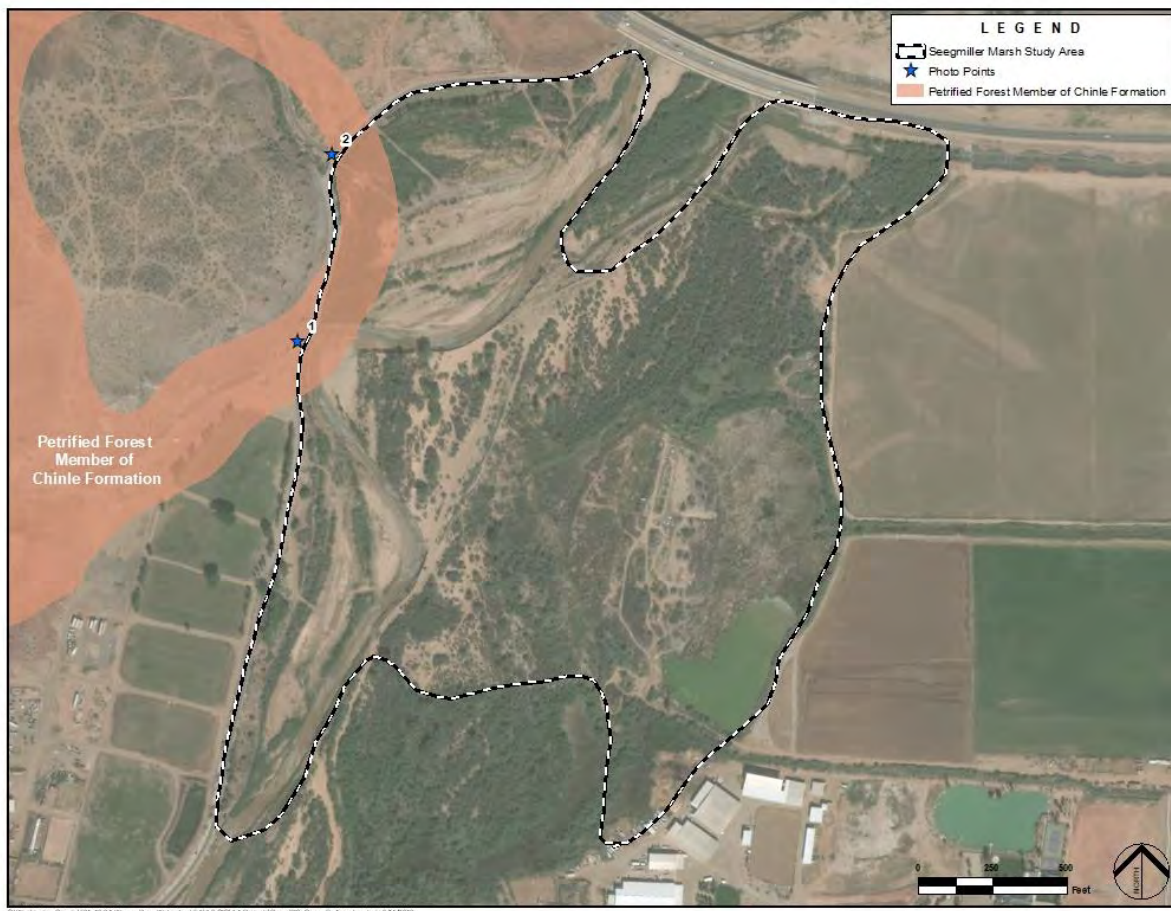


Figure 1: Seegmiller Marsh Project area overview, photo points, and geology layers associated with potential habitat for the target species.

Reference Populations

Prior to conducting on-site field surveys, local reference areas off-site from the project area were visited by Bruce Glisson for each of the target species on April 24 and 25, 2018 to assess phenology and observability.

Shivwits milkvetch observed at the Pacoon Wash site were mostly in an early vegetative state but were discernible. The plants had been recently caged to prevent herbivory and of approximately 20 plants observed only one appeared as if it would flower in 2018.

Holmgren's milkvetch was finished flowering at the time of the reference area survey (immediately west of White Dome). Approximately a dozen apparent mature plants were observed at the off-site reference area; none were in flower, two had set fruit, and the remainder either had not set fruit or had not flowered. The species is distinctive, and plants were readily observable, although some were already starting to dry out. Representative photos of target species from reference areas are presented in Appendix A.

Methodology

A survey of the western portion of the Seegmiller Marsh project area intersecting mapped areas of the Petrified Forest Member of the Chinle Formation was conducted by Bruce Glisson on April 25, 2018. Photos were taken at two locations (Figure 1) to provide a visual overview of the portion of the project in the potential habitat area and are presented below. None of the mapped potential suitable habitat in the project area remained, having been previously eroded away by the Virgin River or graded and eliminated for a paved recreational trail.

Appendix B contains a brief list of plant species observed on-site from the surveys in potential habitat areas.

Results

No potential habitat for the federally listed species of concern (i.e., *Astragalus ampullarioides* (Shivwits milkvetch) or *Astragalus holmgreniorum* (Holmgren's milkvetch)) remained on the proposed project site and no plants of either target species were present.



Figure 2: View to north from photo point 1. No potential suitable habitat remained.



Figure 3: View to northeast from photo point 1. No potential suitable habitat remained.



Figure 4: View to south from photo point 2. No potential suitable habitat remained.



Figure 5: View to east from photo point 2. No potential suitable habitat remained.

References

Lewhinson, 2018. Email correspondence of April 23, 2018 from Jennifer Lewhinson, US Fish and Wildlife Service.

Appendix A

Representative Photos of Target Species from Offsite Reference Areas



Figure A-1: Vegetative *Astragalus ampullarioides* plant from Pacoon Wash area.



Figure A-2: *Astragalus holmgreniorum* in fruit from west of White Dome.



Figure A-3: Vegetative *Astragalus holmgreniorum* plant from west of White Dome.

Appendix B

Plant Species Observed

Trees

Populus fremontii

Tamarix chinensis

Shrubs

Atriplex canescens

Baccharis salicifolia (*B. glutinosa*)

Salix exigua

Grasses

Phragmites australis

Sporobolus cryptandra

***Y-Drain
Threatened & Endangered Plant Species
Survey Report
Washington County, Utah***

June 20, 2018

Prepared by:

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Introduction

The proposed Y-Drain project is located in the vicinity of Sandia and Merrill roads, in Washington City, Washington County, Utah. Based on surface geology maps, the proposed Y-Drain project area as shown in Figure 1 does not contain potential suitable habitat for any federally listed Threatened and Endangered plant species. The channelized return-flow area was surveyed for the BLM Sensitive Species Virgin River thistle (*Cirsium virginense*).

No Virgin River thistle plants were observed during the 2018 survey of the proposed project site.



Figure 1: Y-Drain project area and photo point locations.

Reference Populations

In conjunction with on-site field surveys, reference areas off-site from the project area (vicinity of I-15 Exit 13 near Washington City and the Gould's Wash area near Hurricane) were visited to assess phenology and observability of *Cirsium virginense*. The species is distinctive and even non-flowering vegetative plants were readily discernible at off-site reference areas. A representative photo of *Cirsium virginense* from an off-site reference area is presented in Appendix A.

Methodology

A survey of the Y-Drain project area was conducted by Bruce Glisson on May 22, 2018 and consisted of a brief general floristic survey and search for *Cirsium virginense* along the existing channel. Dominant plant species included *Tamarix chinensis* (tamarisk), *Elaeagnus angustifolia* (Russian olive), *Nasturtium officinalis* (watercress), and *Pluchea sericea* (arrowweed). Appendix B contains a list of plant species that were observed.

Results

No potentially suitable habitat for federally listed species was present on or near the project site. None of the BLM Sensitive Species, Virgin River thistle, were present on the project site.



Figure 2: Project site overview, view to southwest (down-channel) from photo point 1.



Figure 3: Project site overview, view to southwest (down-channel) from photo point 2.



Figure 4: Project site overview, view to northeast (up-channel) from photo point 3.



Figure 5: Project site overview, view to southwest (down-channel) from photo point 3.

Appendix A

Representative Photos of Target Species from Off-site Reference Areas

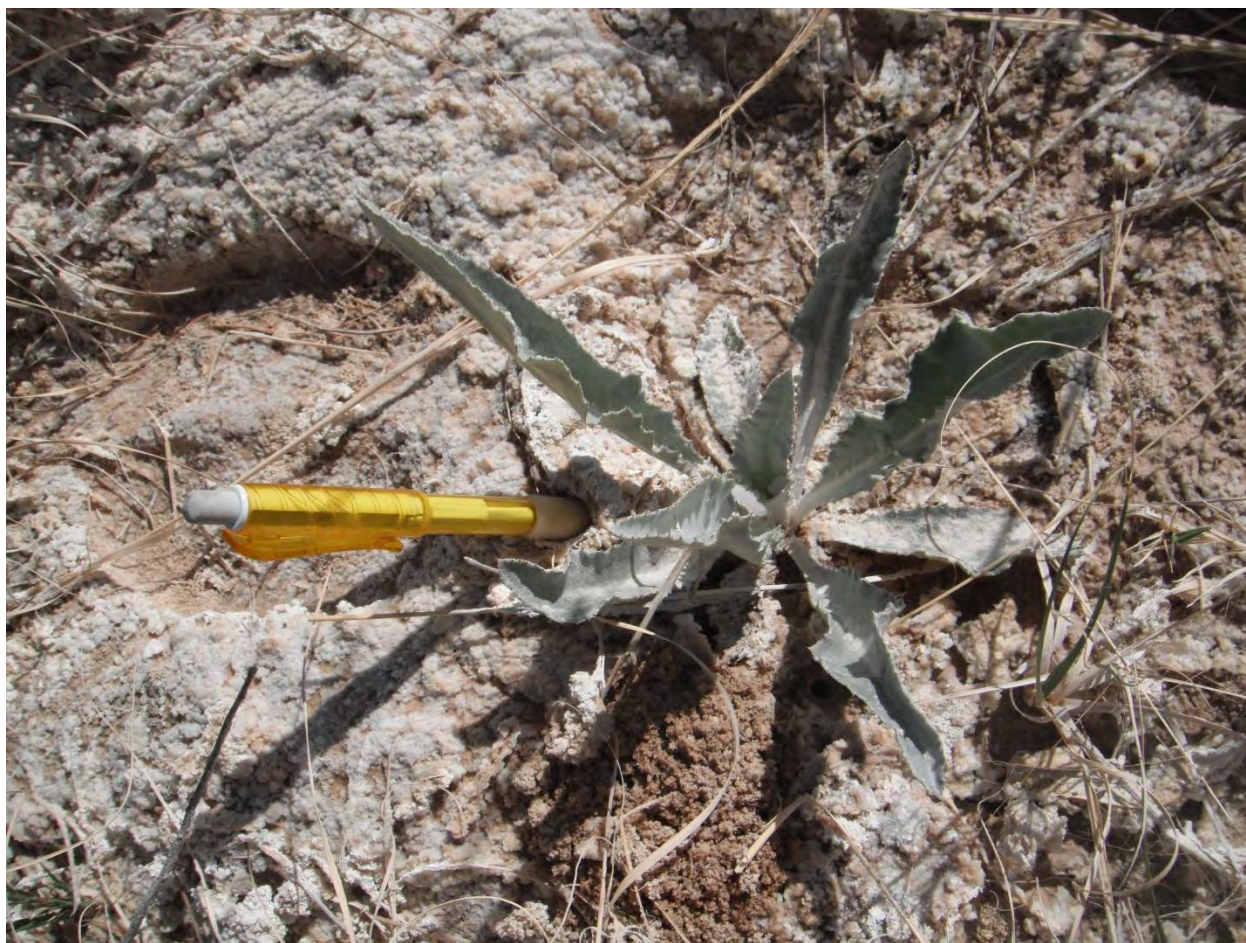


Figure A-1: *Cirsium virginense* (Virgin River thistle) from Gould's Wash area.

Appendix B

Plant Species Observed

* Locally Dominant

Trees

**Elaeagnus angustifolia*

Shrubs

Baccharis salicina (emoryii)

**Pluchea sericea*

**Tamarix chinensis*

Forbs

Arctium minus

Atriplex (annual)

Convolvulus arvensis

Halogeton glomeratus

Heliotropium curassavicum

Kochia scoparia

Lactuca serriola

Melilotus officinalis

**Nasturtium officinalis*

Rubia tinctorial

**Rumex obtusifolius?*

Salsola iberica

Solanum dulcamara

Sonchus asper

Veronica persica

Grasses

Bromus tectorum

Distichlis spicata

Festuca pratensis

Hordeum jubatum

Muhlenbergia (asperifolia?)

**Phragmites australis*

Poa bulbosa

Polypogon monspeliensis

Stipa hymenoides

Scirpus americanus

Typha domingensis?

***Warner Valley Disposal System
Threatened & Endangered Plant Species
Survey Report
Washington County, Utah***

June 20, 2018

Prepared by:

*Bruce Glisson, Ph.D.
Botany & Ecology Consultant
315 Matterhorn Drive
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(435) 513-1134*

Introduction

Based on surface geology maps and input from Jennifer Lewhinson at USFWS, portions of the proposed Warner Valley Disposal System project area as shown in Figure 1 were determined to potentially contain suitable habitat for three federally listed Threatened and Endangered plant species and one BLM Sensitive Species (Lewhinson, 2018). The federally listed species were *Arctomecon humilis* (Dwarf bear poppy), *Pediocactus sileri* (Siler's pincushion cactus), and *Astragalus holmgreniorum* (Holmgren's milkvetch). Potential suitable habitat for the BLM Sensitive Species *Petalonyx parryi* (Parry's sandpaper plant) was also determined to be present.

None of the target species were observed during a survey of the proposed project site.

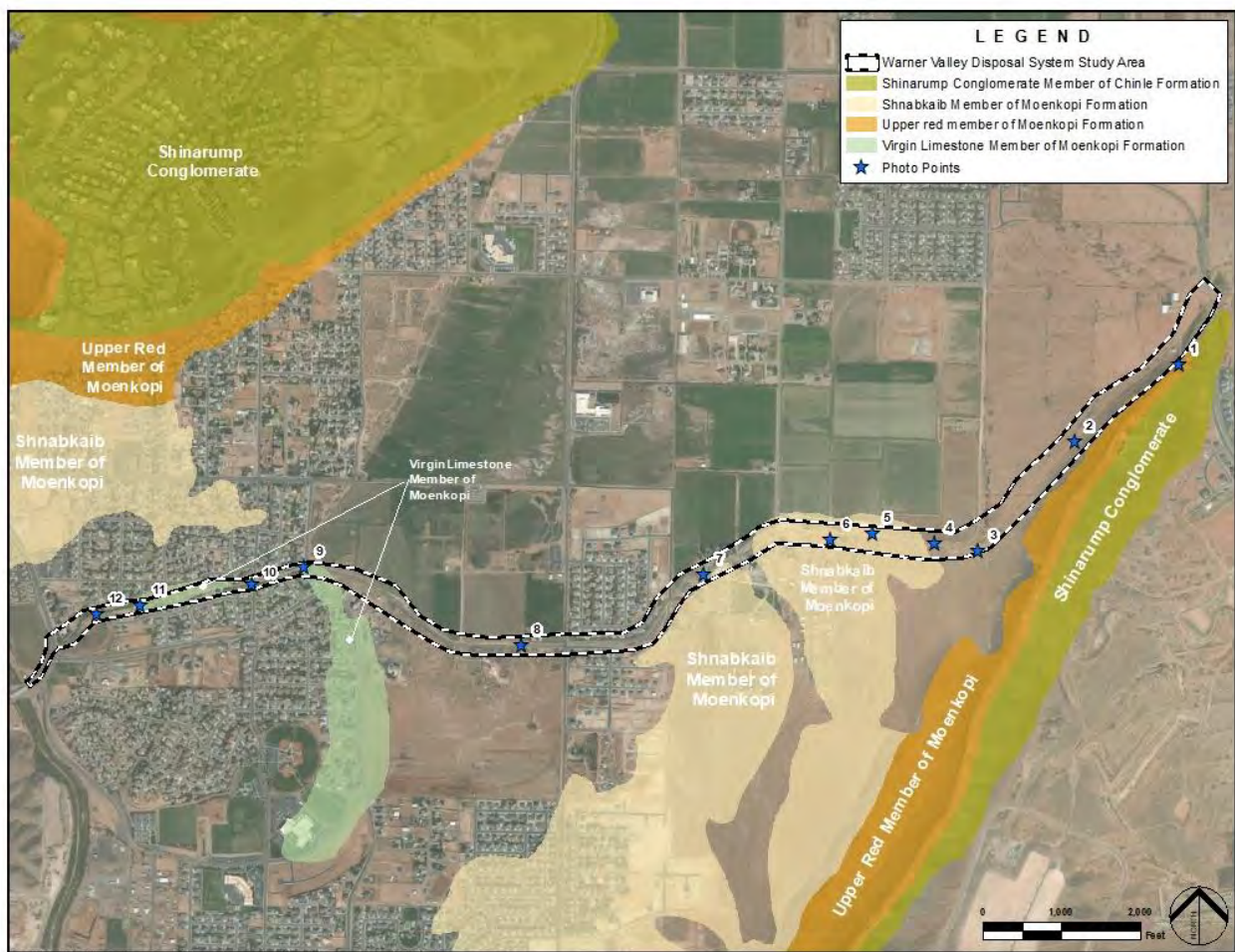


Figure 1: Warner Valley Disposal System Project area overview, photo points, and geology layers associated with potential habitat for the target species.

Reference Populations

In conjunction with on-site field surveys, local reference areas off-site from the project area were visited by Bruce Glisson and Merissa Davis of Bowen Collins & Associates for each of the target species on April 24, 2018 to assess phenology and observability. *Arctomecon humilis* was in full bloom and readily evident. Seedlings of the poppy were also readily observable. *Petalonyx parryi* was in the early stages of flowering and the plants were readily evident at off-site reference areas. *Pediocactus sileri* was not flowering at the time of the surveys, but the species is a very robust growth form (for *Pediocacti*), and the plants were readily evident at off-site reference areas.

Holmgren's milkvetch was finished flowering at the time of the reference area survey (immediately west of White Dome). Approximately a dozen apparent mature plants were observed at the off-site reference area; none were in flower, two had set fruit, and the remainder either had not set fruit or had not flowered. The species is distinctive, and plants were readily observable, although some were already starting to dry out. Representative photos of target species from reference areas are presented in Appendix A.

Methodology

A survey of the Warner Valley Disposal System project area was conducted by Bruce Glisson and Merissa Davis on April 24 and 25, 2018. Photos were taken at various locations (Figure 1) to provide a visual overview of the alignment and are presented below. The survey focused on undisturbed and undeveloped areas with potentially suitable surface geology (i.e., Upper Red, Shnabkaib, and Virgin Limestone members of the Moenkopi Formation and the Shinarump Conglomerate Member of the Chinle Formation) and adjacent areas (as shown in Figure 1). Much of the central and western portion of the project area had been previously developed or disturbed for agricultural activities.

The only intact potential habitat along the alignment occurred on a moderately steep northwesterly facing slope in the northeast corner of the project area (Figures 2-5) and flat areas to the west of the hillside (Figure 7). Most of the mapped potential suitable geology areas along the slope (Shinarump Conglomerate and Upper Red Member of the Moenkopi formations) were located just east of the project polygon. The lower portion of the hillside from the edge of the polygon down to the dirt road at the base of the hill was surveyed intensively (Figures 3-5). The potential habitat area shown in Figure 7 (Shnabkaib Member of the Moenkopi Formation) was a heavily grazed area with little vegetation remaining other than creosote bush and annual grasses.

Transects were spaced to ensure full coverage across these areas based on visibility of target species as determined from reference area visits. In general, this resulted in transect spacing of approximately 5-6 meters throughout intact potential habitat areas. *Larrea tridentata* (creosote bush) was dominant across most of these potential habitat areas and the presence of creosote bush is typically considered a negative indicator for Holmgren's milkvetch.

The hillside in the northeast portion of the project area had also been previously intensively surveyed in 2015 (Glisson, 2015) and none of the target species were observed during that survey.

Areas shown as potential geology habitat map units to the west of photo point 6 were either heavily disturbed agricultural lands (grazed/trampled to bare soil or tilled and planted in crops) or were fully developed and no suitable habitat remained. These areas were not physically surveyed as no potential habitat for the target species was present, but representative photos are included to provide an overview of the entire project area. Appendix B contains a list of plant species observed on-site from the surveys in potential habitat areas.

Results

None of the federally listed species of potential concern (i.e., *Arctomecon humilis* (Dwarf bear poppy), *Pediocactus sileri* (Siler's pincushion cactus), or *Astragalus holmgreniorum* (Holmgren's milkvetch)) were present on the proposed project site. Likewise, none of the BLM Sensitive Species, Parry's sandpaper plant, were present on the project site.



Figure 2: View to northeast from photo point 1. No federally listed species or BLM Sensitive Species were present.



Figure 3: View to southwest from photo point 1. No federally listed or BLM Sensitive species were present.



Figure 4: View to northeast from photo point 2. No federally listed or BLM Sensitive species were present.



Figure 5: View to southwest from photo point 2. No federally listed or BLM Sensitive species were present.



Figure 6: View to west from photo point 3. No federally listed or BLM Sensitive species were present.



Figure 7: View to west from photo point 4. No federally listed or BLM Sensitive species were present.



Figure 8: View to northeast from photo point 5. No federally listed or BLM Sensitive Species were present.



Figure 9: View to northwest from photo point 5. No federally listed or BLM Sensitive Species were present.



Figure 10: View to west from photo point 6 of heavily disturbed area.



Figure 11: View to east from photo point 7 of developed and heavily disturbed areas.



Figure 12: View to southwest from photo point 7 of developed and heavily disturbed areas.



Figure 13: View to east from photo point 8. No special status species habitat was present in this area.



Figure 14: View to west from photo point 8. No special status species habitat was present in this area.



Figure 15: View to west from photo point 9 of developed and heavily disturbed areas.



Figure 16: View to west from photo point 10 of developed and heavily disturbed areas.



Figure 17: View to east from photo point 11 of developed and heavily disturbed areas.



Figure 18: View to west from photo point 11. No federally listed species habitat was present in this area.



Figure 19: View to west from photo point 12. No federally listed species habitat was present in this area.

References

Glisson, 2015. Stucki Debris Basin Rehabilitation Threatened & Endangered Plant Species Survey Report. Washington County, Utah.

Lewhinson, 2018. Email correspondence of April 23, 2018 from Jennifer Lewhinson, US Fish and Wildlife Service.

Appendix A

Representative Photos of Target Species from Offsite Reference Areas



Figure A-1: *Arctomecon humilis* from Warner Canyon.



Figure A-2: *Pediocactus sileri* from vicinity of Warner Canyon.



Figure A-3: *Astragalus holmgreniorum* in fruit from west of White Dome.



Figure A-4: Vegetative *Astragalus holmgreniorum* plant from west of White Dome.



Figure A-5: *Petalonyx parryi* from Warner Canyon.

Appendix B

Plant Species Observed

Trees

Prosopis glandulosa

Tamarix chinensis

Shrubs

Acamptopappus sphaerocephala

Ambrosia dumosa

Atriplex canescens

Chrysothamnus viscidiflorus

Cylindropuntia acanthocarpa

Echinocereus engelmannii

Encelia frutescens

Ephedra nevadensis

Eriogonum fasciculatum

Gutierrezia microcephala

Gutierrezia sarothrae

Hymenoclea salsola

Krasheninnikovia lanata

Larrea tridentata – dominant across
most of potential habitat areas

Lepidium fremontii

Opuntia polyacantha

Psoralea fremontii

Sarcobatus vermiculatus

Forbs

Astragalus nuttalliana

Chaenactis carphoclinia

Chamaesyce albomarginata

Chorizanthe brevicornu

Croton californica

Descurainia sophia

Eriogonum inflatum

Eriogonum palmerianum?

Erodium cicutarium

Kochia scoparia

Lepidium montanum

Mammillaria tetrancistra

Mirabilis bigelovii

Plantago patagonica

Salsola iberica

Sphaeralcea parviflora

Grasses

Aristida purpurea

Bromus tectorum

Hilaria rigida

Hordeum murinum

Poa bulbosa

Vulpia octoflora

***Hurricane Irrigation System Study
Threatened & Endangered Plant Species
Survey Report
Washington County, Utah***

June 22, 2018

Prepared by:

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Introduction

Based on surface geology maps and input from Jennifer Lewhinson at USFWS, it was determined there was no potential suitable habitat for federally listed species in the Hurricane Irrigation System Study project area as shown in Figure 1. The BLM Sensitive Species, *Cirsium virginense* (Virgin River thistle) was considered a target species for surveys based on proximity to known occurrences.

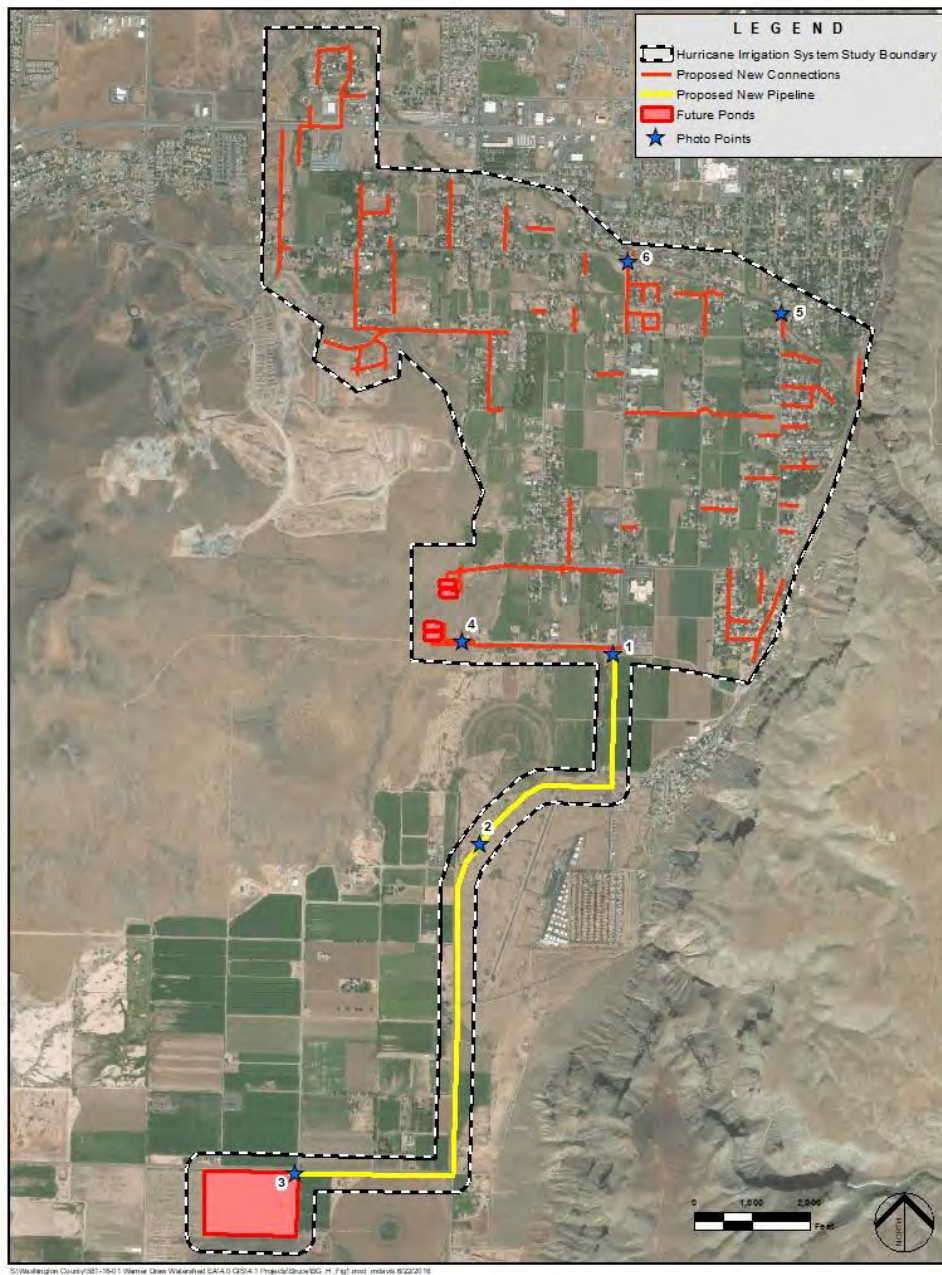


Figure 1: Hurricane Irrigation System Study project area overview and photo points.

Reference Populations

In conjunction with on-site field surveys a local reference area off-site from the project area was visited to assess phenology and observability of Virgin River thistle. A representative photo from the reference area is presented in Appendix A.

Methodology

A survey of the Hurricane Irrigation System Study project area was conducted by Bruce Glisson on May 23, 2018. The survey focused on undeveloped areas with proposed connections as shown in Figure 1. Photos were taken at several locations to provide a visual overview of the project area and are presented below. Surveys for areas of potential habitat for Virgin River thistle were limited to approximately 100 feet upstream and downstream of planned crossings of Gould Wash (photo points 5 and 6). These areas were mostly dry except for shaded areas under bridges.

Appendix B contains a brief list of plant species observed on-site from the photo point locations and surveys of potential habitat areas.

Results

No potential habitat for federally listed plant species was present in the project area. Small areas of potential suitable habitat for the BLM Sensitive Species Virgin River thistle were present, but no plants were present.



Figure 2: View to south from photo point 1. No potential suitable habitat was present.



Figure 3: View to northeast from photo point 2. No potential suitable habitat was present.



Figure 4: View to southwest from photo point 2. No potential suitable habitat was present.



Figure 5: View to west of future irrigation pond area from photo point 3. No potential suitable habitat was present.



Figure 6: View to southwest of future irrigation pond area from photo point 3. No potential suitable habitat was present.



Figure 7: View to northwest of proposed pond area from photo point 4. No potential suitable habitat was present.



Figure 8: Upstream view of Gould Wash from photo point 5. No Virgin River thistle were present.



Figure 9: Downstream view of Gould Wash from photo point 5. No Virgin River thistle were present.



Figure 10: Upstream view of Gould Wash from photo point 6. No Virgin River thistle were present.



Figure 11: Downstream view of Gould Wash from photo point 6. No Virgin River thistle were present.

References

Lewhinson, 2018. Email correspondence of April 23, 2018 from Jennifer Lewhinson, US Fish and Wildlife Service.

Appendix A

Representative Photos of Target Species from Offsite Reference Areas



Figure A-1: Vegetative *Cirsium virginense* plant from off-site reference area near Gould Wash approximately 2.5 miles southeast of the Hurricane Irrigation project area.

Appendix B

Plant Species Observed

* Locally Dominant

Trees

Morus alba

Populus fremontii

Ulmus pumila

Shrubs

Acacia greggii

Atriplex canescens

Baccharis salicifolia (*B. glutinosa*)

**Baccharis salicina* (*emoryii*)

Gutierrezia microcephala

Opuntia polyacantha

**Larrea tridentata*

**Salix exigua*

Forbs

Helianthus annuus

Melilotus officinalis

Rubia tinctoria

Rumex obtusifolius?

Sonchus asper

Xanthium strumarium

Grasses

Festuca arundinacea

Phragmites australis

Poa pratensis

Scirpus pungens

Secale cereale

Desert Tortoise Survey Report



Date: January 17, 2019

TO: File—Warner Draw Watershed Plan, Supplement

FROM: Derek Hamilton, NRCS

RE: 2018 Desert Tortoise Survey

1.0 Background

The proposed supplement to the Warner Draw Watershed Plan includes project areas located in the Upper Virgin River Recovery Unit as identified in U.S. Fish and Wildlife Service's (USFWS) *Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Gopherus agassizii)*. See Figures 1 and 2 in Appendix A.

In coordination with USFWS, it was determined that the following project areas are expected to contain suitable habitat for desert tortoises and would require presence/absence surveys for Section 7 Endangered Species Act (ESA) consultation: 1) Warner Valley Disposal System; 2) Washington City Main Street Debris Basins; and 3) Hurricane Canal Water Efficiency. Accordingly, field surveys to identify suitable habitat and determine presence/absence were completed during the active period in fall of 2018.

2.0 Species

The desert tortoise is an herbaceous, terrestrial reptile that is well adapted for survival in the desert. Adult desert tortoises are relatively large, ranging between 8 and 15 inches long, and weighing between 8 and 15 pounds. Desert tortoises are found in arid, western U.S. landscapes with desert flats, valleys, washes, alluvial fans, rolling hills, and/or low mountains. They occur in the following plant communities at elevations ranging between 300-ft and 5000-ft: creosote bush scrub, Joshua tree woodland, Mojave saltbush scrub, blackbrush woodland, juniper woodland. Desert tortoises shelter in burrows, caves, or rock outcrops to escape from predators and avoid extreme heat during the summer months. Desert tortoises are generally active when annual plants are common (spring, early summer, and fall).

3.0 Survey Areas

In coordination with USFWS, it was determined that 100% of the project areas, and a 300-ft buffer surrounding such, would be surveyed in order to identify suitable habitat and determine presence/absence. See Figures 1-3 in Appendix B for areas surveyed.

4.0 Methodology

The first objective of the survey was to identify suitable habitat for desert tortoises in and near the project areas. The second objective was to determine whether desert tortoises are present in and near the project areas by surveying suitable habitat for live individuals, carcasses (including carapace or scutes), burrows,

scats, tracks, and/or mating rings. Parallel transects spaced 10 meters apart were followed to achieve 100% coverage of each project area and a 300' buffer. A Tremble GPS receiver was used to ensure that survey transects were accurately followed. All survey work was completed in accordance with Chapter 4 (Preparing For Any Action That May Occur Within The Range of The Mojave Population Of The Desert Tortoise) of the USFWS's *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)*.

Please note that not all areas of suitable habitat were accessible for transect surveys due to private property concerns and/or difficult terrain. In these scenarios a visual observation from a distance (supported by aerial imagery) was used to identify land-use/habitat type and determine whether suitable or non-suitable desert tortoise habitat.

5.0 Findings

Surveys were completed on October 17-18 and October 29-30, 2018 by qualified NRCS staff (D. Hamilton). These surveys identified a total of approximately 292.2 acres of suitable habitat in the survey areas and 120.3 acres of suitable habitat in the project areas; however, no live/dead tortoises, shelter sites, or other evidence of occurrence were discovered. See summary of suitable habitat for desert tortoises in Table 1 below.

Table 1—Suitable Habitat Summary

Project	Suitable Habitat in Survey Area (acres)	Suitable Habitat in Project Area (acres)
Warner Valley Disposal	71.2	20.7
Washington City Main Street Debris Basins	45.3	16.4
Hurricane Canal Water Efficiency	175.7	83.2
Total	292.2	120.3

Warner Valley Disposal System

The scope of the Warner Valley Disposal System is to replace the existing Warner Valley storm drain in its existing alignment to increase the capacity and return more flows to the Virgin River.

The existing storm drain alignment follows an unimproved dirt road for approximately 1,000 meters through primarily undeveloped lands on the east end of the project that are currently being used for ATV use, hunting, and pasturing livestock. The alignment then follows the existing road network (2310 South & Seegmiller Drive) for approximately 2,800 meters until it follows an asphalt pedestrian trail and unimproved trail through a residential neighborhood for approximately 500 meters. At this point the storm drain discharges into an open canal for approximately 450 meters before returning to an existing storm drain along River Road that outlets into Fort Pearce Wash after approximately 250 meters.

In brief, the land uses in this survey area consist of the following: undeveloped, cropland, pasture, residential, commercial, roads, trails, canals, Fort Pearce Wash.

There are approximately 71.2 acres of suitable habitat for desert tortoises in the survey area, 20.7 acres of which are in the project area. The dominant vegetation in the areas of suitable habitat includes: creosote bush (*Larrea tridentate*), fourwing saltbush (*Atriplex canescens*), and Galleta grass (*Pleuraphis jamesii*). The following invasive species were found: Russian thistle (*Salsola tragus*) and cheatgrass (*Bromus tectorum*). Disturbance includes ATV use (operating during surveys), invasive species, hunting, trash dumping, and adjacent land uses that may disturb desert tortoises as a result of noise, vibration, invasive species, pets, etc.

No live individuals, carcasses, shelter sites, scats, tracks, or mating rings were discovered in the survey area for the Warner Valley Disposal System.

See Figure 1 in Appendix B. See Appendix C and D for data sheets and photos.

Washington City Main Street Debris Basins

The purpose of the Washington City Main Street Debris Basins project is to prevent the future flooding of homes by constructing a basin(s) to attenuate flows before outletting into the city's existing storm drain system. The project would construct a basin, or series of basins, by excavating native material and installing earthen embankments to temporarily store flows until they can be safely discharged into the Washington City storm drain system.

In brief, the land uses in this survey area consist of the following: undeveloped, residential, roads, and three unnamed washes.

There are approximately 45.3 acres of suitable habitat for desert tortoises in the survey area, 16.4 acres of which are in the project area. The dominant vegetation of suitable habitat includes: creosote bush, Galleta grass, green Mormon tea (*Ephedra viridis*), blackbrush (*Coleogyne ramosissima*), white bursage (*Ambrosia dumosa*), indigo bush (*Psoralea fremontii*), sand sagebrush (*Artemisia filifolia*), and broom snakeweed (*Gutierrezia sarothrae*). No invasive species were discovered. Disturbance includes ATV use, mountain biking, hiking, hunting, and adjacent land uses that may disturb desert tortoises as a result of noise, vibration, pets, etc.

No live individuals, carcasses, shelter sites, or other signs of occurrence were discovered in the survey area for the Washington City Main Street Debris Basins. One burrow was discovered in the survey area (approx. 50 meters north of the project area) that resembled a desert tortoise burrow in size and shape. This burrow was not occupied and appeared abandoned. It was surrounded by several small mammal/reptile burrows that were not the correct shape or size for desert tortoises. Therefore, after additional consideration it was determined that this burrow was either an abandoned desert tortoise burrow from years past or just resembles a desert tortoise burrow in size and shape. No similar burrows were discovered in the survey area.

See Figure 2 in Appendix B. See Appendix C and D for data sheets and photos.

Hurricane Canal Water Efficiency

The purpose of the Hurricane Canal Water Efficiency project is to conserve water by converting residents currently using flood irrigation to sprinkler irrigation. This will require a constructing an irrigation pond and installing a network of irrigation waterlines throughout the community.

The land uses in the area include the following: undeveloped, cropland, pasture, residential, commercial, roads, trails, canals, and Gould Wash.

There are approximately 175.7 acres of suitable habitat for desert tortoises in the survey area, 83.2 acres of which are in the project area. The dominant vegetation of suitable habitat includes: creosote bush, fourwing saltbush, green Mormon tea, broom snakeweed, and Indian rice grass (*Achnatherum hymenoides*). No invasive species were discovered. Cheatgrass has encroached from roadway right-of-way areas into sections of suitable habitat but is not a significant source of disturbance. Large areas of suitable habitat are fenced (private property) or difficult terrain, and as a result, disturbance associated with ATV, hiking, or

hunting activities is minimal. Land uses in adjacent areas may disturb desert tortoises as a result of noise, vibration, pets, etc.

Because of limited access in the survey area, habitats were assessed for suitability only and no transect survey work was done. A majority of the habitat determined to be suitable for desert tortoise occurs in the 300' buffer area surrounding the project area and would not be directly affected during construction.

See Figure 3 in Appendix B. See Appendix C and D for data sheets and photos.

6.0 Conservation Measures

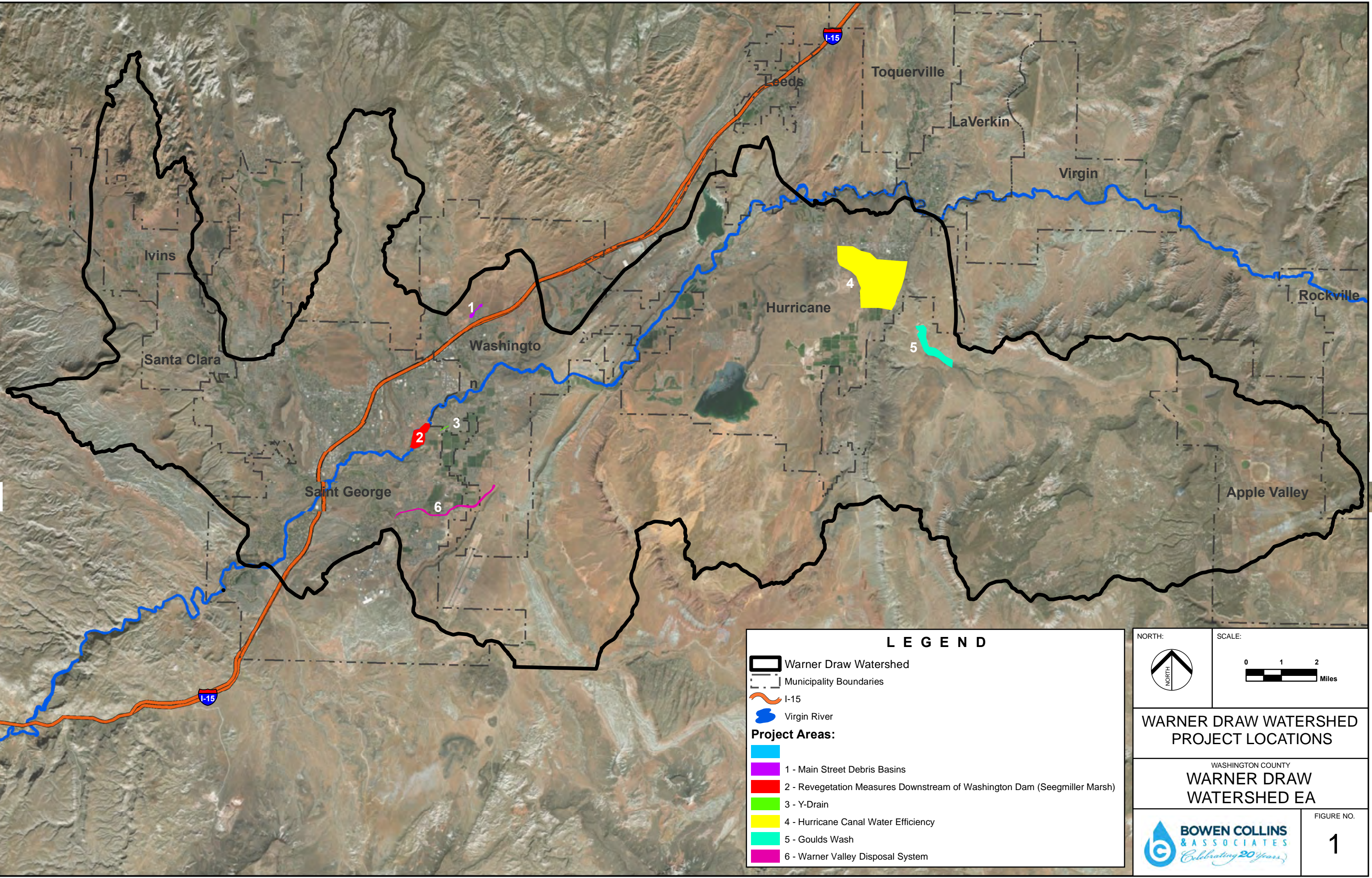
The following conservation measures should be adhered to in order to avoid harming or harassing desert tortoises during implementation of projects associated with the supplemental watershed plan.

- 1) All construction employees will be required to read an educational brochure prior to site entry. The brochure will describe the biology of desert tortoises, the characteristics of suitable habitat, and the appropriate measures to take upon potential discovery of an individual. All construction employees will sign an affidavit that they have read and understand the material presented in the brochure.
- 2) Suitable habitat in the project areas will be surveyed by a USFWS-approved desert tortoise survey biologist for the presence of individuals during the active season, and no more than 30 days prior to construction. If desert tortoise or their signs are discovered during presence surveys, USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
- 3) If desert tortoises are encountered during construction, the project will be halted and USFWS will be contacted and formal Section 7 ESA consultation will be initiated.
- 4) Trenches, pits, and other excavation sites will be checked for desert tortoises prior to backfilling.
- 5) Trash will be contained to reduce the potential for attracting desert tortoise predators.
- 6) Construction equipment (including pick-up trucks) will not exceed 20 miles-per-hour to minimize collisions with desert tortoises and reduce fugitive dust.
- 7) Temporarily disturbed areas will be revegetated using a USFWS-approved seed-mix.

7.0 Conclusion

No live desert tortoises or their signs were discovered during fall 2018 surveys. However, not all suitable habitat was surveyed because of accessibility issues, and pre-construction surveys will be needed to ensure that desert tortoises are absent from project areas. If desert tortoises are discovered during pre-construction surveys, or encountered during construction, formal consultation with USFWS will be required.

APPENDIX A



1 - Main Street Debris Basins



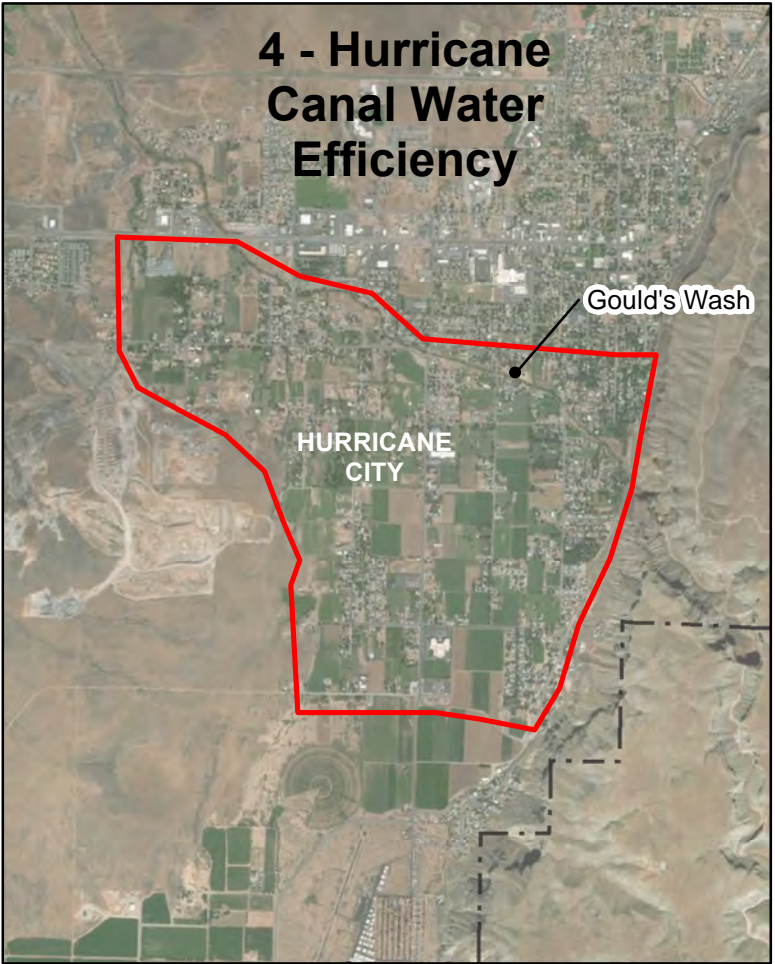
2 - Revegetation Measures
Downstream of
Washington Dam
(Seegmiller Marsh)



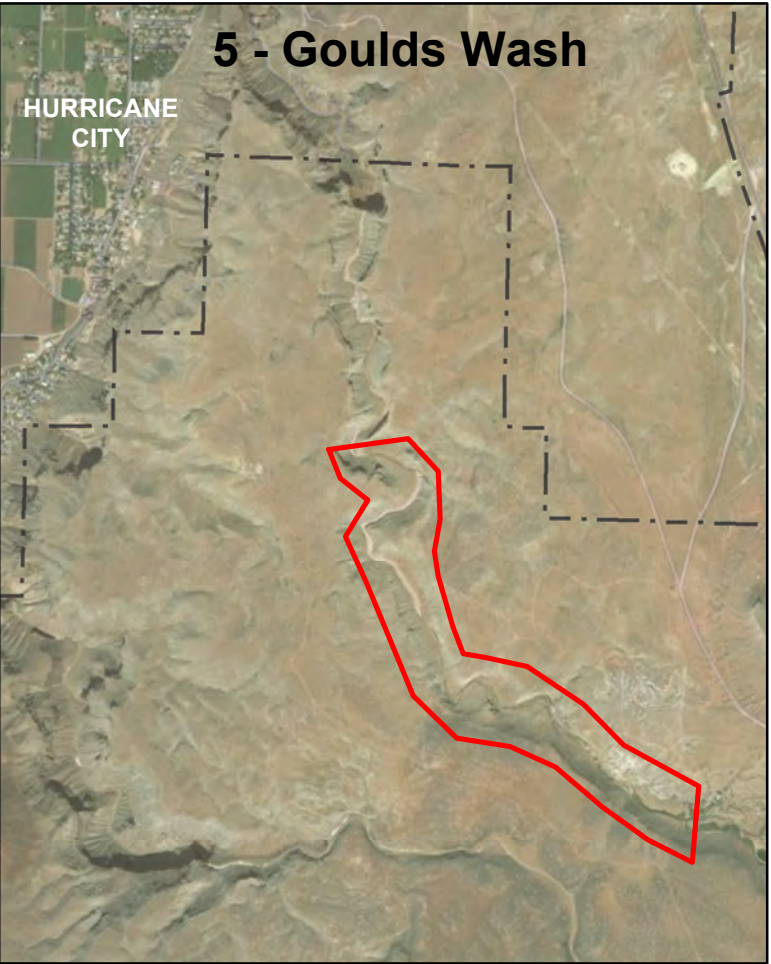
3 - Y-Drain



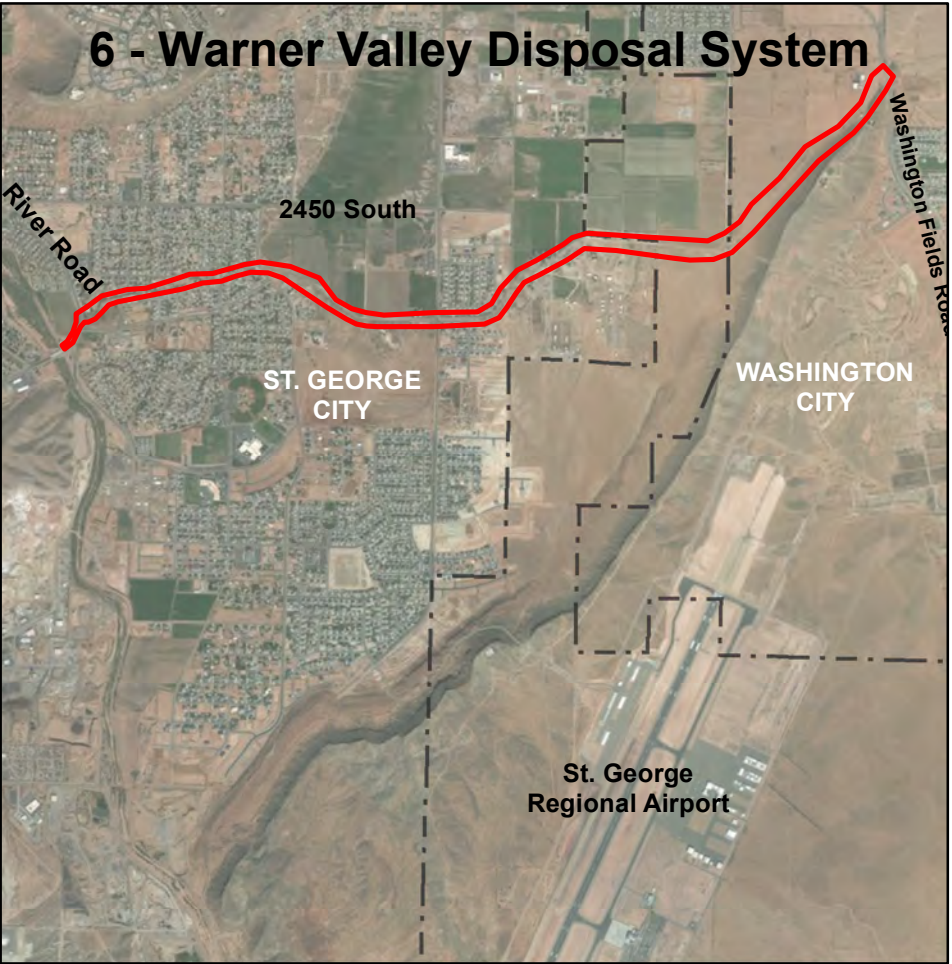
4 - Hurricane
Canal Water
Efficiency



5 - Goulds Wash





6 - Warner Valley Disposal System



LEGEND

 Approximate Project Areas

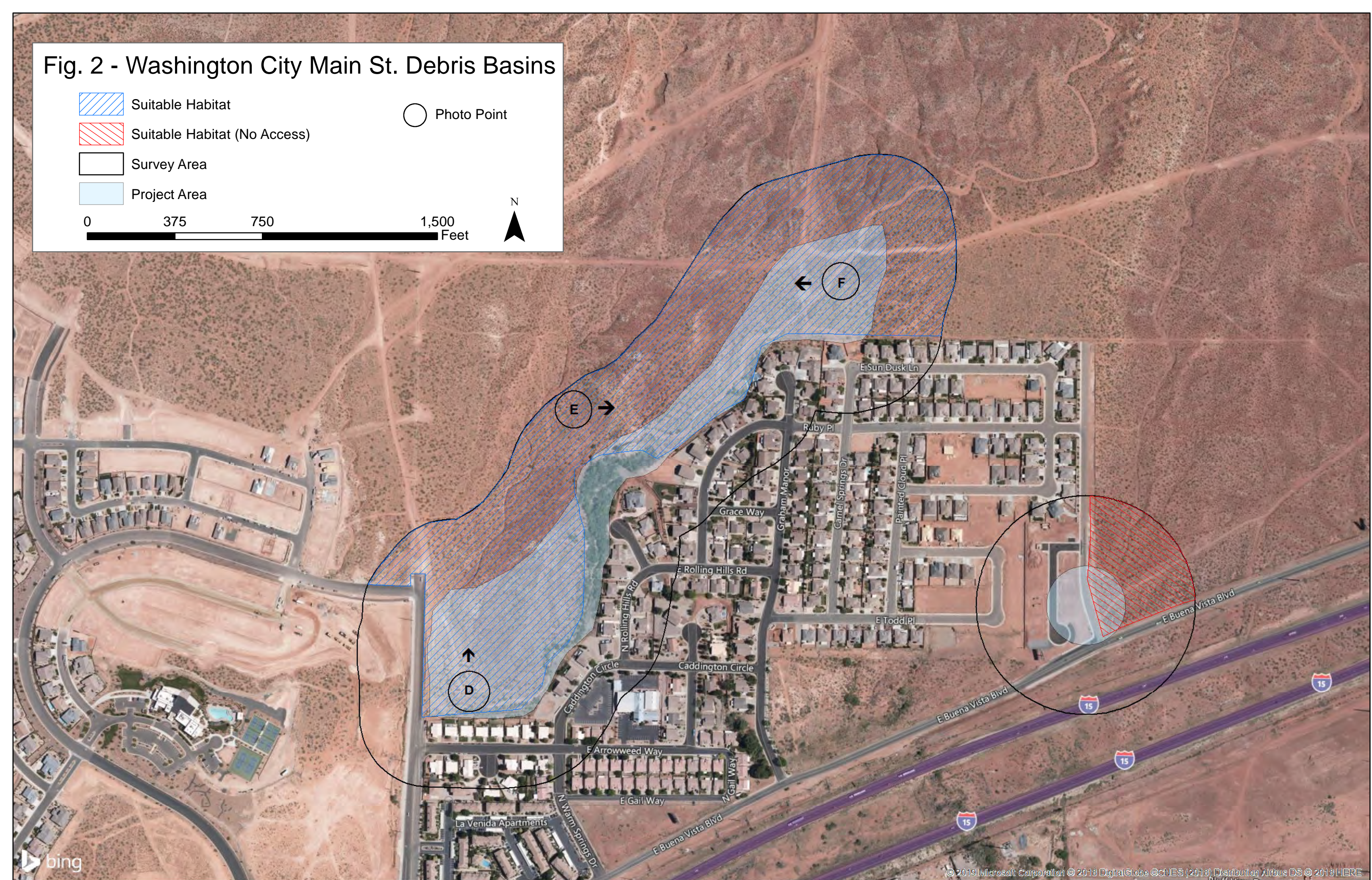
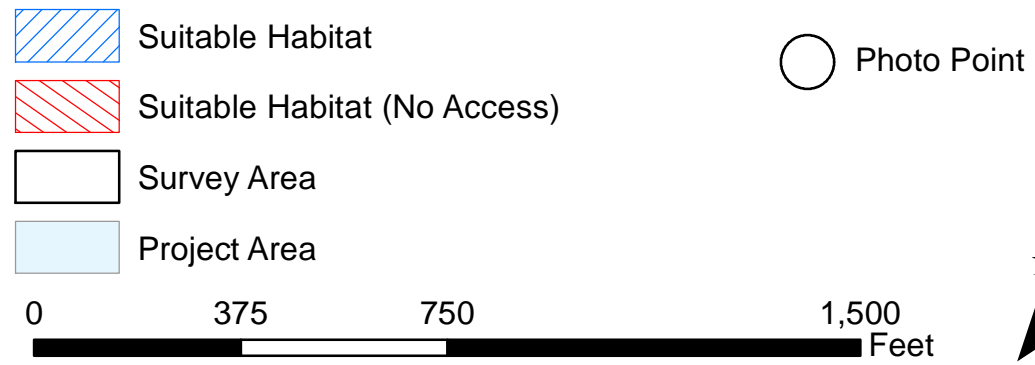
 Municipality Boundaries

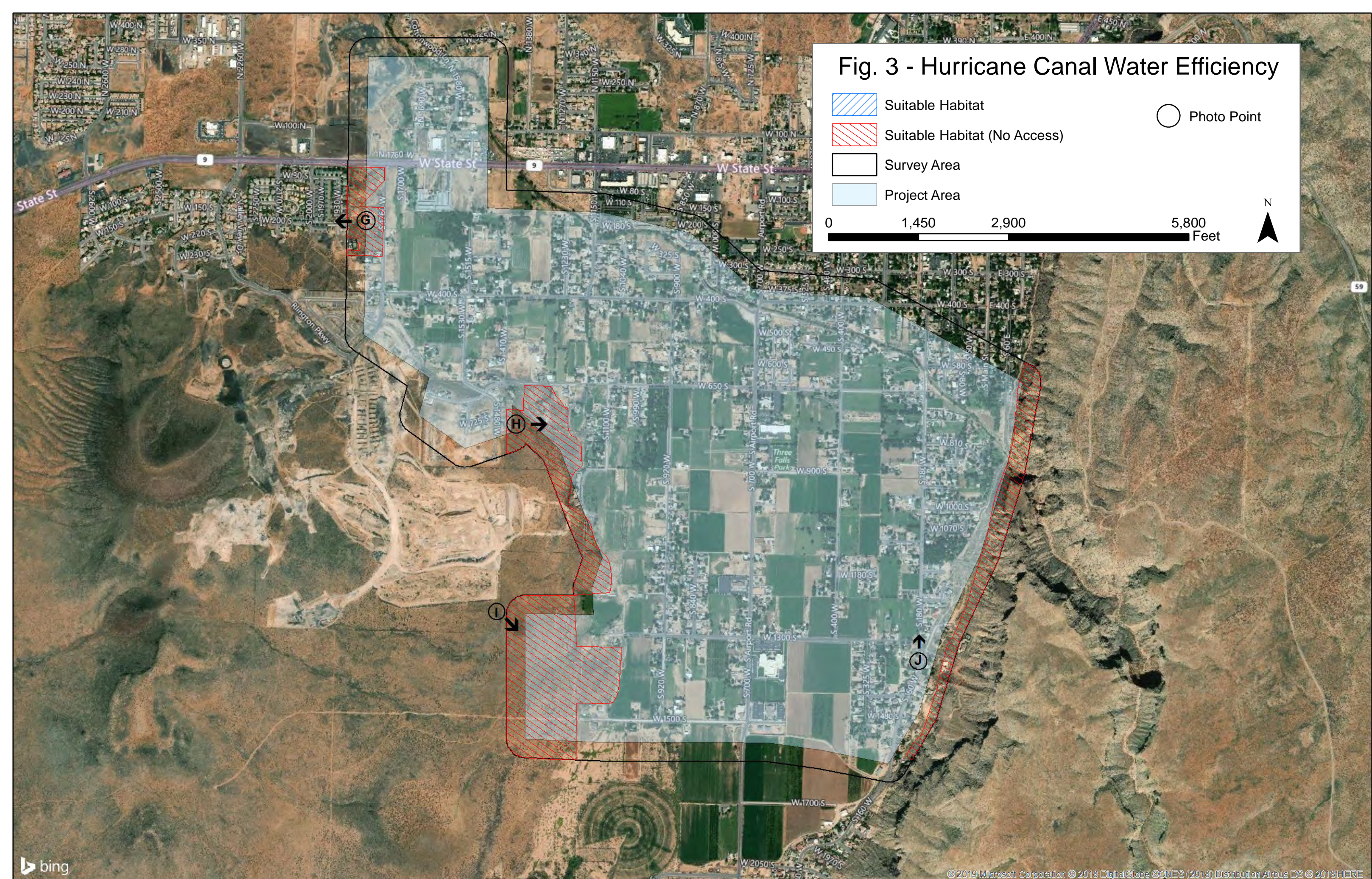
NORTH: 	SCALE: (NOT TO SCALE)
WARNER DRAW WATERSHED ENLARGED PROJECT AREAS	
WASHINGTON COUNTY WARNER DRAW WATERSHED EA	
	FIGURE NO. 2

APPENDIX B



Fig. 2 - Washington City Main St. Debris Basins





APPENDIX C

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 10-13-18 Survey biologist(s): [Signature]
(day, month, year) (name, email, and phone number)

Site description: Lower Dry Lake - Day 1
(project name and size, general location)

County: _____ Quad: _____ Location: _____
(UTM coordinates, lat-long, and/or TRS map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____

GPS Start-point: _____ Start time: 12:40 am/pm
(easting, northing, elevation in meters)

GPS End-point: _____ End time: 5:55 am/pm
(easting, northing, elevation in meters)

Start Temp: 63 °C End Temp: 64 °C

Live Tortoises

Detection number	GPS location Easting Northing		Time	Tortoise location <small>(in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting Northing		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

Creosote
4-wing

Basalt on surface

ATV Trash, Shotgun

Page: _____ of _____

Transect number: _____

Step 2740 E

Russian T. H. H.

have found in areas

Gulch

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 10.19.18 (day month year) Survey biologist(s): JH (name email, and phone number) 2740E to Ft. Pearce Wash
 Site description: Warner Dry Lake - Dry 2 (project name and size, general location)
 County: _____ Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS map datum)
 Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____
 GPS Start-point: _____ (easting, northing, elevation in meters) Start time: 7:40 am/pm
 GPS End-point: _____ (easting, northing, elevation in meters) End time: 10:10 am/pm
 Start Temp: 30 °C End Temp: 36 °C

Live Tortoises

Detection number	GPS location Easting Northing		Time	Tortoise location (in burrow, all of tortoise beneath plane of burrow opening, or not in burrow)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting Northing		Type of sign (burrows, scats, carcass, etc)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

Biped open ditch between developments
 until it joins Ft. Pearce Wash
 No DT Habitat in this stretch

Page: _____ of _____

Transect number: _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 10.15.18 Survey biologist(s): DH
(day, month, year) (name, email, and phone number)
 Site description: Main St. Debris Basins - Day 1 - Stopped @ G
(project name and size; general location)
 County: _____ Quad: _____ Location: _____
(UTM coordinates, lat-long, and/or TRS; map datum)
 Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____
 GPS Start-point: _____ Start time: 10:34 am/pm
(easting, northing, elevation in meters)
 GPS End-point: _____ End time: 12:53 am/pm
(easting, northing, elevation in meters)
 Start Temp: 58 °C End Temp: 64 °C

Live Tortoises

Detection number	GPS location Easting Northing		Time	Tortoise location <small>(in burrow, all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting Northing		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

Creosote
Black Brush
Mormon Tea
Spokeweed
Bursage
Indigo Bush
Sage
Galleta Grass

→ ATU ; mtr Bike Activity,

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 10.29.18 Survey biologist(s): DH
(day, month, year) (name, email, and phone number)

Site description: Hurricane Harvey - Day 1
(project name and size; general location)

County: _____ Quad: _____ Location: _____
(UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____

GPS Start-point: _____ Start time: 1:35 am/pm
(easting, northing, elevation in meters)

GPS End-point: _____ End time: 5:20 am/pm
(easting, northing, elevation in meters)

Start Temp: 75 °C End Temp: 91 °C

Live Tortoises

Detection number	GPS location Easting Northing		Time	Tortoise location <small>(in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting Northing		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

→ Cropland & residential majority of project area
 No DT habitat.

Page: _____ of _____

Transect number: _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 10.30.10 Survey biologist(s): D/L
(day, month, year) (name, email, and phone number)

Site description: Warner Draw - main St. IS ^{2nd survey}
(project name and size; general location) (G-V)

County: _____ Quad: _____ Location: _____
(UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____

GPS Start-point: _____ Start time: 8:40 am/pm
(easting, northing, elevation in meters)

GPS End-point: _____ End time: 12:25 am/pm
(easting, northing, elevation in meters)

Start Temp: 58 °C End Temp: 68 °C

Live Tortoises

Detection number	GPS location Easting Northing		Time	Tortoise location <small>(in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting Northing		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
1			6" Burrow	Not occupied - old
2				Surrounded by small mammal burrows
3				Class 5
4				deteriorated -
5				possibly DT @
6				over time
7				
8				No scat tracks

Burrow @ North end of survey area,
 outside project area w/in 300' buffer.

Page: _____ of _____

Transect number: _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 10.30.13 Survey biologist(s): DH
(day, month, year) (name, email, and phone number)
 Site description: Hurricane #2 ND Survey - undeveloped areas.
(project name and size; general location)
 County: _____ Quad: _____ Location: _____
(UTM coordinates, lat-long, and/or TRS; map datum)
 Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____
 GPS Start-point: _____ Start time: 12:45 am/pm 12:45
(easting, northing, elevation in meters)
 GPS End-point: _____ End time: 3:05 am/pm
(easting, northing, elevation in meters)
 Start Temp: 61 °C End Temp: 14 °C

Live Tortoises

Detection number	GPS location Easting Northing		Time	Tortoise location <small>(in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting Northing		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
1				
2				
3				
4				<u>(R) Creosote, 4 wing salt bush, indian rice grass</u>
5				
6				
7				
8				

Suitable? Dominant: Snakeweed



LACKS shrubs

creosote denser

Mormon Tea

Some creosote

indian rice grass

Page: _____ of _____

Transect number: _____

APPENDIX D



Photo A—Warner Valley Disposal System (facing northeast)



Photo B—Warner Valley Disposal System (facing south)



Photo C—Warner Valley Disposal System (facing south)



Photo D—Washington City Main St. Debris Basins (facing north)



Photo E—Washington City Main St. Debris Basins (facing east)



Photo F—Washington City Main St. Debris Basins (facing southwest)



Photo G—Hurricane Canal Water Efficiency (facing west)



Photo H—Hurricane Canal Water Efficiency (facing east)



Photo I—Hurricane Canal Water Efficiency (facing southeast)



Photo J—Hurricane Canal Water Efficiency (facing north)

Scoping Report



Prepared by:



Prepared for:



Warner Draw Watershed and Flood Prevention Operations Project

Scoping Report

Final

August 2018

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Table of Contents

1.0	Introduction.....	1
1.1	Purpose and Need	1
1.2	Scoping Goals and Objectives.....	2
2.0	Scoping Process Summary.....	3
2.1	Scoping Announcement and Open Comment Period Schedule	3
2.2	Notice	3
2.3	Meetings.....	4
2.4	Mailing List	5
3.0	Comments	6
3.1	Public Meeting	6
3.2	Comments Received.....	6
3.2.1	Comment Categories	6
4.0	Resource Concerns and Cooperating Agencies.....	8
4.1	Resource Concerns	8
4.2	Cooperating Agencies.....	9

List of Tables

Table 3-1. Project Team Members	6
Table 4-1. Resources.....	8

Appendices

Appendix A	Scoping Notices
Appendix B	Scoping Meeting Materials
Appendix C	Scoping Comments

1.0 Introduction

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), in cooperation with the project sponsors (Washington County, City of Hurricane, City of St. George, Washington City, Washington County Water Conservancy District, and The Nature Conservancy), is proposing improvements within the Warner Draw Watershed located in Washington County, Utah. Measures are being proposed to prevent flood damages and conserve water and land resources.

The project is partially funded through the NRCS Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), which authorize funding to help urban and rural communities protect, improve, and develop land resources in watersheds of up to 250,000 acres. NRCS, as the lead federal agency, has initiated NEPA analysis in the form of a Supplemental Watershed Plan and Environmental Assessment (Plan-EA) to analyze impacts to the environment from project actions. The Plan-EA will comply with the Council on Environmental Quality's (CEQ's) regulations at 40 CFR Parts 1500-1508 which require an evaluation of potential environmental impacts associated with federal project and actions. The Plan-EA will be comprised of the elements listed below.

- Alternatives analysis of potential options to meet the general purposes of PL 83-566, and the defined purpose and need of the project.
- Detailed analysis of resources that may be affected for each of the alternatives analyzed in detailed study that may satisfy the purpose and need for the project.
- Identification of potential avoidance, minimization, and mitigation measures to reduce or eliminate potential impacts.
- A plan of public participation and agency consultation and coordination throughout development of the Plan-EA.

The participation of the public/agencies/organizations is a vital component of the NEPA and development of project alternatives so that those who are interested in or potentially affected by proposed project alternatives have an opportunity to share their concerns and provide input regarding the Plan-EA during the initial stages of the planning process. Scoping is the first phase of the public involvement process and this report documents the scoping process conducted for this project.

1.1 Purpose and Need

The general purposes of NRCS Watershed Protection and Flood Prevention Action (PL 83-566) include:

- Preventing damage from erosion, floodwater, and sediment.
- Furthering the conservation, development, utilization, and disposal of water.
- Furthering the conservation and proper utilization of land.

The project specific purpose and need will be developed as the planning advances. Project sponsors and public/agencies/organizations have expressed a general need for improvements to prevent flood damages and conserve water and land resources within the Warner Draw Watershed. There have been seven areas identified for improvements to meet this general need.

1.2 Scoping Goals and Objectives

Scoping is used to identify the public, stakeholder, and government agency resource concerns for the project and potential obstacles/controversy/opposition, and to begin to identify proposed alternatives based on the input received. It is important to involve a diverse group of public/agency/organization participants. During the scoping process and throughout the development of the Plan-EA ongoing communication will be maintained with stakeholders, agencies, organizations, tribes, and the public. Education about the environmental review process and each party's role will be provided to all participating parties. Public participation activities will be evaluated for effectiveness on a continual basis and utilize the most effective techniques throughout the NEPA process. Scoping activities involving outreach and meetings, and the results of scoping are documented to ensure NEPA, CEQ, and NRCS scoping requirements have been met.

2.0 Scoping Process Summary

This section summarizes the scoping activities performed and outreach conducted for the proposed project.

2.1 Scoping Announcement and Open Comment Period Schedule

The following dates outline the milestones for the scoping announcement and activities that occurred in preparation for the scoping comment period. The scoping comment period **opened on May 15, 2018 and closed on June 14, 2018**.

- March 22, 2018: Kickoff meeting with sponsors to discuss county/city needs for flood prevention and conserving water and land resources, and to setup scoping meeting schedule.
- May 11, 2018: Scoping letters sent to tribes.
- May 14, 2018: Scoping notice mailings sent to agencies/organizations/public.
- **May 15, 2018 (Open Comment Period):** Scoping notice and public meeting details posted to NRCS project websites, flyers posted, notice published in The Spectrum Daily News.
- May 22, 2018: Notice published in The Spectrum Daily News
- May 29, 2018: Scoping meeting held at the Washington County building in St. George, Utah, agency meeting held with BLM at the BLM office in St. George.
- May 30, 2018: Scoping meeting held at Hurricane City Hall in Hurricane, Utah
- **June 14, 2018 (Close Comment Period)**

2.2 Notice

Materials were developed to announce the public scoping meeting and consisted of a scoping notice, flyer, and newspaper notices. These materials identified proposed project sites, announced the open comment period, listed the scoping meeting details, and requested public participation and input. Contact information for submittal of comments was provided in all of the postings along with the open and closure date for the comment period. The materials were distributed and posted as listed below. Copies of the scoping notice, flyer, and newspaper notices are included in Appendix A.

- A scoping notice was prepared and mailed to 78 agencies/organizations/public on May 14, 2018.
- Scoping notices were mailed on May 14, 2018 to the Washington Branch, Hurricane Branch and St. George Branch Libraries; St. George, Washington, and Hurricane City Halls; Washington County Office; and the BLM St. George field office for posting.
- Flyers were posted at 19 locations adjoining the potential project sites on May 15, 2018. The flyers were placed in high traffic areas to maximize visual exposure to public passing by. Specific locations for flyer postings can be seen in the flyer posting map included in Attachment A.

- The scoping notice, project status, and scoping meeting information was posted on the NRCS project website on May 15, 2018 for the duration of the scoping comment period. The website is located at:
<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/programs/planning/wpfp/?cid=nrcseprd1401212>
- A notice ran in The Spectrum Daily News on May 15th and May 22nd, 2018.

Detailed scoping letters were also mailed to tribes on May 11, 2018. Copies of the tribe scoping letters have been included in Attachment A.

In addition to the notice materials above the sponsors also provided additional measures to help announce the scoping meeting details. The City of Hurricane placed notices in their city utility bills with the meeting information and Washington County announced the meeting details on their county website. Washington City and Ivins City announced the meeting information in their monthly community newsletters. The website announcements and community newsletters are provided in Appendix A.

2.3 Meetings

Multiple meetings were held to gather input for project resource concerns and potential obstacles/controversy/opposition, and to help identify proposed alternatives based on the input received. Prior to the scoping open comment period a meeting was held with the sponsors to identify potential areas of concern for flood damage, and potential areas in need of water and/or land resources conservation measures. The meeting also presented the Plan-EA process to the sponsors and allowed for scoping meeting coordination.

Two scoping meetings, and two agency meetings were held during the scoping comment period. The scoping meetings were held at two separate locations to allow more options for public attendance based on proximity to the meeting location. The scoping meeting materials, consisting of a presentation, poster boards and an attendee sign in sheet, can be found in Appendix B. One agency meeting was held with BLM to gather input for project resource concerns and potential project issues, since proposed project sites are located on BLM managed lands. Another agency meeting was held with the Utah Division of Wildlife Resources (UDWR) and the Virgin River Program to discuss water/land resource conservation measures with one of the potential project sites. A summary of the sponsor, scoping, and agency meeting times and locations are listed below.

- Sponsor Meeting: March 22, 2018, 9:00 am, Washington County Building, 197 E Tabernacle, St. George, Utah;
- UDWR and Virgin River Program Meeting: May 25, 2018, 9:00 am, 20 N Main St, St. George, Utah;
- BLM Meeting: May 29, 2018, 2:30 pm, BLM Office, 345 E Riverside Dr., St. George, Utah;
- Public Scoping Meeting: March 29, 2018, 6:00-8:00 pm, Washington County Building, 197 E Tabernacle, St. George, Utah; and
- Public Scoping Meeting: March 30, 2018, 6:00-8:00 pm, Hurricane City Hall, 147 North 870 West, Hurricane, Utah.

Participants of the scoping meetings were invited to submit comments in writing either at the meeting or subsequently by mail, fax, phone, or e-mail during the scoping comment period. Attendance at the meeting was counted using a sign-in sheet that is located in Appendix B. Comment cards were handed out at the meeting which also provided a blank space to submit written comments.

2.4 Mailing List

A public and agency/organization mailing list was prepared by NRCS, the sponsors, Bowen Collins and Associates, and McMillen Jacobs to inform them about the scoping process and scoping meetings for the project. A total of 78 mailings were sent to the public and agency/organizations.

A tribal mailing list was prepared by NRCS and formal scoping letters sent out to 11 tribal members at 6 different tribes. The tribal scoping letters are included in Appendix A.

3.0 Comments

3.1 Public Meeting

Two public scoping meetings were conducted on May 29th and 30th, 2018. There were nine (9) public/agency/organization attendees and twelve (12) project team members in attendance at the meeting held on May 29, 2018. There were three (3) public/agency/organization attendees and eight (8) project team members in attendance at the meeting held on May 30, 2018. Meeting sign-in sheets are provided in Appendix B.

Table 3-1 below identifies project team members that were in attendance for the scoping meetings.

Table 3-1. Project Team Members

Name	Organization	Title
Ron Whitehead	Washington County	Public Works Director
Todd Edwards	Washington County	County Engineer
Arthur LeBaron	City of Hurricane	City Engineer
Jay Sandberg	City of St. George	City Engineer
Lester Dalton	Washington City	Public Works Project Manager
Norm Evenstad	NRCS	Water Resources Coordinator
Lance Smith	NRCS	Project Engineer
Derek Hamilton	NRCS	Project Biologist
Todd Olsen	Bowen Collins and Associates	Engineering Lead
Jamie Tsandes	Bowen Collins and Associates	Environmental Lead
Craig Bagley	Bowen Collins and Associates	Principal-in-Charge
Greg Allington	McMillen Jacobs	NEPA Lead
Bobbi Preite	McMillen Jacobs	NEPA Specialist

3.2 Comments Received

Comments could be submitted in person at the meeting or via mail, e-mail, telephone, facsimile, or comment card. There were three written public scoping comments received for the project and one tribe comment (Appendix C).

3.2.1 Comment Categories

Methodology for categorizing and addressing public and agency comments is to separate each of the comments into comment categories in order to identify the nature of each comment. The following lists the categories and associated comments received.

- Flood Protection
 - Priority for Main Street Debris Basins site due to repeated flooding in lower income area.
 - Floodwater detention for Gould Wash is needed to reduce property damage and potential loss of life.
- Water Conservation
 - Pressurized irrigation for Hurricane will help solve problems resulting from land use changes from farmland to residential. Existing water application practices may work well for farming, but are not effective for application to residential lawn and gardens.
- Project Funding
 - Desire to find outside funding sources for Hurricane pressurized irrigation to maximize participation from existing irrigators.
- Cultural Resources
 - The Hopi Tribe requests a copy of the cultural resources report and Plan-EA be provided for their review and comment when it becomes available, and continued consultation throughout the planning process.

4.0 Resource Concerns and Cooperating Agencies

4.1 Resource Concerns

A list of resource concerns was compiled for the project based on required scoping concerns outlined in the National Watershed Program Manual Section 501.24 B, and from any additional concerns identified by the public, sponsoring local organization, or agencies/organizations during the scoping meeting or scoping period. Table 4-1 below lists a comprehensive list of the resource concerns compiled for the project. An analysis of resource concerns specific to the project will be completed during the development of the Draft Plan-EAs and non-relevant resource concerns will be eliminated.

Table 4-1. Resources

Item/Concern	Item/Concern
Soils	Human Environment
Upland Erosion and Sedimentation	Socioeconomics
Prime and Unique Farmland	Historic Properties/Cultural Resources
Water	Hazardous Materials
Surface Water Quality	Environmental Justice and Civil Rights
Ground Water Quantity	Public Health and Safety
Clean Water Act - Waters of the U.S.	Recreation
Regional Water Mgt. Plans and Coastal Zone Management Areas	Land Use
Floodplain Management	Visual Resources
Wetlands	Scenic Beauty
Wild and Scenic Rivers	Parklands
Sole Source Aquifers	Transportation Infrastructure
Air	Noise
Air Quality	Ecologically Critical Areas
Clean Air Act	National Parks, Monuments and Historical Sites
Plants	Scientific Resources
Special Status Species (Federal and State listed)	Animals
Forest Resources	Essential Fish Habitat
Noxious Weeds and Invasive Plant Species	Wildlife and Wildlife Habitat
Natural Areas	Coral Reefs
Riparian Areas	Special Status Species (Federal and State listed)
	Invasive Species
	Migratory Birds/Bald and Golden Eagles

4.2 Cooperating Agencies

Cooperating agency letters were sent to the agencies listed below.

Bureau of Land Management

U.S. Army Corps of Engineers

Utah Division of Wildlife Resources

U.S. Bureau of Reclamation

Utah School and Institutional Trust Lands Administration

U.S Fish and Wildlife Service

At the issuance of this report the only agency that has formally accepted cooperating agency status is the U.S. Bureau of Reclamation. The Bureau of Land Management has expressed interest in becoming a cooperating agency, but an official acceptance letter has not yet been received from the agency.

Appendix A

Scoping Notices

Scoping Notice
Scoping Flyer
Newspaper Notices
Website Announcements
Community Newsletters
Tribal Letters

Scoping Notice

Warner Draw Watershed Project Washington Co. Utah

Scoping Notice



Project Information

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with assistance from Washington County as the project sponsor, is considering improvements within the Warner Draw Watershed. Improvements are proposed at seven sites in Washington County, Utah (1 Black Knolls Reservoir, 2 Main Street Debris Basins, 3 Washington Dam Vegetation Measures, 4 Y-Drain, 5 Hurricane Canal Water Efficiency, 6 Goulds Wash, and 7 Warner Valley Disposal System) as depicted in the Project Area Overview map. Improvements are being proposed to:

- 1). Prevent flood damages;
- 2). Further the conservation, development, utilizations and disposal of water; and
- 3) Further the conservation and proper utilization of land.

An evaluation of potential project alternatives and associated environmental impacts is required and will be documented in the form a Supplemental Watershed Plan and Environmental Assessment (Plan-EA). NRCS and Washington County will hold a public meeting to provide information about the proposed project and to collect comments.

At this time, NRCS is requesting comments on the project to identify issues and resource sensitivities. Written comments are can be submitted during the open comment period starting May 15, 2018 and ending on June 14, 2018. **Comments must be received by June 14, 2018.**

Additional information can be found at the NRCS project website:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/ut/programs/planning/wpfp/>

Public Scoping Meeting

The public is invited to attend, discuss, and submit a comment during one of the public scoping meetings:

**May 29, 2018 - Tuesday
6:00 PM to 8:00 PM**

*Washington County Building
197 East Tabernacle
St. George, UT 84770*

**May 30, 2018 - Wednesday
6:00 PM to 8:00 PM**

*Hurricane City Hall
147 North 870 West
Hurricane, UT 84737*

How to Submit a Comment

All comments should be directed to Jamie Tsandes:

Bowen Collins & Associates

Address: 154 E. 14075 South,
Draper, UT 84020

Phone: (801) 495-2224

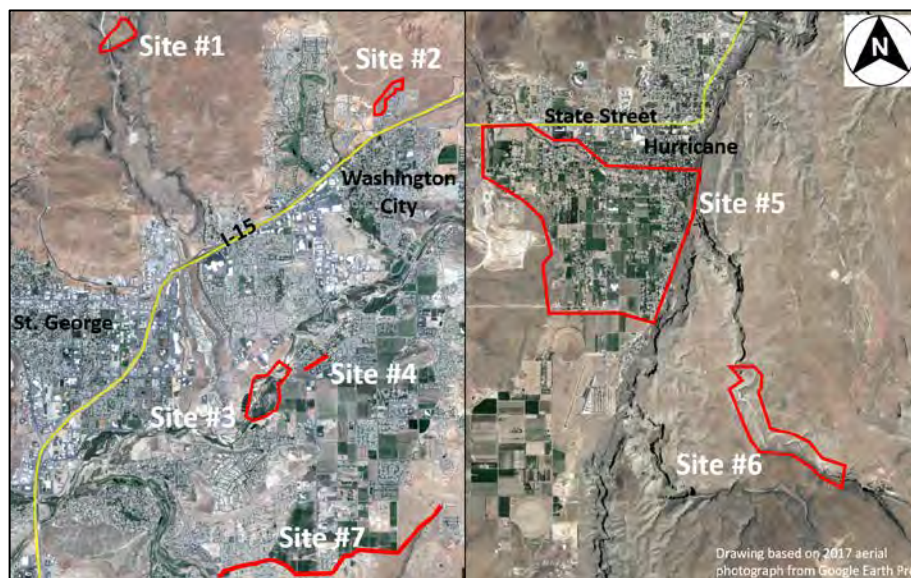
Fax: (801) 495-2225

Email:

warnerwatershed@bowencollins.com

Comments may be mailed or emailed to the above address or submitted during the public scoping meeting. Comments must be received by June 14, 2018.

Project Area Overview



Utah State Office
**Natural
Resources
Conservation
Service**

nrcs.usda.gov/



Scoping Flyer

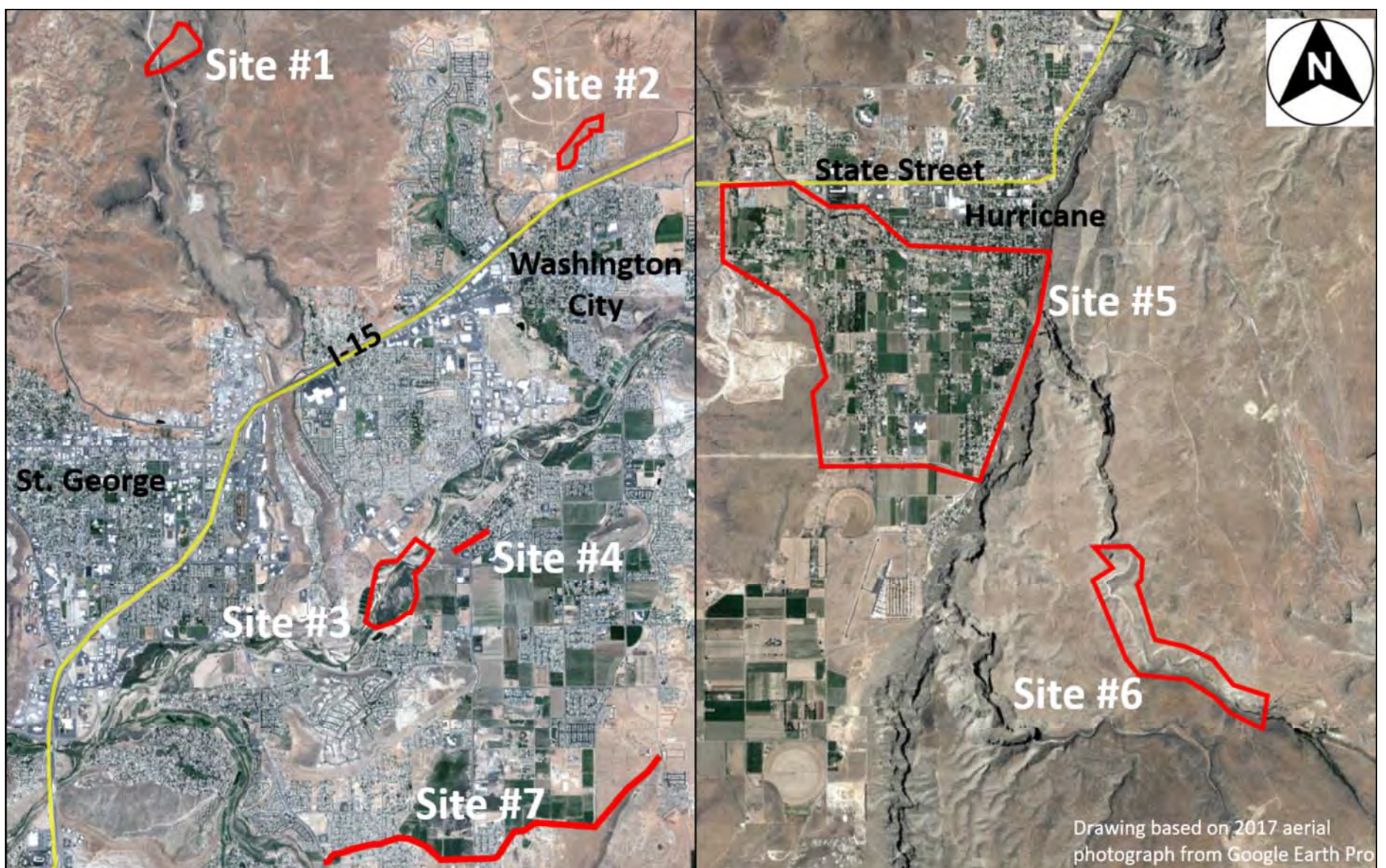
PUBLIC MEETING

You are invited to attend a public scoping meeting where information will be provided and comments collected for the proposed Warner Draw Watershed and Flood Prevention Operations Project (Project). Two meeting times and locations will be provided:

When: May 29, 2018 - Tuesday
Time: 6:00 PM to 8:00 PM
Where: Washington County Building
197 East Tabernacle St.
St. George, UT 84770

When: May 30, 2018 - Wednesday
Time: 6:00 PM to 8:00 PM
Where: Hurricane City Hall
147 North 870 West
Hurricane, UT 84737

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is considering improvements within the Warner Draw Watershed at seven sites in Washington County, Utah (1 Black Knolls Reservoir, 2 Main Street Debris Basins, 3 Washington Dam Vegetation Measures, 4 Y-Drain, 5 Hurricane Canal Water Efficiency, 6 Goulds Wash, and 7 Warner Valley Disposal System). Modifications are proposed to prevent flood damages and conserve water and land resources.



More information is available on the Project website

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/ut/programs/planning/wpfp/>

or can be obtained by contacting project team members below.

Jamie Tsandes - Bowen Collins & Associates

Phone: (801) 495-2224 Email: warnerwatershed@bowencollins.com

Norm Evenstad - NRCS

Phone: (801) 524-4569 Email: norm.evenstad@ut.usda.gov



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Flyer Posting Locations



Map based on 2017 Aerial from Google Earth Pro

Newspaper Notices

Dismantling nukes could take years

Size of North Korea's program makes effort costly, complex

Jim Michaels
 USA TODAY

If President Donald Trump persuades Kim Jong Un to dismantle North Korea's nuclear weapons program, the effort would be unprecedented in its size and complexity, analysts say.

"This would be the biggest undertaking by the international community when it comes to denuclearization or disarmament," said Olli Heinonen, an arms control expert at the Foundation for Defense of Democracies, a national security think tank.

If Trump and Kim reach an agreement, the process could take years and cost hundreds of millions of dollars, Heinonen said.

North Korean officials announced Saturday that in less than two weeks they will take the first steps to dismantle the country's nuclear test site.

The dismantling of the underground site will include collapsing its tunnels with explosives, blocking its entrances and removing all observation facilities, research buildings and security posts, according to media reports.

Journalists from the United States, Russia, South Korea, China and Britain will be invited to witness the process, North Korean state media said Saturday.



A man watches a TV screen in Seoul, South Korea, showing file footage of President Donald Trump and North Korean leader Kim Jong Un. Trump and Kim are set to meet on June 12. AHN YOUNG-JOON/AP

The move comes weeks before Trump meets June 12 with Kim in Singapore to discuss the denuclearization of the Korean Peninsula. Both sides say they hope for a breakthrough.

The United States has said its objective is the complete dismantling of North Korea's nuclear program and the elimination of its weapons stockpile. It is not clear what, if anything, North Korea will agree to at the summit or what Kim means by denuclearization.

In developing a plan to denuclearize North Korea, disarmament experts would look to several successful

precedents. But none of them have involved a country with a program as advanced and large as North Korea's.

John Bolton, Trump's national security adviser, said the dismantling of Libya's nuclear program in 2003 might serve as a model.

"One thing that Libya did that led us to overcome our skepticism was that they allowed American and British observers into all their nuclear-related sites," Bolton said on CBS News recently. "It wasn't a question of relying on international mechanisms. We saw them in ways we had never seen before."

But Libya's program was not nearly as advanced as North Korea's, and the country had not stockpiled weapons. "It would have taken them about five years to produce enough material for one weapon," Heinonen said.

Most of the nuclear program was dismantled within months, and nuclear material was shipped out of the country.

In the 1990s, South Africa volunteered to dismantle its nuclear program. The country had already developed a small number of weapons but had stopped production by the time it agreed to dismantle the program.

The country invited international inspectors in to certify its work.

Most analysts have concluded that North Korea has about a dozen weapons and has ballistic missiles capable of reaching cities in the United States. Its nuclear facilities are scattered around the country, and many of them are well-protected.

Key figure in My Lai Massacre dies at 81

Army captain expressed regret over actions in Vietnam, acquitted

Ivan Moreno
 ASSOCIATED PRESS

MILWAUKEE – Former Army Capt. Ernest L. Medina, a key figure in the My Lai Massacre during the Vietnam War, has died in Wisconsin. He was 81.

Medina was an Army captain on March 16, 1968, when American troops under his command killed hundreds of unarmed Vietnamese civilians. He was acquitted in a court-martial over the massacre.

Medina died May 8, according to an obituary written by his family. No cause of death was given. He was being buried Monday.

Medina was captain of Charlie Company, whose mission was to attack a crack Viet Cong unit. The intelligence soldiers received was inaccurate, and they encountered no resistance in the village of My Lai and a neighboring community. Charlie Company killed 504 villagers in just three to four hours, most of them women, children and elderly men.

It wasn't until more than a year later that news of the massacre became public.



Ernest Medina

Medina was accused of responsibility in the deaths of at least 182 civilians. Medina, whose platoon took up a position in reserve outside the village, said during his trial that he was not with the soldiers when the massacre happened and that he didn't know about it until it was over. Medina acknowledged killing one woman but said he believed she was about to attack him.

Lt. William L. Calley Jr., who led the first platoon into My Lai, was the only one convicted of the 25 men originally charged in the massacre.

In a 1988 interview with the Associated Press, Medina looked back on My Lai as a "horrendous thing" that never should have happened.

"I have regrets for it, but I have no guilt over it because I didn't cause it," he said. "That's not what the military, particularly the United States Army, is trained for. But then again, maybe the war should have never happened. I think if everybody were to look at it in hindsight, I'm sure a lot of the politicians and generals would think of it otherwise. Maybe it was a war that we should have probably never gotten involved in as deeply as we did without the will to win it."

Medina earned a Silver Star for bravery for actions he took saving the lives of fellow soldiers during a battle shortly before My Lai. Although Medina was acquitted of murder and manslaughter for the My Lai killings, his 16½-year Army career was ruined, and he resigned his commission. He moved with his wife and three children to Marinette, Wisconsin, in 1971. He worked as a sales-

man for a helicopter manufacturer for a while and later went into real estate.

Medina was born in Springer, New Mexico, to Simon and Pauline Medina. Medina's mother died shortly after his birth, and his grandparents raised him in Montrose, Colorado, according to his family's obituary.

In 1956, he enlisted in the Army after briefly considering joining the seminary. Then, while stationed in Heilbronn, Germany, he met the woman he would eventually marry, Baerbel Dechandt.

Picasso painting 'Le Marin' worth \$70 Million damaged before auction

Mary Bowerman
 USA TODAY NETWORK

A Pablo Picasso painting expected to fetch \$70 million at auction was "accidentally" damaged Friday, according to a statement from auction house Christie's.

The painting, titled "Le Marin" or "The Sailor," was damaged "during the final states of preparation," ahead of the auction house's May 12-15 exhibition, when the work was set to be sold. The painting belongs to former casino mogul Steve Wynn and was pulled from the exhibition so conservators can restore the piece, ABC reported.

"Two outside conservators have now been consulted and have made recommendations for the successful restoration of the painting," Christie's said in the statement. "After consultation with the consignor today, the painting has been withdrawn from Christie's May 15 sale to allow the restoration process to begin."

This isn't Wynn's first run-in with damaged Picasso paintings. In 2006, Wynn accidentally poked his elbow through Picasso's 1932 painting "Le Reve" while showing it to a few of his guests. The painting was refurbished, and Wynn later sold it for \$155 million at auction.

Christie's said action was taken immediately to "remedy" the situation.

Last week, a 1905 Picasso painting called "Young Girl With a Flower Basket" sold for \$115 million at auction.



Christie's displays Pablo Picasso's "Le Marin" in Hong Kong in March. The painting has been pulled from auction after being damaged on Friday to begin restoration process. PHILIP FONG/AFP/GETTY IMAGES

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The U.S. Department of Agriculture Natural Resources Conservation Ser-vice (NRCS), with assistance from Washington County as the project spon-sor, is considering improvements within the Warner Draw Watershed in Washington County, Utah. Seven sites are being considered for modifications to prevent flood damages and conserve water and land resources. The National Environmental Policy Act and the Council on Environmental Quality's regulations at 40 CFR Parts 1500-1508, require an evaluation of potential environmental impacts associated with federal projects with input from the public. NRCS is requesting comments on the project to identify issues and resource sensitivities during the project scoping phase.

You are invited to attend a public scoping meeting where project infor-mation will be presented and comments collected. Two scoping meetings will be held as indicated below.

Public Scoping Meeting

Date: May 29, 2018 - Tuesday

Time: 6:00 PM to 8:00 PM

Place: Washington County Building
197 East Tabernacle. St George, UT

Public Scoping Meeting

Date: May 30, 2018 - Wednesday

Time: 6:00 PM to 8:00 PM

Place: Hurricane City Hall
147 North 870 West, Hurricane, UT

Comments may be submitted during the open scoping comment period **starting May 15, 2018 and ending on June 14, 2018** to:

Warner Draw Watershed Project
Mail: c/o Bowen Collins & Associates
 - Jamie Tsandes
 154 E. 14075 South
 Draper, UT 84020

Email: warnerwatershed@bowencollins.com

Fax: (801) 495-2225

Phone: (801) 495-2224

For additional information, to check on the status of the project, and download project related documents during the course of the NEPA process please visit:
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/ut/programs/planning/wpfp/>

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Texas leaders at odds on gun control issues

Alan Gomez
and Julie Garcia
USA TODAY

SANTA FE, Texas – Texas leaders were starting off a difficult week Monday following the Santa Fe High School shooting that left 10 dead by staking out vastly different positions on the future of gun control in the state and the nation.

During a series of interviews over the weekend, Texas Lt. Gov. Dan Patrick and Houston Police Chief Art Acevedo were at odds over a solution, with Patrick warning against a legislative overreaction against law-abiding gun owners and Acevedo complaining that thoughts and prayers were not enough.

Patrick gave a long list of reasons for Friday’s shooting, including violent video games, the elimination of religion from public schools, abortion, the breakdown of families, unarmed teachers and schools designed with too many entrances. But he stressed that guns were not to blame, explaining that they are “part of who we are as a nation.”

“We have 50 million abortions. We have families that are broken apart, no fathers at home,” Patrick said, according to CNN. “We have incredible heinous violence as a (video) game, two hours a day in front of their eyes. And we stand here and we wonder why this happens to certain students.”

Acevedo, a 32-year law enforcement officer who previously led the California Highway Patrol and the Austin Police Department, said it would be irresponsible to ignore the role of gun laws in school shootings that continue to plague the nation. In the Santa Fe shooting, he said there should be a way to punish the father of Dimitrios Pagourtzis, 17, the accused shooter who used his dad’s shotgun and .38 revolver to carry out the attack.

“We need to start using the ballot box and ballot initiatives to take the matters out of the hands of people that are doing nothing that are elected into the hands of the people to see that the will of the people in this country is actually carried out,” Acevedo told CBS’ “Face the Nation.”

With many in Texas taking such divergent stances, Texas Gov. Greg Abbott tried to bridge the gap by starting a series of roundtable discussions in the state capital, Austin, and in communities around the state.

The first series will take place in Austin on Tuesday, Wednesday and Thursday. According to a statement



Santa Fe High School students visit a makeshift memorial at the school Monday in Santa Fe, Texas. A 17-year-old gunman is accused of killing 10 and injuring 13 in a shooting Friday. COURTESY SACCOCORPUS CHRISTI CALLER TIMES

released Monday, the discussions will include a variety of participants, including students, parents, legislators, law enforcement, mental health experts, school administrators who participate in the state’s school marshal program, and “interest groups that advocate for and against further gun regulations.”

“I am seeking the best solutions to make our schools more secure and to keep our communities safe,” Abbott said in a statement. “I look forward to hearing from all sides of the debate and from expert perspectives on these issues.”

A group of teenagers urged him to do more, staging a “die-in” outside Abbott’s residence in Austin. Several of them lay down on the ground as if they were dead for 23 minutes – one minute for each school shooting in the U.S. this year, according to KXAN TV. As Texas leaders debate how to move forward, the Santa Fe community is looking back at the lives of those lost in the massacre.

On Monday, people throughout the region held a

moment of silence at 10 a.m. to honor the victims. Students at schools throughout Houston stood and bowed their heads. Nurses and doctors did the same at Clear Lake Regional Medical Center, where many of the victims were treated following the shooting.

And several dozen people stood silent outside Santa Fe High School next to a row of crosses representing each of the victims. The first funeral for a victim took place Sunday when Sabika Sheikh, 17, a Pakistani exchange student, was honored at a service organized by the Islamic Society for Greater Houston. About 80 students also packed into Arcadia First Baptist Church for an annual baccalaureate service. Aaron Chenoweth had a different speech planned to deliver to his Santa Fe High School classmates, but then God stepped in.

“I did a lot of praying before I came, and I’ll be honest with you, all the things I thought about were not the things I said,” Chenoweth said. “It was all according to his plan; that’s what I felt tonight.”

Pastor: Mental illness drove NC man to ram car into his family

ASSOCIATED PRESS

BESSEMER CITY, N.C. – A North Carolina businessman suffering from severe mental illness left a meal with his family, got into his sport utility vehicle and then drove at high speed into the restaurant, killing his daughter and daughter-in-law and critically injuring other relatives, his pastor said Monday.

Roger Self had been treated for depression and anxiety that seemed to become more intense in the 2½ months preceding Sunday’s deadly crash, said the Rev. Austin Rammell of Venture Church in Dallas, North Carolina. The pastor, who is a close family friend, said Self opened up about his problems about 10 weeks ago, when he asked his son to take his guns away from him.

“His family and close friends have intensely labored to try and get Roger help. We all feel a level of guilt,” the pastor said at a news conference.

The pastor worried that his friend might hurt himself but didn’t imagine he would hurt his family. Still, he said Self’s judgment had become impaired.

“It’s very possible that in his mind, he was thinking the best thing for this family was that they all go to heaven together,” he said.

The crash sent stunned patrons scrambling Sunday afternoon at the Surf and Turf Lodge, about 30 miles west of Charlotte.

Self was immediately arrested. Shackled and wearing an orange jumpsuit at a hearing Monday, he showed little emotion as he asked for a court-appointed attorney and was ordered jailed without bond on two charges of first-degree murder.

Self’s daughter, Katelyn Self, a deputy with the Gaston County Sheriff’s Office, and his daughter-in-law, Amanda Self, an emergency room nurse, were killed as the car rammed through the outside wall. Amanda Self was married to Roger Self’s son, Gaston County Police Officer Josh Self.

Josh Self and Roger Self’s wife, Diane, were in critical but stable condition Monday, said Rammell, who has been in close contact with the family. A 13-year-old granddaughter to Self was treated and released from the hospital, police said.

At a news conference Monday, officials with the Bessemer Police Department declined to elaborate on

Self’s mental health. But police spokesman Rob Tufano said evidence gathered so far shows the crash was intentional.

“It is abundantly clear that this was not an accident, that this was something Mr. Self had intentionally done,” Tufano said.

Katelyn Self had arranged Sunday’s after-church lunch, inviting her fiancé and his parents as well, because she was hoping her father would feel better if he were surrounded by family, Rammell said. They had ordered drinks and appetizers and were talking and laughing after being seated at a table near the window.

The pastor said the family wasn’t initially concerned when he got up, figuring he might have been suffering from anxiety.

“They began noticing his car out in the parking lot had circled. And the next thing you know, he came through the window,” Rammell said.


The pastor said Self had seen a psychiatrist and family doctor but hadn’t been hospitalized. Rammell said Self told him he was taking medicine for depression and anxiety, but he was becoming particularly unstable over the weekend.


“It was a roller coaster, and in the last few days it went from bad to really bad,” he said.

Katelyn Self, 26, was a four-year veteran of the Gaston County Sheriff’s Office, the sheriff said in a news release. She had worked as a corporal in the jail and was off duty when she was fatally injured.

Authorities said the family was requesting privacy and referred any questions to Rammell.

Roger Self, a former law enforcement officer, ran a private investigations business called Southeastern Loss Management, mostly working for companies to investigate employees’ wrongdoing. Rammell said the business had been going through an unspecified “transition” that required the help of some friends, but he didn’t elaborate.





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PUBLIC NOTICE

The U.S. Department of Agriculture Natural Resources Conservation Ser-vice (NRCS), with assistance from Washington County as the project spon-sor, is considering improvements within the Warner Draw Watershed in Washington County, Utah. Seven sites are being considered for modifications to prevent flood damages and conserve water and land resources. The National Environmental Policy Act and the Council on Environmental Quality’s regulations at 40 CFR Parts 1500-1508, require an evaluation of potential environmental impacts associated with federal projects with input from the public. NRCS is requesting comments on the project to identify issues and resource sensitivities during the project scoping phase.

You are invited to attend a public scoping meeting where project infor-mation will be presented and comments collected. Two scoping meetings will be held as indicated below.

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Date: May 29, 2018 - Tuesday
Time: 6:00 PM to 8:00 PM
Place: Washington County Building
 197 East Tabernacle. St George, UT

Public Scoping Meeting
Date: May 30, 2018 - Wednesday
Time: 6:00 PM to 8:00 PM
Place: Hurricane City Hall
 147 North 870 West, Hurricane, UT

Comments may be submitted during the open scoping comment period **starting May 15, 2018 and ending on June 14, 2018** to:

Warner Draw Watershed Project
Mail: c/o Bowen Collins & Associates
 - Jamie Tsandes
 154 E. 14075 South
 Draper, UT 84020

Email: warnerwatershed@bowencollins.com

Fax: (801) 495-2225

Phone: (801) 495-2224

For additional information, to check on the status of the project, and download project related documents during the course of the NEPA process please visit:
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Warner Draw Watershed (Sponsor=Washington County)

Project Description

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to 1) prevent flood damages, 2) further the conservation, development, utilization, and disposal of water, and 3) further the conservation and proper utilization of land.

NEPA Analysis

NRCS, as the lead federal agency, is initiating National Environmental Policy Act (NEPA) analysis in the form of a Supplemental Watershed Plan and Environmental Assessment (Plan-EA) to analyze impacts to the natural and human environment from this project. The Plan-EA will comply with the Council on Environmental Quality's regulations at 40 CFR Parts 1500-1508 which require an evaluation of potential environmental impacts associated with federal projects and actions.

Current Status

The project is currently in the Scoping Phase and the public, organizations, and agencies are invited to provide comments on the proposed project.

Scoping Public Comment Period

Open: Tuesday, May 15, 2018
Close: Thursday, June 14, 2018

Scoping Public Open House – St. George

Date: Tuesday, May 29, 2018
Time: 6:00 p.m. – 8:00 p.m.
Location: Washington County Building
197 East Tabernacle
St. George, Utah

Scoping Public Open House – City of Hurricane

Date: Wednesday, May 30, 2018
Time: 6:00 p.m. – 8:00 p.m.
Location: Hurricane City Hall
147 North 870 West
Hurricane, Utah

Contact Information

For further project information please contact:

Jamie Tsandes – Bowen Collins & Associates
154 East 14075 South
Draper, UT 84020
801.495.2224 phone
801.495.2225 fax
warnerwatershed@bowencollins.com

or

Norm Evenstad – NRCS
125 S. State Street – Room 4010
Salt Lake City, UT 84138-1100
801-524-4569 phone
norm.evenstad@ut.usda.gov

Project Documents

Scoping

[Scoping Notice \(PDF\)](#)

NOTE: We will add other directories as we move through the NEPA planning process.

Updated: May 15, 2018

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MEETINGS, NEWS, PUBLIC NOTICES

NRCS Scoping Meetings for Warner Draw Watershed

The NRCS and Washington County are requesting scoping public input for Warner Draw Watershed improvements. The improvements proposed within the Warner Draw Watershed are intended to:

1. prevent flood damages,
2. further the conservation, development, utilization, and disposal of water,
3. further the conservation and proper utilization of land

A public open house will be held on:

Tuesday, May 29th (6:00 - 8:00 pm)
Washington County Building
197 E Tabernacle
St. George, UT
([Google Maps](#))

AND

Wednesday, May 30th (6:00 - 8:00 pm)
Hurricane City Hall
147 North 870 West
Hurricane, UT
([Google Maps](#))

For more information you can visit the project website at

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/programs/planning/wpfp/?cid=nrcseprd1401212>

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Community Newsletters

MAY AGENDA ITEMS



The following are some of the topics that may be discussed at the May Planning Commission and City Council meetings. This is not a complete list and the complete agendas will be posted on the website www.ivins.com 5 to 7 days prior to the meetings. Agendas may be amended up to 24 hours prior to a meeting. Check the website the day before the scheduled meeting for the final agenda items to be discussed. If you have questions regarding any of the agenda items, please call or e-mail Mike Rodriguez at 435-634-9753 or mrodriguez@ivins.com for Planning Commission questions or Kari Jimenez for City Council questions: 435-628-0606 ext. 705 or kjimenez@ivins.com.

Planning Commission May 1, 2018

- Public hearing & discussion of a possible Zoning text amendment regarding (1) the maximum length of multi-family buildings when abutting commercial property, multi-family or mixed use property, or for buildings located on the interior of a multi-family project; and (2) zoning for Kayenta's remaining 16,000 sq. ft of approved storage.

Planning Commission May 15, 2018

- Continued public hearing, discussion & consider approval of the above Zoning text amendments.

City Council May 3, 2018

- Public hearing, discussion & consideration of Planning Commission's recommendation to deny a Land Use amendment from Low Density Residential (LDR) to Medium Density Residential (MDR) and to recommend a Zoning amendment from RE-20 with density bonus to RE-15 (single family residential, minimum lot size 15,000 sq.ft.).
- Public hearing, discussion & consider approval of a Zoning Map amendment from C-1 (Community Commercial) to CLM (Commercial with Light Manufacturing) for expansion of existing Rocky Mountain Power substation located at approximately 100 South 300 East (1.21 acres).
- Public hearing, discussion & consideration of Planning Commission's recommendation to approve a Class V Conditional Use Permit for Rocky Mountain Power substation located at approximately 100 South 300 West (1.21 acres).
- Discuss and consider of approval of Planning Commission's recommendation on proposed Preliminary Plan for Townhomes 560 located at approximately 560 South 150 East.

City Council May 17, 2018

- Public hearing on the Final Tentative Budgets for Fiscal Years Ending 2018 and 2019.

Rocky Vista Holds Spring Community Health Fair

Date: Saturday, May 12th

Time: 10:00 a.m.—2:00 p.m.

Location: Rocky Vista University

Demonstrations

Interactive Booths

Presentations

Screenings (Vitals, Blood Glucose)



RVUCOM-SU - 255 E Center St. Ivins, UT 84738

Notice of Public Open House & Scoping Meeting for Warner Draw Watershed Improvements

The NRCS and Washington County are requesting scoping public input for Warner Draw Watershed improvements. A public open house will be held on Tuesday, May 29th (6:00-8:00p.m.) at the Washington County Bldg. 197 E Tabernacle St. George, UT. www.nrcs.usda.gov/wps/portal/nrcs/main/ut/programs/planning/wpfpf





Burn season is still open and is anticipated to go until May 30. It is dependent upon air quality, wind and other factors which may stop the issuing of permits at anytime. If this is the case, it will reopen once the conditions improve. Getting a permit is free and simple. Go to Washingtoncity.org/burn/permits. Burning any kind or amount of garbage is NEVER ok. Be sure to read all the rules and be safe.

WASHINGTON CITY FIRE DEPARTMENT **OUTSIDE FIRES**

It's warm outside but not too hot, which makes it a great time for grilling on the BBQ, roasting marshmallows and relaxing around the fire. Visit goo.gl/SLw68F for some easy to remember tips to keep your home and family safe while using outside fires. Remember to ALWAYS have a water source ready and available when having an outside fire.

WASHINGTON COUNTY SCHOOL DISTRICT **SUMMER FOOD PROGRAM**



Friends, fun, and free food! Free summer lunches are available to ALL kids age 18 and younger in Washington, UT. No fees or registration needed so just show up!! Lunch will be served Monday – Thursday at 11:30 – 12:30 pm from June 4th, thru July 19th. No meal serviced on Fridays. Served at the Washington City Veterans Park on 75 East Telegraph, Washington, UT. All food must be eaten on location. Adult and second meals may be purchased at a cost of \$4/meal. CASH ONLY.

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SOCIAL MEDIA

We recently started our very own Washington City Fire Department Facebook Page. Please like and follow our page @WCFireDept for fire safety tips and updates about our department.

WASHINGTON COUNTY LIBRARY **ADULT PROGRAMS**

Thursday, May 17th

“Book Ends” Book Club

“The Boys in the Boat” (young reader’s edition) by James Daniel Brown at 4:30pm.

Thursday, May 24th

RB Digital Training Session

If you have any questions please contact Lorie Womack by calling (435) 627-2706 or email at lorie.womack@washco.lib.ut.us

NRCS & WASHINGTON COUNTY

SCOPING MEETING

“The NRCS and Washington County are requesting scoping public input for Warner Draw Watershed improvements.

A public open house will be held on Tuesday, May 29th (6:00-8:00p.m.) at the Washington County Bldg 197 E Tabernacle St. George, UT. For Details visit goo.gl/7m3zPJ

AARP **SMART DRIVER**

Wednesday May 9th- AARP Smart Driver Class- 1-5 P.M.

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Tribal Letters



United States Department of Agriculture

Natural Resources
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Utah State Office

125 South State Street
Room 4010
Salt Lake City, UT 84138

Ph: 801-524-4550
Fax: 844-715-4928
www.ut.nrcs.usda.gov

May 11, 2018

Mr. Darren Deboda
Moapa Band of Paiute Indians of the Moapa River Indian
Reservation, Nevada
P.O. Box 340
Moapa, Nevada 89025-0340

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Mr. Deboda:

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project (Project) in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to:

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Site 7: Warner Valley Disposal System

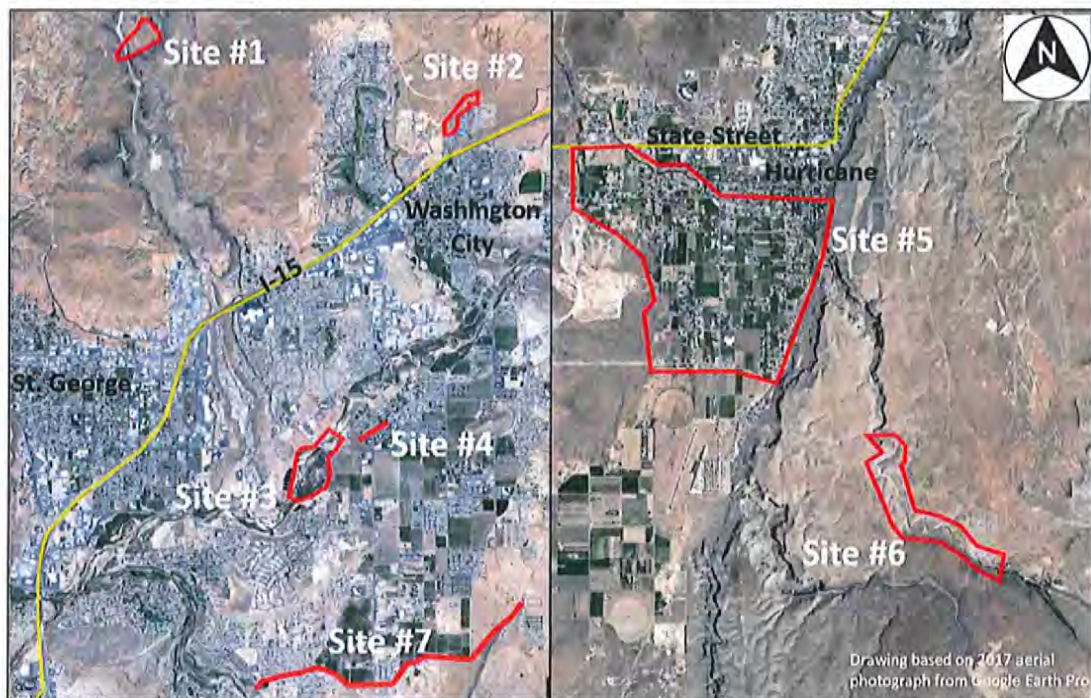


Figure 1. Project Area Overview Map

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St George, Utah 84770

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Date: Wednesday, May 30, 2018
Time: 6 p.m. – 8 p.m.
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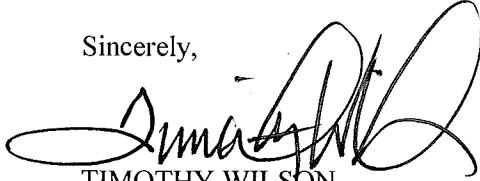
Mr. Darren Deboda

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Sincerely,

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TIMOTHY WILSON
State Conservationist

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Mr. Benny Tso
Chairman
Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony
One Paiute Drive
Las Vegas, Nevada 89106

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Mr. Tso:

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project (Project) in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to:

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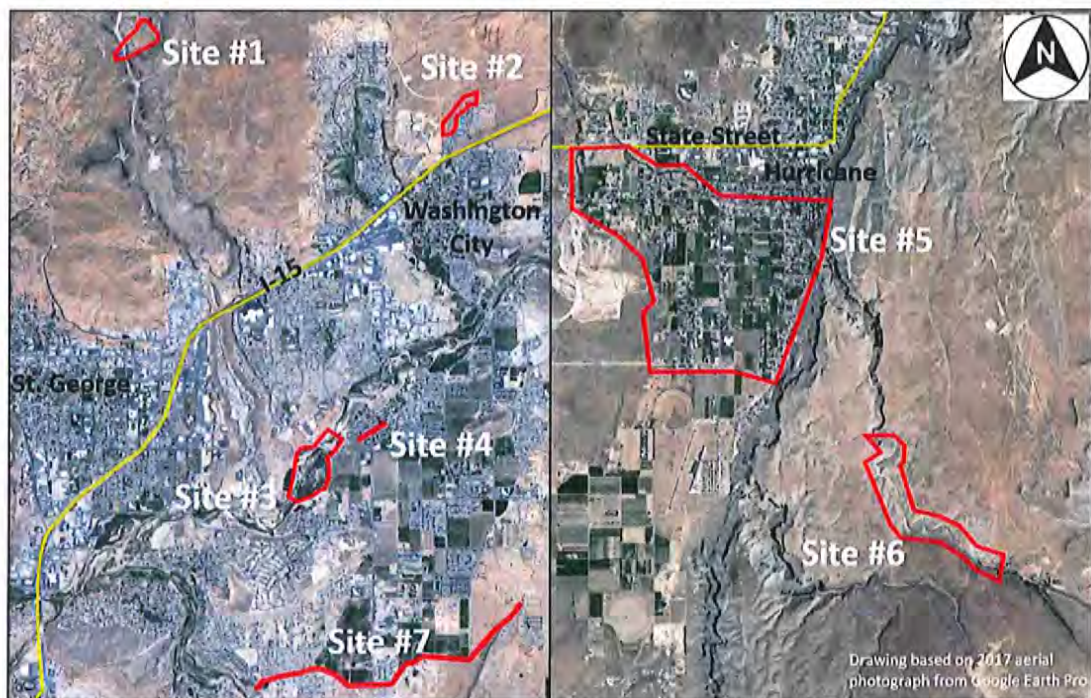


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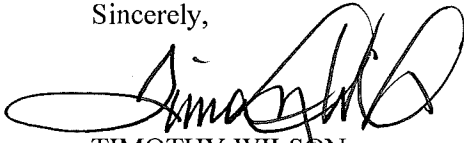
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Mr. Benny Tso
May 11, 2018
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TIMOTHY WILSON
State Conservationist

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United States Department of Agriculture

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Ms. Dorena Martineau
Paiute Indian Tribe of Utah
440 North Paiute Drive
Cedar City, Utah 84721

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Ms. Martineau:

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project (Project) in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to:

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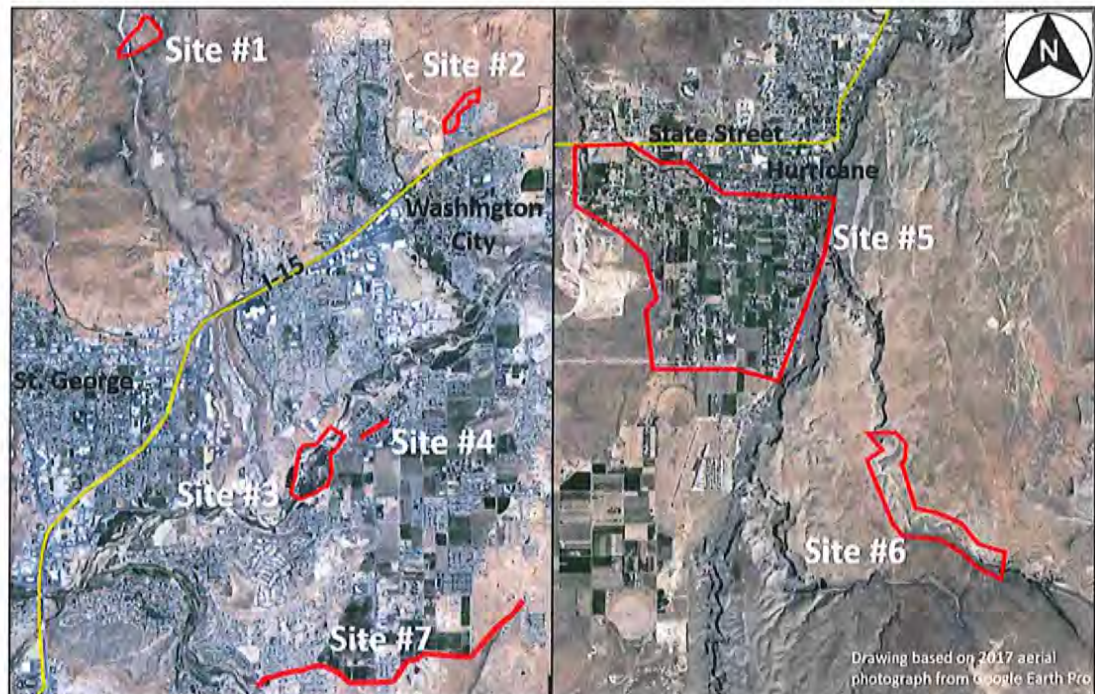


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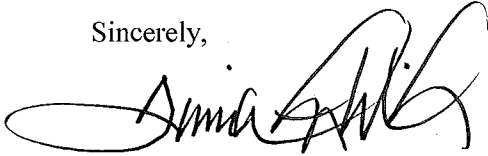
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Ms. Dorena Martineau
May 11, 2018
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State Conservationist

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May 11, 2018

Mr. Leigh Kuwanwisiwma
Director
Hopi Culture Preservation Office
The Hopi Tribe
P.O. Box 123
Kykotsmovi, Arizona 86039

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Mr. Kuwanwisiwma:

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project (Project) in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to:

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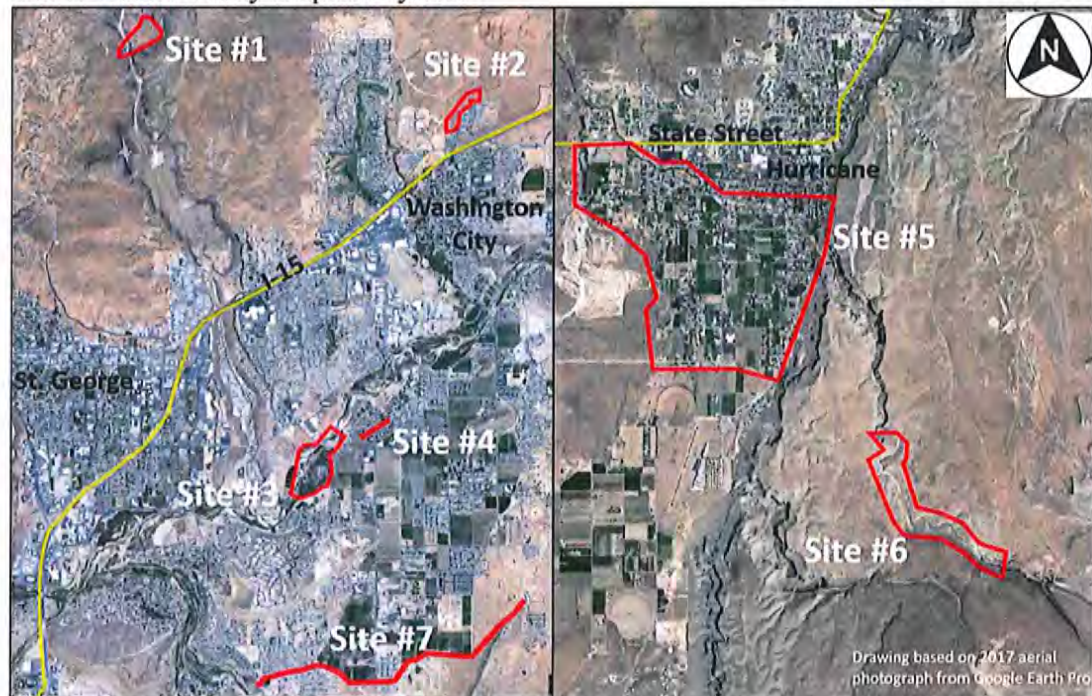


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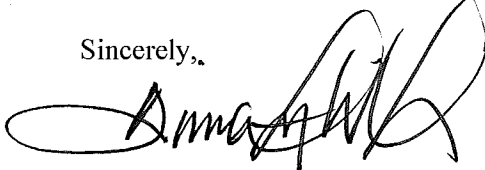
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May 11, 2018

Mr. Timothy L. Nuvangyaoma
Chairman
Hopi Tribe Chairman's Office
P.O. Box 123
Kykotsmovi, Arizona 86039

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Mr. Nuvangyaoma:

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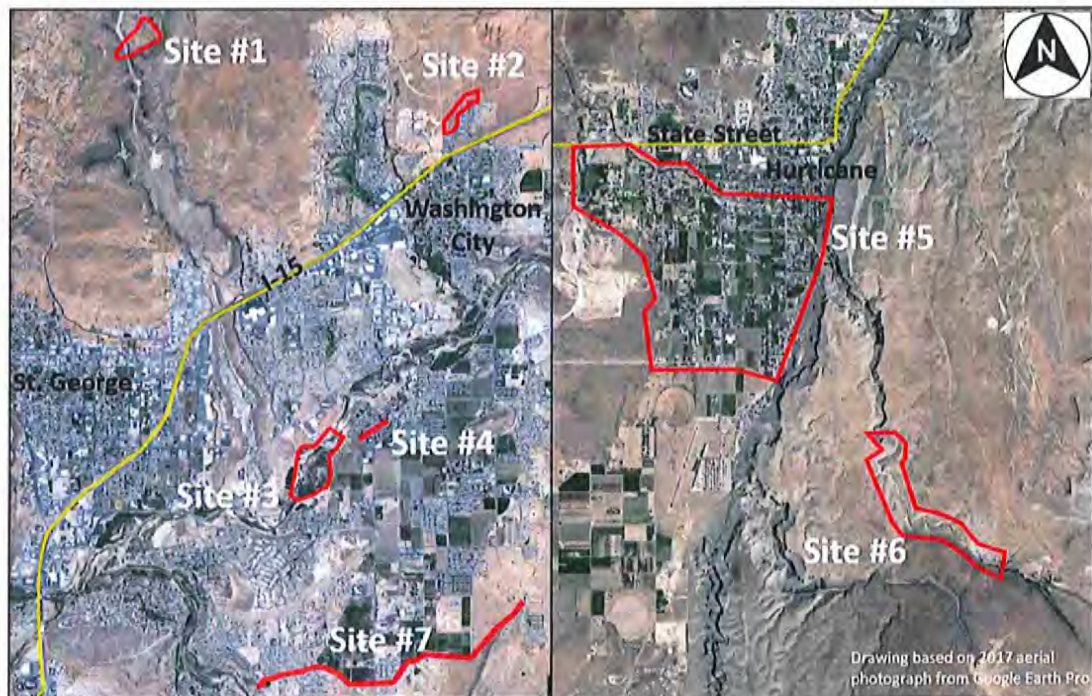


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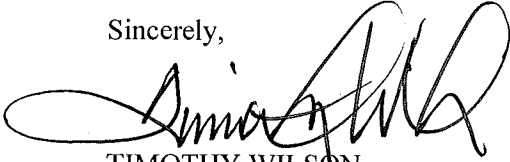
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May 11, 2018

Mr. Greg Anderson
Chairman
Moapa Band of Paiute Indians of the Moapa River Indian
Reservation, Nevada
P.O. Box 340
Moapa, Nevada 89025-0340

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

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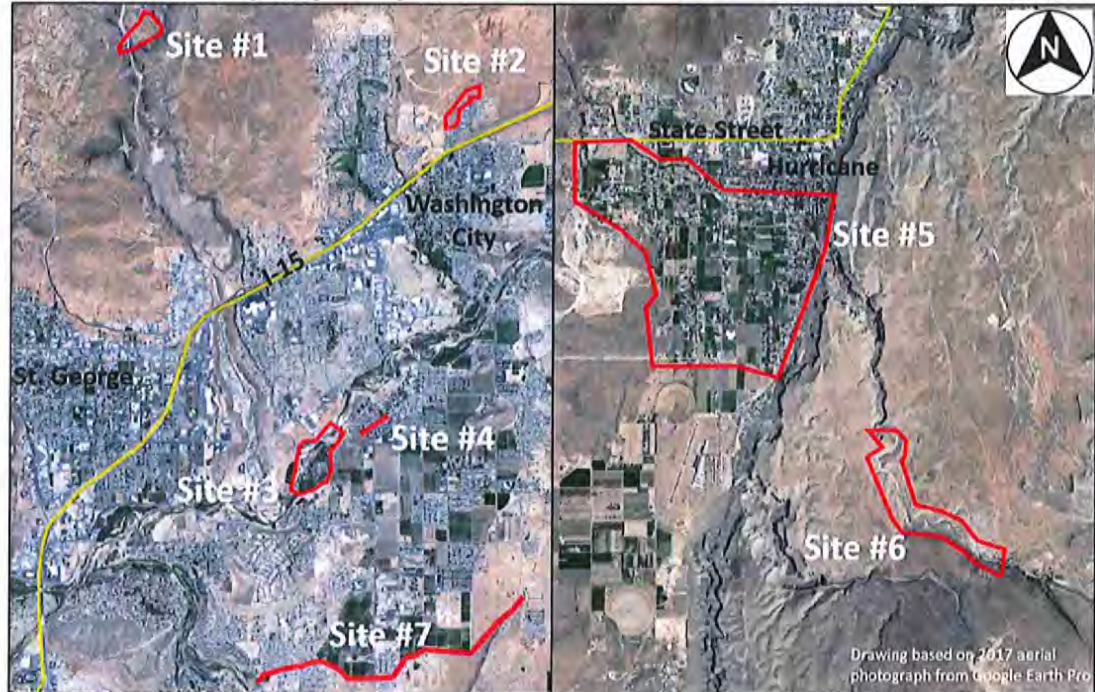


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Public Scoping Meeting

Date: Wednesday, May 30, 2018
Time: 6 p.m. – 8 p.m.
Place: Hurricane City Hall
147 North 870 West
Hurricane, Utah 84737

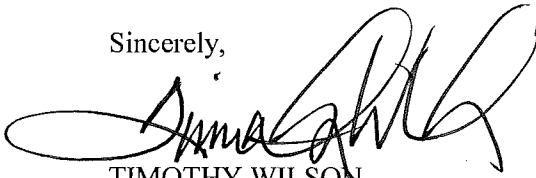
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Mr. Greg Anderson
May 11, 2018
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Sincerely,

A handwritten signature in black ink, appearing to read 'Timothy Wilson', written over a large, stylized, and somewhat illegible signature that appears to be 'Tara Hoffmann'.

TIMOTHY WILSON
State Conservationist

cc:

Tara S. Hoffmann, Acting State Cultural Resources Specialist, Salt Lake City, UT
Shelley A. Szeghi, NRCS, Area Cultural Resources Specialist, Ogden, UT
Norm Evenstad, NRCS, Water Resources Coordinator, Salt Lake City, UT
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United States Department of Agriculture

Natural Resources
Conservation Service

Utah State Office

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Ph: 801-524-4550
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www.ut.nrcs.usda.gov

May 11, 2018

Ms. Tamra Borchardt-Slayton
Chairperson
Paiute Indian Tribe of Utah
440 North Paiute Drive
Cedar City, Utah 84720-2613

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Ms. Borchardt-Slayton:

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project (Project) in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to:

- Prevent flood damages;
- Further the conservation, development, utilization, and disposal of water; and
- Further the conservation and proper utilization of land.

In cooperation with Washington County, the NRCS is in the very early planning stages of preparing a Supplemental Watershed Plan and an Environmental Assessment (Plan-EA) under the National Environmental Policy Act (NEPA) to consider and analyze potential impacts from the action. For the purposes of compliance with NEPA and Section 106 of the NHPA, the NRCS is the designated lead agency. Pursuant to Section 106 of the National Historic Preservation Act (NHPA), Executive Order 13007, the American Indian Religious Freedom Act, we write to you at this time regarding the project and we welcome any information you would like to share with us regarding historic properties or places of traditional religious and cultural importance near the proposed project area that we should consider as part of our analysis. We would also appreciate your assistance in identifying any other Tribes with whom we should consult on this Project.

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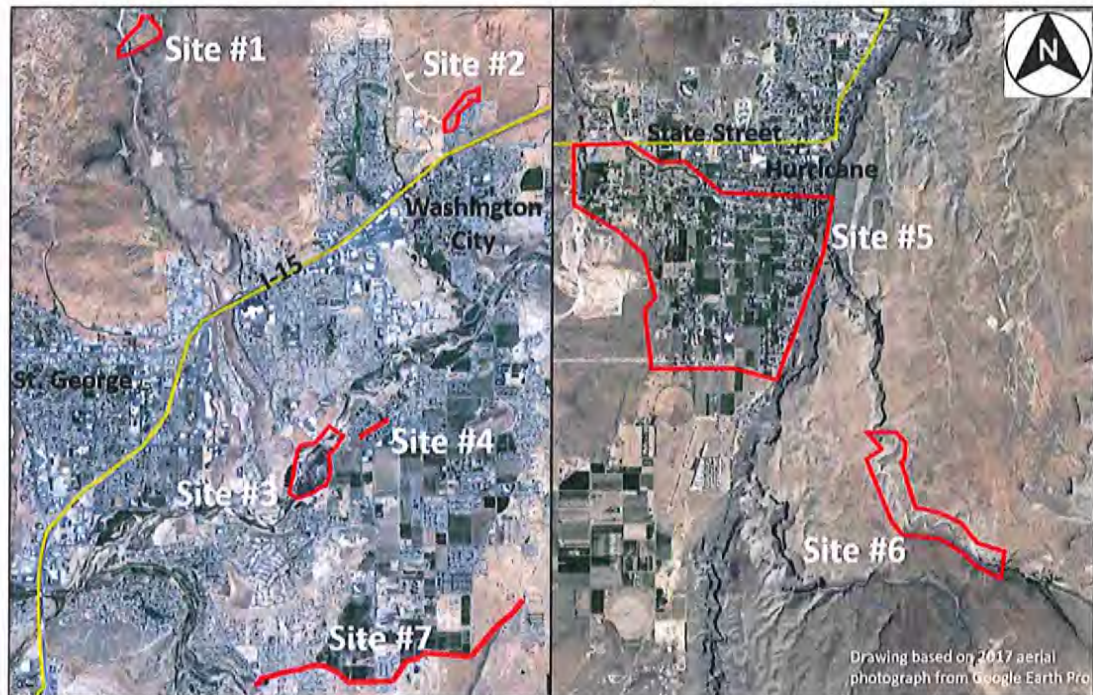


Figure 1. Project Area Overview Map

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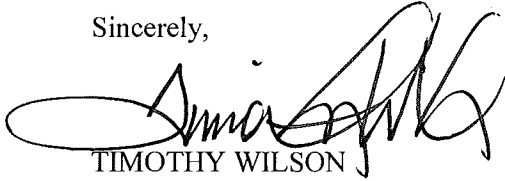
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Ms. Tamra Borchardt-Slayton
May 11, 2018
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TIMOTHY WILSON
State Conservationist

cc:

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Shelley A. Szeghi, NRCS, Area Cultural Resources Specialist, Ogden, UT
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May 11, 2018

Mr. Charley Bullets
Southern Paiute Consortium
Kaibab Band of Paiute Indians of the Kaibab Indian Reservation
Cultural Preservation Office
HC65, Box 2
Fredonia, Arizona 86022

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Mr. Bullets:

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project (Project) in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to:

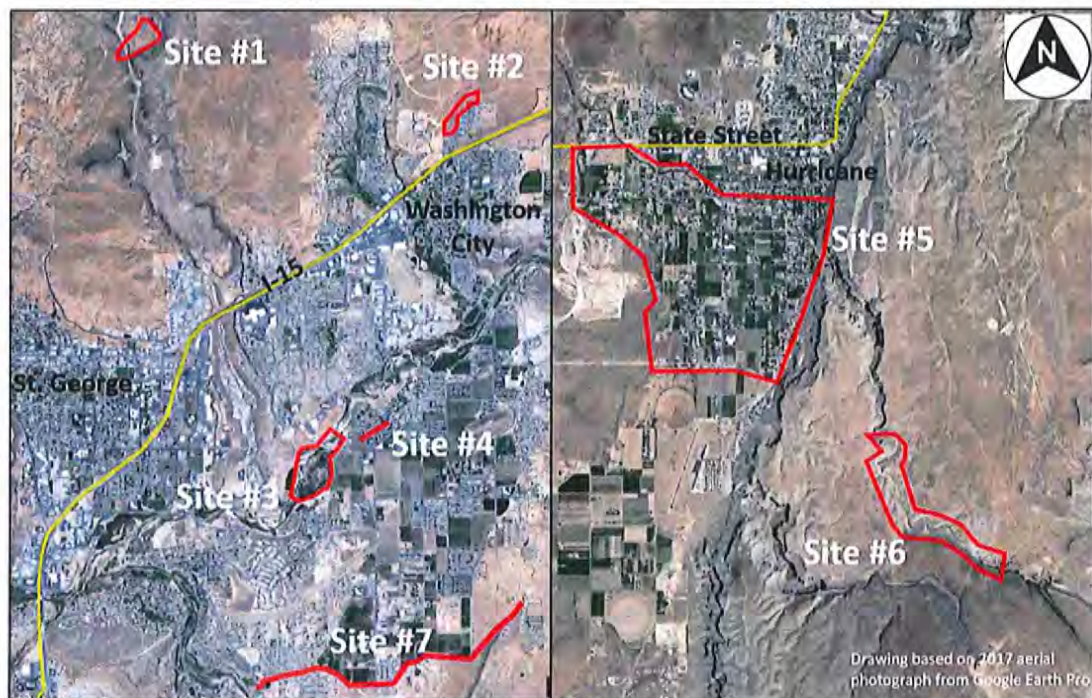
- Prevent flood damages;
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In cooperation with Washington County, the NRCS is in the very early planning stages of preparing a Supplemental Watershed Plan and an Environmental Assessment (Plan-EA) under the National Environmental Policy Act (NEPA) to consider and analyze potential impacts from the action. For the purposes of compliance with NEPA and Section 106 of the NHPA, the NRCS is the designated lead agency. Pursuant to Section 106 of the National Historic Preservation Act (NHPA), Executive Order 13007, the American Indian Religious Freedom Act, we write to you at this time regarding the project and we welcome any information you would like to share with us regarding historic properties or places of traditional religious and cultural importance near the proposed project area that we should consider as part of our analysis. We would also appreciate your assistance in identifying any other Tribes with whom we should consult on this Project.

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Site 7: Warner Valley Disposal System



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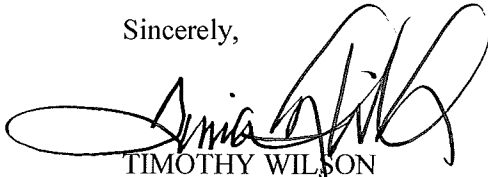
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Mr. Charley Bullets
May 11, 2018
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Sincerely,



TIMOTHY WILSON
State Conservationist

cc:

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Shelley A. Szeghi, NRCS, Area Cultural Resources Specialist, Ogden, UT
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May 11, 2018

Ms. Betsy Chapoose
Director
Cultural Rights Protection Department
Ute Indian Tribe of the Uintah & Ouray Reservation, Utah
P.O. Box 190
Fort Duchesne, Utah 84026

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Ms. Chappoose:

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with Washington County as the project sponsor, is proposing to partially fund through the Watershed Protection and Flood Prevention Act (Public Law [PL] 83-566), the Warner Draw Watershed and Flood Prevention Operations Project (Project) in Washington County, Utah. Improvements are being proposed within the Warner Draw Watershed to:

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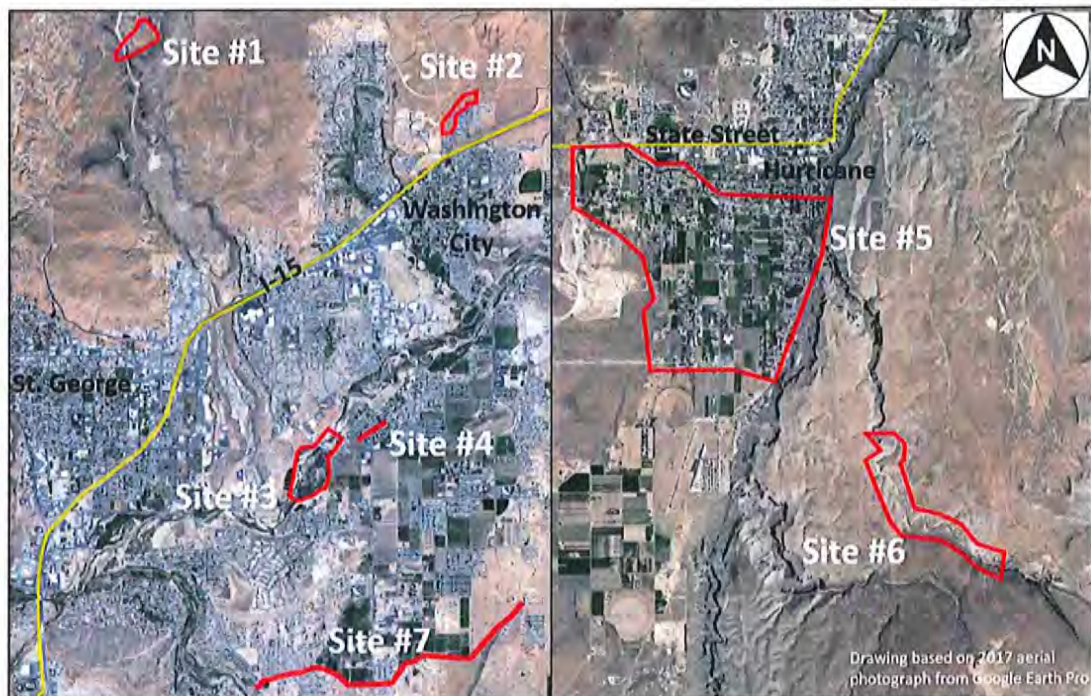


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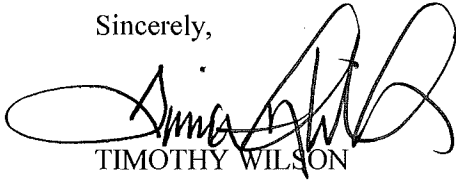
Ms. Betsy Chapoose

May 11, 2018

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TIMOTHY WILSON

State Conservationist

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May 11, 2018

Mr. Luke Duncan
Chairman
Ute Indian Tribe of the Uintah & Ouray Reservation, Utah
P.O. Box 190
Fort Duchesne, Utah 84026

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Mr. Duncan:

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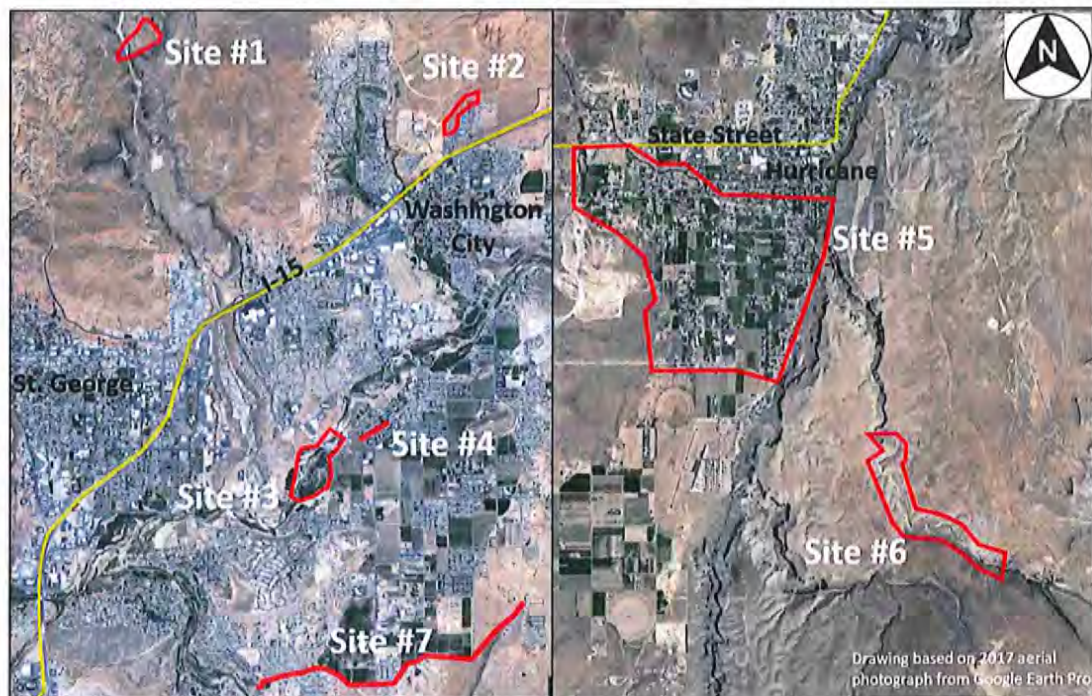


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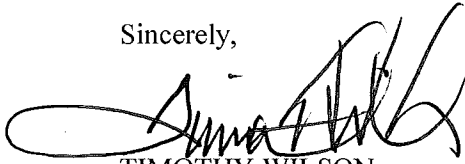
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Mr. Luke Duncan
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State Conservationist

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May 11, 2018

Ms. Ona Segundo
Chairwoman
Kaibab Band of Paiute Indians of the Kaibab Indian Reservation
Tribal Affairs Building
HC65, Box 2
Fredonia, Arizona 86022

Reference: NRCS Warner Draw Watershed Flood Prevention Operations Project

Dear Ms. Segundo:

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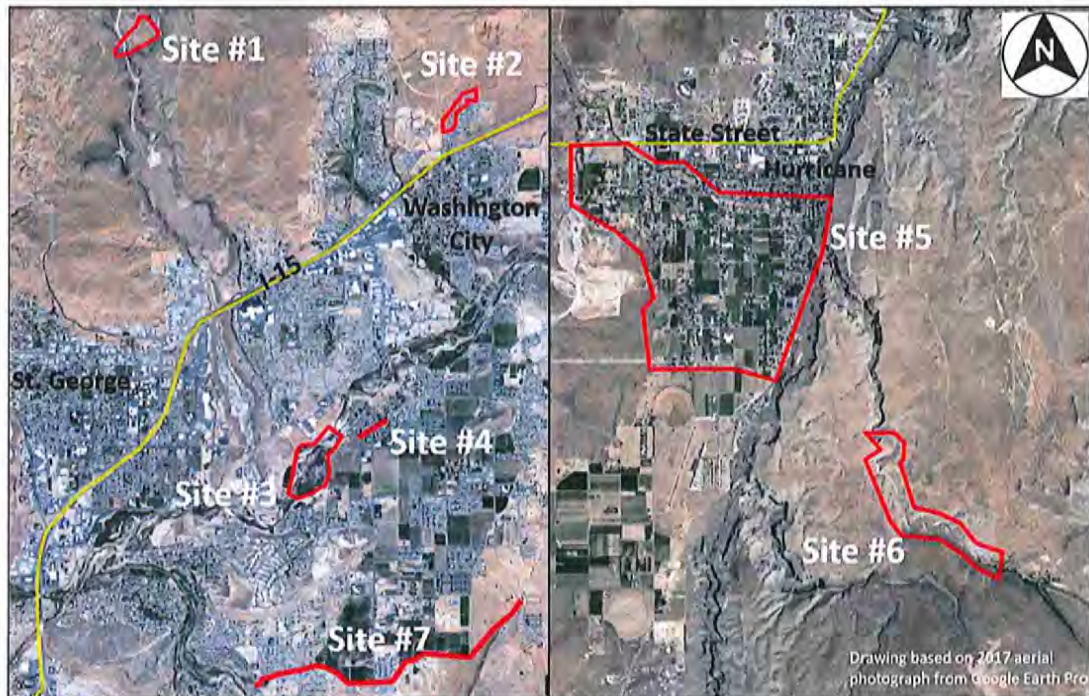


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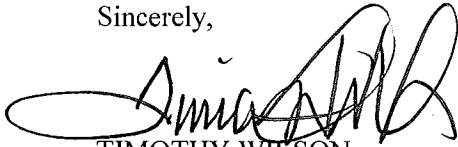
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Ms. Ona Segundo
May 11, 2018
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State Conservationist

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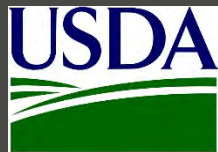
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Bobbi Preite, McMillen Jacobs Associates, Senior Natural Resources Consultant, Boise, ID

Appendix B

Scoping Meeting Materials

Scoping Meeting Presentation
Scoping Meeting Poster Boards
Sign-In Sheet

Scoping Meeting Presentation



Warner Draw Watershed Plan-EA

Scoping Meeting (Hurricane)

May 30, 2018



BOWEN COLLINS
& ASSOCIATES

&





Outline/Agenda



- Project Team
- Watershed Protection and Flood Prevention Program
- Project Overview
- NEPA Process
- Scoping Schedule
- Project Contact Information
- Questions/Comments/Concerns



BOWEN COLLINS
& ASSOCIATES

&





Project Team



Lead Federal Agency
Natural Resources Conservation Service



WASHINGTON COUNTY
WATER CONSERVANCY DISTRICT

Project Sponsors
Primary Sponsor: Washington County
Other Sponsors: City of St. George, City of Hurricane,
Washington County Water Conservancy District



Engineering, Concept Design, & Environmental
Bowen Collins & Associates



NEPA
McMillen Jacobs Associates



BOWEN COLLINS
& ASSOCIATES

&





Watershed Protection and Flood Prevention Program



- Watershed Protection and Flood Protection Act (PL 83-566) has three general purposes:
 - Preventing damage from erosion, floodwater, and sediment
 - Furthering the conservation, development, utilization, and disposal of water
 - Furthering the conservation and proper utilization of land



BOWEN COLLINS
& ASSOCIATES

&





Watershed Protection and Flood Prevention Program



➡ PL 83-566 Funding Provided by NRCS

➡ Up to 100% Engineering

➡ Up to 100% Construction (Pending Authorized Purpose)

-Flood Protection

-Watershed Protection

-Public Recreation

-Public Fish & Wildlife

-Agricultural Water Management

-Municipal & Industrial Water Supply

-Water Quality Management

-Watershed Structure Rehabilitation

➡ Sponsor is Responsible for Real Property Rights

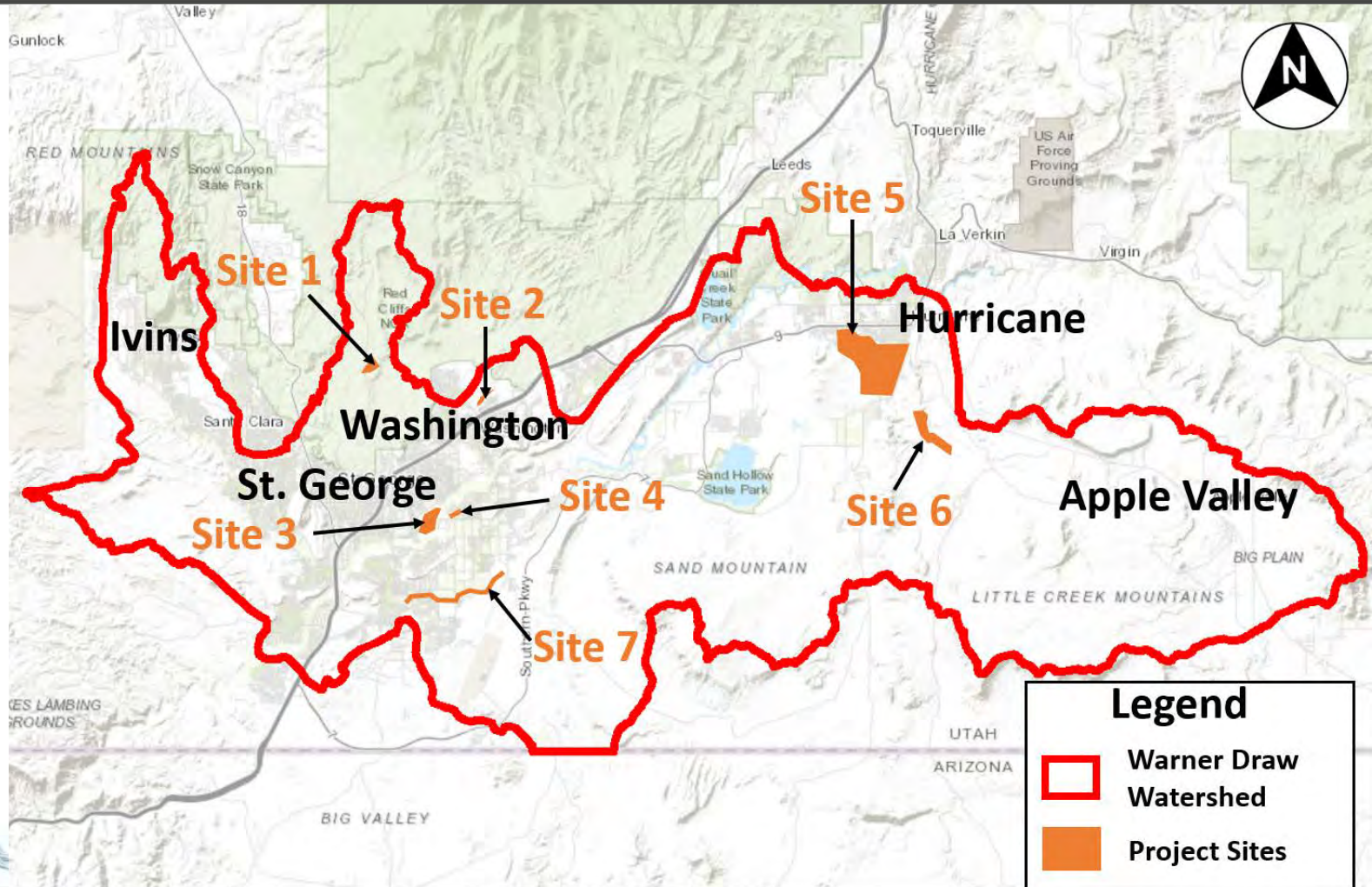


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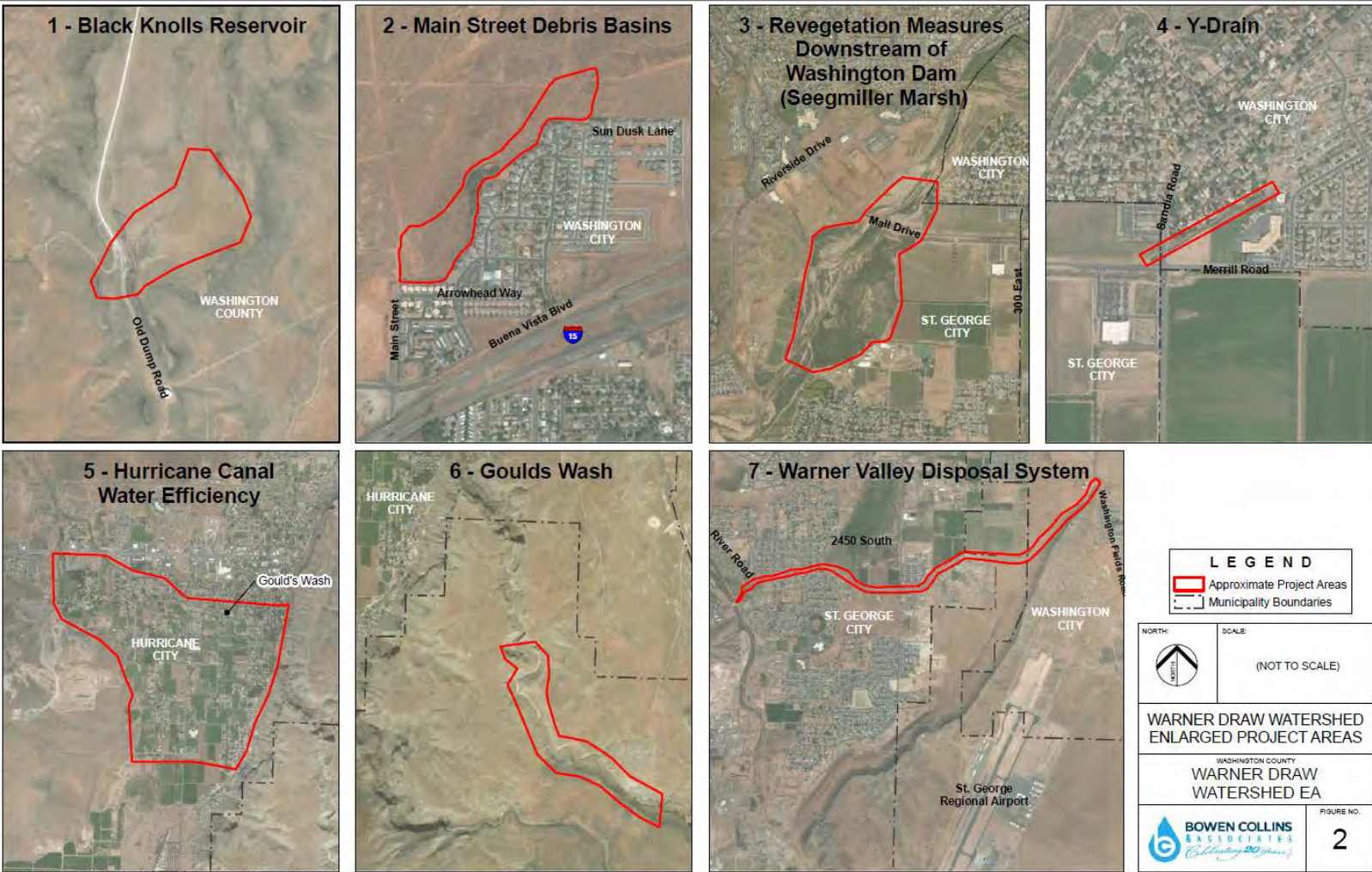
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Project Overview



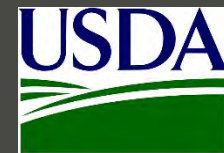
Project Overview





Project Overview

Site 1 – Black Knolls Reservoir



➤ Dam Evaluation

Drawing based on 2017 aerial
photograph from Google Earth Pro



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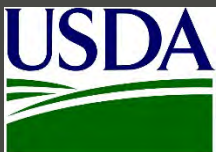
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Project Overview

Site 2 – Main Street Debris Basins



- Construct debris basins to provide flood protection and sediment retention



Drawing based on 2017 aerial photograph from Google Earth Pro



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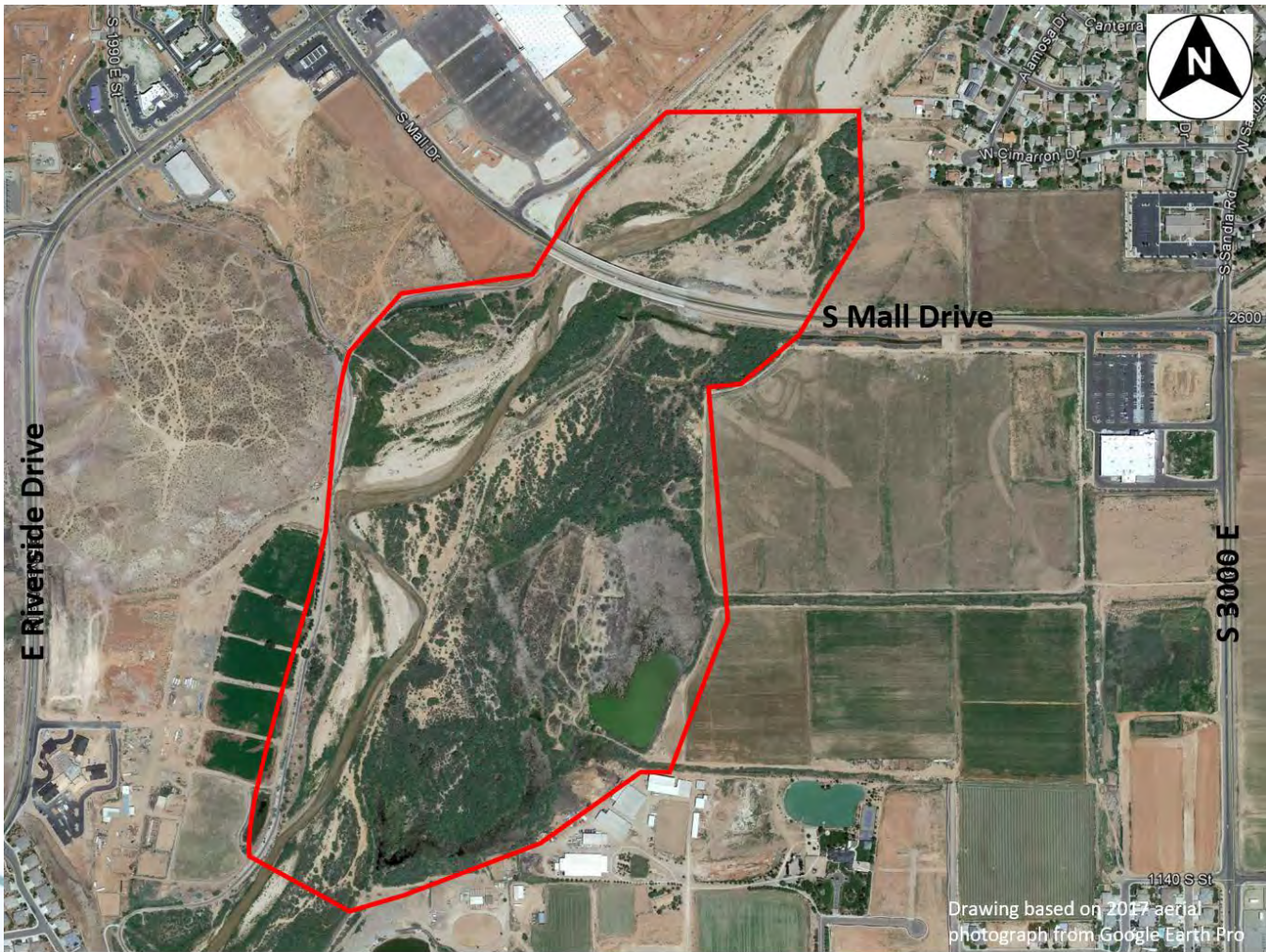


Project Overview

Site 3 - Washington Dam Revegetation Measures



- Revegetation along Virgin River near Washington Dam
- Habitat enhancement
- More wetlands
- Channel protection



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Project Overview

Site 4 - Y-Drain

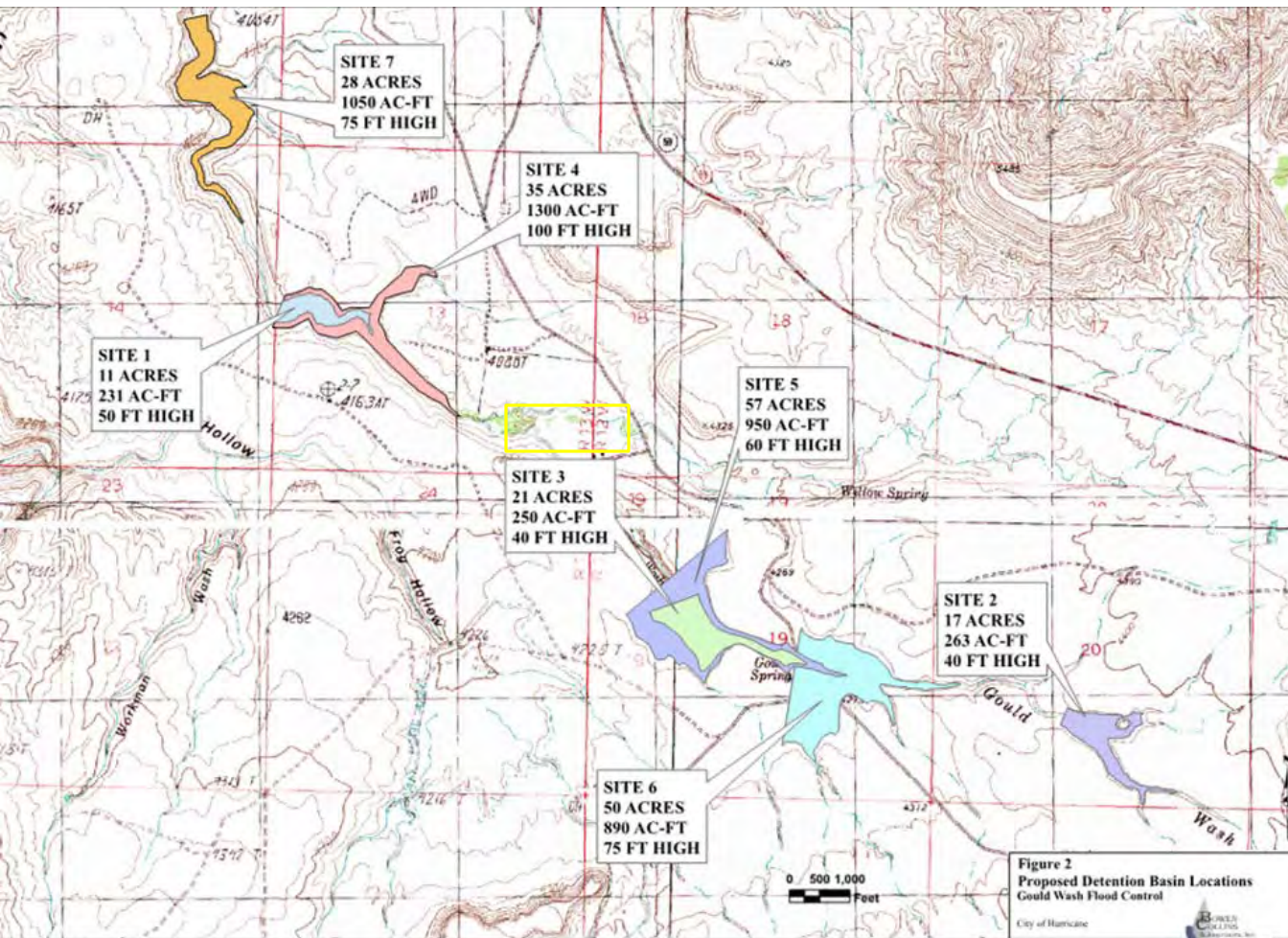


- Pipe open channel segment of Y-Drain
- Will provide additional water to Seegmiller Marsh



Project Overview

Site 6 – Gould's Wash



- Construct a new dam along Gould's Wash to provide flood protection and sediment retention

Issued Date: May 14, 2018
File: P:\Hurricane\Gould_Wash_MultiBasin\GIS\Project\Gould Wash Detention Basin Locations.mxd

Project Overview

Site 7 - Warner Valley Disposal System



- Conveyance improvements to disposal system



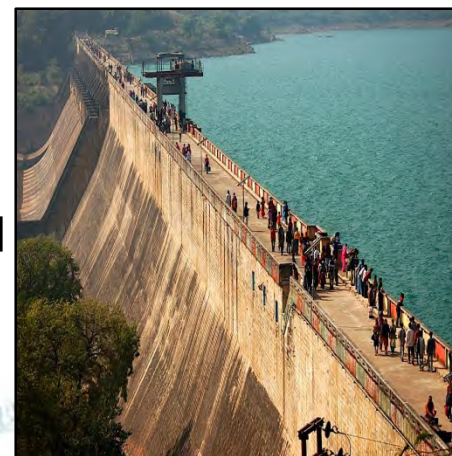
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NEPA Process (Plan-EA)

- Federal Funding Requires Analysis of the Project under NRCS National Environmental Policy Act (NEPA) Regulations.
 - NEPA of 1969 (Public Law 91-190) and the Council on Environmental Qualities regulations at 40 CFR Parts 1500-1508.
- NEPA Requirements
 - Environmental Assessment (EA) – Looks at potential impacts to the natural and man-made environment





NEPA Process

Resource Concerns Considered (Plan-EA)



SWAPAH

Soils

Upland Erosion and Sedimentation
Prime and Unique Farmland

Water

Surface Water Quality
Ground Water Quantity
Clean Water Act - Waters of the U.S.
Regional Water Mgt. Plans and Coastal
Zone Management Areas
Floodplain Management
Wetlands
Wild and Scenic Rivers
Sole Source Aquifers

Air

Air Quality
Clean Air Act

Plants

Special Status Plant Species
Forest Resources
Noxious Weeds and Invasive Plant
Species
Natural Areas
Riparian Areas

Animals

Essential Fish Habitat
Wildlife and Wildlife Habitat
Coral Reefs
Special Status Animal Species
Invasive Species
Migratory Birds/Bald and Golden Eagles

Human Environment

Socioeconomics
Historic Properties/Cultural Resources
Hazardous Materials
Environmental Justice and Civil Rights
Public Health and Safety
Recreation
Land Use
Visual Resources
Scenic Beauty
Parklands
Transportation Infrastructure
Noise
Ecological Critical Areas
National Parks, Monuments and Historical Sites
Scientific Resources

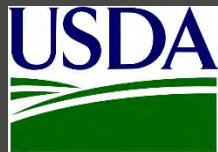


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NEPA Process (Plan-EA)



➤ Public Scoping & Comment Period

Identify resource concerns, get agency/public/ sponsor/stakeholder input, discuss problems & potential alternatives

➤ Concept Design & Engineering Analysis

Perform field reconnaissance, geotechnical studies, surveys, and prepare concept design

➤ Draft Plan-EA & Comment Period

Public review and comment period of Plan-EA that includes alternatives and environmental impacts

➤ Final Plan-EA

Final EA document that Incorporates Draft EA comments made available to the public on NRCS website

➤ Significance Determination

Finding of No Significant Impact (FONSI) Or Preparation of Environmental Impact Statement (EIS)



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McMILLEN
JACOBS
ASSOCIATES



Scoping Schedule



- Scoping Comment Period Open: May 15, 2018
- Public Scoping Meetings: May 29 & 30, 2018
- **Scoping Comment Period Close: June 14, 2018**

Submit comments via phone, email, letter, or comment card

Begin Conceptual Design & Engineering Analysis after completion of Scoping



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Contact Information



Please contact Jamie Tsandes (Bowen Collins & Associates) or Norm Evenstad (NRCS) with project questions and comments at:



Jamie Tsandes: (801) 495-2224

Norm Evenstad (801)-524-4569



warnerwatershed@bowencollins.com



Bowen Collins & Associates - Jamie Tsandes
154 East 14075 South
Draper, UT 84020



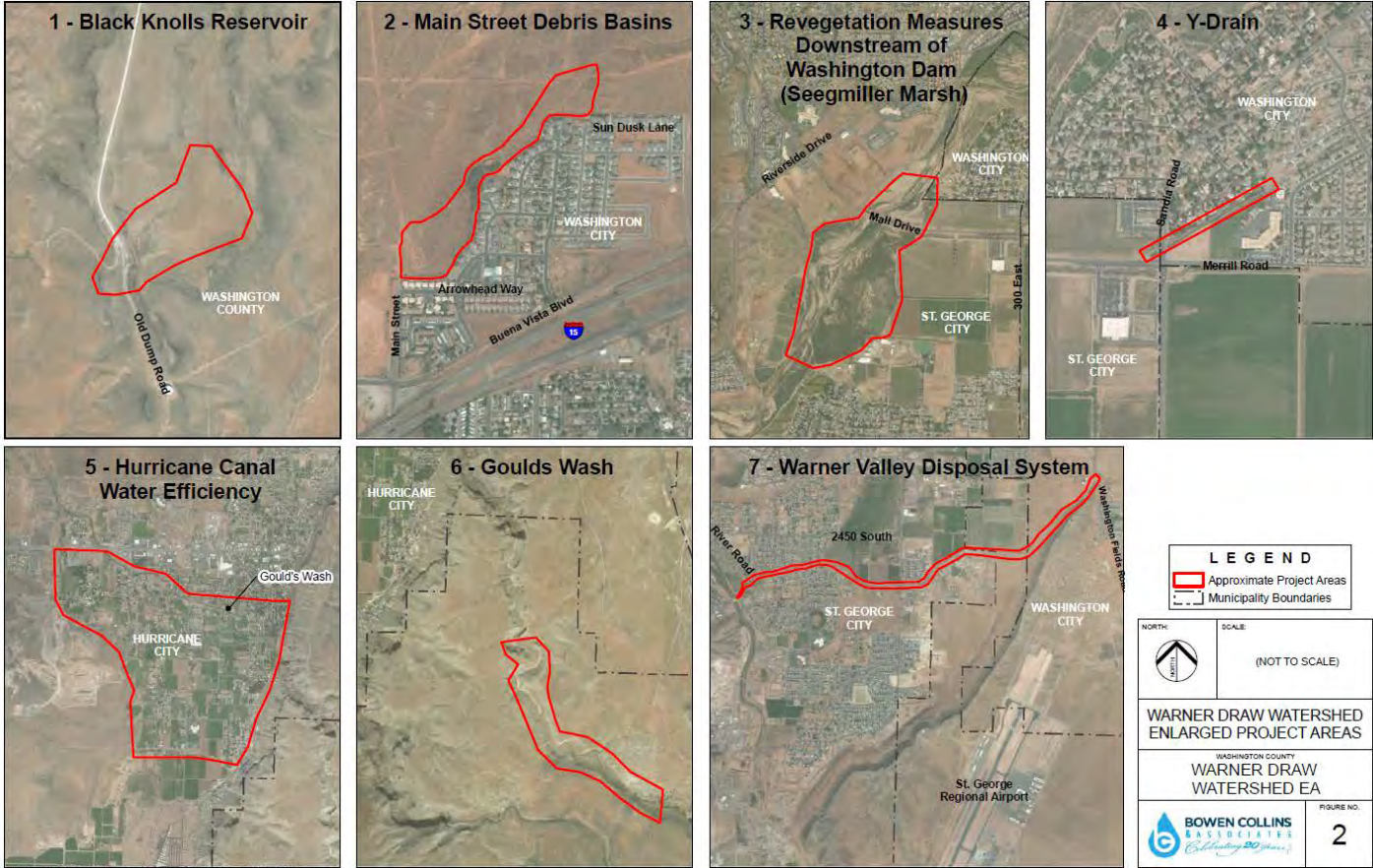
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Questions / Comments / Concerns

???



Scoping Meeting Poster Boards

Welcome

Warner Draw Watershed and Flood Prevention Operations Project

Supplemental Watershed Plan and Environmental Assessment

Scoping Meeting





Warner Draw Watershed Proposed Project Sites



Site 1: Black Knolls Reservoir

Rehabilitation of dam

Site 2: Main Street Debris Basins

Construct debris basins for flood protection and sediment retention

Site 3: Washington Dam

Revegetation Measures

Revegetation along Virgin River near Washington Dam

Site 4: Y-Drain

Pipe open channel segment of Y-Drain

Site 5: Hurricane Canal Water Efficiency

Install pressurized irrigation system and improve existing irrigation conveyance

Site 6: Gould's Wash

Construct new dam along Gould's Wash for flood protection and sediment retention

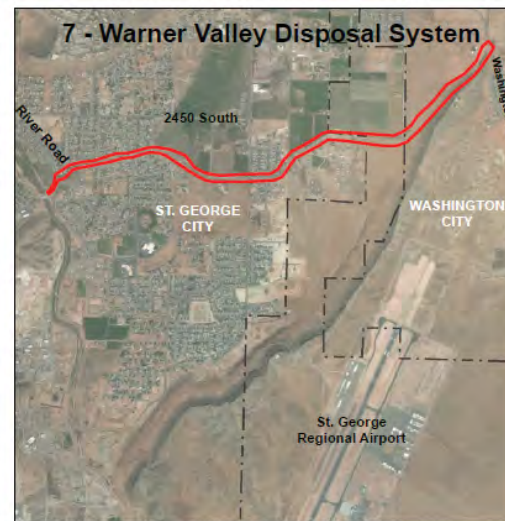
Site 7: Warner Valley Disposal System

Conveyance improvements to disposal system





Warner Draw Watershed Proposed Project Sites



LEGEND	
	Approximate Project Areas
	Municipality Boundaries

NORTH: 	SCALE: (NOT TO SCALE)
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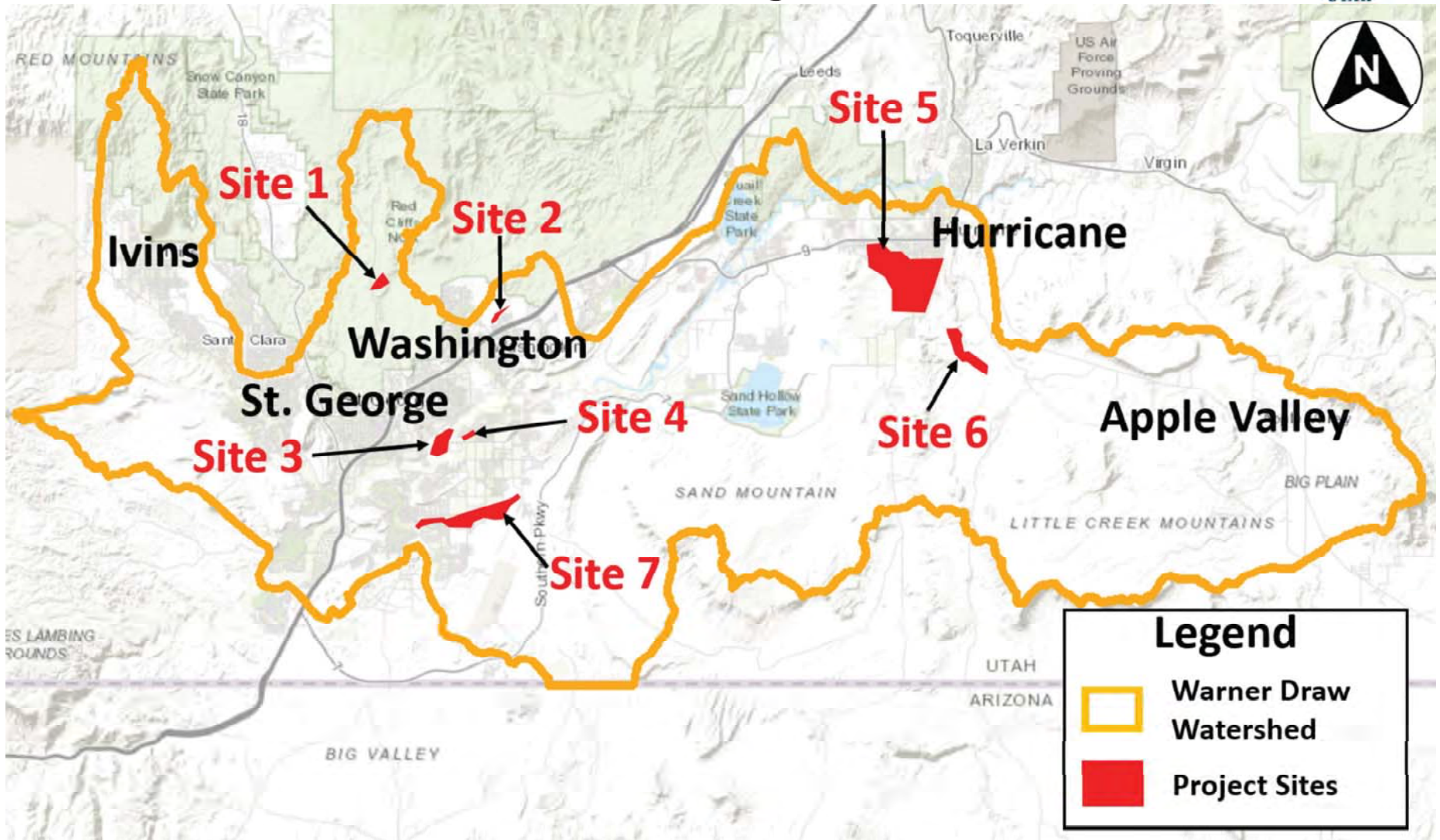
WARNER DRAW WATERSHED
ENLARGED PROJECT AREAS

WASHINGTON COUNTY
WARNER DRAW
WATERSHED EA






	FIGURE NO. 2
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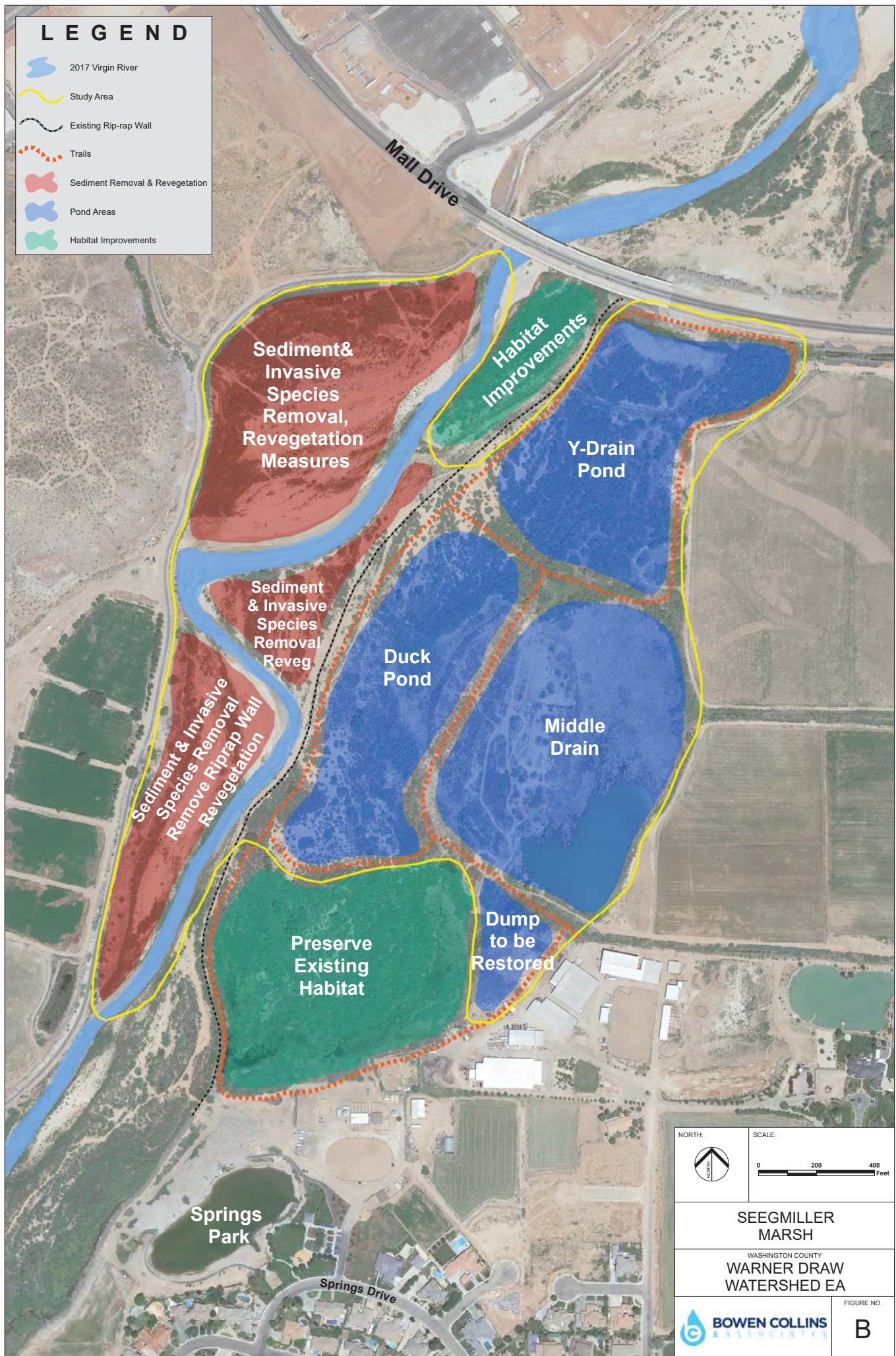


Warner Draw Watershed Proposed Project Sites



LEGEND

-  2017 Virgin River
-  Study Area
-  Existing Rip-rap Wall
-  Trails
-  Sediment Removal & Revegetation
-  Pond Areas
-  Habitat Improvements

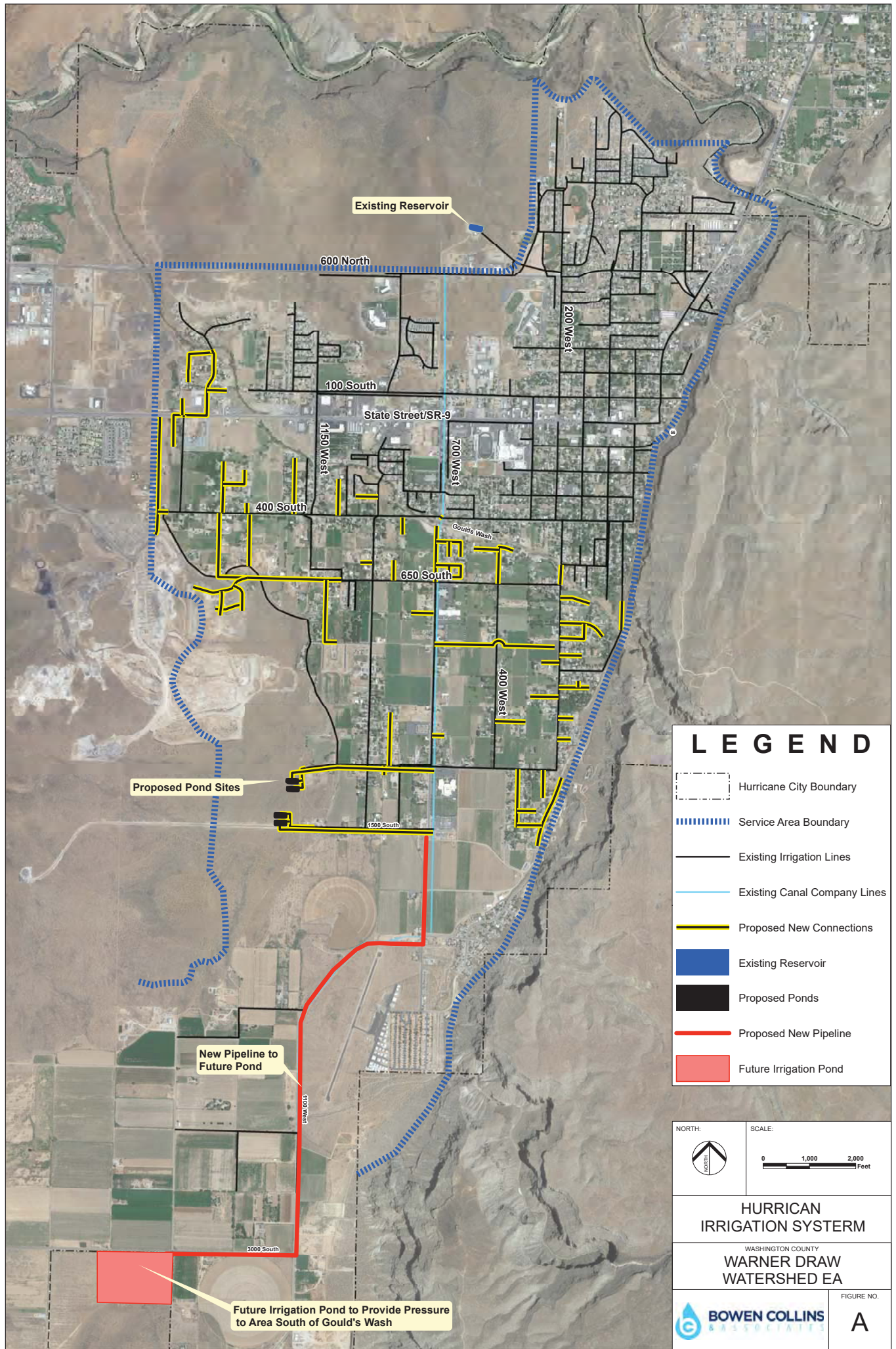


SEEGMILLER MARSH

WASHINGTON COUNTY
WARNER DRAW
WATERSHED EA



FIGURE NO.
B



Sign-In Sheet



Warner Draw Watershed and Flood Prevention Operations Project
Supplemental Watershed Plan and Environmental Assessment

Scoping Meeting (St. George) Sign-In Sheet

May 29, 2018



Name/Organization	Phone	Address	Email
UPLA Gil Meacham			
Willa Pate			
Justin Hartz			
Travis Woodsworth			
Craig Bagley	801-495-2224	Bowen Collins Associates	cbagley@bowencollins.com
Bobbi Preite	208-985-1542	McMillen Jacobs	bpreite@mcmljac.com
Kris Johnson/J&S Farm			
Jamie Tsander	801-495-2224	Bowen Collins Associates	jtsander@bowencollins.com
Todd Edwards	435-773-3599	197 E TABERNACLE ST. GEORGE	todd.edwards@washco.utah.gov
Ken Whitman	435-634-5700	197 E TABERNACLE ST. GEORGE	ken.whitman@washco.utah.gov

Jamie



Warner Draw Watershed and Flood Prevention Operations Project
Supplemental Watershed Plan and Environmental Assessment

Scoping Meeting (St. George) Sign-In Sheet

May 29, 2018



BOWEN COLLINS
ASSOCIATES



Name/Organization	Phone	Address	Email
Jeff Bieber Desert Roads + Trails			
Julie Applegate Desert Roads + Trails			
Lance Smith NRCS	435-704-4361	St. George	
Derek Hamilton NRCS	801/824-4560	SLC	
Micole + Dan Stoy			
Jay Sandberg	435 703 2672	St George City	jay.sandberg@sgcity.org
Norm Evenstad	801-524-4569	SLC	
Todd Olson	435-656-3299	BC9A	tolson@bowencollins.com
Hester Dalton McMillen Jacobs Assoc.	435-656-6317	Washington City	
Greg Allington	208-985-1499	1401 Shoreline Dr. Boise, ID 83616	allington@mcmjac.com



Warner Draw Watershed and Flood Prevention Operations Project
Supplemental Watershed Plan and Environmental Assessment

Scoping Meeting (Hurricane) Sign-In Sheet

May 30, 2018



Name/Organization	Phone	Address	Email
Greg Allington McMillen Jacobs Assoc.	208-985-1499	1401 Shoreline Dr. Boise, ID 83702	allington@mcmjac.com
Kate Bainghurst Bobbi Preite McMillen Jacobs	208-985-1542	1401 Shoreline Dr. Boise ID 83702	b_preite@mcmjac.com
Rail Watershed Idaho Watershed Council	435-634-5780	19512 Parkway St. Greenway, UT	randy@watershedcouncil.org
Keith Kristrup BLM	435-688-3211	345 E Riverside Drive	Kristrup@blm.gov
Craig Bagley	801-425-2224	Bowen Collins Assoc.	cbagley@bowencollins.com
Pam Humphries Hurricane City Council			
Arthur LeBaron Hurricane City Engineer	435-632-3462	147 N 870 W Hurricane, UT 84737	arthur@cityofhurricane.com
Derek Hamilton	801/824-4560	NRCS - SLC	
Jamie Tsander	801-495-2224	B.C.A.	jtsander@bowencollins.com
Norm Evenstad	801-524-4569	SLC	

Appendix C

Scoping Comments

Comments



Warner Draw Watershed and Flood Prevention Operations Project
Supplemental Watershed Plan and Environmental Assessment



Scoping Meeting (St. George) Comment Card

May 29, 2018

Name:

Address:

Email:

Phone:

Comments:

I think the project above main Street in Washington should take priority - those poor people have been repeatedly flooded + most of them are on the lower end of the economic spectrum.

You can also provide comments by emailing warnerdraw2018@bowencollins.com, faxing 801-495-2225, calling 801-495-2214, or mailing: Bowen Collins & Associates, 154 E 14075 S, Draper, UT 84020





Warner Draw Watershed and Flood Prevention Operations Project
Supplemental Watershed Plan and Environmental Assessment

Scoping Meeting (Hurricane) Comment Card



May 30, 2018

Name:

Address:

Email:

Phone:

Comments:

Gravel Wash - Detention is needed to help reduce loss of life & property in hurricane.

- Hydrology study needs to take into account existing retention basins on Little Creek Mesa.

Irrigation - Pressurized Irrigation will help solve problems that have stemmed from farmland turning to residential. Tail water is a huge problem. Frequency of water turns works well for field farming and fruit production, but not good for irrigating lawns and gardens.

- Need to find out side funding sources so we can maximize participation from existing irrigators.

You can also provide comments by emailing: warnerwatershed@bowencollins.com, faxing 801-495-2225, calling 801-495-2224, or mailing: Bowen Collins & Associates, 254 E 14075 S, Draper, UT 84020



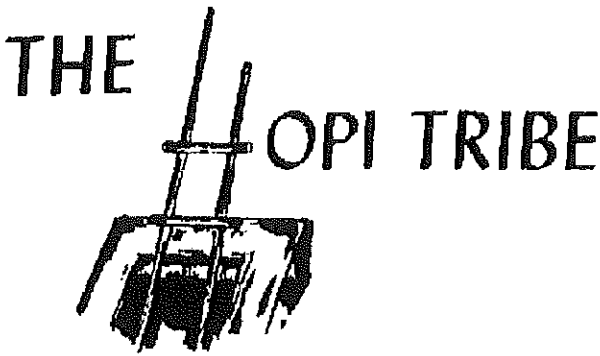
Jamie,

I wanted to submit comments for consideration during the scoping portion of the Warner Draw Watershed Project.

[REDACTED] our concerns are as follows:

- 1) Connecting existing erosion boundary walls on the west side of the river and east of the walking trail. Ultimately mitigating the erosion boundary line on the west side.
- 2) Allowing fill east of the walking trail to mitigate the 100 year flood line.
- 3) Get a working agreement with the City of St George for our water system.

Currently we are starting discussions with the Flood Control Authority on these three items. They have expressed interest in purchasing the flood plain property east of the walking trail. We would like to work out the issues above and have the property end up in the hands of the Flood Control Authority. It seems the logical answer.



Timothy L. Nuvangyaoma
CHAIRMAN

Clark W. Tenakhongva
VICE-CHAIRMAN

May 21, 2018

Timothy Wilson, State Conservationist
Attention: Tara S. Hoffman, Acting State Cultural Resources Specialist
Natural Resources Conservation Service
125 South State Street, Room 4010
Salt Lake City, Utah 84138

Re: Warner Draw Watershed Flood Prevention Operations Project, Washington County

Dear Mr. Wilson,

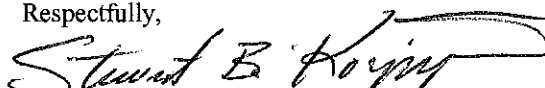
Thank you for your correspondence dated May 11, 2018, regarding the National Resources Conservation Service (NRCS) and Washington County proposing the Warner Draw Watershed Flood Prevention Operations Project. The Hopi Tribe claims cultural affiliation to prehistoric cultural groups in Utah. The Hopi Cultural Preservation Office supports the identification and avoidance of prehistoric archaeological sites and we consider the prehistoric archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate the NRCS's continuing solicitation of our input and your efforts to address our concerns.

The Hopi Cultural Preservation Office requests consultation on any proposal in Utah that has the potential to effect prehistoric cultural resources. We understand the project proposes improvements at seven sites to prevent flood damages, further the conservation, development utilization, and disposal of water, and further the conservation and proper utilization of land.

We also understand an environmental analysis will be prepared, and therefore we look forward to being provided with copies of the cultural resources report and draft environmental assessment for review and comment. If prehistoric cultural resources are identified that will be adversely affected by the proposed project, we will request continuing consultation including being provided with a copy of any proposed treatment plans for review and comment.

We appreciate that if any prehistoric cultural features or deposits are encountered during project activities, these activities will be discontinued in the immediate area of the remains, and the State Historic Preservation Office will be consulted to evaluate their nature and significance, and if any Native American human remains or funerary objects are discovered during project activities they will be immediately reported as required by law. If you have any questions or need additional information, please contact Terry Morgart at 928-734-3619 or tmorgart@hopi.nsn.us. Thank you for your consideration.

Respectfully,


Stewart B. Koyiyumptewa, Interim Manager
Hopi Cultural Preservation Office

xc: Utah State Historic Preservation Office