

## **AQUATIC RESOURCE DELINEATION REPORT**

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### **303.14-Acre Undeveloped Agricultural Property**

**Allred Family Property  
(SOA Investments, LTD)  
North 3600 West St.  
Lehi, Utah**

**June 15, 2016**

**Prepared for:**

Brian Gabler, P.E  
LEI Engineers, Surveyors, Planners  
3302 N. Main St.  
Spanish Fork, Utah 84660  
Phone Number: 801-798-0555  
Email: [brian@lei-eng.com](mailto:brian@lei-eng.com)  
Engineers, Surveyors, Planners

**Prepared by:**

Tom Hopkins  
728 Christensen Ct.  
Salt Lake City, Utah 84106  
Phone: 801-450-4575  
Email: [birdog638@msn.com](mailto:birdog638@msn.com)

## EXECUTIVE SUMMARY

An aquatic resource delineation was conducted on an area of concern on a parcel of property approximately 303.14-acres in size located on North 3600 West Street in Lehi, Utah County, Utah (Section 11 & 12, Township 5 South, Range 1 West SLB&M).

This aquatic resource delineation was conducted according to the guidelines and procedures outlined in the U.S. Army Corps of Engineers' (ACOE) *Wetlands Delineation Manual (Technical Report Y-87-1)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, September, 2008.

In addition, this delineation was performed in accordance with the guidelines and procedures outlined in the U.S. Army Corps of Engineers' (ACOE) *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*, August 2008.

The results of this investigation suggest the Project Area (PA) contains the following:

- Wet meadow wetlands: 13.33-acres
- Open Fresh water pond: 1.5-acres
- Water courses: 2,123 linear feet

In addition there is approximately 0.12-acres of recently filled wetlands in the PA.

The dominant resource classification for the resource on the PA is wet meadow, palustrine emergent. The condition of the resources at the time of the field investigation would be considered fair to poor due mainly from livestock grazing.

The final determination of this investigation is subject to confirmation by representatives of the U.S. Army Corps of Engineers and/or other pertinent regulatory staff.

## ACRONYMS AND ABBREVIATIONS

BMP	best management practice
cfs	cubic feet per second
LIDAR	Light Detection and Ranging
LWD	large woody debris
MP	Mile Post
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	ordinary high water mark
PA	Project Area
PEM	palustrine emergent
PFO	palustrine forested
PSS	palustrine scrub-shrub
ROW	right-of-way
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UTM	Universal Transverse Mercator coordinate system
WRIA	Water Resource Inventory Area
[add or delete acronyms and abbreviations as needed]	

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## **1.0 INTRODUCTION**

A aquatic resource delineation was conducted on an undeveloped, agricultural parcel of property approximately 303.14-acres in size located on North 3600 West Street in Lehi, Utah.

This delineation was performed at the request of the D.R. Horton (applicant). Contact information for the applicant is as follows:

The property owner and applicant contact information is:

Property Owner: SOA Investments  
Address: 166 West 10 South  
Lehi, Utah

Applicant: John Linton, DR Horton  
Address: 12351 Gateway Park Place, Suite 100  
Draper, Utah 84020

Phone: 385-225-0081  
Email: jblinton@drhorton.com

The purpose of this report is to identify and describe aquatic resources and, to identify known possible sensitive plant, fish, wildlife species, and cultural/historic properties in the survey area. This report facilitates efforts to:

1. Avoid or minimize impacts to aquatic resources during the design process.
2. Document aquatic resource boundary determinations for review by regulatory authorities.
3. Provide early indications of known sensitive species and historic/cultural properties within the survey area.
4. Provide background information.

The U.S. Army Corps of Engineers (ACOE) and EPA define wetlands as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Generally, saturated soil conditions are further described as saturated to the surface for at least two weeks during the normal growing season.

## **2.0 LOCATION**

The site is located in Lehi, Utah County, Utah. The property is bounded on the west by SR 68 (Redwood Road) and on the east by the Jordan River. North 3600 West St. transects the subject property in a north – south direction. The subject site is approximately 1.25-miles south of the west 2100 North Street/North 3600 West intersection.

The subject property is located in the city of Lehi, Utah. The address of the residence on the subject property is 8887 North 10400 West, Lehi, Utah. The subject property is located in Sections 11 & 12, Township 5 South, Range 1 West ,SLB&M. Latitude and Longitude coordinates for the subject property are UTM: Zone 12T, 422969.56 m E, 4471955.49 m N. Access to the subject property from the Bountiful ACOE office is as follows:

Head west on 2600 South St. to I-15 South. Continue on I-15 south for 33 miles to exit 282, 2100 North. Turn east on 2100 North and continue for approximately 2 miles. Turn south on N 3600 West Street. Continue on N 3600 West Street for approximately 1.25 miles. Subject property is located on both sides of the road.

A topographic map is presented in **Appendix B**.

Appendix A contains two figures that illustrate the PA with the data points depicted, the property boundary and includes the NWI map.

Land use in the surrounding area is agricultural; mainly pasture for livestock with some hay production. There are some residential uses in close proximity. The subject property is currently undeveloped.

Site photographs are presented in **Appendix C**.

## **2.1 Climatic Conditions**

At the time of the field site investigation and data collection, April, 2016, climatic conditions at the PA were consistent with normal conditions for the area. The weather was clear, there was not recent history of precipitation. Much of the lower area that demonstrates aquatic resource characteristics is within the FEMA 100-year flood plain. This area is along the east boundary and adjacent to the Jordan River.

### 3.0 METHODS

This delineation was conducted according to the guidelines and procedures outlined in the US Army Corps of Engineers' in compliance with the *Wetlands Delineation Manual (Technical Report Y-87-1)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, September, 2008

Using this method, the upland areas are differentiated from wetland areas based on three parameters: vegetation, soils, and hydrologic features. At each data point, all of these parameters must exhibit wetland characteristics for that point to be within the wetland boundary. Dominant vegetation species at each data point were identified by visual estimation of coverage. Generally, any species with 20% cover or greater was considered a dominant species. However, the Wetland Delineation Manual specifies that for areas where only one layer of vegetation is present, five dominant species should be identified for each data point. Therefore, if five dominant species were not present at 20% cover, species with less cover were also noted, but not generally counted as dominants.

Soils were removed at each data point to depths ranging from 0 to 20 inches below ground surface. Soil moisture, texture, and color were observed, and any observations of organic content, mottles or gleyed soils were noted. Soils were moistened and compared to the Munsell Color Charts (Macbeth, 1990) for determination of value, chroma, and hue.

Hydrologic features were noted for each data point based primarily on depth to groundwater, surface water, soil moisture, and field observations for indications of hydrologic characteristics, such as water marks, drift lines, oxidized rhizospheres along living roots. Irrigation, seasonal influences, recent precipitation events, annual and long-term precipitation data, and historical information were also considered where available. As specified in the Wetlands Delineation Manual, information collected from each data point was recorded on data forms presented in **Appendix E**.

Ordinary High Water Mark identification was performed on April 4 and 22, 2016. Using US Army Corps of Engineers *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*, August 2008 as a guide. Two onsite drainage features were evaluated for OHWM identification.

Drainage feature No. 1 is located along the north property boundary and consists of two segments. The source of the water in this feature is uncertain in that there is a buried tile pipe that originates west of the PA and collects water and transports it across the irrigated field on the PA. It is possible that this buried pipe has been constructed to collect groundwater from the fields and discharge it into the wetland area. This feature is perennial and flows continuously. The feature surfaces just west of the fence above the pasture area and discharges into the wetland area.

The second segment of this feature exits the wetland area and also flows easterly along the property boundary and discharges into the Jordan River. In addition to the flow from the wetland area, this segment also receives minor amounts of water from a stock-watering pond that is adjacent to the feature. The stock-watering pond is created from an artesian discharge into a piping system located away from the location. The control valve at this location is malfunctioning, which allows the water to flow continuously and pond in the low area. Photos 29 & 30 in the photo log illustrate this condition.

Drainage feature No. 2 originates from the constructed freshwater irrigation pond near the south PA property border. As previously noted, there are two outlets from the pond. One is a controlled discharge from the weir and the second is the overflow located at the top of the berm holding the pond water. The two discharge points come together downstream of the pond bank and proceed easterly discharging into the Jordan River. The location of the feature No. 2 is in the bottom of a ravine that has steep sides. In addition, there are two areas along the feature that indicate a source of groundwater may be entering the feature. This is evidenced by the presence of areas of seeps/springs with wetland characteristics. Dominant vegetation along this feature is *Phragmites australis* and *Phalaris arundinacea*.

Both features are located have vertical banks and located in soils that tend to demonstrate high capacity to erosion. The beds are semi-solid with some gravels, but are mainly soft clay material. The banks are vegetated to the edge of the OHWM with grasses. The feature bottoms are not vegetated. Water depth is less than four inches.

Appendix F contains OHWM data sheets for four transect areas on the Project Area.



## **4.0 EXISTING CONDITIONS**

Complete documentation of vegetation, soils and hydrology is provided for 12 data points.

### **4.1 Landscape Setting**

The topography on the PA generally slopes from west to east. The slope average slope across the PA is approximately 1.5%. Appendix 2 presents a surveyed topographic map that illustrates the topography of the site with two-foot contours and FEMA flood plain information.

There are no significant geological features on the PA other than the pond outlet area where there is a steep ravine with the drainage feature in the bottom.

The Jordan River forms the east boundary of the PA.

Included in the PA is a 1.5-acre freshwater impoundment that is used for irrigation. Water for this impoundment is from an adjacent well and a series of free flowing springs along 3600 West St.

Historical use of the PA has been for agricultural. The PA contains irrigated farmland, as well as an area used for livestock pasture and grazing. The area used for livestock activities is the eastern portion of the PA and contains aquatic resources. A portion is within the 100-year flood zone.

Plant communities within the PA and particularly in the livestock/pasture area are mainly Graminoids interspersed with tree/shrub communities in upland areas. The tree/shrub communities are mainly Russian olive and Tamarisk.

The total acreage within the PA is approximately 303-acres. The area that exhibits a predominance of wetland characteristics is approximately 44 acres.

The entire 303-acre PA was not field verified. A review of aerial photographs as well as visual observations during the field data collection indicate the area west of the lower area to the west property boundary that is being actively cultivated is upland.

The remaining area on the PA was field verified and the data is being presented in this report.

## 4.2 Aquatic Resources

### 4.2.1 Overview

The PA contains four distinct aquatic resources that may be subject to regulation under Section 404 of the Clean Water Act, 1974. The aquatic resources are as follows:

Palustrine Emergent Seasonally Flooded (PEMC), Palustrine Emergent Semipermanently Flooded (PEMF), Palustrine Forrested Temporary Flooded (PFOA), Palustrine Aquatic Bed Semipermanently Flooded Diked/Impounded, and Riverene, Lower Perennial, Unconsolidated Bottom, Permanently Flooded (R2UBh). These aquatic resources were identified on the National Wetlands Inventory Map. In addition, there are two small, linear water features/ditches that discharge into the Jordan River from aquatic resources.

Approximately 0.12-acres of the large, 10-acre, wetland area has recently been filled with soil. This activity occurred in the early spring of 2016 in an attempt to divert water from the wetland inlet from spreading laterally over the area. Photos 33 and 34 in the Photo Log found in Appendix C illustrate the fill area.

Table 1 provides technical data for all aquatic resources identified on the PA.

**Table 1. Aquatic Resources within the Survey Area**

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acre) Required for all resources	Aquatic Resource Size (linear feet) Required for only stream channels
	Cowardin	Location (lat/long)		
Freshwater Pond	PABFh	40.393451 -111.907203	1.5 Acres	
Pond Outlet Wetland	PFOA	40.393159, -111.905941	0.19 Acres	
Spring Wetland	PEMC	40.393143 -111.904659	284 Ft <sup>2</sup>	

Seep Wetland	PEMC	40.393411 -111.903965	820 Ft <sup>2</sup>	
Wetland	PEMC	40.398491 -111.898683	10 Acres	
Artesian Pond Wetland	PEMC	40.399129 -111.898484	0.02 Acres	
Riverbank Wetland	R1SB7	40.399213 -111.897361	3.1 Acres	
Wetland Inlet	RP1EM	40.698603 -111.900861		174 Feet
Wetland Drain	RP1EM	40.399205 -111.898433		496 Feet
Weir Discharge	RP1EM	40.393154 -111.905836		226 Feet
Overflow	RP1EM	40.392899 -111.905075		1,227 Feet
<b>Total</b>			14.84 Acres	2,123 Feet

Site hydrology is from at least two sources. Elevated groundwater in the vicinity provides a source of water to the wetland area along the east boundary via a series of underground piping that transports water to the wetland area. In addition, because the PA is actively farmed and subject to flood irrigation, tailwater is discharged into the wetland area along the east.

There is a man-made irrigation pond in approximately the middle of the PA. This pond receives water from a drilled well along with natural sources along the west edge. Water from the pond is used for irrigation on the PA. The pond has a weir installed that can control a release from the pond to the east. According to the Owner the weir is rarely used. An overflow has been constructed that maintains the pond water elevation. Excess water is allowed to overflow and travel down a small watercourse ultimately discharging into the Jordan River a tributary to a navigable waterway.

The nearest “blue-line” waterway is the Jordan River, which forms the east boundary to the PA.

PA gradient is less than 1.5% slope to the east

According to a NRCS soil survey there are 12 defined soil series within the 300-acre PA. Because only a portion of the PA is considered potentially wetland the only series that is being used for this delineation is the Mixed Alluvium series. This series is considered hydric with a typical profile of the top six inches classified as loam and the remaining depth to 60 inches is classified as gravelly clay loam. This series is considered poorly drained with the depth to the water table ranging from 12-inches to 36-inches below ground surface.

Vegetation on the 300-acre PA can be divided into two basic communities. Community one would be those plants associated with the active farming activities, which encompasses the majority of the PA. Typical communities are barley, alfalfa, and grass hay.

The vegetation identified on the potential wetland area of the PA consist of graminoids, deciduous trees, and herbaceous plants. The area is intermixed with wetland and non-wetland plants. Appendix D provides a vegetation table complete with plant names and indicator status.

There are no activities associated with interstate or foreign commerce associated with potential wetlands on the PA.

#### **4.3 Sensitive Plants, Fish, Wildlife and Cultural/Historic Properties**

The PA does not contain any sensitive plants, fish, wildlife and cultural/historic properties that require additional investigation.

### **5.0 CONCLUSIONS**

The data and field observations from delineation performed on the suggests that this 303.14-acre parcel contains approximately 13.34-acres of wet meadow wetlands, 1.5-acres of freshwater pond environment and 1,123 linear feet of running water that are discharged to the Jordan River.

The final decision as to jurisdiction will be made by the ACOE after field verification of the site.

## References

- Environmental Laboratory, 1987. *Corps of Engineers' Wetlands Delineation Manual, Technical Report Y-87-1*. US Army Engineer Waterways Experiment Station, Vicksburg, MS.
- U. S. Fish and Wildlife Service, 2009. *National Wetlands Inventory website*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.  
<http://www.fws.gov/wetlands/>
- United States Army Engineer Research and Development Center/Cold Regions Research and Engineering Laboratory, 2012. *National Wetland Plant List, ERDC/CRREL TR-12-11*
- United States Army Engineer Research and Development Center, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, September, 2008
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- National Technical Information Service, 1988. *National List of Plant Species That Occur in Wetlands: Intermountain (Region 8) Biological Report 88 (26.8)*.
- United States Department of Agriculture, Natural Resources Conservation Service, 2016. *Custom Soil Resource Report for Utah County, Utah – Central Part*.  
<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

## **APPENDIX A**

### **Aquatic Resources Delineation Maps**





Allred Property  
North 3600 West St.  
Lehi, Utah County, Utah

Aquatic Resources Delineation Map-WetlandArea

- Project: LEI-DR Horton
- Investigator: T. Hopkins
- Date: 5/19/2016
- Revision Date:





Allred Property  
North 3600 West St.  
Lehi, Utah County, Utah

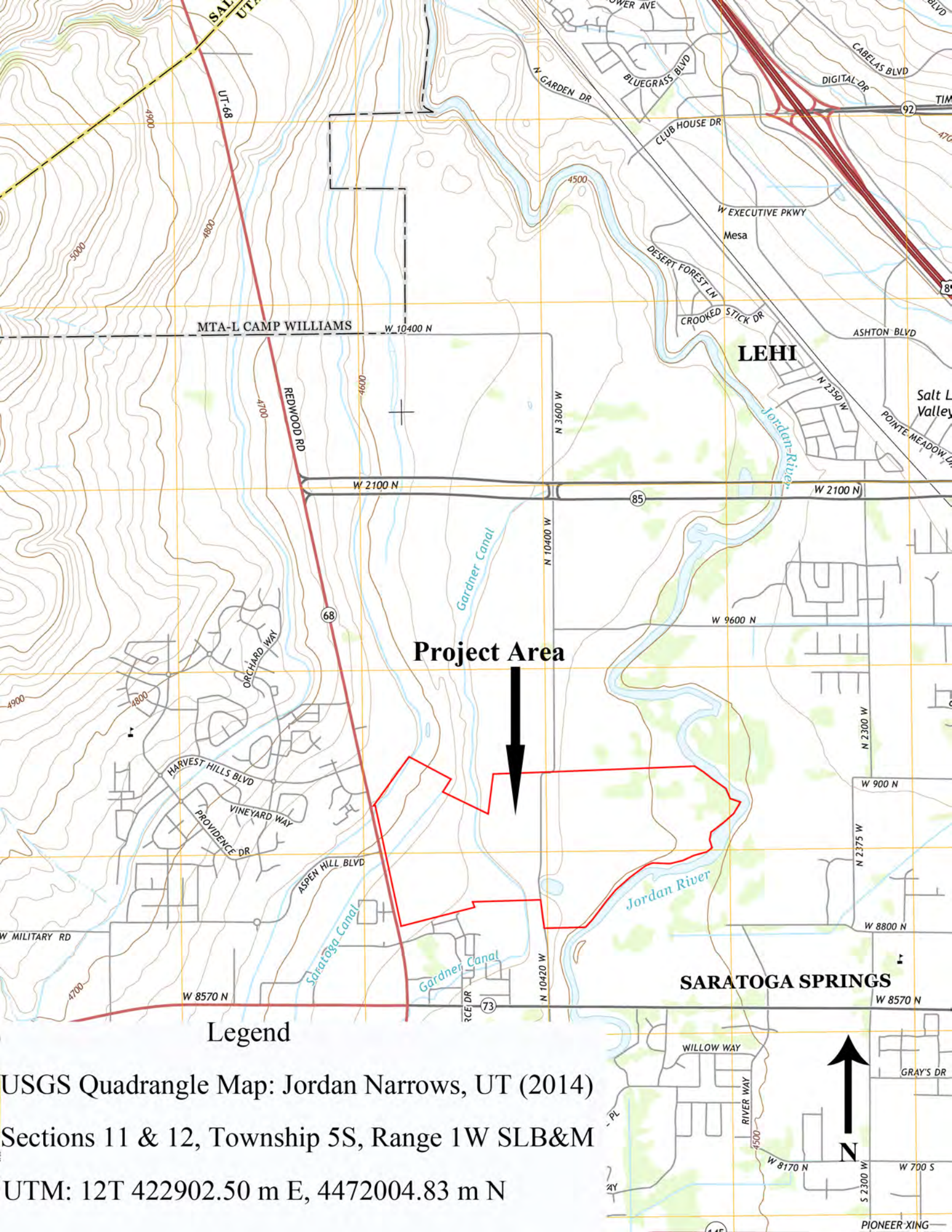
Aquatic Resources Delineation Map-Pond Area

- Project: LEI-DR Horton
- Investigator: T. Hopkins
- Date: 5/19/2016
- Revision Date:

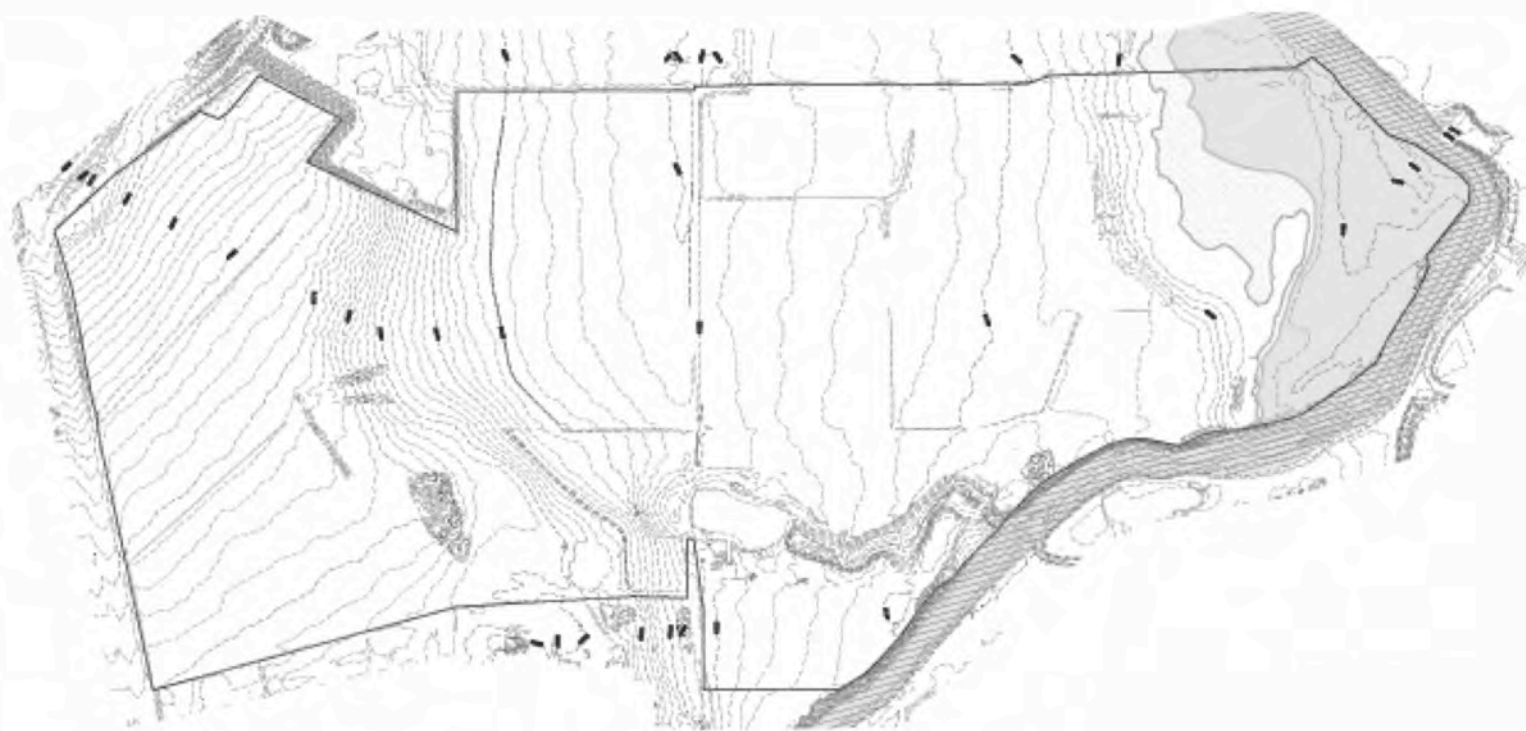


## **APPENDIX B**

### **Supporting Maps**



USGS Quadrangle Map: Jordan Narrows, UT (2014)  
Sections 11 & 12, Township 5S, Range 1W SLB&M  
UTM: 12T 422902.50 m E, 4472004.83 m N



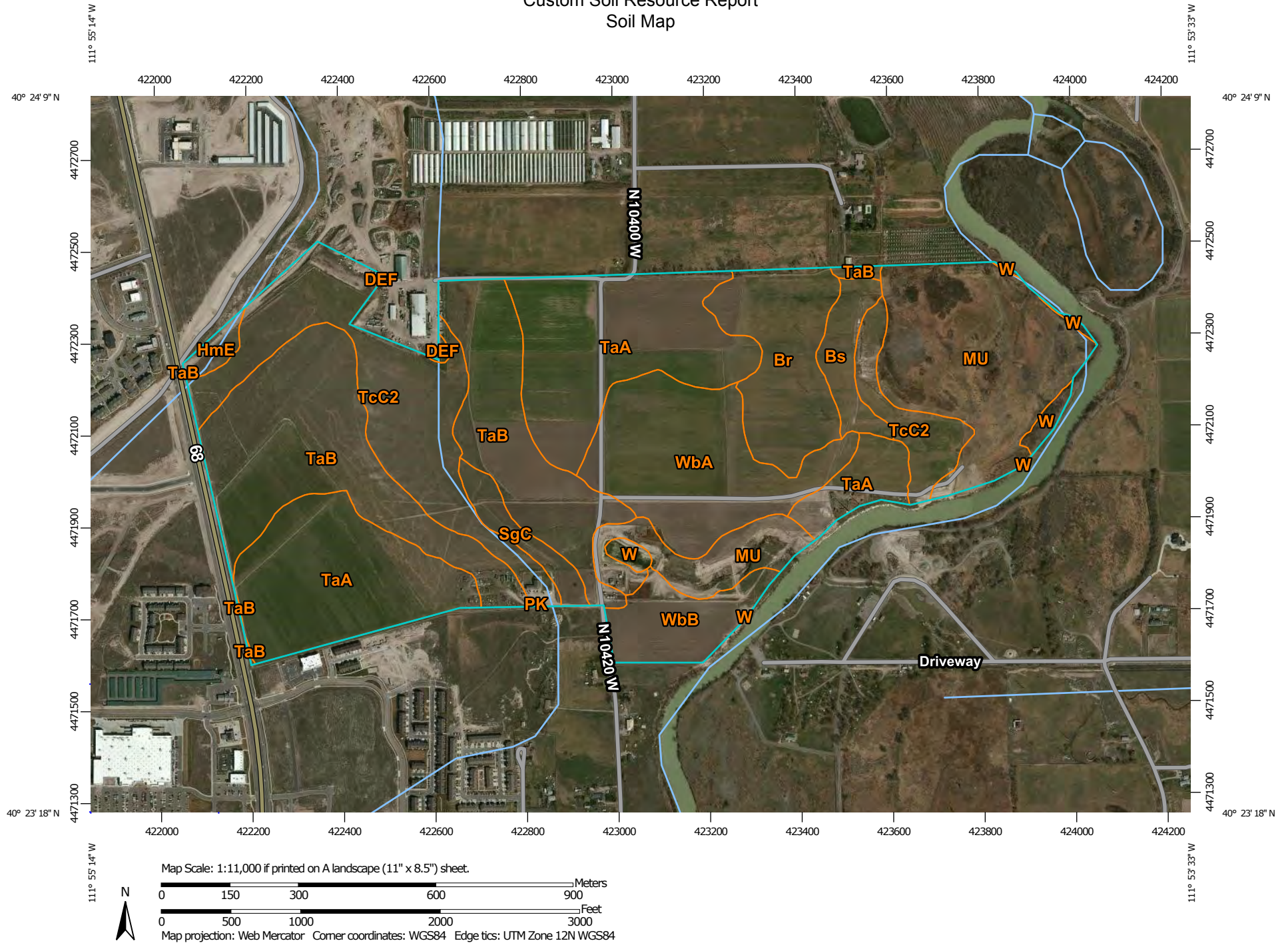
Allred Property  
North 3600 West St.  
Lehi, Utah County, Utah

Figure: ALTA Survey of Project Area-Contours @ 2-Feet

- Project: LEI-DR Horton
- Investigator: T. Hopkins
- Date: 6/14/2016
- Revision Date:




# Custom Soil Resource Report Soil Map



# Custom Soil Resource Report


## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features

 Blowout

 Borrow Pit

 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

### Water Features

 Streams and Canals


### Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Utah County, Utah - Central Part  
Survey Area Data: Version 8, Sep 23, 2015

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

Date(s) aerial images were photographed: Mar 31, 2012—Apr 28, 2012

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

## Map Unit Legend

Utah County, Utah - Central Part (UT621)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Bramwell silty clay loam	21.1	6.8%
Bs	Bramwell silty clay loam, drained	6.8	2.2%
DEF	Dry Creek extremely stony loam, stony subsoil variant, 6 to 30 percent slopes	0.4	0.1%
HmE	Hillfield silt loam, 10 to 20 percent slopes	2.1	0.7%
MU	Mixed alluvial land	48.2	15.5%
PK	Pits and dumps	0.1	0.0%
SgC	Sterling gravelly fine sandy loam, 3 to 6 percent slopes	5.1	1.7%
TaA	Taylorville silty clay loam, 0 to 1 percent slopes	71.2	23.0%
TaB	Taylorville silty clay loam, 1 to 3 percent slopes	64.9	21.0%
TcC2	Taylorville silty clay loam, extended season, 3 to 6 percent slopes, eroded	43.7	14.1%
W	Water	3.0	1.0%
WbA	Welby silt loam, 0 to 1 percent slopes	31.8	10.3%
WbB	Welby silt loam, 1 to 3 percent slopes	11.5	3.7%
<b>Totals for Area of Interest</b>		<b>309.9</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

## Utah County, Utah - Central Part

### Br—Bramwell silty clay loam

#### Map Unit Setting

*National map unit symbol:* j6wn

*Elevation:* 4,320 to 4,600 feet

*Mean annual precipitation:* 12 to 16 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 130 to 150 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Bramwell and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Bramwell

##### Setting

*Landform:* Terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Lacustrine deposits derived from mixed sources

##### Typical profile

*Ap - 0 to 6 inches:* silty clay loam

*A1 - 6 to 11 inches:* silty clay loam

*C1 - 11 to 20 inches:* silty clay loam

*C2ca - 20 to 31 inches:* silty clay loam

*C3ca - 31 to 60 inches:* silty clay loam

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 24 to 36 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 30 percent

*Salinity, maximum in profile:* Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 30.0

*Available water storage in profile:* Moderate (about 7.8 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3w

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* D

*Ecological site:* Alkali Bottom (Alkali Sacaton) (R028AY001UT)

### Minor Components

#### Chipman

*Percent of map unit:* 5 percent

#### Strongly saline soils

*Percent of map unit:* 3 percent

#### Taylorsville

*Percent of map unit:* 3 percent

#### Depressional soils

*Percent of map unit:* 2 percent

*Landform:* Depressions on lake terraces

*Landform position (three-dimensional):* Tread, dip

*Down-slope shape:* Linear, concave

*Across-slope shape:* Linear, concave

*Ecological site:* Alkali Bottom (Alkali Sacaton) (R028AY001UT)

#### Hardpan soils

*Percent of map unit:* 2 percent

## Bs—Bramwell silty clay loam, drained

### Map Unit Setting

*National map unit symbol:* j6wp

*Elevation:* 4,320 to 4,600 feet

*Mean annual precipitation:* 12 to 16 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 130 to 150 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Bramwell and similar soils:* 92 percent

*Minor components:* 8 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Bramwell

#### Setting

*Landform:* Terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Lacustrine deposits derived from mixed sources

#### Typical profile

*Ap - 0 to 6 inches:* silty clay loam

*A1 - 6 to 11 inches:* silty clay loam

*C1 - 11 to 20 inches:* silty clay loam

*C2ca - 20 to 31 inches:* silty clay loam



## Custom Soil Resource Report

*C3ca - 31 to 60 inches: silty clay loam*

### Properties and qualities

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Natural drainage class: Somewhat poorly drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)*

*Depth to water table: About 36 to 48 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum in profile: 40 percent*

*Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)*

*Sodium adsorption ratio, maximum in profile: 30.0*

*Available water storage in profile: Moderate (about 8.8 inches)*

### Interpretive groups

*Land capability classification (irrigated): 3w*

*Land capability classification (nonirrigated): 7w*

*Hydrologic Soil Group: C*

*Ecological site: Alkali Bottom (Alkali Sacaton) (R028AY001UT)*

### Minor Components

#### Taylorsville

*Percent of map unit: 5 percent*

#### Depressional soils

*Percent of map unit: 3 percent*

*Landform: Depressions on lake terraces*

*Landform position (three-dimensional): Tread, dip*

*Down-slope shape: Concave, linear*

*Across-slope shape: Concave, linear*

*Ecological site: Alkali Bottom (Alkali Sacaton) (R028AY001UT)*

## DEF—Dry Creek extremely stony loam, stony subsoil variant, 6 to 30 percent slopes

### Map Unit Setting

*National map unit symbol: j6x3*

*Elevation: 5,200 to 6,000 feet*

*Mean annual precipitation: 14 to 18 inches*

*Mean annual air temperature: 45 to 50 degrees F*

*Frost-free period: 130 to 150 days*

*Farmland classification: Not prime farmland*

### Map Unit Composition

*Dry creek variant and similar soils: 100 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Dry Creek Variant

### Setting

*Landform:* Lake terraces  
*Landform position (three-dimensional):* Riser  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Colluvium and/or slope alluvium derived from mixed sources

### Typical profile

*A1 - 0 to 4 inches:* extremely stony loam  
*B1 - 4 to 10 inches:* very cobbly clay loam  
*B21t - 10 to 14 inches:* extremely cobbly clay loam  
*B22t - 14 to 20 inches:* extremely cobbly clay loam  
*B3 - 20 to 30 inches:* extremely cobbly sandy clay loam  
*C1ca - 30 to 43 inches:* extremely cobbly sandy loam  
*C2 - 43 to 60 inches:* extremely cobbly sandy loam

### Properties and qualities

*Slope:* 6 to 30 percent  
*Percent of area covered with surface fragments:* 20.0 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 30 percent  
*Available water storage in profile:* Low (about 4.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* C  
*Ecological site:* Upland Gravelly Loam (Bonneville Big Sagebrush) (R028AY306UT)

## HmE—Hillfield silt loam, 10 to 20 percent slopes

### Map Unit Setting

*National map unit symbol:* j6xg  
*Elevation:* 4,700 to 5,200 feet  
*Mean annual precipitation:* 12 to 14 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 150 to 170 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Hillfield and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **Description of Hillfield**

### **Setting**

*Landform:* Escarpments, lake terraces  
*Landform position (three-dimensional):* Riser  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Lacustrine deposits derived from mixed sources

### **Typical profile**

*Ap - 0 to 4 inches:* silt loam  
*AC - 4 to 12 inches:* silt loam  
*C1ca - 12 to 26 inches:* silt loam  
*C2ca - 26 to 35 inches:* loam  
*C3ca - 35 to 40 inches:* loam  
*IIC4 - 40 to 60 inches:* sandy loam

### **Properties and qualities**

*Slope:* 10 to 20 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 50 percent  
*Salinity, maximum in profile:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 20.0  
*Available water storage in profile:* Moderate (about 8.7 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* C  
*Ecological site:* Upland Loam (Bonneville Big Sagebrush) North (R028AY310UT)  
*Other vegetative classification:* Upland Loam (Mountain Big Sagebrush) (028AY310UT)

## **Minor Components**

### **Taylorsville**

*Percent of map unit:* 5 percent

### **Welby**

*Percent of map unit:* 5 percent

## **MU—Mixed alluvial land**

### **Map Unit Setting**

*National map unit symbol:* j6yf

## Custom Soil Resource Report

*Elevation:* 4,450 to 4,550 feet  
*Mean annual precipitation:* 12 to 14 inches  
*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 130 to 150 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Mixed alluvial land and similar soils:* 95 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Mixed Alluvial Land

#### Setting

*Landform:* Channels, streams  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Parent material:* Alluvium derived from mixed sources

#### Typical profile

*H1 - 0 to 6 inches:* loam  
*H2 - 6 to 60 inches:* gravelly clay loam

#### Properties and qualities

*Slope:* 0 to 10 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 12 to 36 inches  
*Frequency of flooding:* Frequent  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 40 percent  
*Salinity, maximum in profile:* Moderately saline to strongly saline (8.0 to 32.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 20.0  
*Available water storage in profile:* Low (about 5.4 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6w  
*Hydrologic Soil Group:* D  
*Ecological site:* Wet Fresh Streambank (R028AY022UT)

### Minor Components

#### Depressional soils

*Percent of map unit:* 5 percent  
*Landform:* Depressions  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Ecological site:* Alkali Bottom (Alkali Sacaton) (R028AY001UT)

## **PK—Pits and dumps**

### **Map Unit Setting**

*National map unit symbol:* j6ys

*Elevation:* 4,490 to 4,900 feet

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Pits:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **SgC—Sterling gravelly fine sandy loam, 3 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* j6zw

*Elevation:* 4,600 to 5,000 feet

*Mean annual precipitation:* 14 to 16 inches

*Mean annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 150 to 170 days

*Farmland classification:* Prime farmland if irrigated

### **Map Unit Composition**

*Sterling and similar soils:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Sterling**

#### **Setting**

*Landform:* Escarpments

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Lacustrine deposits derived from mixed sources

#### **Typical profile**

*Ap - 0 to 5 inches:* gravelly fine sandy loam

*A1 - 5 to 11 inches:* gravelly sandy loam

*C1ca - 11 to 16 inches:* gravelly sandy loam

*C2ca - 16 to 21 inches:* very gravelly sandy loam

*C3ca - 21 to 60 inches:* extremely gravelly sand

#### **Properties and qualities**

*Slope:* 3 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

## Custom Soil Resource Report

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 40 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 10.0

*Available water storage in profile:* Very low (about 2.8 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 4s

*Land capability classification (nonirrigated):* 4s

*Hydrologic Soil Group:* A

*Ecological site:* Upland Stony Loam (Wyoming Big Sagebrush) (R028AY334UT)

*Other vegetative classification:* Upland Stony Loam (Mountain Big Sagebrush)  
(028AY334UT)

## **TaA—Taylorsville silty clay loam, 0 to 1 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* j703

*Elevation:* 4,500 to 4,800 feet

*Mean annual precipitation:* 14 to 16 inches

*Mean annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 130 to 170 days

*Farmland classification:* Prime farmland if irrigated

### **Map Unit Composition**

*Taylorsville and similar soils:* 95 percent

*Minor components:* 5 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Taylorsville**

#### **Setting**

*Landform:* Lake terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Lacustrine deposits derived from limestone and shale

#### **Typical profile**

*Ap - 0 to 7 inches:* silty clay loam

*AC - 7 to 13 inches:* silty clay loam

*C1,C2 - 13 to 36 inches:* silty clay loam

*C3ca - 36 to 56 inches:* silty clay loam

*C4 - 56 to 62 inches:* silty clay loam

#### **Properties and qualities**

*Slope:* 0 to 1 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

## Custom Soil Resource Report

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 40 percent

*Salinity, maximum in profile:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 25.0

*Available water storage in profile:* High (about 10.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* 3s

*Land capability classification (nonirrigated):* 4s

*Hydrologic Soil Group:* C

*Ecological site:* Upland Loam (Bonneville Big Sagebrush) North (R028AY310UT)

*Other vegetative classification:* Upland Loam (Mountain Big Sagebrush)  
(028AY310UT)

### Minor Components

#### Bramwell

*Percent of map unit:* 5 percent

## TaB—Taylorsville silty clay loam, 1 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* j704

*Elevation:* 4,500 to 4,800 feet

*Mean annual precipitation:* 14 to 16 inches

*Mean annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 130 to 170 days

*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Taylorsville and similar soils:* 95 percent

*Minor components:* 5 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Taylorsville

#### Setting

*Landform:* Lake terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Lacustrine deposits derived from limestone and shale

#### Typical profile

*Ap - 0 to 7 inches:* silty clay loam

*AC - 7 to 13 inches:* silty clay loam

*C1,C2 - 13 to 36 inches:* silty clay loam

*C3ca - 36 to 56 inches:* silty clay loam

*C4 - 56 to 62 inches:* silty clay loam

## Custom Soil Resource Report

### Properties and qualities

*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 40 percent  
*Salinity, maximum in profile:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 25.0  
*Available water storage in profile:* High (about 10.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* 3e  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* Upland Loam (Bonneville Big Sagebrush) North (R028AY310UT)  
*Other vegetative classification:* Upland Loam (Mountain Big Sagebrush) (028AY310UT)

### Minor Components

#### Bramwell

*Percent of map unit:* 5 percent

## TcC2—Taylorsville silty clay loam, extended season, 3 to 6 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* j707  
*Elevation:* 4,530 to 4,800 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 47 to 50 degrees F  
*Frost-free period:* 130 to 150 days  
*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Taylorsville and similar soils:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Taylorsville

#### Setting

*Landform:* Lake terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear



## Custom Soil Resource Report

*Parent material:* Lacustrine deposits derived from limestone and shale

### Typical profile

*Ap - 0 to 7 inches:* silty clay loam  
*AC - 7 to 13 inches:* silty clay loam  
*C,C2 - 13 to 36 inches:* silty clay loam  
*C3ca - 36 to 56 inches:* silty clay loam  
*C4 - 56 to 62 inches:* silty clay loam

### Properties and qualities

*Slope:* 3 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 40 percent  
*Salinity, maximum in profile:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 25.0  
*Available water storage in profile:* High (about 10.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* C  
*Ecological site:* Upland Loam (Bonneville Big Sagebrush) North (R028AY310UT)  
*Other vegetative classification:* Upland Loam (Mountain Big Sagebrush) (028AY310UT)

## W—Water

### Map Unit Setting

*National map unit symbol:* j70s  
*Elevation:* 4,470 to 4,720 feet  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Water:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## WbA—Welby silt loam, 0 to 1 percent slopes

### Map Unit Setting

*National map unit symbol:* j70f  
*Elevation:* 4,500 to 5,200 feet  
*Mean annual precipitation:* 14 to 16 inches

## Custom Soil Resource Report

*Mean annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 130 to 170 days

*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Welby and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Welby

#### Setting

*Landform:* Lake terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Lacustrine deposits derived from limestone, sandstone, and shale

#### Typical profile

*Ap - 0 to 7 inches:* silt loam

*A1 - 7 to 12 inches:* loam

*Ac - 12 to 22 inches:* silt loam

*C1ca,C2ca,C3 - 22 to 65 inches:* silt loam

#### Properties and qualities

*Slope:* 0 to 1 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 40 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 13.0

*Available water storage in profile:* High (about 10.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2c

*Land capability classification (nonirrigated):* 3c

*Hydrologic Soil Group:* B

*Ecological site:* Upland Loam (Bonneville Big Sagebrush) North (R028AY310UT)

*Other vegetative classification:* Upland Loam (Mountain Big Sagebrush)  
(028AY310UT)

### Minor Components

#### Taylorsville

*Percent of map unit:* 5 percent

#### Vineyard

*Percent of map unit:* 5 percent

## **WbB—Welby silt loam, 1 to 3 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* j70g  
*Elevation:* 4,500 to 5,200 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 47 to 50 degrees F  
*Frost-free period:* 130 to 170 days  
*Farmland classification:* Prime farmland if irrigated

### **Map Unit Composition**

*Welby and similar soils:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Welby**

#### **Setting**

*Landform:* Lake terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Lacustrine deposits derived from limestone, sandstone, and shale

#### **Typical profile**

*Ap - 0 to 7 inches:* silt loam  
*A1 - 7 to 12 inches:* loam  
*AC - 12 to 22 inches:* silt loam  
*C1ca,C2ca,C3 - 22 to 65 inches:* silt loam

#### **Properties and qualities**

*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 40 percent  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 13.0  
*Available water storage in profile:* High (about 10.1 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 2e  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* B  
*Ecological site:* Upland Loam (Bonneville Big Sagebrush) North (R028AY310UT)  
*Other vegetative classification:* Upland Loam (Mountain Big Sagebrush) (028AY310UT)

## **Appendix C**

### **On-Site Photographs**





**Photograph 1**  
Test point LEHI-. Wetland point.



**Photograph 2**  
LEHI-1 view to south from test point



**Photograph 3**  
View to south along Jordan River from NE property corner



**Photograph 4**  
Test point LEHI-2. Upland point



**Photograph 5**  
View to north from test point LEHI-2



**Photograph 6**  
Test point LEHI-3. Wetland point





**Photograph 7**  
View to North from test point LEHI-3



**Photograph 8**  
Test point LEHI-4. Wetland point.



**Photograph 9**  
View to south from test point LEHI-4.



**Photograph 10**  
Test point LEHI-5. Upland point.



**Photograph 11**  
View to south from test point LEHI-5



**Photograph 12**  
Test point LEHI-6. Wetland point.





**Photograph 13**  
View to south from test point LEHI-6



**Photograph 14**  
Test point LEHI-7. Upland



**Photograph 15**  
View to south from test point LEHI-7



**Photograph 16**  
Test point LEHI-8. Wetland point.



**Photograph 17**  
View to west from test point LEHI-8



**Photograph 18**  
Test point LEHI-9. Upland





**Photograph 19**  
View to south from test point LEHI-9



**Photograph 20**  
Test point LEHI-10. Upland point.



**Photograph 21**  
View to north from test point LEHI-10.



**Photograph 22**  
Test point LEHI-11. Wetland point.



**Photograph 23**  
View to south from test point LEHI-11



**Photograph 24**  
Test point LEHI-12. Upland





**Photograph 25**  
View to north from test point LEHI-12



**Photograph 26**  
OHWM-1 transect



**Photograph 27**  
OHWM-3 transect



**Photograph 28**  
OHWM-4 transect



**Photograph 29**  
Artesian/irrigation wetland area



**Photograph 30**  
Artesian/irrigation wetland area





**Photograph 31**  
Pond discharge area below weir



**Photograph 32**  
Storage pond for irrigation water



**Photograph 33**  
Wetland fill area



**Photograph 34**  
Wetland fill area

## **APPENDIX D**

### **Plant List**

## Appendix D - Plant List

### Plant species found within the survey area.

Use USDA Plants Database and National Wetland Plant List for the most up-to-date scientific name and Wetland Indicator Status.

Genus	Species	Common Name	WIS*
Phragmites	australis	Common Reed	FACW
Distichlis	Spicata	Inland Salt Grass	FAC
Sporobolus	Airoides	Alkali Sacaton	FAC
Agropyron	Cristatum	Crested wheatgrass	NI
Schoenoplectus	Acutus	Hardstem bulrush	OBL
Schoenoplectus	Pungens	Common three square	OBL
Juncus	Balticus	Baltic rush	FACW
Elaeagnus	Angustifolia	Russian olive	FAC
Tamarix	Ramosissima	Salt Cedar	FAC
Elymus	Repens	Quack grass	FAC
Medicago	Lupens	Alfalfa	FAC
Taraxacum	Officinale	Dandelion	FACU
Pascopyrum	smithii	Western wheatgrass	FAC

\* Wetland Indicator Status (WIS):

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
NI	=	indicator status not known in this region
~	=	unsure as to FAC or FAC

## **Appendix E**

### **Aquatic Resources Delineation Data Sheets**

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-4-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-1  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <1  
 Subregion (LRR): LRRD Lat: 40.39922 N Long: -11189735 W Datum: NAD-83  
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Sample point is along the Jordan River.	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>Herb Stratum</b> (Plot size: _____)				
1. <u>Phragmites australis</u>	<u>99</u>	<u>y</u>	<u>FACW</u>	
2. <u>Distichlis spicata</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____			
Remarks:				

# SOIL

Sampling Point: LEHI-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10 YR 3/2	100					Silt Loam	
4-18	10 YR 6/1	100					Clay	

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

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

☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5) (**LRR C**)  
☐ 1 cm Muck (A9) (**LRR D**)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☒ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)  
☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

Listed Hydric soil

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

☐ Surface Water (A1)  
☐ High Water Table (A2)  
☐ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Water-Stained Leaves (B9)

☐ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☒ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes ☒ No ☐

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-4-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-2  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <1  
 Subregion (LRR): LRR D Lat: 40.39898 N Long: -111.89742 W Datum: NAD-83  
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum</b> (Plot size: _____)				
1. <u>Sporobolus airoides</u>	<u>50</u>	<u>y</u>	<u>FAC</u>	
2. <u>Agropyron cristatum</u>	<u>20</u>	<u>N</u>	<u>NL</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. <u>Distichlis spicata</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				



# SOIL

Sampling Point: LEHI-2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	Root							
2-16	10 YR 4/2	100					Clay-loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

Listed Hydric soil

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes ☐ No ☒

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-4-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-3  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): LRR D Lat: 40.39850 N Long: -111.89867 W Datum: NAD-83  
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Schoenoplectus acutus</u> <u>10</u> <u>N</u> <u>OBL</u> 2. <u>Schoenoplectus pungens</u> <u>90</u> <u>Y</u> <u>OBL</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

## SOIL

Sampling Point: LEHI-3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0	Root							
0	0							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5) (**LRR C**)  
☐ 1 cm Muck (A9) (**LRR D**)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☒ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)  
☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: Root Mass

Depth (inches): 0

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

Listed Hydric soil  
Not able to install data point due to high density of root material.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

☒ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Water-Stained Leaves (B9)

☐ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes ☒ No ☐ Depth (inches): 0

Water Table Present? Yes ☒ No ☐ Depth (inches): 0

Saturation Present? Yes ☒ No ☐ Depth (inches): 0  
(includes capillary fringe)

**Wetland Hydrology Present?** Yes ☒ No ☐

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

Remarks:

water was present at the surface.

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-4-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-4  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): LRR D Lat: 40.39829 N Long: -111.89851 W Datum: NAD-83  
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:  Livestock grazing prevalent			

## VEGETATION – Use scientific names of plants.

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

## SOIL

Sampling Point: LEHI-4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	Root							
3-18	10YR 6/1	100					clay-loam	

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

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

- ☐ Histic Sol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

### Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Listed Hydric soil

## HYDROLOGY

### Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

### Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): 0

Water Table Present? Yes ☒ No ☐ Depth (inches): 18

Saturation Present? Yes ☒ No ☐ Depth (inches): 12  
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Water table at 18" equilibrates to 14" BGS

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-4-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-5  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): LRR D Lat: 40.39817 N Long: -111.89828 W Datum: NAD-83  
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:  Livestock grazing prevalent			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Juncus balticus</u> <u>25</u> <u>Y</u> <u>FACW</u> 2. <u>Sporobolus airoides</u> <u>50</u> <u>Y</u> <u>FAC</u> 3. <u>Agropyron cristatum</u> <u>25</u> <u>Y</u> <u>FAC</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>



# SOIL

Sampling Point: LEHI-5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	Root							
2-8	10YR 5/2	80	10 YR 6/1	20	RM	M	loam	
8-18	10 YR 6/1	100					Clay-loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

Listed Hydric soil

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): 0

Water Table Present? Yes ☒ No ☐ Depth (inches): 20

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

**Wetland Hydrology Present?** Yes ☐ No ☒

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

Remarks:

Water table at 20" equilibrates to 19" BGS

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-6-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-6  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): LRR D Lat: 40.39716 N Long: -111.89951 W Datum: NAD-83  
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____		
Remarks:  Livestock grazing prevalent			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Juncus balticus</u> <u>20</u> <u>Y</u> <u>FACW</u> 2. <u>Sporobolus airoides</u> <u>80</u> <u>Y</u> <u>FAC</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				

# SOIL

Sampling Point: LEHI-6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	Root							
2-12	10YR 4/1	100					clay-loam	
12-18	10 YR 7/1	100					Clay-loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

Listed Hydric soil

Soil moist from top of data point to 12" bgs

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): 0

Water Table Present? Yes ☒ No ☐ Depth (inches): 16

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

**Wetland Hydrology Present?** Yes ☒ No ☐

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

Remarks:

Water table at 18" equilibrates to 12" BGS

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-6-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-7  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): LRR D Lat: 40.39694 N Long: -111.89928 W Datum: NAD-83  
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:  Livestock grazing prevalent			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Juncus balticus</u> <u>75</u> <u>Y</u> <u>FACW</u> 2. <u>Sporobolus airoides</u> <u>25</u> <u>Y</u> <u>FAC</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

# SOIL

Sampling Point: LEHI-7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	Root							
3-12	10YR 5/2	100					clay	
12-20	10 YR 7/2	100					Clay	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

### Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Listed Hydric soil  
Clay soil at 12". Possible aquitard.

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

### Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): 0

Water Table Present? Yes ☒ No ☐ Depth (inches): 20

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Water table at 20" equilibrates to 18" BGS

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-6-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-8  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R 1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <1%  
 Subregion (LRR): LRR D Lat: 40.39870 N Long: -111.90029 W Datum: NAD 83  
 Soil Map Unit Name: Mixed Alluvium Land NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Herb Stratum</b> (Plot size: _____)				
1. <u>Distichlis spicata</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Schoenoplectus pungens</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3. <u>Agropyron cristatum</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				



## SOIL

Sampling Point: LEHI-8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	Root							
2-12	10 YR 4/1	100					loam	

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

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

☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5) (**LRR C**)  
☐ 1 cm Muck (A9) (**LRR D**)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☒ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)  
☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

Hydric listed soil

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

☐ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Water-Stained Leaves (B9)

☐ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 12

Saturation Present? Yes ☒ No ☐ Depth (inches): 10  
(includes capillary fringe)

**Wetland Hydrology Present?** Yes ☒ No ☐

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-22-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-9  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R 1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <1%  
 Subregion (LRR): LRR D Lat: 40.39714 N Long: -111.89661W Datum: NAD 83  
 Soil Map Unit Name: Mixed Alluvium Land NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:  Livestock Grazing-Cattle are gone	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Elaeagnus angustifolia</u>	<u>1</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Tamarix ramosissima</u>	<u>1</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<u>2</u> = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____				
_____ = Total Cover				
<b>Herb Stratum</b> (Plot size: _____) 1. <u>Distichlis spicata</u> <u>20</u> <u>Y</u> <u>FAC</u> 2. <u>Elymus repens</u> <u>57</u> <u>Y</u> <u>FAC</u> 3. <u>Juncus balticus</u> <u>10</u> <u>N</u> <u>FACW</u> 4. <u>Medicago lupulina</u> <u>10</u> <u>N</u> <u>FAC</u> 5. <u>Taraxacum officinale</u> <u>1</u> <u>N</u> <u>FACU</u> 6. _____ 7. _____ 8. _____				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>98</u> = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____) 1. _____ 2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:				

# SOIL

Sampling Point: LEHI-9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	Root							
2-10	10 YR 3/2	60	205 YR 6/1	40	RM	M	Clay loam	
10-20	2.5 YR 6/1	100					Clay	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

## Indicators for Problematic Hydric Soils<sup>3</sup>:

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric listed soil

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

## Field Observations:

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

Water Table Present? Yes ☐ No ☒ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): 10

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-22-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-10  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R 1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <1%  
 Subregion (LRR): LRR D Lat: 40.39877 N Long: -111.90047 W Datum: NAD 83  
 Soil Map Unit Name: Mixed Alluvium Land NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks:  Livestock Grazing-Cattle are gone	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. <u>Elymus repens</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Pascopyrum smithii</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Juncus balticus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u>Distichlis spicata</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. <u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

# SOIL

Sampling Point: LEHI-10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	Root							
4-22	10 YR 8/2	100					Clay	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

### Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric listed soil

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

### Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 22

Saturation Present? Yes ☒ No ☐ Depth (inches): 20  
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Water equilibrates at 17" BGS



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-22-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-11  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R 1W SLB&M  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): None Slope (%): <1%  
 Subregion (LRR): LRR D Lat: 40.39314 N Long: -111.90467 W Datum: NAD 83  
 Soil Map Unit Name: Mixed Alluvium Land NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:  Vegetation in area recently burned			

## VEGETATION – Use scientific names of plants.

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

# SOIL

Sampling Point: LEHI-11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10 YR 5/3	90	10 YR 6/4	10	RM	M	Clay	
12-14	Gravel						Gravel	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: Gravel  
Depth (inches): 12

**Hydric Soil Present? Yes ☒ No ☐**

Remarks:

Hydric listed soil

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
Saturation Present? Yes ☒ No ☐ Depth (inches): 4  
(includes capillary fringe)

**Wetland Hydrology Present? Yes ☒ No ☐**

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Allred City/County: Lehi-Utah Sampling Date: 4-22-2016  
 Applicant/Owner: DR Horton State: Utah Sampling Point: LEHI-12  
 Investigator(s): Tom Hopkins Section, Township, Range: S 11&12, T 5S, R 1W SLB&M  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <1%  
 Subregion (LRR): LRR D Lat: 40.393102 N Long: -111.904726 W Datum: NAD 83  
 Soil Map Unit Name: Mixed Alluvium Land NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:  Vegetation in area recently burned	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Phragmites australis</u> <u>80</u> <u>Y</u> <u>FACW</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>20</u> % Cover of Biotic Crust _____				
Remarks:				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

# SOIL

Sampling Point: LEHI-12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10 YR 5/2	100					Clay	
4-6	Gravel						Gravel	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: Gravel  
Depth (inches): 4

**Hydric Soil Present? Yes ☒ No ☐**

Remarks:

Hydric listed soil

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

**Wetland Hydrology Present? Yes ☐ No ☒**

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

Remarks:

## **Appendix F**

### **OHWL Delineation Data Sheets**



Project: ALLREDDate: 4-4-2016Location: LEHI, UTAHInvestigator(s): TOM HOPKINS**Project Description:**

THIS PROJECT CONSISTS OF 300 ACRES OF UNDEVELOPED AGRICULTURAL LAND. THERE ARE TWO SMALL DISCHARGES INTO THE JORDAN RIVER. ONE IS FROM AN IRRIGATION STORAGE POND AND THE SECOND IS FROM A WETLAND DISCHARGE.

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

THERE ARE TWO CONCRETE CULVERTS IN THE POND DISCHARGE WATER COURSE. THE CULVERTS ALLOW THE CURRENT LANDOWNER ACCESS ACROSS THE WATER COURSE IN ORDER TO FARM.

THERE ARE NO IN-STREAM STRUCTURES IN THE WETLAND DRAIN SYSTEM.

**Off-site Information**

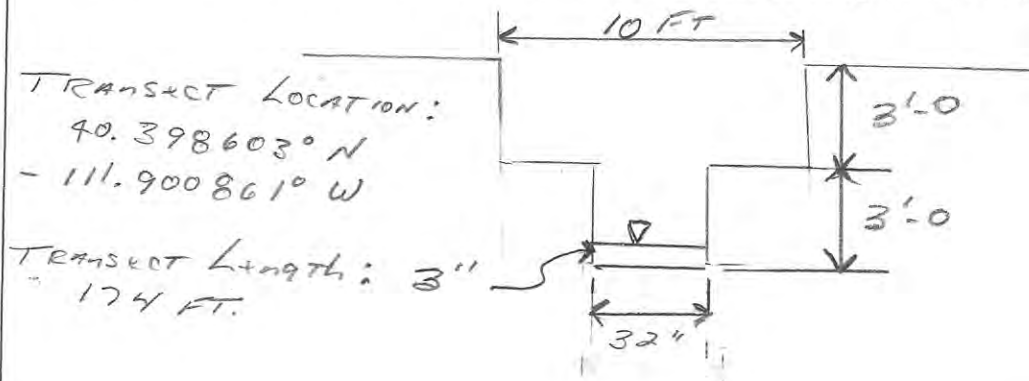
**Remotely sensed image(s) acquired?** ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

SEE ATTACHED AERIAL IMAGE THAT DEPICTS LOCATIONS OF TRANSECTS AS WELL AS WATER COURSE ALIGNMENT.

**Hydrologic/hydraulic information acquired?** ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

**List and describe any other supporting information received/acquired:**

**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100					
Below OHWM	100					

Notes/Description: Agricultural / Surface / Spring Water From Series  
of Groundwater Drains in the Surrounding Area. This is  
Water that Discharges into the Wetland.

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM			10	90
Below OHWM			20	80

Notes/Description: Very incised Vertical Walls. Channel is eroded.  
Due to Steepness Vegetation is difficult to grow.

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: ALLRED Date: 4-6-2016  
Location: LENE UTAH Investigator(s): TOM HOPKINS  
Project Description: SEE OHM-1 FOR INFORMATION

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

#### Off-site Information

Remotely sensed image(s) acquired? ☐ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

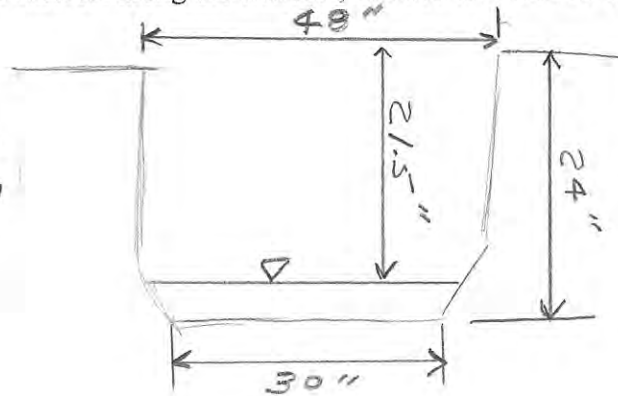
Hydrologic/hydraulic information acquired? ☐ Yes ☐ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS

**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)

Transect Length: 496 ft.  
 Transect Location: 40.399205° N  
-111.898433° W



**Break in Slope at OHWM:** ☒ Sharp ( $> 60^\circ$ ) | ☐ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	<u>100</u>					<u>N</u>
Below OHWM	<u>90</u>	<u>5</u>	<u>5</u>			<u>N</u>

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM			<u>10</u>	<u>90</u>
Below OHWM			<u>10</u>	<u>90</u>

Notes/Description:

This is a Drainage Ditch From the Wetland AREA

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: ALLREDDate: 4-6-2016Location: LEHI, UTAHInvestigator(s): TOM HOPKINS**Project Description:**

THIS WATER COURSE PROVIDES OUTLET OF WATER STORED IN FRESHWATER POND THAT IS USED FOR IRRIGATION.

WATER COURSE DISCHARGES INTO JORDAN RIVER

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

TWO CULVERTS INSTALLED TO ALLOW TRANSPORT OF EQUIPMENT TO SUPPORT FARMING.

**Off-site Information**

**Remotely sensed image(s) acquired?** ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

GOOGLE EARTH IMAGE DATED 6-16-2015

**Hydrologic/hydraulic information acquired?** ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

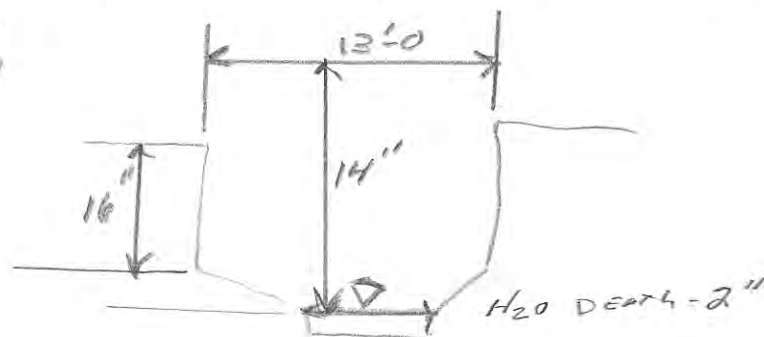
**List and describe any other supporting information received/acquired:**



**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)

TRANSECT LOCATION: 40.393514° N  
- 111.902681° W

TRANSECT LENGTH TOTAL: 1227 FT



**Break in Slope at OHWM:** ☒ Sharp ( $> 60^\circ$ ) | ☐ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100					N
Below OHWM	95		5			N

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM			60	40
Below OHWM				100

Notes/Description: SEE PHOTO IN LOG.

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

THIS TRANSECT LOCATION IS NEAR THE DISCHARGE POINT INTO THE JORDAN RIVER. THE CHANNEL IS WIDE AND FAIRLY FLAT. THE SMALL CHANNEL IN THE BOTTOM IS CONSIDERED THE OHWM.

Project: ALLREDDate: 4-6-2016Location: LEHI, UTAHInvestigator(s): T. HopkinsProject Description: SEE DATASHEET OHWM-3

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

**Off-site Information**

Remotely sensed image(s) acquired? ☐ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

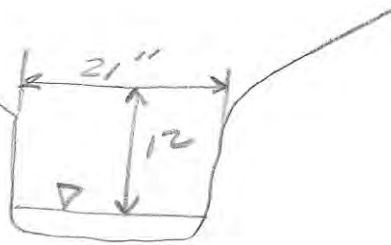
Hydrologic/hydraulic information acquired? ☐ Yes ☐ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS

**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)

TRANSECT LOCATION: 40.398826° N  
-111.903195° W



**Break in Slope at OHWM:** ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100					N
Below OHWM	90	5	5			N

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM			100	
Below OHWM				100

Notes/Description: Vegetation Above OHWM is mainly Reed Canary Grass with Phragmites further up the bank.

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

## **Appendix G**

### **Property Owner Access Statement**

## APPENDIX G

### ACCESS STATEMENT FROM PROPERTY OWNER

To Whom It May Concern:

The undersigned is the property owner and/or authorized representative of the Property Owner for the property located at 8887 South 3600 West, Lehi, Utah County, Utah.

As the Property Owner or authorized representative I hereby give permission to representatives of the U.S. Army Corps of Engineers (ACOE), Utah-Nevada Regulatory Office, Bountiful, Utah to enter the aforementioned property during normal business hours for the purpose of verifying and validating submitted Aquatic Resources Delineation Reports and collect necessary samples as needed.

This access permission statement does not authorize representatives of the ACOE to perform any other activities on the property except as otherwise provided above.

Furthermore, representatives of the ACOE enter the property at their own risk and the property owner and/or its employees or agents are not liable for any injuries incurred by ACOE representatives while on the property.

Robert Allred, Manager  
Property Owner/Authorized Representative

7 June 2016  
Date

Robert Allred  
Name (Printed)



## **Appendix H**

### **Aquatic Resource Excel Sheet**

## APPENDIX H

### AQUATIC RESOURCE EXCEL SHEET

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
LEHI 3 (Sample Point)	Utah	PEM		Area	10	ACRE	DELINEATE	40.398491	-111.898683	Jordan River
LEHI 1	Utah	R1SB7		Area	3.1	ACRE	DELINEATE	40.399213	-111.897361	Jordan River
OHWM-1 (Wetland Inlet)	Utah	RP1EM		Linear	174	FOOT	RPW	40.698603	-111.900861	Jordan River
OHWM-2 (Wetland Drain)	Utah	RP1EM		Linear	496	FOOT	RPW	40.399205	-111.898433	Jordan River
Weir Discharge	Utah	RP1EM		Linear	226	FOOT	RPW	40.393154	-111.905836	Jordan River
Overflow Water Course	Utah	RP1EM		Linear	1227	FOOT	RPW	40.392899	-111.905075	Jordan River
Freshwater Pond	Utah	PAB		Area	1.5	ACRE	IMPNDMNT	40.393451	-111.907203	
Pond Outlet Wetland	Utah	PFO		Area	0.19	ACRE	DELINEATE	40.393159	-111.905941	
Spring Wetland	Utah	PEM		Area	284	SQ_FT	DELINEATE	40.393143	-111.904659	
Seep Wetland	Utah	PEM		Area	820	SQ_FT	DELINEATE	40.393411	-111.903965	
Artesian Pond Wetland	Utah	PEM		Area	0.02	ACRE	DELINEATE	40.399129	-111.898484	



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

November 14, 2016

Regulatory Division (SPK-2016-00489)

DR Horton  
Attn: John Linton  
12351 Gateway Park Place, Suite 100  
Draper, Utah 84020

Dear Mr. Linton:

We are responding to your September 17, 2016 request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the SOA Investments Lehi Property site. The approximately 303.81-acre project site is located at 700 North 3600 West, Latitude 40.3958°, Longitude -111.9074°, Lehi, Utah County, Utah (enclosure 1).

Based on available information, we concur with the amount and location of wetlands and other water bodies on the site as depicted on the enclosed September 12, 2016 and September 15, 2016 Allred Property drawings, prepared by Tom Hopkins (enclosure 2). The approximately 13.81 acres of palustrine emergent wetlands, 1.5 acres of open water pond and 2,153 linear feet of intermittent channel present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water Act.

We have enclosed a copy of the *Preliminary Jurisdictional Determination Form* for this site (enclosure 3). Please sign and return a copy of the completed form to this office, but keep the original for your records. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

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

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and

Request for Appeal form is enclosed to notify you of your options with this determination (enclosure 4). This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the Customer Survey from the link on our website listed below..

Please refer to identification number SPK-2016-00489 in any correspondence concerning this project. If you have any questions, please contact Michael Pectol at the Bountiful Regulatory Office, 533 West 2600 South, Suite 150, Bountiful, Utah 84010, by email at *Michael.A.Pectol@usace.army.mil*, or telephone at 801-295-8380, extension 15. For more information regarding our program, please visit our website at the following link: *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,



Craig Brown  
Senior Project Manager, Utah-Nevada Branch  
Regulatory Division

Enclosures

cc:

Tom Hopkins ([birdog638@msn.com](mailto:birdog638@msn.com))