Midvalley Connector

Utah Transit Authority

Biological Resources and Wetlands Technical Report

December 2021

Executive Summary

The Federal Transit Administration (FTA) and the Utah Transit Authority (UTA)—in cooperation with project partners Taylorsville City, Murray City, West Valley City, the Utah Department of Transportation (UDOT), Salt Lake Community College (SLCC), Salt Lake County, and the Wasatch Front Regional Council (WFRC)—have prepared this Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA; 42 United States Code [U.S.C.] §§ 4321 *et seq.)* for the proposed Midvalley Connector Bus Rapid Transit (BRT) project. FTA is the federal lead agency for the project, with UTA as the project sponsor in cooperation with the aforementioned project partners.

The proposed project is a new BRT facility connecting the Murray Central TRAX and FrontRunner station to the SLCC Redwood campus in Taylorsville to the West Valley Central TRAX station. UTA, in cooperation with the project partners, analyzed the Locally Preferred Alternative (LPA) in the 2019 Midvalley Connector Environmental Study Report (ESR). Since completion of the 2019 ESR, potential federal funding sources have been identified for the project. These new funding sources require the FTA and project partners to complete an EA per NEPA requirements and to document conceptual engineering and cost estimates that have been further advanced since completion of the 2019 ESR.

The project includes dedicated BRT lanes and a complete street, urban designed corridor along 4500 South west of I-15 from approximately Atherton Drive to Redwood Road in Taylorsville City. The study area extends approximately 7 miles along the BRT route and includes a quarter-mile buffer from the BRT centerline. The study area spans three cities in Salt Lake County—Murray, Taylorsville, and West Valley City, and encompasses residential areas (including high-density and senior housing facilities), office parks, educational facilities, and various recreational and shopping areas.

This Natural Resources Technical Report has been prepared in support of the Midvalley Connector project and is intended to identify and analyze environmental resources in the study area. Resources to be assessed include:

- Vegetation
- Special Status Species: Plants
- General Wildlife and Habitat
- Federally Listed Species
- State of Utah Sensitive Wildlife Species
- Raptors and Migratory Birds
- Waters of the U.S.

Summary of Results

Jacobs biologists conducted a natural resource site review in late 2017 and early 2018. The findings are summarized below:

- Vegetation: Much, if not all, of the land within the study area is highly developed and has been previously disturbed, and few areas with native vegetation are present. The project shall comply with Executive Order 13112 Invasive Species and follow the recommendations and objectives described in the National Invasive Species Management Plan to prevent the introduction of invasive species and provide for their control and minimization. It will also comply with Rule R68-9-4 of the Utah Noxious Weed Act to prevent dissemination of noxious weed seeds or such parts of noxious weed plants that could cause new growth by contaminated articles. Any clearing of vegetation should be performed using appropriate best management practices to ensure that weed seeds and/or other portions of plant (such as a buds or offshoots, which can be used to reproduce the plant) are not transported.
- Federally Listed Threatened and Endangered Species: A finding of no effect with no conservation measures are recommended.
- State of Utah Sensitive Wildlife Species: No impacts are identified with no conservation measures recommended.
- Raptors and Migratory Birds: No nests were observed within the project study area; however, the survey was conducted outside of the typical migratory bird nesting season. If any active nests are located during project construction, the species-specific spatial and temporal buffer found in the Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (USFWS 2002) should be applied.
  In order to comply with the Migratory Bird Treaty Act, vegetation (i.e., trees, shrubs, and herbaceous plants) should not be removed during the bird breeding season (April 1 to July 31), depending on the species of concern and weather in a given year). If construction is to occur during this time, bird nest clearance surveys should be done by a qualified biologist to verify the absence of nests prior to vegetation removal. If nests are found, further coordination with USFWS is required to comply with both the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Construction activities occurring completely outside the nesting season do not necessitate surveys
- Waters of the U.S.: Previous surveys have identified six wetlands within the project study area:
    - Wetland 1 (0.074 acre) is located within a drainage swale that flows into the Brighton Canal. It is a palustrine emergent (PEM) wetland that appears to receive

most of its hydrology from storm water outflow through a culvert at the 2700 South and West Atherton Drive intersection.

- Wetland 2 (0.013 acre and Wetland 3 (0.027 acre) are isolated depressions and appear to receive their hydrology from landscape irrigation, precipitation, and surface runoff from adjacent parking lots. They are both PEM wetlands.

- Wetland 4 (0.02 acre) The wetland area delineated is the only “daylighted” segment of the stormwater system near the project area. Immediately upslope and downslope, water is conveyed underground through pipes and culverts. Anecdotal evidence suggests that this stormwater system joins a large, east-west-running underground pipe on the north side of 4500 South and discharges into the Jordan River. The wetland vegetation near Wetland 4 appears to be supported hydrologically by runoff from 4500 South and adjacent turf grass over-irrigation.

- Wetland 5 is a PEM wetland located in an open field east of South 2700. The wetland is approximately 0.42 acre (18,295 square feet) and had areas of standing water. The wetland appears to be an isolated feature and the culvert present at the northern end of the wetland was damaged, above-grade, and a conveyance of flow was not observed.

- Wetland 6 (0.003 acre) is a PEM wetland, located at a culvert outflow. This area appears to have been previously excavated and is the beginning portion of a drainage swale that ultimately flows to a storm water detention basin east of the study area. Standing water was present around the culvert.

- Wetland 5 and Wetland 6 are not projected to be impacted as a result of the project. It is estimated approximately 0.08 acre of wetlands could be affected by the proposed project. Potential impacts to the North Jordan Canal and wetlands will be considered as the design process progresses. The USACE issued a preliminary jurisdictional delineation on November 12, 2021, which presumed jurisdiction over the wetlands in the study area. UTA will obtain Section 404 and all other necessary permits prior to commencement of any impacts to wetlands and waters of the U.S. The project will comply with all terms and condition of the Clean Water Act permit and certification.

- No additional impacts to surface waters are anticipated beyond what was is in the EA.

Regulatory Environment

This Natural Resources Technical Report has identified and analyzed resources in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (CEQ) regulations, as well as other State regulations. These include:

- Executive Order 13112 – Invasive Species: • Executive Order 13112 – Invasive Species protects against the introduction of invasive species and provides for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.
- Utah Noxious Weed Act Rule R68-9-4: The Utah Noxious Weed Act states that it is the duty of every property owner to control and prevent the spread of noxious weeds on any land in his possession or under his control.
- Endangered Species Act of 1973 (16 U.S.C. § 1531-1544): The Endangered Species Act of 1973 provides a program for the conservation of threatened and endangered plants, animals, and habitats. It prohibits federal agencies from authorizing, funding, or in this case, permitting (e.g., Department of Army Permit) a project that may "jeopardize the continued existence of" listed endangered or threatened species or cause "adverse modification" to designated critical habitat.
- Migratory Bird Treaty Act of 1978 (16 U.S.C. § 703-712): The Migratory Bird Treaty Act (16 U.S.C. § 703-712) makes it unlawful at any time, by any means, or in any manner, to pursue, hunt, take, capture, kill, or sell migratory birds, their parts, nests, or eggs in the United States.
- Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668c): The Bald and Golden Eagle Protection Act (originally enacted in 1940) prohibits the possession, taking, or selling of bald and golden eagles, their parts, eggs, or nests in the United States.
- Executive Order 11990 – Protection of Wetlands: Executive Order 11990 (issued in 1977) requires federal agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.
- USDOT Order 5660.1A – Preservation of the Nation's Wetlands: USDOT Order 5660.1A requires USDOT agencies to make a formal wetland finding for major projects.
- Clean Water Act Section 404: Section 404 of the Clean Water Act of 1972 prohibits the discharge of dredged and fill material into jurisdictional Waters of the U.S. (including wetlands) without a permit.

Methods

Biologists with Jacobs conducted a field survey on November 28, 2017, and on February 1, 2018 to collect information on waters of the U.S. (including wetlands), vegetation, and wildlife habitat present within the study area. The study area, a quarter mile buffer around the proposed route, mainly consists of the existing roadway right-of-way (ROW), except for the approximate 1.4-mile section of 4500/4700 South between Atherton Drive to Redwood Road which slightly extends outside the ROW.

Federally listed threatened and endangered species potentially occurring within the study area were determined by using the U.S. Fish and Wildlife Service's (USFWS) online Information

Planning and Conservation (IPaC) tool. State of Utah sensitive species information (USFWS 2021) was reviewed through the Utah Division of Wildlife Resources' Utah Conservation Data Center and from the Utah Division of Wildlife Resources' (UDWR) Utah Sensitive Species List. A request was also made through the Utah Natural Heritage Program (UNHP) to obtain information on historical sensitive species occurrences within half-mile and two miles of the study area.

Jacobs conducted the wetland delineation in accordance with the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (USACE 2008). Prior to the field survey, the following information was reviewed to determine the presence of potential wetlands or waterways within the study area:

- Google Earth aerial imagery (6/17/2017)
- USFWS National Wetlands Inventory (NWI) mapping (10/1/2017)
- National Hydrologic Dataset
- U.S. Geological Survey (USGS) topographical maps
- Natural Resource Conservation Service soil survey
- SWCA Delineation of Wetlands and Other Waters of the U.S. for Taylorsville Murray Transit, Salt Lake County, Utah, April 2013 (SWCA 2013)

Findings

The following sections provide natural resources findings within the study area.

Vegetation

Much, if not all of land within the study area has been previously disturbed, and few areas with native vegetation are present. It is highly developed, and vegetation in the study area is dominated by residential lawns and horticultural plant species, with riparian vegetation along the Jordan River comprising primarily cottonwoods (*Populus* spp.), willows (*Salix* spp.), box elder (*Acer negundo*), Siberian elm (*Ulmus pumila*), Russian Olive (*Elaeagnus angustifolia*), and annual forbs and grasses. Dominant species in vacant lots and other fallow habitats mostly comprise weedy species such as prickly lettuce (*Lactuca serriola*), smotherweed (*Bassia scoparia*), cheatgrass (*Bromus tectorum*), and agricultural grasses (*Elymus* and *Agropyrum* spp.). Curlycup gumweed (*Grindelia squarrosa*) and other native forbs. These vacant lots also contain species on the Utah and Salt Lake County noxious weed list such as Scotch thistle (*Onopordum acanthium*), field bindweed (Convolvulus arvensis), puncture vine (*Tribulus terrestris*), Common reed (*Phragmites australiis*), and Tamarisk (*Tamarix ramosissima*). Other noxious weed species may be present, but because the field survey was conducted outside the growing season when most species are dormant the above list may not be a complete inventory of noxious weeds present in the study area.

Required and Recommended Actions: Vegetation

The project shall comply with Executive Order 13112 Invasive Species and follow the recommendations and objectives described in the National Invasive Species Management Plan to prevent the introduction of invasive species and provide for their control and minimization. It will also comply with Rule R68-9-4 of the Utah Noxious Weed Act to prevent dissemination of noxious weed seeds or such parts of noxious weed plants that could cause new growth by contaminated articles. Any clearing of vegetation should be performed using appropriate best management practices to ensure that weed seeds and/or other portions of plant (such as a buds or offshoots, which can be used to reproduce the plant) are not transported. Mitigation measures for potential impacts to vegetation resources beyond what are included in the EA are not warranted.

Special Status Species: Plants

No federally listed or state sensitive plant species were identified within the study area based on the current conditions and lack of suitable habitat (see Table 1). Therefore, there would be no effect to federally listed plant species and no impact to state sensitive plant species as a result of the project.

General Wildlife and Habitat

Native wildlife species capable of adapting to urbanized environments have the potential to occur in the study area; these include red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), other migratory raptors, and resident and migratory songbirds. Urban development has also likely facilitated the expansion of non-native predators such as raccoons, striped skunks, domestic dogs and cats, non-native bird species, and rodent species into the study area. The study area and surrounding landscape contain little to no natural wildlife habitat due to the widespread commercial and residential development that has occurred.

Federally Listed Species

No federally listed species, nor their designated critical habitats, were identified in the study area due to the lack of suitable habitat (see Table 1). Therefore, there would be no effect to federally listed species as a result of the project.

Table 1. Threatened, Endangered, and Candidate Species with the Potential to Occur in Salt Lake County

Common Name	Scientific Name	Status	Habitat Requirements*	Potential to Occur in the Study Area?
Ute Ladies'-tresses	*Spiranthes diluvialis*	Threatened	Moist to wet meadows, stream banks and meanders springs, seeps and lakeshores	No
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	Large tracts of riparian habitat with dense shrub understory	No
June sucker	*Chasmistes liorus*	Threatened	Utah Lake and tributaries	No

Source: (USFWS 2020).
* Data from Bosworth (2003).

The Ute Ladies'-tresses (*Spiranthes diluvialis*), Yellow-billed cuckoo (*Coccyzus americanus*), and June sucker (*Chasmistes liorus*) were the only species included on the USFWS official species list that was developed for the project through the IPaC online system (USFWS 2020, Appendix X).

Previous reconnaissance-level field surveys were done by SWCA in the study area on September 13, 2012. No potential threatened and endangered species' habitats were identified in the survey area. The study area is dominated by urban and commercial land cover, with a few isolated pockets of poor-quality disturbed vegetation along rights-of-way, stream ways, and in vacant lots. Given the limited size and low quality of habitats in this urban landscape, there is very limited potential for the occurrence of any threatened and endangered species in the study area, and no potentially suitable habitat was identified.

State of Utah Sensitive Wildlife Species

A review of the UDWR Utah Sensitive Species List for Salt Lake County (UDWR 2017) was conducted and of the 23 state-listed wildlife species known to occur in Salt Lake County, seven have a low potential to occur in the study area and one has a moderate potential for occurrence. Those with a low potential are northern goshawk (*Accipiter gentilis*), American white pelican (*Pelecanus erythrorhynchos*), bald eagle (*Haliaeetus leucocephalus*), bobolink (*Dolichonyx oryzivorus*), ferruginous hawk (*Buteo regalis*), Lewis's woodpecker (*Melanerpes lewis*), and short-eared owl (*Asio flammeus*).

These species may occur briefly in the study area for activities such as roosting, foraging, or wintering. The spotted bat (*Euderma maculatum*) is the only species with a moderate potential to be found in the study area. This species is rare, but has been documented in many habitats throughout Utah, and it may roost in or on buildings. Given the nature of this project, it is unlikely that there would be any impacts to spotted bat habitat and therefore no need for mitigation. The Columbia spotted frog is a Conservation Agreement species and was identified in

historical records of occurrence within two miles of the study area (UNHP 2018; Appendix B). However, habitat for this species is not present within the study area.

An Executive Order (EO/2015/001) for Implementing the Utah Conservation Plan for Greater Sage-grouse was signed into effect on February 10, 2015 (State of Utah 2015). The greater sage-grouse (*Centrocercus urophasianus*) is also listed as a wildlife species of concern with potential to occur within Salt Lake County. However, no suitable habitat occurs within the study area, and thus no effects are expected to occur.

Raptors and Migratory Birds

No bird nests or raptors were observed in the study area during field investigations. Because the field surveys were conducted outside of the typical nesting season for raptors and migratory birds, few migratory birds were observed. Bird species common in residential areas were observed during field investigations and include rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), and mallard (*Anas platyrhynchos*). The Jordan River riparian habitat likely has the highest diversity of bird species, and additional species such as the American robin (*Turdus migratorius*), black-capped chickadee (*Poecile atricapillus*), and yellow-rumped warbler (*Setophaga coronata*) were observed there. There is a high potential for bird species to nest in domestic landscaping vegetation, power poles and other human-made structures, and the riparian habitat of the Jordan River.

The Bald Eagle (*Haliaeetus leucocephalus*) and Golden Eagle (*Aquila chrysaetos*) were identified in the USFWS official species list developed for the project through the IPaC online system (USFWS 2020, Appendix A) as having a probability of presence in the study area primarily during the months of December-May. While no nests or raptors were observed in the study area during field investigations, mitigation will be implemented during construction to comply with the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

Required and Recommended Actions: Wildlife

If any active nests are located during project construction, the species-specific spatial and temporal buffer found in the Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002) should be applied.

In order to comply with the Migratory Bird Treaty Act, vegetation (i.e., trees, shrubs, and herbaceous plants) should not be removed during the bird breeding season (April 1 to July 31, depending on the species of concern and weather in a given year). If construction is to occur during this time, bird nest clearance surveys should be done by a qualified biologist to verify the absence of nests prior to vegetation removal. If nests are found, further coordination with USFWS is required to comply with both the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Construction activities occurring completely outside the nesting season do not necessitate surveys.

Mitigation measures for potential impacts to wildlife resources beyond what are included in the EA are not warranted.

Waters of the U.S.

No National Wetland Inventory wetlands are present within the study area. According to the National Hydrologic Dataset and confirmed during the field surveys, the North Jordan Canal crosses the project in two locations. The first location is under 2700 West (Constitution Boulevard) near the intersection with 4100 South in the northern part of the study area, with this waterway considered a water of the U.S. No impacts to this feature at this location is anticipated as a result of the project. However, there will be a minor impact at the second location where the North Jordan Canal crosses 4700 South and Redwood Road.

The study area also includes two natural water courses, the Jordan River and Little Cottonwood Creek, and the Brighton Canal, a perennial irrigation canal. No impacts would occur to any of these other surface waters as a result of the project. Field surveys from 2013, 2017, and 2018 field identified six wetlands within the study area:

- Wetland 1 (0.074 acre) is located within a drainage swale that flows into the Brighton Canal. It is a PEM wetland dominated by inland saltgrass and appears to receive most of its hydrology from storm water outflow through a culvert at the 2700 South and West Atherton Drive intersection. The soil was saturated and had redox concentrations that were present in approximately 25% of the soil profile between three and twelve inches.
- Wetland 2 (0.013 acre) and Wetland 3 (0.027 acre) are isolated depressions and appear to receive their hydrology from landscape irrigation, precipitation, and surface runoff from adjacent parking lots. They are both PEM wetlands dominated by cattails (*Typha* sp.), common reed (*Phragmites australis*), and inland saltgrass (*Distichlis spicata*). Soils had a clay texture below a depth of four inches with a dark chroma and prominent redox concentrations.
- Wetland 4 (0.02 acre) is a dense stand of common reed interspersed with narrowleaf willow in a stormwater conveyance channel. The wetland area delineated is the only "daylighted" segment of the stormwater system near the study area. Immediately upslope and downslope, water is conveyed underground through pipes and culverts. Anecdotal evidence suggests that this stormwater system joins a large, east-west-running underground pipe on the north side of 4500 South and discharges into the Jordan River. The wetland vegetation near Wetland 4 appears to be supported hydrologically by runoff from 4500 South and adjacent turf grass over-irrigation.
- Wetland 5 is a PEM wetland located in an open field east of South 2700 West. The wetland is approximately 0.42 acre (18,295 square feet) and had areas of standing water along with a large stand of common reed and narrow-leaf willow (*Salix exigua*). Soils displayed a depleted matrix with a dark chroma and redox concentrations. The wetland

appears to be an isolated feature and the culvert present at the northern end of the wetland was damaged, above-grade, and a conveyance of flow was not observed. Wetland 6 (0.003 acre) is a PEM wetland, located at a culvert outflow. This area appears to have been previously excavated and is the beginning portion of a drainage swale that ultimately flows to a storm water detention basin east of the study area. Standing water was present around the culvert and was likely due to rainfall that occurred the night before the delineation. Soils were dark and exhibited a sulfurous odor. The wetland was dominated by broad-leaf cattail (*Typha latifolia*).

Wetland 5 and Wetland 6 based on the current design are not projected to be impacted as a result of the project. It is estimated approximately 0.08 acre of wetlands could be affected by the proposed project. Potential impacts to the North Jordan Canal and wetlands will be considered as the design process progresses. The USACE issued a preliminary jurisdictional delineation on November 12, 2021. The preliminary jurisdictional delineation identified the four surface water features and six wetlands in the study area. The USACE concurred with these findings. UTA will obtain Section 404 and all other necessary permits prior to commencement of any impacts to wetlands and waters of the U.S. The project will comply with all terms and condition of the Clean Water Act permit and certification.

Wetland data sheets are located in Appendix C and photographs are located in Appendix D. No additional impacts to surface waters are anticipated beyond what was outlined in the EA.

References

Environmental Laboratory. 1987. Corp of Engineers Wetlands Delineation Manual, Technical Report YL-87-1, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS, 1987.

State of Utah. 2015. Executive Order (EO/2015/001) Implementing the Utah Conservation Plan for Greater Sage-Grouse. Available at: https://rules.utah.gov/execdocs/2015/ExecDoc156016.htm

SWCA Environmental Consultants (SWCA). 2012. Natural Resources Technical Memorandum for the Taylorsville Murray Transit Environmental Study. Prepared for: Utah Transit Authority. November 2012.

SWCA Environmental Consultants (SWCA). 2013. Delineation of Wetlands and Other Waters of the U.S. for Taylorsville Murray Transit, Salt Lake County, Utah. Prepared for; Utah Transit Authority. April 2013.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Fish and Wildlife Service (USFWS). 2013. Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Western Distinct Population Segment of the Yellowbilled Cuckoo (*Coccyzus americanus*). Federal Register Vol. 78, No. 192. Dated October 3, 2013.

United States Fish and Wildlife Service (USFWS). 2021. Information for Planning and Conservation (IPaC) online search. Available at: https://ecos.fws.gov/ipac/ Report dated: January 19, 2021.

Utah Department of Agriculture and Food (UDAF). 2020. Utah Noxious Weed Act. Rule R68-9. Available at: https://rules.utah.gov/publicat/code/r068/r068-009.htm

Utah Division of Wildlife Resources (UDWR). 2017. State of Utah Department of Natural Resources Utah Sensitive Species List. Updated November 1, 2017. Available at: https://dwrcdc.nr.utah.gov/ucdc/

Utah Natural Heritage Program (UNHP). 2018. Letter received from the UNHP dated February 1, 2018, Sarah Lindsay, UNHP, to Dan Soucy, Jacobs.

Appendix A. USFWS Official Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
Phone: (801) 975-3330 Fax: (801) 975-3331
http://www.fws.gov
http://www.fws.gov/utahfieldoffice/

In Reply Refer To: January 19, 2021
Consultation Code: 06E23000-2018-SLI-0054
Event Code: 06E23000-2021-E-00463
Project Name: Midvalley Connector

Subject: Updated list of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
(801) 975-3330

Project Summary

Consultation Code: 06E23000-2018-SLI-0054
Event Code: 06E23000-2021-E-00463
Project Name: Midvalley Connector
Project Type: TRANSPORTATION
Project Description: Bus Rapid Transit route with expanded lanes
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.67546263917968,-111.95790216799483,14z

Counties: Salt Lake County, Utah

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
June Sucker *Chasmistes liorus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4133	Threatened

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses *Spiranthes diluvialis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2159	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Brewer's Sparrow *Spizella breweri* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10

NAME	BREEDING SEASON
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Golden Eagle *Aquila chrysaetos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Green-tailed Towhee *Pipilo chlorurus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9444	Breeds May 1 to Aug 10
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5

NAME	BREEDING SEASON
Willow Flycatcher *Empidonax traillii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

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

Probability of Presence (■)

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

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

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

Breeding Season (■)

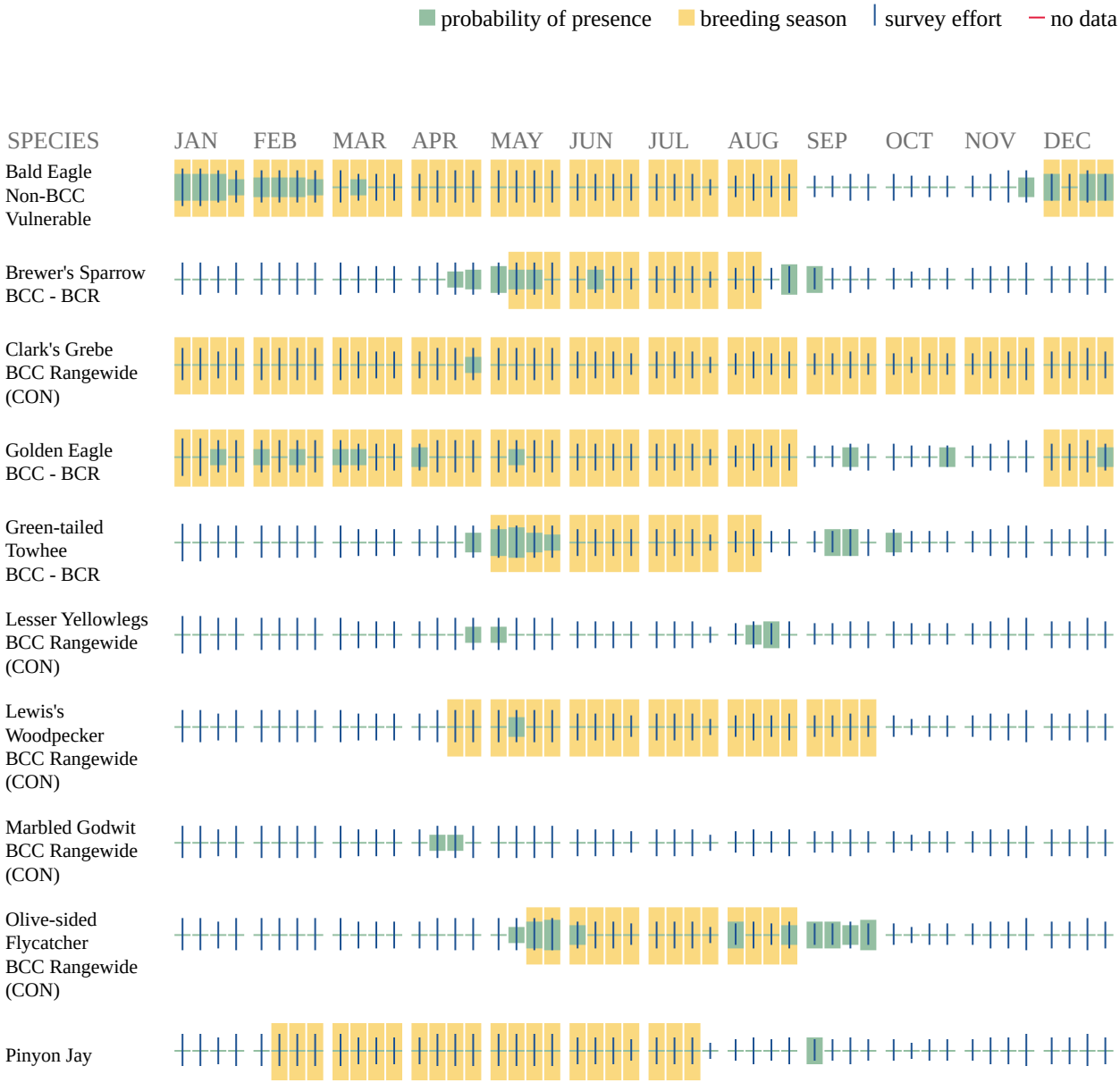
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

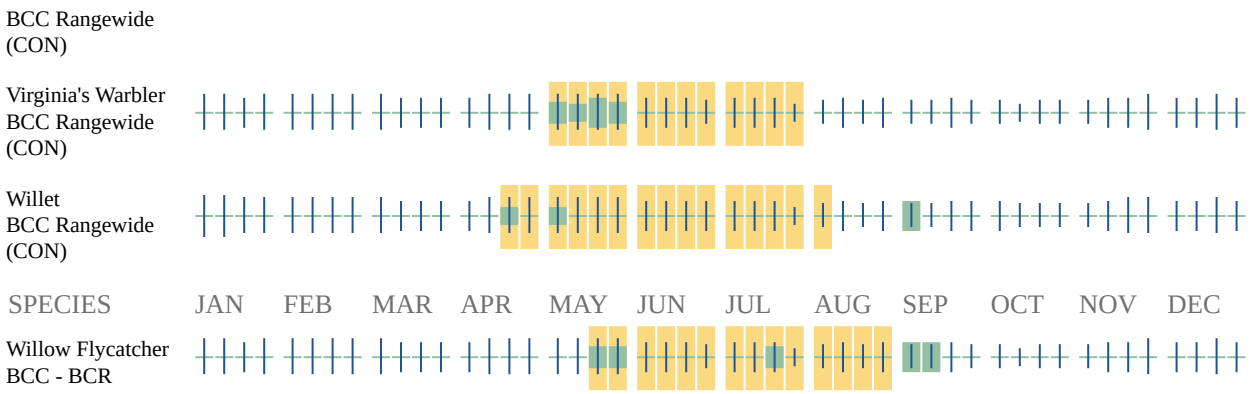
Survey Effort (|)

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

No Data (–)
A week is marked as having no data if there were no survey events for that week.

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





Additional information can be found using the following links:

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

Migratory Birds FAQ

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

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

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

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

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act

requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

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

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

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

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

Appendix B. UNHP Sensitive Species Letter

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Wildlife Resources

MICHAL D. FOWLKS
Division Director

February 1, 2018

Dan Soucy
Jacobs
707 17th Street, Suite 2400
Denver, CO 80202

Subject: Species of Concern Near the Proposed Mid-Valley Project, Salt Lake County, Utah

Dear Dan Soucy:

I am writing in response to your request dated January 25, 2018 regarding information on species of special concern proximal to the proposed Mid-Valley Project, a bus rapid transit system located in Section 33 of Township 1 South, Range 1 West and Sections 1-4 and 9-12 of Township 2 South, Range 1 West, SLB&M, in Murray, Taylorsville and West Valley, Utah.

Within a ½-mile radius of the project area, the Utah Division of Wildlife Resources (UDWR) has recent records of occurrence for short-eared owl, and historical records of occurrence for spotted bat. In addition, within a two-mile radius there are recent records of occurrence for burrowing owl, and historical records of occurrence for California floater, Columbia spotted frog and western pearlshell. All of the aforementioned species are included on the *Utah Sensitive Species List*.

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

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the central region, Mark Farmer, at (801) 491-5653 if you have any questions.

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

Sincerely,

Sarah Lindsey

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Mark Farmer

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

UTAH DNR WILDLIFE RESOURCES

Appendix C. Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Taylorsville Murray Transit | City/County: Taylorsville / Salt Lake | Sampling Date: 4/5/2013

Applicant/Owner: private parcels | State: Utah | Sampling Point: **P1**

Investigator(s): Brian Nicholson | Section, Township, Range: T2S R1W, Sec.2, NWSE

Landform (hillslope, terrace, etc.): concave | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): D | Lat: 40.6737 | Long: -111.9154 | Datum: NAD 1983

Soil Map Unit Name: Loamy Borrow Pits | NWI classification: UPL

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No _____	
Hydric Soil Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes X	No _____	

Remarks: NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetatic
Precipitation prior to fieldwork:
depression next to irrigated turf

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5' r)			
1. *Typha latifolia*	60%	Yes	OBL
2. *Phragmites australis*	30%	Yes	FACW
3. *Carex spp*	5%	No	OBL
4. *Juncus spp*	5%	No	OBL
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
Total Cover:	0%		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		130 (B)

Prevalence Index = B/A = 1.30

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks: *identifies indicator status is tentative

Entered by: btn QC by: ls

SOIL

Sampling Point: **P1**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 3/2	100					clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ 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 X	No ___	Depth (inches):	1"
Water Table Present?	Yes ___	No X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	6"

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks: Entered by: btn QC by: ls

Hydrology is likely a function of runoff from impervious services and over irrigation of adjacent turf. Saturated from the top down

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Taylorsville Murray Transit | City/County: Taylorsville / Salt Lake | Sampling Date: 4/5/2013

Applicant/Owner: private parcels | State: Utah | Sampling Point: **P2**

Investigator(s): Brian Nicholson | Section, Township, Range: T2S R1W, Sec.2, NWSE

Landform (hillslope, terrace, etc.): concave | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): D | Lat: 40.6736 | Long: -111.9155 | Datum: NAD 1983

Soil Map Unit Name: Loamy Borrow Pits | NWI classification: PEM

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No _____	**Is the Sampled Area within a Wetland?**	**Yes X No** _____
Hydric Soil Present?	Yes X	No _____		
Wetland Hydrology Present?	Yes X	No _____		

Remarks: NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetatic
Precipitation prior to fieldwork:
Stormwater conveyance feature

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Salix exigua*	30%	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	30%		
Herb Stratum (Plot size: 5' r)			
1. *Phagmites australis*	95%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	95%		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 5% | % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 125	x 2 =	250
FAC species 0	x 3 =	0
FACU species 0	x 4 =	0
UPL species 0	x 5 =	0
Column Totals: 125 (A)		250 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks: *identifies indicator status is tentative

Entered by: btn QC by: ls

SOIL

Sampling Point: **P2**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-	10YR 3/1	100					muck	greasy no fibers
1-10	10 YR 4/2	100	7.5 YR 5/8	3	C	M	clay loam	
10-24	10 YR 4/2	100					clay loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- X 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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

no horizons

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X 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	X	No		Depth (inches): 4"
Water Table Present?	Yes		No	x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes		No	x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks: Entered by: btn QC by: ls

Does not appear to be groundwater supported

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Taylorsville Murray Transit | City/County: Taylorsville / Salt Lake | Sampling Date: 4/5/2013

Applicant/Owner: private parcels | State: Utah | Sampling Point: **P3**

Investigator(s): Brian Nicholson | Section, Township, Range: T2S R1W, Sec.2, NWSE

Landform (hillslope, terrace, etc.): convex | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): D | Lat: 40.6736 | Long: -111.9155 | Datum: NAD 1983

Soil Map Unit Name: Loamy Borrow Pits | NWI classification: UPL

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No _____	
Hydric Soil Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes _____	No X	

Remarks: NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetatic
Precipitation prior to fieldwork:
Turf Grass

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	30%		
Herb Stratum (Plot size: 5' r)			
1. *Poa pratensis*	95%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	95%		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 5% | % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 95	x 3 =	285
FACU species 0	x 4 =	0
UPL species 0	x 5 =	0
Column Totals: 95 (A)		285 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks: *identifies indicator status is tentative

Entered by: btn QC by: ls

SOIL

Sampling Point: **P3**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 3/2	100					clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___	
Water Table Present?	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Yes** ___ **No** **X**

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

Remarks:

Entered by: btn QC by: ls

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Midvalley BRT City/County: Taylorsville/Salt Lake Sampling Date: 2/1/18

Applicant/Owner: Private State: Utah Sampling Point: Upland 1

Investigator(s): Dan Soucy Section, Township, Range: Sec 04, T2S, R1W

Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Interior deserts Lat: 40.673734 Long: -111.915322 Datum: NAD 83

Soil Map Unit Name: Lo - Loamy Borrow Pits 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 ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Drier and warmer year than typical**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:____)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:10x10)			
1. *Poa pratensis*	100	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	100	x3 =	300
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Irrigated turf grass between sidwalk and road

Project Site: Midvalley BRT

SOIL

Sampling Point: Upland 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5 YR 3/2	100					Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Rock at 14"

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? (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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Midvalley BRT City/County: Taylorsville/Salt Lake Sampling Date: 2/1/18
Applicant/Owner: Private State: Utah Sampling Point: Upland 2
Investigator(s): Dan Soucy Section, Township, Range: Sec 04, T2S, R1W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Interior deserts Lat: 40.673916 Long: -111.914710 Datum: NAD 83
Soil Map Unit Name: Lo - Loamy Borrow Pits 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 ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Drier and warmer year than typical**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:____)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:10x10)			
1. *Poa pratensis*	100	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	100	x3 =	300
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%
☒ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Irrigated turf grass between sidwalk and road

Project Site: Midvalley BRT

SOIL Sampling Point: Upland 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5 YR 3/2	100					Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

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? (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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Midvalley Connector City/County: Taylorsville/Salt Lake Sampling Date: 2/1/18

Applicant/Owner: Private State: Utah Sampling Point: Upland 3

Investigator(s): Dan Soucy Section, Township, Range: Sec 04, T2S, R1W

Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Interior deserts Lat: 40.674379 Long: -111.913030 Datum: NAD 83

Soil Map Unit Name: Lo - Loamy Borrow Pits 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 ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Drier and warmer year than typical**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:____)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:10x10)			
1. *Poa pratensis*	90	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 45, 20% = 18	100	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	90	x3 =	270
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	90 (A)		270 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: Midvalley Connector

SOIL

Sampling Point: Upland 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/2	100					Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

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? (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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Midvalley Connector City/County: Taylorsville/Salt Lake Sampling Date: 11/29/17
Applicant/Owner: Private State: Utah Sampling Point: Upland 4
Investigator(s): Pat Basting, Dan Soucy Section, Township, Range: Sec 04, T2S, R1W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Interior deserts Lat: 40.673919 Long: -111.957344 Datum: NAD 83
Soil Map Unit Name: Lo - Loamy Borrow Pits 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 ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **In field**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:____)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:10x10)			
1. *Agropyron cristatum*	70	yes	NL (UPL)
2. *Medicago sativa*	20	yes	UPL
3. *Bromus tectorum*	5	no	NL (UPL)
4. *Tragopogon porrifolius*	1	no	NL (UPL)
5.			
6.			
7.			
8.			
50% = 48, 20% = 19.2	96	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 4	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	96	x5 =	480
Column Totals:	96 (A)		480 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

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

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: Midvalley Connector

SOIL

Sampling Point: Upland 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	100					Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

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? (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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Midvalley Connector | City/County: Taylorsville/Salt Lake | Sampling Date: 11/29/17

Applicant/Owner: Private | State: Utah | Sampling Point: Upland 5

Investigator(s): Pat Basting, Dan Soucy | Section, Township, Range: Sec 04, T2S, R1W

Landform (hillslope, terrace, etc.): Slope | Local relief (concave, convex, none): none | Slope (%): 5

Subregion (LRR): Interior deserts | Lat: 40.674666 | Long: -111.957604 | Datum: NAD 83

Soil Map Unit Name: TaB - Taylorsville silty clay loam, 1 - 3 % slopes | NWI classification: None

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

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Hill slope along drainage swale**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10x10)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus pumila*	2	yes	UPL
2. *Acer glabrum*	1	yes	FAC
3.			
4.			
50% = 1, 20% = 0.6	3	= Total Cover	
Sapling/Shrub Stratum (Plot size:5x5)			
1. *Rosa woodsii*	5	yes	FACU
2.			
3.			
4.			
5.			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size:5x5)			
1. *Elymus repens*	80	yes	FAC
2. *Descurainia sophia*	5	no	NL (UPL)
3. *Taraxacum officinale*	5	no	FACU
4. *Bromus tectorum*	5	no	NL (UPL)
5. *Tragopogon porrifolius*	1	no	NL (UPL)
6.			
7.			
8.			
50% = 48, 20% = 19.2	96	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 4	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.5	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	81	x3 =	243
FACU species	10	x4 =	40
UPL species	13	x5 =	65
Column Totals:	104 (A)		348 (B)

Prevalence Index = B/A = 3.35

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Midvalley Connector

SOIL

Sampling Point: Upland 5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	100					Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

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? (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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Midvalley BRT City/County: Taylorsville/Salt Lake Sampling Date: 2/1/18
Applicant/Owner: Private State: Utah Sampling Point: Wetland 1
Investigator(s): Dan Soucy Section, Township, Range: Sec 02, T2S, R1W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Interior deserts Lat: 40.673748 Long: -111.915382 Datum: NAD 83
Soil Map Unit Name: Lo - Loamy Borrow Pits 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	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Dry and unusually warm year

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10x10)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	5	yes	FAC
2.			
3.			
4.			
50% = 2.5, 20% = 1	5	= Total Cover	
Sapling/Shrub Stratum (Plot size:10x10)			
1. *Populus fremontii*	5	yes	FAC
2.			
3.			
4.			
5.			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size:20x20)			
1. *Typha sp.*	65	yes	OBL
2. *Phragmites australis*	25	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	65	x1 =	65
FACW species	25	x2 =	50
FAC species	10	x3 =	30
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	100 (A)		145 (B)

Prevalence Index = B/A = 1.45

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

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

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Vegetation has recently been mowed

Project Site: Midvalley BRT

SOIL Sampling Point: Wetland 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								Leaf litter/debris
1-4	7.5 YR 2/1	100					Loamy	
4-14	10 YR 4/1	80	7.5 YR 5/8	20	C	PL	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

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

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: Midvalley BRT | City/County: Taylorsville/Salt Lake | Sampling Date: 2/1/18

Applicant/Owner: Private | State: Utah | Sampling Point: Wetland 2

Investigator(s): Dan Soucy | Section, Township, Range: Sec 02, T2S, R1W

Landform (hillslope, terrace, etc.): Field | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): Interior deserts | Lat: 40.673926 | Long: -111.914731 | Datum: NAD 83

Soil Map Unit Name: Lo - Loamy Borrow Pits | 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	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Dry and unusually warm year

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____			
2. ____			
3. ____			
4. ____			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:____)			
1. ____			
2. ____			
3. ____			
4. ____			
5. ____			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:20x20)			
1. *Distichlis spicata*	80	yes	FAC
2. *Typha sp.*	8	no	OBL
3. *Phragmites australis*	5	no	FACW
4. *Poa pratensis*	5	no	FAC
5. ____			
6. ____			
7. ____			
8. ____			
50% = 49, 20% = 19		= Total Cover	
Woody Vine Stratum (Plot size:____)			
1. ____			
2. ____			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 2	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	8	x1 =	8
FACW species	5	x2 =	10
FAC species	85	x3 =	255
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	98 (A)		273 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

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

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Vegetation has recently been mowed

Project Site: Midvalley BRT

SOIL Sampling Point: Wetland 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								Leaf litter/debris
1-3	7.5 YR 2/1	100					Loamy	
3-14	10 YR 4/1	80	7.5 YR 5/8	20	C	PL	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

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

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: Midvalley Connector City/County: Taylorsville/Salt Lake Sampling Date: 2/1/18

Applicant/Owner: Private State: Utah Sampling Point: Wetland 3

Investigator(s): Dan Soucy Section, Township, Range: Sec 02, T2S, R1W

Landform (hillslope, terrace, etc.): vegetated swale Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): Interior deserts Lat: 40.674373 Long: -111.913028 Datum: NAD 83

Soil Map Unit Name: Lo - Loamy Borrow Pits 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	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Dry and unusually warm year

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:____)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:20x20)			
1. *Distichlis spicata*	80	yes	FAC
2. *Typha sp.*	3	no	OBL
3. *Poa pratensis*	5	no	FAC
4.			
5.			
6.			
7.			
8.			
50% = 44, 20% = 18	88	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 12	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	3	x1 =	3
FACW species	____	x2 =	____
FAC species	85	x3 =	255
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	88 (A)		258 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

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

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Vegetation has recently been mowed/disturbed.

Project Site: Midvalley BRT

SOIL Sampling Point: Wetland 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	Black							Black, slightly mucky
3-12	10 YR 4/1	75	7.5 YR 5/8	25	C	PL	Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

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? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	3

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: Midvalley Connector City/County: Taylorsville/Salt Lake Sampling Date: 11/28/17

Applicant/Owner: Private State: Utah Sampling Point: Wetland 4

Investigator(s): Pat Basting, Dan Soucy Section, Township, Range: Sec 04, T2S, R1W

Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): Interior deserts Lat: 40.673871 Long: -111.957325 Datum: NAD 83

Soil Map Unit Name: Lo - Loamy Borrow Pits 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	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Areas with standing water

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:20x20)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	10	yes	FAC
2.			
3.			
4.			
50% = 5, 20% = 2	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:20x20)			
1. *Salix exigua*	9	yes	FACW
2. *Tamarix chinensis*	2	no	FAC
3. *Rosa woodsii*	3	yes	FACU
4.			
5.			
50% = 7, 20% = 2.8	14	= Total Cover	
Herb Stratum (Plot size:20x20)			
1. *Phragmites australis*	40	yes	FACW
2. *Schedonorus pratensis*	25	yes	FACU
3. *Schoenoplectus pungens*	5	no	OBL
4. *Rumex crispus*	3	no	FAC
5. *Typha angustifolia*	2	no	OBL
6.			
7.			
8.			
50% = 37.5, 20% = 15	75	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 5	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	7	x1 =	7
FACW species	49	x2 =	98
FAC species	15	x3 =	45
FACU species	28	x4 =	112
UPL species		x5 =	
Column Totals:	99 (A)		262 (B)

Prevalence Index = B/A = 2.64

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

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

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Midvalley Connector

SOIL

Sampling Point: Wetland 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3.5	10YR 2/2	100					silt/clayloam	
3.5-16	10YR 5/2	70	7.5YR 5/8	30	C	PL	Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

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

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: Midvalley Connector City/County: Taylorsville/Salt Lake Sampling Date: 11/28/17
Applicant/Owner: Private State: Utah Sampling Point: Wetland 5
Investigator(s): Pat Basting, Dan Soucy Section, Township, Range: Sec 04, T2S, R1W
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Interior deserts Lat: 40.674681 Long: -111.947604 Datum: NAD 83
Soil Map Unit Name: TaB - Taylorsville silty clay loam, 1 to 3 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Small, excavated area at end of culvert

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size:____)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size:5x5)			
1. *Typha latifolia*	90	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	90	x1 =	90
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	90 (A)		90 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%
☒ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Open water in scoured hole at pipe outlet

Project Site: Midvalley Connector

SOIL Sampling Point: Wetland 5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/2	75	7.5 YR 5/8	25	C	M	Clay/loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

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

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

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

Remarks: Area received rainfall a day before field work, minor drainage likely filled scour hole at outlet of pipe culvert. No other standing water present in drainage.

Appendix D. Wetland Photographs

Photo 1: Original wetland that was delineated in 2013. Size and characteristics have not changed from what was outlined in the 2013 ESR.

Photo 2: Original wetland leading to culvert.

Photo 3: Facing west from eastern edge of Wetland 1.

Photo 4: Redox concentrations and oxidized rhizospheres along living roots indicating hydric soils and hydrology in Wetland 1.

Photo 5: Facing east from western edge of Wetland 2. Approximate wetland boundary outlined in red.

Photo 6: Facing west from eastern portion of Wetland 2. Area with taller vegetation outlines approximate wetland boundary.

Photo 7: Facing east from within Wetland 3. Area with taller vegetation outlines approximate wetland boundary.

Photo 8: Facing west from middle of Wetland 3. Wetland dominated by inland saltgrass (*Distichlis spicata*).

Photo 9: Wetland 4, area with standing water outlined in red.

Photo 10: Facing north along edge of walking trail and Wetland 4.

Photo 11: Facing east from edge of Wetland 5, wetland dominated by broadleaf cattail (*Typhus latifolia*).

Photo 12: Facing east with Wetland 5 in the foreground with a riparian transition in the background.