Wetland Determination and Delineation Report for the Proposed Aztec Pedestrian Bridge

Prepared for

HDR Engineering, Inc.

September 2012

Prepared by

Parametrix

Wetland Determination and Delineation Report for the Proposed Aztec Pedestrian Bridge

Animas River, San Juan County, New Mexico – District 5

Project Control Number: F100120

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Table of Contents

1 Introduction 1-1

1.1 Proposed Action 1-2

2 Environmental Setting 2-1

2.1 SITE LOCATION, TOPOGRAPHY, AND CLIMATE 2-1
2.2 GEOLOGY, SOILS, AND HYDROLOGY 2-2
2.3 VEGETATION 2-5

3 Methodology 3-1

3.1 Wetland Delineation 3-1
3.2 Waters of the U.S. Delineation 3-2

4 Results 4-1

4.1 Wetlands 4-1
4.1.2 Wetland Functions and Values 4-4
4.2 Waters of the U.S. 4-4

5 Summary of Wetland Impacts and Mitigation 5-1

6 References Cited 6-1

List of Figures

Figure 2-1. Location of the Proposed Aztec Pedestrian Bridge 2-3
Figure 4-1. Wetlands and Waters of the U.S. Delineation 4-5

List of Tables

Table 4-1. Wetlands and Waters of the U.S. Delineated within the Project Area 4-1

Table 4-2. Summary of Wetland Determination Form Data Points Collected During the June 2012 Survey 4-2

Appendices

Appendix A

Web Soil Survey of the Project Area

Appendix B

Wetland Determination Data Forms

Appendix C

Representative Photos of Wetlands and Waters of the U.S.

Key Terms

A

above mean sea level (amsl) 2-1
American Association of State Highway and Transportation Officials (AASHTO) 1-2
Aztec Ruins National Monument (AZRU) 1-2

C

centimeters [cm] 2-2
City of Aztec (City) 1-2
Clean Water Act (CWA) 1-1
Code of Federal Regulations [CFR] 1-1
County Road [CR] 1-2

F

facultative wetland (FACW) 2-5
Fahrenheit (F) 2-1
Federal Highway Administration (FHWA) 1-1
feet (ft) 2-1

H

HDR Engineering, Inc. (HDR) 1-2

L

Load and Resistance Factor Design (LRFD) 1-2

N

National Environmental Policy Act (NEPA) 1-1
National Wetland Inventory (NWI) 4-3
Natural Resources Conservation Service (NRCS) 2-2
New Mexico (NM) 1-2
New Mexico Department of Transportation (NMDOT) 1-1

O

obligate (OBL) 2-5
ordinary high water mark (OHWM) 3-2

P

Palustrine Scrub-Shrub [PSS] 4-3

R

Road (Rd) 1-2

U

U.S. Army Corps of Engineers (USACE) 1-1
United States Geological Survey (USGS) 2-1
Universal Transverse Mercator (UTM) 3-1

1 Introduction

Wetlands are transitional lands between terrestrial and aquatic systems that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation that is typically adapted for life in saturated soil conditions (Environmental Laboratory 1987). Wetlands are defined by three essential characteristics: 1) hydrophytic vegetation; 2) hydric soils; and 3) wetland hydrology.

Hydrophytic vegetation includes species that require the presence of permanent or semi-permanent water during the growing season for their existence. Hydric soils are flooded during the growing season long enough to develop anaerobic (without oxygen) conditions. Wetland hydrology refers to the frequency and duration of the presence of water that creates the wetland environment.

The protection of wetlands is mandated by Executive Order 11990 in furtherance of the National Environmental Policy Act (NEPA). In addition, the Federal Highway Administration (FHWA) has a no net loss policy with regard to wetlands, with which the New Mexico Department of Transportation (NMDOT) complies. It is the policy of the NMDOT to comply with Executive Order 11990, which requires that transportation projects be planned, constructed, and operated to assure the protection, preservation, and enhancement of the nation's wetlands to the fullest extent possible.

Section 404 of the Clean Water Act (CWA) of 1972 (CWA; 33 U.S.C. 1251 et seq.), as amended, provides for the protection of waters of the United States (U.S.) through regulation of discharge of dredged or fill material. The U.S. Army Corps of Engineers (USACE) Regulatory Program (33 Code of Federal Regulations [CFR] Parts 320-330) requires that a CWA Section 404 determination be conducted for all proposed construction that may affect waters of the U.S.

1.1 Proposed Action

The City of Aztec (City), in cooperation with the NMDOT and other stakeholders, proposes to construct a pedestrian trail and bridge across the Animas River, which would connect the Aztec Trail System to Aztec Ruins National Monument (AZRU). The project is located in Aztec, New Mexico (NM), on the south side of Ruins Road (Rd) (County Road [CR] 2900). The project will involve the purchase and installation of a prefabricated pedestrian bridge and construction of abutments on both sides of the Animas River channel. The project area includes land administered by the City and AZRU. Funding for this project will be through the 2013 NMDOT Surface Transportation Program and will include federal funds from the FHWA. The City is the project proponent, and NMDOT (on behalf of FHWA) will serve as the lead reviewing agency.

HDR Engineering, Inc. (HDR) has been contracted by the City to design the pedestrian bridge. Bridge design and specifications will be in accordance with NMDOT requirements and American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Specifications. HDR contracted Parametrix to conduct a biological survey to evaluate riparian, aquatic, wetland, and upland habitat impacts associated with bridge construction.

The bridge would provide pedestrian access across the Animas River, and the proposed trail on the northwest side of the river would lead from the bridge to AZRU along the south side of Ruins Road. On the southeast side of the river, the proposed trail segment would connect the existing Aztec Trail System with the pedestrian bridge. The bridge would encourage visitors to park on one side of the river and walk to events and facilities on the opposite side.

2 Environmental Setting

2.1 SITE LOCATION, TOPOGRAPHY, AND CLIMATE

The project area is situated on both sides of the Animas River in Aztec, New Mexico, east of AZRU, on the south side of Ruins Road (Figure 2-1); it includes land administered by the City and AZRU. The elevation of the project site is approximately 5,600 feet (ft) above mean sea level (amsl). Uplands in the immediate project area are primarily level; some on the west side of the Animas River consist of former agricultural fields. Banks and slopes of the Animas River and its floodplain range from very steep and abrupt to gently sloping terraces and alluvial deposits. The site is located in Section 9, Township 30 North, Range 11 West on the Aztec and Flora Vista, New Mexico 7.5-minute United States Geological Survey (USGS) quadrangle. The project site is in the Navajo Section of the Colorado Plateau Province, which is part of a large upland region of New Mexico, Arizona, Utah, and Colorado (Hawley 1986). In general, the Navajo Section contains hogback belts, broad rolling plains, cuestas and high tablelands, and escarpments of moderate relief (Hawley 1986).

The climate for the project area is classified as mild and semi-arid, with an average of 9.9 inches of precipitation and 130 frost-free days recorded at AZRU. Spring through early summer is the driest season; over 40 percent of the annual precipitation occurs from July to October. Average annual maximum temperature is approximately 67.9 degrees Fahrenheit (F) and the average annual minimum temperature is 34.9 degrees (F) (WRCC 2012).

2.2 GEOLOGY, SOILS, AND HYDROLOGY

The region is characterized by erosional landscapes carved from sequences of sedimentary and volcanic rock. Major rivers, such as the San Juan and Animas, contain broad floodplains flanked by stepped sequences of Pleistocene-age fluvial terraces (Hawley 1986). Cretaceous coal-bearing formations also define this part of the Arizona/New Mexico Plateau (Griffith et al. 2006).

Most of the soils in the project vicinity are entisols, which occur in arid environments and have usually been exposed to soil-forming processes for only a short time (in areas along floodplains or on steep slopes) (Maker and Daugherty 1986). Soils classified as Lakes, rivers and reservoirs occur in the river channel and along some areas of riverbank. West of the Animas River, the project area contains mostly Turley Clay Loams, which occur on alluvial fans with slopes of 1 to 3 percent. These soils tend to be deep (80+ centimeters [cm]) and well-drained, and they are made up of fan alluvium derived from sandstone and shale. Southeast of the Animas River, the project area contains Walrees Loam deposits. This soil classification occurs on poorly-drained floodplains with shallow water tables, and consists of mixed alluvium. None of these soils is classified by the Natural Resources Conservation Service (NRCS 2012) as hydric. A soil report for the vicinity is included in Appendix A.

The southeast part of the project area is located on the Animas River floodplain, while the northwest portion is located on the gently sloping first terrace above the river channel. The perennial Animas River originates in the San Juan Mountains of southwestern Colorado; it flows through the towns of Silverton and Durango, Colorado, and Aztec and Flora Vista, NM, to its confluence with the San Juan River at Farmington, NM.

The primary hydrologic function within the delineated wetlands is derived from perennial flows of the Animas River. Seasonal increases in the river flow inundate areas along the river, thereby providing the necessary environment for the survival of wetland plant species as well as creating anaerobic conditions in the soils within 12 inches of the surface. At the time of the survey, water flow was limited to the main channel, and there was no standing water in the wetlands.

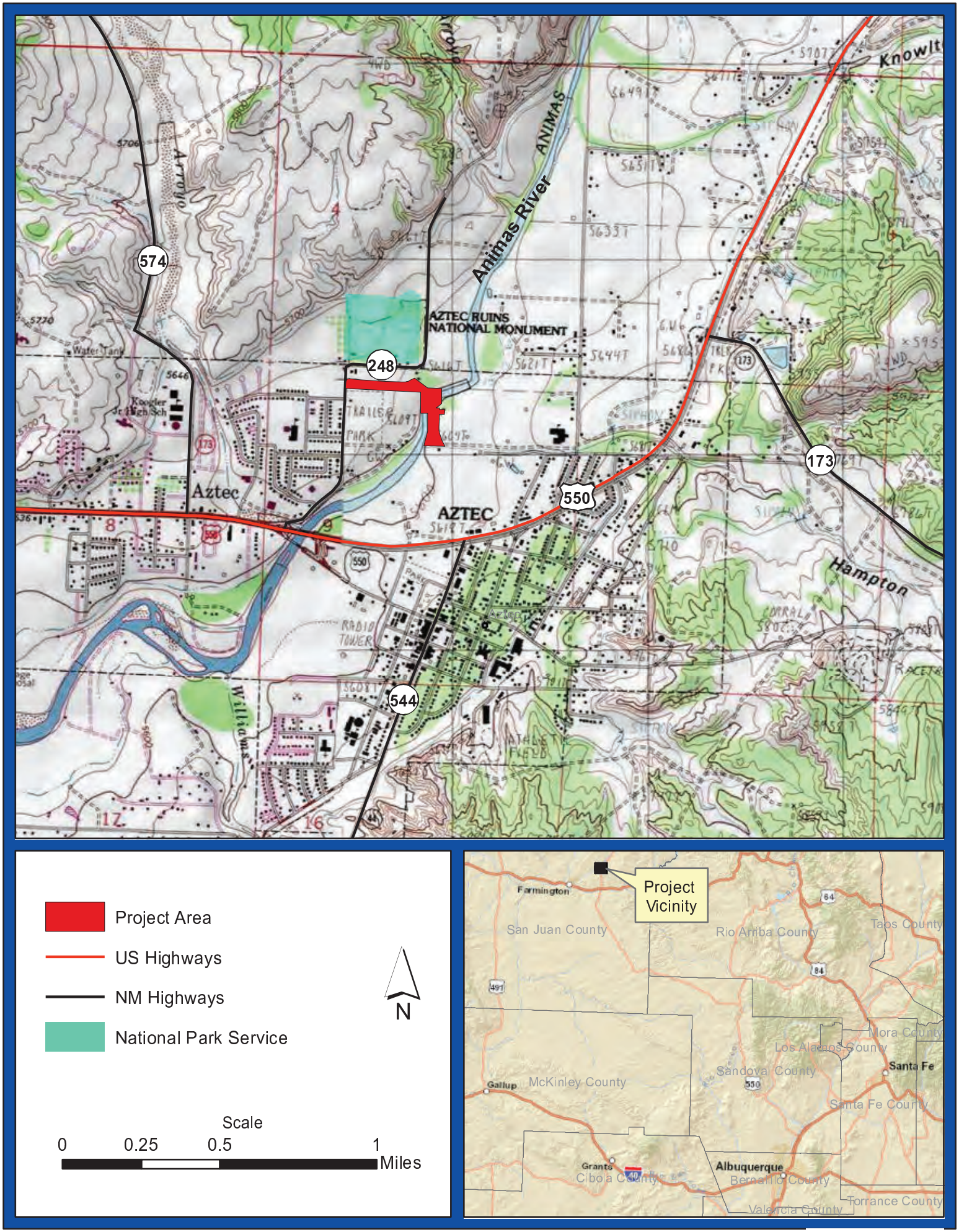

Figure 2-1. Aztec Ruins Pedestrian Bridge: Location of the Propose Project.

Parametrix

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2.3 VEGETATION

Native vegetation in the general region is classified as Great Basin Desert Scrub in an area modified and impacted by human activities such as farming and urban development (Dick-Peddie 1993). The dominant species present in the project area were narrowleaf cottonwood (*Populus angustifolia*), Fremont cottonwood (*Populus deltoides* subsp. *wislizenii*), coyote willow (Salix exigua), salt cedar (*Tamarix* sp.), and Russian olive (*Elaeagnus angustifolia*).

Dominant obligate (OBL) wetland species included common spike-rush (*Eleocharis palustris*), woolly sedge (*Carex pellita*), and common threesquare (*Schoenoplectus pungens*); facultative wetland (FACW) species such as smooth scouring-rush (*Equisetum laevigatum*) were also common.

Upland areas were dominated by cottonwood trees (*Populus* sp.), American licorice (*Glycyrrhiza lepidota*), broadleaf milkweed (*Asclepias latifolia*), orchardgrass (*Dactylis glomerata*), western wheat grass (*Elymus smithii*), smooth brome (*Bromus inermis*) and common sunflower (*Helianthus annuus*). Common-to-abundant noxious weed species in the upland areas included Russian knapweed (*Acroptilon repens*), Canada thistle (*Cirsium arvense*), Russian olive (*Elaeagnus angustifolia*), and Siberian elm (*Ulmus pumila*).

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3 Methodology

3.1 Wetland Delineation

Parametrix made a preliminary assessment of the project area wetlands in the office by using USGS topographical quadrangles and NRCS soil survey maps for San Juan County. This information was then refined during the field investigation.

The wetland delineation was carried out using the routine method approach described in the 1987 USACE Wetland Delineation Manual (Wetland Training Institute 2001), as regionally modified by the Arid West Region Supplement (USACE 2008).

A thorough field inspection of the proposed project corridor and adjoining areas was made prior to conducting the wetland delineation. Three paired soil pits (6 pits) were dug at representative observation points to more carefully delineate their boundaries. A wetland determination data form for each sample point/data point was completed (Appendix B). Sites were identified as a wetland if they met all three wetland criteria—wetland vegetation, hydric soils, and wetland hydrology. The boundary was determined based on field observations of vegetation and soils in conjunction with water lines and local topography. Features were recorded in the field as Universal Transverse Mercator (UTM) coordinates with a Garmin eTrex Legend HCx global positioning system in NAD 83, Zone 13N. Coordinates were recorded on the datasheets as UTM, but were later converted to Latitude and Longitude (decimal degrees) for this report, as that is the standard format accepted by the USACE.

3.2 Waters of the U.S. Delineation

Delineation of the ordinary high water mark (OHWM) is an approach used to identify the lateral limits of non-wetland waters under Section 404 of the CWA. Geomorphic and vegetative indicators as described in Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States were used to identify the OHWM of the Animas River during the June 2012 survey (Lichvar and McColley 2008).

4 Results

Two wetlands and one jurisdictional waterway were delineated during the June 2012 survey (Table 4-1).

Table 4-1. Wetlands and Waters of the U.S. Delineated within the Project Area

Name	Wetland Datasheets	Cowardin Classification	Area/Linear Feet (acres/feet)
Wetland 1	1,2,3	PSSa	0.2 ac
Wetland 2	4,5,6	PSS	0.6 ac
Animas River	N/A	N/A	44 ft wide

a PSS = Palustrine Scrub-Shrub

4.1 Wetlands

Two wetlands that cover a total of 0.8 acres were delineated within or adjacent to the study area (Table 4-2). Wetland 1 is a narrow strip along the river bank on the east side of the Animas River. Wetland 2 is located along the river channel on the northwest side of the river between the channel and an area cleared of invasive plant species by AZRU for the purpose of fire control. The soils within the wetlands are mapped as Lakes, rivers and reservoirs and Turley clay loam with 1 to 3 percent slopes (Appendix A). Areas classified as Lakes, rivers, reservoirs in the project corridor are 95 percent water. Turley clay loam soils are deep and well-drained, and are not subject to flooding.

The hydrology in the delineated wetlands is provided by a high water table, as well as seasonal flows from the Animas River.

Table 4-2. Summary of Wetland Determination Form Data Points Collected During the June 2012 Survey

Data Point	Longitude (NAD 83)	Latitude (NAD 83)	Hydrophytic Vegetation Indicator	Hydric Soil Indicator	Hydrology Indicator	Wetland (Y/N)
1A	-107.995404	36.832349	Dominance test	None	High water table, Saturation, Water-stained leaves, Water marks, Sediment deposits, Drift Deposits, Drainage patterns	N
1B	-107.995408	36.832338	None	None	None	N
2A	-107.995325	36.832357	None	None	Saturation, Water-stained leaves, Water marks, Sediment deposits, Drift Deposits, Drainage patterns	N
2B	-107.995333	36.832293	Dominance test	None	None	N
3A	-107.995824	36.832042	Dominance test	Stratified layers, Sandy gleyed matrix	High water table, Saturation, Water marks, Sediment deposits, Drift Deposits, Drainage patterns	Y – Wetland 1
3B	-107.995716	36.832029	None	None	None	N
4A	-107.995676	36.832582	Dominance test	Hydrogen sulfide, Stratified layers, Loamy gleyed matrix	Saturation, Salt crust, Water marks, Sediment deposits, Drift Deposits, Drainage patterns	Y – Wetland
4B	-107.995642	36.832707	None	None	None	N
5A	-107.995085	36.832703	Dominance test	Hydrogen sulfide, Sandy gleyed matrix	Saturation, Salt crust, Water marks, Sediment deposits, Drift Deposits, Drainage patterns	Y – Wetland 2
5B	-107.995163	36.832914	None	None	None	N
6A	-107.995933	36.83264	Prevalence index worksheet	Loamy gleyed matrix	Saturation, Drift deposits	Y – Wetland 2
6B	-107.995887	36.832825	Dominance test	None	None	N

Wetland 1 Determination and Delineation

Wetland 1 is a 0.2 acre non-tidal, freshwater sand and cobble bar with emergent vegetation under 10 ft tall (Palustrine Scrub-Shrub [PSS]) (Appendix C, Photos 1 and 2). This seasonally flooded wetland is located on the east side of the Animas River adjacent to an area cleared of vegetation for the proposed bridge bore hole. This wetland appears on the National Wetland Inventory (NWI) map and is located within the floodplain of the river (USFWS NWI, 2012). Due to its small size (71 ft long, 13 ft wide), two data points, 3A and 3B, were sampled to delineate this wetland (Figure 4-1).

Vegetation in the wetland is dominated by Indian hemp (Apocynum cannabinum) and Russian olive (FAC species); and coyote willow (FACW species). Dominant species that were OBL, FACW, or FAC made up 100 percent of the total dominant species. The adjacent upland vegetation consisted of American licorice, broadleaf milkweed (Asclepias latifolia), orchardgrass, western wheat grass, and common sunflower. Upland areas more distant from the wetland, especially along the dirt road leading to the site, had large populations of the noxious weed species Russian knapweed and Canada thistle.

Sample Points 1 and 2 did not exhibit any wetland characteristics. Wetland hydrology at point 3A was primarily indicated by high water table and saturation. The soils at the data point met the sandy redox indicator for hydric soils. None of the sampled soils matched the NRCS soil series descriptions.

The proposed bridge and trail construction would have no impact on Wetland 1, as all work would take place outside the delineated wetland.

Wetland 2 Determination and Delineation

Wetland 2 is a 0.6 acre non-tidal, freshwater clay, sand and cobble bar with emergent vegetation under 10 ft tall (PSS) (Appendix C, Photos 3 and 4). This seasonally flooded wetland is located on the northwest side of the Animas River between the channel and an upland forested area. This wetland appears on the NWI map (USFWS NWI, 2012). Six data points, 4A, 4B, 5A, 5B, 6A, and 6B, were sampled to delineate this wetland (Figure 2-1).

Wetland hydrology at points 4A and 5A was primarily indicated by saturation and salt crust. At point 6A, wetland hydrology was primarily indicated by saturation; drift deposits were a secondary indicator. Vegetation in this wetland is dominated by woolly sedge, common three-square sedge, and common spike-rush (OBL species); and coyote willow and smooth scouring rush (FACW species). The dominance tests for Pits 4A and 5A were 80 and 100 percent, respectively. At Pit 6A, vegetation did not pass the dominance test; 50 percent of the dominant species were OBL, FACW, or FAC. The prevalence index for this pit was 2.7, which meets the hydrophytic vegetation indicator.

Upland vegetation adjacent to this wetland included smooth brome, orchardgrass, lamb's quarters (*Chenopodium album*), and sprouting salt cedar stumps. Upland areas more distant from the wetland consisted of a forested zone dominated by cottonwood trees; two patches of Canada thistle were also observed in the forested zone.

4.1.2 Wetland Functions and Values

Wetland functions are defined as a process or series of processes that take place within a wetland. These functions fall within three general categories – physical, chemical, and biological. A functional assessment of the wetlands delineated within the project area is outside the scope of this report, so only a general statement of observed function can be presented at this time. Generally, these wetlands function as habitat for wildlife. The cover provided by the stands of coyote willow and access to the river are important resources for a variety of wildlife species.

Wetland values are processes or properties that are valuable to humans. Wetland 1 has limited ecological value to the community due to its small size and sparse vegetation, although it does add aesthetically to the viewshed that will be experienced by pedestrians using the proposed bridge and trail. By providing wildlife habitat, wetland 2 contributes to the natural setting and aesthetic value of the area.

4.2 Waters of the U.S.

The proposed project would cross the Animas River, which is a perennial waterway and a known water of the U.S. The Animas River flows north to south from its headwaters in the San Juan Mountains of southwestern Colorado to its confluence with the San Juan River at Farmington, NM. The river flows in a shallow channel lined with cobble.

At the proposed bridge location, the OHWM was 49 ft wide (Appendix C, Photos 5, 6 and 7). Coyote willow and Russian olive were present between the edge of the OHWM and adjacent uplands. On the southeast side of the river, the banks varied from steep and eroded to gradually sloping. The bank on the northwest side of the river sloped up gradually to a terrace adjacent to agricultural fields. The river banks were dominated by coyote willow, Indian hemp, woolly sedge, spike rush, and smooth scouring rush. No effects to this water of the U.S. will result from the proposed bridge installation, as all work will take place above the OHWM.

Figure 4-1 Aztec Ruins Pedestrian Bridge: Delineated Wetlands and Waters of the U.S.

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5 Summary of Wetland Impacts and Mitigation

The delineated wetlands have a combined total area of 0.8 acre. As designed, the proposed project would avoid the wetlands and OHWM; the bore hole sites for the bridge abutments are outside the wetlands and above the OHWM. The following is a discussion of mitigation measures that are recommended to avoid indirect impacts to the delineated wetlands:

General. Impacts to wetland areas shall be minimized by restricting construction activities to only those areas necessary to complete the work. High-visibility safety fencing (placed along the wetland boundary) shall be used for this purpose.

Wetland Soils Protection. Safety fencing (as mentioned above) shall limit construction to the upland areas and the construction footprint. Fabric or rubber mats, or other suitable materials, shall be placed over portions of the wetland area should it be necessary for the contractor to allow temporary equipment ingress or egress. This shall help keep wetland soils intact and in place during and after construction when all equipment is removed from the project area.

Erosion Prevention. Hay bales and straw wattles shall be used within wetlands and uplands within the project area as appropriate to minimize and prevent erosion and sediment transport during construction.

Equipment Leaks. Machinery and construction equipment shall be inspected to ensure that leaks or discharges of lubricants, fuels, or hydraulic fluids do not occur. If any equipment should break or fail, accidentally causing oil or fluid leaks into wetlands (or areas immediately adjoining wetlands), the affected area shall be cleaned by removing contaminated sediments. All fuels, lubricants, and hydraulic fluids shall be stored and disposed of in an NMED-approved location.

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Appendix A

Web Soil Survey of the Project Area

United States Department of Agriculture

Natural Resources Conservation Service

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

Custom Soil Resource Report for San Juan County, New Mexico, Eastern Part

August 14, 2012

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....7
Soil Map.....8
Legend.....9
Map Unit Legend.....10
Map Unit Descriptions.....10
San Juan County, New Mexico, Eastern Part.....12
Bf—Beebe variant loamy sand.....12
FP—Fluvaquents, ponded.....12
Fr—Fruitland sandy loam, 0 to 2 percent slopes.....13
Ft—Fruitland sandy loam, wet, 0 to 2 percent slopes.....14
Fu—Fruitland loam, 1 to 3 percent slopes.....15
Gr—Green River fine sandy loam.....16
RA—Riverwash.....17
Tr—Turley clay loam, 1 to 3 percent slopes.....18
Tt—Turley clay loam, wet, 0 to 2 percent slopes.....19
W—Lakes, rivers, reservoirs.....20
Wa—Walrees loam.....20
Wr—Werlog loam.....21
References.....23

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Gully

Short Steep Slope

Other

Political Features

Cities

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

MAP INFORMATION

Map Scale: 1:3,440 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:63,360.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 13N NAD83

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

Soil Survey Area: San Juan County, New Mexico, Eastern Part
Survey Area Data: Version 10, Sep 23, 2009

Date(s) aerial images were photographed: Data not available.

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

Map Unit Legend

San Juan County, New Mexico, Eastern Part (NM618)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Bf	Beebe variant loamy sand	2.9	4.5%
FP	Fluvaquents, ponded	2.5	4.0%
Fr	Fruitland sandy loam, 0 to 2 percent slopes	8.8	13.8%
Ft	Fruitland sandy loam, wet, 0 to 2 percent slopes	2.4	3.8%
Fu	Fruitland loam, 1 to 3 percent slopes	0.1	0.1%
Gr	Green River fine sandy loam	0.3	0.5%
RA	Riverwash	3.5	5.6%
Tr	Turley clay loam, 1 to 3 percent slopes	20.0	31.6%
Tt	Turley clay loam, wet, 0 to 2 percent slopes	0.7	1.0%
W	Lakes, rivers, reservoirs	7.7	12.1%
Wa	Walrees loam	14.3	22.6%
Wr	Werlog loam	0.2	0.2%
Totals for Area of Interest		**63.3**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the

contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Juan County, New Mexico, Eastern Part

Bf—Beebe variant loamy sand

Map Unit Setting

Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Beebe variant and similar soils: 85 percent

Description of Beebe Variant

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stream alluvium derived from igneous and sedimentary rock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 24 to 60 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 6w
Ecological site: Sandy (R035XB002NM)

Typical profile

0 to 8 inches: Loamy sand
8 to 67 inches: Sand
67 to 81 inches: Very gravelly sand

FP—Fluvaquents, ponded

Map Unit Setting

Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F

Frost-free period: 140 to 160 days

Map Unit Composition

Fluvaquents and similar soils: 100 percent

Description of Fluvaquents

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stream alluvium derived from igneous and sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: High (about 10.2 inches)

Interpretive groups

Land capability (nonirrigated): 5w
Ecological site: Loamy Bottom 6-10" p.z. Perennial (R035XB269AZ)

Typical profile

0 to 60 inches: Sandy loam

Fr—Fruitland sandy loam, 0 to 2 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Fruitland and similar soils: 95 percent

Description of Fruitland

Setting

Landform: Alluvial fans, stream terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability (nonirrigated): 7e
Ecological site: Sandy (R035XB002NM)

Typical profile

0 to 7 inches: Sandy loam
7 to 60 inches: Fine sandy loam

Ft—Fruitland sandy loam, wet, 0 to 2 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,400 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Fruitland variant and similar soils: 90 percent

Description of Fruitland Variant

Setting

Landform: Alluvial fans, stream terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 24 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Moderate (about 6.6 inches)

Interpretive groups
Land capability classification (irrigated): 2w
Land capability (nonirrigated): 6w
Ecological site: Sandy (R035XB002NM)

Typical profile
0 to 6 inches: Sandy loam
6 to 60 inches: Sandy loam

Fu—Fruitland loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition
Fruitland and similar soils: 95 percent

Description of Fruitland

Setting
Landform: Alluvial fans, stream terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Moderate (about 7.5 inches)

Interpretive groups
Land capability classification (irrigated): 2e
Land capability (nonirrigated): 7e
Ecological site: Loamy (R035XB001NM)

Typical profile

0 to 8 inches: Loam
8 to 60 inches: Sandy loam

Gr—Green River fine sandy loam

Map Unit Setting

Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Green river and similar soils: 90 percent

Description of Green River

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stream alluvium derived from igneous and sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 24 to 60 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Available water capacity: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 6w
Ecological site: Shale Hills (R035XB009NM)

Typical profile

0 to 6 inches: Fine sandy loam
6 to 60 inches: Stratified fine sandy loam to loam

RA—Riverwash

Map Unit Setting

Elevation: 4,800 to 6,400 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Riverwash, clayey: 35 percent
Riverwash, sandy: 35 percent
Riverwash, gravelly: 30 percent

Description of Riverwash, Sandy

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stream alluvium derived from igneous and sedimentary rock

Properties and qualities

Slope: 0 to 3 percent
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability (nonirrigated): 8w

Typical profile

0 to 6 inches: Sand
6 to 60 inches: Stratified coarse sand to sandy loam

Description of Riverwash, Clayey

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stream alluvium derived from igneous and sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Available water capacity: Low (about 6.0 inches)

Interpretive groups
Land capability (nonirrigated): 8w

Typical profile
0 to 6 inches: Clay
6 to 60 inches: Clay

Description of Riverwash, Gravelly

Setting
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stream alluvium derived from igneous and sedimentary rock

Properties and qualities
Slope: 0 to 3 percent
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability (nonirrigated): 8w

Typical profile
0 to 6 inches: Gravelly sand
6 to 60 inches: Stratified extremely gravelly coarse sand to gravelly sand

Tr—Turley clay loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition
Turley and similar soils: 95 percent

Description of Turley

Setting
Landform: Alluvial fans

Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fan alluvium derived from sandstone and shale

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: High (about 11.4 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability (nonirrigated): 7e
Ecological site: Clayey (R035XB004NM)

Typical profile

0 to 9 inches: Clay loam
9 to 60 inches: Clay loam
60 to 64 inches: Clay loam

Tt—Turley clay loam, wet, 0 to 2 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Turley variant and similar soils: 90 percent

Description of Turley Variant

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fan alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 24 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: High (about 10.2 inches)

Interpretive groups
Land capability classification (irrigated): 2w
Land capability (nonirrigated): 6w
Ecological site: Clayey (R035XB004NM)

Typical profile
0 to 9 inches: Clay loam
9 to 60 inches: Clay loam

W—Lakes, rivers, reservoirs

Map Unit Setting
Elevation: 4,800 to 6,400 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition
Water: 95 percent

Description of Water

Setting
Landform: Channels
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Wa—Walrees loam

Map Unit Setting
Elevation: 6,400 to 7,200 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 145 days

Map Unit Composition

Walrees and similar soils: 70 percent

Description of Walrees

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 24 to 60 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups

Land capability (nonirrigated): 6w
Ecological site: Shale Hills (R035XB009NM)

Typical profile

0 to 6 inches: Loam
6 to 30 inches: Loam
30 to 81 inches: Stratified gravelly sand

Wr—Werlog loam

Map Unit Setting

Elevation: 6,400 to 7,200 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 145 days

Map Unit Composition

Werlog and similar soils: 70 percent

Description of Werlog

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 24 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Available water capacity: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 6w
Ecological site: Loamy (R035XB001NM)

Typical profile

0 to 6 inches: Loam
6 to 60 inches: Stratified fine sandy loam to clay loam
60 to 81 inches: Stratified sand to cobbly sand

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Appendix B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Aztec Bridge – Animas River City/County: Aztec / San Juan Cty. Sampling Date: 6.12.12

Applicant/Owner: City of Aztec State: NM Sampling Point: Pit 1A

Investigator(s): J. Nellessen + C. Hannum Section, Township, Range: S9 T30N R11W

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

Subregion (LRR): Interior deserts ~~Lat~~ E: 232854 ~~Long~~ N: 4080453 Datum: NAD 83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (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 ____	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: first described as wetland fringe, because of steep banks along the Animas River

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	25%	Yes	FAC
2.			
3.			
4.			
	25% = Total Cover		

Sapling/Shrub Stratum (Plot size: 2 m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix exigua	10%	Yes	FACW
2. Elaeagnus angustifolia	2%	No	FAC
3.			
4.			
5.			
	12% = Total Cover		

Herb Stratum (Plot size: 1m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Bromus inermis	5%	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5% = Total Cover		

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 95% % Cover of Biotic Crust 0

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		x 1 =
FACW species	10	x 2 = 20
FAC species	27	x 3 = 81
FACU species	5	x 4 = 20
UPL species		x 5 =
Column Totals:	42 (A)	121 (B)

Prevalence Index = B/A = 2.88

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:

SOIL

Sampling Point: Pit 1A

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/2	50	None				sand & cobble	50% sand 50% cobble

[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 Soil Present? Yes ___ No X

Remarks:
Pit site is ~ 2 ft. from edge of river, at edge of steep bank 3-4 ft. high. Low chroma even though mostly sand and cobble, but no redox conditions. Does not match NRCS soil series description.

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): 6

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:
Pit site is within OHWM.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Aztec Pedestrian Bridge at Animas River City/County: Aztec/San Juan Sampling Date: 6.12.12

Applicant/Owner: City of Aztec State: NM Sampling Point: Pit 1B – up

Investigator(s): J. Nellessen + C. Hannum Section, Township, Range: S9 T30N R11W

Landform (hillslope, terrace, etc.): upper high bank Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): Interior deserts ~~Lat~~ E 232857 ~~Long~~ N 4080451 Datum: NAD83

Soil Map Unit Name: Walrees loam NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (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 ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: site is about 4-5 feet above river elevation on high bank and about 10 feet back from the river

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	50%	Yes	FAC
2.			
3.			
4.			
	50% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2 m)			
1.			
2. Elaeagnus angustifolia	1%	No	FAC
3. Rosa woodsii	1%	No	FACU
4.			
5.			
	2% = Total Cover		
Herb Stratum (Plot size: 1m circle)			
1. Bromus inermis	10%	Yes	FACU
2. Glycyrrhiza lepidota	1%	No	FAC
3. Apocynum cannabinum	1%	No	FAC
4.			
5.			
6.			
7.			
8.			
	12% = Total Cover		
Woody Vine Stratum (Plot size: 2 m)			
1. Toxicodendron radicans	3%	No	FAC
2.			
	3% = Total Cover		

% Bare Ground in Herb Stratum 30% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	—	x 1 =	
FACW species		x 2 =	
FAC species	56	x 3 =	168
FACU species	11	x 4 =	44
UPL species		x 5 =	
Column Totals:	67 (A)		212 (B)

Prevalence Index = B/A = 3.16

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 best described as riverine, not wetland

SOIL

Sampling Point: Pit 1B-up

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5 YR 3/4	100	None				Loamy Sand	Same throughout column

[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 Soil Present? Yes ____ No ✓

Remarks: Soil is dry & powdery. Does not match NRCS soil series description.

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): >12"

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): >12"

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: Aztec Pedestrian Bridge City/County: Aztec/San Juan Sampling Date: 6.12.12

Applicant/Owner: City of Aztec State: NM Sampling Point: 2A (Up)

Investigator(s): J. Nellessen + C. Hammum Section, Township, Range: S9 T30N R11W

Landform (hillslope, terrace, etc.): edge of river Local relief (concave, convex, none): convex Slope (%): 7%

Subregion (LRR): Interior deserts ~~Lat:~~ E 232869 ~~Long:~~ N 4080463 Datum: NAD 83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (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 ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: Pit site ~ 2 ft. from water's edge, near 4' high bank

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
3.			
4.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 2m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	2%	No	FAC
2. Salix exigua	1%	No	FACW
3.			
4.			
5.			
	3 = Total Cover		

Herb Stratum (Plot size: 1m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Bromus inermis	2%	No	FACU
2. Solidago sp.	1%	No	FAC
3. Acroptilon repens	1%	No	UPL
4.			
5.			
6.			
7.			
8.			
	4 = Total Cover		

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 96% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	—	x 1 =
FACW species	1	x 2 = 2
FAC species	3	x 3 = 9
FACU species	2	x 4 = 8
UPL species	1	x 5 = 5
Column Totals:	7 (A)	24 (B)

Prevalence Index = B/A = 3.4

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: Riverine vegetation – not wetland

SOIL

Sampling Point: 2A

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/3	50	None				sand & cobble	50% sand 50% cobble

[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 Soil Present? Yes ___ No ✓

Remarks:

pit is ≈ 2-3 ft from water's edge
Does not match NRCS soil series description.

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): > 6"

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:

pit is within OHWM

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Aztec Ped. Bridge City/County: Aztec/San Juan Sampling Date: 6.12.12

Applicant/Owner: City of Aztec State: NM Sampling Point: 2B-up

Investigator(s): J. Nellessen + C. Harmony Section, Township, Range: S9 T30N R11W

Landform (hillslope, terrace, etc.): upper high bank Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): Interior deserts Lat: E 232869 Long: N 4080456 Datum: NAD 83

Soil Map Unit Name: Waltrees loam NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (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 _____	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	50%	Yes	FAC
2.			
3.			
4.			
	50 = Total Cover		

Sapling/Shrub Stratum (Plot size: 2m)			
1. Elaeagnus angustifolia	3%	No	FAC
2.			
3.			
4.			
5.			
	3 = Total Cover		

Herb Stratum (Plot size: 1m)			
1. Bromus inermis	1%	No	FACU
2. Elymus smithii	8%	Yes	FAC
3. Equisetum laevigatum	1%	No	FACW
4. Solidago sp.	1%	No	FAC
5. Asclepias latifolia	1%	No	UPL
6. Glycyrrhiza lepidota	0.5%	No	FAC
7.			
8.			
	12.5 = Total Cover		

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 25% % Cover of Biotic Crust 0

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	—	x 1 =	
FACW species	1	x 2 =	2
FAC species	62.5	x 3 =	187.5
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	65.5 (A)		198.5 (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: very little herbaceous wetland vegetation, the Populus and Elaeagnus best characterize the habitat as riverine

SOIL

Sampling Point: 2B – up

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/3	100	None				loamy sand	dry throughout column

[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 Soil Present? Yes ____ No ✓

Remarks:

Soil is dry & powdery, More rocks & roots than at 1B. Does not match NRCS soil series description.

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): >12"

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): >12"

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: Aztec Pedestrian Bridge City/County: Aztec/San Juan Sampling Date: 6-12-12

Applicant/Owner: City of Aztec State: NM Sampling Point: 3A - wet

Investigator(s): J. Nelleson + C. Harrison Section, Township, Range: S9 T30N R11W

Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): convex Slope (%): 4%

Subregion (LRR): Interior deserts ~~Lat:~~ E 232824 ~~Long:~~ N 4080430 Datum: NAD 83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (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 ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	10%	No	FAC
2.			
3.			
4.			
	10% = Total Cover		

Sapling/Shrub Stratum (Plot size: 2m)			
1.			
2. Salix exigua	15%	Yes	FACW
3.			
4.			
5.			
	15% = Total Cover		

Herb Stratum (Plot size: 1 m)			
1. Apocynum cannabinum	20%	Yes	FAC
2. Bromus inermis	5%	No	FACU
3. Equisetum laevigatum	2%	No	FACW
4. Elymus smithii	2%	No	FAC
5.			
6.			
7.			
8.			
	29% = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	29% = Total Cover		

% Bare Ground in Herb Stratum 30% % Cover of Biotic Crust 0

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		x 1 =
FACW species	17	x 2 = 34
FAC species	32	x 3 = 96
FACU species	5	x 4 = 20
UPL species		x 5 =
Column Totals:	54 (A)	150 (B)

Prevalence Index = B/A = 2.77

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:

SOIL

Sampling Point: 3A – wet

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/2	90	Gley 1/5GY	10-20			loamy/sand	

[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)
- X 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 Soil Present? Yes ✓ No ___

Remarks:

Clay pockets w/ gleying. Black organic matter. Lots of cobble. Does not match NRCS soil series description.

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): >6"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Pit located ~1.5 m from edge of river.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Aztec Pedestrian Bridge City/County: Aztec/San Juan Sampling Date: 6·12·12

Applicant/Owner: City of Aztec State: NM Sampling Point: 3B-up

Investigator(s): J. Nellessen + C. Hammum Section, Township, Range: S9 T30N R11W

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

Subregion (LRR): Interior deserts Lat: E 232833 Long: N 4080428 Datum: NAD83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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

* Are Vegetation yes, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (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 ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Soil is disturbed closeby where Russian olive have been cut down & uprooted, but not where pit was dug.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. None			
4.			
	____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 2m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Rosa woodsii	3%	No	FACU
2. Ulmus pumila	3%	No	UPL
3.			
4.			
5.			
	6 = Total Cover		

Herb Stratum (Plot size: 1m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elymus smithii	25%	Yes	FAC
* 2. Solidago sp.	10%	Yes	FAC
3. Bromus inermis	25%	Yes	FACU
4. Salsola tragus	0.5%	No	FACU
5.			
6.			
7.			
8.			
	60.5 = Total Cover		

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	—	x 1 =
FACW species	—	x 2 =
FAC species	35	x 3 = 105
FACU species	28.5	x 4 = 114
UPL species	3	x 5 = 15
Column Totals:	66.5 (A)	234 (B)

Prevalence Index = B/A = 3.5

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:

SOIL

Sampling Point: 3B-up

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/3	100	None				loamy sand	dry & powdery throughout column

[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 Soil Present? Yes ____ No ✓

Remarks: Dry & powdery. Does not match NRCS soil series description.

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): >12"

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): >12"

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: Aztec Bridge by Animas River City/County: Aztec/San Juan Sampling Date: 6·13·12

Applicant/Owner: City of Aztec State: NM Sampling Point: 4A – wet

Investigator(s): J. Nellessen + C. Hammum Section, Township, Range: S9 T30N R11W

Landform (hillslope, terrace, etc.): river bank Local relief (concave, convex, none): convex Slope (%): 3%

Subregion (LRR): Interior deserts Lat: 232838 Long: 4080489 Datum: NAD 83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (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 ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. None			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 2 m)			
1. Salix exigua	33%	Yes	FACW
2.			
3.			
4.			
5.			
	33 = Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Equisetum laevigatum	8%	Yes	FACW
2. Eleocharis palustris	20%	Yes	OBL
3. Xanthium strumarium	6%	No	FAC
4. Carex pellita	30%	Yes	OBL
5. Dactylis glomerata	15%	Yes	FACU
6.			
7.			
8.			
	79 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	50	x 1 = 50
FACW species	41	x 2 = 82
FAC species	6	x 3 = 18
FACU species	15	x 4 = 60
UPL species	—	x 5 =
Column Totals:	112 (A)	210 (B)

Prevalence Index = B/A = 1.88

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:

SOIL

Sampling Point: 4A – wet

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
16" top 12"	7.5 YR 2.5/2	70	Gley 1-4/10Y	30			clay loam	
bottom 4"	7.5 YR 5/1	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 Soil Present? Yes ✓ No ___

Remarks:
Black organic matter. Weak H_2S odor. Surface layer salt deposits.
Pit ~ 1.5 m from edge of water.
Does not match NRCS soil series description.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): 0

Water Table Present? Yes ___ No ✓ Depth (inches): >16"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2

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: Aztec Pedestrian Bridge & Hammond River City/County: Aztec / San Juan Sampling Date: 6·13·12

Applicant/Owner: City of Aztec State: NM Sampling Point: 4B - up

Investigator(s): J. Nilsson + C. Hammond Section, Township, Range: S9 T30N R11W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): Interior deserts ~~Lat:~~ E 232 843 ~~Long:~~ N 4080503 Datum: NAD83

Soil Map Unit Name: Turley clay loam NWI classification: PSS

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

Are Vegetation yes, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (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 ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: Area has been cleared of Russian olive & salt cedar. Some are re-sprouting.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
3.			
4.			
	_____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 2m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	5%	No	FAC
2. Tamarix sp.	1%	No	FAC
3.			
4.			
5.			
	6 = Total Cover		

Herb Stratum (Plot size: 1m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Equisetum laevigatum	1%	No	FACW
2. Bromus inermis	5%	Yes	FACU
3. Dactylis glomerata	10%	Yes	FACU
4. Descurainia sophia	2%	No	UPL
5. Amaranthus palmeri	2%	No	FACU
6. Salsola tragus	1%	No	FACU
7. Kochia scoparia	4%	No	FAC
8.			
	25 = Total Cover		

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust 0

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	—	x 1 =
FACW species	1	x 2 = 2
FAC species	10	x 3 = 30
FACU species	18	x 4 = 72
UPL species	2	x 5 = 10
Column Totals:	31 (A)	114 (B)

Prevalence Index = B/A = 3.6

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:

SOIL

Sampling Point: 4B – up

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2"	7.5 YR 3/3	90	7.5 YR 5/6	5	reduced Fe		sandy loam	reduced iron +
			7.5 YR 3/1	5	organic			
2-16"	7.5 YR 4/4	100	None				sandy loam	dark organic matter

[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 Soil Present? Yes ___ No ✓

Remarks: – Does not match NRCS soil series description.
Black organic matter in 0-2" layer.
A little moisture in 0-2" layer.
2-16" layer = dry & powdery.
0-2" layer has marginal hydric characteristics, but insufficient to classify as hydric.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): 0

Water Table Present? Yes ___ No ✓ Depth (inches): >16"

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): >16"

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: Aztec Bridge City/County: Aztec/San Juan Sampling Date: 6-13-12

Applicant/Owner: City of Aztec State: NM Sampling Point: 5A - wet

Investigator(s): J. Nellessen + C. Hammum Section, Township, Range: S9 T30N R 11W

Landform (hillslope, terrace, etc.): river edge Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR): Interior deserts Lat. E 232-892 Long. N 4082501 Datum: NAD 83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	_____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 2m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix exigua	25	yes	FACW
2.			
3.			
4.			
5.			
	25 = Total Cover		

Herb Stratum (Plot size: 1 m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Equisetum laevigatum	10	yes	FACW
2. Eleocharis palustris	10	yes	OBL
3. Dactylis glomerata	5	no	FACU
4. Schoenoplectus pungens	10	yes	OBL
5. Xanthium strumarium	2	no	FAC
6. Carex pellita	2	no	OBL
7.			
8.			
	39 = Total Cover		

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

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	22	x 1 = 22
FACW species	35	x 2 = 70
FAC species	2	x 3 = 6
FACU species	5	x 4 =
UPL species		x 5 =
Column Totals:	64 (A)	98 (B)

Prevalence Index = B/A = 1.53

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:

SOIL

Sampling Point: 5A - wet

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/2	85	7.5YR 3/1	10			sandy-loam	black organic matter
			7.5YR 4/4	5			w/cobbles	iron deposits

[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 Soil Present? Yes ✓ No ___

Remarks: low chroma with black organic matter and iron redox features rocky with cobbles some gleying Does not match NRCS soil series description.

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): >8

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: pit is located ≈ 2m from edge of water

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Aztec Bridge on Animas River City/County: Aztec / San Juan Sampling Date: 6.13.12

Applicant/Owner: State: NM Sampling Point: 5B - up

Investigator(s): J. Nelleson + C. Hammer Section, Township, Range: S9 T30N R11W

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

Subregion (LRR): Interior deserts Lat: E 232886 Long: N 4080525 Datum: NAD83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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? yes Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? no (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 ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: woody plants removed – Russian olive and salt cedar

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 2m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	10	yes	FAC
2. Tamarix spp.	2	no	FAC
3.			
4.			
5.			
	12 = Total Cover		

Herb Stratum (Plot size: 1m circle)	Absolute % Cover	Dominant Species?	Indicator Status
1. Dactylis glomerata	10	yes	FACU
2. Kochia scoparia	5	no	FAC
3. Chenopodium album	8	yes	FACU
4. Bromus inermis	8	yes	FACU
5. Lactuca serriola	1	no	FACU
6.			
7.			
8.			
	32 = Total Cover		

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
	____ = Total Cover		

58% litter

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	—	x 1 =
FACW species	—	x 2 =
FAC species	17	x 3 = 51
FACU species	27	x 4 = 108
UPL species	—	x 5 = —
Column Totals:	44 (A)	159 (B)

Prevalence Index = B/A = 3.6

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:

SOIL

Sampling Point: 5B – up

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 4/3	96	7.5YR 6/8	4	reoxidized	PL	gravelly loam	iron redox - reoxidized
2-16	7.5YR 4/3	100	none				loamy sand	

[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 Soil Present? Yes ___ No ✓

Remarks: iron redox features only in top 2 inches
no dark organic matter
more mottling in soil than 4B
soil very marginal, not hydric
Does not match NRCS soil series description.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): 0

Water Table Present? Yes ___ No ✓ Depth (inches): >16

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): >16

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: Aztec Ped. Bridge City/County: Aztec / San Juan Sampling Date: 6·13·12

Applicant/Owner: City of Aztec State: NM Sampling Point: 6A – wet

Investigator(s): Jim Hellberg + Chris Hannum Section, Township, Range: S9 T30N R11W

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

Subregion (LRR): Interior deserts ~~Lat:~~ E 232816 ~~Long:~~ N 4080497 Datum: NAD 83

Soil Map Unit Name: Lakes, rivers, reservoirs NWI classification: PSS

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? No Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (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 ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
3.			
4.			
	____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 2 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix exigua	60%	Yes	FACW
2.			
3.			
4.			
5.			
	60 = Total Cover		

Herb Stratum (Plot size: 1 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Dactylis glomerata	30%	Yes	FACU
2. Bromus inermis	5%	No	FACU
3. Mentha arvensis	5%	No	FACW
4. Carex pellita	5%	No	OBL
5. Aster falcatus	5%	No	FACU
6. Cirsium arvense	2%	No	FACU
7. Melilotus sp.	1%	No	FACU
8.			
	53 = Total Cover		

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
	____ = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	65	x 2 =	130
FAC species		x 3 =	
FACU species	43	x 4 =	172
UPL species		x 5 =	
Column Totals:	113 (A)		307 (B)

Prevalence Index = B/A = 2.72

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: although 1 vegetation test failed – it was on the cusp. coyote willow is dominant and shading out herbaceous wetland plants – coyote willow is prime indicator

SOIL

Sampling Point: 6A - wet

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5YR 4/2	99	7.5YR 5/6	1	iron		clay loam	redoxhydrogel Fe

[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 Soil Present? Yes ✓ No ___

Remarks:

Some black organic matter & gleying.
Redox features + organic matter + low chroma
Does not match NRCS soil series description.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): 0

Water Table Present? Yes ___ No ✓ Depth (inches): >16"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 10"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Aztec Bridge City/County: Aztec/San Juan Sampling Date: 6.13.12
Applicant/Owner: City of Aztec State: NM Sampling Point: 6B-up
Investigator(s): J. Nellessen + C. Hammum Section, Township, Range: S9 T30N R11W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 4
Subregion (LRR): Interior deserts Lat: E 232821 Long: N 4080517 Datum: NAD83
Soil Map Unit Name: Turley clay loam NWI classification: PSS
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation yes, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (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 ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks: Russian olive & salt cedar have been cleared from site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	20%	Yes	FAC
2. Salix alba	15%	Yes	FACW
3.			
4.			
	35	= Total Cover	

Sapling/Shrub Stratum (Plot size: 2 m)			
1.			
2.			
3. None			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 1 m)			
1. Bromus inermis	5%	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1.			
2. None			
		= Total Cover	

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

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	—	x 1 =
FACW species	15	x 2 = 30
FAC species	20	x 3 = 60
FACU species	5	x 4 = 20
UPL species		x 5 =
Column Totals:	40 (A)	110 (B)

Prevalence Index = B/A = 2.75

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: Ground is mostly litter-covered. Vegetation is riverine woody species, plus Salix alba is a non-native introduced species

SOIL

Sampling Point: 6B - up

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/3	100	None				Sandy 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 Soil Present? Yes ___ No ✓

Remarks:
Soil is crumbly, dry. Lots of roots in soil column.
Does not match NRCS soil series description.

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): >12"

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): >12"

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

Appendix C

Representative Photos of Wetlands and Waters of the U.S.

Photograph 1. Emergent vegetation in Wetland 1 on east side of Animas River

Photograph 2. Soil pit 3A on the east side of the Animas River

Photograph 3. View of Wetland 2 on the northwest side of the Animas River

Photograph 4. Soil pit 5A on the northwest side of the Animas River

Photograph 5. View of the proposed pedestrian bridge location

Photograph 6. View of area cleared for bridge abutment bore hole on southeast side of Animas River

Photograph 7. View of area cleared for bridge abutment bore hole on northwest side of Animas River