

**US 50 West: Purcell Boulevard to Wills Boulevard (Milepost 309 to
Milepost 313) and McCulloch Boulevard Intersection
Improvements (Milepost 307)**

Project Number: STA 050A-022
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Wetland Delineation Technical Report

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List of Acronyms and Abbreviations

Ave.	Avenue
Blvd.	Boulevard
CDOT	Colorado Department of Transportation
CFR	Code of Federal Regulations
EA	Environmental Assessment
FACU	Facultative Upland
FACW	Facultative Wetland
FHWA	Federal Highway Administration
GIS	geographic information system
NRCS	Natural Resource Conservation Service
OBL	Obligate wetland
OHWM	ordinary high water mark
PBS-1	Pueblo Boulevard South-1
PEL	Planning and Environmental Linkages
Rd.	Road
ROW	right-of-way
SB 40	Senate Bill 40
TNW	Traditional Navigable Water
UPL	Upland
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USC	United States Code
USFWS	United States Fish and Wildlife Service
WCN-1	Williams Creek North-1
WCS-1	Williams Creek South-1
WHDC	Wild Horse Dry Creek-1
WUS	waters of the US

1. Introduction

The Colorado Department of Transportation (CDOT) is conducting an Environmental Assessment (EA) for proposed improvements to US Highway 50 (US 50) from Purcell Boulevard (Blvd.) to Wills Blvd. and the intersections of US 50 and Purcell Blvd., Pueblo Blvd., and McCulloch Blvd. (i.e., US 50 West EA) (**Figure 1** and **Figure 2**).

The Proposed Action includes elements of the recommended Preferred Alternative identified in the *US 50 West Planning and Environmental Linkages (PEL) Study (US 50 West PEL Study)* (2012a). The PEL recommended Preferred Alternative identified improvements to address peak-hour congestion and above average crash rates along US 50 from Swallows Road (Rd.) to Baltimore Avenue (Ave.) (**Figure 3**). Appendix A2, *US 50 West PEL Study* (CDOT, 2012a), and A3 of the EA, *US 50 West Implementation Plan* (CDOT, 2012b), include additional information on the PEL Preferred Alternative.

This wetland delineation has been prepared in support of the US 50 West EA. This wetland delineation technical report describes the waters of the US (WUS), including wetlands and open water, within and adjacent to the project, and evaluates the potential for impacts as a result of the Proposed Action and No Action Alternative.

1.1 Project Description

1.1.1 Proposed Action

The Proposed Action would include widening 3.4 miles of US 50 to include a third eastbound lane from Purcell Blvd. to Wills Blvd. The Proposed Action would also provide intersection improvements at the Purcell Blvd./US 50, Pueblo Blvd./US 50, and McCulloch Blvd./US 50 intersections (**Figure 1** and **Figure 2**). The intersection improvements at Purcell Blvd. and McCulloch Blvd. would modify the northbound to eastbound turn lane geometry to US 50, and add a channelizing curb island for improved traffic flow and pedestrian/bicycle refuge. Intersection improvements at Pueblo Blvd./US 50 would include an eastbound through lane, an eastbound deceleration lane and ramp onto Pueblo Blvd., and a northbound ramp and acceleration lane onto eastbound US 50. The proposed improvements would also include widening the eastbound bridge at Wild Horse Dry Creek (CDOT Structure K-18-CW). The bridge improvements would include extending the existing piers within the Wild Horse Dry Creek drainage area, adding a third eastbound lane, and incorporating a multi-use pedestrian/bicycle trail on the bridge to accommodate a proposed future multi-use trail on the southbound side of US 50. The multi-use trail would be a separate project to be built by others. The Proposed Action would also include drainage improvements and water quality features.

The proposed transportation and water quality improvements would be constructed within the existing CDOT right-of-way (ROW). Permanent easements for drainage would be required in three locations adjacent to CDOT ROW. The main text and figures of the EA provide additional detail about the Proposed Action, while Appendix A1 of the EA includes project drawings.

1.1.2 No Action Alternative

The No Action Alternative would include any transportation projects that have not been built, but for which funding has been committed. As identified in the *US 50 West PEL Study* (CDOT, 2012a), the No Action Alternative assumes that no major capacity improvements would occur along US 50 from Swallows Rd. to Baltimore Ave. (CDOT, 2012a). However, the No Action Alternative would include routine maintenance to keep the existing transportation network in good operating condition. The main text of the EA provides additional detail about the No Action Alternative.

2. Methods

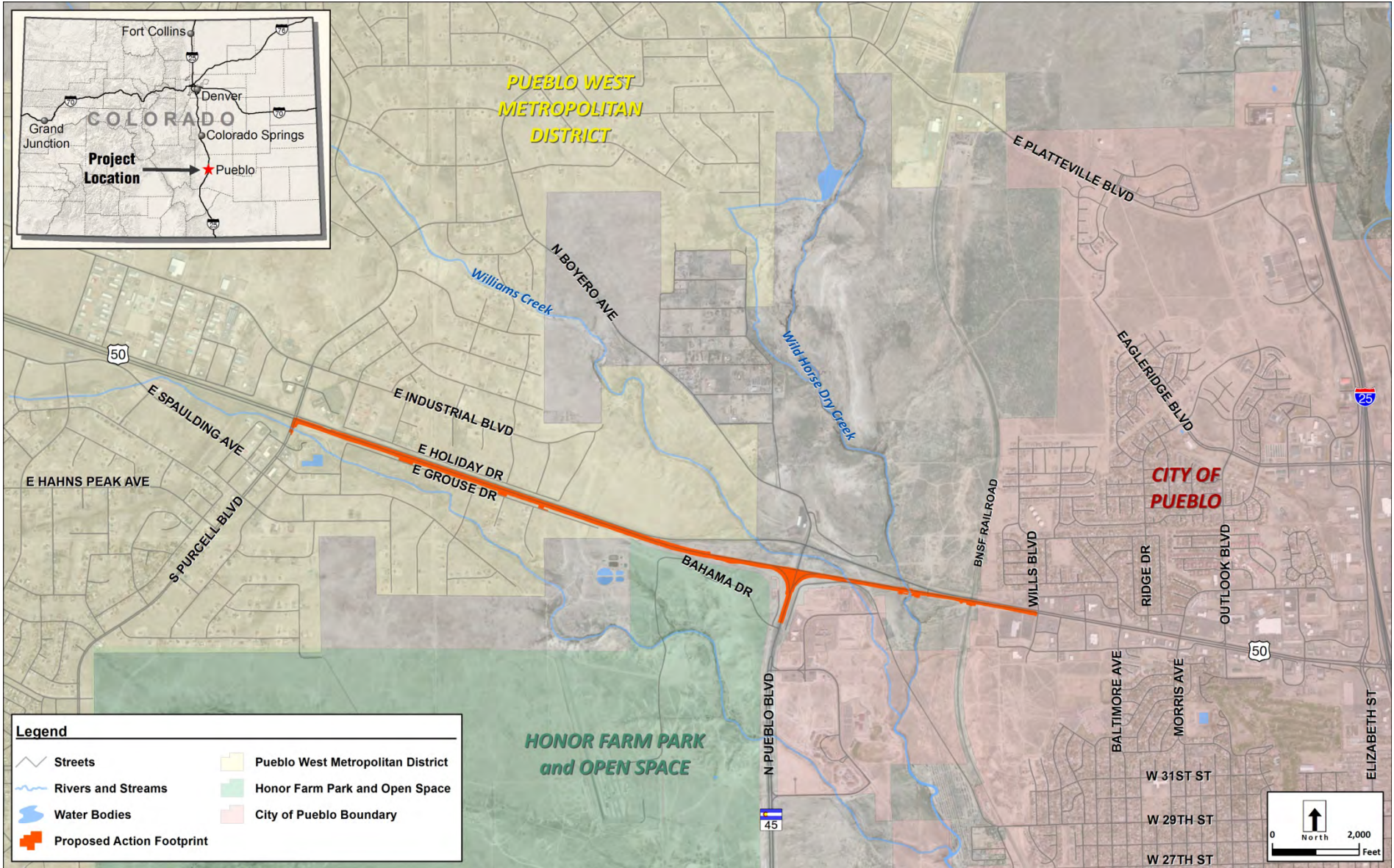
The project team reviewed previous environmental studies conducted in the project vicinity, reviewed existing environmental data, and conducted a wetland delineation to gather information on wetlands within and adjacent to the project footprint (wetland resources study area). The project team also completed an impact assessment for the Proposed Action and No Action Alternative, as discussed in **Section 5**.

The wetland delineation from the *US 50 West PEL Study* (2012a) was used to identify baseline wetland information. The project team conducted an updated wetland delineation on June 3, 2013, which was based on the latest *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Version 2.0) (USACE, 2010).

During the field survey on June 3, 2013, the project team collected the wetland boundaries using a Trimble® GeoXH™ global positioning system with ESRI® ArcPad™ version 10.0 mobile geographic information system (GIS). The project team then analyzed the data in the office using ESRI® ArcMap™ GIS v.10. **Appendix A** includes photographs of the study area and illustrates the conditions of wetland and open water areas in June and July 2013. The project team used the latest wetland determination forms to document wetlands identified during the June 2013 field survey for the US 50 West EA (**Appendix B**).

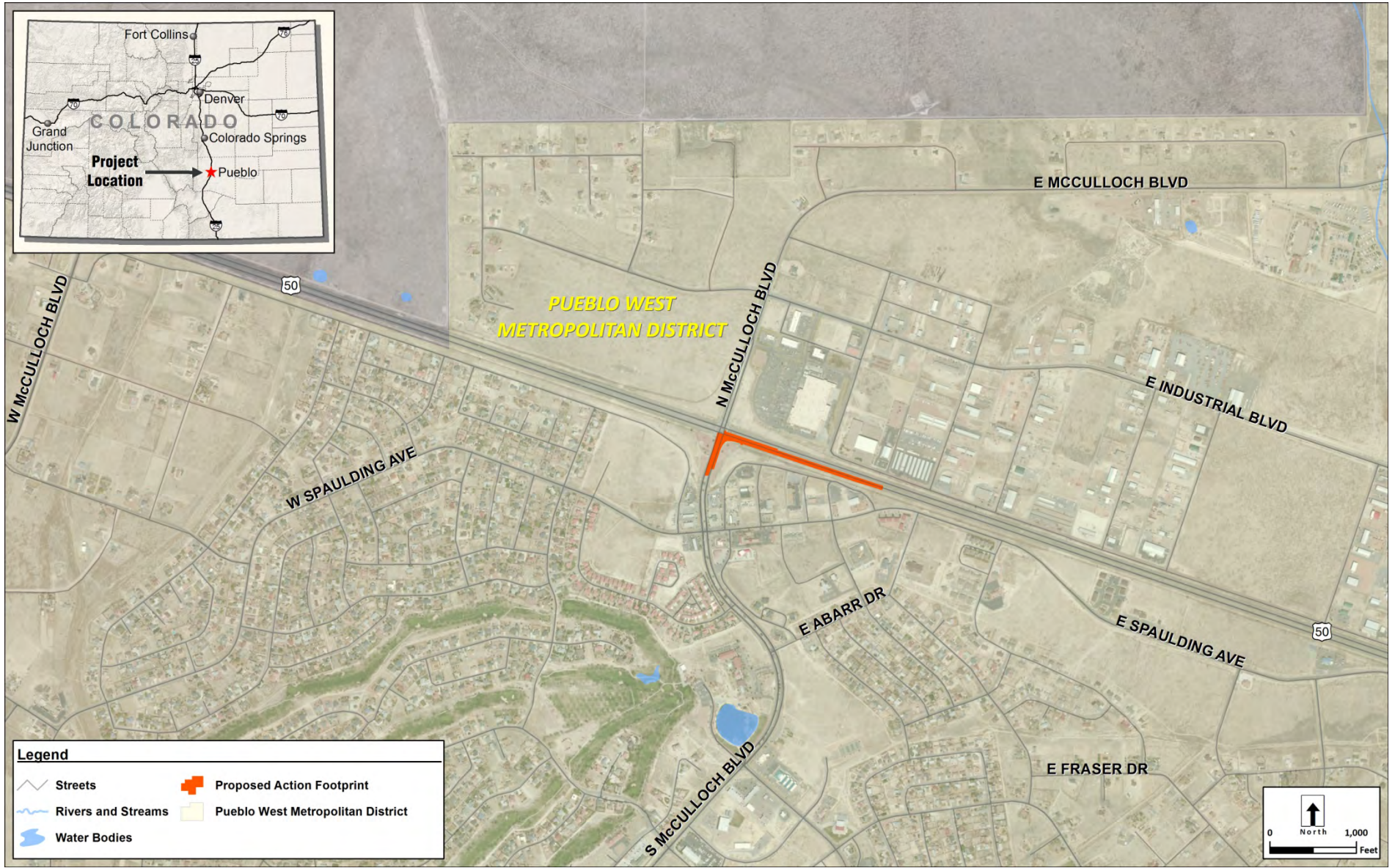
50 US 50 West Environmental Assessment

Figure 1. Proposed Action – Purcell Boulevard to Wills Boulevard



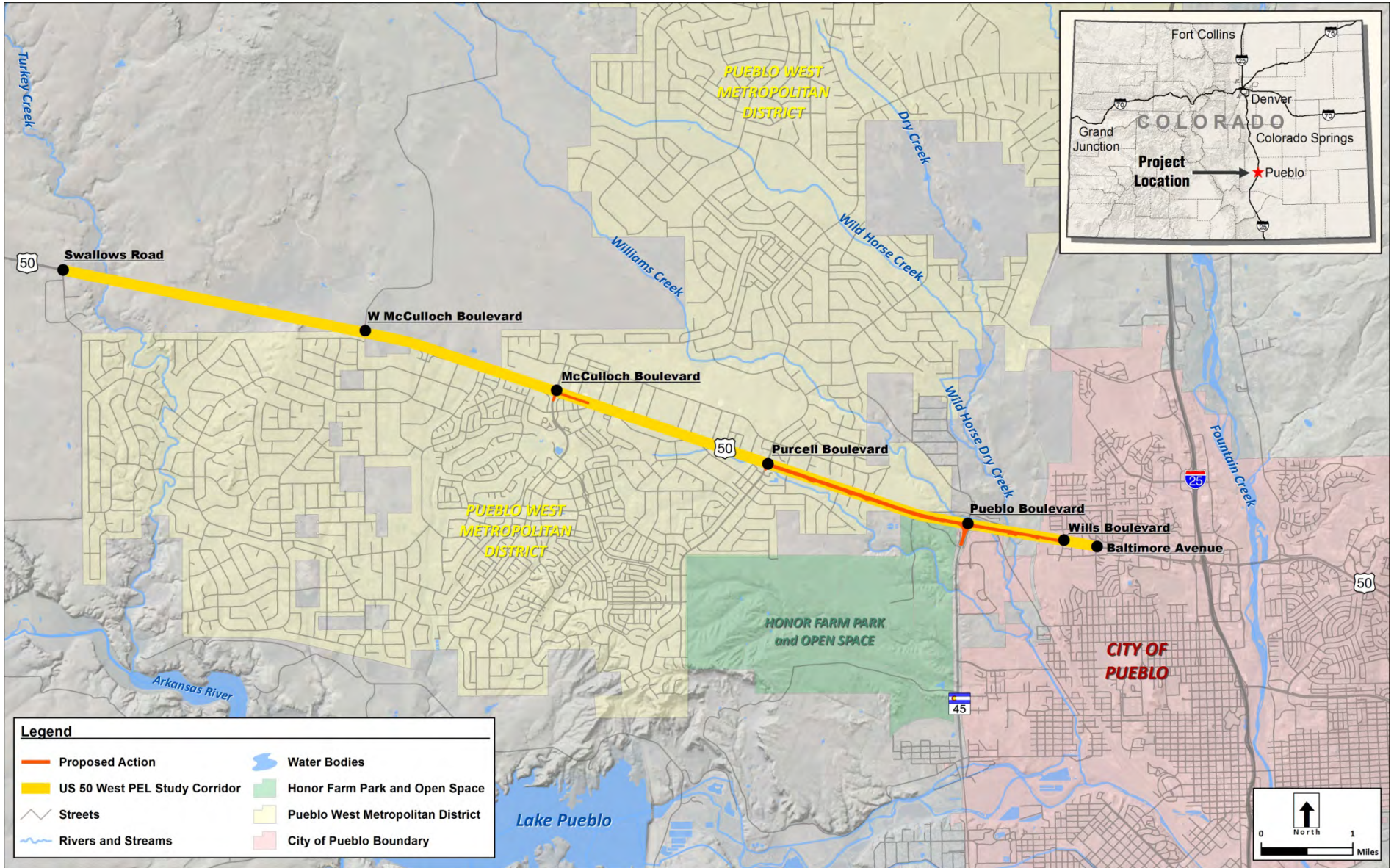
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Figure 2. Proposed Action – McCulloch Boulevard / US 50 Intersection



50 US 50 West Environmental Assessment

Figure 3. US 50 West PEL Study Corridor



3. Results

3.1 Environmental Setting

The approximate center of the project is located in Pueblo County in the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 9, Township 2 South, Range 65 West (Lat 38.318 and Long -104.678). Land use surrounding US 50 in the study area is predominantly rangeland with scattered residential and commercial development. Commercial development focuses on the four major arterial roads: McCulloch Blvd., Purcell Blvd., Pueblo Blvd., and Wills Blvd., and in the southwest corner of the McCulloch Blvd./Purcell Blvd. intersection. The Burlington Northern Santa Fe (BNSF) railroad also crosses US 50 within the study area.

The study area lies within both the Dry Creek watershed and the Wild Horse Creek watershed, which are both within the Upper Arkansas River Basin. Williams Creek and Wild Horse Dry Creek cross US 50 at the Pueblo Blvd. intersection. Williams Creek flows from northwest to southeast and passes under the highway and under Pueblo Blvd. Wild Horse Dry Creek also flows from northwest to southeast and passes under the highway to the east of Pueblo Blvd. An un-named tributary to Williams Creek also exists south of US 50 and crosses under Purcell Blvd. in a narrow channelized ditch.

The natural setting within the study area is disturbed by surrounding commercial development, residential development, recreational off-road vehicle use, utility corridors, noxious weeds, and a highly traveled highway. Most of the project corridor has limited habitat to support wildlife species; however, the Williams Creek and Wild Horse Dry Creek drainages provide habitat for various species. Also, prairie dog colonies are present throughout the study area.

Common vegetation present in the study area includes grasses, forbs, shrubs, and trees. Vegetation includes buffalograss (*Bouteloua dactyloides*), purple milkvetch (*Astragalus agrestis*), common threesquare (*Schoenoplectus pungens*), common spikerush (*Eleocharis palustris*), creeping bentgrass (*Agrostis stolonifera*), narrowleaf cattail (*Typha angustifolia*), tamarisk (*Tamarix chinensis*), golden currant (*Ribes aureum*), sandbar willow (*Salix interior*), plains cottonwood (*Populus deltoides*), and Siberian elm (*Ulmus pumila*).

Williams Creek and Wild Horse Dry Creek pass under US 50 from northwest to southeast in the study area. These two creeks are lined with tamarisk, Canada thistle (*Cirsium arvense*), and other vegetation similar to the vegetation identified throughout the study area. Common spikerush was also found within the ordinary high water mark (OHWM) channel in both creeks. The wetlands identified at Wild Horse Dry Creek, other than the vegetation in the channel, are fringe wetlands (between 1 and 2-feet wide) on a shelf above the channel. The wetlands identified at Williams Creek are found in a depressional area. The wetlands found at the Williams Creek tributary are within the channel/depressional area.

No wetlands were found at the intersection of McCulloch Blvd. and US 50. Formal landscaping was added to the two south quadrants of the intersection, which mark the gateway to Pueblo West. The landscaping consists of large beds of crushed red gravel, with clumps of shrubs and evergreen trees. The northern two quadrants of the intersection were not landscaped in the past and have very little vegetation and are dominated by prairie dog colonies.

3.2 Summary of Wetlands

Five wetland areas (Purcell Wetland, Williams Creek North-1 [WCN-1], Williams Creek South-1 [WCS-1], Pueblo Boulevard South-1 [PBS-1], and Wild Horse Dry Creek-1 [WHDC-1]) were identified in the study area (**Table 1** and **Figure 4**).

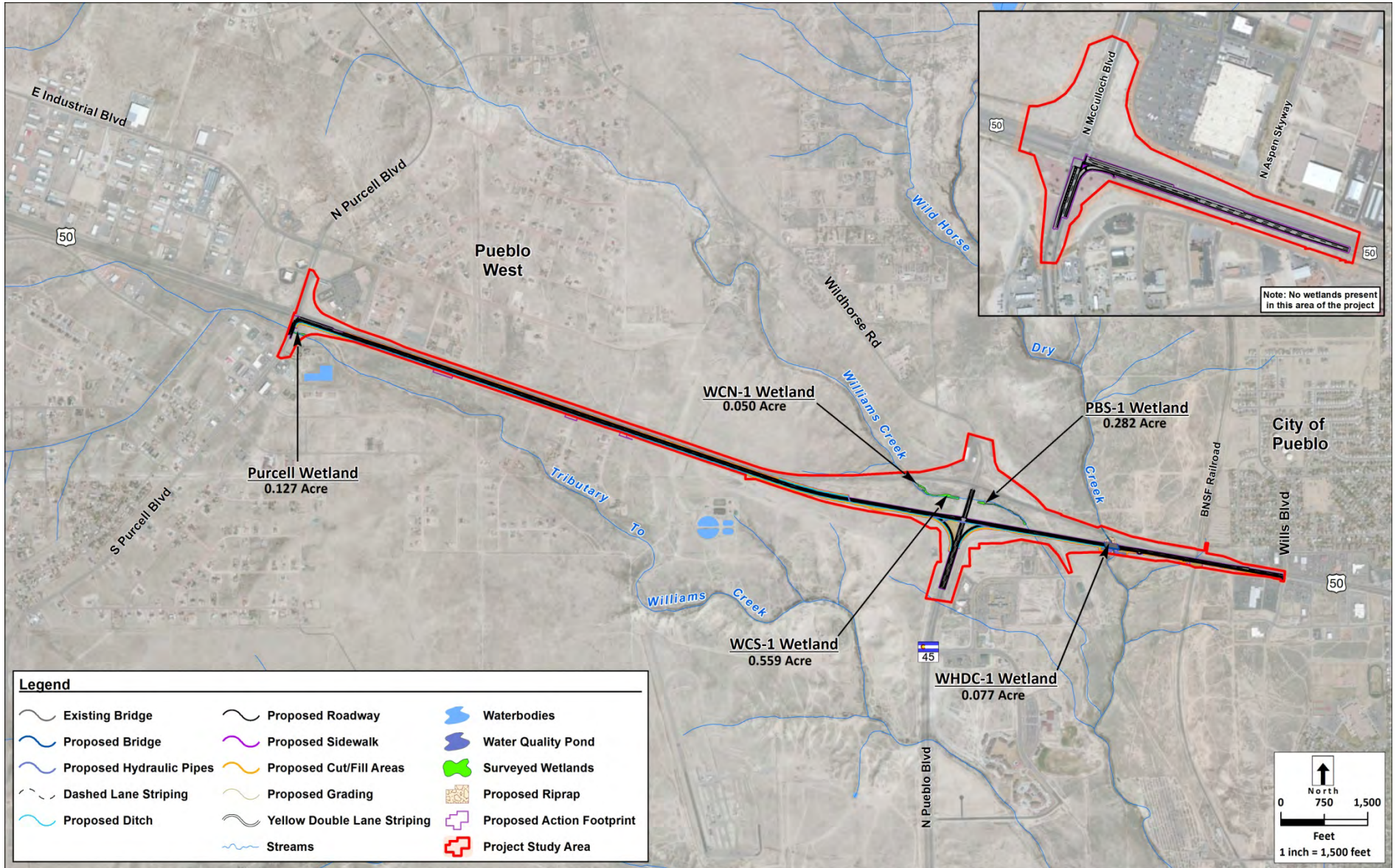
Table 1. Summary of Wetlands in the Study Area

Wetland ID	Existing Area (acres)
Purcell Wetland	0.127
Williams Creek North-1 (WCN-1)	0.050
Williams Creek South-1 (WCS-1)	0.559
Pueblo Boulevard South-1 (PBS-1)	0.282
Wild Horse Dry Creek-1 (WHDC-1)	0.077 (4 separate areas)
TOTAL	1.095

The Purcell Wetland is located in the Williams Creek tributary southwest of the US 50 and Purcell Blvd. intersection. Wetlands WCN-1, WCS-1, and PBS-1 are found in or adjacent to Williams Creek near the US 50 and Pueblo Blvd. intersection. Wetland WHDC-1 is found underneath US 50 at Wild Horse Dry Creek, east of Pueblo Blvd. All of these wetlands have very distinct boundaries within the narrow floodplain/drainage areas. The following sections present more detail on each wetland/wetland group identified in the study area.

50 US 50 West Environmental Assessment

Figure 4. Surveyed Wetlands Overview



3.3 Purcell Wetland

The project team identified and delineated one wetland area associated with the Williams Creek tributary, which flows in a west-to-east direction, is located south of US 50, and crosses underneath Purcell Blvd. (**Figure 1, Figure 4, and Appendix C**). The wetland area is completely within a depression, in and adjacent to, a very narrow channel. The vegetation that was present during the June 2013 field survey varies between 5 feet and 10 feet in width and extends upstream and downstream outside the study area. The size of this wetland is 0.127 acre. The project team completed one wetland determination form for the wetland described as Purcell Wetland. This form is in **Appendix B**.

The Purcell Wetland is categorized as being a palustrine emergent wetland that is seasonally flooded. The soils in this area, which are Niobrara shale, are higher in selenium and exhibit other alkaline properties. Under the Cowardin classification system, the Purcell Wetland is considered to be PEMAi, with the “i” indicating the alkaline content in the water (Cowardin et al., 1979). The characteristics of this wetland are described below and are shown as Purcell Wetland on **Figure 4** and in detail (1” = 100’) in **Appendix C**.

Purcell Wetland: Vegetation

Weeds dominate the vegetation identified in the Purcell Wetland, including common reed (*Phragmites australis*) and tamarisk. The project team also identified narrowleaf cattail as another dominant plant located in and adjacent to the Williams Creek tributary channel during the June 2013 field survey. No trees were identified in this area. The common reed and the narrowleaf cattail, which are the dominant species, account for 60 percent of the herb stratum. Canada thistle is also present but to a much lesser extent. Tamarisk accounts for 40 percent in the sapling/shrub stratum. The Dominance Test was passed; therefore, the wetland consists of hydrophytic vegetation. The upland vegetation surrounding the wetland consists of buffalograss, rubber rabbitbrush (*Ericameria nauseosa*), fourwing saltbrush (*Atriplex canescens*), other grasses, and noxious weeds.

Purcell Wetland: Hydrology

Hydrology in the Purcell Wetland consists of intermittent surface flow as a tributary to Williams Creek, which collects storm water and carries it in a highly channelized narrow channel to Williams Creek downstream. The primary hydrologic indicators observed include the presence of surface water at the box culvert under Purcell Blvd. and saturation. The one secondary indicator is the geomorphic position. Therefore, wetland hydrology is present at the Purcell Wetland.

Purcell Wetland: Soils

Before conducting the field survey, the project team downloaded a Web Soil Survey that identified the soil types in the area. Soil types include Heldt silty clay loam, Manvel silt loam, Minnequa-Manvel loams, Penrose-Minnequa complex, Penrose-Rock outcrop complex, and Shingle silty clay loams (NRCS, 2013). During the field survey, the project team dug a soil pit to investigate the soil profile in the Purcell Wetland. Within the first 4 inches of the surface, the soil color consists of 10 YR 4/3. Below these 5 inches of clay loam, there is another 5 inches of clay loam of 2.5 YR 5/2 as the dominant color with 80 percent in the matrix. The second soil color (20 percent) in this matrix had a color consisting of 2.5 YR 5/1. The soils at the Purcell Wetland were problematic due

to a deeply incised channel and young soils. Soils at this location were assumed hydric due to the presence of wetland vegetation and hydrology.

3.4 Wetlands WCN-1, WCS-1, and PBS-1

The project team identified and delineated three wetland areas associated with the Williams Creek drainage, which flows in a northwest-to-southeast direction and is located in the area of the US 50/Pueblo Blvd. intersection (**Figure 4** and **Appendix C**). Williams Creek crosses underneath Pueblo Blvd. in a concrete box culvert in this area. The wetland areas identified during the June 2013 field survey are completely within a depression in and adjacent to a very narrow channel. The vegetation that is present varies between 3 feet and 50 feet in width and extends upstream and downstream outside the study area. The size of these wetlands combined is 0.891 acre. The project team compiled an “in-point” and an “out-point” wetland determination form for each wetland identified as WCN-1, WCN-2, WCS-1, WCS-2, PBS-1, and PBS-2, which are provided in **Appendix B**.

All wetlands identified in the Williams Creek drainage are categorized as being palustrine emergent wetlands that are seasonally flooded (USFWS, 2013). The soils in this area (Niobrara shale) are higher in selenium and other alkaline properties and exhibited a rotten egg smell the day of the survey. Under the Cowardin classification system, the wetlands here are considered to be PEMAi, with the “i” indicating the alkaline content in the water (Cowardin et al., 1979). Wetland characteristics are described below and are shown as Wetland WCN-1, Wetland WCS-1, and Wetland PBS-1 on **Figure 4** and in detail (1” = 100’) in **Appendix C**.

Wetlands WCN-1, WCS-1, and PBS-1: Vegetation

Table 2 identifies the dominant vegetation for Wetland WCN-1, Wetland WCS-1, and Wetland PBS-1 for each wetland “in-point” sampling area, including the dominant vegetation, wetland vegetation indicator status, and the results of the Dominance Test. **Appendix B** includes information on the dominant vegetation in the “out-point” sampling areas.

The Dominance Test was passed for all three wetlands; therefore, these wetlands consist of hydrophytic vegetation. The upland vegetation surrounding the wetlands consists of buffalograss, rubber rabbitbrush, fourwing saltbrush, other grasses, and noxious weeds.

Table 2. Surveyed Vegetation in the Williams Creek Wetlands

Common Name	Species Name	Indicator Status	Wetland WCN-1	Wetland WCS-1	Wetland PBS-1
Herb Stratum					
Kochia	<i>Bassia scoparia</i>	FACU			X
Canada thistle	<i>Cirsium arvense</i>	FACU			X
Common spikerush	<i>Eleocharis palustris</i>	OBL	X	X	
Common threesquare	<i>Schoenoplectus pungens</i>	OBL			X
Creeping bentgrass	<i>Agrostis stolonifera</i>	FACW	X	X	
Narrowleaf cattail	<i>Typha angustifolia</i>	OBL	X	X	X
Purple milkvetch	<i>Astragalus agrestis</i>	FACU			X

Common Name	Species Name	Indicator Status	Wetland WCN-1	Wetland WCS-1	Wetland PBS-1
Sapling/Shrub Stratum					
Golden currant	<i>Ribes aureum</i>	FACU	X	X	X
Russian olive	<i>Elaeagnus angustifolia</i>	FACU		X	
Sandbar willow	<i>Salix interior</i>	FACW			X
Tamarisk	<i>Tamarix chinensis</i>	FACW	X	X	X
Tree Stratum					
Siberian elm	<i>Ulmus pumila</i>	UPL			X
Dominance Test Score			80%	75%	60%

Wetland Vegetation Indicator Key: OBL – Obligate wetland, FACW – Facultative Wetland, FACU – Facultative Upland, UPL – Upland

Wetlands WCN-1, WCS-1, and PBS-1: Hydrology

Hydrology in Wetland WCN-1, Wetland WCS-1, and Wetland PBS-1 consists of perennial surface flow as part of Williams Creek, which carries water from the northwest to the southeast in a depression or an arroyo and which eventually empties into Wild Horse Dry Creek and then into the Arkansas River further downstream. The primary hydrologic indicators include the presence of surface water and saturation in all three wetlands. Another primary indicator and two secondary indicators in Wetlands WCN-1 and WCS-1 include an algal mat or crust, geomorphic position, and drainage patterns. A third primary indicator, drift deposits, was also observed at Wetland PBS-1.

Wetlands WCN-1, WCS-1, and PBS-1: Soils

Before conducting the field survey, the project team downloaded a Web Soil Survey that identified the soil types in the area. Soil types include Heldt silty clay loam, Manvel silt loam, Minnequa-Manvel loams, Penrose-Minnequa complex, Penrose-Rock outcrop complex, and Shingle silty clay loams (NRCS, 2013). During the field survey, the project team dug a soil pit to investigate the soil profiles in these three wetlands. **Table 3** identifies each hydric soil property in the “in-point” sampling locations at each wetland site. Refer to **Appendix B** for additional information about soils captured on the wetland determination forms and the “out-point” soil properties.

The soil profiles in Wetlands WCN-1 and WCS-1 have a hydric soil indicator of sandy redox. Therefore, these soils are considered hydric soils. The soil profiles in Wetland PBS-1 are problematic due to indications that there were recent fluvial deposits. Due to the soils being recently deposited here, hydric soil characteristics have not had enough time to form. Hydric soils are assumed for Wetland PBS-1 due to the presence of wetland vegetation and wetland hydrology.

Table 3. Wetlands WCN-1, WCS-1, and PBS-1 Soil Profiles

Soil Depth	Soil Color	Percent of Matrix	Soil Texture	Remarks
WCN-1				
0 - 5"	10 YR 5/2	70%	Sandy Loam	
0 - 5"	7.5 YR 5/6	5% Redox	Sandy Loam	
0 - 5"	10 YR 3/1	25%	Sandy Loam	Restricted at 5"
WCS-1				
0 - 5"	10 YR 5/2	70%	Sandy Loam	
0 - 5"	7.5 YR 5/6	5% Redox	Sandy Loam	
0 - 5"	10 YR 3/1	25%	Sandy Loam	Restricted at 5"
PBS-1				
0 - 5"	2.5 YR 4/2	100%	Sandy Clay	
5" - 8"	2.5 YR 4/2	100%	Sandy Clay	Saturated

3.5 Wetland WHDC-1

The project team identified and delineated one wetland area associated with Wild Horse Dry Creek, which flows in a northwest-to-southeast direction and is located east of Pueblo Blvd. and crosses underneath the westbound and eastbound US 50 bridges in this area. The wetland area is completely within a depression in and adjacent to a very narrow channel. The vegetation that is present varies between 1 foot and 4 feet in width and extends upstream and downstream outside the study area. The size of four separate wetland features associated with Wetland WHDC-1 combined is 0.077 acre. The project team compiled one “in-point” wetland determination form and one “out-point” wetland determination form for Wetland WHDC-1 (**Appendix B**).

Wetland WHDC-1 is categorized as being a palustrine emergent wetland that is intermittently flooded/temporary (USFWS, 2013). The soils in this area (Niobrara shale) are higher in selenium and other alkaline properties. Under the Cowardin classification system, the wetland here is considered to be PEMAi, with the “i” indicating the alkaline content in the water (Cowardin et al., 1979).

The characteristics of this wetland are described below and are shown as Wetland WHDC-1 on **Figure 4** and in detail (1” = 100’) in **Appendix C**.

Wetland WHDC-1: Vegetation

Creeping bentgrass and tamarisk dominate the vegetation identified in Wetland WHDC-1 and account for 40 percent of the herb stratum and 30 percent of the sapling/shrub stratum, respectively. No trees were identified in this area. The Dominance Test was passed; therefore, the wetland consists of hydrophytic vegetation. The upland vegetation surrounding the wetland consists of buffalograss, rubber rabbitbrush, fourwing saltbrush, and other grasses. Two other noxious weeds, perennial pepperweed (*Lepidium latifolium*) and hoary cress (*Cardaria draba*), are also present in dense populations.

Wetland WHDC-1: Hydrology

Hydrology in Wetland WHDC-1 consists of perennial surface flow as part of Wild Horse Dry Creek, which is a perennial stream. The primary hydrologic indicators include the presence of surface water, saturation, an algal mat or crust, and a salt crust. Two secondary indicators were observed: the geomorphic position and drainage patterns. Therefore, wetland hydrology is present at Wetland WHDC-1.

Wetland WHDC-1: Soils

Before conducting the field survey, the project team downloaded a Web Soil Survey that identified the soil types in the area. Soil types include Heldt silty clay loam, Manvel silt loam, Minnequa-Manvel loams, Penrose-Minnequa complex, Penrose-Rock outcrop complex, and Shingle silty clay loams (NRCS, 2013). During the field survey, the project team environmental scientists dug a soil pit to investigate the soil profile in Wetland WHDC-1. Within the first 5 inches of the surface, the soil consists of a dominant (70 percent) color of 10 YR 5/2, with 5 percent of the matrix showing that redox features are apparent (7.5 YR 5/6). The other 25 percent of the matrix shows a color of 10 YR 3/1. Because this soil profile has a hydric soil indicator of sandy redox, this soil is considered a hydric soil.

3.6 Waters of the US and Jurisdictional Status

The definition of WUS under U.S. Army Corps of Engineers (USACE) jurisdiction does not include wetlands that lack a surface connection to and, therefore, are isolated from, regulated waters. However, in projects with federal funding or oversight, such as this Project, a second piece of legislation, Executive Order 11990 Protection of Wetlands, directs the lead federal agencies, in this instance FHWA, to protect isolated wetlands by avoiding direct or indirect support of construction in wetlands when a practicable alternative is available.

The tributary to Williams Creek, Williams Creek, and Wild Horse Dry Creek would potentially be considered WUS within the Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328). The specific WUS indicators include relatively permanent waters (RPWs) that flow directly or indirectly into a Traditional Navigable Water (TNW) and wetlands directly abutting RPWs that flow directly or indirectly into TNWs (USACE, 2007). Wetlands WCN-1, WCS-1, PBS-1, and WHDC-1 would likely be considered jurisdictional wetlands.

4. Impacts

This section describes the impact assessment of the Proposed Action and the No Action Alternative on the wetland resources identified in the study area. Impacts of highway improvements on wetlands, whether from the Proposed Action or No Action Alternative, can result from:

- Placement of fill within a wetland boundary
- Soil disturbance
- Vegetation removal
- Changing hydrology
- Pollutant discharge
- Changing adjacent land use

Permanent impacts can be defined as changes to vegetation, hydrology, or soils that lead to a change in the presence of wetlands. Permanent impacts from the Proposed Action were evaluated based on the project design footprint and included the areas of ground disturbance from the following project elements:

- Addition of a third eastbound lane and intersection improvements at Purcell Blvd./US 50 and McCulloch Blvd./US 50
- Bridge widening, including pier work, at Wild Horse Dry Creek
- Placement of riprap for erosion control
- Drainage outfall structures

A temporary impact can be defined as a change to at least one of the wetland characteristics (vegetation, hydrology, or soils), but can later be restored to a pre-construction condition at the same location. Temporary impacts from the Proposed Action were evaluated based on the areas of ground disturbance that will be reseeded and re-vegetated following construction and included a 10-foot buffer around the construction footprint.

There are no permanent or temporary wetland impacts due to the Proposed Action and No Action Alternative.

Refer to **Appendix C, Figure C-5**, for a detailed view of the Proposed Action in the area of the Wild Horse Dry Creek drainage.

5. Mitigation

CDOT mitigates wetlands that have been determined to be jurisdictional and non-jurisdictional by the USACE. There are no formal wetland mitigation requirements on Wild Horse Dry Creek based on the lack of impacts; however, CDOT will implement best management practices to avoid any erosion or other indirect impacts to wetlands identified in the study area. Also, due to the presence of thick stands of tamarisk along Wild Horse Dry Creek, CDOT determined that the project would benefit from vegetation enhancement/restoration along Wild Horse Dry Creek as part of the US 50 West Project. The vegetation enhancement/restoration strategy at Wild Horse Dry Creek involves removing tamarisk along Wild Horse Dry Creek and replanting with a combination of sandbar willow, other shrubs, and a grass seed-mix. CDOT will address the vegetation enhancement/restoration strategy in accordance with specification 214 (Planting) of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2011a). This vegetation restoration/enhancement strategy is being implemented in an effort to improve the overall quality of vegetation in this drainage. Refer to Appendix A8 *US 50 West Biological Resources Report* (CDOT, 2014a) and Appendix A9 *US 50 West Senate Bill 40 Formal Wildlife Certification Report* (CDOT, 2014b) for additional information on the noxious weed management plan in the Wild Horse Dry Creek drainage.

6. Conclusions

This technical report summarizes the delineation of wetlands in support of the US 50 West EA. Five wetland areas were identified, three of which are associated with Williams Creek, one of which is associated with a tributary to Williams Creek near Purcell Blvd., and one of which is associated with Wild Horse Dry Creek. **Table 1** and **Figure 4** include an overview of the wetlands identified in the study area. The Proposed Action would not affect any of the identified wetlands. If wetland impacts are identified as the project design is completed, the project team will complete any additional reporting and CDOT will prepare a notification to the USACE.

7. References

- Colorado Department of Transportation (CDOT). 2012a. *US 50 West Planning and Environmental Linkages (PEL) Study*. June.
- . 2012b. *US 50 West Implementation Plan*.
- . 2014a. *US 50 West Biological Resources Report*. February.
- . 2014b. *US 50 West Senate Bill 40 Formal Wildlife Certification Report*. February.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitat of the United States*. FWS/OBS-79/31. US Fish and Wildlife Service (USFWS). Washington, D.C.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, U.S. Army Corps of Engineer Waterways Experiment Station. Vicksburg, MS.
- Munsell Soil Color Charts. 1998. Revised Edition. Munsell Color, New Windsor, NY.
- Natural Resource Conservation Service (NRCS). 2013. Custom Soil Resource Report for Pueblo County, Colorado. <http://websoilsurvey.sc.egov.usda.gov> Downloaded July 2013.
- United States Army Corps of Engineers (USACE). 2007. Regulatory Guidance Letter. No. 07-02. Dated July 4, 2007.
- . 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- . 2012. *National Wetland Plant List*. FR-2012-05-09. Cold Regions Research and Engineering Laboratory (CRREL). Hanover, NH.
- United States Department of Agriculture (USDA). 2013. US Drought Monitor website: <http://droughtmonitor.unl.edu/>. Accessed in June.
- United States Fish and Wildlife Service (USFWS). 2013. *National Wetlands Inventory*. Available at: <http://107.20.228.18/Wetlands/WetlandsMapper.html> Accessed June 2013.

Appendix A

Site Photographs



Photo 1 — Wetland WCN-1 in the background and Wetland WCS-1 in the foreground.

View looking north from in the bottom of the drainage/arroyo.



Photo 2 — Looking northwest out over Wetland WCN-1 showing the vegetation present in the channel.



Photo 3 — Wetland WCS-1, looking northwest toward the westbound bridge.



Photo 4 — Wetland WCS-1, looking southeast toward Pueblo Blvd. intersection in the background.



Photo 5 — Looking southeast from the box culvert on Williams Creek under Pueblo Blvd. toward Wild Horse Dry Creek, Wetland PBS-1.



Photo 6 — Looking east along Wetland PBS-1, showing the vegetation narrow channel.



Photo 7 — Looking southeast from the median at Pueblo Blvd., showing the typical upland and depression (arroyo) geomorphology of the area.



Photo 8 — USGS gauging station between Wetlands WCN-1 and WCS-1 on Williams Creek.



Photo 9 — USGS gauging station at Wetland WHDC-1 on Wild Horse Dry Creek.



Photo 10 — Looking south from under the eastbound bridge.
This channel is very narrow and filled with noxious weeds.



Photo 11 — Looking north from under the eastbound bridge.
Pedestrian/off-road vehicle use in the area has eroded and damaged wetlands.



Photo 12 — Looking north next to the box culvert under Purcell Blvd. for the tributary to Williams Creek.
This drainage is highly channelized and filled with noxious weeds.



Photo 13 — The Purcell Wetland had vegetation growing within the channel.



**Photo 14 — Looking east over the Purcell Wetland.
Filled with common reed and tamarisk.**

**Appendix B
Great Plains
Wetland Delineation Forms**

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: Purcell Wetland
 Investigator(s): KH & JL Section, Township, Range: SECT 7, T2S, R65W
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1 to 3
 Subregion (LRR): LRR G Lat: 38.323 Long: -104.701 Datum: NAD 83
 Soil Map Unit Name: Manvel silt loam 1 to 5 percent slopes NWI classification: PEMWi

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

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

Hydrophytic Vegetation Present? <u>Y</u>	Is the Sampled Area Within a Wetland? <u>Y</u>
Hydric Soil Present? <u>Y</u>	
Indicators of Wetland Hydrology Present? <u>Y</u>	
If yes, optional wetland site ID: <u>Purcell Wetland</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
 In an extreme drought for 2 years now, very stressed vegetation. This drainage has been highly channelized and is filled with noxious weeds

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>3</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Tamarix chinensis</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of:	Multiply by:
2 _____	_____	_____	_____	OBL species <u>35</u> x 1 = <u>35</u>	
3 _____	_____	_____	_____	FACW species <u>65</u> x 2 = <u>130</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>15</u> x 4 = <u>60</u>	
	<u>40</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>115</u> (A) <u>225</u> (B)	
				Prevalence Index = B/A = <u>1.96</u>	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Typha angustifolia</u>	<u>35</u>	<u>Y</u>	<u>OBL</u>	<u>1</u> - Rapid Test for Hydrophytic Vegetation	
2 <u>Phragmites australis</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	<u>X</u> 2 - Dominance Test is >50%	
3 <u>Cirsium arvense</u>	<u>15</u>	<u>N</u>	<u>FACU</u>	<u>X</u> 3 - Prevalence Index is ≤3.0 ¹	
4 _____	_____	_____	_____	4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>75</u>	= Total Cover			
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status		
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
% /Bare Ground in Herb Stratum _____					

Remarks: (Include photo numbers here or on a separate sheet)
 This channel is filled with noxious weeds, some water is present.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 5"	10 YR 4/3	100					Clay Loam	
5 - 10"	2.5 YR 5/2	80					Clay Loam	
5 - 10"	2.5 YR 5/1	20					Clay Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? <u> Y </u>
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Remarks:
 Channelized tributary of Williams Creek. 5/1 value at depths of 5" - 10" indicated that this soil is a depleted matrix. No redox features present. Water present.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <u> X </u> No _____ Depth (inches): <u> 1 </u> Water Table Present? Yes _____ No <u> X </u> Depth (inches): _____ Saturation Present? Yes <u> X </u> No _____ Depth (inches): <u> 1 </u> (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u> Y </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 <1" of water in the concrete box culvert upstream of the wetland

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: WCN-1
 Investigator(s): KH & JL Section, Township, Range: SECT 16, T2S, R65W
 Landform (hillslope, terrace, etc.): Depression (arroyo) Local relief (concave, convex, none): Concave Slope (%): 0 - 3
 Subregion (LRR): LRR G Lat: 38.316 Long: -104.665 Datum: NAD 83
 Soil Map Unit Name: Penrose-Minnequa complex NWI classification: PEMwi

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

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

Hydrophytic Vegetation Present? <u>Y</u>	Is the Sampled Area Within a Wetland? <u>Y</u>
Hydric Soil Present? <u>Y</u>	
Indicators of Wetland Hydrology Present? <u>Y</u>	
If yes, optional wetland site ID: <u>Wetland WCN-1</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

In an extreme drought for about 2 years now, vegetation is stressed

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A)	
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across all Strata: <u>5</u> (B)	
3 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species that are OBL, FACW, or FAC: <u>80.00%</u> (A/B)	
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
5 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
	<u>0</u>	= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Tamarix chinensis</u>	20	Y	FACW	Total % Cover of: Multiply by:	
2 <u>Ribes aureum</u>	15	Y	FACU	OBL species	<u>55</u> x 1 = <u>55</u>
3 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW species	<u>50</u> x 2 = <u>100</u>
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species	<u>0</u> x 3 = <u>0</u>
5 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species	<u>15</u> x 4 = <u>60</u>
	<u>35</u>	= Total Cover		UPL species	<u>0</u> x 5 = <u>0</u>
				Column totals	<u>120</u> (A) <u>215</u> (B)
				Prevalence Index = B/A =	<u>1.79</u>
<u>Herb Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Typha angustifolia</u>	30	Y	OBL	<u> </u> 1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Agrostis stolonifera</u>	30	Y	FACW	<u>X</u> 2 - Dominance Test is >50%	
3 <u>Eleocharis palustris</u>	25	Y	OBL	<u>X</u> 3 - Prevalence Index is ≤3.0 ¹	
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> 4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
5 <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
6 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
7 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
8 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
9 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
10 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
	<u>85</u>	= Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status		
1 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
	<u>0</u>	= Total Cover			
% /Bare Ground in Herb Stratum <u> </u>				Hydrophytic Vegetation Present? <u>Y</u>	

Remarks: (Include photo numbers here or on a separate sheet)

Salt Cedar and Golden Currant along wetland fringe.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 5"	10 YR 5/2	70	7.5 YR 5/6	5	CS	M	Sandy Loam	Restricted at 5"
0 - 5"	10 YR 3/1	25						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input checked="" type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if observed): Type: <u>Bedrock/Shale</u> Depth (inches): <u>5"</u>	Hydric Soil Present? <u>Y</u>
Remarks: <p style="text-align: center;">Restricted at 5" due to shale/bedrock layer, Saturation at 3"</p>	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living <input type="checkbox"/> Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living <input type="checkbox"/> Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>3"</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>5"</u> (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u>Y</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Flowing water, very yellow/gold color

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: WCN-2
 Investigator(s): KH and JL Section, Township, Range: SECT 16, T2S, R65W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5 to 15
 Subregion (LRR): LRR G Lat: 38.316 Long: -104.665 Datum: NAD 83
 Soil Map Unit Name: Penrose-Minnequa complex NWI classification: N/A

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

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

Hydrophytic Vegetation Present? <u>N</u>	Is the Sampled Area Within a Wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric Soil Present? <u>N</u>	
Indicators of Wetland Hydrology Present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
 Outpoint for WCN-1, extreme drought for 2 years.

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>4</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>25.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Ericamerica nauseosa</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: Multiply by:	
2 <u>Tamarix chinensis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	OBL species <u>0</u>	x 1 = <u>0</u>
3 <u>Ribes aureum</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	FACW species <u>25</u>	x 2 = <u>50</u>
4 _____	_____	_____	_____	FAC species <u>0</u>	x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>40</u>	x 4 = <u>160</u>
	<u>60</u>	= Total Cover		UPL species <u>32</u>	x 5 = <u>160</u>
				Column totals <u>97</u> (A)	<u>370</u> (B)
				Prevalence Index = B/A = <u>3.81</u>	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Helianthus annuus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	_____ 1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Bassia scoparia</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	_____ 2 - Dominance Test is >50%	
3 <u>Astragalus agrestis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	_____ 3 - Prevalence Index is ≤3.0 ¹	
4 <u>Agrostis stolonifera</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	_____ 4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
5 <u>Grindelia hirsutula</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	_____ Problematic Hydrophytic Vegetation ¹ (Explain)	
6 <u>Cucurbita foetidissima</u>	<u>1</u>	<u>N</u>	<u>UPL</u>		
7 <u>Eragrostis spectabilis</u>	<u>1</u>	<u>N</u>	<u>UPL</u>		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>37</u>	= Total Cover			
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Present? <u>N</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
% /Bare Ground in Herb Stratum <u>15</u>					

Remarks: (Include photo numbers here or on a separate sheet)
 Drier upland area surrounding Williams Creek. Vegetation is stressed due to extreme drought

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 8"	2.5 YR 6/2	100					Sand	Restricted at 8"

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
 - Coast Prairie Redox (A16) (LRR F, G, H)
 - Dark Surface (S7) (LRR G)
 - High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
 - Reduced Vertic (F18)
 - Red Parent Material (TF2)
 - Very Shallow Dark Surface (TF12)
 - Other (Explain in Remarks)
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>Bedrock/shale</u> Depth (inches): <u>8"</u>	Hydric Soil Present? <u>N</u>
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Remarks:
 Very dry sand, restricted at 8" due to dryness and/or bedrock/shale

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u>N</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Very dry, sloped banks of channel

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: WCS-1
 Investigator(s): KH and JL Section, Township, Range: SECT 16, T2S, R65W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR G Lat: 38.315 Long: -104.664 Datum: NAD 83
 Soil Map Unit Name: Penrose-Minnequa complex NWI classification: PEMwi

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

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

Hydrophytic Vegetation Present? <u>Y</u>	Is the Sampled Area Within a Wetland? <u>Y</u>
Hydric Soil Present? <u>Y</u>	
Indicators of Wetland Hydrology Present? <u>Y</u>	
If yes, optional wetland site ID: <u>Wetland WCS-1</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
 Very similar to WCN-1, extreme drought for 2 years. Bedrock/shale present at shallow depth. Selenium present visibly and based on scent.

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>4</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>75.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	0 = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Tamarix chinensis</u>	30	Y	FACW	Total % Cover of: Multiply by:	
2 <u>Ribes aureum</u>	10	Y	FACU	OBL species	90 x 1 = 90
3 <u>Elaeagnus angustifolia</u>	1	N	FACU	FACW species	40 x 2 = 80
4 _____	_____	_____	_____	FAC species	0 x 3 = 0
5 _____	_____	_____	_____	FACU species	11 x 4 = 44
	41 = Total Cover			UPL species	0 x 5 = 0
				Column totals	141 (A) 214 (B)
				Prevalence Index = B/A =	1.52
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Typha angustifolia</u>	70	Y	OBL	1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Eleocharis palustris</u>	20	Y	OBL	<u>X</u> 2 - Dominance Test is >50%	
3 <u>Agrostis stolonifera</u>	10	N	FACW	<u>X</u> 3 - Prevalence Index is ≤3.0 ¹	
4 _____	_____	_____	_____	4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	100 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status		
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	0 = Total Cover				
% /Bare Ground in Herb Stratum _____				Hydrophytic Vegetation Present? <u>Y</u>	

Remarks: (Include photo numbers here or on a separate sheet)
 Vegetation stressed due to extreme drought, southwestern arroyo topography/vegetation with distinct boundary.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 5"	10 YR 5/2	70	7.5 YR 5/6	5	CS	M	Sandy Loam	Restricted at 5"
0 - 5"	10 YR 3/1	25						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if observed): Type: <u>Bedrock/shale</u> Depth (inches): <u>5"</u>	Hydric Soil Present? <u>Y</u>
Remarks: <p style="text-align: center;">Restricted at 5" from bedrock or shale, saturation at 3"</p>	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Roots (C3) (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>4"</u> Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>~ 5"</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>3"</u> (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u>Y</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Water flowing through wetland in a channel. Water table present and assumed below soil pit depth due to presence of stream.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: WCS-2
 Investigator(s): KH & JL Section, Township, Range: SECT 16, T2S, R65W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5 to 15
 Subregion (LRR): LRR G Lat: 38.315 Long: -104.664 Datum: NAD 83
 Soil Map Unit Name: Penrose-Minnequa complex NWI classification: N/A

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

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

Hydrophytic Vegetation Present? <u>N</u>	Is the Sampled Area Within a Wetland? <u>N</u>
Hydric Soil Present? <u>N</u>	
Indicators of Wetland Hydrology Present? <u>N</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)
 Outpoint for WCS-1, extreme drought for 2 years, uplands stressed and sparse vegetation.

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 <u>Populus deltoides</u>	5	Y	FAC	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u>	(A)
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>7</u>	(B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>28.57%</u>	(A/B)
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	5	= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Tamarix chinensis</u>	40	Y	FACW	Total % Cover of:	Multiply by:
2 <u>Ribes aureum</u>	20	Y	FACU	OBL species <u>0</u> x 1 = <u>0</u>	
3 <u>Ericamerica nauseosa</u>	10	N	UPL	FACW species <u>40</u> x 2 = <u>80</u>	
4 _____	_____	_____	_____	FAC species <u>5</u> x 3 = <u>15</u>	
5 _____	_____	_____	_____	FACU species <u>55</u> x 4 = <u>220</u>	
	70	= Total Cover		UPL species <u>21</u> x 5 = <u>105</u>	
				Column totals <u>121</u> (A)	<u>420</u> (B)
				Prevalence Index = B/A = <u>3.47</u>	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Helianthus annuus</u>	10	Y	FACU	1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Bassia scoparia</u>	10	Y	FACU	2 - Dominance Test is >50%	
3 <u>Cirsium arvense</u>	10	Y	FACU	3 - Prevalence Index is ≤3.0 ¹	
4 <u>Convolvulus arvensis</u>	10	Y	UPL	4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
5 <u>Astragalus agrestis</u>	5	N	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)	
6 <u>Lathyrus latifolius</u>	1	N	UPL		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	46	= Total Cover			
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Present? <u>N</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	0	= Total Cover			
% /Bare Ground in Herb Stratum <u>10</u>					

Remarks: (Include photo numbers here or on a separate sheet)
 Vegetation stressed especially in the uplands due to an extreme drought.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 8"	2.5 YR 6/2	100					Sand	Restricted at 8"

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____ Remarks: <p style="text-align: center;">Same as WCN-2</p>	Hydric Soil Present? <u> N </u>
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HYDROLOGY

Wetland Hydrology Indicators:	Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes _____ No <u> X </u> Depth (inches): _____ Water Table Present? Yes _____ No <u> X </u> Depth (inches): _____ Saturation Present? Yes _____ No <u> X </u> Depth (inches): _____ (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u> N </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Very dry, sloped banks of channel

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: PBS-1
 Investigator(s): KH & JL Section, Township, Range: SECT 15, T2S, R65W
 Landform (hillslope, terrace, etc.): Arroyo Local relief (concave, convex, none): Concave Slope (%): 0-2
 Subregion (LRR): LLR G Lat: 38.315 Long: -104.66 Datum: NAD 83
 Soil Map Unit Name: Penrose-Minnequa complex NWI classification: PEMwi

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

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

Hydrophytic Vegetation Present? <u>Y</u>	Is the Sampled Area Within a Wetland? <u>Y</u>
Hydric Soil Present? <u>Y</u>	
Indicators of Wetland Hydrology Present? <u>Y</u>	
If yes, optional wetland site ID: <u>Wetland PBS-1</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
 In-point for PBS-1, extreme drought for 2 years now causing stressed and sparse vegetation. Wetland boundaries very distinct.

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 <u>Ulmus pumila</u>	5	Y	UPL	Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)	Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>60.00%</u> (A/B)
2 _____	_____	_____	_____		
3 _____	_____	_____	_____		
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>5</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Tamarix chinensis</u>	50	Y	FACW	Total % Cover of:	Multiply by:
2 <u>Ribes aureum</u>	15	Y	FACU	OBL species <u>60</u> x 1 = <u>60</u>	
3 <u>Salix interior</u>	5	N	FACW	FACW species <u>55</u> x 2 = <u>110</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>18</u> x 4 = <u>72</u>	
	<u>70</u> = Total Cover			UPL species <u>5</u> x 5 = <u>25</u>	
				Column totals <u>138</u> (A) <u>267</u> (B)	
				Prevalence Index = B/A = <u>1.93</u>	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Schoenoplectus pungens</u>	40	Y	OBL	1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Typha angustifolia</u>	20	Y	OBL	<u>X</u> 2 - Dominance Test is >50%	
3 <u>Cirsium arvense</u>	1	N	FACU	<u>X</u> 3 - Prevalence Index is ≤3.0 ¹	
4 <u>Bassia scoparia</u>	1	N	FACU	4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
5 <u>Astragalus agrestis</u>	1	N	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>63</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status		
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u> = Total Cover				
% /Bare Ground in Herb Stratum _____				Hydrophytic Vegetation Present? <u>Y</u>	

Remarks: (Include photo numbers here or on a separate sheet)
 Abundant dead kochia and saltcedar along banks of channel

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 5"	2.5 YR 4/2	100					Sandy Clay	
5 - 8"	2.5 YR 4/2						Sandy Clay	Saturated

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if observed): Type: <u>Bedrock/Shale</u> Depth (inches): <u>8"</u>	Hydric Soil Present? <u>Y</u>
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Remarks:
Possible problematic soils from new fluvial deposits. Restricted due to shale/bedrock.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Roots (C3) (where tilled)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres on Living	
<input type="checkbox"/> Roots (C3) (where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>3"</u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>8"+</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>8"</u> (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u>Y</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Water flowing through wetlands, water table at 8" due to nearby stream channel.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: PBS-2
 Investigator(s): KH & JL Section, Township, Range: SECT 15, T2S, R65W
 Landform (hillslope, terrace, etc.): Hillslope above arroyo Local relief (concave, convex, none): Concave Slope (%): 5 to 15
 Subregion (LRR): LLR G Lat: 38.315 Long: -104.66 Datum: _____
 Soil Map Unit Name: Penrose-Minnequa complex NWI classification: N/A

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

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

Hydrophytic Vegetation Present? <u>N</u>	Is the Sampled Area Within a Wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric Soil Present? <u>N</u>	
Indicators of Wetland Hydrology Present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
 Very dry; abundance of bare ground and dead plant material. Extreme drought for 2 years now.

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>4</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>25.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
0 = Total Cover					
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Prevalence Index Worksheet	
1 <u>Ericameria nauseosa</u>	20	Y	UPL	Total % Cover of: Multiply by:	
2 <u>Ribes aureum</u>	10	Y	FACU	OBL species <u>0</u> x 1 = <u>0</u>	
3 <u>Tamarix chinensis</u>	10	Y	FACW	FACW species <u>10</u> x 2 = <u>20</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>31</u> x 4 = <u>124</u>	
40 = Total Cover				UPL species <u>25</u> x 5 = <u>125</u>	
				Column totals <u>66</u> (A) <u>269</u> (B)	
				Prevalence Index = B/A = <u>4.08</u>	
<u>Herb Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Indicators:	
1 <u>Grindelia hirsutula</u>	15	Y	FACU	1 - Rapid Test for Hydrophytic Vegetation _____	
2 <u>Stanleya pinnata</u>	5	N	UPL	2 - Dominance Test is >50% _____	
3 <u>Cirsium arvense</u>	5	N	FACU	3 - Prevalence Index is ≤3.0 ¹ _____	
4 <u>Astragalus agrestis</u>	1	N	FACU	4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) _____	
5 _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain) _____	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
26 = Total Cover					
<u>Woody Vine Stratum</u> (Plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
0 = Total Cover					
% /Bare Ground in Herb Stratum <u>35</u>				Hydrophytic Vegetation Present? <u>N</u>	

Remarks: (Include photo numbers here or on a separate sheet)
 Abundant dead kochia and saltcedar along banks of channel

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 8"	2.5 YR 6/2	100					Sand	Dry

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if observed): Type: <u>Bedrock/Shale</u> Depth (inches): <u>8"</u>	Hydric Soil Present? <u>N</u>
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Remarks:
 Same as others, pure sand. Restricted at 8" due to dryness, bedrock/shale.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u>N</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Dry uplands near Wetland PBS-1, sand.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: WHDC-1
 Investigator(s): KH and JL Section, Township, Range: SECT 15, T2S, R65W
 Landform (hillslope, terrace, etc.): Depression, arroyo Local relief (concave, convex, none): Concave Slope (%): 0 to 3
 Subregion (LRR): LRR G Lat: 38.313 Long: -104.652 Datum: NAD 83
 Soil Map Unit Name: Manvel silt loam, 1 to 5 percent slopes NWI classification: PEMwi

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

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

Hydrophytic Vegetation Present? <u>Y</u>	Is the Sampled Area Within a Wetland? <u>Y</u>
Hydric Soil Present? <u>Y</u>	
Indicators of Wetland Hydrology Present? <u>Y</u>	
If yes, optional wetland site ID: <u>WETLAND WHDC-1</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
 Marginal wetland along flowing creek, extreme drought for 2 years causing vegetation to be very stressed.

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
5 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
<u>0</u> = Total Cover					
<u>Sapling/Shrub Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Tamarix chinensis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of: Multiply by:	
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>	OBL species <u>6</u> x 1 = <u>6</u>	
3 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW species <u>70</u> x 2 = <u>140</u>	
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species <u>0</u> x 3 = <u>0</u>	
5 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species <u>5</u> x 4 = <u>20</u>	
<u>30</u> = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>81</u> (A) <u>166</u> (B)	
				Prevalence Index = B/A = <u>2.05</u>	
<u>Herb Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Agrostis stolonifera</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	<u> </u> 1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Eleocharis palustris</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	<u>X</u> 2 - Dominance Test is >50%	
3 <u>Helianthus annuus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	<u>X</u> 3 - Prevalence Index is ≤3.0 ¹	
4 <u>Carex nebrascensis</u>	<u>1</u>	<u>N</u>	<u>OBL</u>	<u> </u> 4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
5 <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
6 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
7 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
8 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
9 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
10 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
<u>51</u> = Total Cover					
<u>Woody Vine Stratum</u> (Plot size: <u> </u>)	Absolute % Cover	Dominant Species	Indicator Status		
1 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>		
<u>0</u> = Total Cover					
%/Bare Ground in Herb Stratum <u>50</u>				Hydrophytic Vegetation Present? <u>N</u>	

Remarks: (Include photo numbers here or on a separate sheet)
 Abundant dead saltcedar along channel

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 5"	10 YR 5/2	70	7.5 YR 5/6	5	CS	M	Sandy Loam	Restricted at 5"
0 - 5"	10 YR 3/1	25						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if observed): Type: <u>Bedrock/shale</u> Depth (inches): <u>5"</u>	Hydric Soil Present? <u>Y</u>
Remarks: <p style="text-align: center;">Same as Williams Creek, restricted due to bedrock/shale</p>	

HYDROLOGY

Wetland Hydrology Indicators:	Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living	<input type="checkbox"/> Roots (C3) (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Roots (C3) (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2"</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>5"+</u> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u></u> (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u>Y</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flowing water in an incised channel. Much drier benches on either side of the channel.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US-50 PEL City/County: Pueblo Sampling Date: 6/3/13
 Applicant/Owner: CDOT State: COLORADO Sampling Point: WHDC-2
 Investigator(s): KH and JL Section, Township, Range: Sect 15, T2S, R65W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 3 to 10
 Subregion (LRR): LRR G Lat: 38.313 Long: -104.652 Datum: NAD 83
 Soil Map Unit Name: Manvel silt loam, 1 to 5 percent slopes NWI classification: N/A

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

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

Hydrophytic Vegetation Present? <u>N</u>	Is the Sampled Area Within a Wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric Soil Present? <u>N</u>	
Indicators of Wetland Hydrology Present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
Outpoint for WHDC-1, extreme drought for 2 years stressing vegetation along streams and especially in uplands.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status	
Tree Stratum (Plot size: _____)				
1 _____	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>4</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>25.00%</u> (A/B)
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1 <u>Ericameria nauseosa</u>	10	Y	FACU	Prevalence Index Worksheet Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>6</u> x 4 = <u>24</u> UPL species <u>21</u> x 5 = <u>105</u> Column totals <u>47</u> (A) <u>169</u> (B) Prevalence Index = B/A = <u>3.60</u>
2 <u>Ribes aureum</u>	5	Y	FACU	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
15 = Total Cover				
Herb Stratum (Plot size: _____)				
1 <u>Lepidium latifolium</u>	20	Y	FACW	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic</small>
2 <u>Cardaria draba</u>	20	Y	UPL	
3 <u>Astragalus agrestis</u>	1	N	FACU	
4 <u>Stanleya pinnata</u>	1	N	UPL	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
42 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1 _____	_____	_____	_____	Hydrophytic Vegetation Present? <u>N</u>
2 _____	_____	_____	_____	
0 = Total Cover				
%/Bare Ground in Herb Stratum <u>40</u>				

Remarks: (Include photo numbers here or on a separate sheet)
Abundant dead kochia and saltcedar along banks of channel

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 8"	2.5 YR 6/2	100					Sand	Restricted at 8"

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if observed): Type: <u>Bedrock/shale</u> Depth (inches): <u>8"</u>	Hydric Soil Present? <u>N</u>
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Remarks:
 Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living <input type="checkbox"/> Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living <input type="checkbox"/> Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of Wetland Hydrology Present? <u>N</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Very dry, sloped banks of channel.

Appendix C
Surveyed Wetlands
Detailed Maps (1" = 100')

Figure C-1. Surveyed Wetlands Detail Index Map

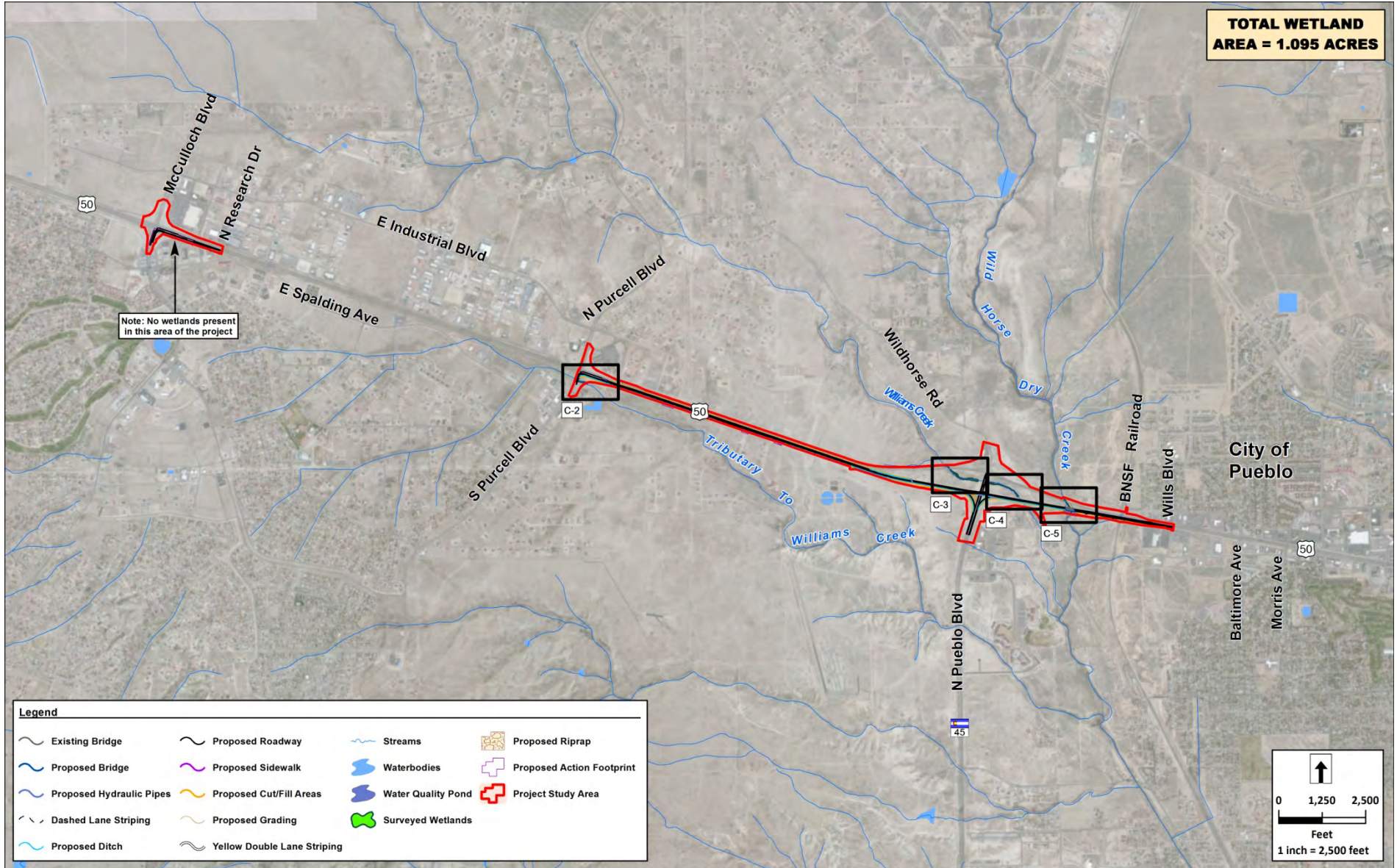


Figure C-2. Surveyed Wetlands Detail Map

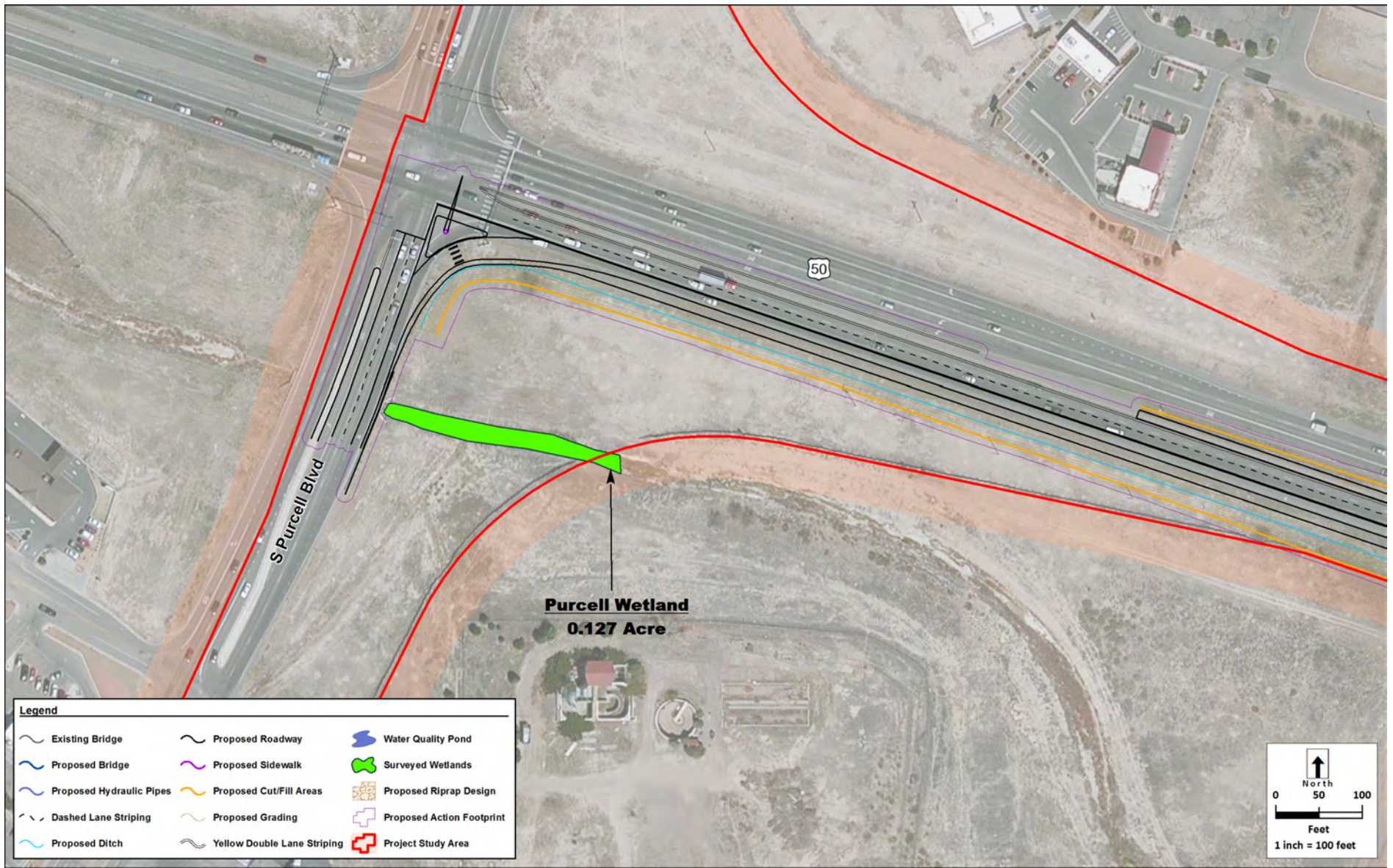


Figure C-3. Surveyed Wetlands Detail Map

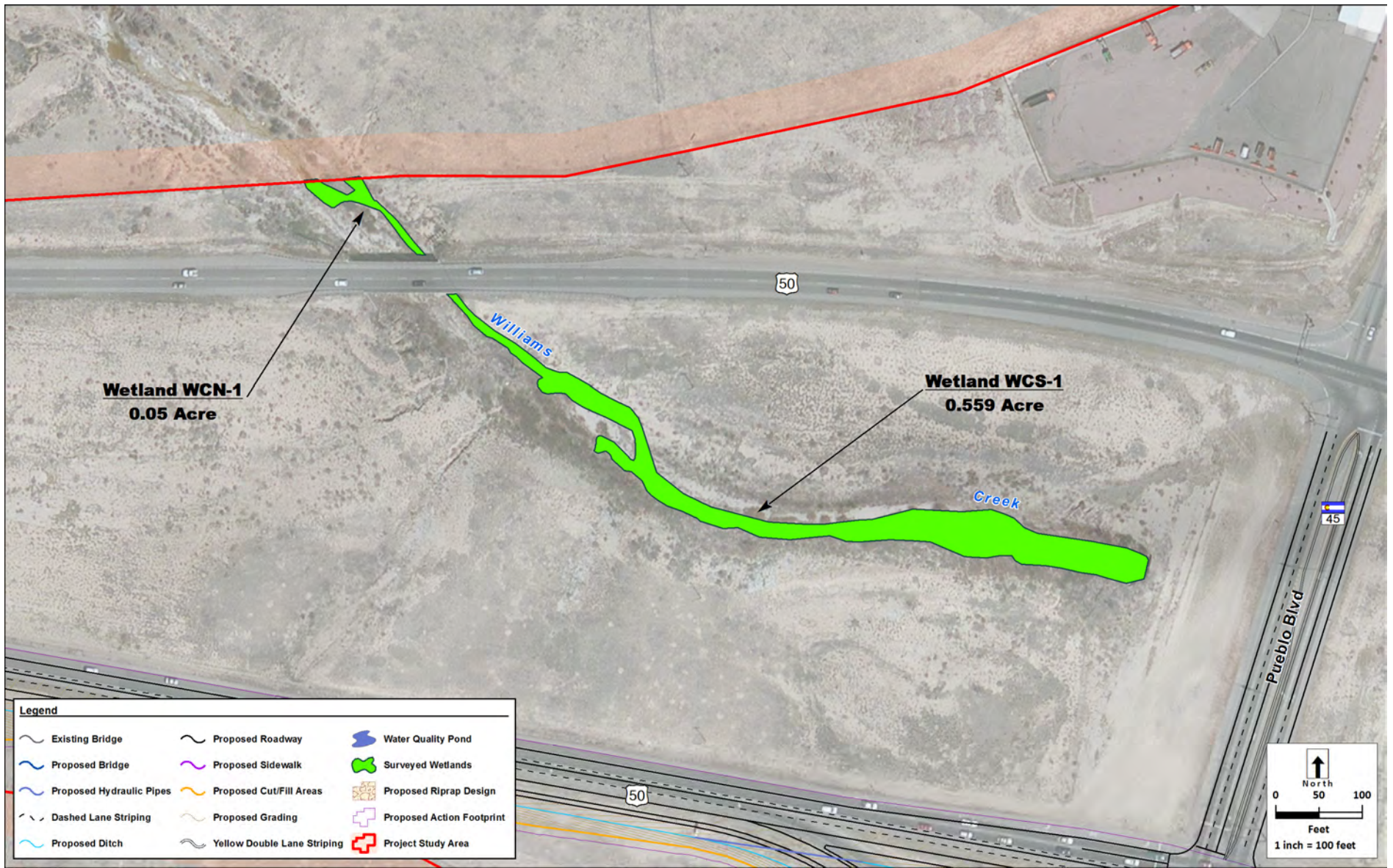


Figure C-4. Surveyed Wetlands Detail Map

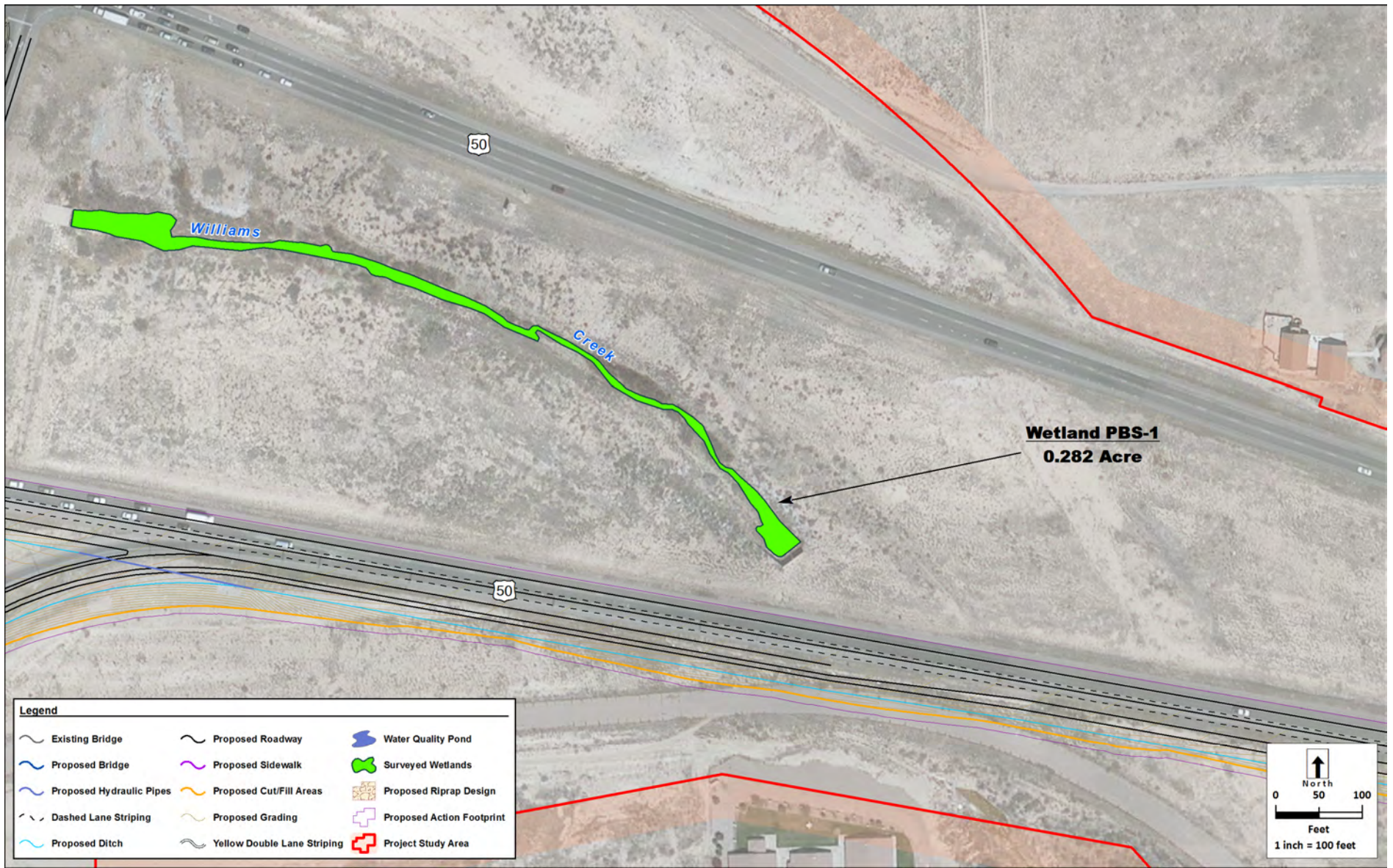


Figure C-5. Surveyed Wetlands Detail Map

