Aquatic Resources Delineation Report

Bridge M-21-B

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Stanley Consultants INC.
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Engineering, Environmental and Construction Services - Worldwide

Executive Summary

Stanley Consultants, Inc. (Stanley) has prepared an aquatic resources delineation for the proposed replacement of a bridge structure on U.S. Highway (US) 350 about 4.3 miles southwest of Timpas, Colorado, known as the M-21-B Bridge Replacement Project (Project). The purpose of the delineation is to identify any potential waters of the U.S. (WOTUS), including wetlands, present within the Project Area. The delineation was conducted in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region* (Version 2.0) (U.S. Army Corps of Engineers [USACE] 2010). For non-wetland waters, *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010) was used.

This Aquatics Resource Report provides the findings at the CDOT bridge M-21-B survey area (8.5 acres). The drainage feature is known as the Lone Tree Arroyo drains to the north and into the Timpas Creek, which connects to the Arkansas River. However, this ephemeral drainage does not appear to see regular flows, only occasional flows in response to storm events. No waters or wetlands were identified though a drainage feature exists.

This report provides documentation of the standards and field survey methods used to determine lack of the potential for waters and wetlands regulated under the Clean Water Act (CWA) within the vicinity of the Project. Based on these results, no further survey for WOTUS will be required and no permitting under CWA Section 404 will be required for Project impacts within the surveyed area.

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APPENDICES

Acronyms and Abbreviations

CDOT	Colorado Department of Transportation
CO	Colorado State Highway
CWA	Clean Water Act
IP	Individual Permit
MP	Mile Post
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
NWPL	National Wetland Plant List
OHWM	ordinary high water mark
PIA	Potential Impact Area
PSS	palustrine scrub-shrub
ROW	right-of-way
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	water of the United States

1. Introduction

On behalf of the Colorado Department of Transportation (CDOT), Stanley Consultants, Inc. (Stanley) has prepared an aquatic resources delineation for the proposed replacement of a bridge structure on U.S. Highway (US) 350 about 4.3 miles southwest of Timpas, Colorado, known as the M-21-B Bridge Replacement Project (Project). The purpose of the delineation is to identify any potential waters of the U.S. (WOTUS), including wetlands, present within the area of potential Project impacts.

The presence of wetlands and other waters were assessed within the vicinity of the proposed Project construction. The boundaries of the wetlands and other waters were then delineated to determine the extent of potential waters to regulation under the Clean Water Act within the area of potential Project impacts. The purpose of this delineation report is to facilitate efforts to:

- Avoid or minimize impacts to aquatic resources during the design process.
- Document aquatic resource boundary determinations for review by regulatory authorities.

Field investigations were conducted on August 26, 2020, by wetland biologists for Stanley Consultants, Inc.

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2. Location and Project Description

2.1 Location

The surveyed Project Area, to be referred to as the Potential Impact Area (PIA), is approximately 8.5 acres and includes the CDOT right-of-way (ROW), where impacts may occur, along with an expanded limit of disturbance to account for a possible detour or other work. The existing bridge is located approximately 4.3 miles southwest of Timpas, Colorado and 21 miles southwest of La Junta, Colorado (37.771306/-103.826926), in Section 19, Township 26S, Range 57W (6th Principal Base and Meridian). A map of the PIA is located in the Aquatic Resources Delineation Map in Appendix A, Figure 1.

2.2 Purpose and Need

The concrete deck on steel I-beam bridge (Structure M-21-B) was built in 1937 on US 350 which is a key north-south corridor connecting residents and tourists from La Junta, Colorado and the Arkansas River Valley to Trinidad, Colorado and the Rocky Mountains. The structure is in poor condition, requiring frequent inspection and repair from issues such as cracking on the wing walls and abutments, damaged bearing anchors, deck cracking, spalls with exposed rebar, and other general deterioration. This bridge is well past its replacement life and is not up to current construction and safety standards and must be replaced to prevent potential failure.

2.3 Project Description

The CDOT Region 2 Bridge Bundle Design Build Project consists of the replacement of a total of nineteen (19) structures bundled together as a single design-build project. These structures are rural bridges on essential highway corridors (US 350, US 24, Colorado State Highway [CO] 239 and CO 9) in southeastern and central Colorado. These key corridors provide rural mobility, intra- and interstate commerce, movement of agricultural products and supplies, and access to tourist destinations. The design build project has two funding sources; Bridge M-21-B will be jointly funded by the USDOT FHWA Competitive Highway Bridge Program grant and the Colorado Bridge Enterprise (Project No. 23558).

Bridge M-21-B is located on US 350 at milepost 51.682, approximately 4.3 miles southwest of Timpas, Colorado. The bridge is a two-span concrete deck on steel I-beam (33 feet [ft] wide by 84 ft long) that crosses over an ephemeral swale (Lone Tree Arroyo). The Project will replace this bridge with similarly sized concrete bridge.

As stated by the CDOT grant application, the roadway shall not be closed for construction. Phasing the construction to keep one lane open was investigated. Due to the narrow existing roadway and wood railing keeping one lane of roadway is not recommended.

As stated by the CDOT grant application, the roadway shall not be closed for construction. Two other alternatives were investigated:

Alternative 1: Phasing the constructions to keep one lane open. To meet all typical CDOT roadway phased construction criteria, this alternative will require overbuilding the proposed bridge on one side. The width of the proposed structure is contingent upon the girder type and width and will vary from the alternative described below.

Alternative 2: Building a two-lane shoofly on one side of the existing bridge with a temporary pipe placed under the road for drainage. The existing ROW provides enough clearance to construct a shoofly on either side of the bridge. However, due to the relatively long existing bridge structure and consistently high existing vertical clearance under the bridge, this alternative is considered to be less cost effective than Alternative 1.

Alternative 1 (phased construction with one lane open) was identified as a preferred traffic alternative for this structure. More information on traffic detour options can be found in the Traffic Design Memorandum for this structure.

Once the bridge is complete and ready for use, any disturbed areas from both the construction and temporary bypass will be restored to original contours and reseeded.

3. Methods

3.1 Regulatory Context

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into WOTUS and is administered by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA). The definition of WOTUS has been in flux in recent years, with the latest definition published by the EPA in the Navigable Waters Protection Rule, which went into effect on June 22, 2020, in 49 states. Due to an injunction issued by a federal court in Colorado, the Navigable Waters Protection Rule has not gone into effect in Colorado, and instead the state remains under the post-*Rapanos v. United States* (Rapanos) guidance (USACE and EPA 2008). The potential for WOTUS within the PIA therefore will be evaluated per the definition in the Rapanos guidance. Since the WOTUS definition under Rapanos is more expansive than the Navigable Waters Protection Rule, assessing the PIA under Rapanos ensures that no additional revaluation is likely to be required in the event CWA applicability changes in Colorado during the period of Project construction.

The Rapanos guidance defines WOTUS as traditional navigable waters (TNWs), relatively permanent waters, and their adjacent wetlands.[1] Additionally, the Rapanos guidance includes all tributaries with a bed and bank or ordinary highwater mark (OHWM) that have a significant nexus to a Traditionally Navigable Water, as well as wetlands, ponds, impoundments, and lakes located adjacent to said tributaries. Under Section 404 of the CWA, the OHWM defines the lateral extent of federal jurisdiction in non-tidal WOTUS (absent adjacent wetlands) (33 U.S.C. 1251). Per the regional guidance developed by the Corps (Mersel and Lichvar 2014), OHWM in Colorado is considered to be the “physical and biological signature established and maintained at the boundaries of the active

[1] Adjacent is defined as “bordering, contiguous, or neighboring” in the Rapanos guidance.

channel." Mersel and Lichvar (2014) state the OHWM identification in non-perennial streams is based on three primary physical or biological indicators—topographic break in slope, change in sediment characteristics, and change in vegetation characteristics.

3.2 Wetland Delineations

All wetland delineations were conducted in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the Regional Supplement to the *Corps of Engineers Wetlands Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010). Survey areas were assessed by the biologists to determine the presence or absence of wetland features. Locations that contained some potential as a wetland based on surface conditions such as the presence of dominant hydrophytic vegetation or surface hydrology were investigated more closely with a sampling point containing a soil pit, a delineation field form, and photo documentation.

Sources of information used in this Aquatic Resources investigation could include:

- Web Soil Survey (USDA/NRCS 2020)
- Aerial photography of the PIA from the National Agriculture Imagery Program (NAIP) taken in 2017, and from aerial drone photography collected by Stanley.
- National Wetland Plant List, version 3.4 (USACE 2018)
- Munsell Soil-Color Charts (Munsell Color 2009)
- National Wetland Inventory (NWI) Map (See Appendix A, Figure 2)

3.3 Non-Wetland Waters Delineation

Delineations of non-wetland waters were conducted using the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010). The project specific PIA was examined for any potential OHWM supporting features, such as root exposure, water staining, silt deposits, litter removal, etc. (Mersel and Lichvar 2014, USACE 2005), that might provide information interpreting recent flow levels (e.g., drift/wrack deposits or headcutting) or that might eliminate or reinforce potential OHWM locations. Stanley also examined aerial photography and hydrologic data to support the Section 404 CWA assessment. The boundaries of any non-wetland water features were identified by the OHWM indicators and recorded using a Trimble sub-meter GPS antenna connected to a tablet or smart phone.

4. Existing Conditions

4.1 Topography and Climate

The PIA is located on the edge of the eastern plains of Colorado including the Purgatoire River Valley and the distant Arkansas River Valley to the north. To the west is the foothills of the Front Range of the Rocky Mountains, and to the south and east is the Purgatoire River Valley. The elevation at the site is approximately 4,535±5 ft above sea level. Land

use in the area is agricultural and open space, with an ecological ecoregion of Piedmont Plains and Tablelands, which includes open grasslands with a small arid shrub component. The highway and bridge structure were constructed in 1937, with fill being built up for the roadway with a gap that allows for any storm flows in the Lone Tree Arroyo, with the bridge constructed across the arroyo.

Climate in the La Junta area (closest weather station with complete data) has an average maximum temperature of 69.4° F and average minimum temperature of 39.1° F. The average annual precipitation is 11.5 inches, with an average snowfall of 20.7 inches (CCC 2020a). Normal monthly precipitation average for August is 1.6 inches, but during this past August (when the field survey was conducted) the rainfall was measured at 0.38 inches, which is below normal (CCC 2020b).

4.2 Surface Waters

National Wetlands Inventory data indicated that no wetlands exist within the PIA and one water was classified as riverine (Appendix A, Figure 2). The U.S. Geologic Survey (USGS) classifies this feature as an intermittent stream (Appendix A, Figure 1). The referenced riverine feature is the Lone Tree Arroyo which is an ephemeral drainage feature within the landscape, but only appears to collect rare storm event flows and transmits those flows north to Timpas Creek, just to the northwest of the M-21-B bridge by approximately 0.35 miles. Timpas Creek flows northeast to its confluence with the Arkansas River by the town of Swink, Colorado. From there, the Arkansas River flows east, then southeast to the Mississippi River and south to the Gulf of Mexico.

In the PIA, no surface water was present and soils within and surrounding the ephemeral swale appeared very dry. Given the width of the channel and the surrounding vegetation, some storm event flows must occur, but with not enough frequency to support any wetland conditions or even a continuous and well-defined channel.

5. Aquatic Resource Results

During the ground investigation, no features with an OHWM or wetland characteristics were observed within the PIA. No potential waters of the U.S. are present. The Lone Tree Arroyo appears to only experience occasional but strong storm flows, likely only every 3-10 years or more. There were a few older erosion channels observed, along with occasional large piles of wrack, but those channels were not continuous and poorly defined at best (see Appendix B, Photo Inventory). The size of the piles of wrack do suggest some rare, strong flows have occurred, but those piles had a few years-worth of vegetation growing on them, indicating that they could be some years old and not from frequent events. There was a scour pool under the bridge that suggested rare storm events did occur and collect water at times, but upgradient and downgradient of the bridge failed to indicate frequent flows. In areas that would contain a defined channel in a drainage with a significant nexus to downstream waters, there was no visible OHWM and grasses, forbs, and even shrubs were observed, suggesting rare flows at best.

6. Summary

No WOTUS features were identified and delineated within the PIA. The existing Lone Tree Arroyo appears to only support occasional storm flows and not regular, consistent, yearly or seasonal flows. No impacts to any potential WOTUS are anticipated as no regulated resource exists. Therefore, no CWA Section 404 permitting and/or mitigation measures would be needed.

Although mitigation measures to avoid impacts to WOTUS will not be needed for the Project, the Contractor will likely still need to develop best management practices to avoid impacts to additional sensitive resources from stormwater run-off, pollutants, etc., due to construction activities. A review of other Project-related permitting needs is discussed in further detail in the Desktop Analysis for Sensitive Resources Report.

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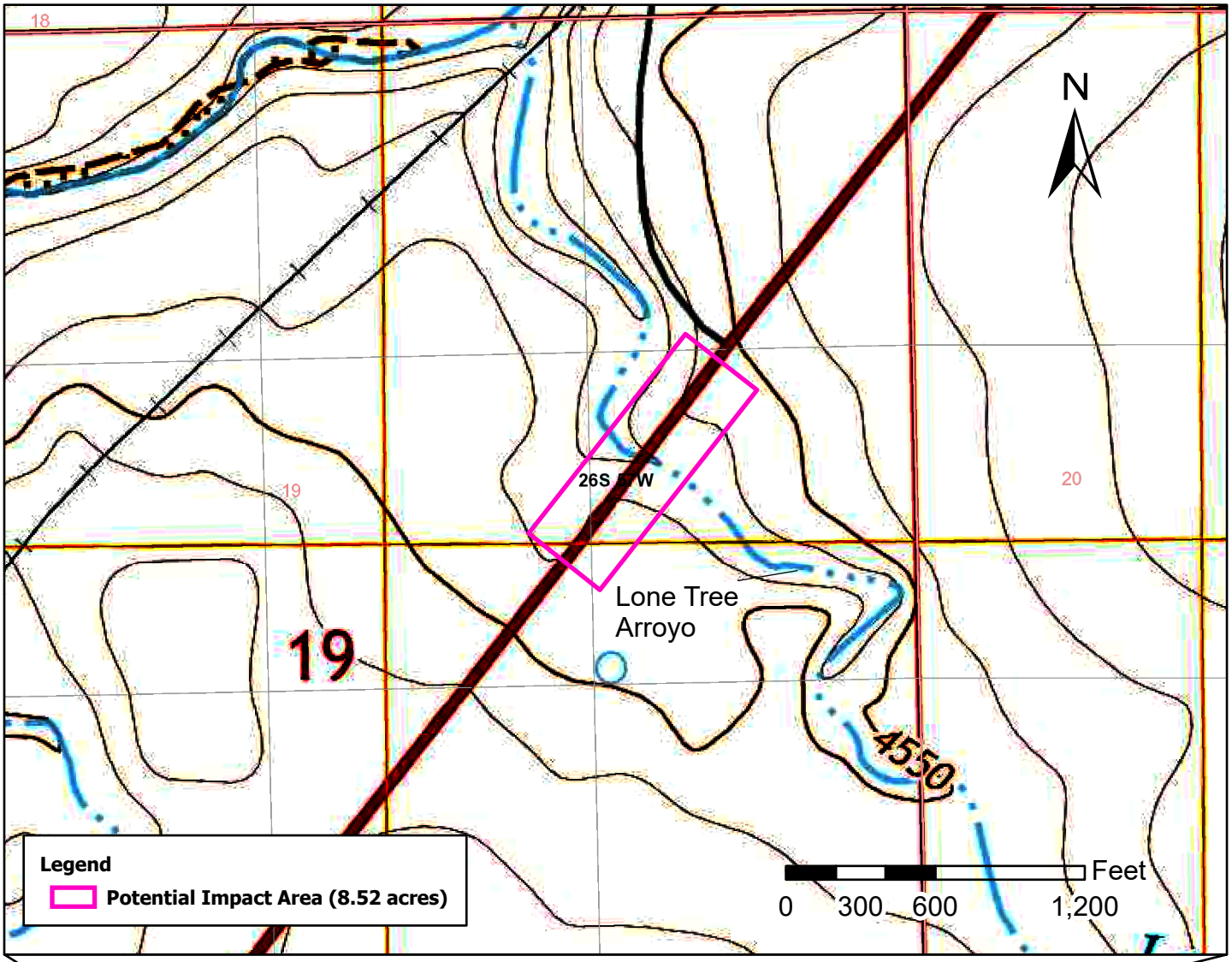
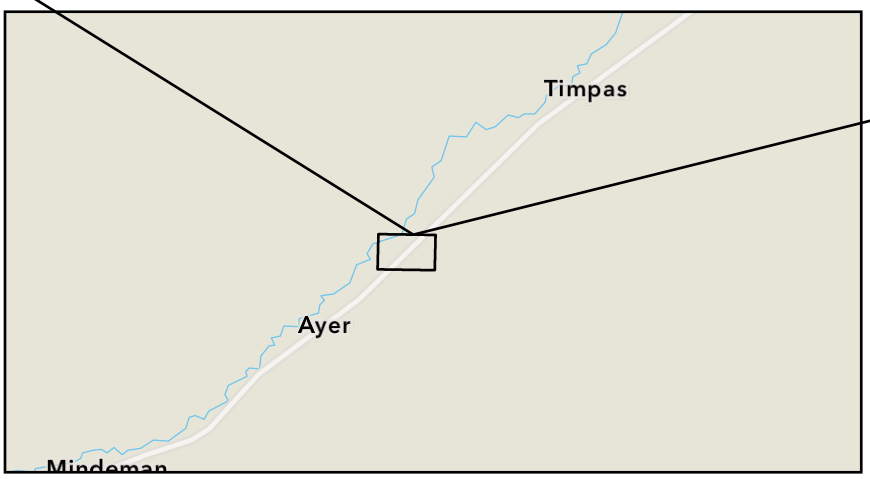
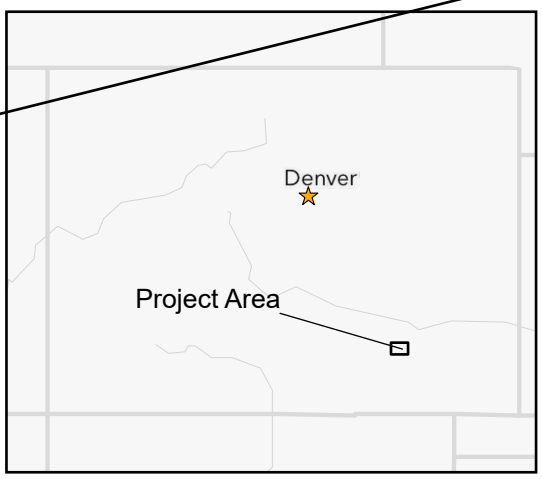
Appendix A

Aquatic Resources Delineation Maps







Colorado Department of Transportation
R2 Bridges Project - M-21-B

Figure 1
Vicinity Map

Image Source: ArcGIS Online, World Street Map, USGS TopoView
USGS Topo: Timpas, CO
S19, T26S, R57W
Bridge Lat/Long: 37.771169/-103.826989

Stanley Consultants INC.

Date Exported: 12/5/2020 10:43 AM

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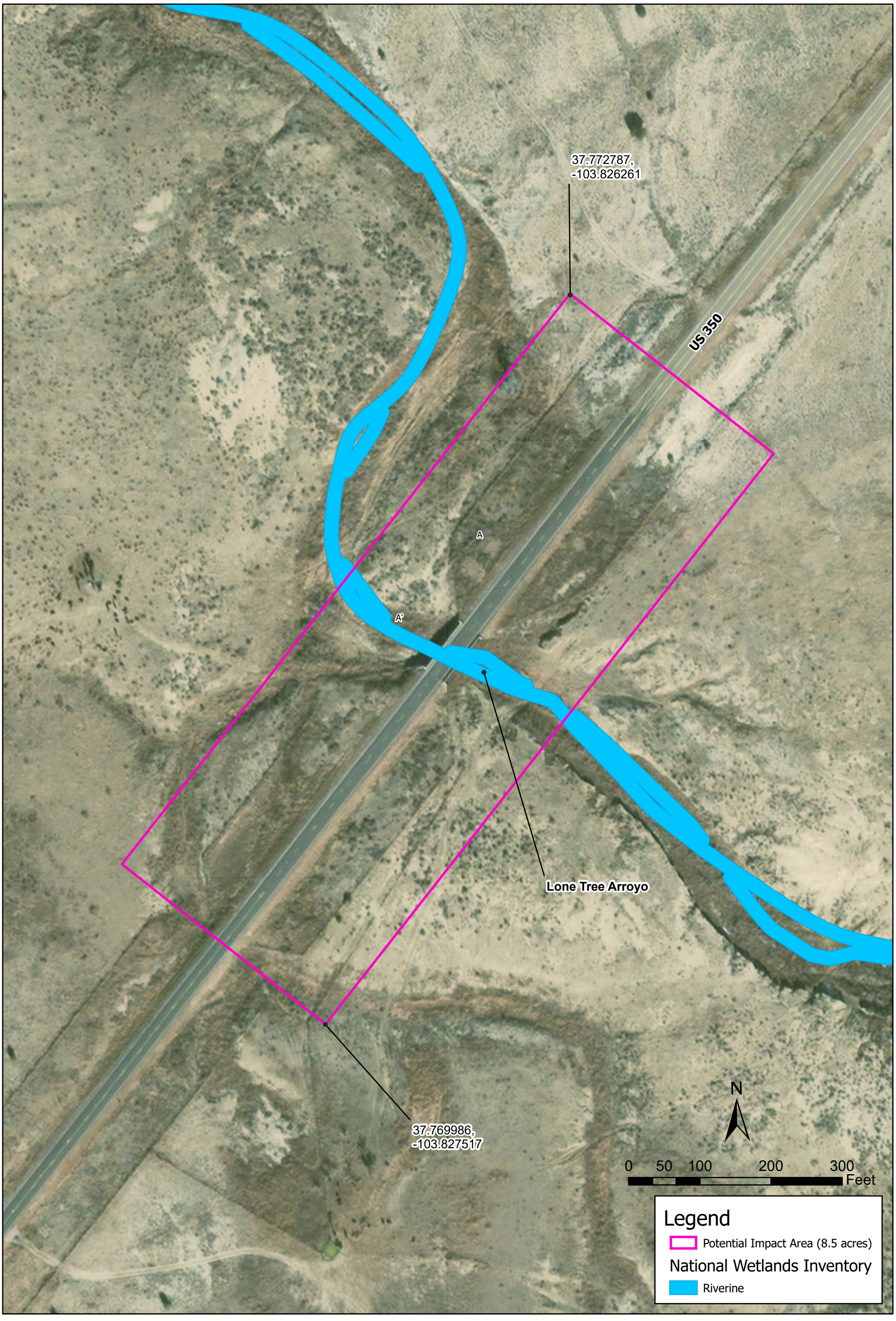

Colorado Department of Transportation
R2 Bridges Project - M-21-B

Figure 2: Aquatic Delineation Map

Data Source: Stanley Consultants, Inc.
Image Source: ArcGIS Online, World Imagery

Coordinate System: NAD 1983
State Plane CO Central FIPS 0502 (US Feet)
Projection: State Plane
Datum: North American 1983
Created: December 14, 2020

Stanley Consultants INC.

Date Exported: 11/16/2020 8:45 AM

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Appendix B

Photo Inventory

Photo 1.
Lone Tree Arroyo, looking southeast and upgradient from bridge, at the condition of the arroyo. Part of an old, erosion channel still exists from a previous, strong flood event. However, channel immediately disappears farther downgradient from this photo location (see Photo 2).

Photo 2.
Lone Tree Arroyo, looking northwest and downgradient towards bridge. The vague channel in Photo 1 dissipates and becomes a vegetated swale at best.

Photo 3.
Lone Tree Arroyo, looking northwest, downgradient, and under bridge structure. A small erosional channel has formed just before the bridge. A scour pool is located between the abutment wall and the first span supports (right side of photo).

Photo 4.
Lone Tree Arroyo, looking northwest and downgradient from the bridge. No outlet or clear channel appears on the other side of the scour pool under the bridge. Dense vegetation can be seen.

Photo 5.
Lone Tree Arroyo, looking northwest and downgradient from the bridge. Wrack piles from an older, strong storm event have a few years of plant growth on them. Small areas of erosion can be seen around the piles from the storm event, but no distinct and continuous channel was present.