

DEPARTMENT OF TRANSPORTATION

Region 3 Environmental
222 South Sixth Street, Rm. 317
Grand Junction, Colorado 81501-2769
(970) 683-6255 FAX (970) 683-6227



Wetland Finding

SH 92 Stengel's Hill Reconstruction

CDOT Federal Aid Project Number STA 092-024; Subaccount Number 17772

SH 92, MP 13.80-15.50

Colorado Department of Transportation, Region 3

December 10, 2013

Introductory Statement

The following is a Wetland Finding for CDOT Federal Aid Project STA 092-024 (SA 17772), known as Stengel's Hill Reconstruction on State Highway 92 between MP 13.80 and MP 15.50. This is the last construction project within the corridor known as the Austin to Hotchkiss Corridor. This Wetland Finding has been written in compliance with Executive Order 11990, "Protection of Wetlands," and is in accordance with 23 CFR 771, 23 CFR 777, and Technical Advisory T6640.8A.

Project Purpose

The purpose of the project is to provide an improved 2-lane facility by reconstructing and widening SH 92. Existing shoulders will be upgraded to current standards. Slope stabilization, drainage improvements, auxiliary lanes and improved clear zones will be required throughout. Replacement of the at-grade railroad crossing with a grade-separated bridge will improve the flow of traffic and allow the Union Pacific Railroad (UPRR) to cross underneath SH 92. Widening the highway and extending culverts to the north will be necessary to allow for realignment of the bridge approaches to comply with geometric horizontal and vertical alignments required by the UPRR.

The project is being developed as a streamlined design-build (DB) project and a Request for Proposals (RFP) is currently being prepared with expected Advertisement by mid-January 2014.

Project Description and Location

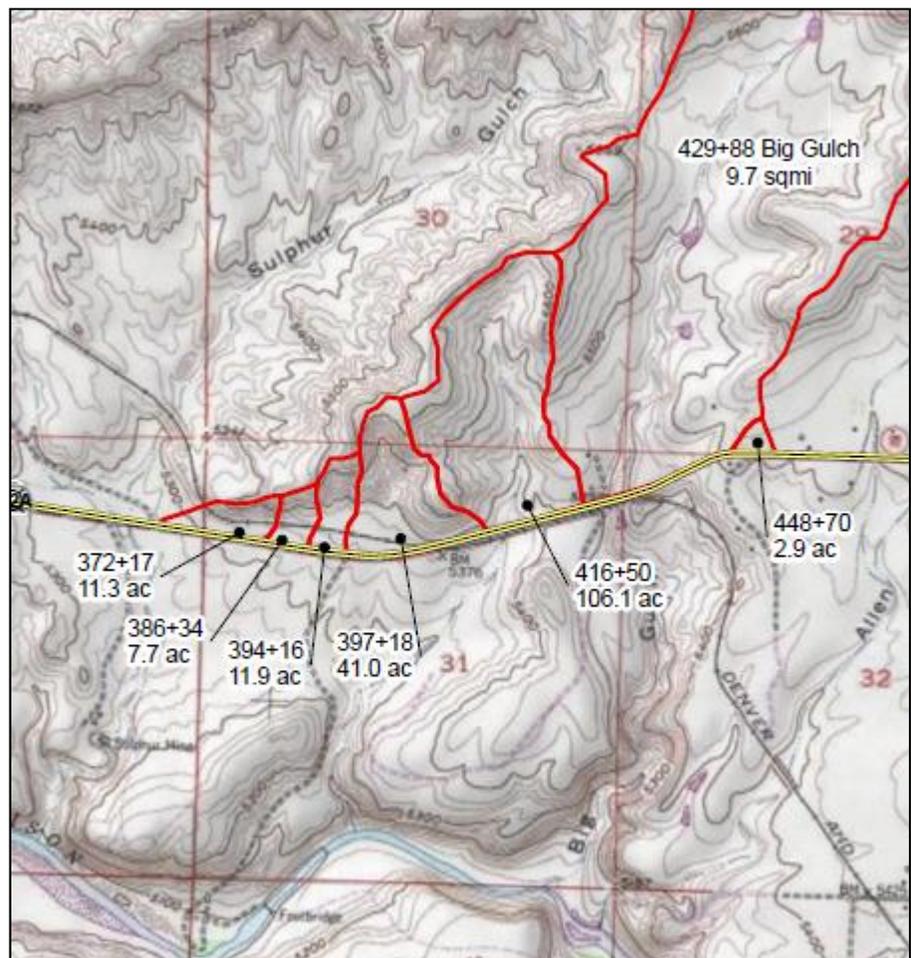
The project site is located in rural Delta County between the Towns of Austin and Hotchkiss (Figure 1). The project involves reconstruction and minor widening of SH 92 from milepost (MP) 13.80 to MP 15.50 in an area referred to as Stengel's Hill, which is east of the intersection of SH 92 with the railroad. Elevating the railroad will require 45 feet of new embankment to construct the bridge approaches and retaining walls.

Six drainage ways are located within the project limits and all run south to the North Fork Gunnison River (Figure 2). The three drainages that support wetlands are shown on Figure 2 at STA 416+50, 429+88, and 448+70. The only major drainage is Big Gulch at 429+88. Water from this small stream is serviced by an existing 8' concrete arch culvert under the highway. This culvert will remain in place but will need to be extended approximately 92 feet to the north. The intermittent drainage at 416+50 is serviced by a 36" corrugated steel pipe (CSP) and will need to be replaced and extended by 45 ft to the north. All other drainage from the site is from irrigation runoff (448+70) or ephemeral flows that do not support wetlands (372+17, 386+34, 394+16, and 397+18).



Figure 1. Project Location Map (URS 2013).

Figure 2. Drainage Basin Map (URS 2013).



Project Alternatives

Alternatives for this project are driven by the UPRR bridge design and accommodating the geometric vertical and horizontal approaches to the new bridge. The bridge design must be in compliance with UPRR requirements. Retaining walls will be required to contain approximately 45 feet of embankment fill to construct the bridge approaches. Currently the at-grade crossing

crosses SH 92 on the curve just east of STA 397+18, then runs parallel to the highway along the south side before turning south at the bottom of Stengel's Hill. Therefore, there is no alternative but to widen the highway to the north.



Figure 3. The existing UPRR at-grade crossing and curve, looking east on the way to Stengel's Hill.

Wetland Resources

Methods

The wetland delineation was performed by Paula Durkin, a certified Professional Wetland Scientist (PWS #1225, issued on 8/16/1999) with the CDOT Region 3 Grand Junction office (Environmental Unit). Wetlands were delineated and mapped on 9/19/11 and 9/20/11. Boundaries were re-verified on 7/25/2013 during a site visit to perform the FACWet functional assessment.

All wetlands were delineated in accordance with the Corps of Engineers 1987 Wetland Delineation Manual (Environmental Laboratory 1987) and the 2008 Arid West Manual. A routine determination was completed due to obvious wetland boundaries. With the exception of certain wetlands, for each wetland polygon, two paired data points are typically recorded on Wetland Determination Data Forms to document the wetland/upland boundary. Due to the atypical boundaries of Wetland #1, five paired data points were recorded. These are attached as an addendum to the Wetland Delineation Report.

Each flagged wetland boundary was surveyed as one polygonal unit using a Trimble ProXH receiver for sub-foot post-processing accuracy and determination of wetland size with coordinate locations. The wetland data was then imported into the project's topo files in MicroStation Vers. 8, which were then incorporated into the design plans.

Results

Two types of wetlands were mapped and identified within the project area: 1) native riparian wetlands, and 2) man-induced irrigated wetlands. The riparian wetlands occur along two tributaries to the North Fork Gunnison River. These drainages are identified as an unnamed tributary and Big Gulch. Associated wetlands for each are identified in Figure 4 as Wetland #1 and Wetland #2. The man-induced irrigated wetlands are not associated with any tributary and are essentially vegetated swales. These wetlands are located at Stengel's Hill and are shown on Figure 4 as Wetland #3, #4, and #5. Table 1 provides a summary of the wetland type, location, and size of existing areas and anticipated impacts after completing an analysis of avoidance and minimization measures. All wetland impacts are due to embankment fill. Photos of Wetlands #1 and #2 are provided in Figures 5 and 6. Figure 7 is a representative photo for the irrigation induced wetlands and is a photo of Wetland #4.

Please refer to the Final Wetland Delineation Report (CDOT 2013) (Figures 4, 5, and 6) for project plan sheets that show the surveyed wetland boundaries and includes additional site photos.

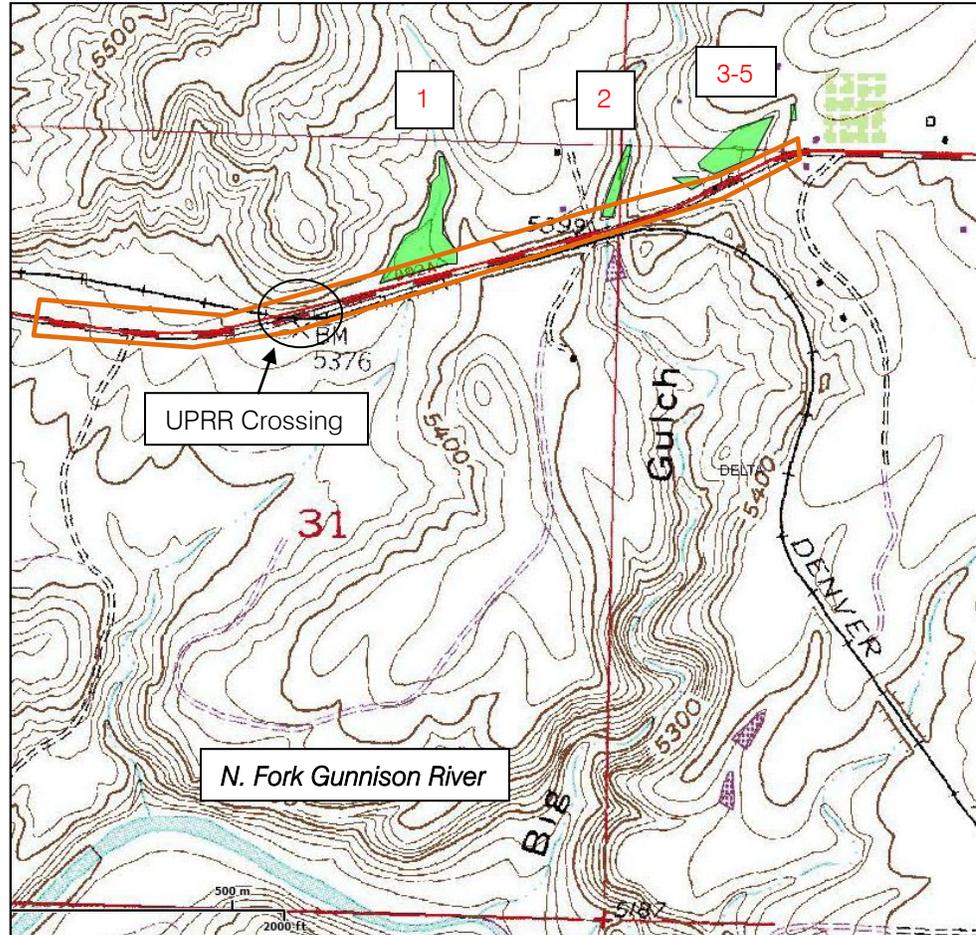
Table 1. Wetland Summary Table.

Wetland ID	Wetland Type	Location			Existing Area (AC)	Impacted Area (AC)	Compensatory Mitigation (AC) WetBank Gunnison
<i>Natural Riparian Wetlands:</i>							
1	PEM	STA 417+00 LT, north of highway	MP 14.7 Unnamed tributary	38.47521 -107.49287	1.04	0.48	0.48
2	PEM	STA 430+50 LT, north of highway	MP 14.9 Big Gulch	38.47571 -107.49099	0.34	0.07	0.07
Subtotal					1.38	0.55	0.55
<i>Man-Induced Irrigated Wetlands:</i>							
3	PEM	STA 436+00 LT, north of highway	MP 15.0 swale	38.47592 -107.49023	0.26	0.12	0.12
4	PEM	STA 439+00 LT, north of highway	MP 15.0 swale	38.47595 -107.49016	0.66	0.41	0.41
5	PEM	STA 439+00 LT, north of highway	MP 15.0 swale	38.48022 -107.48549	0.01	0.00	0.00
Subtotal					0.93	0.53	0.53
TOTAL					2.31	1.08	1.08

Figure 4. Lazear 7.5' Topo Map of Wetland Locations in the Project Area.

FACWet Analysis

To aid in the determination of compensatory mitigation ratios, CDOT performed a functional assessment of the wetlands using the Functional Assessment of Colorado Wetlands (FACWet) method (Version 3.0). Since the two natural drainages varied greatly by plant community type and by stressors, three separate assessments were performed to differentiate the natural riparian wetlands from the irrigation-induced wetlands.



In general, wetland stressors for each assessment area (AA) were deemed high. Supporting data was provided by the Colorado Wetlands Mapping Inventory website (<http://ndismaps.nrel.colostate.edu/wetlands/>), which categorizes the wetland stressors in this area to be severe. The composite Functional Capacity Index (FCI) scores for each AA are summarized in Table 2. Based on the results of the FACWet functional assessment, CDOT proposed mitigation for the loss of all of the 1.08 acreage regardless of function or jurisdiction at a 1:1 Ratio. Detailed project plans and FACWet forms are included in the PCN.



Figure 5. Wetland #1 straddles the unnamed intermittent drainage on BLM land at MP 14.7.



Figure 6. Wetland #2 at Big Gulch as seen from SH 92 at MP 14.9.



Figure 7. Part of Wetland #4 at Stengel's Hill. Seepage from the irrigation ditch originates at the top of the hill.

Table 2. FACWet Summary Table.

Assessment Area (AA)	FCI Score/Functional Category	Interpretation and Stressors
Natural Riparian Wetlands (0.55 acres)		
Unnamed Tributary to North Fork Gunnison R. <u>Dominant Plant Communities:</u> 1) <i>Distichlis spicata</i> * (Inland saltgrass Herbaceous Vegetation) 2) <i>Glaux maritima</i> * (Sea milkwort Herbaceous Vegetation) 3) <i>Muhlenbergia asperifolia</i> * (Alkali Muhly Herbaceous Vegetation) 4) <i>Typha latifolia</i> * (Cattail Herbaceous Vegetation) 5) <i>Sarcobatus vermiculatus</i> / <i>Distichlis spicata</i> * (Black greasewood/Inland saltgrass Shrubland)	0.82/Highly Functioning	This wetland, while on the lower end of the scale in this category, still retains most of its natural functions. The capacity of the AA has somewhat altered the function of the wetland, but it is still fundamentally sound. Stressors include the location of the adjacent highway and dirt road. Conditions upstream contribute to possible eutrophication and changes to the native wetland plant community by the introduction of cattails to a seasonally flooded saline meadow. Unchecked noxious weed control from surrounding agricultural areas may contribute to the introduction of Canada thistle (<i>Cirsium arvense</i>) along the drier wetland/upland fringe.
Big Gulch <u>Dominant Plant Communities:</u> 1) <i>Phalaris arundinacea</i> * (Reed canarygrass Herbaceous Vegetation) 2) <i>Elaeagnus angustifolia</i> (Russian olive Exotic Woodland)	0.71/Functioning	This wetland and drainage lies on the lower end of the scale in this category. The capacity of the AA to function properly is impeded by many stressors and is reflected by the dominant plant community (Reed canarygrass (<i>Phalaris arundinacea</i>) monotype), which is considered invasive. The dominance of this monoculture in Big Gulch may be due to stressors from nutrient loading and reduced soil structure by compaction associated with the resident horses.
Man-Induced Irrigated Wetlands (0.53 acres)		
Vegetated Swales <u>Dominant Plant Communities*:</u> 1) <i>Distichlis spicata</i> * (Inland saltgrass Herbaceous Vegetation) 2) <i>Muhlenbergia asperifolia</i> * (Alkali Muhly Herbaceous Vegetation) 3) <i>Typha latifolia</i> * (Cattail Herbaceous Vegetation) 4) <i>Elaeagnus angustifolia</i> (Russian olive Exotic Woodland)	0.63/Functioning Impaired	The vegetated swales are situated on the lower end of the Functioning Impaired scale due to the lack of natural hydrology. Long-term irrigation has created wetlands however it is unknown and highly unlikely that these areas would retain their wetland characteristics upon the cessation of water.

*Carsey et al. 2003

Compensatory Mitigation

There are no on-site opportunities available for wetland mitigation, except for re-seeding temporarily disturbed wetlands due to construction and to restore the disturbed upland areas. Being that the project is a design-build, it is possible that actual impacts could be less than anticipated by the original design. The Contractor will be required to survey the final wetland impacts upon completion of the project. In the event that there are temporary impacts, an appropriate site-specific native seeding plan has been selected for upland areas and adjacent wetlands. For all permanent impacts CDOT was approved by the US Army Corps of Engineers to purchase mitigation banking credits at WetBank Gunnison at a 1:1 ratio at a cost of approximately \$91,800.

Permitting Requirements

The project is being prepared as an Approved Categorical Exclusion under 23 CFR 771.117 paragraph (D) (1) and the CDOT 128 form was signed by FHWA on 9/17/2012. A 404 permit (NWP 23 – Approved Categorical Exclusions) was authorized by the US Army Corps of Engineers Sacramento District Regulatory Program Office on October 23, 2013 for 1.08 acres of permanent wetland impacts. There were no temporary impacts anticipated.

Project Advertisement is January 16, 2014 and the project is scheduled to begin during the Spring of 2014.

Other Permitting Requirements

Colorado Parks and Wildlife (CPW) was notified on September 30, 2013 for formal SB 40 Certification and provided no comments to date. Due to the presence of two natural streams and associated wetlands, the standard aquatic invasives note is included with the RFP as a permitting requirement for the Contractor.

Application for a CDPS construction stormwater discharge permit for sediment and erosion control will be sent to the Colorado Department of Health and Environment (CDPHE) approximately 10 days prior to the start of construction. To comply with this permit, the project must have and maintain a stormwater management plan (SWMP) which will be kept at the project office and updated as needed. To ensure that the appropriate BMPs are used and properly installed, the project will likely be subject to periodic inspections by the CDOT Regional Erosion Control Advisory Team (RECAT) until final inspection and release of the permit by CDPHE.

As part of the Categorical Exclusion for this project, CDOT conducted an inventory of historic properties and threatened and endangered (T&E) species and found that there would be *no adverse effects* to either historic properties/cultural resources or T&E species.

Concluding Statement

Based on the above considerations, it is determined that there is no practicable alternative to the proposed new construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

References

Carsey, K., G. Kittel, K. Decker, D.J. Cooper, and D. Culver. 2003. *Field Guide to the Wetland and Riparian Plant Associations of Colorado*. Colorado Natural Heritage Program, Fort Collins, CO.

CDOT. 2012. Geotechnical Recommendations for SH 92 & Union Pacific Rail Road Intersection and Big Gulch. CDOT Memorandum prepared by CDOT Staff Geotech to CDOT Staff Bridge on March 12, 2012.

_____. 2013. SH 92 Stengel's Hill Reconstruction. Wetland Delineation Report. CDOT Federal Aid Project Number STA 092A-024; SA 17772. SH 92 MP 13.80 to 15.50 (Delta County). March 21, 2013.

Colorado Parks and Wildlife (CPW) 2013. Colorado Parks and Wildlife/Colorado Natural Heritage Program Wetlands Mapping Inventory website.
<http://ndismaps.nrel.colostate.edu/wetlands/>.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. US Fish and Wildlife Service, FWS/OBS-79/31.

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*, Technical Report Y-87-1. U.S. Army Engineers Waterways Experiment Station, Vicksburg, MS.

Johnson, Brad, Mark Beardsley and Jessica Doran, 2011. *Functional Assessment of Colorado Wetlands (FACWet) Method Version 3.0*, Colorado State University, Department of Biology, Ft. Collins, Colorado, <http://rydberg.biology.colostate.edu/FACWet/>.

Kollmorgan Corporation. 1994 (revised). *Munsell Soil Color Charts*. Macbeth Division of Kollmorgan Instruments Corporation. New Windsor, NY.

Lichvar, R.W. 2012. The National Wetland Plant List. ERDC/CRREL TR-12-11. Hanover, NH: U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory ([http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=\\$N/1012381](http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1012381)).

URS. 2013. Hydrology and Hydraulics Summary Related to UPRR. Memorandum of hydrology and hydraulic analyses for SH 92 prepared for CDOT on May 17, 2013 by URS Corporation - Denver.

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

USDA, NRCS. 2010. *Field Indicators of Hydric Soils in the United States, Version 7.0*. L.M. Vasilas, G.W. Hurt and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

_____, NRCS. 2010. Web Soil Survey for Paonia Area, Colorado, Parts of Delta, Gunnison, and Montrose Counties (CO677). Accessed 03/5/2013 (<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>).

USGS. 1955 (Photorevised 1978). Lazear Quadrangle. 7.5 Minute Series (Topographic). USGS Denver, CO.

USGS. 1974. Hydrologic Unit Code Map for Colorado. Denver Federal Center, Denver, CO.