



DRAFT COMPENSATORY MITIGATION PLAN

for

Arroya Lane Road Expansion El Paso County, Colorado

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1 INTRODUCTION

Classic Communities (“Applicant”) retained Bristlecone Ecology, LLC (“B.E.” or “Agent”) to prepare this draft Compensatory Mitigation Plan (CMP) for compliance with permit conditions pursuant to Section 404 of the Clean Water Act (CWA). The Applicant is applying for a Section 404 permit for impacts to regulated wetlands at the Arroya Lane road expansion project (“Project”). This draft CMP addresses the requirement for compensatory mitigation to offset a total of 0.44 acres of permanent impacts to wetlands resulting from the development of the Project, which is located in El Paso County, Colorado, northeast of the City of Colorado Springs. The Project involves a road expansion of Arroya Lane at its crossing of Sand Creek, approximately 1,000 feet east of Vollmer Road (**Appendix A: Site Location Map**). This draft CMP creates an approach for the purchase of mitigation credits from Maria Lake Mitigation Bank in Huerfano County that will offset the loss of regulated wetlands at the site.

1.1 Purpose and Need

Under Section 404 of the CWA, actions that impact more than one-tenth of an acre of regulated wetlands typically require compensatory mitigation for those effects. The Project as designed will impact 0.44 acres of wetlands within the floodplain of Sand Creek. In accordance with the compensatory mitigation requirements at 33 CFR 332.3(f)(2) and the U.S. Army Corps of Engineers’ (USACE) South Pacific Division (SPD) Mitigation and Monitoring Guidelines (USACE 2015), the USACE requires a ratio of compensatory mitigation to impacts of at least 1-to-1 to account for temporal losses, likelihood of success of the mitigation, differences between functions at the impact and mitigation sites, and other factors. Mitigation through the purchase of credits from a mitigation bank will eliminate factors such as temporal loss, risk and uncertainty, and qualitative differences in impact versus mitigation sites. Thus, the purpose of this CMP is to detail compensatory mitigation at a ratio of 1-to-1 through the purchase of mitigation credits for impacts of like kind resulting from development of the Project. Development of this draft CMP in accordance with the USACE’s requirements for compensatory mitigation will satisfy the need for such mitigation outlined in the Colorado Mitigation Procedures (COMP) V2.0, the SPD’s Mitigation Ratio Setting Checklist (MRSC), and the requirements of listed at 33 CFR 332.4(c).

1.2 Project/Consultation History

Prior to submitting this draft CMP, the Project’s Agent discussed the proposed action with USACE staff in an informal pre-application meeting. The USACE did not have any concerns at the time and instructed the Agent to proceed with the application.

2 SITE DESCRIPTION

The Arroya Lane road expansion project will widen and improve Arroya Lane at its crossing of Sand Creek east of Vollmer Road. The Project extends roughly 200 feet in either direction north and south of Arroya. It is located in portions of Sections 22 and 27 in Township 12 South, Range 65 West, and can be found on the U.S. Geological Survey's (USGS) Falcon NW 7.5-minute quadrangle (USGS 2020) (**Appendix A**). The Project area is located within the Foothill Grasslands ecoregion in Colorado (Chapman et al. 2006). The pine woodlands of the Black Forest are located about 0.5 mile to the west and about 0.33 mile to the northeast of the site. The Foothills Grasslands Ecoregion is composed primarily of a mixture of tall and mid-grasses and a few isolated pine woodlands (Chapman et al. 2006). Dominant species typically include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and yellow Indiangrass (*Sorghastrum nutans*; Chapman et al. 2006). The area has been used historically as rangeland, but residential and commercial development surrounds the site and is still increasing steadily.

2.1 Proposed Action

Currently, Arroya Lane is a dirt road that accesses a few homes and a water storage tank east of Vollmer Road and west of Raygor Road. A single 36-inch culvert conveys flows in the Sand Creek floodplain under the existing roadway. As a result of increasing development in the region (and a corresponding increase in stormwater runoff in the Sand Creek floodplain), the existing road and culvert are no longer sufficient. The proposed action will expand and pave Arroya Lane to accommodate the increase in transportation and will upgrade the existing culvert to a triple-cell box culvert capable of conveying the higher flow volume to Sand Creek. Additional infrastructure will include guardrails, wing walls for the culvert, riprap to stabilize the edges of the floodplain, a check structure to reduce flow velocity, grading, and other necessary modifications (**Appendix B: Site Plans**).

A total of 0.44 acres of Palustrine shrub-scrub wetlands along the Sand Creek floodplain now need to be refilled in order to complete the development. A map depicting the totality of impacts to regulated wetlands is provided in **Appendix CB: Wetland Impact Map**. Mitigation for the wetland impacts will be the responsibility of the Applicant, who has elected to purchase mitigation credits from Maria Lake Mitigation Bank in Huerfano County to offset the loss of Waters of the U.S. (WOTUS). In order to mitigate permanent impacts to WOTUS resulting from the expansion of the roadway, compensatory mitigation has been proposed herein to describe the methodology to be used to purchase credits from the mitigation bank. More specifics of the proposed mitigation are discussed in Section 3.

2.2 Watershed Approach

The USACE and EPA have indicated that a watershed approach is the preferred method for accomplishing permittee-responsible compensatory mitigation. As such, proposed mitigation shall be designed to take place within the same watershed that is impacted by project development. Wetland mitigation areas shall be designed to contribute to the sustainability and proper function of the watershed.

The Project area is located in the Middle Fountain Creek watershed, 10-digit hydrologic unit code (HUC) 1102000303. Mitigation will be completed through the purchase of credits from the Maria Lake



Mitigation Bank, located in the same basin (Upper Arkansas, HUC-6 110200) and ecoregion Level III (Southwestern Tablelands) as the Project.

3 COMPENSATORY MITIGATION

The current Project proposes a permanent loss of 0.44 acres of wetlands within the corridor of Sand Creek and will be authorized under a Nationwide Permit (NWP) 14 for Linear Transportation Projects. The action, which includes the expansion of Arroya Lane has been designed to avoid 0.60 acres of wetlands on the site and minimize impacts. The purchase of a total of 0.44 acres of mitigation credits is proposed to offset wetland losses, using a one-to-one ratio. Compensatory mitigation to address the impacts resulting from Project development as currently proposed is described in the following sections.

3.1 Objectives

The primary objective of the current Project is to expand and pave Arroya Lane to accommodate an increase in transportation needs in the area, and will also upgrade the existing culvert to a triple-cell box culvert capable of conveying higher flow volume within the Sand Creek floodplain. Additional infrastructure will include guardrails, wing walls for the culvert, riprap to stabilize the edges of the floodplain, a check structure to reduce flow velocity, grading, and other necessary modifications (**Appendix B**). The primary purpose of compensatory mitigation is to offset the loss of 0.44 acres of wetlands resulting from the development of the Project. The Proponent has elected to purchase mitigation bank credits from the Maria Lake Mitigation Bank. Expected functional loss versus functional gain is described below.

The goal of mitigation is to provide functional lift to the watershed. In order to provide an assessment of functional loss at the impact site versus expected functional gain at the enhancement site (mitigation bank), a qualitative impact-mitigation comparison was performed (see **Table 1**). This analysis was performed in accordance with the SPD's *Standard Operating Procedure for Determination of Mitigation Ratios* (USACE N.D.) and Instructions for *Preparing Mitigation Ratio-Setting Checklist* (or MRSC). The MRSC was used to determine the appropriate mitigation-to-impact ratio.

Overall, the impact-versus-mitigation-site qualitative comparison yielded moderately improved functions at the mitigation site over the existing functions at the impact sites, with a total score of +15 at the mitigation site compared to -12 at the impact site. All of the primary factors are expected to be enhanced at the mitigation bank, however there is a moderate loss of most functions expected at the impact site (**Table 1**).

Table 1: Qualitative Assessment of Functional Loss vs Functional Gain¹

Function	Impact Site	Mitigation Site	Justification
Short- or long-term surface water storage	-	+	Minor loss at impact site; minor gain for mitigation site
Subsurface water storage	-	++	Minor loss at impact site; mitigation site provides significant subsurface water storage gain
Moderation of groundwater flow or discharge	-	++	Minor loss at impact site and significant expected gain at mitigation site
Dissipation of Energy	-	+	Minor loss at impact site; expected minor gain at mitigations site
Cycling of nutrients	-	+++	Minor decline at impact site; expected nutrient cycling will be excellent at mitigation site
Removal of elements and compounds	--	+++	Moderate decline at impact site; filtration will be expected to be moderately high at mitigation site
Retention of particulates	--	+	No change at impact site; particulate retention at mitigation site will slightly increase
Export of organic carbon	-	+++	Minor decline at impact site; Organic carbon export will be high at mitigation site
Maintenance of plant and animal communities	--	++	Moderate decline at impact site through loss of woody vegetation; Moderate preservation of plant and animal communities at mitigation site
	-12	+15	

¹ Anticipated functional loss at impact sites versus functional gain at mitigation sites calculated using guidance from the MRSC.

3.2 Baseline Information

El Paso County parcel numbers for the Project are 5221400001, 5227200007, 5222000026, and 5222000027. Elevations range between approximately 7,235 and 7,250 feet above mean sea level (AMSL). The topography of the Study Area consists mainly of a broad fluvial plain situated within flat to rolling foothills grasslands and scattered pine woodlands. The majority of the Study Area consists of a riparian and wetland corridor within the Sand Creek floodplain. The Study Area is bisected by this corridor from the north to the south. The wetland/riparian corridor has moderate plant diversity and healthy structure in a confined fluvial plain.

The wetlands to be impacted are classified under the Cowardin Classification System for Wetlands and Deepwater Habitats (Cowardin, et. al., 1979) as Palustrine, Shrub-Scrub, Broad-Leaved Deciduous, Temporarily Flooded (PSS1A). Dominant vegetation in the wetlands include sandbar willows (*Salix exigua*), Nebraska sedge (*Carex nebrascensis*), beaked sedge (*Carex utriculata*), and Baltic rush (*Juncus balticus*). Peachleaf willow (*Salix amygdaloides*), plains cottonwoods (*Populus deltoides*), and narrowleaf cottonwood (*Populus angustifolia*) are also present in patches along Sand Creek throughout this reach. Other hydrophytes observed in smaller numbers included redtop (*Agrostis gigantea*) and Drummond's rush (*Juncus drummondii*). Many upland plants such as slender wheatgrass (*Elymus trachycaulus*), Canada wildrye (*Elymus canadensis*), smooth brome (*Bromus inermis*), great

mullein (*Verbascum thapsus*), yarrow (*Achillea millefolium*), and Canada thistle (*Cirsium arvense*) were present in the wetlands. Soils at the site are primarily Pring sandy loams, including the hydric minor Pleasant soil component, with wetland areas predominantly corresponding to the Pleasant series' soil profile (not Pring). Vegetation throughout the floodplain where the wetlands exist was varied and often not overwhelmingly hydrophytic; however, soils were generally clearly hydric throughout the floodplain, but immediately transitioned to rocky Pring soils with even a foot or two of elevation gain. Hydrology across all wetlands in the Project area is provided primarily by normal precipitation and runoff events, and portion of the Study Area south of Arroya is within a designated FEMA floodplain. There is an existing culvert that flows under Arroya Lane, hydrologically connecting Wetlands 1 and 2. See **Appendix D: Arroya Lane Wetland Delineation Report** for additional details about the baseline conditions at the site.

3.3 Determination of Credits

Alternatives for mitigation area selection were considered prior to selecting off-site mitigation through the purchase of mitigation credits as the preferred alternative. In terms of chances for success, purchasing credits from a mitigation bank is the most preferable option. Purchase of credits in the Maria Lake Mitigation Bank will benefit the Upper Arkansas basin, where both the Bank and the Project reside, thus following the watershed approach for mitigation preferred by the USACE. Purchasing credits from a wetland mitigation bank eliminates the implicit uncertainty in permittee-responsible mitigation (PRM) and assures that mitigation is accomplished successfully. Purchasing credits from a bank will also increase the level of protection of the mitigation wetlands, since the credits are already protected in a conservation easement, while on-site PRM could be accomplished with a lesser protection instrument such as a deed restriction. Finally, purchasing credits from a wetland mitigation bank generally ensures the quality of mitigation wetlands are high, since mitigation bank approvals are contingent upon high standards of success. The quality of wetlands at the site currently (moderately diverse Palustrine Scrub-Shrub wetlands) is moderate, and it is expected that purchasing credits will improve the quality/functionality over that which currently exists at wetlands on the site. At the time of this writing, credits are available for purchase from the Maria Lake bank, according to the bank's sponsor.

The Mitigation Ratio Setting Checklist (**Appendix D: Mitigation Ratio Setting Checklist**) was used to determine mitigation ratios necessary to mitigate the loss of wetlands at the impact site. Based on the quantity of wetlands at the site that would be affected by development, a minimum of 0.44 acres would be required for a one-to-one ratio to offset the loss. Per the MRSC, several additional factors must be considered before determining a final mitigation ratio. First, purchasing credits from a mitigation bank will add some of the highest functional gain possible for mitigation, while the loss of the wetlands on the site will only create a moderate functional loss; therefore, no adjustment is applied based on wetland quality. Second, purchasing credits from a mitigation bank does not involve the risk involved in PRM, so no further adjustment is applied to account for risk. Also, impacts and mitigation sites are of the same habitat type, resulting in no further ratio adjustment for type conversion. Finally, there would be no temporal loss of wetlands since wetlands in the bank are already established prior to the loss of wetland at the site. B.E. thus believes that a one-to-one ratio is justified based on a preliminary analysis using the MRSC. **Table 2** below describes the type, size, and location

of the wetlands on the site that would be affected by development. **Appendix E** provides a copy of the MRSC that was used to compute the proposed mitigation ratio for the credit purchase.

Table 2: Arroya Lane Wetlands Summary

Name	Wetland Type	Size: Length/ Width/ Area	Latitude	Longitude	Jurisdictional Status*
Wetland 1	PSS1A – Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Temporarily Flooded	0.64	38.9838134°N	104.6622681°W	Yes
Wetland 2	PSS1A – Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Temporarily Flooded	0.42	38.9845137°N	104.6630679°W	Yes

* Presumed status based on professional opinion. Only the USACE may determine official regulatory status.

Should you have any questions regarding the information or recommendations provided in this report, please feel free to contact Bristlecone Ecology at info@bristleconeecology.com.

Sincerely,

Bristlecone Ecology, LLC



Daniel Maynard
 Owner/Ecologist

4 LITERATURE CITED

Cowardin, Lewis M., Virginia Carter, Francis C. Goulet, and Edward T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States.

USGS (U.S. Geological Survey). 2020. Geographic map of the Falcon NW, CO quadrangle. Scale = 1:24,000.

USACE (United States Army Corps of Engineers). 2015. Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division USACE.

APPENDICES

Appendix A: Site Location Map

Appendix B: Site Plans

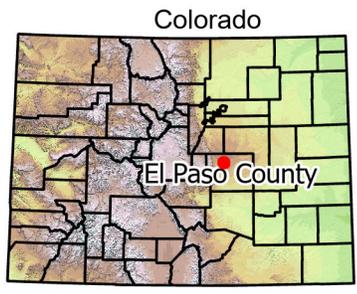
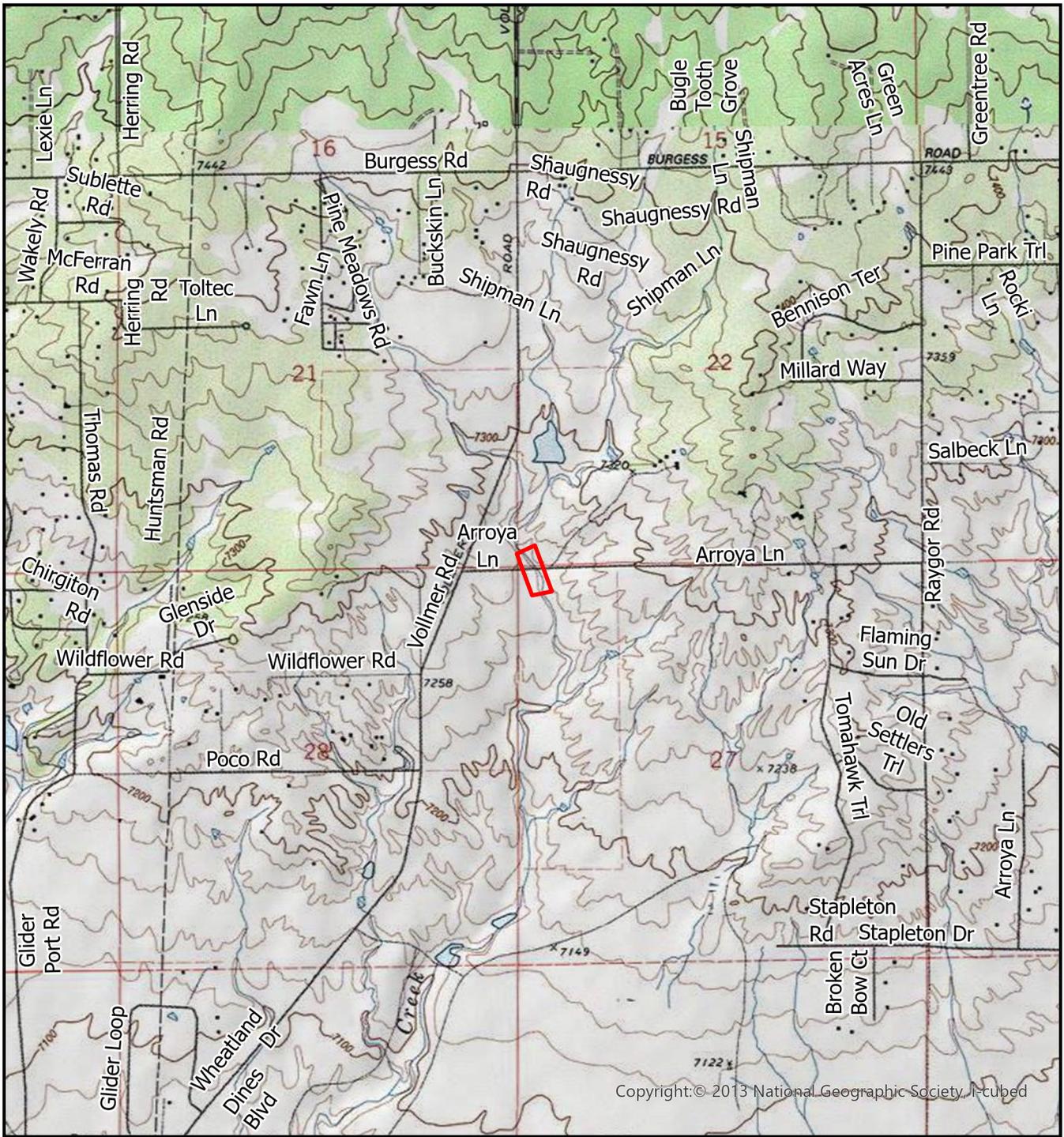
Appendix C: Wetland Impact Map

Appendix D: Arroya Lane Wetland Delineation Report

Appendix E: Mitigation Ratio Setting Checklist



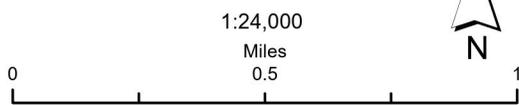
APPENDIX A
SITE LOCATION MAP



 Study Area

Arroya Lane Road Expansion Project

Site Location Map



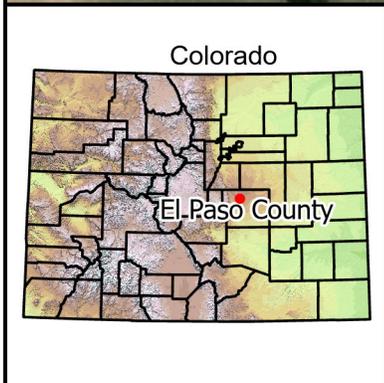
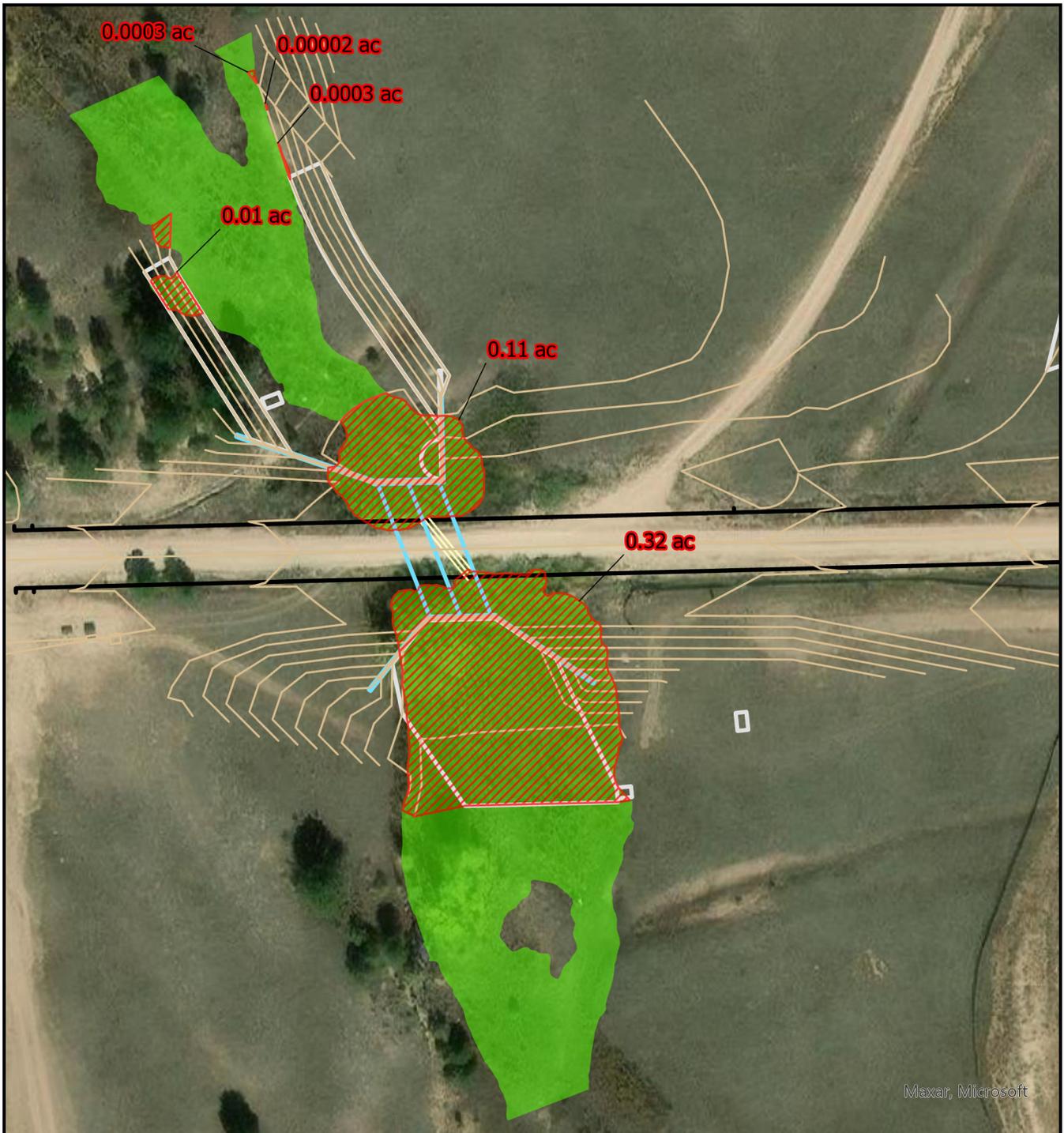


APPENDIX B

SITE PLANS



APPENDIX C
WETLAND IMPACT MAP



	Wetlands (1.06 acres)
	Impact Areas (0.44 acres)
	Future Grading Contours
	Existing Stormwater Culvert
	Future Arroya Lane Road Boundaries
	Future Triple Box Culvert
	Future Riprap

1:1,000
Feet
0 100 200

Arroya Lane Road Expansion Project

Wetland Impact Map



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APPENDIX D

ARROYA LANE WETLAND DELINEATION REPORT



APPENDIX E

MITIGATION RATIO SETTING CHECKLIST

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 9/25/23 Impact Site Name: Arroya Lane Wetlands Impact Cowardin or HGM type: Palustrine	Corps File No.: SPA-2023-XXXXX ORM Resource Type: Non-tidal Wetland Impact area : 0.44 acres	Project Manager:	Hydrology: Seasonally flooded
	Column A Mitigation Site Name: Maria Lake Bank Mitigation Type: Establishment ORM Resource Type: Non-tidal wetland Cowardin/HGM type: Palustrine Hydrology: Temporarily flooded	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	
2.a	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: 0.0 Baseline ratio: 1.00 : 1.00 PM justification: see Table	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see Table	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	
2.b	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	
2.c	Preservation (Table 2, step A) Baseline ratio: : 1.00	Preservation (Table 2, step A) Baseline ratio: : 1.00	Preservation (Table 2, step A) Baseline ratio: : 1.00	
3	Preservation (Table 2, step E) Ratio adjustment:	Preservation (Table 2, step E) Ratio adjustment:	Preservation (Table 2, step E) Ratio adjustment:	
4	Mitigation site location: Ratio adjustment: 0 PM justification: The mitigation bank is located in the same HUC6 watershed and same Level III ecoregion as the impact site	Mitigation site location: Ratio adjustment: PM justification:	Mitigation site location: Ratio adjustment: PM justification:	
5	Net loss of aquatic resource surface area: Ratio adjustment: 0 PM justification: No net loss for mitigation with credit purchase	Net loss of aquatic resource surface area: Ratio adjustment: PM justification:	Net loss of aquatic resource surface area: Ratio adjustment: PM justification:	
6	Type conversion: Ratio adjustment: 0 PM justification: Loss of PSS wetlands and mitigation with similar PSS wetlands	Type conversion: Ratio adjustment: PM justification:	Type conversion: Ratio adjustment: PM justification:	
7	Risk and uncertainty: Ratio adjustment: 0 PM justification: The use of a mitigation bank ensures low risk and uncertainty in establishing mitigation wetlands	Risk and uncertainty: Ratio adjustment: PM justification:	Risk and uncertainty: Ratio adjustment: PM justification:	
8	Temporal loss: Ratio adjustment: 0 PM justification: Wetlands in the Maria Lake Mitigation Bank are already established, thus there will be no temporal loss between time of impact and time of mitigation	Temporal loss: Ratio adjustment: PM justification:	Temporal loss: Ratio adjustment: PM justification:	
9	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 1.00 : 1.00 Proposed impact (total): 0.44 acres to Resource type: 0 linear feet Cowardin or HGM: Seasonally Hydrology: Seasonally Required Mitigation*: 0.44 acres 0.0 linear feet of Resource type: Non-tidal wetland Cowardin or HGM: Palustrine Hydrology: Temporarily flooded Proposed Mitigation**: 0.44 acres 0 linear feet Impact Unmitigated: 0 % 0.00 acres Additional PM comments:	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact: 0.00 acres to Resource type: 0 linear feet Cowardin or HGM: Palustrine Hydrology: Seasonally Required Mitigation*: 0.00 acres 0.0 linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: 0.00 acres 0 linear feet Impact Unmitigated: 0 % 0.00 acres Additional PM comments:	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): #VALUE! Remaining impact (linear feet): #VALUE! to Resource type: 0 Cowardin or HGM: Palustrine Hydrology: Seasonally Required Mitigation: #VALUE! #VALUE! of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: 0.00 acres 0 linear feet Impact Unmitigated: 0 % 0.00 acres Additional PM comments:	