AMERICAN GEOSERVICES

Wetlands Assessment Report

Bentgrass Meadows St & E. Woodman Rd, Falcon, CO

Date: July 11, 2022; Project No: 0207-CS22

AMERICAN GEOSERVICES

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COLORADO WYOMING FLORIDA WASHINGTON OREGON

July 11, 2022

PROJECT NO: 0207-CS22

Client: Mr. Erin Ganaway,

Reference: Wetlands Assessment, Proposed residential development, Bentgrass Meadows St & E. Woodman Rd, Falcon, CO

Dear Mr. Ganaway,

At your request, we have completed the wetlands assessment for the referenced project. Results of our evaluation are summarized below.

PURPOSE and SCOPE

The study area is an isolated small strip of land as shown in attached figures and photographs, located just north of E. Woodman Rd and adjacent to the Mountain View Electric Association property. The site consists of partially urban, undeveloped, residential and commercial areas at an elevation of approximately 6,900-6,920 feet above Mean Sea Level (MSL). The general habitat types within the study area include upland grassy/weedy habitat, riparian habitat, and minor adjacent landscaped areas. The area has an average annual precipitation of approximately 16-17 inches, an annual max temperature of 62 degrees, and an average minimum temperate of 36 degrees Fahrenheit.

The purpose of this wetland assessment was to survey and delineate the boundaries of any potentially jurisdictional wetlands that might exist within the site boundaries as shown below, as shown in attached figures, and as defined under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

DESK STUDY

Prior to the field survey, a desktop analysis was performed to evaluate overall wetlands and water resource characteristics of the aforementioned ponded area and determine the presence of potentially jurisdictional wetlands. Aerial imagery, topographic maps, United States (US) Fish and Wildlife (USFWS) Wetlands Mapper (USFWS), NRCS Web Soil Survey, other state and federal agency websites, and other relevant data was reviewed. A review of NWI maps (USFWS) was conducted to determine the potential presence, location, size, and type of wetlands located within the site boundaries. NWI data did not depict wetlands adjacent to the riverine within the site boundaries.

A review of FEMA FIRM floodplain maps (FEMA) was conducted to determine the existence, location, and extent of floodplains located within or near the site areas. The site area is identified as Zone AE flood zone, which consists of areas with 'base flood elevations determined" (FEMA 2005). The Project is located within FEMA FIRM panel 08041C0545G, El Paso County.

The El Paso County Soil Survey indicates the project area is primarily underlain by Columbine gravelly sandy loam (0 to 3 percent slopes). These soils are not classified as a hydric soil in El Paso County by the Natural Resources Conservation Service (NRCS).

FIELD INVESTIGATION

Sam Adettiwar, MS, PE performed field visits in July 2022. Field reconnaissance was conducted to determine the true extent and type of wetlands located within and adjacent to the site area, and to verify the information gathered through NWI data review. The wetland assessment was performed in general accordance with the Rocky Mountains, Valleys, and Coasts Regional Supplement to the 1987 USACE Wetland Delineation Manual (USACE 1987).

Generally, the detailed examination of wetlands involves the collection of vegetation, soil, and hydrology data at paired data points. These paired points include one point within the suspected wetland and one point in the adjacent upland. However, if numerous wetlands are in close proximity and surrounded by the same or similar upland plant community, then upland data points of nearby sites are often utilized, rather than creating a new upland data point for each wetland area. Most surrounding uplands were not formally sampled and were generally examined while attempting to identify wetland areas.

The determination of a wetland depends on the presence or absence of three parameters:

- *Hydrophytic Vegetation:* To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species.
- *Hydric Soils*: A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Soil colors were identified using the most current edition of the Munsell Soil Color Charts.
- *Wetland hydrology during the wettest season*: Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators included visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters are generally present in wetland areas.

All plants considered dominant in wetlands, as well as other commonly observed species, were investigated for. During field examinations, dominant plants were compared to the National Wetland Plant List (NWPL) (Corps 2018) to determine the “wetland indicator status” of each species. Indicator ratings are as follows (Corps 2012): obligate (OBL) = almost always occur in wetlands; facultative wet (FACW) = usually occur in wetlands but may occur in non-wetlands; facultative (FAC) = occur in wetlands and non-wetlands; facultative upland (FACU) = usually occur in non-wetlands but may occur in wetlands; and upland (UPL) = almost never occur in wetlands. If the species is not included in the NWPL, then the indicator rating is assumed to be UPL. Generally, if at least 50 percent of those species had an indicator rating of FAC or wetter, the potential wetland area would satisfy the Corps criterion for wetland vegetation. The botanical nomenclature presented in this report follows the NWPL. If a species is not listed in the NWPL, then the nomenclature follows PLANTS Database (USDA, NRCS 2018).

While recording plant species and identifying soil characteristics, potential wetlands within the study area were assessed for evidence and potential sources of wetland hydrology. This evidence included primary indicators such as the presence of surface water and saturation and secondary indicators such as geomorphic position and drainage patterns.

Soils were examined at various locations throughout the study area to identify the presence of hydric soil indicators. If indicators are found, multiple pits are dug along the gradient to identify the extent of hydric soils; however, this was not necessary due to the absence of hydric soil indicators.

JURISDICTIONAL STATUS

The jurisdictional status of wetlands and other water features is generally based on the US Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook (Corps 2007) and other Corps documents (Corps 2008). In order for an aquatic feature to be considered a "water of the US" and jurisdictional under Section 404 of CWA, it must be at least one of the following:

- A traditional navigable water (TNW)
- A wetland adjacent to a TNW
- A relatively permanent water (RPW), including tributaries that typically flow year-round or have a continuous flow at least seasonally, typically three months
- A wetland that directly abuts an RPW
- A wetland adjacent to an RPW, but only if it can be shown that the feature has a "significant nexus" with a TNW
- A non-RPW or wetland adjacent to a non-RPW, if the feature has a "significant nexus" with a TNW

The significant nexus evaluation includes an assessment of the flow characteristics and functions of the feature to see if it has "more than an insubstantial or speculative effect on the chemical, physical, or biological integrity of TNWs" (Corps 2007). If it does, then it is considered jurisdictional.

CONCLUSION

Soils, hydric indicators, and vegetation were examined on site to determine the presence or absence of wetlands. Based on our field investigation, potentially jurisdictional wetlands were not observed within the site area. Field indicators did not include any wetland vegetation within and abutting or adjacent to the site area. Soil saturation was not evident. Moreover, the organic, spongy, or mucky soils which generally require time to develop and lead to the growth of wetland plants were not noted in the site area or adjacent to it. The site area did not appear as a marsh, swamp, bog, or fen by any means. Emergent plants or floating plants were not noted.

REFERENCES

Brinson, M. 1993. A Hydrogeomorphic Classification for Wetlands . Technical Report WRP-DE-4, US Army Engineer Waterways Experiment Station. Vicksburg, MS.

Cowardin, LM, Carter, V, Golet, FC, and LaRoe, ET. 1979. Classification of Wetlands and Deepwater Habitats of the United States. US Department of the Interior, Fish and Wildlife Service.

Colorado Wetland Information Center: https://cnhp.colostate.edu/cwic/library/field-guides/

Colorado Wetlands Mobile App

Cowardin, L., V. Carter, F. Golet, and E. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79-31, Washington, DC.

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

El Paso County Land Development Code

Johnson, B, Beardsley, M, and Doran, J. 2013 . The Functional Assessment of Colorado Wetlands (FACWet) Method. Version 3.0. Prepared for the Colorado Department of Transportation DTD Applied Research and Innovation Branch.

Muller-Dombois, D. and H. Ellenberg. 1974. Aims and Methods of Vegetation Ecology. John Wiley & Sons, Inc. New York, New York.
Munsell Color. 1988. Munsell Soil Color Charts. Kollmorgen Instruments Corp., Baltimore.

National Technical Committee for Hydric Soils. 1991. Hydric Soils of the United States. USDA Misc. Publ. No. 1491.

Reed, P., Jr. 1988. National List of Plant Species that Occur in Wetlands

Reed, P.B. Jr. 1993. 1993 Supplement to the list of plant species that occur in wetlands

US Army Corps of Engineers (Corps). 2007. US Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. Prepared by US Environmental Protection Agency.

US Department of Agriculture (USDA), NRCS. 2018. PLANTS Database. National Plant Data Team, Greensboro, NC 27401-4901 USA.

US Fish and Wildlife Service (USFWS). 2018. Wetlands Mapper.

USDA NRCS & National Technical Committee for Hydric Soils, September 1995. Field Indicators of Hydric Soils in the United States - Version 2.1

U.S. Geological Survey Maps

GENERAL CONDITIONS

This report has been prepared exclusively for the client, its' consultant, engineers and subcontractors for the purpose of design and construction of the proposed structures. No other engineer, consultant, or contractor shall be entitled to rely on information, conclusions or recommendations presented in this document without the prior written approval of AGS.

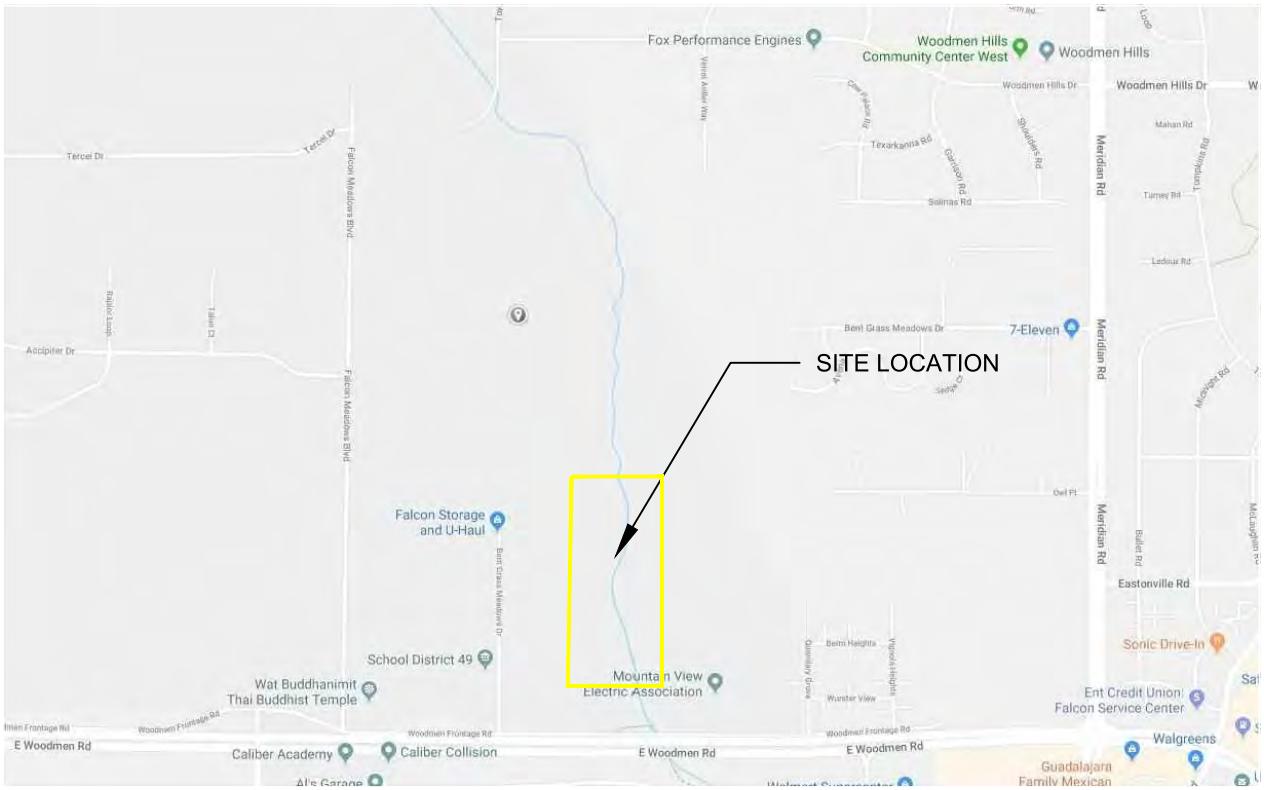
We appreciate the opportunity to be of service to you on this project. If we can provide additional assistance or observation and testing services during design and construction phases, please call us at 1 888 276 4027.

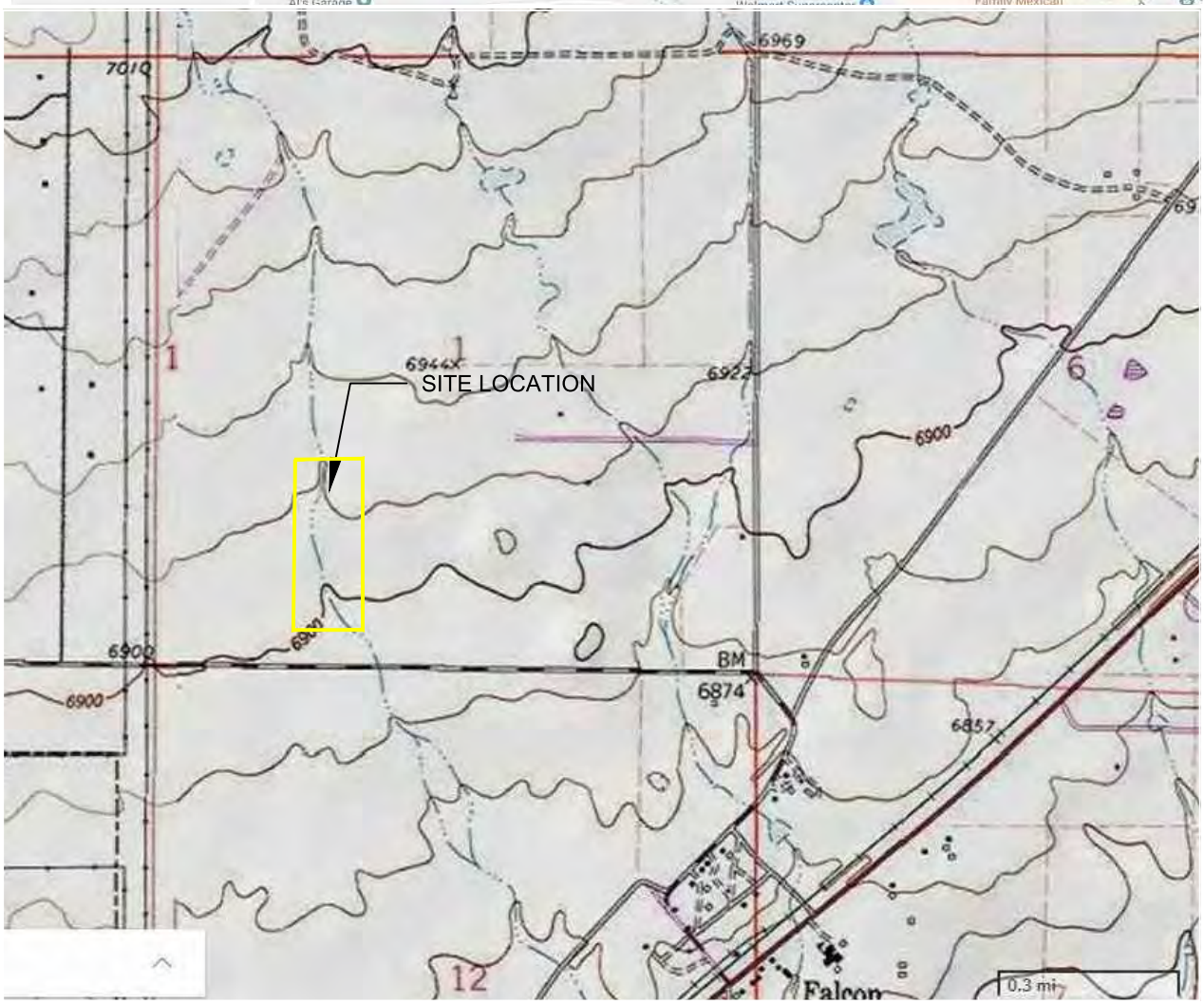
Sincerely,

Sam Adettiwar, MS, PE, GE, P.Eng, M.ASCE
Senior Engineer

Attachments

FIGURES





REFERENCE:
GOOGLE MAPS
USGS TOPOGRAPHIC MAPS

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FIGURE 1: SITE LOCATION MAP

NOTE:
SCHEMATIC PLAN TO SHOW APPROXIMATE SUBSURFACE EXPLORATION LOCATION ONLY; NOT SURVEYED.

N

LEGEND:

DESIGNATES SUBSURFACE INFILTRATION LOCATION, BY AMERICAN GEOSERVICES, LLC. , JUNE 2022 SEE EXPLORATION LOG IN APPENDIX FOR FURTHER DETAILS.

REFERENCE:
ELPASO COUNTY
COLORADO GIS

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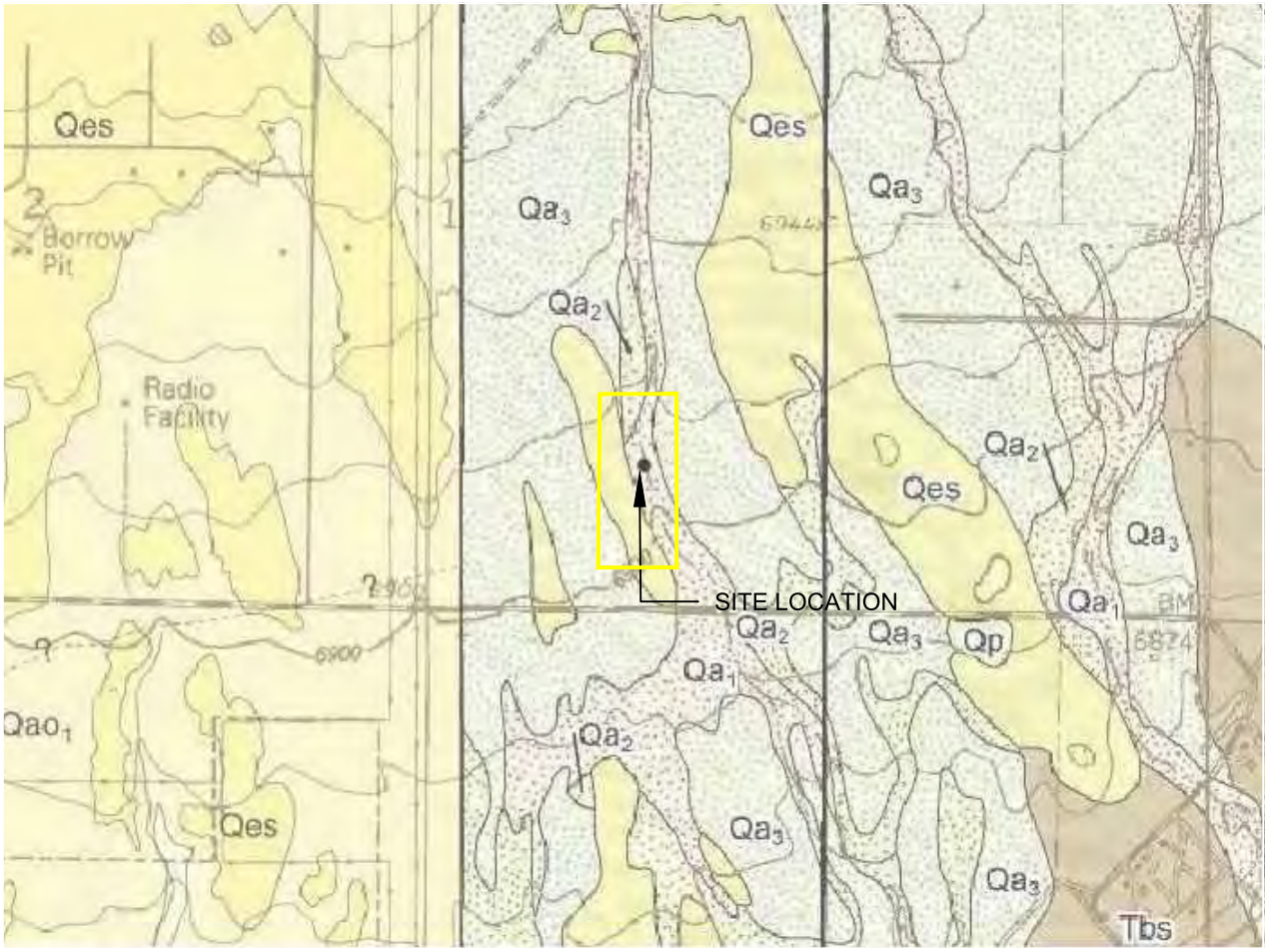
FIGURE 2: SCHEMATIC SITE PLAN



LEGEND

Qa_2 — **Alluvium two (lower Holocene)** — Dark gray to brown, poorly to well sorted, moderately consolidated, silt, sand, gravel, and minor clay and occasional boulders in stream terrace deposits approximately 6-12 feet above the modern flood plain or as non-terrace forming alluvium in valley headwaters. Clasts are subrounded to well rounded and the dominant sediment is sandy gravel with a silty sand matrix. Clay seams are poorly to moderately stratified. The unit correlates with the Piney Creek Alluvium described by Hunt (1954) in the Denver area and of Maberry and Lindvall (1972). The unit is subject to occasional flooding and is a potential source of sand and gravel. Maximum exposed thickness of the unit locally exceeds 20 feet.

Qes — **Eolian sand (Holocene to upper Pleistocene)** — Yellowish-brown to tan, fine- to coarse-grained, frosted sand and silt deposited by wind. Typically this unit is faintly stratified and non-cohesive; dune forms are not present. The unit is likely deposited as a sandsheet by winds capable of moving very fine gravel-sized clasts. Eolian sand is moderately compacted, easily excavated, and drains well. Unit locally may exceed 5 feet in thickness.

Qa_3 — **Alluvium three (upper Pleistocene)** — Tan to reddish brown to grayish brown, poorly sorted, moderately consolidated, poorly to moderately stratified silt, sand, gravel, and cobbly gravel and occasional boulders in stream terrace deposits approximately 10-20 feet above the modern flood plain or as non-terrace forming alluvium in valley headwaters that underlies the younger alluviums. The unit contains dark gray clay beds that may be expansive. Clasts are subrounded to well rounded and the dominant sediment is sandy gravel with a sandy matrix. The unit correlates with the Broadway Alluvium described by Hunt (1954) in the Denver area and of Maberry and Lindvall (1972). The unit is a potential source of sand and gravel. Maximum exposed thickness of the unit locally exceeds 20 feet.

N

REFERENCE:
U.S. GEOLOGICAL MAPS

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FIGURE 3: GEOLOGIC MAP

LEGEND

El Paso County Area, Colorado (CO625)

El Paso County Area, Colorado (CO625)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	157.2	25.2%
9	Blakeland-Fluvaquentic Haplaquolls	77.1	12.3%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	390.3	62.5%
Totals for Area of Interest		**624.5**	**100.0%**

N

REFERENCE:

WEB SOIL SURVEY

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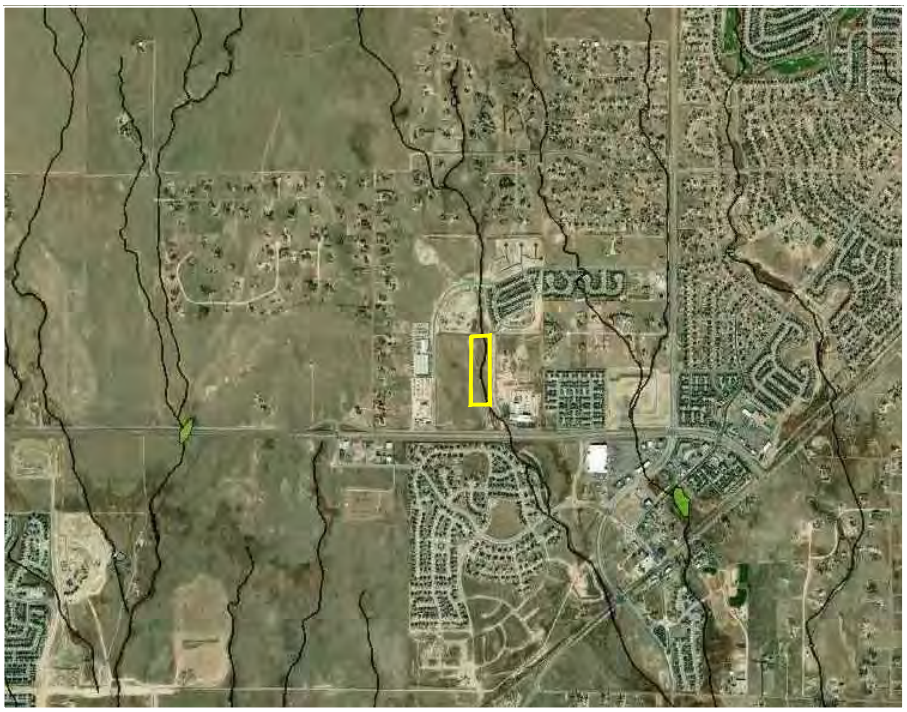
FIGURE 4: SOIL SURVEY MAP



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REFERENCE:

NATIONAL WETLAND INVENTORY

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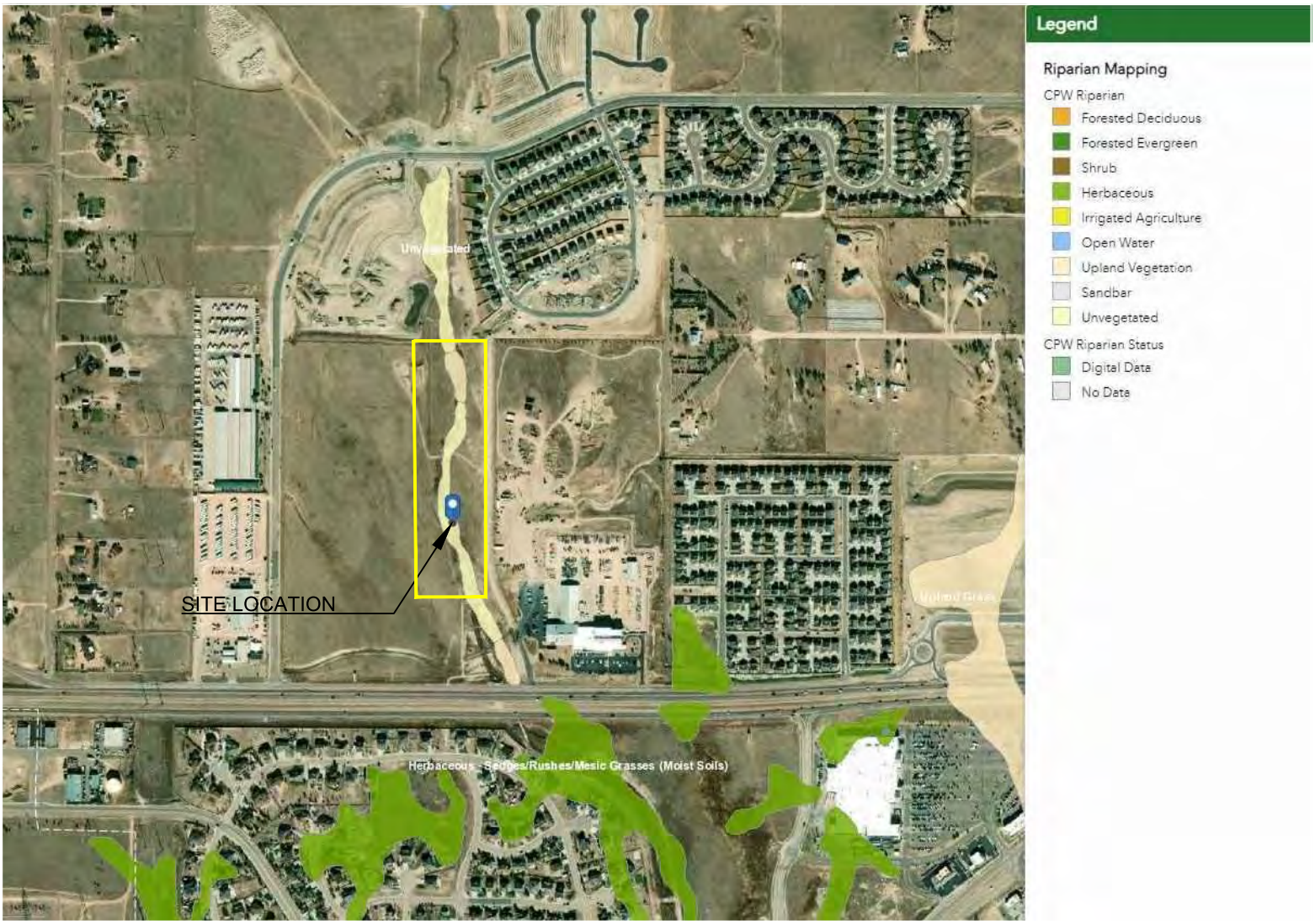
FIGURE 5: NATIONAL WETLAND INVENTORY MAP



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REFERENCE:

COLORADO SPRINGS HAZARD VICINITY AND ARC GIS MAPS

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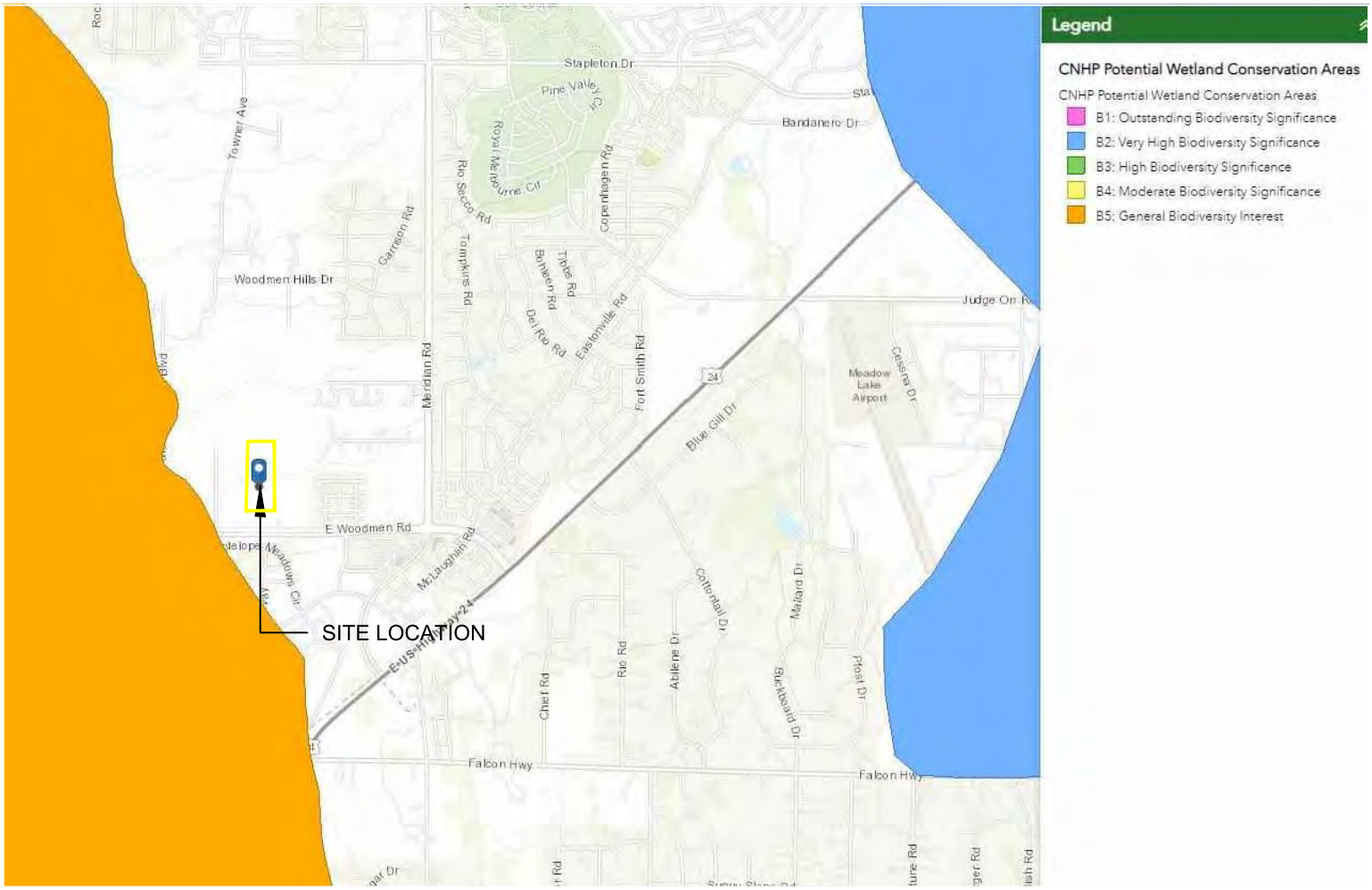
FIGURE 6: RIPARIAN MAP



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REFERENCE:

COLORADO GEOLOGICAL SURVEY

AMERICAN GEOSERVICES
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FIGURE 7: WETLAND CONSERVATION

Wetland Stressors

CNHP Wetland Stressors

- None
- Low
- Moderate
- High
- Severe

N

REFERENCE:

COLORADO GEOLOGICAL SURVEY

AMERICAN GEOSERVICES
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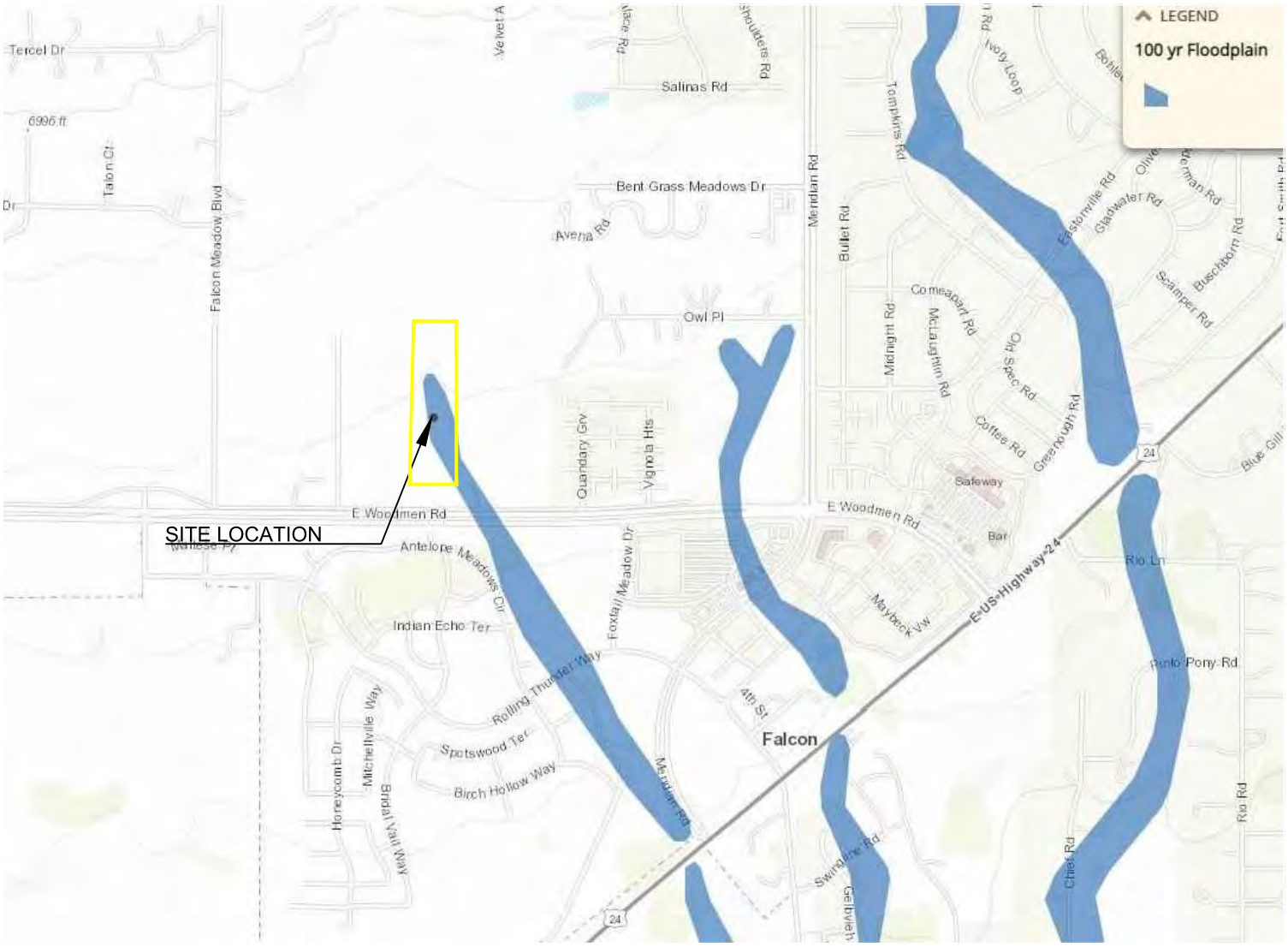
FIGURE 8: WETLAND STRESSOR



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REFERENCE:

ELPASO COUNTY
COLORADO PLANNING
DEPARTMENT

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FIGURE 9: FLOOD HAZARD MAP

Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

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REFERENCE:

FEMA.GOV

AMERICAN GEOSERVICES
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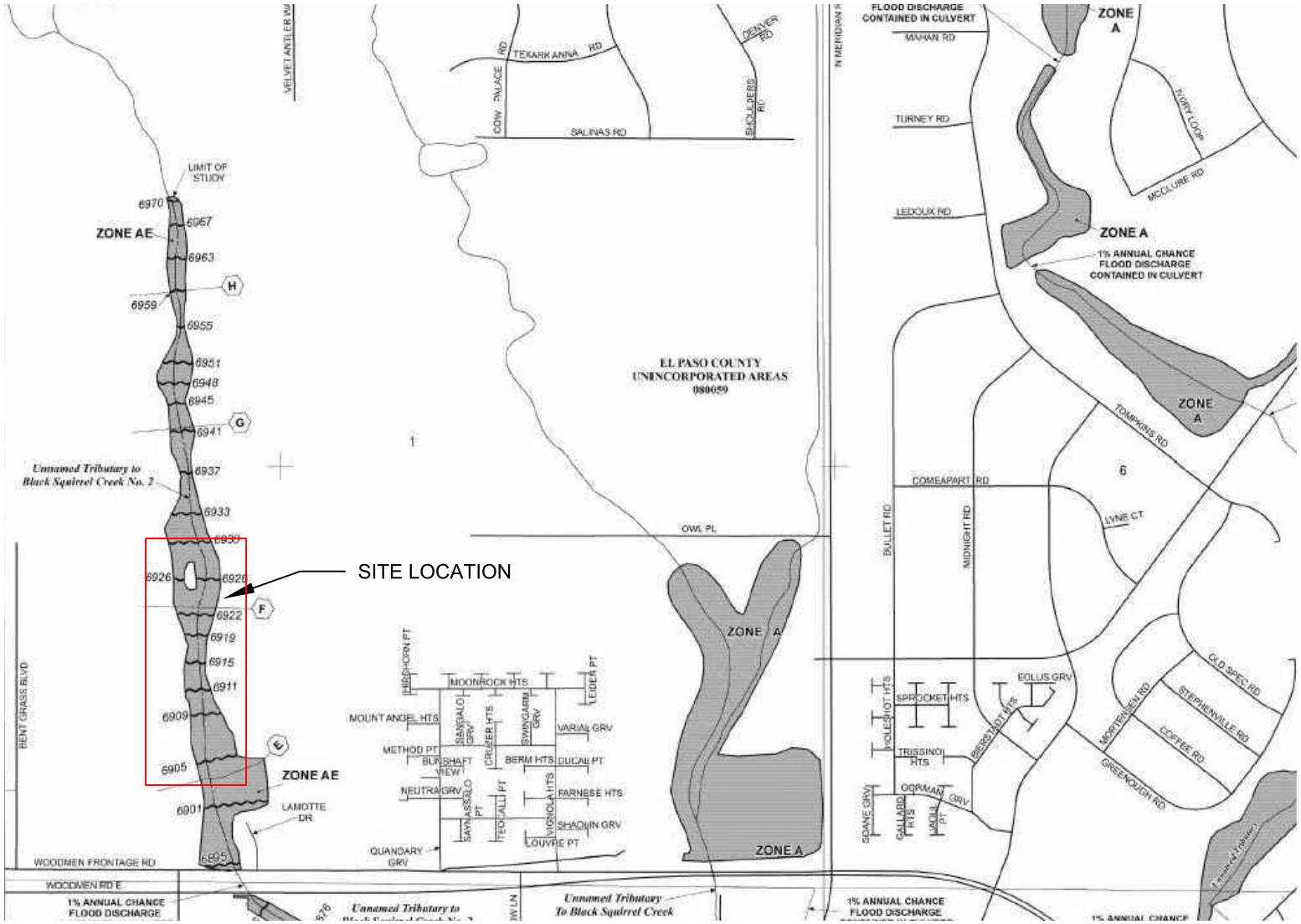
FIGURE 10: FEMA MAP



ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

	Floodplain boundary
	Floodway boundary
	Zone D Boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

N

REFERENCE:

FLOOD INSURANCE RATE MAP

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FIGURE 11: FIRM MAP DETAILS

APPENDIX A

Site Photographs

8: INDICATES PHOTO NUMBER WHICH CORRESPONDS TO PHOTO NUMBER SHOWN IN THE ATTACHED PHOTO APPENDIX.

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REFERENCE:
GOOGLE MAPS
USGS TOPOGRAPHIC MAPS

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PHOTOGRAPHIC DOCUMENTATION

PHOTO NO. 1

PHOTO NO. 2

PHOTO NO. 3

PHOTO NO. 4

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PHOTO NO. 89

PHOTO NO. 90

APPENDIX B

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Flood plains, fan terraces, fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Gravelly Foothill (R049BY214CO)
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit:
Landform: Swales

Hydric soil rating: Yes

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

Other soils

Percent of map unit:
Hydric soil rating: No

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 16, Sep 10, 2018

Subsurface Explorations

Soil Testing

Earthwork Monitoring

Geotechnology

Foundation Engineering

Rock Mechanics

Earthquake Engineering

Geophysics

Retaining Wall Design

Geostrructural Design

Pavement Design

Drainage Evaluations

Groundwater Studies

Environmental Assets

Building Assessments

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