

Architectural
Structural
Geotechnical



Materials Testing
Forensic
Civil/Planning

~~DRAINAGE LETTER~~

Gunners Ridge Minor Subdivision
12172 Goodson Rd
El Paso County, Colorado

Update to "Final Drainage Report". A drainage letter is only allowed where an approved drainage report is on file and no significant changes are proposed.

PREPARED FOR:

Drew Makings
9630 Arroya Lane
Colorado Springs, CO 80908

Due to the volume or complexity of the comments provided, the County reserves the right to make additional comments on the second review.

JOB NO. 192027

February 22, 2023

Add "PCD File No. MS-23-003"

Revise report to satisfy El Paso County Drainage Criteria Manual Volume 1 Section 1 Chapter 4 criteria for a Final Drainage Report.

Visit

<https://assets-planningdevelopment.elpasoco.com/wp-content/uploads/Checklists/FDR.pdf> for items that should be present on a FDR.

SIGNATURE PAGE

ENGINEER'S STATEMENT

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the county for drainage reports and said is in conformity with the masterplan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, error or omissions on my part in preparing this report.



David Walker, P.E.
Sr. Civil Project Manager

DEVELOPER'S STATEMENT

I, Drew Makings, the developer have read and will comply with all of the requirements specified in this drainage letter and plan.

Drew Makings

Name of Developer

Authorized Signature

Date

Printed Name

Title

Phone

Address

EL PASO COUNTY'S STATEMENT

Filed in accordance with Section 51.1 of the Code of the El Paso Land Development Code, as amended.

Revise to
El Paso County:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

Joshua Palmer, P.E.
County Engineer / ECM Administrator

Date

Conditions:

Please include a table of contents.

Purpose:

The purpose of this drainage letter is to show that there shall be no negative drainage effect associated with the Gunners Ridge Minor Subdivision, located on 12172 Goodson Road, El Paso County, Colorado.

Property Description:

Revise date to 12/7/2018

The 38.83 acre Gunners Ridge Minor Subdivision is located in El Paso County at 12172 Goodson Road. The Parcel number is 5214000014. The parcel is zoned RR-5 Residential Rural and is currently vacant. The parcel is a Portion of the Northeast Quarter of Section 14, Township 12 South, Range 65 West of the 6th Principal Meridian, County of El Paso, State of Colorado.

The parcel is not in a Flood Zone according to Map 08041C0320G eff. Date 12/7/2017.

The soil map by the Natural Resources Conservation Service indicates Kettle gravelly loamy sand, 3 to 8 percent slopes. The NRCS also indicates this soil is a Hydrologic Group B. Group B soils have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

The parcel is located in the El Paso County Upper Black Squirrel CHBS 2000 drainage basin.

Note: Upper Black Squirrel does not have a drainage basin planning study. Reference any previous studies done for the site. See reports for Armonia Ranch (PCD File No. SF08008) and Seclusion Subdivision (PCD File No. SF06027).

The 38.83 acre parcel is vacant and there is no development on the site at this time. There is no imperviousness area on the site at this time.

The soil is a Kettle gravelly loamy sand as described above. The soil is a Group B as described above and is moderately drained. The southern portion of the site slopes toward Goodson Road and the northern portion of the site slopes to the north east. The vegetation is grassy with shrub brush and a mix of evergreen trees. The road side drainage flows toward the north along Goodson Road.

Discuss any existing off-site drainage into the parcel and impact to the development

There are no existing conditions having channels.

Proposed Drainage

The proposed minor subdivision is for 4 lots. Lot #1 will have 23.86 acres +/-, Lots #2, Lot #3 and Lot #4 will all have 5 + acres each. There will be no public improvements. Lot #1 will have a driveway off Goodson Road. Lots #2, #3 and #4 will share a common driveway off Goodson Road.

- Discuss existing and proposed hydrologic conditions including approximate flow rates entering and exiting the sub-division. Provide all calculations (hydrologic and hydraulic).
- Discuss if any existing or proposed improvements/facilities are required such as culverts.

Provide the amount of land disturbance from the development. Grading will most likely be done for the driveway, discuss the amount expected and analysis if a culvert is required.

Each house lot may have an area of disturbance of 1/2 acres to 3/4 acres, of development around the individual single family residence. Assuming a single family house with a footprint area of 2,000 square feet, equates to about 8,000 square feet (0.18 acres) of impervious roof area. Comparing 0.18 acres of impervious roof area to 38.83 acres of open space, impervious roof area is a fraction of a percent.

Provide the pre and post development stormwater runoff rates. Identify if permanent water quality or detention is required.

Given the soil type and the other site conditions stated above, the increase in stormwater runoff from the individual sites will have no harmful downstream effects. Since there are no existing channels, hydrologic calculations are not required.

If this is a concern, then downspouts from the roof area can be directed to a rain garden, similar to the details shown in the Green Infrastructure Guidance Manual prepared by the Colorado Springs Stormwater Enterprise.

Discuss where the ultimate downstream outfall is and if there is sufficient capacity due to the development. Refer to ECM 3.2.4

Fees:

Drainage basin fees for residential subdivisions with one dwelling unit per lot, having lot sizes of 1.0 acre or greater, shall be assessed only for the first acre of each lot (County only). Fees will be paid at time of Building Permit Application.

Please revise statement. Upper Black Squirrel Creek does not have drainage or bridge fees assessed currently (\$0). Also, provide a cost breakdown for proposed facilities if applicable.

FYI:

- Refer to ECM Appendix L for additional information regarding drainage basin fees. The section of the DCM highlighted in yellow is superceded by ECM Appendix L.
- Drainage basin fees are due at the time of final plat recording not at building permit application.

Per ECM Appendix I.7.1A the drainage report shall discuss all post-construction stormwater management requirements, exclusions, and design standards presented in Appendix I.7, Discussion on the Four-Step Process (Appendix 1.7.2), and applicable exclusions from Appendix I.7.1B

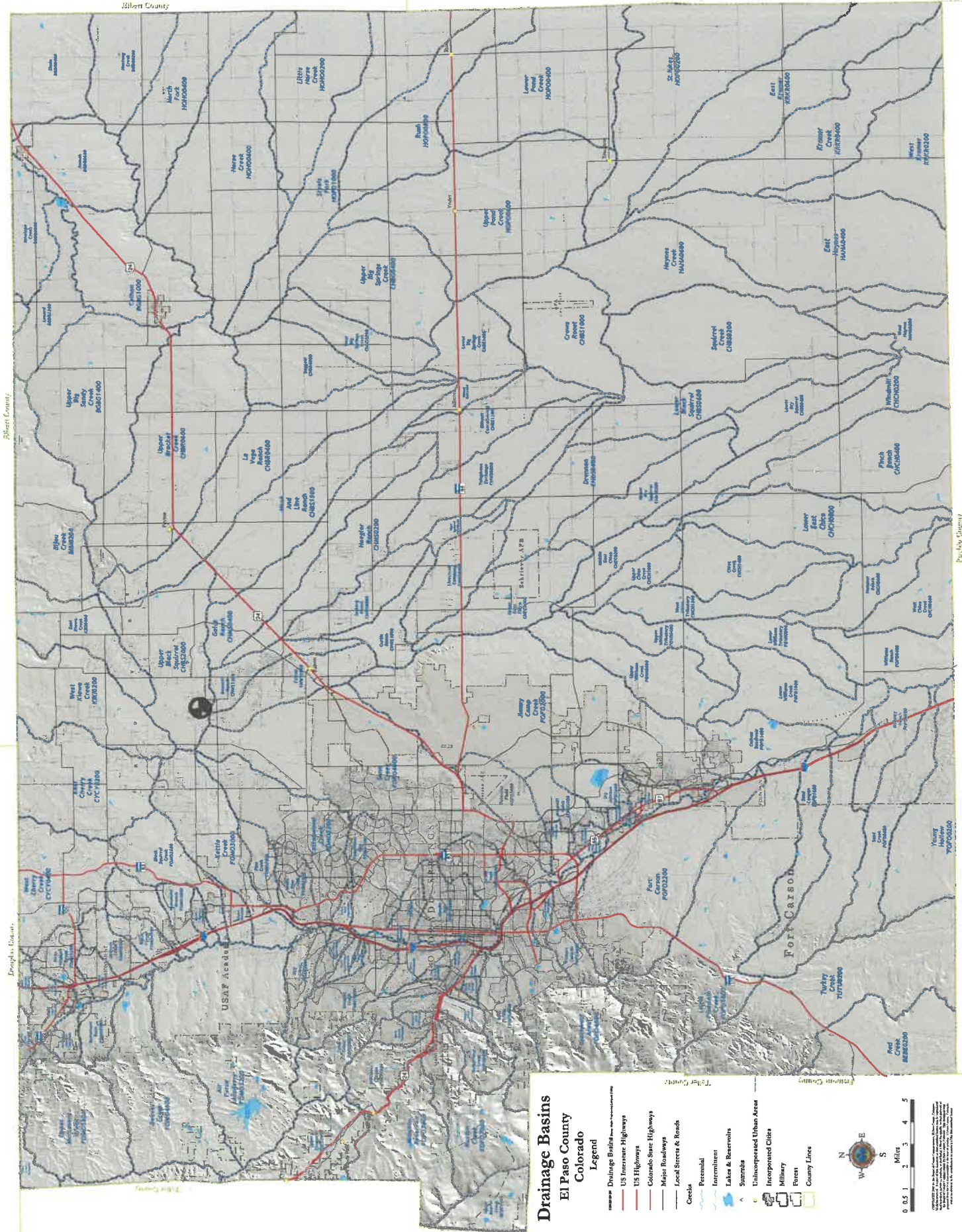
Provide drainage plans for existing and proposed conditions. Maps should be the last pages in the report.

Without a map that shows proposed improvements, it is unknown if WQ treatment is required.

Per direction from the State, subdivision developments that include impervious pavement roads do not qualify for Exclusion E (Large Lot Single-Family Site) on the PBMP form for the soil disturbances associated with the construction of those roadway areas. Therefore, a permanent WQ facility should be designed to treat runoff from the impervious roadway area and the subsequent grading like roadside ditches (but only if the total area of soil disturbance is >1ac). A driveway that feeds and crosses multiple lots counts toward roadway impervious area. But individual driveways for individual lots counts towards the impervious area for the large single-family lot.

For this site: state the expected soil disturbance for roadway construction (which is likely to be <1ac) and then state that the rest of the site is excluded from WQ treatment per the exclusion listed in ECM Appendix I.7.1.B.5.

Knowing the total expected roadway soil disturbance will also help us determine if an ESQCP and all subsequent documentation (GEC Plan, SWMP, and GEC & SWMP Checklists, etc) are necessary or not.



Drainage Basins

El Paso County

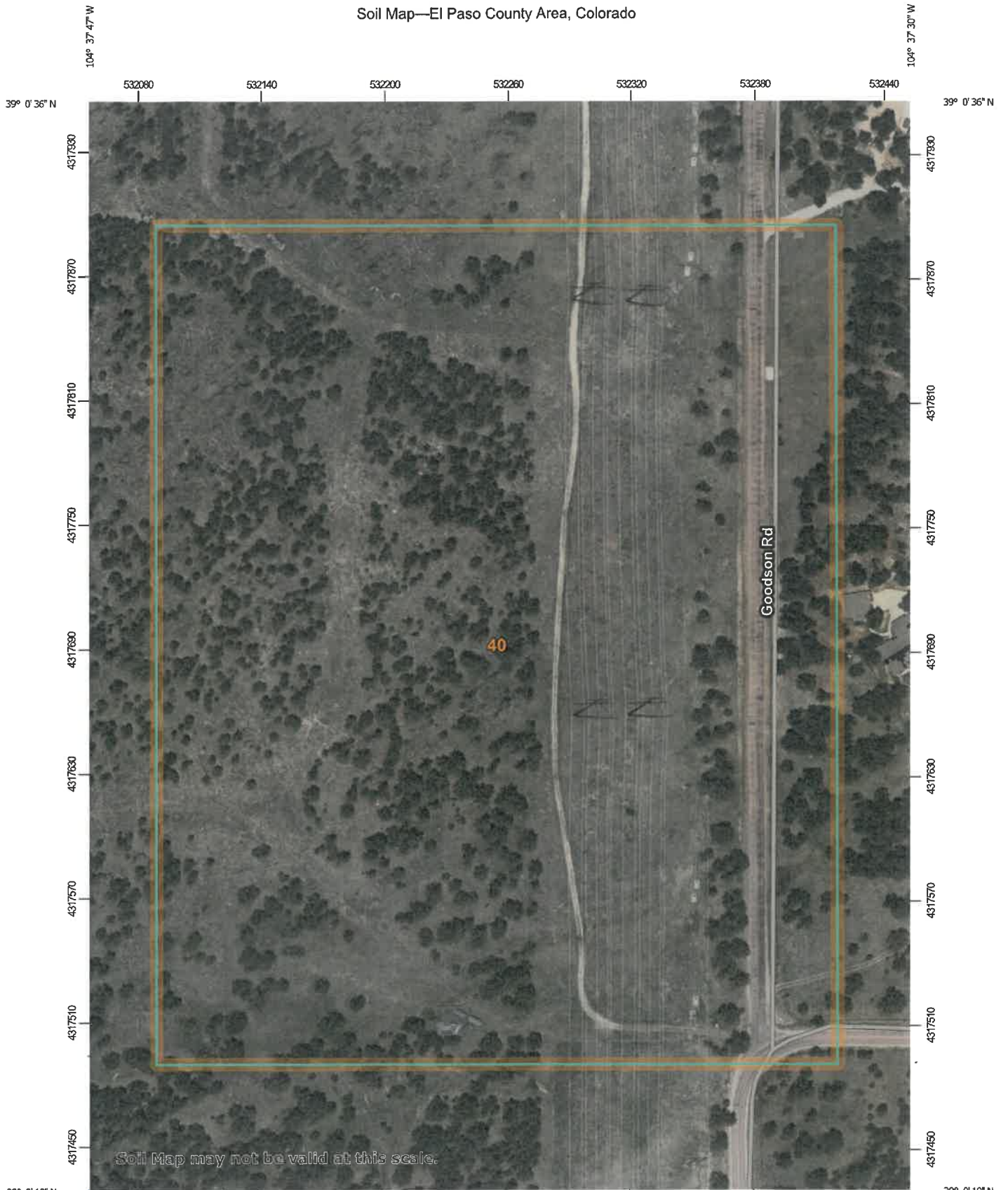
Colorado

- Legend**
- Drainage Basins
 - US Interstate Highways
 - US Highways
 - Colorado State Highways
 - Major Roadways
 - Local Streets & Roads
 - Creeks
 - Perennial
 - Intermittent
 - Lakes & Reservoirs
 - Summits
 - Unincorporated Urban Areas
 - Incorporated Cities
 - Military
 - Ranch
 - County Lines

Miles

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Soil Map—El Paso County Area, Colorado



Soil Map may not be valid at this scale.






































Map Scale: 1:2,560 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



MAP LEGEND

-  Area of Interest (AOI)
-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Ralls
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
 Survey Area Data: Version 20, Sep 2, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

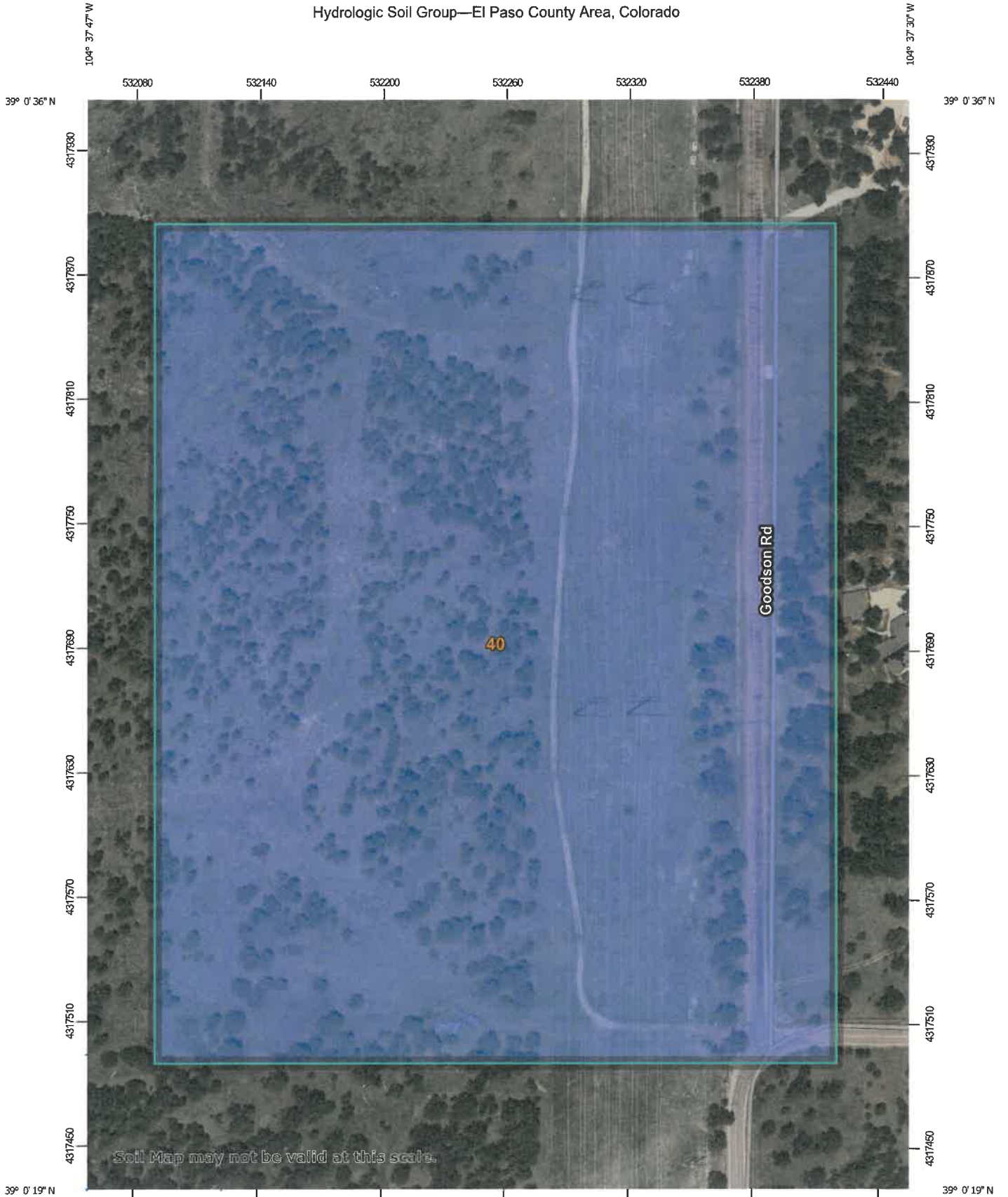
Date(s) aerial images were photographed: Jun 9, 2021—Jun 12, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

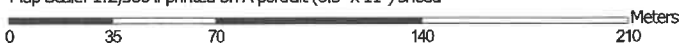
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	33.2	100.0%
Totals for Area of Interest		33.2	100.0%

Hydrologic Soil Group—El Paso County Area, Colorado



Soil Map may not be valid at this scale.


































Map Scale: 1:2,560 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



MAP LEGEND

 Area of Interest (AOI)	 C
 Area of Interest (AOI)	 C/D
Soils	 D
Soil Rating Polygons	 Not rated or not available
 A	Water Features
 A/D	 Streams and Canals
 B	Transportation
 B/D	 Rails
 C	 Interstate Highways
 C/D	 US Routes
 D	 Major Roads
 Not rated or not available	 Local Roads
Soil Rating Lines	Background
 A	 Aerial Photography
 A/D	
 B	
 B/D	
 C	
 C/D	
 D	
 Not rated or not available	
Soil Rating Points	
 A	
 A/D	
 B	
 B/D	

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Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	B	33.2	100.0%
Totals for Area of Interest			33.2	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette

104°37'53"W 39°0'43"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE)
Zone A, V, A99
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone 1*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee, See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN
- Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

Cross Sections with 1% Annual Chance

- Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

OTHER FEATURES

- Digital Data Available
- No Digital Data Available
- Unmapped

MAP PANELS

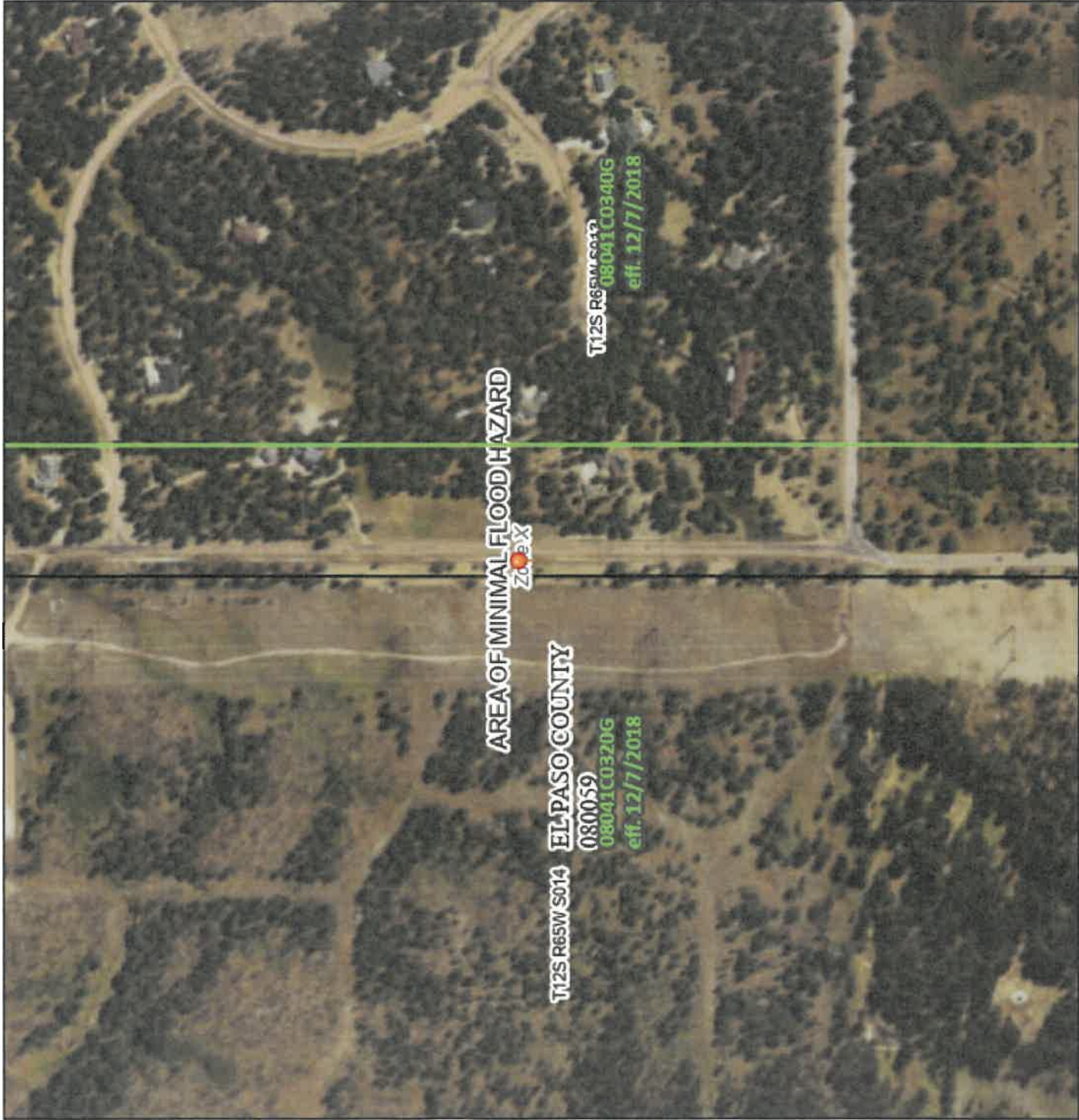
- Digital Data Available
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The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/21/2023 at 11:22 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



104°37'53"W 39°0'16"N

1:6,000

Feet

2,000

1,500

1,000

500

0