MVE, INC.
ENGINEERS SURVEYORS
1903 lelaray street, suite 200
colorado springs, co 80909
719.576.0311

Drainage Letter

Lot 57 Valerosa Village

Filing No. 1

MVE Project No. 61150

June 30, 2021

PCD Proj No.

Drainage Letter

for

Lot 57 Valerosa Village
Filing No. 1
El Paso County, Colorado

Project No. 61150

June 30, 2021

prepared for:

Jim Olster
19840 El Valle View
Fountain, CO 80817

prepared by:

MVE, Inc.
1903 Lelaray Street, Suite 200
Colorado Springs, CO 80909
719.576.0311

Statements and Acknowledgments

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 report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

_____ _____

Charles C. Crum, P.E. Colorado No. 13348 Date
For and on Behalf of MVE, Inc.

Developer's Statement

I, the owner/developer have read and will comply with all of the requirements specified in this drainage report and plan.

_____ _____

Jim Olster, Owner Date
19840 El Valle View
Fountain, CO 80817

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.

_____ _____

Jennifer Irvine, P.E., Date
County Engineer / ECM Administrator

Conditions:

Drainage Letter

The purpose of this Drainage Letter for Lot 57 Valerosa Village Filing No. 1 is to describe the existing drainage patterns of the site and to discuss the proposed drainage patterns of the site with the proposed improvements. It is the owners intention to build an additional detached garage on the northwest corner of the lot with a gravel driveway for access.

The existing lot known as "Lot 57 Valerosa Village Filing No. 1" is located in the Northwest One-Quarter of the Northwest One-Quarter of Section 33, Township 17 South, Range 65 West of the 6th P.M., El Paso County, Colorado. The current address for the property is 19840 El Valle View, Fountain, Colorado 80817. The lot includes an existing single family residence, and an existing detached garage. The site is located north of El Valle View, east of Armadillo Heights, south of Indian Village Heights, and west of Boca Chica Heights. The lot is located within the Young Hollow Drainage Basin (FOFO0200) which is a tributary to Fountain Creek. The lot is 5.73± acres in area and is zoned RR-5.

The lot is bounded on the west by lot 58 Valerosa Village Filing No. 1, and lot 56 Valerosa Village Filing No. 1 is adjacent to the east. El Valle View runs along the southern border of the site with lots 13, and 14 Valerosa Village Filing No. 1 south of El Valle View. Indian Heights Village bounds the site to the north. Lots 14, and 15 Sandcreek Preserve, and lot 110 Miway Ranches No. 7 are adjacent to the north of the site across Indian Village Heights.

The site is the location of a single family residence with a detached garage. An existing gravel driveway extends south from Indian Heights Village, providing access to the structures on the lot.

According to the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) Community Panel Number 08041C1170G, dated December 7, 2018, for El Paso County, Colorado the site is not located within any Federal Emergency Management Agency (FEMA) designated Special Flood Hazard Areas (SFHA). A portion of the **FIRM** is included with this Drainage Letter for reference.

According to the Natural Resources Conservation Service Web National Cooperative Soil Survey, the soil of the site is Wilid Silt Loam (map unit 107), which is part of hydrologic soil group C. The Wilid Silt Loam soil is typically deep and well drained. The permeability of the soil is moderate, surface runoff is medium and hazard of erosion is moderate. A portion of the **National Cooperative Soil Survey Map** is included with this Drainage Letter.

The proposed improvements to be constructed are a single detached garage with a foot print of approximately 4,500 square feet, and a gravel driveway with an area of about 0.29 acres.

The proposed development will not alter the existing basic drainage patterns of the site. The site will continue to drain off-site to the southeast as in existing conditions. Off-site flows will continue to

enter the site as in existing conditions. The changes in the flow runoff quantities will be minimal with little to no effect on the drainage patterns of the site. The drainage patterns are described in further detail below.

The site consists of two (2) offsite sub-basins, and one (1) onsite sub-basin. All three sub-basins drain to Design Point 1 (DP1) where the flows exit the site.

Offsite sub-basin OSA1 is located northwest of the site and is 1.36 acres± in area. This sub-basin generates peak storm runoff discharges of Q_5 = 12.2 cfs and Q_{100} = 36.0 cfs (existing flows). The discharges from this sub-basin will not be affected by the project.

Offsite sub-basin OSA2 is located north of the site and is 10.36 acres± in area. This sub-basin generates peak storm runoff discharges of Q_5 = 1.1 cfs and Q_{100} = 4.7 cfs (existing flows). The discharges from this sub-basin will not be affected by the project.

Onsite sub-basin EX-A3 is the existing sub-basin located within the site. This sub-basin is 5.73 acres in area and generates peak storm runoff discharges of Q_5 = 3.4 cfs and Q_{100} = 17.7 cfs (existing flows). The flows from OSA1, OSA2, and EX-A3 combine at DP1 with combined peak storm runoff discharges of Q_5 = 15.5 cfs and Q_{100} = 54.0 cfs (existing flows).

Onsite sub-basin A3 is the proposed sub-basin located within the site. This sub-basin is 5.73 acres in area and generates peak storm runoff discharges of Q_5 = 3.4 cfs and Q_{100} = 17.7 cfs (existing flows). The flows from OSA1, OSA2, and A3 combine at DP1 with combined peak storm runoff discharges of Q_5 = 16.2 cfs and Q_{100} = 54.6 cfs (proposed flows).

The proposed conditions do not reflect a significant change in runoff discharges as an increase of 0.7 cfs during a 5 year storm, and 0.6 cfs during a 100 year storm is expected.

The El Paso County Engineering Criteria Manual (Appendix I, Section I.7.2) requires the consideration of a "Four Step Process for receiving water protection that focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainageways, and implementing long term source controls". The Four Step Process is incorporated in this project and the elements are discussed below.

The lot which is a 5-acre single family residential lot is excluded from Post Construction Stormwater Management requirements by ECM 1.7.1.B.5 due to the low development density as a 5-acre lot. This site will meet the requirements based the Runoff Reduction Standard indicated in ECM 1.7.1.C.3.

1) Runoff Reduction Practices are employed in this project. Impervious surfaces have been reduced as much as practically possible with the low residential density. All impervious surfaces on the site will drain to the surrounding pervious areas allowing infiltration and water quality mitigation. Minimized Directly Connected Impervious Areas (MDCIA) is employed on the project because runoff from the impervious areas of the future garage site will pass over the adjacent natural grassed areas for a distance of 25 feet to 300 feet before entering a natural drainage way. Runoff from the gravel driveway will drain to the adjacent native vegetated grass buffers that will capture and infiltrate runoff from the roadway surface. Runoff Reduction calculations are included in the appendix showing that the roadway runoff will infiltrate into the ground, evaporate, or evapotranspire a quantity of water equal to at least 60% of what the calculated WQCV would be if all impervious area for the applicable development site discharged without infiltration.

2) All drainage paths on the site will remain stabilized with the natural native grass lining. Disturbed areas will be reseeded. The swale with the existing stable vegetative cover consisting of the natural native grasses on the site are adequate to convey the minor and major storm flows without erosion and sedimentation. No further stabilization is required.

3) The site is exempted from the use of WQCV BMPs by ECM 1.7.1.B.5 by virtue of the large lot rural residential nature of the site having percent imperviousness of less than 10%. The runoff from the proposed garage and gravel driveway will infiltrate into the ground, evaporate, or evapotranspire a quantity of water equal to at least 60% of what the calculated WQCV would be if all impervious area for the applicable development site discharged without infiltration. Runoff Reduction calculations are included in the appendix.

4) The site contains no storage of potentially harmful substances or use of potentially harmful substances. No Site Specific or Other Source Control BMP's are required.

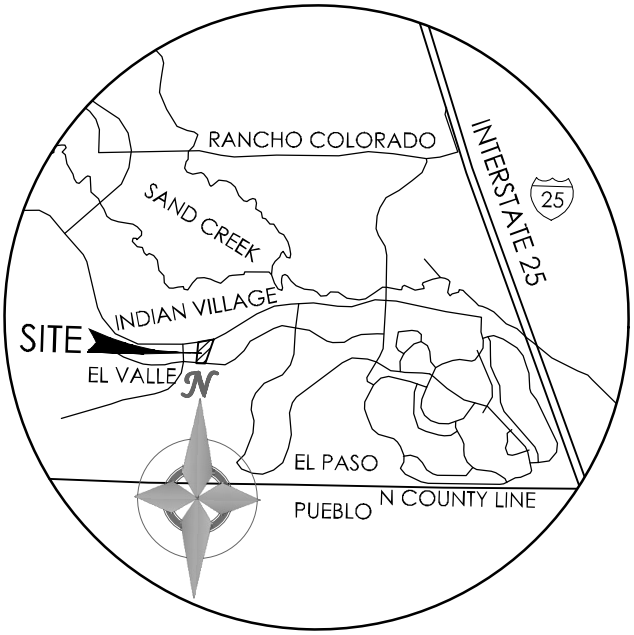
No drainage improvements will be required for the project.

The Young Hollow Drainage Basin has not been studied and is not a Fee Basin at this time. No Drainage Fees or Bridge Fees are due for the proposed Lot 57 Valerosa Village.

In Conclusion, the drainage patterns generated by the Lot 57 Valerosa Village site under proposed developed conditions are essentially the same as those which existed for the existing Plan. The proposed development as described in this Drainage Letter will have no adverse impacts to downstream and surrounding developments or downstream drainage ways or storm drain facilities.

Z:\61150\Documents\Reports\61150 Drainage Letter.odt

Attachments



VICINITY MAP

NOT TO SCALE

National Flood Hazard Layer FIRMette

FEMA

104°41'2"W 38°32'10"N

104°40'25"W 38°31'41"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- 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 D*

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

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 1/18/2021 at 12:44 PM 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.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,520 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

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

Rails

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 18, Jun 5, 2020

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

Date(s) aerial images were photographed: Aug 14, 2018—Sep 23, 2018

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.

managing livestock grazing, and reseeding range where needed.

This soil has good potential for use as homesites. The main limitations of this soil for roads and streets are limited ability to support a load and frost action potential. Roads must be designed to overcome these limitations. This soil should be stabilized after site preparation, and as much of the existing vegetation as possible should be left on the soil. During site preparation, only small areas of this soil should be disturbed at a time. Capability subclass VIe.

106—Wigton loamy sand, 1 to 8 percent slopes. This deep, excessively drained soil formed in noncalcareous, sandy eolian material on dunelike uplands. Elevation ranges from 5,300 to 6,000 feet. The average annual precipitation is about 13 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is about 145 days.

Typically, the surface layer is brown loamy sand about 8 inches thick. The next layer is brown loamy sand about 11 inches thick. The underlying material is very pale brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Bijou loamy sand, 1 to 8 percent slopes; Bijou sandy loam, 1 to 3 percent slopes; Bijou sandy loam, 3 to 8 percent slopes; and Valent sand, 1 to 9 percent slopes.

Permeability of this Wigton soil is rapid. Effective rooting depth is 60 inches or more. Available water capacity is low to moderate. Surface runoff is low, the hazard of erosion is moderate to high, and the hazard of soil blowing is high.

This soil is used mostly as rangeland.

If sprinkler irrigation is used, this soil is suited to limited use as cropland and pasture if crop residue is maintained on the surface. Only a very small acreage of this soil is cultivated, and it is used for alfalfa and grasses that are harvested for hay or are grazed by livestock. Nitrogen and phosphorus fertilizer is required for satisfactory yields. The soil is unsuited to nonirrigated crops.

Rangeland vegetation on this soil is mainly sand reedgrass, and bluestem, and needleandthread. Sand sagebrush is present in the stand, but it makes up only a small part of the total ground cover.

Mechanical and chemical methods of sagebrush control may be needed in overgrazed areas. This soil is highly susceptible to soil blowing, and it is subject to water erosion when the plant cover is inadequate. Interseeding is needed in overgrazed areas. Properly locating livestock watering facilities helps to control grazing.

Windbreaks and environmental plantings are fairly well suited to this soil. Blowing sand and low available water capacity are the main limitations for the establishment of trees and shrubs. The soil is so loose that trees need to be planted in shallow furrows and plant cover needs to be maintained between the rows. Supplemental irrigation may be needed to insure survival. Trees that are best suited and have good survival are Rocky Mountain juniper, eastern redcedar, ponderosa pine, and Siberian elm. Shrubs that are best suited are skunkbush sumac, lilac, and Siberian peashrub.

This soil is suited to wildlife habitat. It is best suited to habitat for openland and rangeland wildlife. Rangeland wildlife, such as pronghorn antelope, can be encouraged by developing livestock watering facilities, properly managing livestock grazing, and reseeding range where needed.

The main limitations of this soil for homesites are unstable cut banks during excavation and the hazard of soil blowing. Trenches for pipelines and shallow excavations must be made in such a way that cut banks remain stable, thus providing proper protection for workmen. Special practices must be used to control soil blowing. Only small areas of this soil should be disturbed at a time during construction in order to leave as much vegetation on the surface as possible. Capability subclasses VIe, nonirrigated, and IVe, irrigated.

107—Wiley silt loam, 1 to 3 percent slopes. This deep, well drained soil formed in calcareous, silty eolian material. Elevation ranges from 5,200 to 6,200 feet. The average annual precipitation is about 13 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is about 145 days.

Typically, the surface layer is pale brown silt loam about 5 inches thick. The subsoil is very pale brown heavy silt loam about 18 inches thick. The substratum is very pale brown silt loam to a depth of 60 inches or more. Visible soft masses of lime are in the lower part of the subsoil and in the substratum.

Included with this soil in mapping are small areas of Fort Collins loam, 0 to 3 percent slopes; Keith silt loam, 0 to 3 percent slopes; and Satanta loam, 0 to 3 percent slopes.

Permeability of this Wiley soil is moderate. Effective rooting depth is 60 inches or more. Available water capacity is high. Surface runoff is slow, the hazard of erosion is slight to moderate, and the hazard of soil blowing is high.

Most areas of this soil are used as rangeland, but a few small areas are dryfarmed.

This soil is well suited to the production of native vegetation suitable for grazing. The native vegetation is mainly blue grama, western wheatgrass, sand dropseed, and galleta.

Fencing and properly locating livestock watering facilities help to control grazing. Deferment of grazing may be necessary to maintain a needed balance between livestock use and forage production. In areas where the plant cover has been depleted, pitting can be used to help the native vegetation recover. Chemical control practices may be needed in disturbed areas where dense stands of pricklypear occur. Ample amounts of litter and forage should be left on the soil because of the high hazard of soil blowing.

Windbreaks and environmental plantings generally are well suited to this soil. Summer fallow a year prior to

planting and continued cultivation for weed control are needed to insure the establishment and survival of plantings. Trees that are best suited and have good survival are Rocky Mountain juniper, eastern redcedar, ponderosa pine, Siberian elm, Russian-olive, and hackberry. Shrubs that are best suited are skunkbush sumac, lilac, Siberian peashrub, and American plum.

This soil is best suited to habitat for openland wildlife, such as pheasant, mourning dove, and cottontail. Development of wildlife habitat, including tree, shrub, and grass plantings to serve as nesting areas, should be successful without irrigation during most years. Under irrigation, excellent wildlife habitat could be developed that would benefit many kinds of openland wildlife.

The main limitations of this soil for urban uses are potential frost action and limited ability to support a load. Dwellings or roads can be designed to offset these limitations. Capability subclass IVe.

108—Wiley silt loam, 3 to 9 percent slopes. This deep, well drained soil formed in calcareous, silty eolian material. Elevation ranges from 5,200 to 6,200 feet. The average annual precipitation is about 13 inches, the average annual air temperature is about 49 degrees F, and the average frost free period is about 145 days.

Typically, the surface layer is pale brown silt loam about 5 inches thick. The subsoil is very pale brown heavy silt loam about 18 inches thick. The substratum is very pale brown silt loam to a depth of 60 inches. Visible soft masses of lime are in the lower part of the subsoil and in the substratum.

Included with this soil in mapping are small areas of Fort Collins loam, 3 to 8 percent slopes; Stoneham sandy loam, 3 to 8 percent slopes; Keith silt loam, 0 to 3 percent slopes; and Satanta loam, 3 to 5 percent slopes.

Permeability of this Wiley soil is moderate. Effective rooting depth is 60 inches or more. Available water capacity is high. Surface runoff is medium, the hazard of erosion is moderate, and the hazard of soil blowing is high.

Almost all areas of this soil are used as rangeland and for wildlife habitat.

This soil is well suited to the production of native vegetation suitable for grazing. Native vegetation is mainly blue grama, western wheatgrass, sand dropseed, and galleta.

Fencing and properly locating livestock watering facilities help to control grazing. Deferment of grazing may be necessary to maintain a needed balance between livestock use and forage production. In areas where the plant cover has been depleted, pitting can be used to help the natural vegetation recover. Chemical control practices may be needed in disturbed areas where dense stands of pricklypear occur. Ample amounts of litter and forage should be left on the soil because of the high hazard of soil blowing.

Windbreaks and environmental plantings generally are well suited to this soil. Summer fallow a year prior to planting and continued cultivation for weed control are needed to insure the establishment and survival of plantings. Trees that are best suited and have good survival are Rocky Mountain juniper, eastern redcedar, ponderosa pine, Siberian elm, Russian-olive, and hackberry. Shrubs that are best suited are skunkbush sumac, lilac, Siberian peashrub, and American plum.

This soil is best suited to habitat for openland wildlife, such as pheasant, mourning dove, and cottontail. Wildlife habitat development, including tree and shrub plantings as well as grass plantings to serve as nesting areas, should be successful without irrigation during most years. If this soil is irrigated, excellent habitat that would benefit many kinds of openland wildlife could be established.

The main limitations of this soil for urban uses are potential frost action and limited ability to support a load. Dwellings and roads can be designed to offset these limitations. Access roads must have adequate cut-slope grade and be provided with drains to control surface runoff and thus keep soil losses to a minimum. Capability subclass VIe.

109—Yoder gravelly sandy loam, 1 to 8 percent slopes. This deep, well drained, gravelly soil formed in noncalcareous alluvium derived from arkosic deposits on uplands. Elevation ranges from 6,200 to 6,900 feet. The average annual precipitation is about 15 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is about 135 days.

Typically, the surface layer is grayish brown gravelly sandy loam about 6 inches thick. The subsoil is brown gravelly sandy clay loam about 6 inches thick. The substratum is very gravelly loamy coarse sand to a depth of 60 inches.

Included with this soil in mapping are small areas of Bresser sandy loam, 0 to 3 percent slopes; Bresser sandy loam, 3 to 5 percent slopes; Louviers silty clay loam, 3 to 18 percent slopes; and Truckton sandy loam, 3 to 9 percent slopes.

Permeability of this Yoder soil is moderately rapid. Effective rooting depth is 60 inches or more. Available water capacity is low to moderate. Surface runoff is slow to medium, and the hazard of erosion is slight.

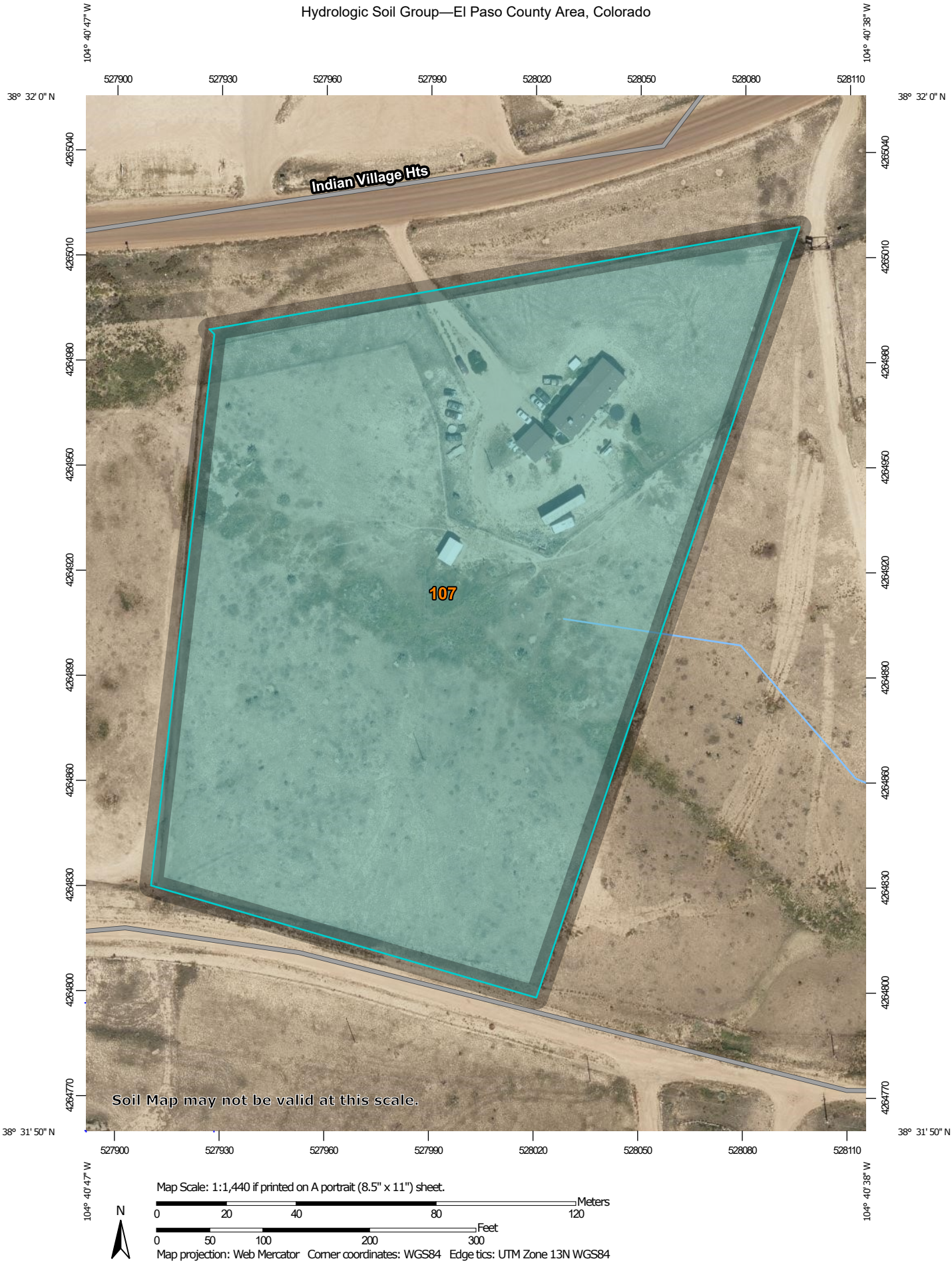
Most areas of this soil are used for rangeland and wildlife habitat, but a few small areas where slopes are less than 3 percent are cultivated.

The native vegetation is mainly western wheatgrass, side-oats grama, needleandthread, and little bluestem. The most prominent shrub on this soil is true mountain-mahogany.

Properly locating livestock watering facilities helps to control grazing of livestock.

Windbreaks and environmental plantings are suited to this soil. Low available water capacity is the main limitation for the establishment of tree and shrub plantings. Summer fallow a year in advance and continued cultivation for weed control are needed to insure the establishment and survival of plantings. Supplemental irrigation may also be needed to insure survival. Trees that are best

Hydrologic Soil Group—El Paso County Area, Colorado



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- 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.

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Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 18, Jun 5, 2020

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

Date(s) aerial images were photographed: Aug 14, 2018—Sep 23, 2018

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Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
107	Wilid silt loam, 0 to 3 percent slopes	C	6.6	100.0%
Totals for Area of Interest			**6.6**	**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.

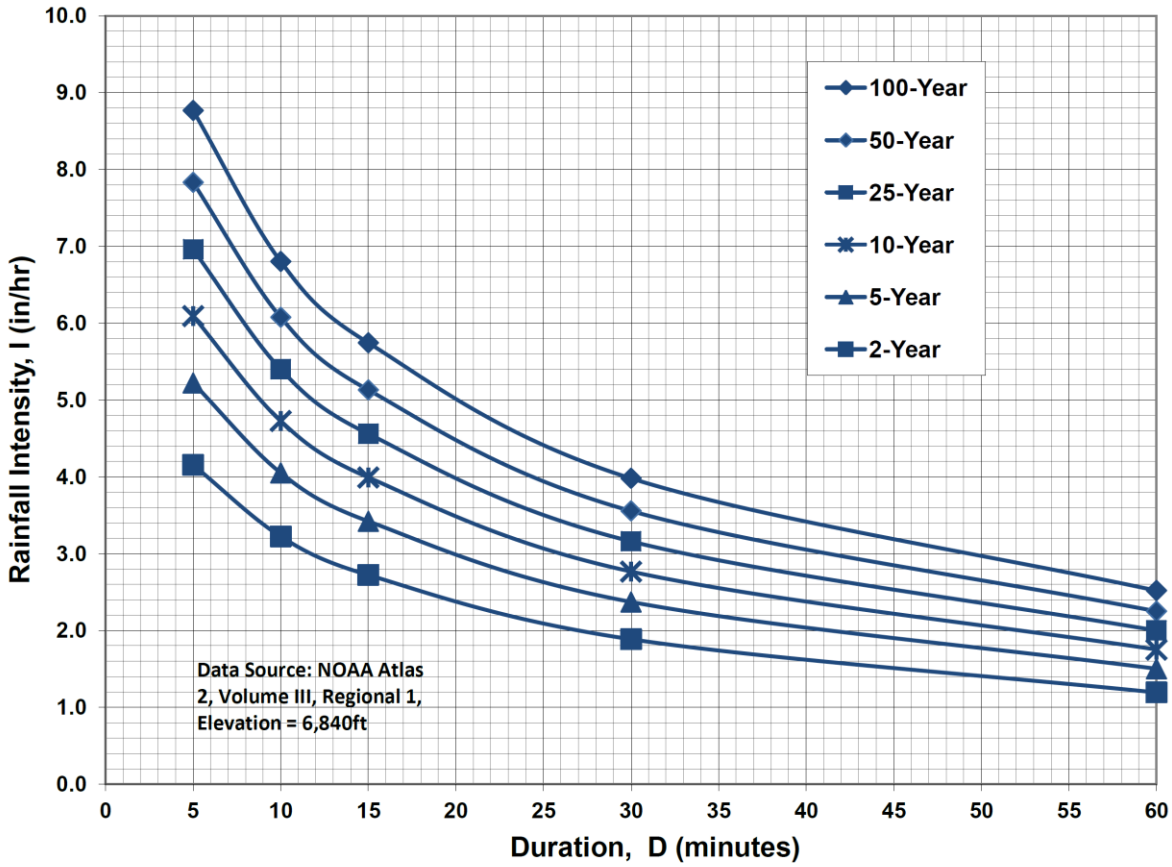
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Figure 6-5. Colorado Springs Rainfall Intensity Duration Frequency



IDF Equations

$I_{100} = -2.52 \ln(D) + 12.735$

$I_{50} = -2.25 \ln(D) + 11.375$

$I_{25} = -2.00 \ln(D) + 10.111$

$I_{10} = -1.75 \ln(D) + 8.847$

$I_{5} = -1.50 \ln(D) + 7.583$

$I_{2} = -1.19 \ln(D) + 6.035$

Note: Values calculated by equations may not precisely duplicate values read from figure.

Job No.: **61150**

Project: **19840 El Valle Vw**

Date: **6/30/2021 11:57**

Calcs By: **WCG**

Checked By:

Time of Concentration (Modified from Standard Form SF-1)

Sub-Basin	Sub-Basin Data				Overland			Shallow Channel				Channelized				t_c Check		
	Area (Acres)	C_5	C_{100}/CN	% Imp.	L_0 (ft)	S_0 (%)	t_i (min)	L_{0t} (ft)	S_{0t} (ft/ft)	v_{0sc} (ft/s)	t_t (min)	L_{0c} (ft)	S_{0c} (ft/ft)	v_{0c} (ft/s)	t_c (min)	L (min)	$t_{c,alt}$ (min)	t_c (min)
OSA1	10.36	0.34	0.60	31%	100	2%	10.9	694	0.019	1.0	12.1	0	0.000	0.0	0.0	794	14.4	14.4
OSA2	1.36	0.20	0.53	8%	100	3%	11.3	131	0.031	1.2	1.8	0	0.000	0.0	0.0	231	11.3	11.3
EX-A3	5.73	0.16	0.51	2%	100	4%	10.7	465	0.039	1.4	5.6	0	0.000	0.0	0.0	565	13.1	13.1
A3	5.73	0.20	0.53	8%	100	4%	10.3	465	0.039	1.4	5.6	0	0.000	0.0	0.0	565	13.1	13.1

Job No.: **61150**
Project: **19840 El Valle Vw**
Design Storm: **5-Year Storm** *(20% Probability)*
Jurisdiction: **UDFCD**

Date: **6/30/2021 11:57**
Calcs By: **WCG**
Checked By:

Sub-Basin and Combined Flows (Modified from Standard Form SF-2)

				Direct Runoff				Combined Runoff				Streetflow			Pipe Flow					Travel Time		
DP	Sub-Basin	Area (Acres)	C5	t_c (min)	CA (Acres)	I5 (in/hr)	Q5 (cfs)	t_c (min)	CA (Acres)	I5 (in/hr)	Q5 (cfs)	Slope (%)	Length (ft)	Q (cfs)	Q (cfs)	Slope (%)	Mnngs n	Length (ft)	D_{Pipe} (in)	Length (ft)	v_{0sc} (ft/s)	t_t (min)
	OSA1	10.36	0.34	14.4	3.52	3.47	12.21															
	OSA2	1.36	0.20	11.3	0.28	3.86	1.07															
	EX-A3	5.73	0.16	13.1	0.94	3.62	3.40															
EX-DP1		17.45	0.27					15.5	4.74	3.36	15.9											
	A3	5.73	0.20	13.1	1.15	3.62	4.17															
DP1		17.45	0.28					16.2	4.95	3.28	16.2											

Rainfall Intensity: I = (28.5 * P1) / (10 + tc)^0.786
P1: 1.5

Job No.: **61150**
Project: **19840 El Valle Vw**
Design Storm: **100-Year Storm** *(1% Probability)*
Jurisdiction: **UDFCD**

Date: **6/30/2021 11:57**
Calcs By: **WCG**
Checked By:

Sub-Basin and Combined Flows (Modified from Standard Form SF-2)

				Direct Runoff				Combined Runoff				Streetflow			Pipe Flow					Travel Time		
DP	Sub-Basin	Area (Acres)	C100	t_c (min)	CA (Acres)	I100 (in/hr)	Q100 (cfs)	t_c (min)	CA (Acres)	I100 (in/hr)	Q100 (cfs)	Slope (%)	Length (ft)	Q (cfs)	Q (cfs)	Slope (%)	Mnngs n	Length (ft)	D_{Pipe} (in)	Length (ft)	v_{0sc} (ft/s)	t_t (min)
	OSA1	10.36	0.60	14.4	6.17	5.83	35.95															
	OSA2	1.36	0.53	11.3	0.72	6.49	4.66															
	EX-A3	5.73	0.51	13.1	2.91	6.08	17.72															
EX-DP1		17.45	0.56					15.5	9.80	5.64	55.3											
	A3	5.73	0.53	13.1	3.02	6.08	18.38															
DP1		17.45	0.57					16.2	9.91	5.51	54.6											

Rainfall Intensity: I = (28.5 * P1) / (10 + tc)^0.786
P1: 2.52

Sub-Basin OSA1 Runoff Calculations

Job No.:	**61150**	Date:	**7/20/2021 8:49**
Project:	**19840 El Valle Vw**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**C**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	274,433	6.30	0.04	0.15	0.25	0.37	0.44	0.5	0%
Gravel	171,685	3.94	0.6	0.63	0.66	0.7	0.72	0.74	80%
Roofs	5,321	0.12	0.73	0.75	0.77	0.8	0.82	0.83	90%
Combined	**451,439**	**10.36**	**0.26**	**0.34**	**0.41**	**0.50**	**0.55**	**0.60**	**31.5%**

451439

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	794	15	-	-	-	-	
Initial Time	100	2	0.020	-	10.9	14.4	UDFCD Formula RO-3
Shallow Channel	694	13	0.019	1.0	12.1	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**14.4**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.75	3.47	4.05	4.63	5.20	5.83
Runoff (cfs)	7.4	**12.2**	17.3	24.0	29.7	**36.0**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	7.4	**12.2**	17.3	24.0	29.7	**36.0**

Notes

Sub-Basin Ex-A1 Runoff Calculations

Job No.:	**61150**	Date:	**7/20/2021 8:49**
Project:	**19840 El Valle Vw**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**C**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	53,345	1.22	0.04	0.15	0.25	0.37	0.44	0.5	0%
Paved	1,793	0.04	0.89	0.9	0.92	0.94	0.95	0.96	100%
Gravel	3,914	0.09	0.6	0.63	0.66	0.7	0.72	0.74	80%
Combined	**59,052**	**1.36**	**0.10**	**0.20**	**0.30**	**0.41**	**0.47**	**0.53**	**8.3%**

59052

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	231	7	-	-	-	-	
Initial Time	100	3	0.030	-	11.3	11.3	UDFCD Formula RO-3
Shallow Channel	131	4	0.031	1.2	1.8	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**11.3**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.07	3.86	4.51	5.15	5.80	6.49
Runoff (cfs)	0.4	**1.1**	1.8	2.9	3.7	**4.7**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.4	**1.1**	1.8	2.9	3.7	**4.7**

Notes

Sub-Basin Ex-A3 Runoff Calculations

Job No.:	**61150**	Date:	**7/20/2021 8:49**
Project:	**19840 El Valle Vw**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**C**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	244,596	5.62	0.04	0.15	0.25	0.37	0.44	0.5	0%
Paved	2,356	0.05	0.89	0.9	0.92	0.94	0.95	0.96	100%
Roofs	2,861	0.07	0.73	0.75	0.77	0.8	0.82	0.83	90%
Combined	**249,813**	**5.73**	**0.06**	**0.16**	**0.26**	**0.38**	**0.45**	**0.51**	**2.0%**

249813

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$ 300 ft C_v 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	565	22	-	-	-	-	
Initial Time	100	4	0.040	-	10.7	13.1	UDFCD Formula RO-3
Shallow Channel	465	18	0.039	1.4	5.6	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**13.1**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.87	3.62	4.22	4.83	5.43	6.08
Runoff (cfs)	0.9	**3.4**	6.4	10.5	14.0	**17.7**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.9	**3.4**	6.4	10.5	14.0	**17.7**

Notes

Sub-Basin A3 Runoff Calculations

Job No.:	**61150**	Date:	**7/20/2021 8:49**
Project:	**19840 El Valle Vw**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**C**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	226,879	5.21	0.04	0.15	0.25	0.37	0.44	0.5	0%
Paved	2,896	0.07	0.89	0.9	0.92	0.94	0.95	0.96	100%
Gravel	12,677	0.29	0.6	0.63	0.66	0.7	0.72	0.74	80%
Roofs	7,361	0.17	0.73	0.75	0.77	0.8	0.82	0.83	90%
Combined	**249,813**	**5.73**	**0.10**	**0.20**	**0.29**	**0.41**	**0.47**	**0.53**	**7.9%**

249813

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$ 300 ft C_v 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	565	22	-	-	-	-	
Initial Time	100	4	0.040	-	10.3	13.1	UDFCD Formula RO-3
Shallow Channel	465	18	0.039	1.4	5.6	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**13.1**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.87	3.62	4.22	4.83	5.43	6.08
Runoff (cfs)	1.6	**4.2**	7.1	11.2	14.7	**18.4**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	1.6	**4.2**	7.1	11.2	14.7	**18.4**

Notes

Combined Sub-Basin Runoff Calculations

Includes Basins OSA1 OSA2 EX-A3

Job No.:	**61150**	Date:	**6/30/2021 11:57**
Project:	**19840 El Valle Vw**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**C**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Gravel	175,599	4.03	0.6	0.63	0.66	0.7	0.72	0.74	80%
Roofs	8,182	0.19	0.73	0.75	0.77	0.8	0.82	0.83	90%
Paved	4,149	0.10	0.89	0.9	0.92	0.94	0.95	0.96	100%
Pasture/Meadow	572,374	13.14	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	**760,304**	**17.45**	**0.18**	**0.27**	**0.35**	**0.45**	**0.51**	**0.56**	**20.0%**

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	OSA1	-	794	15	-	-	-	-	14.4
Channelized-1	V-Ditch		504	12	36	0	2	8.0	1.0
Channelized-2									
Channelized-3									
Total			1,298	27					
								t_c (min)	**15.5**

Storage Volume

			40	-hr release time			Detention is NOT required		
EURV	0.00 (in)		a =	1			Water Quality is NOT required		
WQCV	0.00 (in)								
i (return period)	5-year	10-year	100-year			**Design Volume (ft^3)**			
K_i (ft)	0.0000	0.0000	0			% Storage	100-year	WQCV	Total
V_i (acre-ft)	0.000	0.000	0		EURV	0%	0	0	**0**
V_i (ft^3)	0	0	0		WQCV	0%		0	**0**

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas		
Q_{Minor}		(cfs) - 5-year Storm
Q_{Major}		(cfs) - 100-year Storm

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.66	3.36	3.92	4.48	5.04	5.64
Site Runoff (cfs)	8.43	**15.90**	24.19	35.46	44.96	**55.27**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**0.00**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**15.9**	-	-	-	**55.3**

UDFCD: I = (28.5 * P1) / (10 + tc)^0.786

PI	1.19	1.5	1.75	2	2.25	2.52

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.

Combined Sub-Basin Runoff Calculations

Includes Basins OSA1 OSA2 A3

Job No.:	**61150**	Date:	**6/30/2021 11:57**
Project:	**19840 El Valle Vw**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**C**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Gravel	188,276	4.32	0.6	0.63	0.66	0.7	0.72	0.74	80%
Roofs	12,682	0.29	0.73	0.75	0.77	0.8	0.82	0.83	90%
Paved	4,689	0.11	0.89	0.9	0.92	0.94	0.95	0.96	100%
Pasture/Meadow	554,657	12.73	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	**760,304**	**17.45**	**0.20**	**0.28**	**0.36**	**0.46**	**0.52**	**0.57**	**21.9%**

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	OSA1	-	794	15	-	-	-	-	14.4
Channelized-1	V-Ditch	2	504	12	36	0	2	4.7	1.8
Channelized-2									
Channelized-3									
Total			1,298	27					

2 = Natural, Winding, minimal vegetation/shallow grass

t_c (min) **16.2**

Storage Volume

40 -hr release time

Detention is NOT required

Water Quality is NOT required

EURV	0.00 (in)		a =	1				
WQCV	0.00 (in)							
i (return period)	5-year	10-year	100-year			**Design Volume (ft^3)**		
K_i (ft)	0.0000	0.0000	0		% Storage	100-year	WQCV	Total
V_i (acre-ft)	0.000	0.000	0	EURV	0%	0	0	**0**
V_i (ft^3)	0	0	0	WQCV	0%		0	**0**

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas

Q_{Minor} (cfs) - 5-year Storm

Q_{Major} (cfs) - 100-year Storm

Rainfall Intensity & Runoff

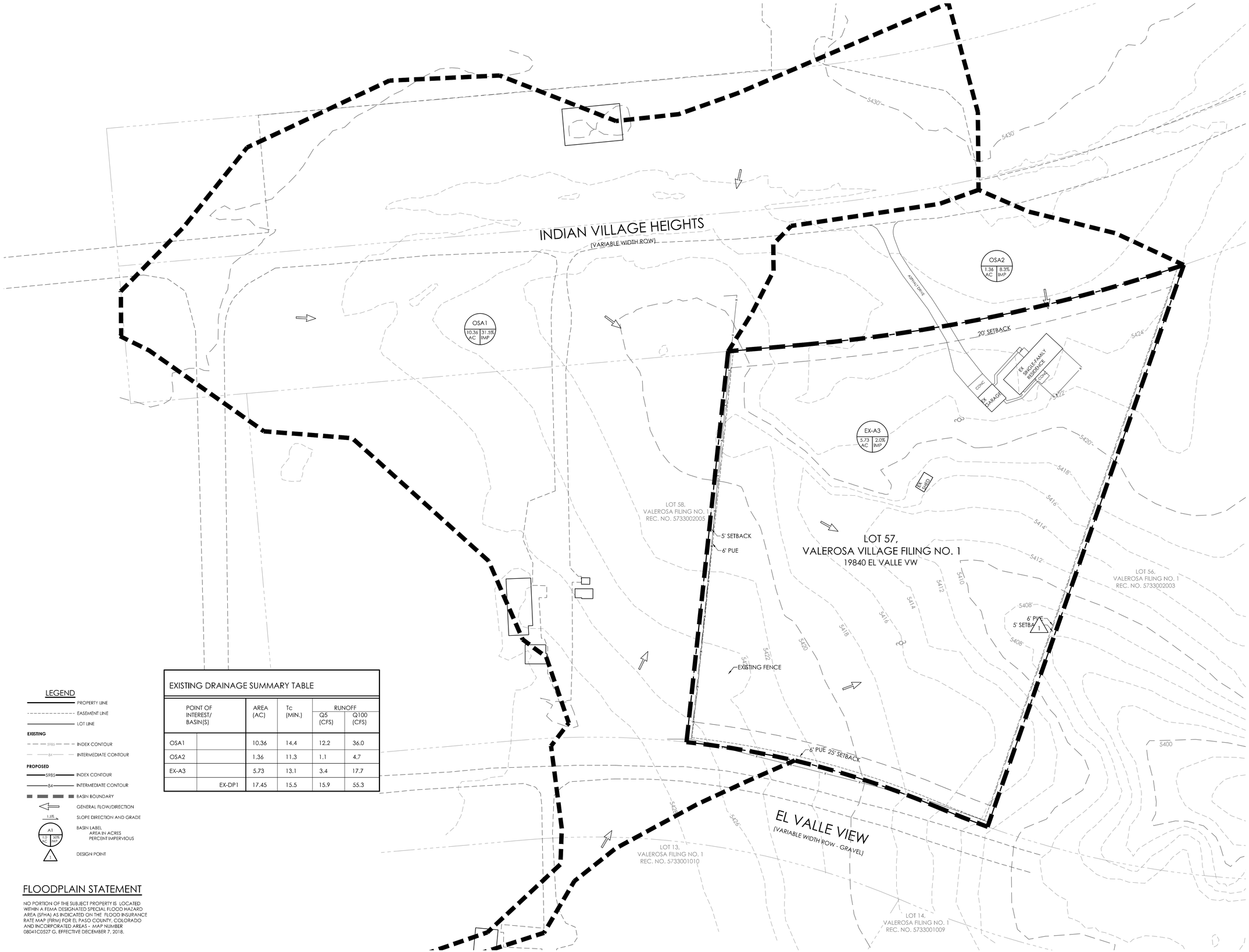
	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.60	3.28	3.83	4.38	4.92	5.51
Site Runoff (cfs)	8.88	**16.24**	24.35	35.32	44.58	**54.64**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**0.00**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**16.2**	-	-	-	**54.6**

UDFCD: I = (28.5 * P1) / (10 + tc)^0.786

PI	1.19	1.5	1.75	2	2.25	2.52

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.



EXISTING DRAINAGE SUMMARY TABLE

POINT OF INTEREST/ BASIN(S)		AREA (AC)	Tc (MIN.)	RUNOFF Q5 (CFS)	RUNOFF Q100 (CFS)
OSA1		10.36	14.4	12.2	36.0
OSA2		1.36	11.3	1.1	4.7
EX-A3		5.73	13.1	3.4	17.7
	EX-DP1	17.45	15.5	15.9	55.3

LEGEND

- PROPERTY LINE
- EASEMENT LINE
- LOT LINE

EXISTING

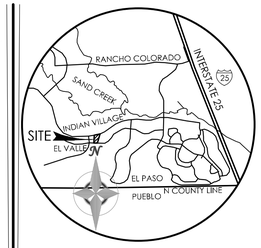
- 5985 — INDEX CONTOUR
- 84 — INTERMEDIATE CONTOUR

PROPOSED

- 5985 — INDEX CONTOUR
- 84 — INTERMEDIATE CONTOUR
- BASIN BOUNDARY
- GENERAL FLOW/DIRECTION
- 1.5% — SLOPE DIRECTION AND GRADE
- A1 / 1.0 AC / 50% IMP — BASIN LABEL: AREA IN ACRES, PERCENT IMPERVIOUS
- 1 — DESIGN POINT

FLOODPLAIN STATEMENT

NO PORTION OF THE SUBJECT PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA (SFHA) AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR EL PASO COUNTY, COLORADO AND INCORPORATED AREAS - MAP NUMBER 08041C0527 G, EFFECTIVE DECEMBER 7, 2018.



VICINITY MAP

NOT TO SCALE

BENCHMARK

THE BENCHMARK FOR ELEVATIONS SHOWN ON THIS DRAWING IS
ELEVATION = (NGVD29).

BASIS OF BEARINGS: THE BASIS OF ALL BEARINGS SHOWN ON THIS DRAWING IS THE .

N

10 0 20 50 100

1" = 50' 1:600

MVE, INC.
ENGINEERS SURVEYORS
1903 lelaray street, suite 200 colorado springs co 80909 719.635.5736

REVISIONS

DESIGNED BY
DRAWN BY
CHECKED BY
AS-BUILTS BY
CHECKED BY

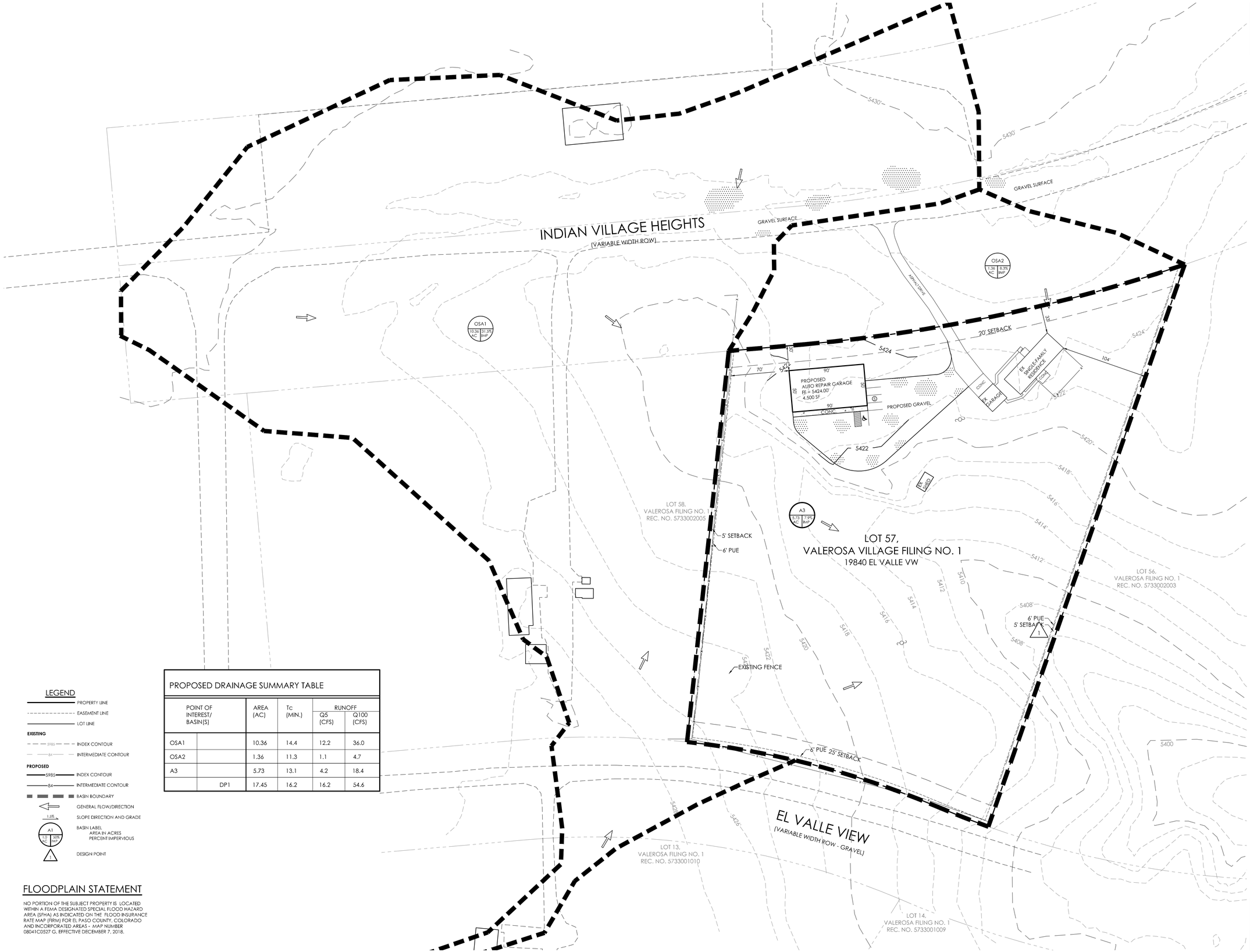
19840 El Valle Vw

EXISTING
DRAINAGE MAP

MVE PROJECT 61150
MVE DRAWING EX-DRN

June 30, 2021

SHEET 1 **OF** 1



LEGEND

- PROPERTY LINE
- EASEMENT LINE
- LOT LINE

EXISTING

- 5985 — INDEX CONTOUR
- 84 — INTERMEDIATE CONTOUR

PROPOSED

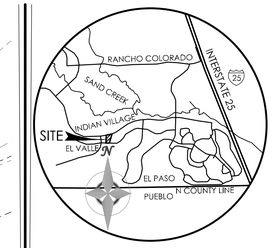
- 5985 — INDEX CONTOUR
- 84 — INTERMEDIATE CONTOUR
- BASIN BOUNDARY
- GENERAL FLOW/DIRECTION
- 1.5% — SLOPE DIRECTION AND GRADE
- A1 — BASIN LABEL; AREA IN ACRES; PERCENT IMPERVIOUS
- 1 — DESIGN POINT

PROPOSED DRAINAGE SUMMARY TABLE

POINT OF INTEREST/ BASIN(S)		AREA (AC)	Tc (MIN.)	RUNOFF Q5 (CFS)	RUNOFF Q100 (CFS)
OSA1		10.36	14.4	12.2	36.0
OSA2		1.36	11.3	1.1	4.7
A3		5.73	13.1	4.2	18.4
	DP1	17.45	16.2	16.2	54.6

FLOODPLAIN STATEMENT

NO PORTION OF THE SUBJECT PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA (SFHA) AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR EL PASO COUNTY, COLORADO AND INCORPORATED AREAS - MAP NUMBER 08041C0527 G, EFFECTIVE DECEMBER 7, 2018.



VICINITY MAP

NOT TO SCALE

BENCHMARK

THE BENCHMARK FOR ELEVATIONS SHOWN ON THIS DRAWING IS
ELEVATION = (NGVD29).

BASIS OF BEARINGS: THE BASIS OF ALL BEARINGS SHOWN ON THIS DRAWING IS THE .

N

10 0 20 50 100

1" = 50' 1:600

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REVISIONS

DESIGNED BY
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19840 El Valle Vw

PROPOSED
DRAINAGE MAP

MVE PROJECT 61150
MVE DRAWING PP-DRN

JUNE 30, 2021

SHEET 1 **OF** 1