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Drainage Letter

Peyton Ranches Filing No. 1C

Replat of a Portion of Lot 104, Peyton Ranches

Project No. 61140

November 28, 2023

PCD File No. VR235

Drainage Letter

for

Peyton Ranches Filing No. 1C
Replat of a Portion of Lot 104, Peyton Ranches
Project No. 61140

November 28, 2023

prepared for

Fridah Joanitah Wood
719 Mediterranean Point
Colorado Springs, CO 80910
719.623.4689

prepared by

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1903 Lelaray Street, Suite 200
Colorado Springs, CO 80909
719.635.5736

61140 Drainage Letter Report.odt

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.

COLORADO LICENSED
DAVID RAYMOND GORMAN
12/4/23
31672
PROFESSIONAL ENGINEER

David R. Gorman, P.E. Colorado No. 31672
For and on Behalf of MVE, Inc.

12/04/2023
Date

Developer's Statement

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

12/03/2023
Date

Fridah Joanitah Wood
719 Mediterranean Point
Colorado Springs, CO 80910

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

Drainage Letter

This Drainage Letter Report for Peyton Ranches Filing No. 1C has been prepared in accordance with Section 4.5 Small Subdivision Drainage Report Format of the Drainage Criteria Manual for the City of Colorado Springs & El Paso County, Colorado. Said Report is in support of the proposed Vacation and Replat of a Portion of Lot 104, Peyton Ranches, El Paso County Assessor's schedule number 31330-02-011, El Paso County, Colorado. The letter and enclosed hydrologic calculations are concerned with the existing and developed storm water runoff from the site which will remain relatively unchanged.

General property description is that the site is composed of 8.59 acres. A **Vicinity Map** has been included for readers reference. The site borders Lot 105 (south), Lot 103 (west) and the remaining portion of Lot 104 (north) of Peyton Ranches. The proposed subdivision is located on the west side of Chaparral Loop East. The area of land under consideration for replatting is the southern portion of Lot 104, Peyton Ranches and contains 8.594 acres. The property is zoned Residential Rural (RR-5).

The proposed Vacation and Replat is situate in the Upper Bracket Creek Drainage Basin. The **Peyton Ranches Drainage Plan** has been included for the readers reference.

The site generally slopes from northeast to southwest at about 5 percent (%). The site consists of native grass. The area not covered by the buildings and pavement has been considered to have pasture/meadow surface characteristics.

General existing drainage characteristics of the site will not change due to the platting and the construction of a single family residence. The minor increases in storm runoff from the site negligible and will nave no discernible effect on the property or adjacent properties. The original **Peyton Ranches Drainage Plan** is included in the appendix of this report for reference of existing and proposed drainage basins and table listing of basin areas and flows. Offsite flows consist of a portion of the remaining Lot 104 to the north that contains no structures or drives.

The current Flood Insurance Study of the region includes the Flood Insurance Rate Map (FIRM), effective December 7, 2018. The project site is included in Map Number 08041C0375 G of the FIRM for El Paso County, Colorado. According to the FIRM, the subject site is not included in a FEMA designated Special Flood Hazard Area (SFHA). A portion of the current FIRM (Flood Insurance Rate Map) with the site delineated is included with this report.

According to the Soil Survey of El Paso County Area, Colorado by the United States Natural Resource Conservation Service, the soil of the site is Blakeland loamy sand (map unit 8), which is part of hydrologic soil group A. The Blakeland loamy sand soil is Sandy and Sandy Loam and somewhat excessively drained. A portion of the **Soil Survey Map** is included with this report.

Hydrologic analysis for both existing and developed conditions of the site were performed according to the Rational Method. Q = CAi where:

Q = Peak runoff rate in cubic feet per second (cfs)

C = Runoff coefficient

i = average rainfall intensity in inches per hour

A = drainage area in acres

Analysis was completed in accordance with said Drainage Criteria Manual for the City of Colorado Springs & El Paso County, Colorado. Peak runoff flow rates were calculated for the 5-year and 100-year rainfall recurrence intervals for both existing and future developed conditions.

Basin OS-1, having an area of 2.68 acres and 3.0% imperviousness and draining onto the property from the north, will remain the same as existing conditions because no construction is likely in that basin it being a developed residential lot. Runoff discharges from Basin OS-1 will remain unchanged at Q_5 = 0.8 cfs and Q_{100} = 4.6 cfs.

Basin A, having an area of 8.59 acres consist of south portion of Lot 104 that draining from northeast to southwest, will have a negligible increase in developed storm water flows because of the future house and drive to be constructed (assumed 5,000 sf roof & 5,000 sf gravel drive). In the existing condition the imperviousness is 0.0% and will increase to 2.3% with the construction of the proposed residence. The undeveloped runoff is Q_5 = 1.9 cfs and Q_{100} = 14.3 cfs and in the developed conditions will be Q_5 = 2.3 cfs and Q_{100} = 14.8 cfs.

Design Point DP1 is the total flows draining off the site to the south from the site and includes the offsite that drains onto the property from the north. This total undeveloped runoff leaving the site is Q_5 = 2.4 cfs and Q_{100} = 16.4 cfs and in the developed conditions will be Q_5 = 2.7 cfs and Q_{100} = 16.8 cfs, which is an increase od Q_5 = 0.3 cfs and Q_{100} = 0.4 cfs being negligible an of no effect.

According to the Peyton Ranches Drainage Plan prepared by Colorado Engineers, Inc, prepared April 1972, the site is located in Drainage Area C-7. This site is 8.59 acers of the total 154.8 acres. The Drainage Basin generally drains from north to south and consist of thirteen 5.0 plus acre residential lots. Runoff from the Drainage Area drains to an existing 42” CMP culvert under Chaparral Loop and enters a tributary of Brackett Creek. The Drainage Plan indicated the C-7 Drainage Area to discharge 108.1 cfs, the increase of 0.4 cfs leaving the proposed developed site is a negligible 0.4%. Assuming the existing 42” CMP is built to County Standards, the pipe has a capacity of 79.5 cfs. The increase of 0.4 cfs has negligible impact on the existing conditions.

Because of the large lot rural residential density of Peyton Ranches, the increase in developed flows due to the subdivision of Lot 104 are insignificant at 0.4 cfs. Storm detention of these flows not required. Development of this lot will have no adverse impact of the adjacent downstream lots. In the development of the lot (residential structures, accessory buildings, driveways, landscaping), storm runoff flows shall be directed in such a way that no adverse impacts will occur to adjacent downstream lots or properties.

The site is situated in the Upper Bracket Creek Drainage Basin, El Paso Basin Number CHBR0600 and is unstudied. No Drainage or Bridge Fees are assessed for this basin.

This Drainage Report Letter is prepared in accordance with the requirements of El Paso County for the approval of the proposed Peyton Ranches Filing No. 1C. The are no proposed public improvements and with the future addition of a single family residence there is only minimal increase in storm water peak flow with all drainage patterns remaining the substantially the same as existing conditions. The development of the proposed use will cause no adverse impacts to adjacent properties or downstream drainage ways.

References

NRCS Web Soil Survey. United States Department of Agriculture, Natural Resources Conservation Service ("http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx", accessed March, 2018).

NRCS Official Soil Series Descriptions. United States Department of Agriculture, Natural Resources Conservation Service ("http://soils.usda.gov/technical/classification/osd/index.html", accessed March, 2018).

Flood Insurance Rate Map. Federal Emergency Management Agency, National Flood Insurance Program (Washingon D.C.: FEMA, March 17, 1997).

NCSS Web Soil Survey. United States Department of Agriculture, Natural Resources Conservation Service ("http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx", accessed May, 2017).

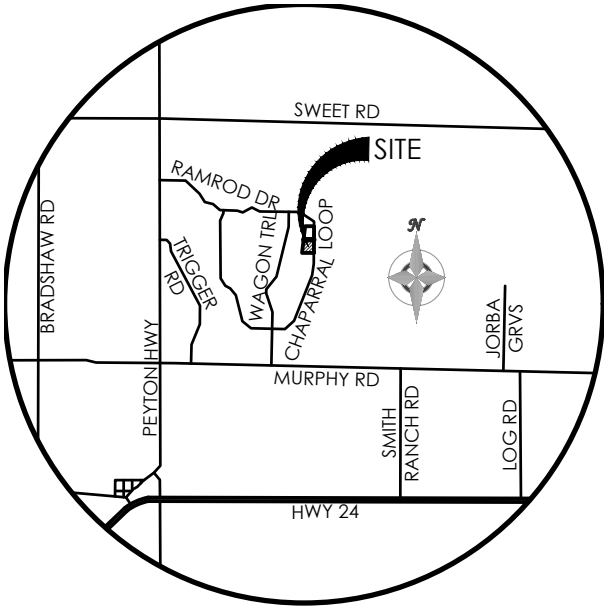
Drainage Criteria Manual Volume 2, Stormwater Quality Policies, Procedures and Best Management Practices (BMPs). City of Colorado Spring Engineering Division (Colorado Springs: , May 2014).

City of Colorado Springs Drainage Criterial Manual, Volume 1. City of Colorado Springs Engineering Division Staff, Matrix Desgin Group/Wright Water Engineers (Colorado Springs: , May 2014).

City of Colorado Springs/El Paso County Drainage Criteria Manual. City of Colorado Springs, Department of Public Works, Engineering Division; HDR Infrastructure, Inc.; El Paso County, Department of Public Works, Engineering Division (Colorado Springs: City of Colorado Springs, Revised November 1991).

City of Colorado Springs Drainage Criteria Manual Volume 1. City of Colorado Springs Engineering Division with Matrix Design Group and Wright Water Engineers (Colorado Springs, Colorado: , May 2014).

Appendices



VICINITY MAP

NOT TO SCALE

National Flood Hazard Layer FIRMette

FEMA

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**
  - 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
  - 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 5/13/2020 at 5:57:46 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.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for El Paso County Area, Colorado

May 14, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:783 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

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 17, Sep 13, 2019

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

Date(s) aerial images were photographed: Sep 8, 2018—May 26, 2019

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
8	Blakeland loamy sand, 1 to 9 percent slopes	3.1	100.0%
Totals for Area of Interest		**3.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

El Paso County Area, Colorado

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v
Elevation: 4,600 to 5,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Hills, flats
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: 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
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent

Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Sub-Basin OS-1 Runoff Calculations

Job No.:	**61140**	Date:	**11/27/2023 11:46**
Project:	**Peyton Ranches**	Calcs by:	**TJW**
		Checked by:	
Jurisdiction	**DCM**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Non-Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	112,657	2.59	0.02	0.08	0.15	0.25	0.3	0.35	0%
Gravel	2,105	0.05	0.57	0.59	0.63	0.66	0.68	0.7	80%
Roofs	2,016	0.05	0.71	0.73	0.75	0.78	0.8	0.81	90%
Combined	**116,778**	**2.68**	**0.04**	**0.10**	**0.17**	**0.27**	**0.32**	**0.36**	**3.0%**

116778

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	785	38	-	-	-	-	
Initial Time	300	14	0.047	-	18.8	N/A	DCM Eq. 6-8
Shallow Channel	485	24	0.049	1.6	5.2	-	DCM Eq. 6-9
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**24.0 min.**		

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.25	2.82	3.29	3.76	4.23	4.73
Runoff (cfs)	0.3	**0.8**	1.5	2.7	3.6	**4.6**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.3	**0.8**	1.5	2.7	3.6	**4.6**

DCM: I = C1 * ln (tc) + C2

C1	1.19	1.5	1.75	2	2.25	2.52
C2	6.035	7.583	8.847	10.111	11.375	12.735

Notes

Sub-Basin EX-A Runoff Calculations

Job No.:	**61140**	Date:	**11/27/2023 11:46**
Project:	**Peyton Ranches**	Calcs by:	**TJW**
		Checked by:	
Jurisdiction	**DCM**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Non-Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	374350	8.59	0.02	0.08	0.15	0.25	0.3	0.35	0%
Gravel			0.57	0.59	0.63	0.66	0.68	0.7	80%
Roofs			0.71	0.73	0.75	0.78	0.8	0.81	90%
Combined	**374,350**	**8.59**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**
	374350								

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	887	46	-	-	-	-	
Initial Time	300	20	0.067	-	17.1	N/A	DCM Eq. 6-8
Shallow Channel	587	26	0.044	1.5	6.6	-	DCM Eq. 6-9
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**23.7**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.27	2.84	3.31	3.78	4.25	4.76
Runoff (cfs)	0.4	**1.9**	4.3	8.1	11.0	**14.3**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.4	**1.9**	4.3	8.1	11.0	**14.3**
DCM: I = C1 * ln (tc) + C2						
C1	1.19	1.5	1.75	2	2.25	2.52
C2	6.035	7.583	8.847	10.111	11.375	12.735

Notes

Sub-Basin A Runoff Calculations

Job No.:	**61140**	Date:	**11/27/2023 11:46**
Project:	**Peyton Ranches**	Calcs by:	**TJW**
		Checked by:	
Jurisdiction	**DCM**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Non-Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	364350	8.36	0.02	0.08	0.15	0.25	0.3	0.35	0%
Gravel	5,000	0.11	0.57	0.59	0.63	0.66	0.68	0.7	80%
Roofs	5,000	0.11	0.71	0.73	0.75	0.78	0.8	0.81	90%
Combined	**374,350**	**8.59**	**0.04**	**0.10**	**0.16**	**0.26**	**0.31**	**0.36**	**2.3%**
	374350								

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	887	46	-	-	-	-	
Initial Time	300	20	0.067	-	16.8	N/A	DCM Eq. 6-8
Shallow Channel	587	26	0.044	1.5	6.6	-	DCM Eq. 6-9
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**23.4 min.**		

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.28	2.85	3.33	3.80	4.28	4.79
Runoff (cfs)	0.7	**2.3**	4.7	8.6	11.5	**14.8**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.7	**2.3**	4.7	8.6	11.5	**14.8**

DCM: I = C1 * ln (tc) + C2

C1	1.19	1.5	1.75	2	2.25	2.52
C2	6.035	7.583	8.847	10.111	11.375	12.735

Notes

Combined Sub-Basin Runoff Calculations (EX-DP1)

Includes Basins OS-1 EX-A

Job No.:	**61140**	Date:	**11/27/2023 11:46**
Project:	**Peyton Ranches**	Calcs by:	**TJW**
		Checked by:	
Jurisdiction	**DCM**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Non-Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	487,007	11.18	0.02	0.08	0.15	0.25	0.3	0.35	0%
Roofs	2,016	0.05	0.71	0.73	0.75	0.78	0.8	0.81	90%
Gravel	2,105	0.05	0.57	0.59	0.63	0.66	0.68	0.7	80%
Combined	**491,128**	**11.27**	**0.03**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.7%**

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/s)	v (ft/s)	t (min)
Furthest Reach	OS-1	-	785	38	-	-	-	-	24.0
Channelized-1	Trap Ditch	3	606	24	5	2	2	1.6	6.5
Channelized-2									
Channelized-3									
Total			1,391	62					

3 = Natural, Winding, significant vegetation

t_c (min) **30.5**

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)	1.97	2.46	2.87	3.28	3.69	4.12
Site Runoff (cfs)	0.56	**2.35**	5.00	9.38	12.62	**16.43**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**0.00**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**2.4**	-	-	-	**16.4**

DCM: I = C1 * ln (tc) + C2

C1	1.19	1.5	1.75	2	2.25	2.52
C2	6.035	7.583	8.847	10.111	11.375	12.735

Notes

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

Combined Sub-Basin Runoff Calculations (DP1)

Includes Basins OS-1 A

Job No.:	**61140**	Date:	**11/27/2023 11:46**
Project:	**Peyton Ranches**	Calcs by:	**TJW**
		Checked by:	
Jurisdiction	**DCM**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Non-Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	477,007	10.95	0.02	0.08	0.15	0.25	0.3	0.35	0%
Roofs	7,016	0.16	0.71	0.73	0.75	0.78	0.8	0.81	90%
Gravel	7,105	0.16	0.57	0.59	0.63	0.66	0.68	0.7	80%
Combined	**491,128**	**11.27**	**0.04**	**0.10**	**0.17**	**0.26**	**0.31**	**0.36**	**2.4%**

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/s)	v (ft/s)	t (min)
Furthest Reach	OS-1	-	785	38	-	-	-	-	24.0
Channelized-1	Trap Ditch	3	606	24	5	2	2	1.6	6.5
Channelized-2									
Channelized-3									
Total			1,391	62					

3 = Natural, Winding, significant vegetation

t_c (min) **30.5**

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)	1.97	2.46	2.87	3.28	3.69	4.12
Site Runoff (cfs)	0.84	**2.68**	5.35	9.74	13.00	**16.82**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**0.00**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**2.7**	-	-	-	**16.8**

DCM: I = C1 * ln (tc) + C2

C1	1.19	1.5	1.75	2	2.25	2.52
C2	6.035	7.583	8.847	10.111	11.375	12.735

Notes

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

Job No.: **61140** Date: **11/27/2023 11:46**

Project: **Peyton Ranches** Calcs By: **TJW**

Checked By:

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

Sub-Basin	Sub-Basin Data				Overland			Shallow Channel				Channelized				t_c Check		t_c
	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)	(min)
OS-1	2.68	0.10	0.36	3%	300	5%	18.8	485	0.049	1.6	5.2	0	0.000	0.0	0.0	785	N/A	24.0
EX-A	8.59	0.08	0.35	0%	300	7%	17.1	587	0.044	1.5	6.6	0	0.000	0.0	0.0	887	N/A	23.7
A	8.59	0.10	0.36	2%	300	7%	16.8	587	0.044	1.5	6.6	0	0.000	0.0	0.0	887	N/A	23.4

Job No.: **61140**
Project: **Peyton Ranches**
Design Storm: **5-Year Storm** *(20% Probability)*
Jurisdiction: **DCM**

Date: **11/27/2023 11:46**
Calcs By: **TJW**
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)
	OS-1	2.68	0.10	24.0	0.27	2.82	0.76															
	EX-A	8.59	0.08	23.7	0.69	2.84	1.95															
EX-DP1		11.27	0.08					30.5	0.96	2.46	2.4											
	A	8.59	0.10	23.4	0.82	2.85	2.34															
DP1		11.27	0.10					30.5	1.09	2.46	2.7											

DCM: I = C1 * ln (tc) + C2
C1: 1.5
C1: 7.583

Job No.: **61140**
Project: **Peyton Ranches**
Design Storm: **100-Year Storm** *(1% Probability)*
Jurisdiction: **DCM**

Date: **11/27/2023 11:46**
Calcs By: **TJW**
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)
	OS-1	2.68	0.36	24.0	0.98	4.73	4.62															
	EX-A	8.59	0.35	23.7	3.01	4.76	14.31															
EX-DP1		11.27	0.35					30.5	3.98	4.12	16.4											
	A	8.59	0.36	23.4	3.10	4.79	14.84															
DP1		11.27	0.36					30.5	4.08	4.12	16.8											

DCM: I = C1 * ln (tc) + C2
C1: 2.52
C1: 12.735

Culvert Report

Basin C-7 - 42 in CMP (108.5 cfs)

Invert Elev Dn (ft)	=	100.00
Pipe Length (ft)	=	44.00
Slope (%)	=	2.00
Invert Elev Up (ft)	=	100.88
Rise (in)	=	42.0
Shape	=	Circular
Span (in)	=	42.0
No. Barrels	=	1
n-Value	=	0.013
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Projecting
Coeff. K,M,c,Y,k	=	0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

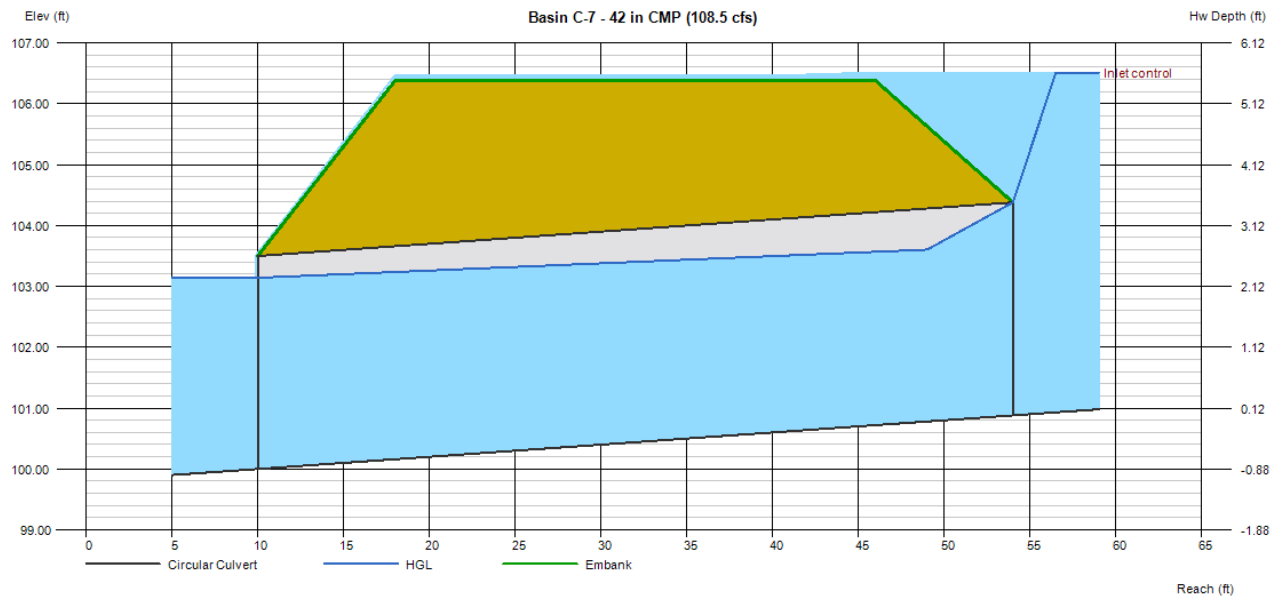
Top Elevation (ft)	=	106.38
Top Width (ft)	=	28.00
Crest Width (ft)	=	200.00

Calculations

Qmin (cfs)	=	108.50
Qmax (cfs)	=	108.50
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

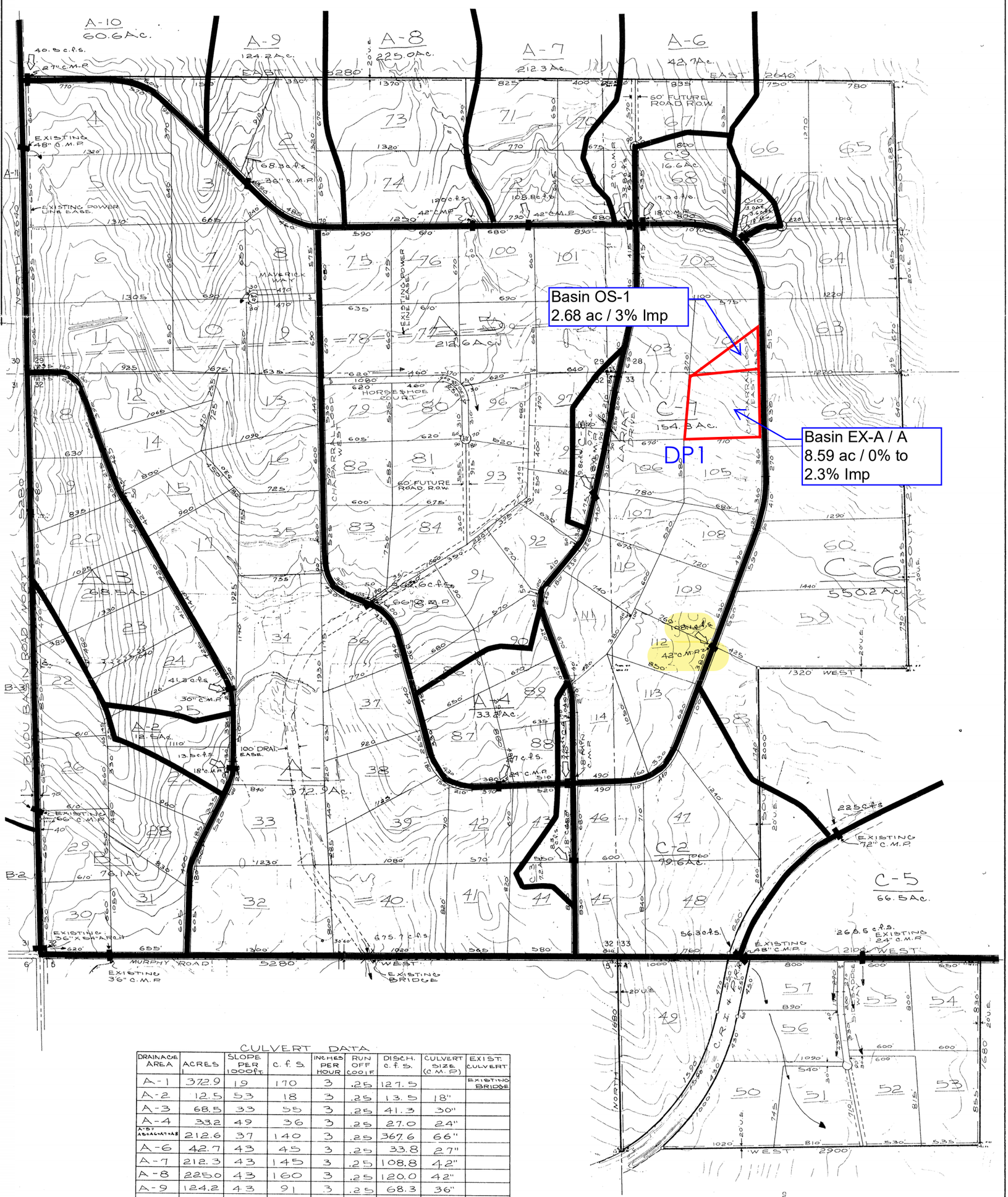
Qtotal (cfs)	=	108.50
Qpipe (cfs)	=	79.53
Qovertop (cfs)	=	28.97
Veloc Dn (ft/s)	=	8.74
Veloc Up (ft/s)	=	9.69
HGL Dn (ft)	=	103.14
HGL Up (ft)	=	103.66
Hw Elev (ft)	=	106.51
Hw/D (ft)	=	1.61
Flow Regime	=	Inlet Control



DRAINAGE PLAN

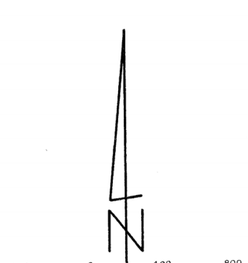
PEYTON RANCHES

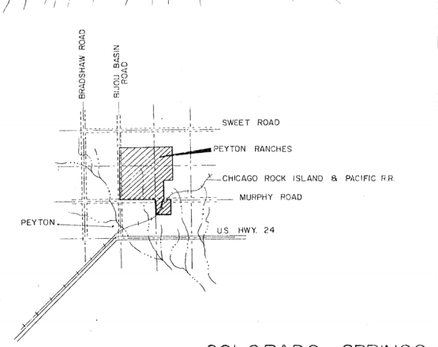
EL PASO COUNTY, COLORADO



CULVERT DATA

DRAINAGE AREA	ACRES	SLOPE PER 100 ft.	c. f. s.	INCHES PER HOUR	RUN OFF COEIF.	DISCH. c. f. s.	CULVERT SIZE (C.M.P.)	EXIST. CULVERT
A-1	372.9	19	170	3	.25	127.5		EXISTING BRIDGE
A-2	12.5	53	18	3	.25	13.5	18"	
A-3	68.5	33	55	3	.25	41.3	30"	
A-4	33.2	49	36	3	.25	27.0	24"	
A-5 + A-6 + A-7 + A-8	212.6	37	140	3	.25	367.6	66"	
A-6	42.7	43	45	3	.25	33.8	27"	
A-7	212.3	43	145	3	.25	108.8	42"	
A-8	225.0	43	160	3	.25	120.0	42"	
A-9	124.2	43	91	3	.25	68.3	36"	
A-10	60.6	43	54	3	.25	40.5	27"	
B-1	76.1	28	58	3	.25	43.5		EXIST. 36"
C-2	79.6	31	60	3	.25	45.0		EXISTING 48"
C3+C4+C5	7.2	28	11	3	.25	11.3	18"	
C-4	3.0	17	4.8	3	.25	3.6	18" MIN.	
C-5	66.5	28	54	3	.25	40.5		EXISTING 24"
C-6	550.2	42	300	3	.25	225.0		EXISTING 72"
C7+C10+C8+C9 +C10	154.8	46	108	3	.25	108.1	42"	
C-8	9.7	33	13	3	.25	9.8	18"	
C-9	16.6	79	23	3	.25	17.3	18"	
C-10	3.0	17	4.8	3	.25	3.6	18" MIN.	





OLORADO ENGINEERS, INC.

COLORADO SPRINGS