

# SOILS AND GEOLOGY REPORT

## Colvin Heritage Farms

El Paso County, Colorado

May 19 2021

Per previous comment, areas of shallow groundwater or potentially shallow groundwater will need to be depicted and designated as no-build areas. Exhibit provided depicts a drainage easement. Is this the area of shallow groundwater? This area needs to be designated as no-build and depicted as seasonal groundwater area on the map and on the plat if so.

Per LDC Sec. 8.4.9(C)(2)(a), please revise map exhibit to include the following:

### (C) Report Requirements.

- (1) **Data to be Complete to Allow Review.** It is recognized that certain geologic interpretations cannot be firm or complete, at least in advance of grading operations, but it is expected that all pertinent data will be presented fully and clearly so that interpretations and recommendations can be critically reviewed by others.
- (2) **Issues to be Addressed by Report.** The following concerns shall be fully addressed in the geology and soils report.

#### (a) Mapping.

##### i. Large-Scale Map Required.

A detailed map, drawn to scale, is required for geology and soils reports.

##### ii. Structure Sections Required.

Where 3-dimensional relationships are significant but cannot be described satisfactorily in words alone, the geology and soils report should be accompanied by 1 or more appropriately positioned structure sections.

##### iii. Test Hole, Percolation Test, and Soil Investigation Test Pit Excavation Locations Mapped.

The locations of test holes, percolation tests, soil investigation test pit excavations, and other specific sources of subsurface information utilized by the geologist or qualified engineer of record shall be indicated on the map and on any sections that are submitted with the geology and soils report.



Ground Water Investigations LLC • 11590 Black Forest Rd. 614 N Suite 15  
Colorado Springs, CO 80908 • (719) 338-1805



## PROJECT DESCRIPTION

The following presents Soils and Geology Report for the proposed Colvin Heritage Farms Minor Subdivision ("Project Site") (Figure 1). The 19.8 acre parcel is proposed to be subdivided two create two lots consisting of 10.1 acres (Lot 1 with an existing home and well) and 9.7 acres (Lot 2) having the respective address' of 11660 and 11545 Green Acres Lane, Colorado Springs CO 80908 in El Paso County, Colorado (Attachment 1).

## GEOLOGY

The Project Site is located within the Black Forest Quadrangle near the western edge of a geologic structural depression known as the Denver Basin. This asymmetrical structural basin is shallow-dipping toward the northeast within Black Forest. The uppermost materials are that of the Dawson Formation deposited during the early to possibly middle Eocene (Figure 2). Historically, braided streams eastwardly carried and deposited gravel, sand, silt and clays derived from weathered Precambrian Pike Peak Granite from the uplifted areas to the west (Thorson, 2003).

Facies Unit 5 (TKda5) is the uppermost facies of the Dawson Formation and is mapped over the entire Project Site (Figure 2). This Facies is generally described as light-tan fine to medium grained feldspathic friable sandstone. The sandstone is poorly sorted and interbedded with lenses of sandy clays. Facies Unit 5 is described as generally permeable, well drained, with good foundation characteristics.

## SOILS

The National Resource Conservation Service (NRCS) has identified three soil types on the Property.

Type	Description
40	Kettle gravely loamy sand, 3 to 8 % slopes
41	Kettle gravely loamy sand, 8 to 40% slopes
71	Pring Coarse sandy loam 3 to 8 percent slope



Attachment 2 provides a complete detailed description of the soils. The natural drainage class is “somewhat extensively drained” (Type 40 and 41) to “well drained “ (Type 71). Runoff potential is low for Type 40 and 71 and moderate for Type 41 and (NRCS, 2018). All are Hydrologic Soil Group B described in part as having a moderately low runoff potential when thoroughly wet.

### **Soil Test Pits**

Field investigations at the Project Site consisted of excavating two profile pits within Soil Type 40 on Lot 2 (Attachment 1) to evaluate the subsurface for an onsite wastewater treatment system (OWTS) (Geoquest-1 2017). The profile pits were excavated to a maximum depth of 6 feet below ground surface. *Samples were collected from select intervals and evaluated for soil properties.* Test Pit 1 encountered USDA soil Type 2A and bedrock. Test Pit 2 encountered USDA soil Type 3A and 4A and bedrock (Table 1).

Evidence of shallow groundwater occurred at a depth of 28 inches in Profile Pit 1 and 16 inches in Profile Pit 2 both at the weathered bedrock/Bedrock interface. Geoquest specified that the site will require an Engineered Septic Design with a design based on an LTAR of 0.3, GPD/SF and including an above grade uniformly pressure dosed soil treatment (Geoquest-1 2017). The location of the test pits and the proposed and alternative OWTS locations is presented on Figure 3. The test pit reports is included as Attachment 3.

### **PROFILE BORINGS**

Two exploratory borings were drilled using a 4-in diameter auger to depths of 15 feet (Geoquest-2, 2017). Samples were collected using a 2-inch split spoon barrel sampler. A 140 pound drop-hammer, dropped 30 inches, was used to drive the sampler into the soil in accordance with ASTM D-1586. Samples were classified in the field and by laboratory analysis to evaluate physical and overlying sandstone (2-15 feet) with low to moderate clay content and moisture content ranging from 6.6 to 8 % (Attachment 4).





**TABLE 1**  
**Soil Profile Pit Summary Table**  
**Colvin Heritage Farms Subdivision**

Depth (in)	Sample Interval							
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	Cementation Class	Color
		Topsoil						
Lot 2	Pit 1	Sandy Loam	Granular	1	Yes at 28"	Type 2 (LTAR = 0.60) Treatment Level 1	Non-Cemented	Lt Brn 7.5YR 6/4
6" to 28"								
28" to 72"		Sandy Loam	none	Massive	Yes at 28 "	Type 2 (LTAR = 0.60) Treatment Level 1	Moderate	Pnk/Wt 7.5YR 8/2
Depth to groundwater (Permanent or Seasonal) at 28-inches								





**TABLE 1-cont-  
Soil Profile Pit Summary Table  
Colvin Heritage Farms Subdivision**

Depth (in)	Sample Interval	Soil Profile Data Description						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	Cemen-tation Class	Color
Lot 2	Pit 2	Sandy Clay Loam	Blocky	1	Yes at 16"	Type 3 (LTAR = 0.35) Treatment Level 1	Non-Cementted	Dk Yel Brn 10YR 3/4
6" to 16"								
16" to 40"		Sandy Clay	none	Massive	Yes at 16 "	Type 4 (LTAR = 0.20) Treatment Level 1	Moderate	Lt Yel Brn 2.5YR 6/3
40" to 48"		Sandy Clay Loam	none	Massive	no	Type 3 (LTAR = 0.35) Treatment Level 1	Moderate	Pale Brn 2.5YR 7/4
Depth to groundwater (Permanent or Seasonal) at 16-inches								

## HYDROGEOLOGY

The Property is located within the northern most portion of the Falcon Basin Drainage (Matrix 2015) within the Upper Black Squirrel Creek Designated Ground Water Basin. The ground surface elevation across the Project Site ranges from 7430 to 7484 feet above mean sea level (Figure 3). Surface drainage flows via existing natural drainage swales, draining to the southeast and south across the Project Site. Figure 4 shows the natural surface drainage pattern (JPS 2020). Surface water was visible on the southernmost area within the drainage depression near Burgess Road



during a site visit by GWI in the area labeled “Design Point 1” on Figure 4. As this visit was not following a recent precipitation event, persistent shallow water may occur in this area and should be considered in selecting a building location. There are areas greater than 1-acre within vacant lot 2 where there is relatively flat to gently sloping terrain suitable for building. The slope on the vacant lot is mild, ranging from 1 to 10 percent.

## **GEOLOGIC HAZARDS**

The Project Site was evaluated for geologic hazards that may impact development. Hazards identified in the El Paso County Land Development Code including: Mining polluted water, landfills, fill areas, contamination; airports and major utility facilities, and landslides were evaluated and not identified on the Project Site.

### **Flooding**

The National Flood Hazard map delineated the Property and surrounding area an “area of Minimal Flood Hazard” (FEMA 2018) (Figure 5). The drainage report completed by the applicant’s engineer emphasized the importance of maintaining drainage patterns and erosion control to avoid drainage problems (JPS 2020).

### **Erosion**

The Project Site has mature ponderosa pines with a canopy covering a significant area of the northern portion of the Project Site. Lot 2 is mostly covered by native vegetation and to a lesser extent, ponderosa pine trees. The area does not appear to have been affected by the 2013 Black Forest Fire. Based on the Soil test pits and borings, The Project Site is underlain by Dawson Bedrock comprised of an arkosic sandstone. Building setbacks and other methods to reduce potential hazards associated with possible slope instabilities from erosion may be needed as arkoses are easily eroded on exposed weathered outcrops and disturbed areas due to excavation.



## **Expansive Soils**

The soils were determined to have a “small amount of expansive potential” from the foundation borings as described in the Soils report directed at foundation design for the proposed home on Lot 2. As variability in the local soils within the Dawson Formation indicate there is a potential for expansive soils, thus borings will be to be re-evaluated upon completion of the foundation excavation and prior to the placement of any framework.

## **Shallow Groundwater**

Geoquest reported groundwater encountered in Soil Profile Pit #1 at 28 inches and Profile test pit #2 at 16 inches (Geoquest-1, 2017). The property is defined by highland areas and swales. The pit locations are situated within the highland area; the groundwater Geoquest identified was perched groundwater, not the groundwater table. Water drains from the uplands towards the low-lying area southeast of the proposed home site and was visible at the southern portion of the property by Burgess road and is identified on Figure 3 as being within the drainage easement. Conditions at the Project Site indicate a potential for periodically high moisture conditions and/or frost heave. Additional investigations will be needed by a certified geotechnical engineer in the areas where foundations are planned to design appropriate subdrain systems.

## **MINERAL RESOURCES**

Colorado Geological Mineral Resources Derivative Map indicates a low potential to contain economically viable mineral resources.

## **CONCLUSION**

The site is not exposed to any geologic hazards or geotechnical constraints that would preclude the proposed two-lot residential subdivision. The OWTS for the vacant lot was determined to require an engineered system.





## REFERENCES

Coloradogeologicalsurvey.org. /geologic-hazards/abandoned-mine-lands/maps  
US Forest Service Abandoned Mine Lands Inventory  
Debris Flows-Fans/Mudslides

Federal Emergency Management Agency (FEMA). December 12, 2018.

<https://www.fema.gov/national-flood-hazard-layer-nfhl>; nfhl Viewer.

Geoquest-1 2017. Profile Pit Evaluation for Seger Homes Job #17-0660.

Geoquest-2 2017. Soils Report for Seger Homes Job #17-0660.

JPS Engineering 2020. Final Drainage Report for Colvin Heritage Subdivision, May 8, 2020.

Matrix Deign Group. Falcon Drainage Planning Study Selected Plan Report Final-September 2015.

Mineral Resources. <https://cologeosurvey.maps> Mineral Resource Potential Derivative Mapping  
JR Engineering LLC, May 5, 2015 Drainage Basin Planning Study for Kettle Creek Basin prepared for High Valley Land Company Inc. <http://Coloradosprings.gov/dbps>

Natural Resource Conservation Service (NRCS), August 21, 2017. Web Soil Survey. United States Department of Agriculture: <https://websoilsurvey.nrcs.usda.gov>

NCRS: <https://websoilsurvey.nrcs.usda.gov>

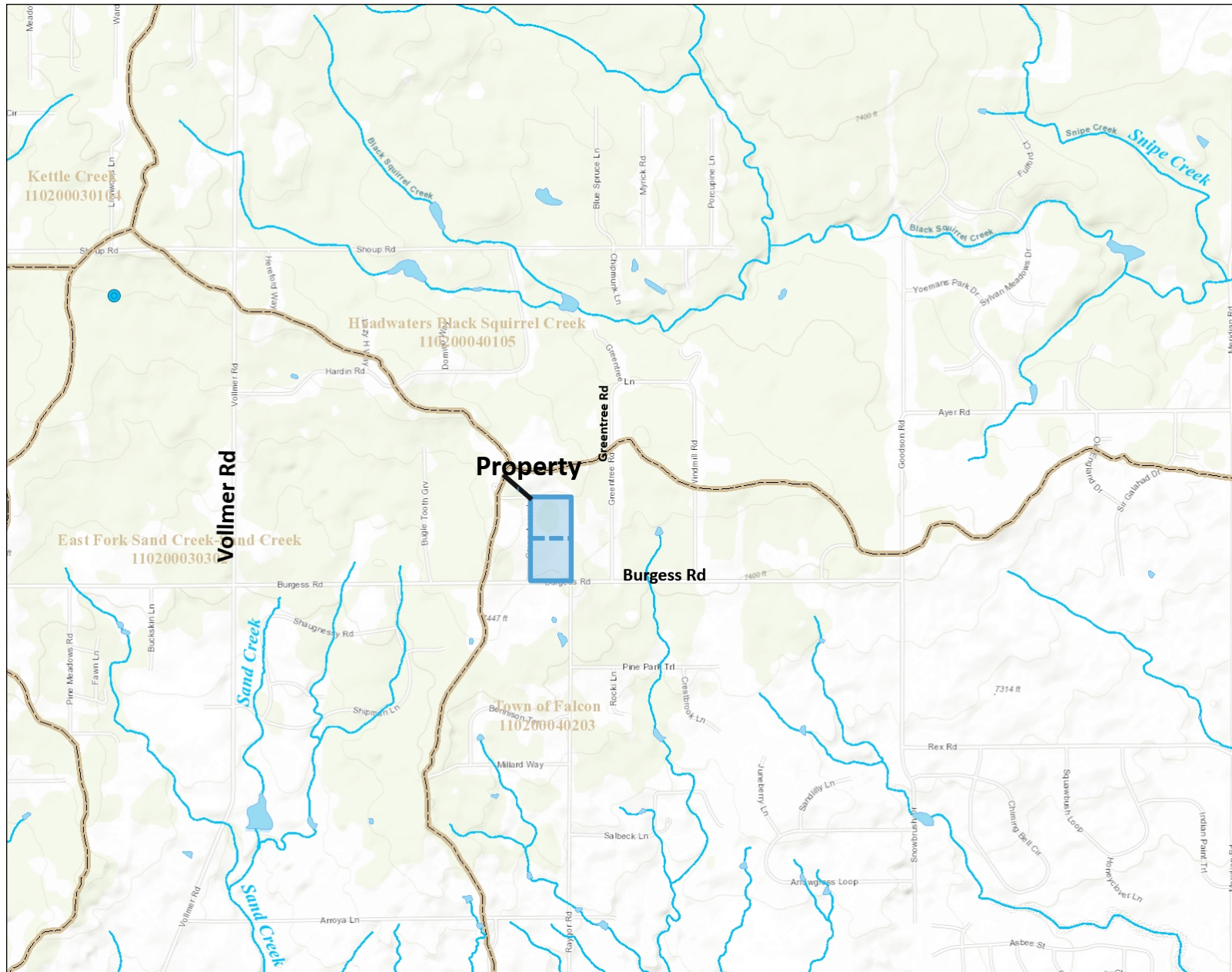
Watts, Oliver Consulting Engineer inc., January 16, 2019. Preliminary and Final Drainage Plan and Report Poenitsch Subdivision, El Paso County.

Thorson, Jon P., 2003. *Geologic Map of the Black Forest Quadrangle, El Paso County, Colorado*. Colorado Geological Survey Open -File Report 03-06.



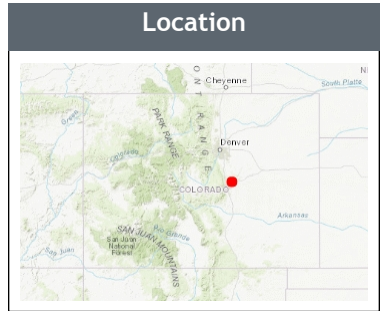
CDSS

Colorado's Decision Support Systems



### Legend

- NHDPPoint
- NHDArea
  - CanalDitch
  - StreamRiver
- NHDWaterbody
  - LakePond
  - Reservoir
  - SwampMarsh
- NHDFlowline
  - ArtificialPath
  - CanalDitch
  - Connector
  - Pipeline
  - StreamRiver
  - Underground Conduit
- WBD\_HU12
- County



### Notes

PROPERTY LOCATION  
Colvin 19.8 Acres

SE S15 T12S R65W

## FIGURE 1

4,677 0 2,339 4,677 Feet

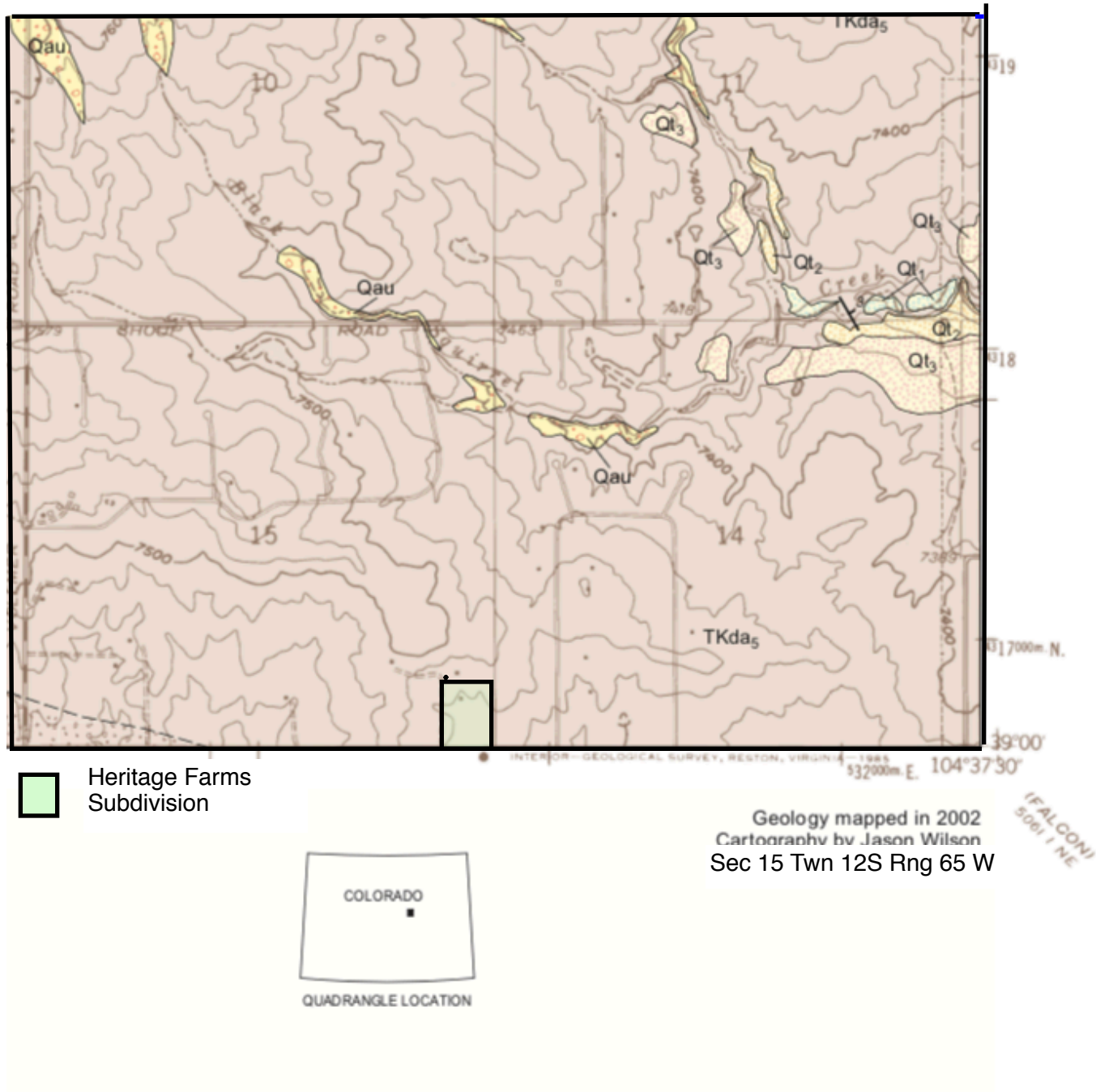
1: 28,064



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Date Prepared: 7/23/2018 7:56:13 PM





**FIGURE 2**

Geology  
Heritage Farms Subdivision  
Black Forest Quadrangle



COLVIN HERITAGE FARMS SUBDIVISION FILING 1

A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 15,  
TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,  
EL PASO COUNTY, COLORADO

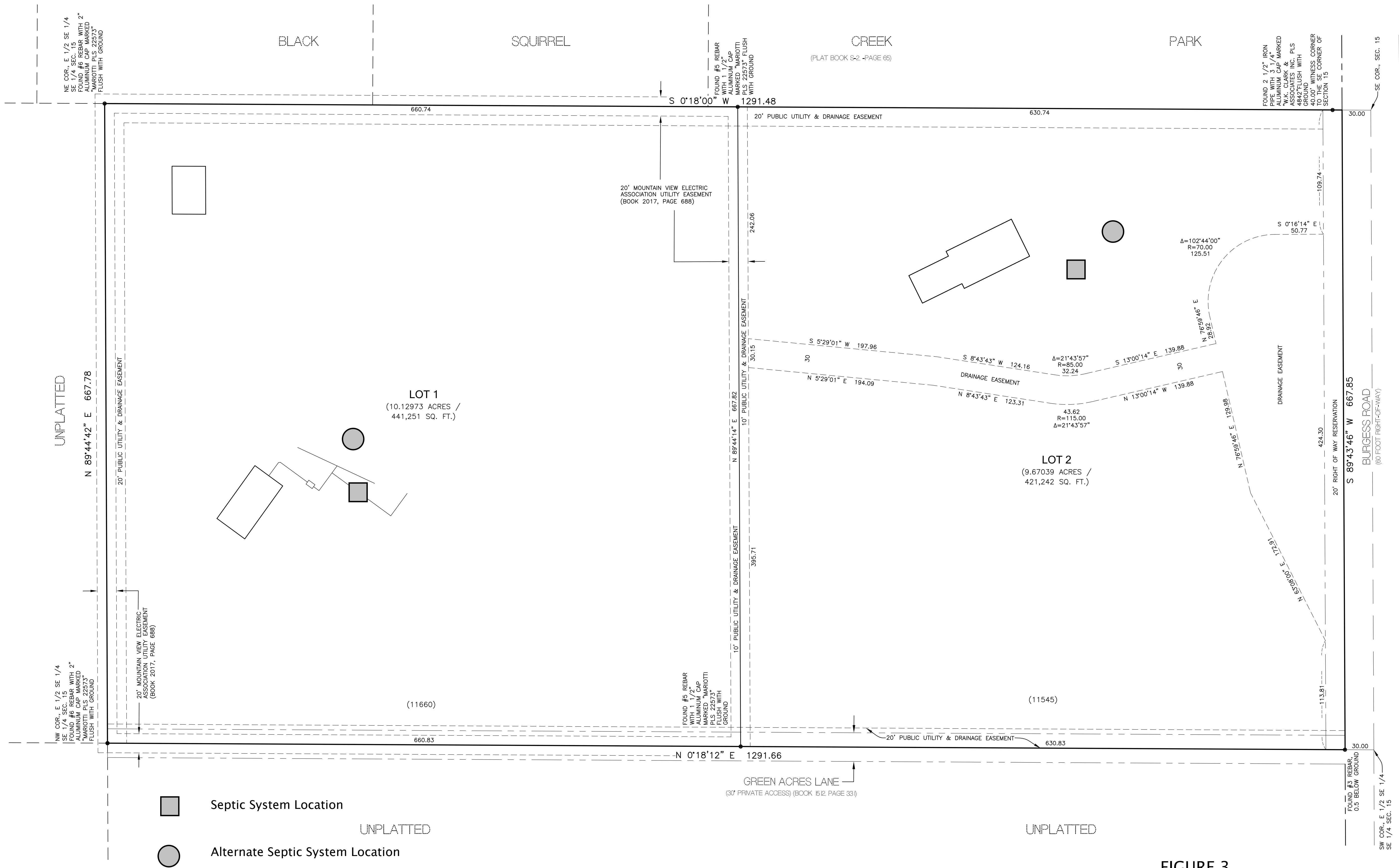
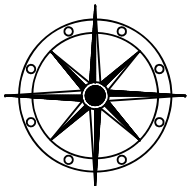


FIGURE 3  
Septic System Locations

DSD FILE NO: MS2010



COMPASS SURVEYING & MAPPING, LLC  
3249 WEST CAREFREE CIRCLE  
COLORADO SPRINGS, CO 80917  
719-354-4120  
WWW.CSAMLLC.COM

REVISIONS:	
1	4/03/21 County comments.

PROJECT No. 19227  
MAY 11, 2020  
SHEET 2 OF 2

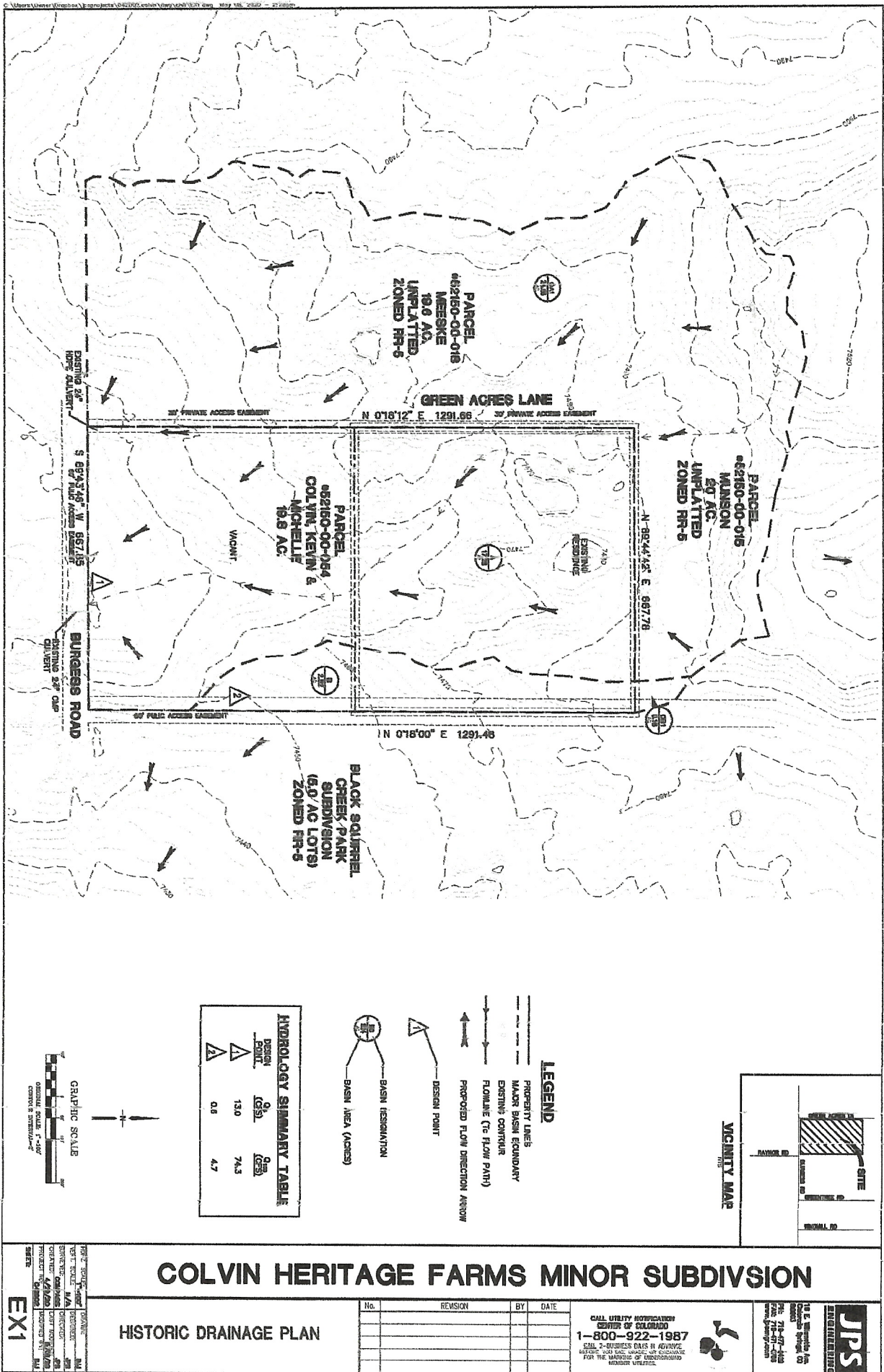


FIGURE 4



# National Flood Hazard Layer FIRMette



## 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 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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 4/7/2020 at 2:16:02 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.





COLVIN HERITAGE FARMS SUBDIVISION FILING 1

ATTACHMENT 1

KNOW ALL MEN BY THESE PRESENTS:

That Kevin Colvin and Michelle Colvin, being the owners of the following described tract of land to wit:

The Northeast Quarter of the Southeast Quarter of the Southeast Quarter of Section 15, Township 12 South, Range 65 West of the 6th Principal Meridian, El Paso County, Colorado.

AND

The Southeast Quarter of the Southeast Quarter of the Southeast Quarter of Section 15, Township 12 South, Range 65 West of the 6th Principal Meridian, El Paso County, Colorado, except the South 30 feet for road purposes.

Containing a calculated area of 862,493 square feet (19.8001 acres), more or less.

OWNERS CERTIFICATION:

The undersigned, being all the owners, mortgages, beneficiaries of deeds of trust and holders of other interests in the land described herein, have laid out, subdivided, and platted said lands into lots and easements as shown hereon under the name and subdivision of COLVIN HERITAGE FARMS SUBDIVISION FILING 1. The utility easements shown hereon are hereby dedicated for public utilities and communication systems and other purposes as shown hereon. The entities responsible for providing the services for which the easements are established are hereby granted the perpetual right of ingress and egress from and to adjacent properties for installation, maintenance, and replacement of utility lines and related facilities.

Kevin Colvin Date

Michelle Colvin Date

STATE OF COLORADO }  
COUNTY OF EL PASO } SS

Acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2021 by Kevin Colvin and Michelle Colvin.

My commission expires \_\_\_\_\_

Witness my hand and official seal \_\_\_\_\_  
Notary Public

BOARD OF COUNTY COMMISSIONERS CERTIFICATE:

This plat for COLVIN HERITAGE FARMS SUBDIVISION FILING 1 was approved for filing by the El Paso County, Colorado Board of County Commissioners on the \_\_\_\_\_ day of \_\_\_\_\_, 2021, subject to any notes specified hereon and any conditions included in the resolution of approval. The dedications of land to the public (Public Utility Easements) are accepted, but public improvements thereon will not become the maintenance responsibility of El Paso County until preliminary acceptance of the public improvements in accordance with the requirements of the Land Development Code and Engineering Criteria Manual.

Chair, Board of County Commissioners Date

COUNTY APPROVAL:

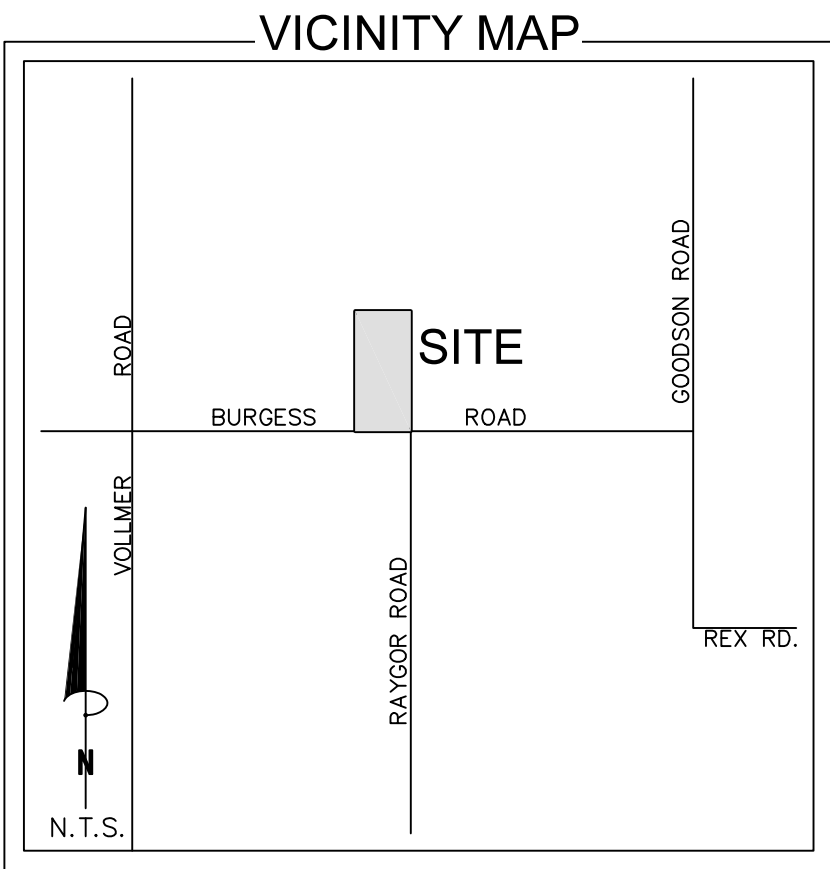
Approval is granted for this plat of COLVIN HERITAGE FARMS SUBDIVISION FILING 1

this \_\_\_\_ day of \_\_\_\_\_, 2021, A.D.

El Paso County Director of Planning and Community Development

El Paso County Assessor

A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 15,  
TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,  
EL PASO COUNTY, COLORADO



NOTES:

- This survey does not constitute a title search by Compass Surveying & Mapping, LLC to determine ownership or easements of record. For all information regarding easements, rights of way and title of record, Compass Surveying & Mapping, LLC relied upon a Commitment for Title Insurance issued by Old Republic National Title Insurance Company, OrderNo. SR55081052 with an effective date of 11/20/2019 at 5:00 P.M.
- Basis of bearings is the east line of the property, monumented as shown and assumed to bear South 0 degrees 18 minutes 00 seconds West.
- This property is located within Zone X (areas determined to be outside the 500-year floodplain) as established by FEMA per FIRM panels 08041C0320 G and 08041C0535 G, effective date, December 7, 2018.
- Notice: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.
- The linear units used in this drawing are U.S. Survey feet.
- This subdivision consists of two lots: Lot 1 is 10.12973 acres and Lot 2 is 9.67039 acres, more or less.
- No driveway shall be established unless an access permit has been granted by El Paso County Planning and Community Development Department.
- The following reports have been submitted in association with the Preliminary Plan or Final Plat for this subdivision and are on file at the County Planning and Community Development Services Department: Drainage Report; Water Resources Report; Geology and Soils Report; Fire Protection Report; Water Quality Report.
- All property owners are responsible for maintaining proper storm water drainage in and through their property. Public drainage easements as specifically noted on the plat shall be maintained by the individual lot owners unless otherwise indicated. Structures, fences, materials or landscaping that could impede the flow of runoff shall not be placed in drainage easements.
- The addresses (11545) and (11660) exhibited on this plat is for informational purposes only. They are not the legal description and are subject to change.
- Unless otherwise indicated, all side, front, and rear lot lines are hereby platted on either side with a 10 foot public utility and drainage easement unless otherwise indicated. All exterior subdivision boundaries are hereby platted with a 20 foot public utility and drainage easement. The sole responsibility for maintenance of these easements is hereby vested with the individual property owners.
- Developer shall comply with federal and state laws, regulations, ordinances, review and permit requirements, and other agency requirements, if any, of applicable agencies including, but not limited to, the Colorado Division of Wildlife, Colorado Department of Transportation, US Army Corps of Engineers and the US Fish and Wildlife Service regarding the Endangered Species Act, particularly as it relates to the listed species (e.g. Prebles Meadow Jumping Mouse).
- Mailboxes shall be installed in accordance with all El Paso County and United States Postal Service regulations.
- Water Supply: Water service for this subdivision is provided by individual wells are the responsibility of each property owner. Permits for individual wells must be obtained from the State Engineer who by law has the authority to set conditions for the issuance of these permits.

NOTES (continued):

- Soils and geology conditions on site require that on-site wastewater systems shall be located and designed by a Professional Engineer, currently registered in the State of Colorado.
- Due to high groundwater in the area, all structural foundations shall be located and designed by a professional engineer currently registered in the State of Colorado.
- Utility providers are: Black Hills Energy, Mountain View Electric Association, Century Link Communications.
- This property has been incorporated into the Black Forest Fire/Rescue Protection District.
- Sediment control is to be provided on each lot and the minimal developed conditions runoff shall be maintained per the El Paso County Drainage Criteria Manual.
- Individual lot purchasers are responsible for constructing driveways, including necessary drainage culverts from Green Acres Lane per Land Development Code Section 6.3.3.C.2 and 6.3.3.C.3. Due to their length, some of the driveways will need to be specifically approved by the Black Forest Fire Rescue Protection District.
- The private roads as shown on this plat will not be maintained by El Paso County until and unless the streets are constructed in conformance with El Paso County standards in effect at the date of the request for dedication and maintenance.
- The subdivider(s) agrees on behalf of him/herself and any developer or builder successors and assignees that subdivider and/or said successors and assigns shall be required to pay traffic impact fees in accordance with the El Paso County Road Impact Fee Program Resolution (Resolution No. 19-471), or any amendments thereto, at or prior to the time of building permit submittal. The fee obligation, if not paid at final plat recording, shall be documented on all sales documents and on plat notes to ensure that a title search would find the fee obligation before sale of the property.
- There shall be no direct lot access to Burgess Road.
- Right of Way Reservation is a no build easement.

SURVEYOR'S CERTIFICATION:

I, Mark S. Johannes, a duly registered Professional Land Surveyor in the State of Colorado, do hereby certify that this plat truly and correctly represents the results of a survey made on the date of survey shown hereon, by me or under my direct supervision and that all monuments exist as shown hereon; that mathematical closure errors are less than 1:10,000; and that said plat has been prepared in full compliance with all applicable laws of the State of Colorado dealing with monuments, subdivision, or surveying of land and all applicable provisions of the El Paso County Land Development Code.

This certification is neither a warranty nor guarantee, either expressed or implied.

Mark S. Johannes  
Colorado Professional Land Surveyor No. 32439  
For and on behalf of Compass Surveying and Mapping, LLC

FEES:

Drainage Fee: \_\_\_\_\_ School Fee: \_\_\_\_\_

Bridge Fee: \_\_\_\_\_ Park Fee: \_\_\_\_\_

RECORDING:

STATE OF COLORADO }  
COUNTY OF EL PASO } SS

I hereby certify that this instrument was filed for record in my office at \_\_\_\_ o'clock

\_\_\_\_M., this \_\_\_\_ day of \_\_\_\_\_, 2021, A.D., and is duly recorded

under Reception No. \_\_\_\_\_ of the records of El Paso County, Colorado.

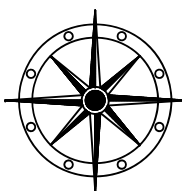
CHUCK BROERMAN, RECORDER

BY: \_\_\_\_\_  
Deputy

SURCHARGE: \_\_\_\_\_

FEE: \_\_\_\_\_

DSD FILE NO: MS2010

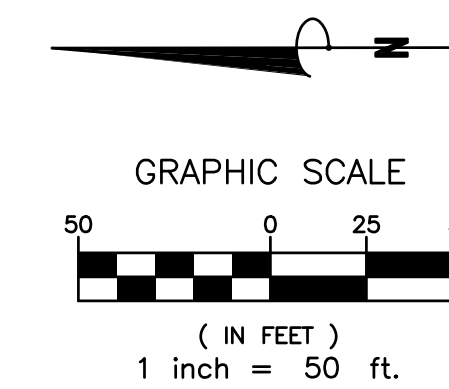


COMPASS SURVEYING & MAPPING, LLC  
3249 WEST CAREFREE CIRCLE  
COLORADO SPRINGS, CO 80917  
719-354-4120  
WWW.CSAMLLC.COM

REVISIONS:		
1	4/03/21	County comments.

PROJECT No. 19227  
MAY 11, 2020  
SHEET 1 OF 2

A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 15,  
TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,  
EL PASO COUNTY, COLORADO



PROJECT NO. 19227  
MAY 11, 2020  
SHEET 2 OF 2



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**

**Colvin Heritage Farms**





# Preface

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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](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.

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# Contents

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<b>Preface</b> .....	2
<b>How Soil Surveys Are Made</b> .....	5
<b>Soil Map</b> .....	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
El Paso County Area, Colorado.....	13
40—Kettle gravelly loamy sand, 3 to 8 percent slopes.....	13
41—Kettle gravelly loamy sand, 8 to 40 percent slopes.....	14
71—Pring coarse sandy loam, 3 to 8 percent slopes.....	15
<b>References</b> .....	17



# How Soil Surveys Are Made

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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

## Custom Soil Resource Report

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

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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



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## 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
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	10.8	55.8%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	4.8	24.8%
71	Pring coarse sandy loam, 3 to 8 percent slopes	3.7	19.4%
<b>Totals for Area of Interest</b>		<b>19.3</b>	<b>100.0%</b>

## 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

### 40—Kettle gravelly loamy sand, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 368g

*Elevation:* 7,000 to 7,700 feet

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Kettle and similar soils:* 85 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Kettle

##### Setting

*Landform:* Hills

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Sandy alluvium derived from arkose

##### Typical profile

*E - 0 to 16 inches:* gravelly loamy sand

*Bt - 16 to 40 inches:* gravelly sandy loam

*C - 40 to 60 inches:* extremely gravelly loamy sand

##### Properties and qualities

*Slope:* 3 to 8 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 (2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* Low (about 3.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* B

*Hydric soil rating:* No

#### Minor Components

##### Pleasant

*Percent of map unit:*

*Landform:* Depressions

*Hydric soil rating:* Yes

##### Other soils

*Percent of map unit:*

*Hydric soil rating:* No

## **41—Kettle gravelly loamy sand, 8 to 40 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 368h  
*Elevation:* 7,000 to 7,700 feet  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

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

### **Description of Kettle**

#### **Setting**

*Landform:* Hills  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Sandy alluvium derived from arkose

#### **Typical profile**

*E - 0 to 16 inches:* gravelly loamy sand  
*Bt - 16 to 40 inches:* gravelly sandy loam  
*C - 40 to 60 inches:* extremely gravelly loamy sand

#### **Properties and qualities**

*Slope:* 8 to 40 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat excessively drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 3.4 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No

### **Minor Components**

#### **Other soils**

*Percent of map unit:*  
*Hydric soil rating:* No

#### **Pleasant**

*Percent of map unit:*

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*Landform:* Depressions

*Hydric soil rating:* Yes

### 71—Pring coarse sandy loam, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 369k

*Elevation:* 6,800 to 7,600 feet

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Pring and similar soils:* 85 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Pring

##### Setting

*Landform:* Hills

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Arkosic alluvium derived from sedimentary rock

##### Typical profile

*A - 0 to 14 inches:* coarse sandy loam

*C - 14 to 60 inches:* gravelly sandy loam

##### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* Low (about 6.0 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* Loamy Park (R048AY222CO)

*Hydric soil rating:* No

#### Minor Components

##### Pleasant

*Percent of map unit:*

*Landform:* Depressions

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*Hydric soil rating: Yes*

### **Other soils**

*Percent of map unit:*

*Hydric soil rating: No*



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ATTACHMENT 3



6825 Silver Ponds Heights #101  
Colorado Springs, CO 80908  
(719) 481-4560

---

**PROFILE PIT EVALUATION**

**FOR**

**SEEGER HOMES**

**JOB #17-0660**

11545 Green Acres Lane,  
El Paso County,  
Colorado



Respectfully submitted,

A handwritten signature in blue ink, appearing to read "C.E. Milligan", is written over the printed name.

Charles E. Milligan, P.E.  
Civil Engineer

## PROFILE PIT FINDINGS

Enclosed are the results of the profile pit for the septic system to be installed at **11545 Green Acres Lane, El Paso County, Colorado**. The location of the test pit was determined by Seeger Homes. The residence will not be on a public water system. The number of bedrooms in the design for the residence is unknown. Due to the natural slope of the property, the entire system will feed to the south-southwest at approximately 6% at least 20 feet. All applicable portions of the El Paso County Health Department Onsite Wastewater Treatment System Regulations (OWTS) must be complied with for the installation of the treatment system.

The inspection was performed on July 21, 2017, in accordance with Table 10-1 of the **E.P.C.P.H. OWTS Regulations**.

### Soil Profile #1:

- 0 to 6" - Topsoil- loam, organic composition.
- 6" to 28" - USDA soil texture sandy loam, soil type 2A, structure shape granular, structure grade 1, non-cemented, LTAR 0.50, light brown in color, 7.5YR 6/4.
- 28" to 6' - USDA soil texture sandy loam, soil type 2A, structure shape none, structure grade massive, moderately cemented, LTAR 0.50, pinkish white in color, 7.5YR 8/2, Dawson sandstone, redoximorphic features at 28 inches.

### Soil Profile #2:

- 0 to 6" - Topsoil- loam, organic composition.
- 6" to 16" - USDA soil texture sandy clay loam, soil type 3A, structure shape blocky, structure grade 1, non-cemented, LTAR 0.30, dark yellowish in color, 10YR 3/4.
- 16" to 40" - USDA soil texture sandy clay, soil type 4A, structure shape none, structure grade massive, moderately cemented, LTAR 0.15, light yellowish brown in color, 2.5YR 6/3, Dawson sandstone, redoximorphic features at 16 inches.
- 40" to 4' - USDA soil texture sandy clay loam, soil type 3A, structure shape none, structure grade massive, moderately cemented, LTAR 0.30, pale brown in color, 2.5Y 7/4, Dawson sandstone.

Groundwater evidence was encountered at the depth of 28 inches in Profile Pit #1 and at 16 inches in Profile Pit #2 during the inspection. Bedrock was encountered at the depth of 28 inches in Profile Pit #1 and at 16 inches and 40 inches in Profile Pit #2 during the inspection. No known wells were observed within 100 feet of the proposed system. **All setbacks shall conform to county regulations.**



Due to encountering USDA soil type 3A, bedrock, and groundwater evidence, the septic system to be installed on this site shall be designed by a Colorado Licensed Engineer. Based on the observed conditions, we feel a design based on an LTAR of 0.30, GPD/SF (USDA 3A, treatment soil, treatment level 1) is reasonable. An above grade uniformly pressure dosed soil treatment area is required.

If during construction of the field itself, subsurface conditions change considerably or if the location of the proposed field changes, this office shall be notified to determine whether the conditions are adequate for the system as designed or whether a new system needs to be designed.

Weather conditions at the time of the test consisted of partly cloudy skies with hot temperatures.

# PROFILE PIT LOG - Profile Pit #1

JOB#: 17-0660  
DATE EVALUATED: 21 Jul 2017  
EQUIPMENT USED: MINI-EXCAVATOR

## 0"-6" TOPSOIL

Loam  
Organic Composition

## 6"- 28" Sand

Fine-coarse Grained  
Low-moderate Density  
Moderate Moisture Content  
Low-moderate Clay Content  
Low-moderate Cohesion  
Low-moderate Plasticity  
Light Brown Color  
7.5YR 6/4

USDA Soil Texture: Sandy Loam  
USDA Soil Type: 2A  
USDA Structure Shape: Granular  
USDA Structure Grade: 1  
Cementation Class: Non-Cemented  
Long Term Acceptance Rate (LTAR, Treatment Level 1): 0.50

## 28"- 6' Dawson Sandstone

Fine-coarse Grained  
Moderate-high Density  
Low-moderate Moisture Content  
Low-moderate Clay Content  
Low Cohesion  
Low Plasticity  
Pinkish White Color  
7.5YR 8/2

USDA Soil Texture: Sandy Loam  
USDA Soil Type: 2A  
USDA Structure Shape: None  
USDA Structure Grade: Massive  
Cementation Class: Moderately  
Long Term Acceptance Rate (LTAR, Treatment Level 1): 0.50  
Redox @ 28"

DEPTH (in ft.)	SYMBOL	SAMPLES	WATER %	SOIL TYPE
0				
2				2A
4				2A
6				
8				
10				
12				
14				

**LTAR** to be Used for OWTS Sizing: **0.30GPD/SF (USDA Type 3A, Treatment soil, Treatment Level 1)**

**Depth to Groundwater (Permanent or Seasonal):** Seasonal @ 28"

**Depth to Bedrock and Type:** Dawson Sandstone @ 28"

**Depth to Proposed Infiltrative Surface from Ground Surface:** Above Grade (Uniformly pressure dosed STA)

**Soil Treatment Area Slope and Direction:** SSW @ 6%

Note: See El Paso County Board of Health Regulation Chapter 8: On-Site Wastewater Treatments Systems (OWTS) Regulations for Additional Information. Refer to Table 10-1 for Corresponding LTAR if Treatment Level 2, 2N, 3, or 3N will be Implemented in the Design of the OWTS. System Sizing Depends on a Number of Factors (i.e. LTAR, # of Bedrooms, Type of Soil Treatment Area (STA), Method of Transfer to the STA (Gravity, Dosed, or Pressure Dosed), and Type of Storage / Distribution Media Used in the STA)

Project: 17-0660

Sheet: 1 of 2

Date: 04 Aug 2017

Scale: 1/4" = 1'

Drawn by: mtj

Checked by: cern

### Project Name and Address

### Seeger Homes

11545 Green Acres Ln  
Sch. No. 5215000053  
El Paso County, Colorado

### GEOQUEST, LLC.

6825 SILVER PONDS HEIGHTS  
SUITE 101  
COLORADO SPRINGS, CO  
80908

OFFICE: (719) 481-4560  
FAX: (719) 481-9204

# PROFILE PIT LOG - Profile Pit #2

JOB#: 17-0660  
DATE EVALUATED: 21 Jul 2017  
EQUIPMENT USED: MINI-EXCAVATOR

## 0"-6" TOPSOIL

Loam  
Organic Composition

## 6"- 16" Clayey Sand

Fine-coarse Grained  
Moderate Density  
Moderate Moisture Content  
Moderate Clay Content  
Moderate Cohesion  
Moderate Plasticity  
Dark Yellowish Brown Color  
10YR 3/4

USDA Soil Texture: Sandy Clay Loam  
USDA Soil Type: 3A  
USDA Structure Shape: Blocky  
USDA Structure Grade: 1  
Cementation Class: Non-Cemented  
Long Term Acceptance Rate (LTAR, Treatment Level 1): 0.30

## 16"- 40" Dawson Sandstone

Fine-medium Grained  
High Density  
Moderate Moisture Content  
Moderate-high Clay Content  
Moderate-high Cohesion  
Moderate-high Plasticity  
Light Yellowish Brown Color  
2.5YR 6/3

USDA Soil Texture: Sandy Clay  
USDA Soil Type: 4A  
USDA Structure Shape: None  
USDA Structure Grade: Massive  
Cementation Class: Moderately  
Long Term Acceptance Rate (LTAR, Treatment Level 1): 0.15  
Redox @ 16"

## 40"- 4' Dawson Sandstone

Fine-coarse Grained  
Moderate-high Density  
Low-moderate Moisture Content  
Moderate Clay Content  
Moderate Cohesion  
Moderate Plasticity  
Pale Brown Color  
2.5Y 7/4

USDA Soil Texture: Sandy Clay Loam  
USDA Soil Type: 3A  
USDA Structure Shape: None  
USDA Structure Grade: Massive  
Cementation Class: Moderately  
Long Term Acceptance Rate (LTAR, Treatment Level 1): 0.30

DEPTH (in ft.)	SYMBOL	SAMPLES	WATER %	SOIL TYPE
0				3A
2				4A
4				3A
6				
8				
10				
12				
14				

**LTAR to be Used for OWTS Sizing: 0.30GPD/SF (USDA Type 3A, Treatment soil, Treatment Level 1)**

**Depth to Groundwater (Permanent or Seasonal): Seasonal @ 16"**

**Depth to Bedrock and Type: Dawson Sandstone @ 16"**

**Depth to Proposed Infiltrative Surface from Ground Surface: Above Grade (Uniformly pressure dosed STA)**

**Soil Treatment Area Slope and Direction: SSW @ 6%**

Note: See El Paso County Board of Health Regulation Chapter 8: On-Site Wastewater Treatments Systems (OWTS) Regulations for Additional Information. Refer to Table 10-1 for Corresponding LTAR if Treatment Level 2, 2N, 3, or 3N will be Implemented in the Design of the OWTS. System Sizing Depends on a Number of Factors (i.e. LTAR, # of Bedrooms, Type of Soil Treatment Area (STA), Method of Transfer to the STA (Gravity, Dosed, or Pressure Dosed), and Type of Storage / Distribution Media Used in the STA)

Project: 17-0660

Sheet: 2 of 2

Date: 04 Aug 2017

Scale: 1/4" = 1'

Drawn by: mtj

Checked by: cem

### Project Name and Address

**Seeger Homes**

11545 Green Acres Ln  
Sch. No. 5215000053  
El Paso County, Colorado

### GEOQUEST, LLC.

6825 SILVER PONDS HEIGHTS  
SUITE 101  
COLORADO SPRINGS, CO  
80908

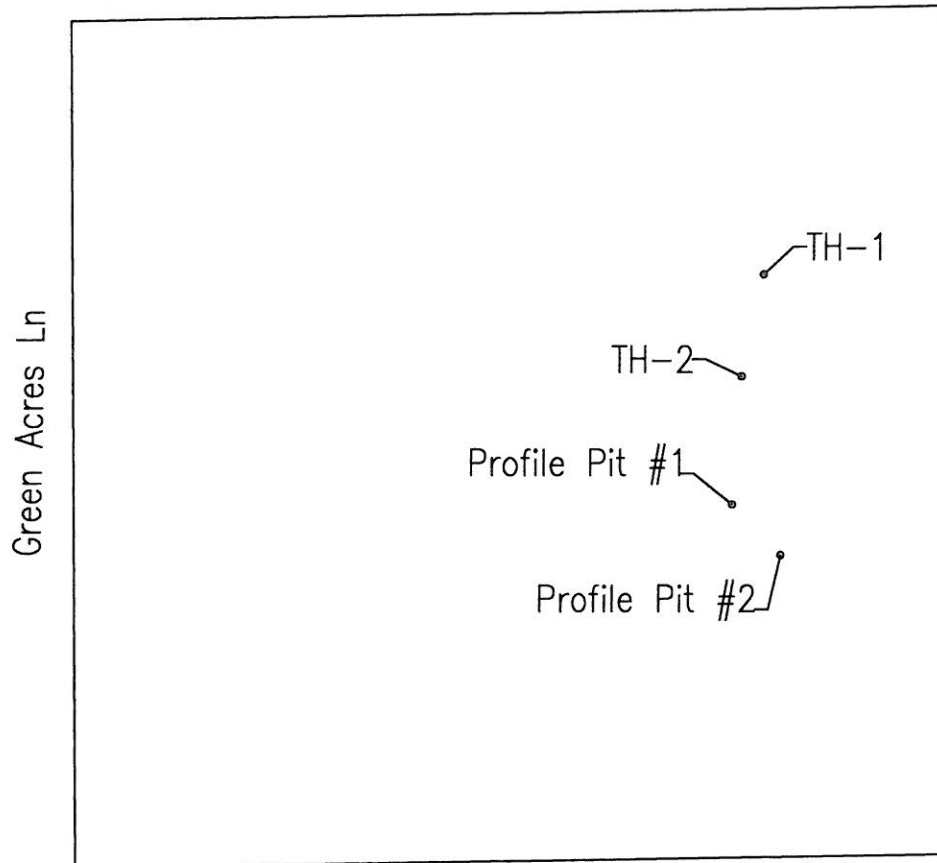
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## SITE MAP

11545 Green Acres Ln  
El Paso County,  
Colorado,  
Job #17-0660



Location from Southwest Lot Corner to Profile Pit #1:

N.  $61^{\circ}$  E. - 577'

Location from Profile Pit #1 to Profile Pit #2:

S.  $44^{\circ}$  E. - 54'

GPS Coordinates:

Pit 1; N.  $38^{\circ} 59' 57.81''$  W.  $104^{\circ} 38' 42.62''$

Pit 2; N.  $38^{\circ} 59' 57.56''$  W.  $104^{\circ} 39' 42.13''$



0 50 100 150  
GRAPHIC SCALE IN FEET  
SCALE: 1" = 150'