WASTEWATER DISPOSAL REPORT

for

Joan Hathcock
Double Spur Ranch Subdivision

EPC Parcel # 5213000007

August 2022

Prepared By:

5540 TECH CENTER DRIVE, SUITE 100▪ COLORADO SPRINGS, CO▪80919▪ (719) 227-0072

DOUBLE SPUR RANCH SUBDIVISION
EPC Parcel # 5213000007

WASTEWATER DISPOSAL REPORT

AUGUST 2022

Prepared for:

Joan Hathcock
12420 N Meridian Road
Colorado Springs, CO 80908

Prepared by:

JDS-Hydro Consultants
A Division of RESPEC
5540 Tech Center Drive, Suite 100
Colorado Springs, CO 80919

Table of Contents

APPENDICES

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The purpose of this report is to address the specific wastewater loads for the proposed commercial property located at Parcel # 5213000007 in El Paso County, CO.

EXECUTIVE SUMMARY: **The proposed subdivision has adequate water rights, water quality, area, and soils to support the proposed residential lot on a 300-year basis.**

2.0 PROJECTED LAND USES

2.1 Projected Land Uses

This report pertains to the existing 40-acre parcel that is proposed to be subdivided into three (3) lots. Please refer to the *Land Use Exhibit* in ***Appendix A*** depicting the proposed subdivision.

3.0 WASTEWATER REPORT

3.1 Wastewater Loads

There are three (3) residential units proposed on the subdivided property. There are 0.50 AF/year of projected water demand for each lot, 0.26 AF/year of which is projected for household use. This equates to a total of 0.234 AF/year/SFE total to be sent to septic for treatment. A breakdown of projected wastewater loads is summarized in Table 3-1. Average daily wastewater loads are expected to be 90% of average daily indoor use.

Table 3-1: Summary of Expected Water Demands & Wastewater Loads

Water						Wastewater
# of SFE's	**Annual Indoor Use 0.26 (AF/YR/SFE)**	**Average Daily Indoor Use (GPD)**	**Irrigation 0.0566 (AF/1,000 SF)**	**Domestic Watering 0.011 (AF/Horse/Year)**	**Total Indoor, Watering, & Irrigation (AF)**	**ADF (@ 90% Indoor Use (GPD)**
	Note 1		*Note 2*	*Note 3*		
3	0.780	696	0.589	0.132	1.50	627

Note 1: ***Per 8.4.7(B)(7)(d) of the EPC Land Development Code***

Note 2: ***Assume 3,470 square feet of irrigation per lot***

Note 3: ***Assume 4 horses per lot***

3.2 On-Site Wastewater Treatment Systems (OWTS)

3.2 On-Site Wastewater Treatment System

The proposed single-family homes will be served by individual on-site wastewater treatment systems. The site was evaluated for *on-site wastewater treatment systems* (OWTS) by JDM Consulting, LLC in March of 2022. Two (2) test pits were excavated on the site to a depth of eight (8) feet to determine general suitability for the use of OWTS.

Laboratory testing was also performed to classify and determine the soils engineering characteristics. Long term acceptance rates (LTAR) associated with the most restrictive soils observed in the profile pits was 0.35 gallons per day per square foot (BPD/sf) for the sandy clay loam (Soil Type 3).

The Natural Resource Conservation Service (NRCS) has mapped three (3) soil types on the site, consisting of Type 40, Type 41 and Type 71 with a majority of the subdivision covered by Type 41 of Kettle gravelly loamy sand. Subsurface materials encountered in the profile pit excavations were also classified using USDA Soil Structure Shape and Grade criteria. Soils in the area were also classified according to two types: Sandy Loam (USDA Soil Type 2) and Sandy Clay Loam (USDA Soil type 3).

According to JDM's report recommendations, the site is suitable for individual conventional on-site wastewater treatment system.

The *On-site Wastewater Treatment System Study* by JDM Consulting, LLC for 12420 Meridian Road EPC Schedule 5213000007 dated March 31, 2022, is included in ***Appendix B*** for proposed Lot 3.

El Paso County Onsite Waste Water System Permits dated 3/8/2010 and Geoquest, LLC Profile Pit Inspection (Job #09-0101) on April 15, 2009 for the existing residence on proposed Lot 1 are included in ***Appendix B***. Also included in ***Appendix B*** are the second OWTS permit request for El Paso County Public Health Environmental Health Division dated 10/23/2013 and the second Geoquest, LLC Profile Pit Inspection (GC#09-0101) dated 10/14/2013 for the existing residence on proposed Lot 1.

Appendix A

DOUBLE SPUR RANCH MINOR SUBDIVISION

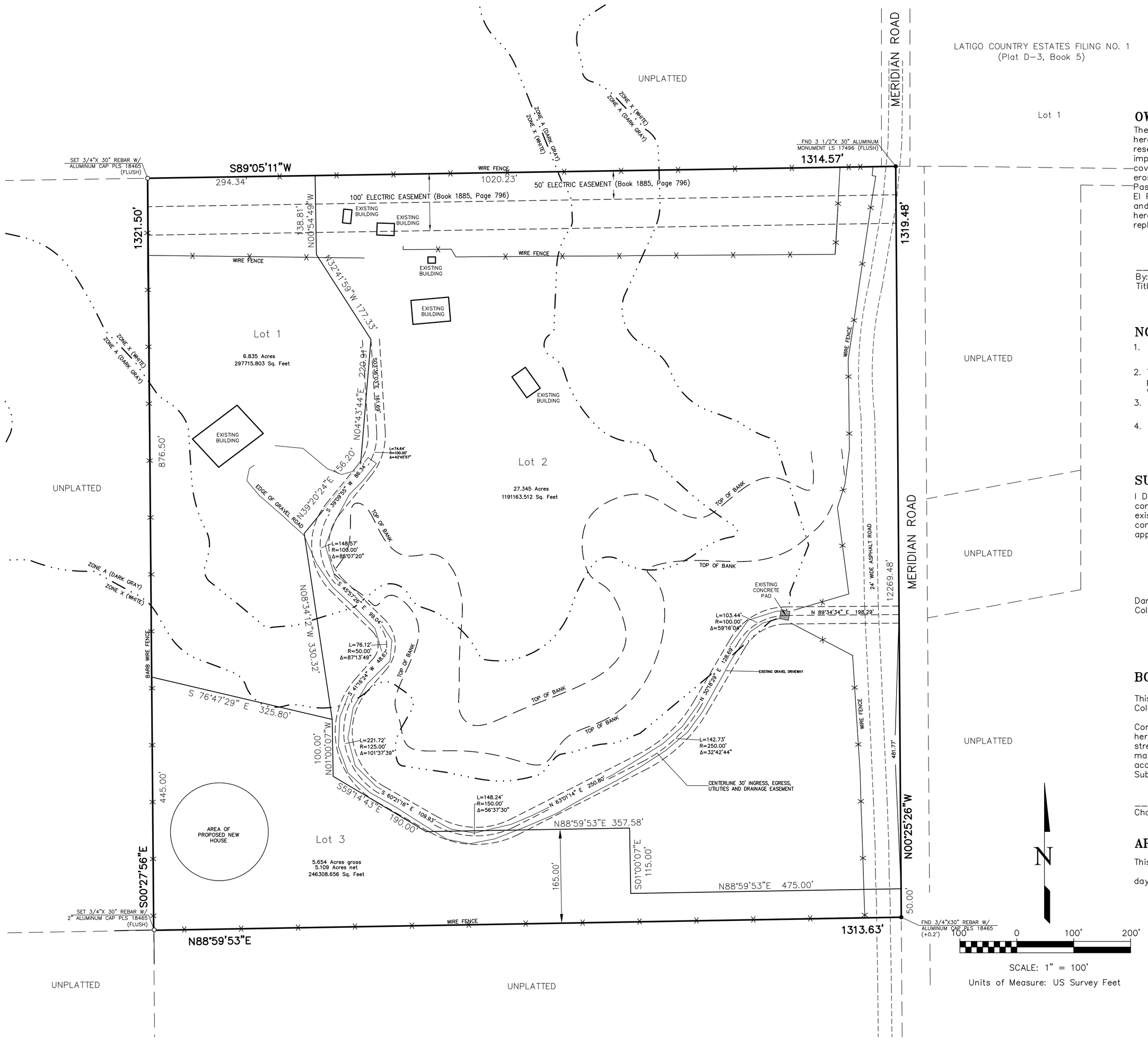
A PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 13,
TOWNSHIP 12 SOUTH, RANGE 65 WEST IN THE 6TH P.M., IN EL PASO COUNTY, COLORADO

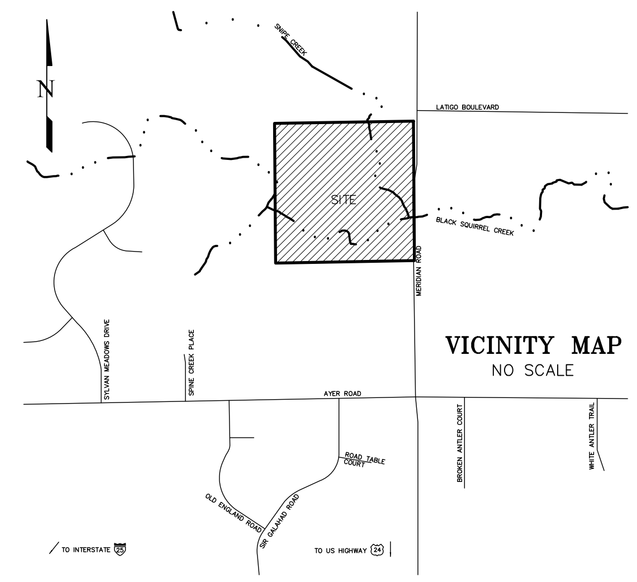
KNOW ALL MEN BY THESE PRESENTS:

That Joan M. Hathcock, being the owner of the following described tract of land to wit:

A TRACT IN THE NORTHEAST QUARTER (NE/4) OF THE NORTHEAST QUARTER (NE/4) OF SECTION THIRTEEN (13), TOWNSHIP TWELVE (12) SOUTH, RANGE SIXTY–FIVE (65) WEST OF THE 6TH P.M., DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER (NE/4) OF SECTION THIRTEEN (13), TOWNSHIP TWELVE (12) SOUTH, RANGE SIXTY–FIVE (65) WEST OF THE 6TH P.M., THENCE NORTH PARALLEL TO THE EAST LINE OF SAID SECTION, SAID SECTION ALSO THE WEST LINE OF MERIDIAN ROAD, A DISTANCE OF 1319.4S FEET; THENCE WEST AND PARALLEL WITH THE SOUTH LINE OF SAID SECTION A DISTANCE OF 1321.50 FEET; THENCE EAST AND PARALLEL WITH THE SOUTH LINE OF SAID SECTION A DISTANCE OF 1313.63 FEET TO THE POINT OF BEGINNING, COUNTY OF EL PASO, STATE OF COLORADO.

Containing 39.834 acres, more or less.





OWNERS CERTIFICATE:

The undersigned, being all the owners, mortgagees, 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, public right–of–way and additions, public right–of–way addition reservations and easements as shown hereon under the name and subdivision of DOUBLE SPUR RANCH MINOR SUBDIVISION. All public improvements, and public right–of–way and additions, so platted are hereby dedicated to public use and said owner does hereby covenant and agree that the public improvements will be constructed to El Paso County standards and that proper drainage and erosion control for same will be provided at said owner's expense, all to the satisfaction of the Board of County Commissioners of El Paso County, Colorado. Upon acceptance by resolution, all public improvements so dedicated will become matters of maintenance by El Paso County, Colorado. 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.

By: Joan M. Hathcock
Title: _____

By: _____
Title: _____

NOTES:

1. o – Indicates survey monument recovered as a #4 rebar with Surveyor's Cap, PLS #18465.
   • – Indicates recovered survey monument as noted.
2. This survey name does not constitute a title search by LDC, Inc. to determine ownership or easements of record. The client did not provide a title commitment for the property, therefore, no rights–of–way or easements of record were available for review by LDC, Inc. with this survey.
3. Basis of bearings is the West line of the NW 1/4 of Section 13, monumented as shown and assumed to bear N00°30'35"W.
4. FEDERAL EMERGENCY MANAGEMENT AGENCY, Flood Insurance Rate Map, Map Number 08041C0340 G, effective date December 7, 2018, indicates the area in the vicinity of this parcel of land to be a Zone X "white" (area determined to be out of the 500 year flood plain).

SURVEYOR'S CERTIFICATION:

I Daniel Kupferer , 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 date of survey, 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.

Daniel L. Kupferer
Colorado Professional Land Surveyor No. 18465

PRELIMINARY COPY
SUBJECT TO FINAL COUNTY APPROVAL

BOARD OF COUNTY COMMISSIONERS CERTIFICATE:

This plat for DOUBLE SPUR RANCH MINOR SUBDIVISION was approved for filing by the El Paso County, Colorado Board of County

Commissioners on the _____ day of _____, 20____, subject to any notes specified hereon and any conditions included in the resolution of approval. The dedications of land to the public streets and easements are accepted, but the 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, and the Subdivision Improvements Agreement.

_____ _____
Chair, Board of County Commissioners Date

APPROVALS:

This subdivision was approved by the El Paso County Development Services Department this _____

day of _____, 20____ A.D.

_____
Development Services Director

FEES:

Park Fee: _____ Drainage Fee: _____

School Fee: _____ Bridge Fee: _____

DSD FILE NO.: _____

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.

CALL BEFORE YOU DIG ... 811 DIAL 811
48 HOURS BEFORE YOU DIG, ALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND WASTEWATER

No.	Description	By	Date
	REVISIONS		

H Scale: 1"=100'
V Scale: N/A
Designed By: N/A
Drawn By: BRH
Checked By: DLK
Date: 01/17/22

Land Development Consultants, Inc.
PLANNING · SURVEYING
www.ldc-inc.com · TEL: (719) 528-8133 · FAX: (719) 528-8848
3898 MAIZELAND ROAD · COLORADO SPRINGS, CO 80909

DOUBLE SPUR RANCH MINOR SUBDIVISION
FINAL PLAT

Project No.: 22001
Sheet: 1 of 1

Appendix B

JDM CONSULTING, LLC

P.O. Box 26137, Colorado Springs, CO 80936
p. 719.251.5291 267.261.1825
e. daniel@jdmengineers.com jared@jdmengineers.com

Property Address:	12420 Meridian Road (Guest House)	Date:	March 31, 2022
	Colorado Springs, CO 80908	Job #:	22-074
Endorsement:	Daniel J. Mizicko, P.E.		

Purpose of Investigation: To determine the subsurface suitably for an Onsite Wastewater Treatment System (OWTS) as well as outline design criteria for a future Soil Treatment Area (STA) through both visual and tactile evaluations of the onsite subsurface soil. The onsite evaluation and associated soil testing were conducted in compliance with the El Paso County Board of Health OWTS Regulations

Profile Pit Summary	
Profile Pit #1	
Lat:	**39° 0'36.82"N**
Long:	**104°36'40.48"W**
0 - 0'-6"	**Topsoil**
0'-6" - 3'-0"	**Soil Type 2**
3'-0" - 5'-0"	**Soil Type 3**
5'-0" - 8'-0"	**Soil Type 2**
-	-
Profile Pit #2	
Lat:	**39° 0'36.48"N**
Long:	**104°36'40.78"W**
0 - 0'-6"	**Topsoil**
0'-6" - 3'-0"	**Soil Type 2**
3'-0" - 8'-0"	**Soil Type 3**
-	-
-	-
Existing Well (If applicable)	
Lat:	**N/A**
Long:	**N/A**

Profile Pit #1		Profile Pit #2	
	Topsoil		Topsoil
1'-0"	Soil Type 2	1'-0"	Soil Type 2
2'-0"		2'-0"	
3'-0"		3'-0"	
	Soil Type 3		Soil Type 3
4'-0"		4'-0"	
5'-0"		5'-0"	
	Soil Type 2		
6'-0"		6'-0"	
7'-0"		7'-0"	
8'-0"		8'-0"	
9'-0"		9'-0"	

Recommendations:

A Conventional On-Site Wastewater Treatment System (OWTS) is acceptable for this site. Soil Type 3 (LTAR = 0.35, Treatment Level 1) will be the most restrictive soil in the treatment zone of the soil treatment area.

JDM CONSULTING, LLC

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Site Map:

JDM CONSULTING, LLC

P.O. Box 26137, Colorado Springs, CO 80936
p. 719.251.5291 267.261.1825
e. daniel@jdmengineers.com jared@jdmengineers.com

Job Number:	22-074	Test Pit#	Pit #1
Date of Evaluation:	March 28, 2022	Total Depth:	8'-0"
Evaluator:	J.Dumke	STA Slope and Direction:	S 50° E @ +/- 10%
Excavator:	Down to Earth Excavating	Latitude:	39° 0'36.82"N
Equipment:	Mini Excavator	Longitude:	104°36'40.48"W

12420 Meridian Road, 80908

Depth Below Grade	Sample Depth	USDA Soil texture	USDA Soil Structure - Type	USDA Soil Structure Grade	Soil Type	Redoximorphic Features Present (Y/N)
0 - 0'-6"	**Topsoil**					
0'-6" - 3'-0"	**2'-0"**	**Sandy Loam**	**Granular**	**Moderate**	**Soil Type 2**	**No**
3'-0" - 5'-0"	**4'-0"**	**Sandy Clay Loam**	**Granular**	**Moderate**	**Soil Type 3***	**No**
5'-0" - 8'-0"	**-**	**Sandy Loam**	**Granular**	**Moderate**	**Soil Type 2**	**No**
-	-	-	-	-	-	-

Total Depth =	**8'-0"**			Comments:
Groundwater Evidence?	**No**	If yes, what depth?	-	***Rock Content (>2mm) was determined to be ±30%.**
Bedrock Encountered?	**No**	If yes, what depth?	-	
Is Dawson Arkose (DA) or Cemented Sands (CS) Present?	**No**			
Is the material fractured and/or Jointed	**No**			
If Yes, what is the cementation class?	-			
Is the Dawson Arkose or Cemented Sand a limiting layer?	-			
Type "R" Soils (High Rock Content) Encountered?	**No**			

JDM CONSULTING, LLC

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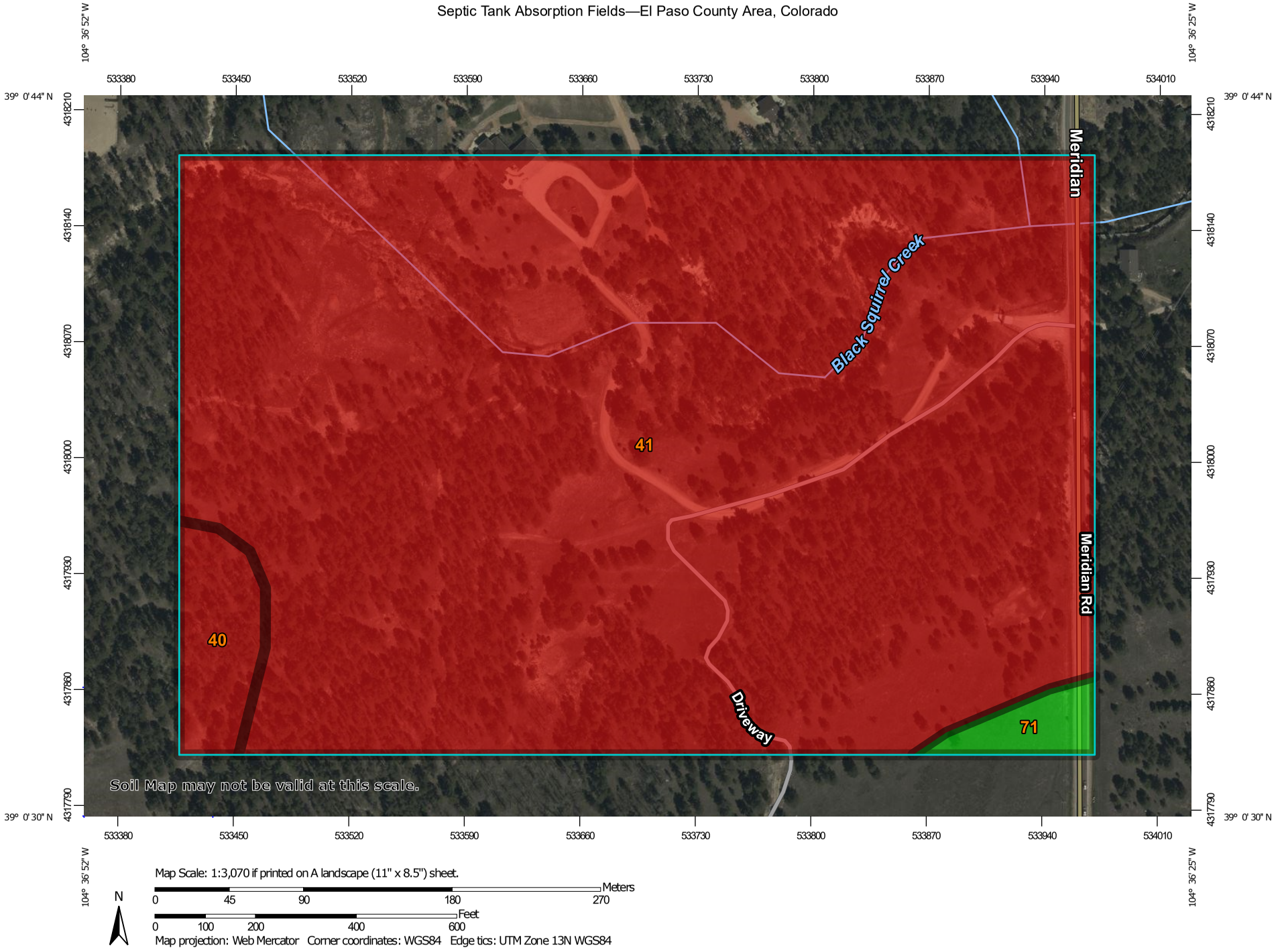
e. daniel@jdmengineers.com jared@jdmengineers.com

Job Number:	22-074	Test Pit#	Pit #2
Date of Evaluation:	March 28, 2022	Total Depth:	8'-0"
Evaluator:	J.Dumke	STA Slope and Direction:	S 50° E @ +/- 10%
Excavator:	Down to Earth Excavating	Latitude:	39° 0'36.48"N
Equipment:	Mini Excavator	Longitude:	104°36'40.78"W

12420 Meridian Road, 80908

Depth Below Grade	Sample Depth	USDA Soil texture	USDA Soil Structure - Type	USDA Soil Structure Grade	Soil Type	Redoximorphic Features Present (Y/N)
0 - 0'-6"	**Topsoil**					
0'-6" - 3'-0"	**-**	**Sandy Loam**	**Granular**	**Moderate**	**Soil Type 2**	**No**
3'-0" - 8'-0"	**-**	**Sandy Clay Loam**	**Granular**	**Moderate**	**Soil Type 3***	**No**
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Total Depth =	**8'-0"**			Comments:
Groundwater Evidence?	**No**	If yes, what depth?	-	***Rock Content (>2mm) was determined to be ±30%.**
Bedrock Encountered?	**No**	If yes, what depth?	-	
Is Dawson Arkose (DA) or Cemented Sands (CS) Present?	**No**			
Is the material fractured and/or Jointed	**No**			
If Yes, what is the cementation class?	-			
Is the Dawson Arkose or Cemented Sand a limiting layer?	-			
Type "R" Soils (High Rock Content) Encountered?	**No**			



Map Scale: 1:3,070 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

Feet
0 100 200 400 600

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 Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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 19, Aug 31, 2021

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

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

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

Septic Tank Absorption Fields

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	Very limited	Kettle (85%)	Seepage, bottom layer (1.00)	1.6	3.1%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	Very limited	Kettle (85%)	Seepage, bottom layer (1.00) Slope (1.00)	47.5	95.4%
71	Pring coarse sandy loam, 3 to 8 percent slopes	Not limited	Pring (85%)		0.7	1.5%
Totals for Area of Interest					**49.8**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	49.1	98.5%
Not limited	0.7	1.5%
Totals for Area of Interest	**49.8**	**100.0%**

Description

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

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

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

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

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

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

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.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–El Paso County Area, Colorado														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
40—Kettle gravelly loamy sand, 3 to 8 percent slopes														
Kettle	85	B	0-16	Gravelly loamy sand	SC-SM, SW-SM, SM	A-1-b, A-2	0- 0- 0	0- 8- 15	60-73-85	55-65-75	30-43-55	10-15-20	20-23-25	NP-3 -5
			16-40	Gravelly sandy loam	SC-SM, GM, SM	A-1-b, A-2	0- 0- 0	0- 8- 15	60-70-80	50-63-75	35-43-50	20-25-30	20-23-25	NP-3 -5
			40-60	Extremely gravelly loamy sand, extremely gravelly loamy coarse sand	GP, GW	A-1	0- 5- 10	0-10- 20	15-23-30	10-18-25	5-13- 20	0- 3- 5	—	NP

Engineering Properties–El Paso County Area, Colorado														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
41—Kettle gravelly loamy sand, 8 to 40 percent slopes														
Kettle	85	B	0-16	Gravelly loamy sand	SC-SM, SW-SM, SM	A-1-b, A-2	0- 0- 0	0- 8- 15	60-73-85	55-65-75	30-43-55	10-15-20	20-23-25	NP-3 -5
			16-40	Gravelly sandy loam	SC-SM, GM, SM	A-1-b, A-2	0- 0- 0	0- 8- 15	60-70-80	50-63-75	35-43-50	20-25-30	20-23-25	NP-3 -5
			40-60	Extremely gravelly loamy sand, extremely gravelly loamy coarse sand	GP, GW	A-1	0- 5- 10	0-10- 20	15-23-30	10-18-25	5-13- 20	0- 3- 5	—	NP
71—Pring coarse sandy loam, 3 to 8 percent slopes														
Pring	85	B	0-14	Coarse sandy loam	SC-SM, SC	A-1, A-2-4	0- 0- 0	0- 5- 10	85-93-100	80-90-100	45-55-65	20-25-30	25-28-30	5-8 -10
			14-60	Gravelly sandy loam	GC-GM, SC-SM, SM	A-1-b, A-2	0- 0- 0	0- 5- 10	60-80-100	55-78-100	35-43-50	20-25-30	20-23-25	NP-3 -5

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 19, Aug 31, 2021

Notify Environmental Health of any change of ownership, type of business activity, business name, or billing address by calling (719) 578-3199. Failure to notify Environmental Health may result in late penalties, Permit/License denial or revocation, and business closure. PERMITS/LICENSES TO OPERATE AND ANNUAL FEE PAYMENTS ARE NOT TRANSFERABLE. Permits become void on change of ownership. New owners must apply and pay for a new Permit(s)/License(s) prior to beginning operation.

Attn: JOAN HATHCOCK
12410 N MERIDIAN RD
ELBERT, CO 80106

EL PASO COUNTY PUBLIC HEALTH
ENVIRONMENTAL HEALTH DIVISION
1675 W. GARDEN OF THE GODS ROAD, SUITE 2044
COLORADO SPRINGS, CO 80907
PHONE: (719) 578-3199 FAX: (719) 578-3188
www.elpasocountyhealth.org

NEW SYSTEM PERMIT - OWTS

Valid From 10/23/2013 To 10/23/2014

PERMITEE: JOAN HATHCOCK
12410 N MERIDIAN RD
ELBERT, CO 80106

OWNER NAME: JOAN HATHCOCK

Onsite ID: ON0033142
Tax Schedule #: 5213000007
Permit Issue Date: 10/23/2013
Dwelling Type: RESIDENTIAL
# of Bedrooms (if Res): 2
Proposed Use (if Comm):
Designed Gallons/Day:
Water Source: PRIVATE WELL

System Installation Requirements :

1. Install Soil Treatment Area in the area of where the profile pit observation was performed on October 14, 2013 by GeoQuest, LLC. with a maximum cover over chambers of 36 inches.
2. A trench system is preferred but, if a bed system is installed it shall not not exceed the maximum width of 12 feet.

Septic Tank Capacity Required: 1000 (Gallons) **Soil Treatment Area Required:** 594 (SQ. Feet)

The Health Officer shall assume no responsibility in case of failure or inadequacy of an Onsite Wastewater Treatment System, beyond consulting in good faith with the property owner or representative. Access to the property shall be authorized at reasonable time for the purpose of making such inspections as are necessary to determine compliance with the requirements of this law (permit)

Installer inspection request line: Call (719) 575-8699 before 8:30 a.m. of the day that the inspection is requested Weekends & Holidays excluded.

This permit is issued in accordance with 25-10-106 Colorado Revised Statutes. The PERMIT EXPIRES upon completion/installation of the Onsite Wastewater Treatment System, or at the end of twelve (12) months from date of issue, whichever occurs first. If both a Building Permit and an Onsite Wastewater Treatment System Permit are issued for the same property and construction has not commenced prior to the expiration date of the Building Permit, the Onsite Wastewater Permit shall expire at the same time as the Building Permit. This permit is revocable if all stated requirements are not met. Onsite Wastewater Treatment System to be installed by an El Paso County Licensed System Contractor, or the property owner.

Neil Mayer

Authorized By: Environmental Health Specialist

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

October 14, 2013

Dennis Hathcock
P.O. Box 88283
Colorado Springs, CO 80908

RE: Profile Pit Inspection (GQ#09-0101)
12420 Meridian Road North
El Paso County, Colorado

Dear Sir,

A Profile Pit Observation was performed on October 14, 2013, in the area for the new location for the septic field. The materials encountered in the observation at the above referenced site hold no significant variation from the materials encountered during the drilling and testing for the Percolation Report by Geoquest LLC on April 23, 2009, with sand being encountered to the depth of 10 feet.

No anomalies, bedrock, groundwater or debris were encountered in the profile pit for the future septic system. Therefore, the septic system to be installed on this site may be placed in the area of the Septic System Profile Pit. However, if the septic system is installed below the elevation that the test was conducted, the system may not perform as effectively as a system installed at the conventional depth of 24 to 36 inches below native ground surface.

The average percolation rate as stated in the Percolation Report, of 16.9 minutes per inch is acceptable for the sizing of a properly installed septic system in the area of the Profile Pit.

Sincerely,

Charles E. Milligan, P.E.
Civil Engineer

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

October 22, 2013

Dennis Hathcock
P.O. Box 88253
Colorado Springs, Colorado 80908

Re: Open Hole Observation,
12420 Meridian Road North,
El Paso County, Colorado

Dear Sir,

It was observed on October 21, 2013, that all materials encountered during the excavation at the above referenced site hold no significant variation from the dense sand materials encountered during the drilling for the Soils Report by Geoquest LLC, Job #09-0101, dated April 15, 2009. No piers were present at the time of inspection.

No anomalies, soft spots, or debris are present in the foundation area. All loose material in the foundation forms must be removed and concrete placed on the native material

The maximum allowable bearing capacity on this site is not greater than **1,000 pounds per square foot.**

Reinforcing for concrete foundation shall be as per the engineered design.

Perimeter drains are not required.

Concrete shall not be placed into forms containing water, or mud, ice, or snow. Any water, mud, ice, or snow that has collected in the foundation forms shall be removed from the forms prior to the placement of concrete. Do not allow the ground to freeze in the bottom of the form prior to the placement of concrete. Concrete shall be protected from freezing during the curing period.

Sincerely,

Charles E. Milligan
Civil Engineer

COLORADO REGISTERED
CHARLES E. MILLIGAN
34603
PROFESSIONAL ENGINEER

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

PERCOLATION TEST

FOR

DENNIS HATHCOCK

JOB #09-0101

12420 Meridian Road,
El Paso County,
Colorado

Respectfully submitted,

Charles E. Milligan, P.E.
Civil Engineer

COLORADO REGISTERED
CHARLES E. MILLIGAN
34608
PROFESSIONAL ENGINEER
9 OCT 13

PERCOLATION TEST FINDINGS

Due to encountering bedrock (sandstone) at the depth of 3 feet the county health department will require that the septic system to be installed on this site be designed by a Licensed Colorado Engineer.

Enclosed are the results of the percolation test for the septic system to be installed at **12420 Meridian Road, El Paso County, Colorado.** The locations of the percolation test borings were determined by Dennis Hathcock. 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 northeast at 10% approximately 75 feet. All applicable regulations of the El Paso County Health Department ISDS Regulations must be complied with for the installation of the disposal system.

The percolation test was performed on October 4, 2013, in accordance with **Section 8.6, Soil Test, E.P.C.P.H. OWS Regulations.** The field data and results of the percolation test are as follows:

PERC. TEST @ TIME	PERC HOLE #1 @ 34" DEPTH DROP (IN INCHES)	PERC HOLE #2 @ 34" DEPTH DROP (IN INCHES)	PERC HOLE #3 @ 34" DEPTH DROP (IN INCHES)
12:57	3	1-7/8	1-1/2
1:07	3/4	1-5/8	5/8
1:17	3/16	7/8	5/8
1:27	1/8	1/2	3/8
1:37	1/16	5/16	1/4
1:47	1/16	5/16	3/16
Rate/Hole	160.0	32.0	53.3

The average of the test holes is 81.8 minutes per inch.

Blow counts at the depth of 3 feet was 44/12.

The soil profile for the disposal system is as follows:

0 to 6" - Topsoil- loam, organic composition.

6" to 3' - Sand- fine to moderate grain, moderate density, moderate to high moisture content, moderate clay content, moderate cohesion, moderate plasticity, brown in color.

3' to 10' - Sandstone- fine to moderate grain, high density, moderate moisture content, low to moderate clay content, low to moderate cohesion, low to moderate plasticity, light brown in color.

No water was encountered during the drilling of all holes. Bedrock (sandstone) was encountered at the depth of 3 feet during the drilling of the test borings. No known wells were observed within 100 feet of the proposed system. **All setbacks shall conform to county regulations.**

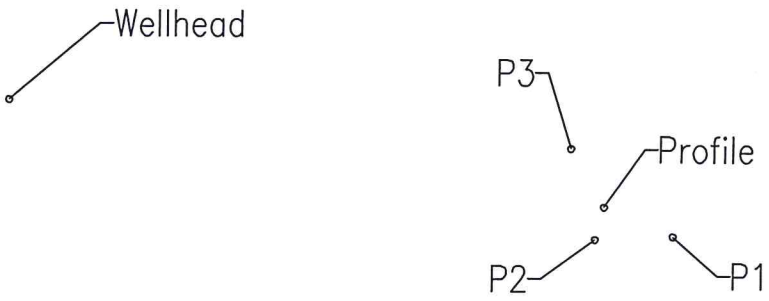
If during construction of the field itself, subsurface conditions change considerably or if the location of the proposed field changes, this office shall be notified to determine whether the conditions are adequate for the system as designed or whether a new system needs to be designed.

Weather conditions at the time of the test consisted of clear skies with warm temperatures.

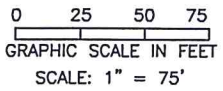
GEOQUEST LLC,

SITE MAP

12420 Meridian Road,
El Paso County,
Colorado
Job 09-0101



Location to Profile from Wellhead:
S. 80° E. – 234'
Location from Profile to:
P1: S. 67° E. – 29'
P2: S. 15° W. – 13'
P3: N. 30° W. – 26'
GPS coordinates:
N. 39° 0' 42.8"
W. 104° 36' 40.7"



EL PASO COUNTY
DEPARTMENT OF HEALTH AND ENVIRONMENT
301 S Union Blvd, Colorado Springs, Colorado 719-575-8635

ONSITE WASTE WATER SYSTEM PERMIT

OWNER NAME:	DENNIS R HATHCOCK AND JOAN M HATHCOCK	PERMIT NUMBER:	0023888
ADDRESS:	12420 N MERIDIAN		
CITY, STATE, ZIP:	COLORADO SPRINGS, CO 80908	DATE PERMITTED :	03/08/2010
PHONE NUMBER:	(719) 659-8242 *(Work Phone)*		

This permit is issued in accordance with 25-10-207 Colorado Revised Statues. PERMIT EXPIRES upon completion-installation of sewage-disposal system or at the end of twelve (12) months from date of issue - whichever occurs first -(unless work is in progress). If both a building and an ISDS permit are issued for the same property and revokable if all stated requirements are not met. Sewage disposal system to be installed by an El Paso County Licensed System Contractor or the property owner.

THIS PERMIT DOES NOT DENOTE APPROVAL OF ZONING AND ACREAGE REQUIREMENTS.

PERMIT EXPIRATION DATE: 03/08/2011
Expires twelve months from date of issue

WATER SOURCE: Well or Spring

MINIMUM SEPTIC TANK SIZE:	1250	**GALLONS**	**MINIMUM ABSORPTION AREA REQUIRED**	530	**SQ FT**

PLANNING DEPARTMENT	☑	**ENUMERATION**	☑	**FLOOD PLAIN**	☑	**WASTEWATER**	☐

COMMENTS:

*** FOR INSPECTIONS CALL 719-575-8699 BEFORE 8:30 A.M. OF THE DAY TO BE INSPECTED. (WEEKENDS & HOLIDAYS EXCLUDED)**
LEAVE THE ENTIRE SEWAGE DISPOSAL SYSTEM UNCOVERED FOR FINAL INSPECTION

INSTALL SEPTIC SYSTEM AND LEACH FIELD IN AREA OF PERCOLATION TEST. LEACH FIELD SHALL BE AT LEAST 50 FEET FROM STREAM, 10 FEET FROM PROPERTY LINES AND 100 FEET FROM ANY WELL. LIVESTOCK AND VEHICULAR TRAFFIC SHALL BE KEPT OFF SEPTIC FIELD.

The Health Office shall assume no responsibility in case of failure or inadequacy of a sewage-disposal system, beyond consulting in good faith with the property owner or representative. Free access to the property shall be authorized at reasonable time for the purpose of making such inspections as are necessary to determine compliance with requirements of this law.

FOR ADMINISTRATOR USE ONLY

Permit Ready: Called Mailed Faxed CM 3/8/2010

Final Inspection Requested: BY: Date Called In:

Phone # Septic Site will be ready:

GEOQUEST, LLC

PO Box 5, Monument, CO 80132
(719) 481-4560

PERCOLATION TEST

FOR

DENNIS HATHCOCK

JOB #09-0101-2

12420 Meridian Road,
El Paso County,
Colorado

Respectfully submitted,

Taylor Watkins
Geologist

Charles E. Milligan, P.E.
Civil Engineer

PERCOLATION TEST FINDINGS

Due to the high moisture content encountered, it is suggest that no reduction be taken for the septic system to be installed on this site.

Enclosed are the results of the percolation test for the septic system to be installed at **12420 Meridian Road, El Paso County, Colorado.** The locations of the percolation test borings were determined by Dennis Hathcock. 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-southeast less than 1% at least 20 feet. All applicable regulations of the El Paso County Health Department ISDS Regulations must be complied with for the installation of the disposal system.

The percolation test was performed on November 5, 2009, in accordance with **Section VI, Soil Test, ISDS Regulations, E.P.C.D.H. & E.** The field data and results of the percolation test are as follows:

PERC. TEST @ TIME	PERC HOLE #1 @ 34" DEPTH DROP (IN INCHES)	PERC HOLE #2 @ 34" DEPTH DROP (IN INCHES)	PERC HOLE #3 @ 34" DEPTH DROP (IN INCHES)
10:40	3-3/8	2-7/8	1-5/8
10:50	2-1/8	1-3/4	1-1/8
11:00	1-3/4	1-1/8	13/16
11:10	1-1/4	7/8	1/2
11:20	15/16	15/16	7/16
11:30	7/8		
Rate/Hole	11.4	12.3	22.9

The average of the test holes is 15.5 minutes per inch.

Blow counts at the depth of 4 feet was 7/12.

The soil profile for the disposal system is as follows:

0 to 12" - Topsoil- loam, organic composition.
12" to 10' - Sand- fine to coarse grained, low to moderate density, very high moisture content, low to moderate clay content, low plasticity, light brown-buff in color.

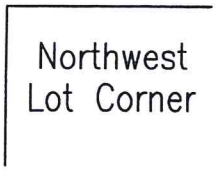
No water was encountered during the drilling of all holes. Bedrock was not encountered. No known wells were observed within 100 feet of the proposed system. **All setbacks shall conform to county regulations.**

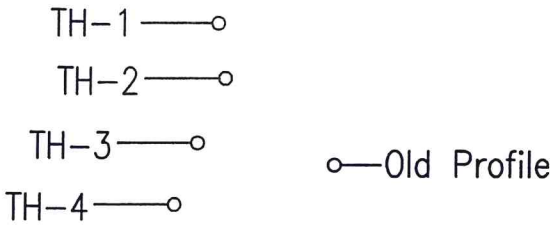
If during construction of the field itself, subsurface conditions change considerably or if the location of the proposed field changes, this office shall be notified to determine whether the conditions are adequate for the system as designed or whether a new system needs to be designed.

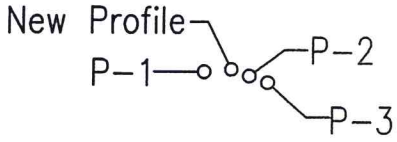
Weather conditions at the time of the test consisted of clear skies with warm temperatures.

SITE MAP

12420 North Meridian Road
El Paso County,
Colorado,
Job #09-0101







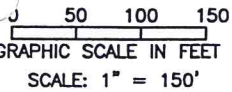
Location of New Profile from Old Profile: S. 45° W. – 228'

Location from New Profile to:

P-1: S. 85° W. – 21'

P-2: S. 70° E. – 6'

P-3: S. 70° E. – 30'



GPS Coordinates: N. 39° 0' 41.7"
W. 104° 36' 42.3"