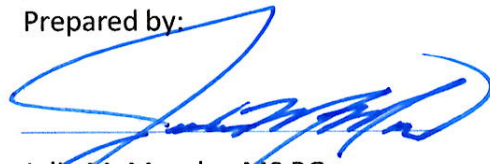


Soils and Geology  
Evaluation  
for  
**Poenitsch Minor Subdivision**

Shoup Road and Herring Road  
El Paso County  
March 5, 2018

Prepared by:



Julia M. Murphy, MS PG  
Professional Geologist, Principal



**Professional Geologists**

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## PROJECT DESCRIPTION

The following presents Soils, Geology, and Geologic Hazards assessment for the proposed Poenitsch Minor Subdivision (Project Site) located on the northwest corner of Shoup and Herring Roads in Black Forest, El Paso County, Colorado. The property has schedule number 5208000041 and the legal description:

*The S1/2 of the SE1/4 of the SE1/4 of Section 8, Township 12 South, Range 65 West of the 6th P.M., El Paso County, Colorado, except the East 30 feet and the South 30 feet.*

The Project Site is vacant land comprised of 18.858 acres to be subdivided into 3 single- family residential lots consisting of 7.97 acres (Lot 1), 5.00 acres (Lot 2) and 5.00 acres (Lot 3), (Figure 1). Water will be supplied by wells and wastewater will be treated using on-site wastewater treatment systems (OWTS).

## 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 that flowed toward the east and 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 area of the Project Site (Figure 2). Materials encountered during the field investigation and soils sampling and analysis is consistent with the description this Facies: 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 (Thorson 2003).

The elevation across the Project Site ranges from 7436 to 7492 feet above mean sea level (amsl). The current topography of the Project Site varies considerably from shallow

dipping/nearly flat to moderately sloping towards Burgess Creek and other drainage ways which traverses all three lots. The steepest slopes (26%) are located on Lot 1.

## SOILS

The National Resource Conservation Service (NRCS) has identified two soil types on the Project Site that differ only in regard to percent slope.

Type	Description
40	Kettle gravely loamy sand, 3 to 8 % slopes
41	Kettle gravely loamy sand, 8 to 40% slopes

Attachment 1 provides a complete description of the soils. The natural drainage class is “somewhat extensively drained”. Runoff potential is low for Type 40 and moderate for Type 41. Estimated coverage of 3 to 8% slopes is 14.5% and 8 to 40% is 85.5% (NRCS, 2018).

Field investigations at the Project Site consisted of excavating four profile pits at each proposed lot (12 total) to identify two viable onsite wastewater treatment system locations per lot (PARR 2019). The profile pits were excavated to a maximum depth of 9.5 feet below ground surface. Samples were collected from select intervals and evaluated for soil properties. Table 1 summarizes the results of these tests. In addition to the profile pits, a 4-inch diameter boring was drilled to about 12-feet below ground surface (bgs) coupled with standard penetration testing at proposed Lot 1 for the purpose of evaluating the soils for foundation design. Samples collected for the foundation analysis were analyzed for standard properties, natural water content, Atterberg limits and Expansion Index (Attachment 2)(PARR 2018). Figure 2 show the Profile pits and foundation soil sampling locations. Soils descriptions varied from sandy clay to sandy loam.

## HYDROLOGY

Burgess Creek is located in the Kettle Creek Drainage Basin and forms the headwaters of Kettle Creek (JR Eng. 2015). Burgess Creek (aka: Burgess River) crosses the Property in a northwesterly direction. The creek bed is incised and forms a broad flat bottom in the central portion of the Project Site supporting thick bladed grasses and a couple willows (shrub). The presence of a few Rocky Mountain willows in the main drainage indicates the presence of a persistent shallow groundwater source. The creek collects water from the drainages to the east

and northeast of the Project Site. Reportedly, heavy rain events have resulted in sheet flow across the wider width of creek (Von Ahlefeldt, 2019).

TABLE 1 Soil Profile Pits Onsite Wastewater Treatment System												
LOT 1												
Site	Test Pit	Depth (ft)	USDA Soil Texture	USDA Soil Structure-Shape	Soil Structure Grade	Soil Type	Test Pit	Depth (ft)	USDA Soil Texture	USDA Soil Structure-Shape	Soil Structure Grade	Soil Type
1 6/19/2018)	1	0.5-8.0	Sandy Loam	Grandular	Moderate	2	2 (06/19/2018)	0.5-4.0	Loamy Sand	-	Single Grain	1
								4.0-6.0	Sandy Loam	Grandular	Moderate	2
								6.0-7.5	Sandy Clay Loam	Grandular	Strong	3
2	1	1.0-6.0	Sandy Clay Loam	Grandular	Strong	3	2	0.5-7.5	Sandy Clay Loam	Grandular	Strong	3
		6.9-9.0	Sandy Clay Loam	Grandular	Strong	3						
LOT 2												
Site	Test Pit	Depth (ft)	USDA Soil Texture	USDA Soil Structure-Shape	Soil Structure Grade	Soil Type	Test Pit	Depth (ft)	USDA Soil Texture	USDA Soil Structure-Shape	Soil Structure Grade	Soil Type
1	1	0.5-2.0	Sandy Clay Loam	Blocky	Moderate	3	2	0.5-3.0	Sandy Clay Loam	Grandular	Strong	4
		2.0-4.0	Sandy Clay Loam	Grandular	Strong	4		3.0-6.0	Sandy Clay Loam	Grandular	Strong	3
		4.0-6.5	Sandy Clay Loam	Grandular	Strong	3						
		6.5-9.0	Sandy Clay Loam	Grandular	Moderate	3		6.0-9.5	Sandy Clay Loam	Grandular	Moderate	3
2	3	0.5-2.0	Sandy Loam	Grandular	Strong	2	4	1.0-2.0	Sandy Loam	Grandular	Strong	2
		2.0-6.0	Sandy Clay Loam	Grandular	Moderate	3		2.0-6.0	Sandy Clay Loam	Grandular	Moderate	3
		6.0-9.0	Sandy Clay Loam	Grandular	Moderate	3		6.0-9.0	Sandy Clay Loam	Grandular	Moderate	3
LOT 3												
Site	Test Pit	Depth (ft)	USDA Soil Texture	USDA Soil Structure-Shape	Soil Structure Grade	Soil Type	Test Pit	Depth (ft)	USDA Soil Texture	USDA Soil Structure-Shape	Soil Structure Grade	Soil Type
1	1	0.5-3.0	Sandy Clay Loam	Grandular	Strong	4	2	0.5-3.0	Sandy Clay Loam	Grandular	Strong	4
		3.0-7.0	Sandy Clay Loam	Grandular	Strong	3		3.0-7.5	Sandy Clay Loam	Grandular	Strong	3
2	3	0.5-6.0	Sandy Clay Loam	Grandular	Moderate	3	4	0.5-4.5	Sandy Clay Loam	Grandular	Moderate	3
		6.0-8.5	Sandy Clay Loam	Grandular	Strong	3		4.5-9.0	Sandy Clay Loam	Grandular	Strong	3



Groundwater was not encountered in any of the testing and there was no groundwater in the Profile pits a week after they were excavated. There is one existing well in the property having Permit 163813A located on the southeast portion of Lot 3 at an elevation of about 7280 ft amsl. The 1992 driller's log records indicate saturated soils were encountered at about 40 feet bgs (7240 ft amsl).

## **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, highwater table or polluted water, landfills, fill areas, contamination; airports and major utility facilities, and landslides were evaluated and not identified on the Project Site. Other hazards evaluated and determined to not impact the site includes subsidence and abandoned mines and collapsible soils.

### **Flooding**

The National Flood Hazard map delineated the Property and surrounding area an "area of Minimal Flood Hazard" (FEMA 2018). The drainage report completed by the applicant's engineer has delineated a 100 year flood level to occur at the central portion of Burgess Creek (Figure 1) (Watts, 2019).

### **Erosion**

On June 11, 2013 the Black Forest fire significantly changed the landscape across the Project Site. Once covered with mature ponderosa pines with a canopy covering a significant area of the property, the fire reduced the canopy and trees by more than 80 %. In addition, the pine needles, vegetation, and other organic material that once covered the forest floor is no longer present and the majority of the standing dead trees have been recently cut down. Unimpeded rainfall and snow melt will likely result in surface erosion and scouring of the weathered sandstone bedrock particularly on the steeper slopes which are as much as 26%. The services of a geotechnical consultant should be used to evaluate adequate building setbacks and other methods to reduce potential hazards associated with possible slope instabilities from erosion as arkoses are easily eroded on exposed weathered outcrops.

## **Expansive Soils**

Within the 12 profile pits and foundation boring expansive soils were not encountered. However, variability in the local soils within the Dawson Formation indicate there is a potential for expansive soils, thus additional borings will be necessary prior to foundation excavation and subsequently re-evaluated upon completion of the foundation excavation and prior to the placement of any framework.

## **Shallow/Perched Groundwater**

Conditions at the Project Site indicate a potential for periodically high moisture conditions and/or frost heave. A study at Tall Pine Subdivision located on the other side of Shoup Road from the Project Site stated there was a spring on the property and a 20-foot boring drilled to assess the soils filled with water (a day after it was drilled) to a little over 8-feet bgs (K&A 2000). The elevations of the base of the boring was at 7480 ft amsl, indicating it was likely perched groundwater. Feasibility of a full walkout basement will need to be evaluated to insure adequate subsurface drainage.

## **Radon**

Radon is a naturally occurring radioactive gas. Radon gas in excess of the Environmental Protection Agency's Action Level of 4 picoCuries per liter is noted to occur in structures throughout Colorado. Testing for radon gas following home construction is needed to determine the in home levels prior to implementing a mitigation system.

## **MINERAL RESOURCES**

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

## **ONSITE WASTEWATER SYSTEM**

NCRS soil survey data gave the Project Site a "very limited" rating based on granular soils with high bottom layer seepage and due to areas of high slope. On Site excavation of profile pits to identify two OSWT locations was conducted on February 7, 2019. The evaluation consisted of the excavation of two profile pits for each of the three proposed lots to depths between 7 ft bgs and 9.5 feet bgs and evaluated for suitability for an individual non-evaporative septic system leach field (PARR 2018 and 2019). Both locations on Lots 1 and 2 and one location on Lot 3 were determined to be suitable a Standard Conventional, Non-Engineered On-Site Wastewater Treatment system. Site 1 on Lot 3 was identified as requiring an engineered OWTS would be required due to encountering USDA Soil Type 4, Sandy Clay, occurring at 6" to 3' interval in

both profile pits (Table 1). The OWTS reports from the Parr Engineering are provided as Attachment 4.

## REFERENCES

Colorado Geological Survey. [coloradogeologicalsurvey.org/geologic-hazards/abandoned-mine-lands/maps](http://coloradogeologicalsurvey.org/geologic-hazards/abandoned-mine-lands/maps)

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

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Parr Engineering and Consulting Inc. February 07, 2019. Profile Pits Poenitsch Subdivision JN 19.051, 19.052, 19.053

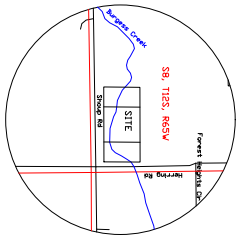
Thorson, Jon P., 2003. *Geologic Map of the Black Forest Quadrangle, El Paso County, Colorado*. Colorado Geological Survey Open -File Report 03-06.

Von Ahlefeldt, Judith Dr., Landscape Ecologist, Site Visit 26, February 2019.

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

Figures  
Soils and Geology Report  
Poenitsch Subdivision

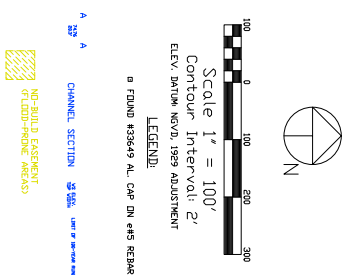
A SUBDIVISION OF THE S1/2, SE1/4, SE1/4 SECTION 8, T.12S., R.65W., OF THE 6TH P.M.  
EL PASO COUNTY, COLORADO



VICINITY MAP  
1"=1000'

 $l' = 1000$ 

**Legal Description**  
The South half of the Southeast quarter of Section 8, Township 12 South, Range 65 West of the 6th P.M., County of El Paso, State of Colorado,  
and containing 1886 acres



OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS

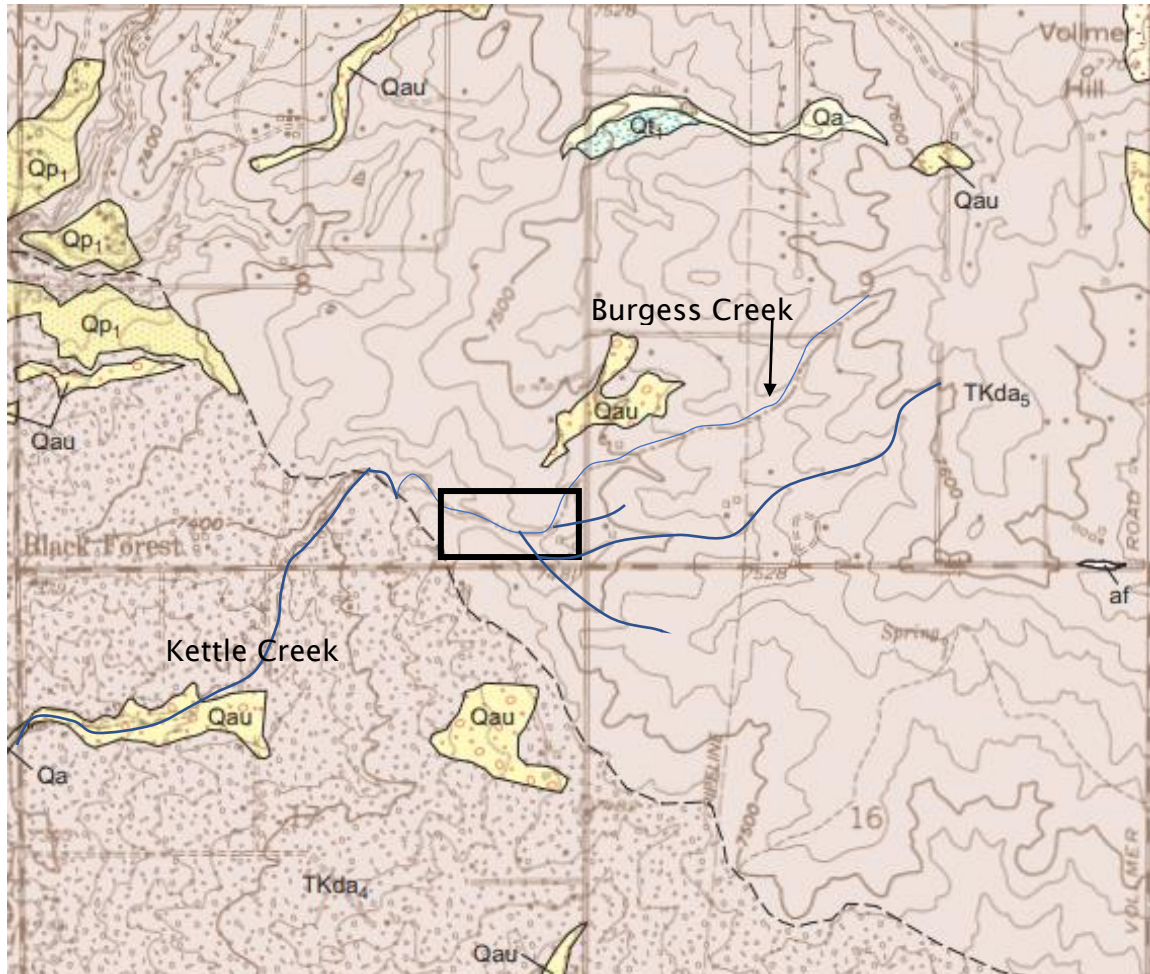
DEW

PREPARED BY THE DESIGN JOINT-  
LEADER E. WATTS PE-LS  
CONSULTING ENGINEER  
614 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
(719) 593-0173  
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Celebrating over 39 years in business

## Geology


### Poenitsch Subdivision

OPEN FILE MAP U3-6  
GEOLOGIC MAP OF THE BLACK FOREST  
QUADRANGLE, EL PASO COUNTY, COLORADO




Geology mapped in 2002  
Cartography by Jason Wilson

#### ALLUVIAL DEPOSITS

 Qau Alluvium, undivided (Holocene and Pleistocene)



#### BEDROCK DEPOSITS

 TKda5 Facies unit five (early to middle? Eocene)

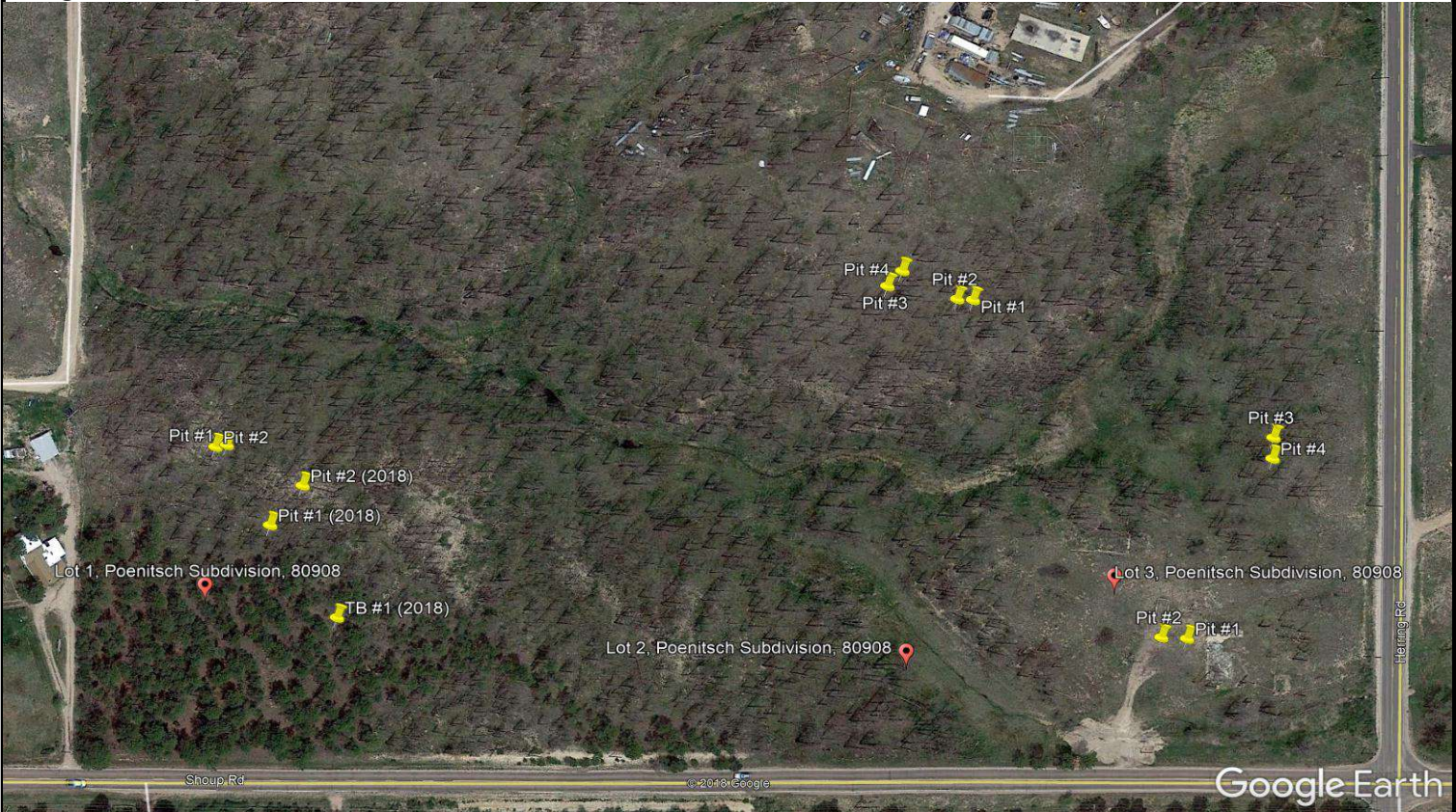
 TKda4 Facies unit four (Paleocene)

FIGURE 2



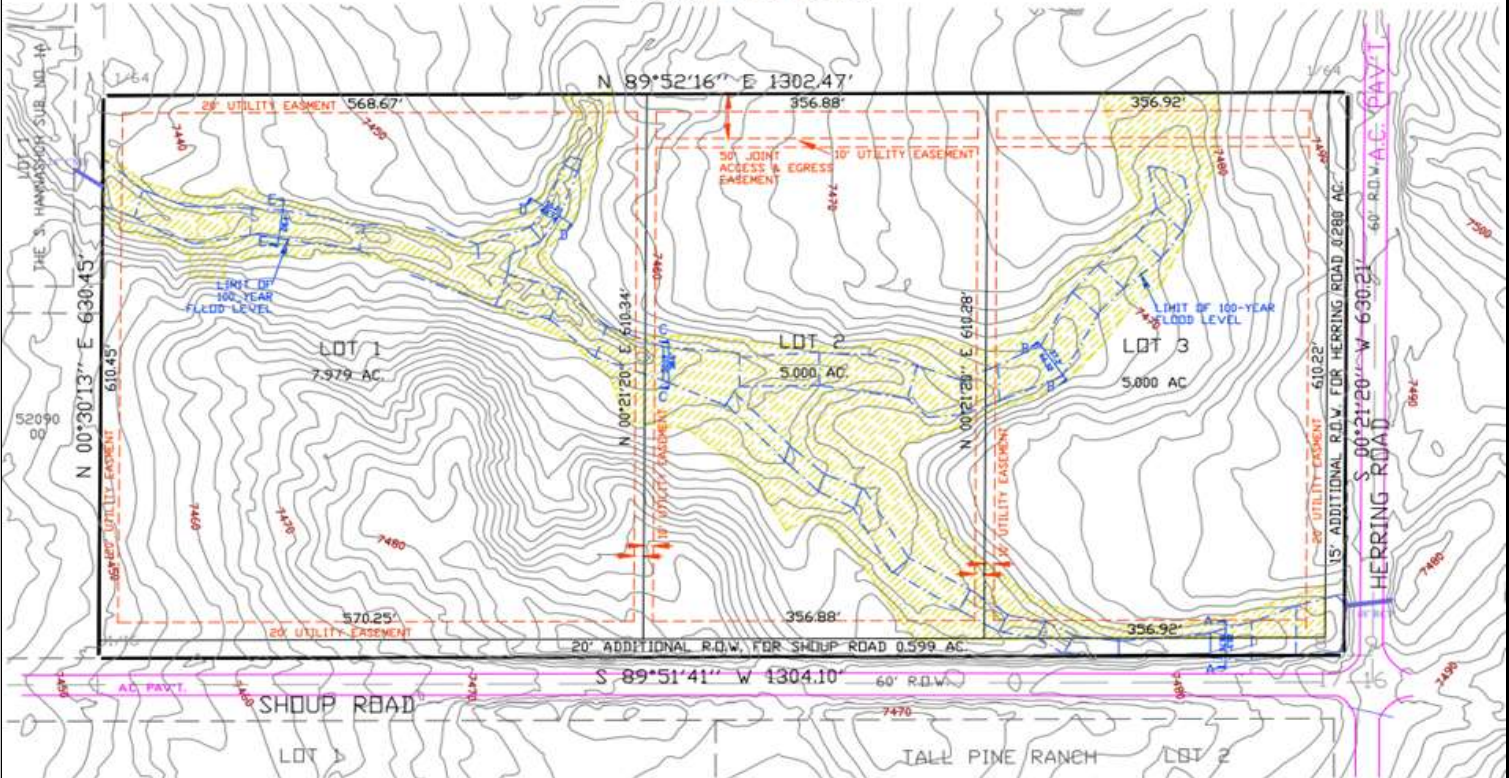
Christopher L. Parr, P.E. Principal  
11590 Black Forest Road, Suite 10, Colorado Springs, CO 80908  
Office: 719-494-0404 Cell: 719-659-1313

**Google Site Map**



## POENITSCH SUBDIVISION

A SUBDIVISION OF THE S1/2, SE1/4, SE1/4 SECTION 8, T.12S., R.65W. OF THE 6TH P.M.  
EL PASO COUNTY, COLORADO

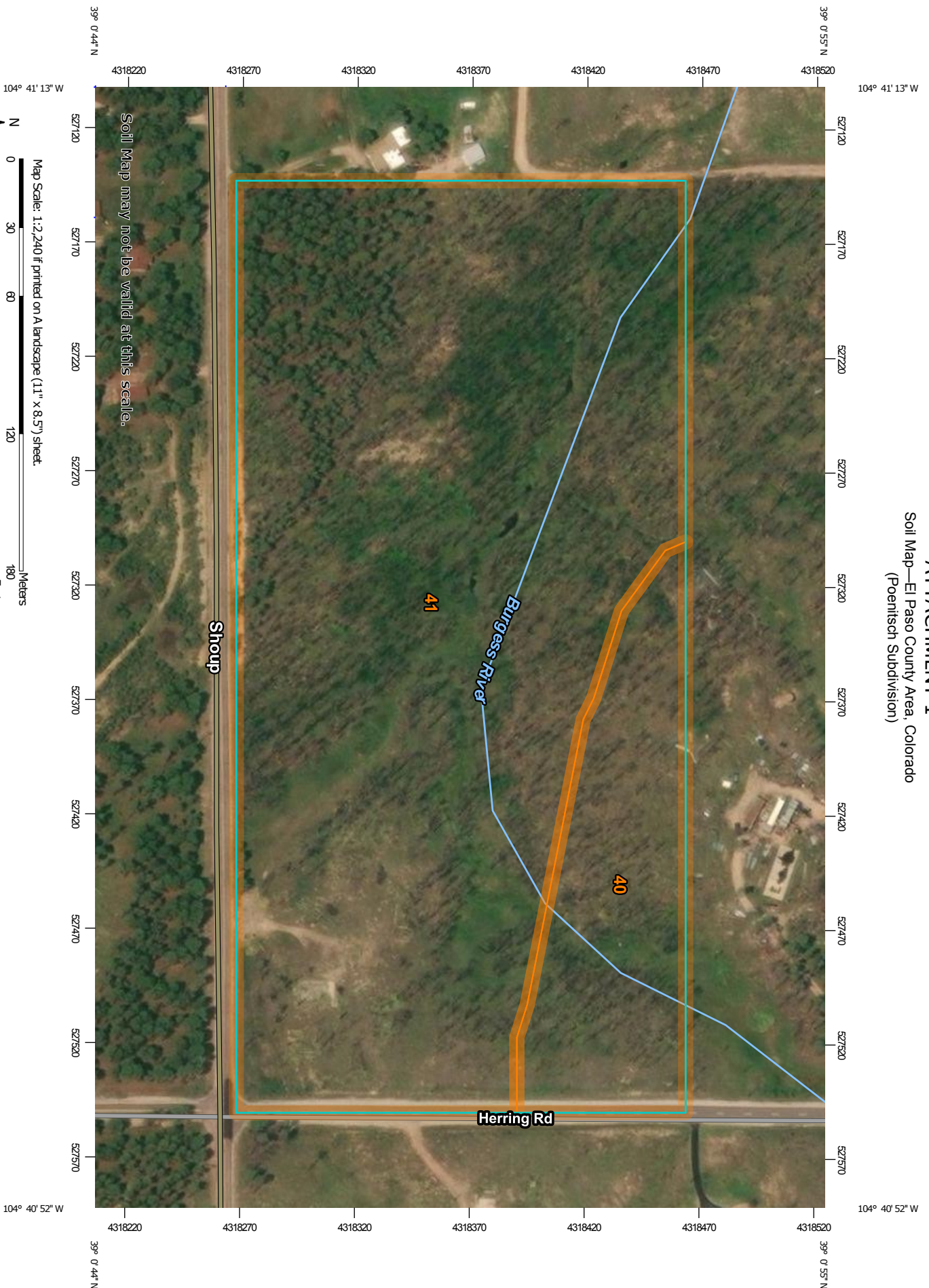























Attachments  
Soils and Geology Report  
Poenitsch Subdivision

# ATTACHMENT 1

## Soil Map—El Paso County Area, Colorado (Poenitsch Subdivision)



## MAP LEGEND

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

## 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 16, Sep 10, 2018

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

Date(s) aerial images were photographed: Jun 7, 2016—Aug 17, 2017

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	3.2	15.9%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	16.6	84.1%
<b>Totals for Area of Interest</b>		<b>19.8</b>	<b>100.0%</b>

## 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

##### Other soils

*Percent of map unit:*

*Hydric soil rating:* No

## El Paso County Area, Colorado

### 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

Map Unit Description: Kettle gravelly loamy sand, 8 to 40 percent slopes—El Paso County Area,  
Colorado

---

**Pleasant**

*Percent of map unit:*

*Landform:* Depressions

*Hydric soil rating:* Yes

**Data Source Information**

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 13, Sep 22, 2015





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11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Office: 719-494-0404

Structural Engineering & Consulting  
Geotechnical Engineering  
Percolation Testing & Septic Design  
Inspections & Technical Reports

June 19, 2018

JN 18.258

**Project:**      **Subsurface Soil Investigation**  
7680 Shoup Road,  
Colorado Springs, CO 80908

Attached is a formal soils report for the project referenced above. Included in this report is a review of the soils investigation and analysis for this location. The purpose of our investigation was to evaluate the conditions of the subsurface soil in order to establish design and construction criteria for the proposed structure(s). A discussion of the results of our investigation with construction recommendations is also included. If revisions to the design of the proposed structure take place, it is advised that our firm be contacted immediately to review the changes and to determine if the revised plans are acceptable.

If you have any questions concerning this report, please feel free to contact our office at 719-494-0404.

Sincerely,



Daniel J. Mizicko P.E.

06-19-18



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## **Purpose and Scope of Study**

This report presents the results of a subsurface exploration program to provide foundation recommendations for the proposed structure to be located on the parcel of land referenced above.

The exploration program was conducted in order to obtain information regarding the subsurface conditions. Soil samples were retrieved from a soil boring(s) and analyzed to provide data on the classification and engineering characteristics of the on-site soils. The results of the field and laboratory investigation are presented herein.

This report has been prepared to summarize the data obtained and to present our conclusion and recommendations based on the proposed construction and the subsurface conditions encountered. Design criteria and a discussion of the geotechnical engineering considerations related to the construction of the proposed structure are included.

## **Proposed Construction**

Based on the information provided, the proposed construction will consist of a wood framed, single family residential structure supported on a reinforced concrete foundation system. We anticipate maximum structural loadings of 3000 pounds per lineal foot for distributive wall loads and 15 kips for concentrated column loads.

If the project features or loadings differ significantly from those above, our firm should be contacted to reevaluate the recommendations contained herein.

## **Field Investigation**

The field investigation for this project was conducted on June 11, 2018.

A 4" diameter exploratory boring was drilled to approximately 12 feet below grade in the area of the proposed construction. Standard penetration testing (SPT) was conducted during the drilling process.

*The SPT measures resistance to penetration of a standard split-spoon sampler that is driven by a 140 lbm hammer dropped from a height of 30 in. The number of blows required to drive the sampler a distance of 12 in. after an initial penetration of 6 in. is referred to as the N-value or standard penetration resistance in blows per foot.*

The representative samples obtained from the SPT split-spoon sampler are saved for subsequent laboratory examination and testing.

## **Laboratory Investigation**

The field samples obtained were analyzed and classified in the laboratory. Laboratory testing included standard property tests, natural water content, Atterberg limits and Expansion Index tests.

The laboratory testing was conducted in general accordance with ASTM specifications.

## Subsurface Conditions

The following tables summarize information obtained about the subsurface conditions encountered:

Soil Classification	Sample Depth	Gravel	Sand	Fines	LL <sup>1</sup>	PI <sup>2</sup>	EI <sup>3</sup>	Expansive Potential
Clayey Sand (SC)	10 ft.	1.5%	52.9%	45.6%	32	20	<b>26</b>	<b>Low</b>

LL – Liquid Limit <sup>1</sup> PI – Plasticity Index <sup>2</sup> EI – Expansion Index <sup>3</sup> NP<sup>4</sup> – Non Plastic

Soil Classification	Sample Depth	SPT N-Value	Relative Density	Moisture Content	Clay Content	Expansive Index	Expansion Potential
Clayey Sand (SC)	5 ft.	Grab	Very Dense	6.9%	Medium	N/A	Low
Clayey Sand (SC)	10 ft.	50+	Very Dense	7.0%	Medium	<b>26</b>	<b>Low</b>
Clayey Sand (SC)	12 ft.	Grab	Very Dense	9.2%	Medium	N/A	N/A

Ground water was not encountered during the time of our investigation. This may be due to lack of moisture received in the area and subsequently may rise due to seasonal changes, degree of irrigation and/or other factors.

## Foundation Recommendations

Considering the subsurface conditions encountered on-site and the nature of the proposed construction, we recommend that the proposed structure be founded on a reinforced concrete shallow foundation system with footings placed on native undisturbed soil. **Foundation elements shall be designed for a maximum allowable bearing pressure of 3000 lb/ft<sup>2</sup>.**

Existing topsoil, silt or deleterious materials if encountered below the foundation must be removed.

## Foundation Walls

Foundation walls which are laterally supported and can be expected to undergo a minimal amount of deflection (“at-rest condition”) may be designed for a lateral earth pressure computed on the basis of an **equivalent fluid unit weight of 55 pcf for onsite material.**

All foundation walls should be designed for appropriate hydrostatic and surcharge pressures such as adjacent buildings, traffic and construction materials and equipment. The pressures recommended above assume a relatively horizontal backfill surface.

The onsite excavated materials may be used as foundation wall backfill. Backfill shall be carefully placed in uniform lifts and properly compacted near optimum moisture content. Care should be taken

not to over compact the backfill since this could cause excessive lateral pressure on the walls. Some settlement of deep foundation wall backfill will occur even if the material is placed correctly.

### **Open Excavation Observation**

It is assumed that the results in this report are representative of the subsurface conditions throughout the site. However, variations across the site are a possibility and will not become evident until the foundation excavation is complete.

A representative of Parr Engineering & Consulting shall be contacted to inspect the completed foundation excavation prior to the placement of any formwork. Please contact our office a minimum of 24 hours prior to the requested site visit. This report may be rendered null and void if the open excavation observation is not completed.

### **Floor System Recommendations**

Floor Slabs should be provided with control joints to reduce damage that may occur as a result of shrinkage cracking. We suggest the spacing of the joints to be no more than 15 feet centers. The actual joint spacing should be based on the slab reinforcing design.

### **Surface Drainage**

The following drainage precautions should be observed during the construction and maintained at all times after the residence has been completed.

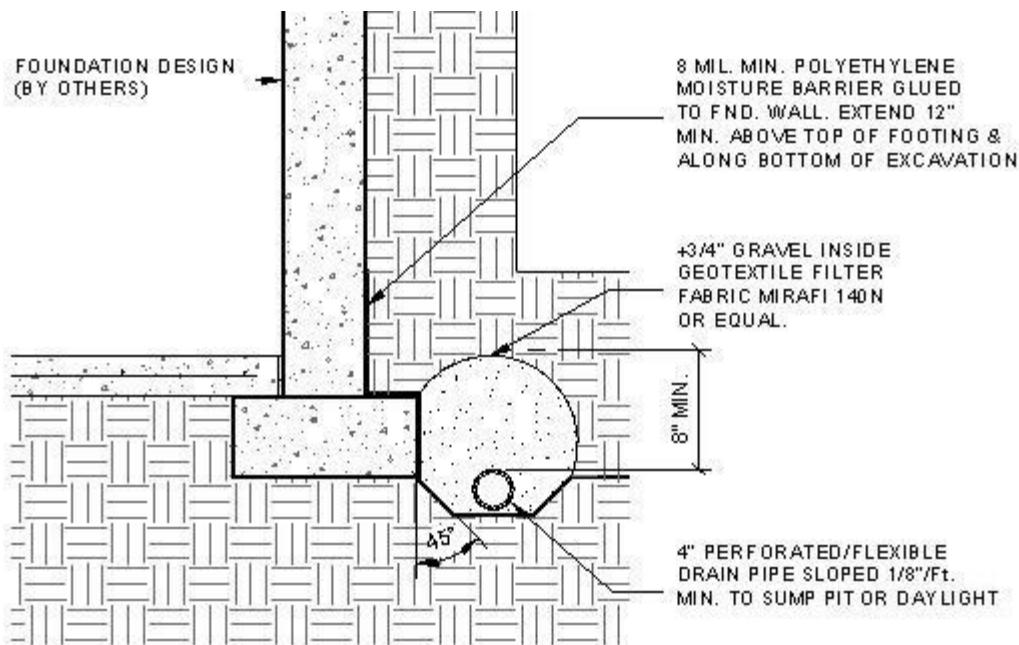
- 1) Excessive wetting and drying of the foundation excavations and under slab areas should be avoided during construction.
- 2) The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 12 inches in the first 10 feet.
- 3) Roof downspouts and drains should discharge well beyond the limits of the backfill.
- 4) Landscaping which requires excessive watering should be located at least 10 feet from the house.
- 5) Plastic membranes should not be used to cover the ground surface adjacent to the foundation walls.

### **Subsurface Drainage**

A subsurface foundation drain or equivalent protection measure is required around the perimeter of all habitable or storage spaces located below grade (including crawlspace areas).

A subsurface drain is designed to redirect moisture around and away from the foundation system. However, it should be noted that a properly functioning drain does not completely eliminate the potential for foundation movement if exposed to subsurface moisture.

## Subsurface Drainage – Continued



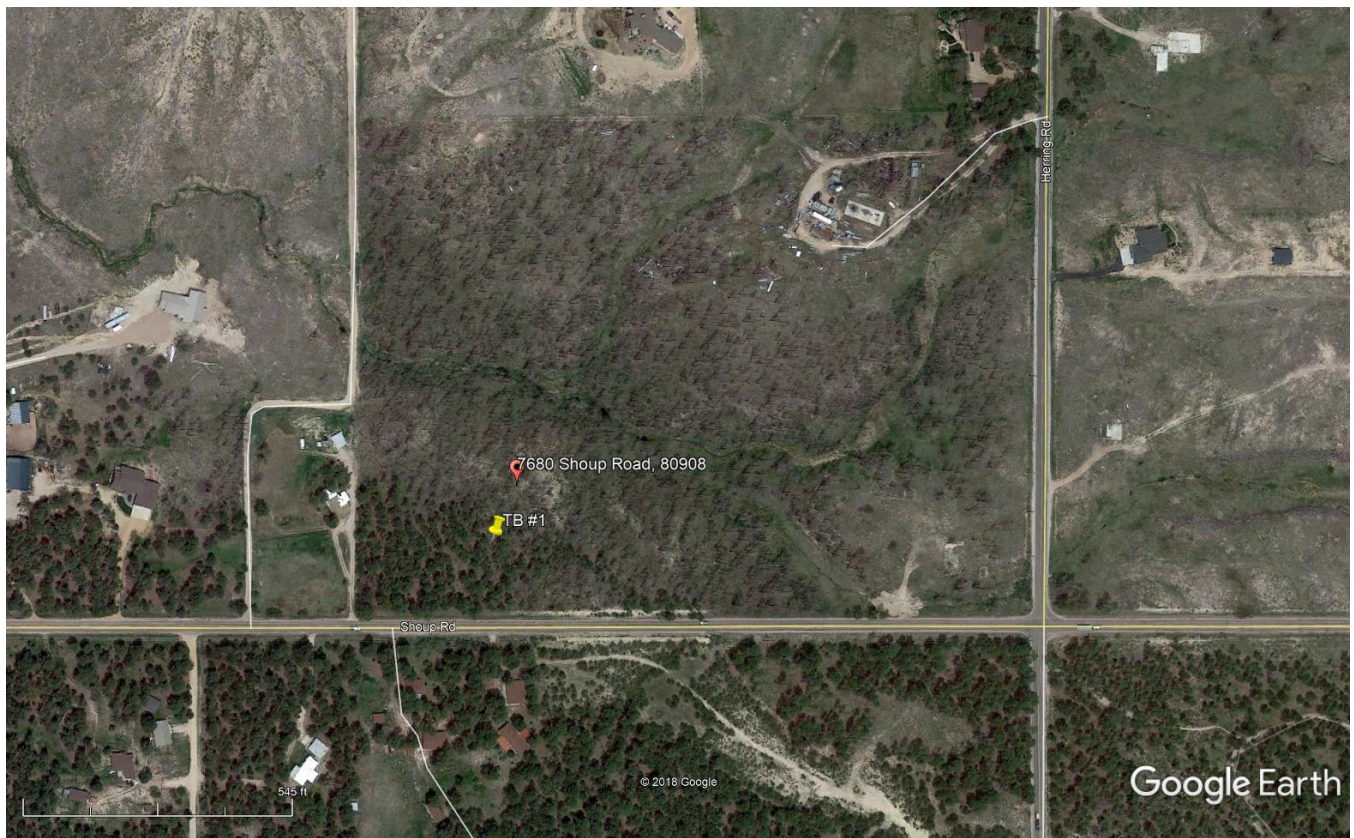
## Limitations

This report has been prepared with generally accepted soil and foundation engineering practices in this area for use by the client for design purposes. The conclusions and recommendations presented are based on data obtained from the exploratory boring. The nature and extent of variation from the boring may not become evident until excavation is performed. If during construction, soil, rock and groundwater conditions appear to be different from those described herein, our office should be advised immediately so that reevaluation of the recommendations may be made.

Although all laboratory procedures were performed under optimal conditions, it should be noted that precautions should be taken to accommodate for certain sources of failure such as inconsistencies in the properties/characteristics of the on-site soil, variations in groundwater levels due to seasonal changes, etc.

**This report DOES NOT address the potential for geologic hazards or constraints (i.e., slope stability, landslides). It must be emphasized that such hazards and constraints are outside the scope of this investigation and must be investigated independently.**

## Site Map



## Laboratory Analysis – Sieve Analysis

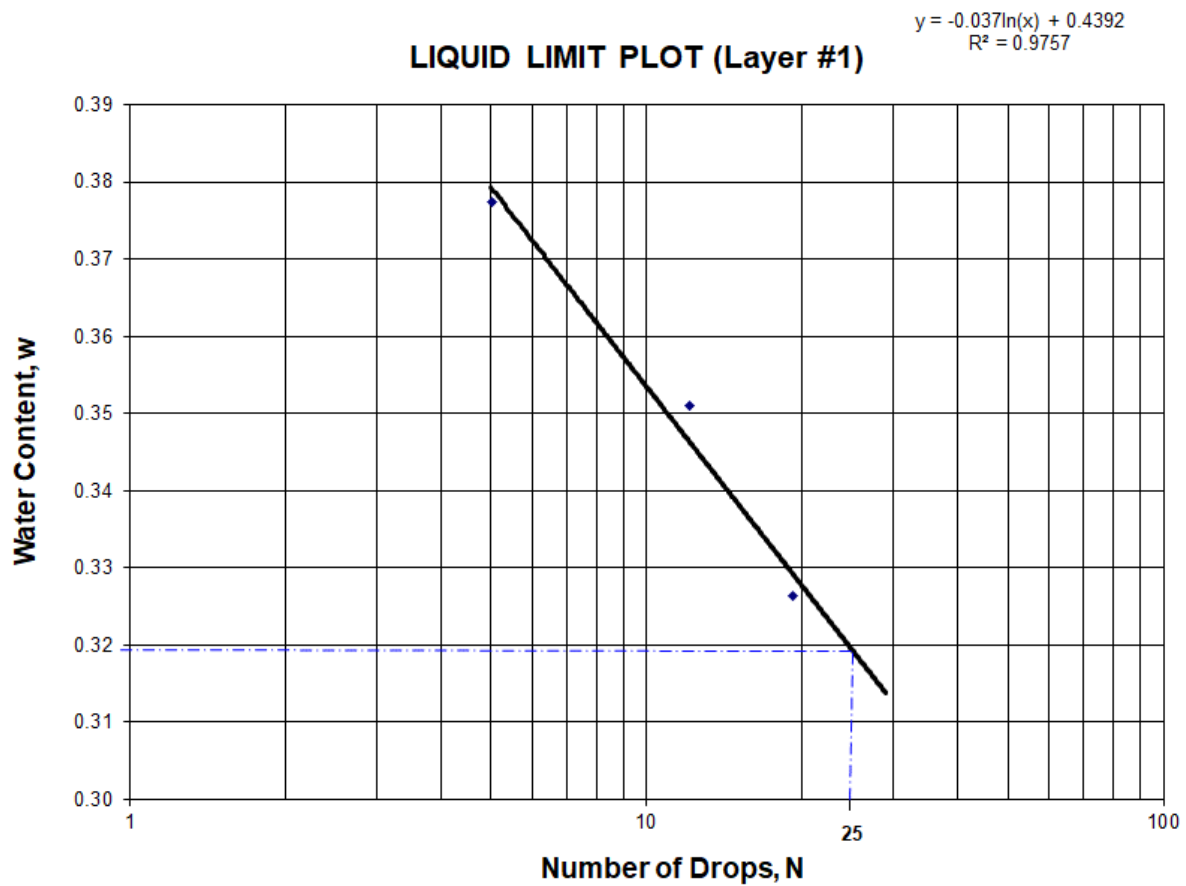
SOIL CLASSIFICATION						
Location of Site	7680 Shoup Road, 80908			Tested By:	H.Lacerda	
Legal Description	N/A			Date Tested	05/14/18	
Job Number	18.258			Collected By	J.Dumke	
				Date Collected	06/11/18	
SITE INVESTIGATION						
Test Hole Depth	12'			Groundwater Table	N/A	
Surface Layer Thickness	-			Volume of Soil Sample	1/2 cu.ft.	
Soil System	Uniform			Visual Moisture Observation	Moist	
Layer	Soil Type/Depth			Critical Layer	No. 1	
Surface	-			Coloration	Tan	
No. 1	SC/0 - 12'-0"			Gravel	Trace	
No. 2	-			Organic Content	Little-None	
No. 3	-					
SIEVE ANALYSIS						
Test Bore #:	TB #1			Bulk	Wet Weight of Soil (g)	454.8
Layer	No. 1				Dry Weight of Soil (g)	424.9
Depth of Sample	10'				Natural Moisture Content	7.0%
	Sieve #	Thickness (mm)	Mass Ret. (g)	% Ret.	%Pass	
	4	4.750	6.3	1.5%	98.5%	Gravel
	10	2.000	53.7	12.6%	85.9%	Sand
	40	0.425	82.7	19.5%	66.4%	
	60	0.250	26.8	6.3%	60.1%	
	100	0.150	27.8	6.5%	53.6%	
	200	0.075	33.8	8.0%	45.6%	
	Pan	0.000	193.8	45.6%	0.0%	Fines
	Pan	0.000		0.0%	0.0%	Organic
	Totals		424.8	100.0%		
% Gravel	1.5%	Retained on #200		$C_u = D_{60}/D_{10} =$		N/A
% Sand	52.9%					
% Fines	45.6%	Passes #200		$C_c = D_{30}^2/(D_{10})(D_{60}) =$		N/A
% Organic	0.0%					
	Check	100.0%				

## Laboratory Analysis – Atterberg Limits

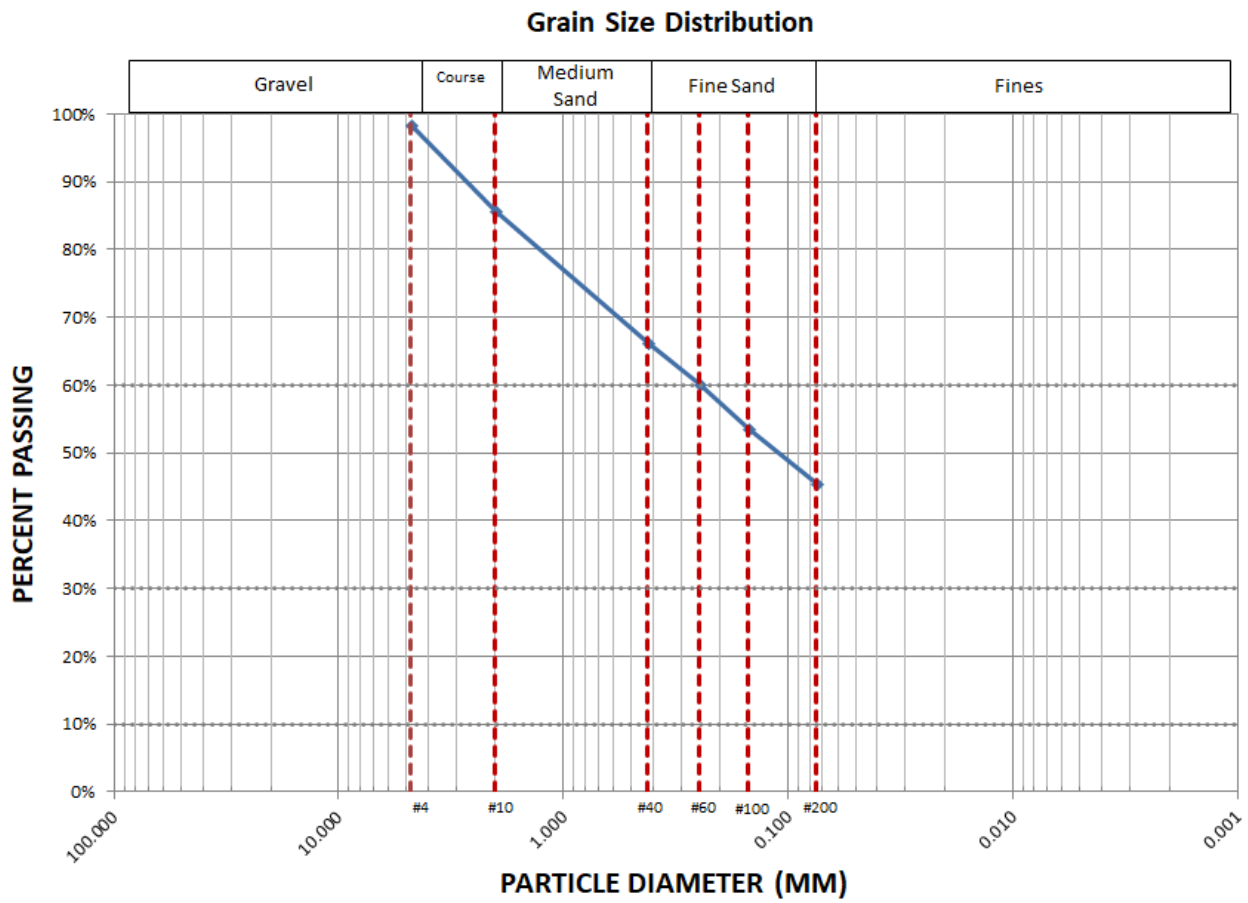
ATTERBERG LIMITS							
LIQUID LIMIT - LL							
	Tin Mass(g)						
Cup #	Empty	Wet Soil	Dry Soil	# Drops	Water Mass (g)	Solids Mass (g)	Water Content
1	13.6	56.7	45.5	12	11.2	31.9	0.35
2	13.5	48.9	39.2	5	9.7	25.7	0.38
3	13.5	62.6	50.5	19	12.1	37.1	0.33
Liquid Limit (from plot)		0.32					
PLASTIC LIMIT - PL							
	Tin Mass(g)						
Cup #	Empty	Wet Soil	Dry Soil	Water Mass (g)	Solids Mass (g)	Plastic Limit (PL)	
1	13.6	23.6	22.6	1.03	8.97	0.11	
2	13.5	25.5	24.2	1.30	10.71	0.12	
					Average	0.12	
Plastic Limit		0.12					
Note:	Liquid Limit, Plastic Limit and Plasticity Index values have been rounded to nearest whole number when expressing as a percentage.						
PLASTICITY INDEX - PI							
Plasticity Index = Liquid Limit - Plastic Limit							
Plasticity Index		0.20					
MOISTURE CONTENT							
	Tin Mass(g)						
Depth	Empty	Wet Soil	Dry Soil	Water Mass (g)	Solids Mass (g)	Water Content	
5'-0"	13.6	66.4	63.0	3.4	49.5	6.9%	
15'-0"	13.5	51.2	48.0	3.2	34.5	9.2%	
CLASSIFICATION							
Plasticity		High Plasticity					
Group Symbol		SC					
Group Name		Clayey Sand					




## Laboratory Analysis – Liquid Limit Plot



## Laboratory Analysis – Grain Size Distribution



## Drill Log – Test Bore #1

 <b>Parr Engineering &amp; Consulting, Inc.</b> 11590 Black Forest Road, Suite 10 Colorado Springs, Colorado 80908 Phone: 719-494-0404			<b>BORING LOG</b>	
			Job Number:	18.258
			Date Drilled:	06/11/18
			Boring #:	TB #1
Driller:		J.Dumke	Total Depth:	12'-0"
Logged By:		J.Dumke	Groundwater Elevation:	N/A
Method:		Boring	Latitude:	39° 0'48.18"N
Auger & Size:		4" Solid Stem	Longitude:	104°41'7.85"W
Depth (ft.)	Sample Interval	SPT Blows/12"	7680 Shoup Road, 80908	
			Sand, fine grained, Clay, Trace gravel, Very dense, Moist, Tan, (SC)	
5	Grab			
10	50+			
	Grab			
			<b>Total Depth= 12'-0"</b>	
15				
20				
25				

Attachment 4  
Engineer's Soils Evaluation for  
OnSite Wastewater Treatment Systems  
Soils and Geology Report  
Poenitsch Subdivision



# PARR ENGINEERING & CONSULTING, INC.

Christopher L. Parr, P.E. Principal  
11590 Black Forest Road, Suite 10, Colorado Springs, CO 80908  
Office: 719-494-0404 Cell: 719-659-1313

## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.050

**Site Location:** Lot 1, Poenitsch Subdivision, 2nd Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #1:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #2:** Not Reached

**Depth to Bedrock - Pit #1:** Not Reached  
**Depth to Bedrock - Pit #2:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Daniel J. Mizicko P.E.

Profile Pit 1	
<b>Latitude:</b>	39° 0'50.01"N
<b>Longitude:</b>	104°41'9.30"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 1'-0"	Topsoil
1'-0" - 6'-0"	Type 3 (LTAR=0.35)
6'-0" - 9'-0"	Type 3 (LTAR=0.35)
-	-

Profile Pit 2	
<b>Latitude:</b>	39° 0'49.99"N
<b>Longitude:</b>	104°41'9.45"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 7'-6"	Type 3 (LTAR=0.35)
-	-
-	-

Location	
<b>Latitude:</b>	<b>Longitude:</b>
-	-
-	-
-	-

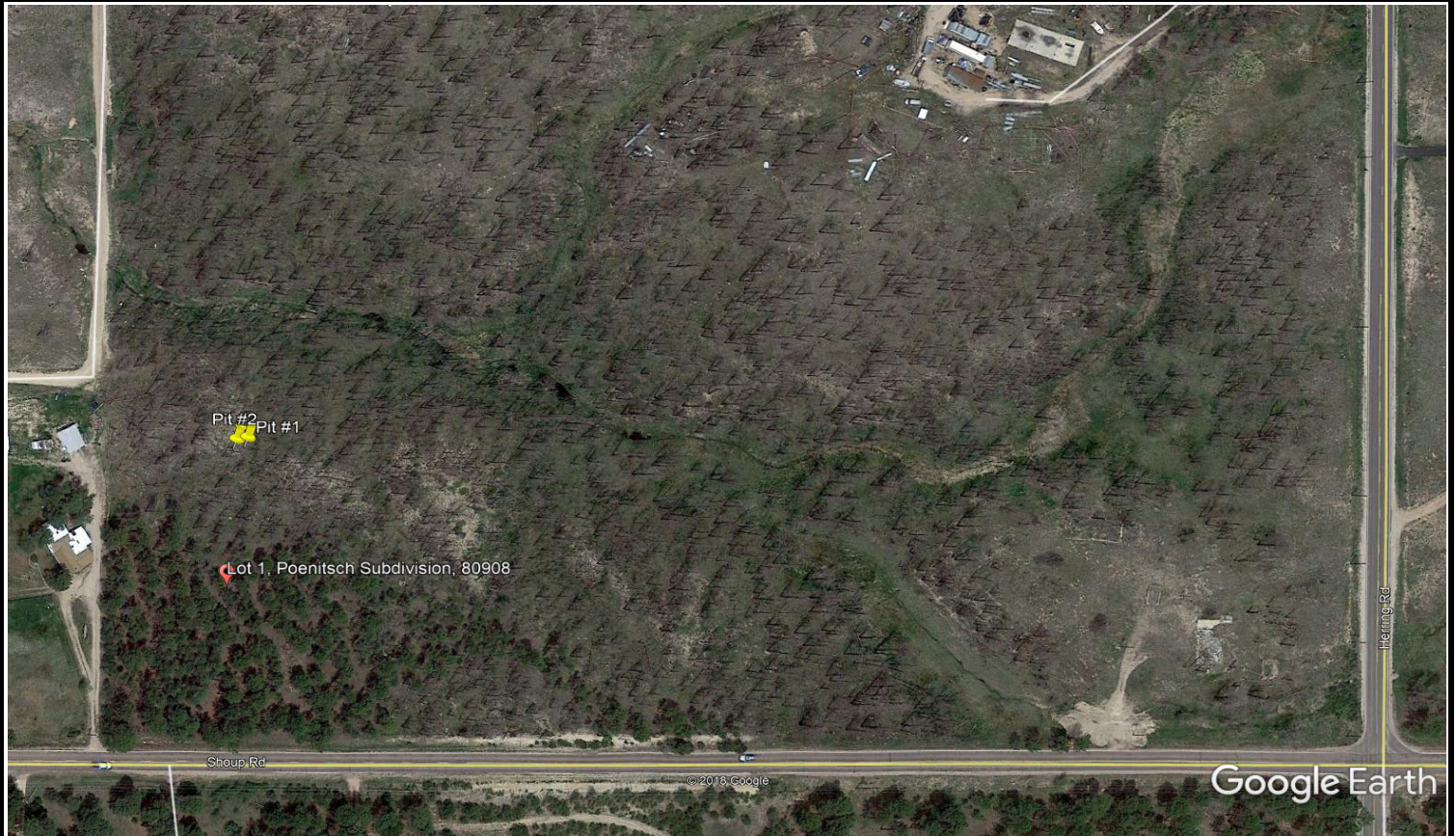
Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
	Average:	N/A Min./In.

**Recommendations:** (1) A conventional, non-engineered On-Site Wastewater Treatment system (OWTS) is acceptable for this site.



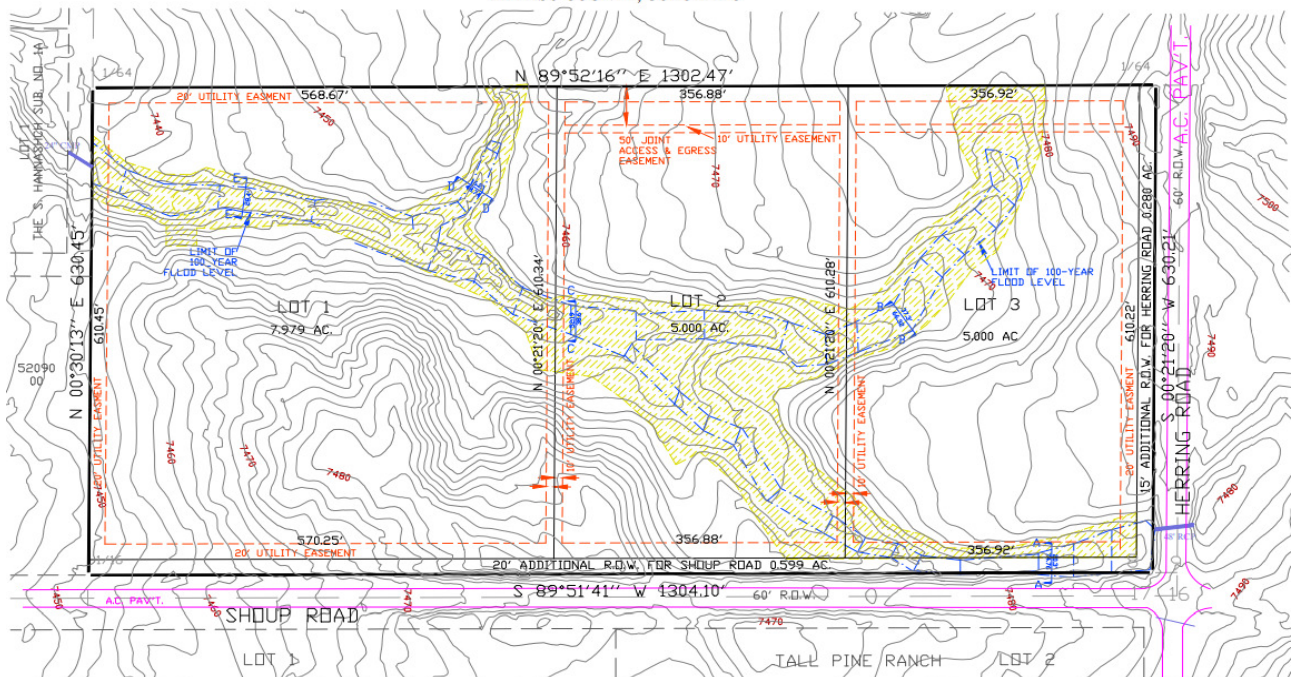
Christopher L. Parr, P.E. Principal  
11590 Black Forest Road, Suite 10, Colorado Springs, CO 80908  
Office: 719-494-0404 Cell: 719-659-1313

**Google Site Map**



## POENITSCH SUBDIVISION

A SUBDIVISION OF THE S1/2, SE1/4, SE1/4 SECTION 8, T.12S., R.65W. OF THE 6TH P.M.  
EL PASO COUNTY, COLORADO







**Parr Engineering & Consulting, Inc.**  
11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.050
Date Evaluated:	02/07/19
Profile Pit#:	Pit #1

Excavator:	Contractor	Total Depth:	9'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N @ 15%
Method:	Profile Pit	Latitude:	39° 0'50.01"N
Auger & Size:	Mini Excavator	Longitude:	104°41'9.30"W

Depth (ft.)	Sample Interval	Lot 1, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 7/2 (Moist)
2								
4								
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
6								
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
8								
		Total Depth= 9'-0"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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### Profile Pit - Log

Job Number:	19.050
Date Evaluated:	02/07/19
Profile Pit#:	Pit #2

Excavator:	Contractor	Total Depth:	7'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 70° W @ 10%
Method:	Profile Pit	Latitude:	39° 0'49.99"N
Auger & Size:	Mini Excavator	Longitude:	104°41'9.45"W

Depth (ft.)	Sample Interval	Lot 1, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 7/2 (Moist)
2								
4								
6								
8		Total Depth= 7'-6"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:





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## PROFILE PIT EVALUATION REPORT - General Notes, Regulations & Limitations

### General Notes:

This report presents the data obtained pertaining to a Profile Pit Evaluation conducted at the locations indicated on the included Site Map. The purpose of this investigation was to evaluate subsurface soil-profile(s) in the area of the proposed Soil Treatment Area (STA) and to establish design criteria for an On-Site Wastewater Treatment system (OWTS).

### Board of Health Regulations & Regulation No. 43 - Engineered Systems:

At proposed soil treatment area locations where any of the following conditions are present, the system shall be designed by a professional engineer and approved by the Health Department:

1. For soil types 3A, 4, 4A, 5, R-0, R-1 and R-2, and Treatment Levels TL2, TL2N, TL3, and TL3N as specified in Tables 10-1 and 10-1A of this regulation;
2. The maximum seasonal ground water surface is less than four feet below the bottom of the proposed absorption system.
3. A restrictive layer exists less than four feet below the bottom of the proposed absorption system
4. The ground slope is in excess of thirty percent
5. Pressure distribution is used.

### Limitations:

The data presented in this report is specific to the locations of the Profile Pit locations evaluated. It must be understood and accepted that subsurface conditions can, and often do vary across any given area. These variations may not become evident until the time of system installation. If the subsurface conditions are discovered to vary anywhere across the system footprint, Parr Engineering AND the Design Engineer must be notified immediately for further evaluation. If another individual or party relies on this report, they shall indemnify and hold Parr Engineering & Consulting, Inc. harmless for any damages, losses, or expenses that may incur as a result of its use, except as allowed by law.



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Office: 719-494-0404 Cell: 719-659-1313

## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.051

**Site Location:** Lot 2, Poenitsch Subdivision, 1st Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #1:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #2:** Not Reached

**Depth to Bedrock - Pit #1:** Not Reached  
**Depth to Bedrock - Pit #2:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 1	
<b>Latitude:</b>	39° 0'51.55"N
<b>Longitude:</b>	104°40'59.72"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 2'-0"	<b>Type 3 (LTAR=0.35)</b>
2'-0" - 4'-0"	<b>Type 4 (LTAR=0.20)</b>
4'-0" - 6'-6"	<b>Type 3 (LTAR=0.35)</b>
6'-6" - 9'-0"	<b>Type 3 (LTAR=0.35)</b>

Profile Pit 2	
<b>Latitude:</b>	39° 0'51.56"N
<b>Longitude:</b>	104°40'59.92"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 3'-0"	<b>Type 4 (LTAR=0.20)</b>
3'-0" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 9'-6"	<b>Type 3 (LTAR=0.35)</b>

Location	
<b>Latitude:</b>	<b>Longitude:</b>
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
<b>Average:</b>		N/A Min./In.

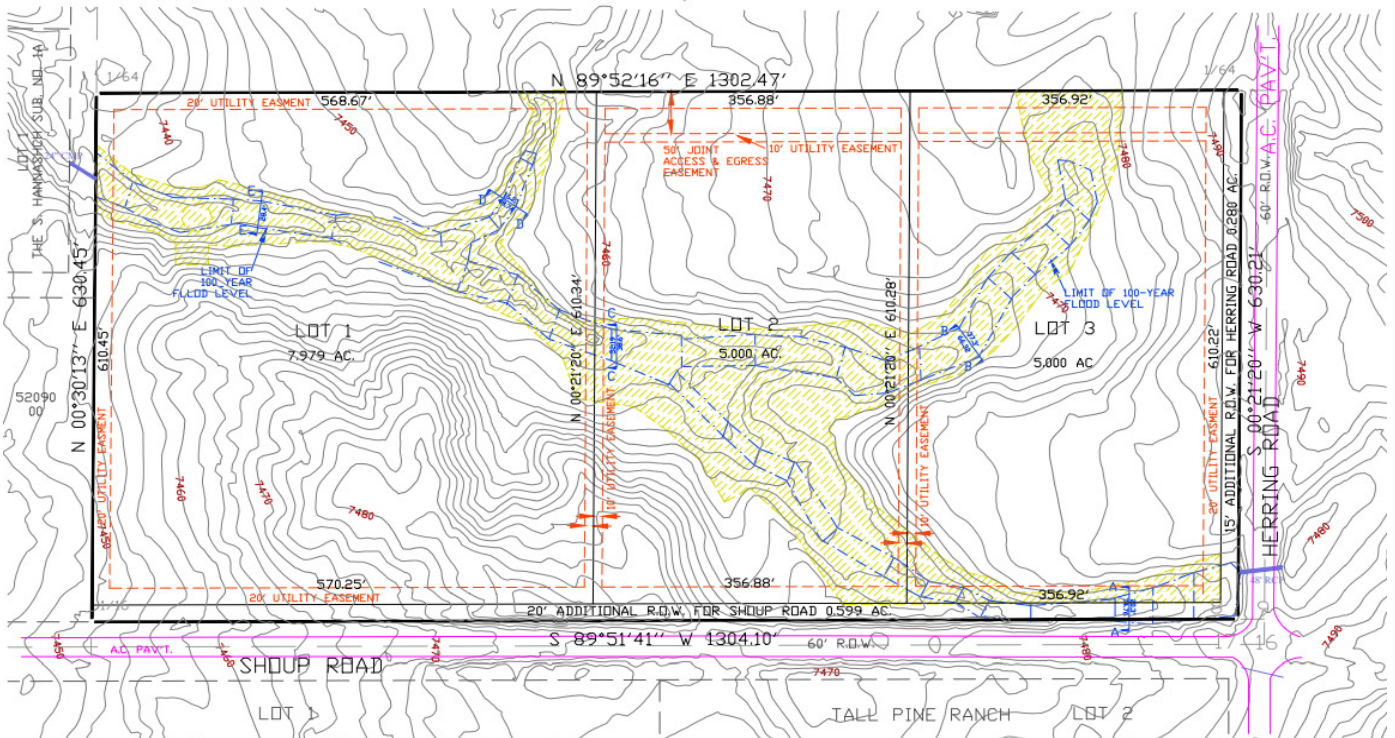
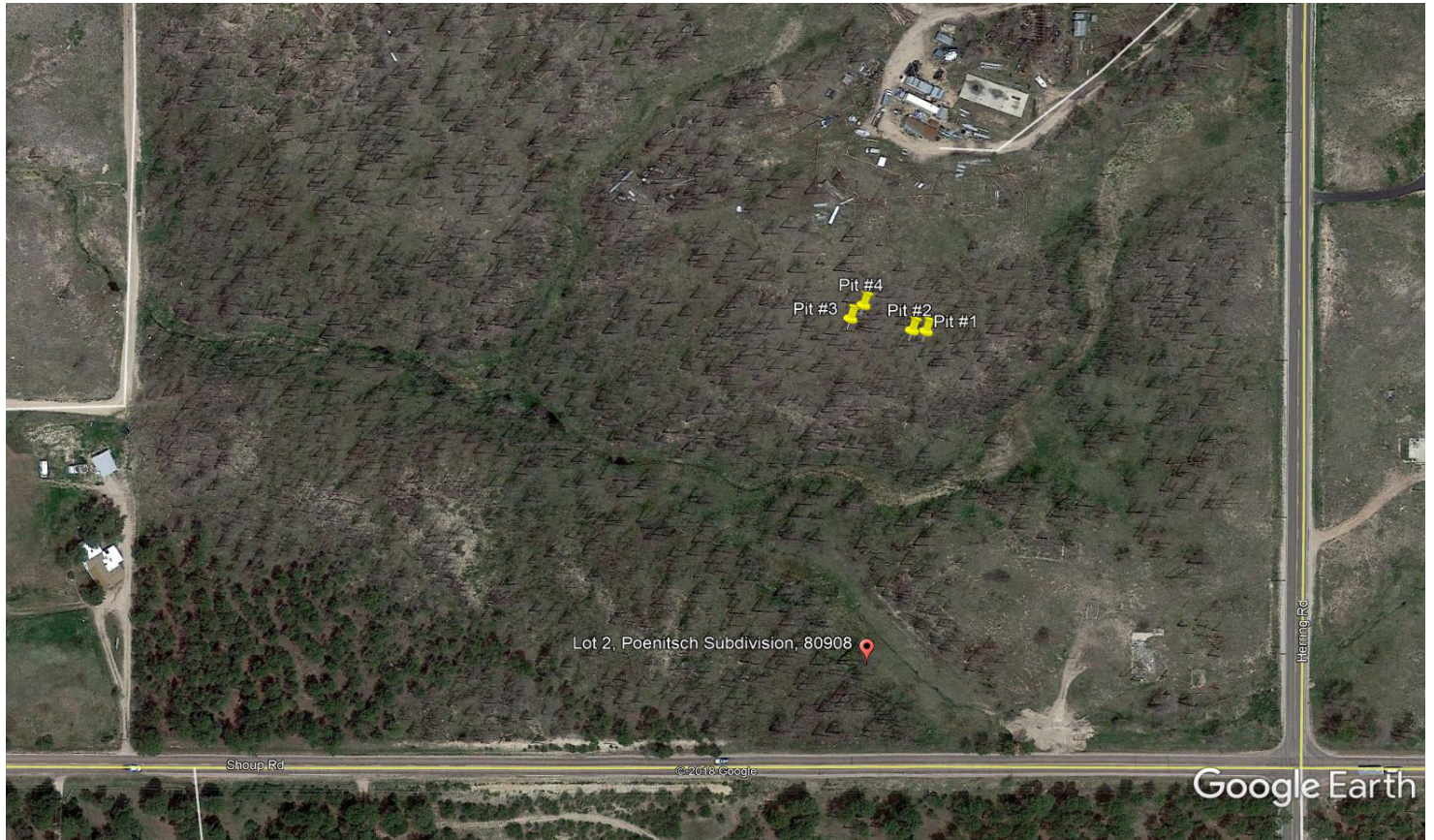
**Recommendations:** (1) An Engineered On-Site Wastewater Treatment system (OWTS) is required for this location due to:  
(a) Soil Type 4 identified in the treatment zone of Profile Pit #1 & Profile Pit #2.



# PARR ENGINEERING & CONSULTING, INC.

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## Google Site Map







Parr Engineering & Consulting, Inc.  
11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number: 19.051  
Date Evaluated: 02/07/19  
Profile Pit#: Pit #1

Excavator: Contractor Total Depth: 9'-0"  
Logged By: R.J. & J.D. STA Slope & Direction: N 80° W @ 3%  
Method: Profile Pit Latitude: 39° 0'51.55"N  
Auger & Size: Mini Excavator Longitude: 104°40'59.72"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Clay Loam	Blocky	Moderate	No	Type 3 (LTAR = 0.35)	<35%	10YR 5/4 (Moist)
4		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	10YR 6/6 (Moist)
6		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
8		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
10		Total Depth= 9'-0"						

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.051
Date Evaluated:	02/07/19
Profile Pit#:	Pit #2

Excavator:	Contractor	Total Depth:	9'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 80° W @ 3%
Method:	Profile Pit	Latitude:	39° 0'51.56"N
Auger & Size:	Mini Excavator	Longitude:	104°40'59.92"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	10YR 6/6 (Moist)
4		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
6								
8		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
10		Total Depth= 9'-6"						

Evidence of Groundwater:	Not Reached
--------------------------	-------------

Depth to Bedrock:	Not Reached
-------------------	-------------

Additional Notes:



# PARR ENGINEERING & CONSULTING, INC.

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11590 Black Forest Road, Suite 10, Colorado Springs, CO 80908  
Office: 719-494-0404 Cell: 719-659-1313

## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.051

**Site Location:** Lot 2, Poenitsch Subdivision, 2nd Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #3:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #4:** Not Reached

**Depth to Bedrock - Pit #3:** Not Reached  
**Depth to Bedrock - Pit #4:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 3	
<b>Latitude:</b>	39° 0'51.70"N
<b>Longitude:</b>	104°41'0.81"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 2'-0"	<b>Type 2 (LTAR=0.60)</b>
2'-0" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 9'-6"	<b>Type 3 (LTAR=0.35)</b>

Profile Pit 4	
<b>Latitude:</b>	39° 0'51.86"N
<b>Longitude:</b>	104°41'0.62"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 1'-0"	Topsoil
1'-0" - 2'-0"	<b>Type 2 (LTAR=0.60)</b>
2'-0" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 9'-0"	<b>Type 3 (LTAR=0.35)</b>

Location	
Latitude:	Longitude:
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
Average:		N/A Min./In.

**Recommendations:** (1) A conventional, non-engineered On-Site Wastewater Treatment system (OWTS) is acceptable for this location.





Parr Engineering & Consulting, Inc.  
11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.051
Date Evaluated:	02/07/19
Profile Pit#:	Pit #3

Excavator:	Contractor	Total Depth:	9'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 80° W @ 3%
Method:	Profile Pit	Latitude:	39° 0'51.70"N
Auger & Size:	Mini Excavator	Longitude:	104°41'0.81"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Loam	Granular	Strong	No	Type 2 (LTAR = 0.60)	<35%	10YR 5/6 (Moist)
4		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	10YR 6/6 (Moist)
6								
8		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
10		Total Depth= 9'-6"						

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.051
Date Evaluated:	02/07/19
Profile Pit#:	Pit #4

Excavator:	Contractor	Total Depth:	9'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 80° W @ 3%
Method:	Profile Pit	Latitude:	39° 0'51.86"N
Auger & Size:	Mini Excavator	Longitude:	104°41'0.62"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Loam	Granular	Strong	No	Type 2 (LTAR = 0.60)	<35%	10YR 5/6 (Moist)
4		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	10YR 6/6 (Moist)
6								
8		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
		Total Depth= 9'-0"						
10								

Evidence of Groundwater:	Not Reached
--------------------------	-------------

Depth to Bedrock:	Not Reached
-------------------	-------------

Additional Notes:



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## PROFILE PIT EVALUATION REPORT - General Notes, Regulations & Limitations

### General Notes:

This report presents the data obtained pertaining to a Profile Pit Evaluation conducted at the locations indicated on the included Site Map. The purpose of this investigation was to evaluate subsurface soil-profile(s) in the area of the proposed Soil Treatment Area (STA) and to establish design criteria for an On-Site Wastewater Treatment system (OWTS).

### Board of Health Regulations & Regulation No. 43 - Engineered Systems:

At proposed soil treatment area locations where any of the following conditions are present, the system shall be designed by a professional engineer and approved by the Health Department:

1. For soil types 3A, 4, 4A, 5, R-0, R-1 and R-2, and Treatment Levels TL2, TL2N, TL3, and TL3N as specified in Tables 10-1 and 10-1A of this regulation;
2. The maximum seasonal ground water surface is less than four feet below the bottom of the proposed absorption system.
3. A restrictive layer exists less than four feet below the bottom of the proposed absorption system
4. The ground slope is in excess of thirty percent
5. Pressure distribution is used.

### Limitations:

The data presented in this report is specific to the locations of the Profile Pit locations evaluated. It must be understood and accepted that subsurface conditions can, and often do vary across any given area. These variations may not become evident until the time of system installation. If the subsurface conditions are discovered to vary anywhere across the system footprint, Parr Engineering AND the Design Engineer must be notified immediately for further evaluation. If another individual or party relies on this report, they shall indemnify and hold Parr Engineering & Consulting, Inc. harmless for any damages, losses, or expenses that may incur as a result of its use, except as allowed by law.



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## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.052

**Site Location:** Lot 3, Poenitsch Subdivision, 1st Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #1:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #2:** Not Reached

**Depth to Bedrock - Pit #1:** Not Reached  
**Depth to Bedrock - Pit #2:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 1	
<b>Latitude:</b>	39° 0'47.96"N
<b>Longitude:</b>	104°40'56.99"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 3'-0"	<b>Type 4 (LTAR=0.20)</b>
3'-0" - 7'-0"	<b>Type 3 (LTAR=0.35)</b>
-	-

Profile Pit 2	
<b>Latitude:</b>	39° 0'47.97"N
<b>Longitude:</b>	104°40'57.31"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 3'-0"	<b>Type 4 (LTAR=0.20)</b>
3'-0" - 7'-6"	<b>Type 3 (LTAR=0.35)</b>
-	-

Location	
Latitude:	Longitude:
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
Average:		N/A Min./In.

**Recommendations:** (1) An Engineered On-Site Wastewater Treatment system (OWTS) is required for this location due to:  
(a) Soil Type 4 identified in the treatment zone of Profile Pit #1 & Profile Pit #2.









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### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #1

Excavator:	Contractor	Total Depth:	7'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	W @ 3%
Method:	Profile Pit	Latitude:	39° 0'47.96"N
Auger & Size:	Mini Excavator	Longitude:	104°40'56.99"W

Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
2								
4		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
6								
		Total Depth= 7'-0"						
8								
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:





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### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #2

Excavator:	Contractor	Total Depth:	7'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	W @ 3%
Method:	Profile Pit	Latitude:	39° 0'47.97"N
Auger & Size:	Mini Excavator	Longitude:	104°40'57.31"W

Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
4		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
6								
8		Total Depth= 7'-6"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.052

**Site Location:** Lot 3, Poenitsch Subdivision, 2nd Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #3:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #4:** Not Reached

**Depth to Bedrock - Pit #3:** Not Reached  
**Depth to Bedrock - Pit #4:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 3	
<b>Latitude:</b>	39° 0'50.09"N
<b>Longitude:</b>	104°40'55.92"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 8'-6"	<b>Type 3 (LTAR=0.35)</b>
-	-

Profile Pit 4	
<b>Latitude:</b>	39° 0'49.87"N
<b>Longitude:</b>	104°40'55.94"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 4'-6"	<b>Type 3 (LTAR=0.35)</b>
4'-6" - 9'-0"	<b>Type 3 (LTAR=0.35)</b>
-	-

Location	
Latitude:	Longitude:
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
	<b>Average:</b>	N/A Min./In.

**Recommendations:** (1) A conventional, non-engineered On-Site Wastewater Treatment system (OWTS) is acceptable for this site.



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### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #3

Excavator:	Contractor	Total Depth:	8'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 45° W @ 15%
Method:	Profile Pit	Latitude:	39° 0'50.09"N
Auger & Size:	Mini Excavator	Longitude:	104°40'55.92"W

Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 4/3 (Moist)
2								
4								
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
6								
8								
		Total Depth= 8'-6"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #4

Excavator:	Contractor	Total Depth:	9'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 45° W @ 15%
Method:	Profile Pit	Latitude:	39° 0'49.87"N
Auger & Size:	Mini Excavator	Longitude:	104°40'55.94"W

Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 4/3 (Moist)
4								
6		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
8								
		Total Depth= 9'-0"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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## PROFILE PIT EVALUATION REPORT - General Notes, Regulations & Limitations

### General Notes:

This report presents the data obtained pertaining to a Profile Pit Evaluation conducted at the locations indicated on the included Site Map. The purpose of this investigation was to evaluate subsurface soil-profile(s) in the area of the proposed Soil Treatment Area (STA) and to establish design criteria for an On-Site Wastewater Treatment system (OWTS).

### Board of Health Regulations & Regulation No. 43 - Engineered Systems:

At proposed soil treatment area locations where any of the following conditions are present, the system shall be designed by a professional engineer and approved by the Health Department:

1. For soil types 3A, 4, 4A, 5, R-0, R-1 and R-2, and Treatment Levels TL2, TL2N, TL3, and TL3N as specified in Tables 10-1 and 10-1A of this regulation;
2. The maximum seasonal ground water surface is less than four feet below the bottom of the proposed absorption system.
3. A restrictive layer exists less than four feet below the bottom of the proposed absorption system
4. The ground slope is in excess of thirty percent
5. Pressure distribution is used.

### Limitations:

The data presented in this report is specific to the locations of the Profile Pit locations evaluated. It must be understood and accepted that subsurface conditions can, and often do vary across any given area. These variations may not become evident until the time of system installation. If the subsurface conditions are discovered to vary anywhere across the system footprint, Parr Engineering AND the Design Engineer must be notified immediately for further evaluation. If another individual or party relies on this report, they shall indemnify and hold Parr Engineering & Consulting, Inc. harmless for any damages, losses, or expenses that may incur as a result of its use, except as allowed by law.



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## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.050

**Site Location:** Lot 1, Poenitsch Subdivision, 2nd Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #1:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #2:** Not Reached

**Depth to Bedrock - Pit #1:** Not Reached  
**Depth to Bedrock - Pit #2:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Daniel J. Mizicko P.E.

Profile Pit 1	
<b>Latitude:</b>	39° 0'50.01"N
<b>Longitude:</b>	104°41'9.30"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 1'-0"	Topsoil
1'-0" - 6'-0"	Type 3 (LTAR=0.35)
6'-0" - 9'-0"	Type 3 (LTAR=0.35)
-	-

Profile Pit 2	
<b>Latitude:</b>	39° 0'49.99"N
<b>Longitude:</b>	104°41'9.45"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 7'-6"	Type 3 (LTAR=0.35)
-	-
-	-

Location	
<b>Latitude:</b>	<b>Longitude:</b>
-	-
-	-
-	-

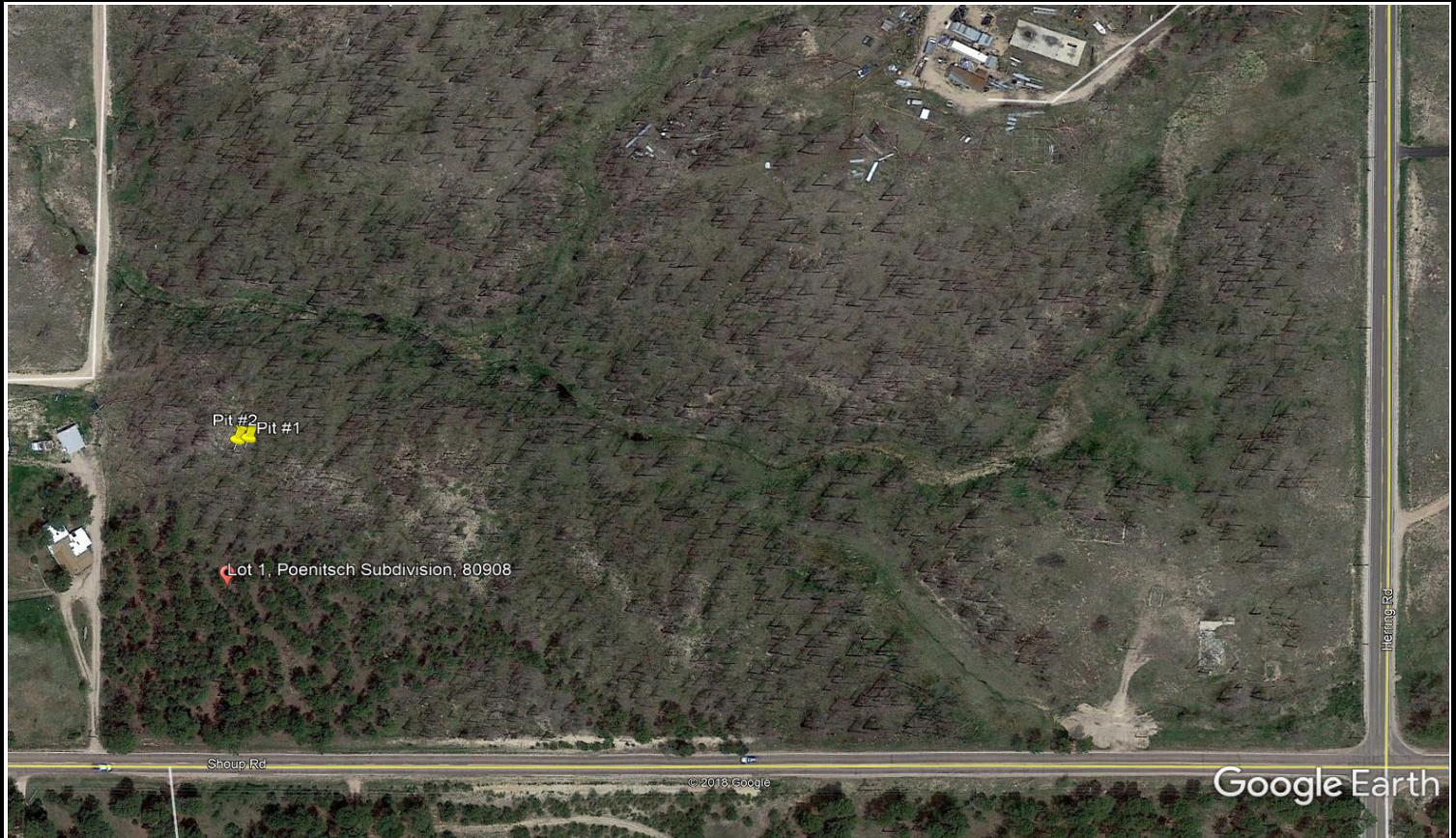
Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
	<b>Average:</b>	N/A Min./In.

**Recommendations:** (1) A conventional, non-engineered On-Site Wastewater Treatment system (OWTS) is acceptable for this site.



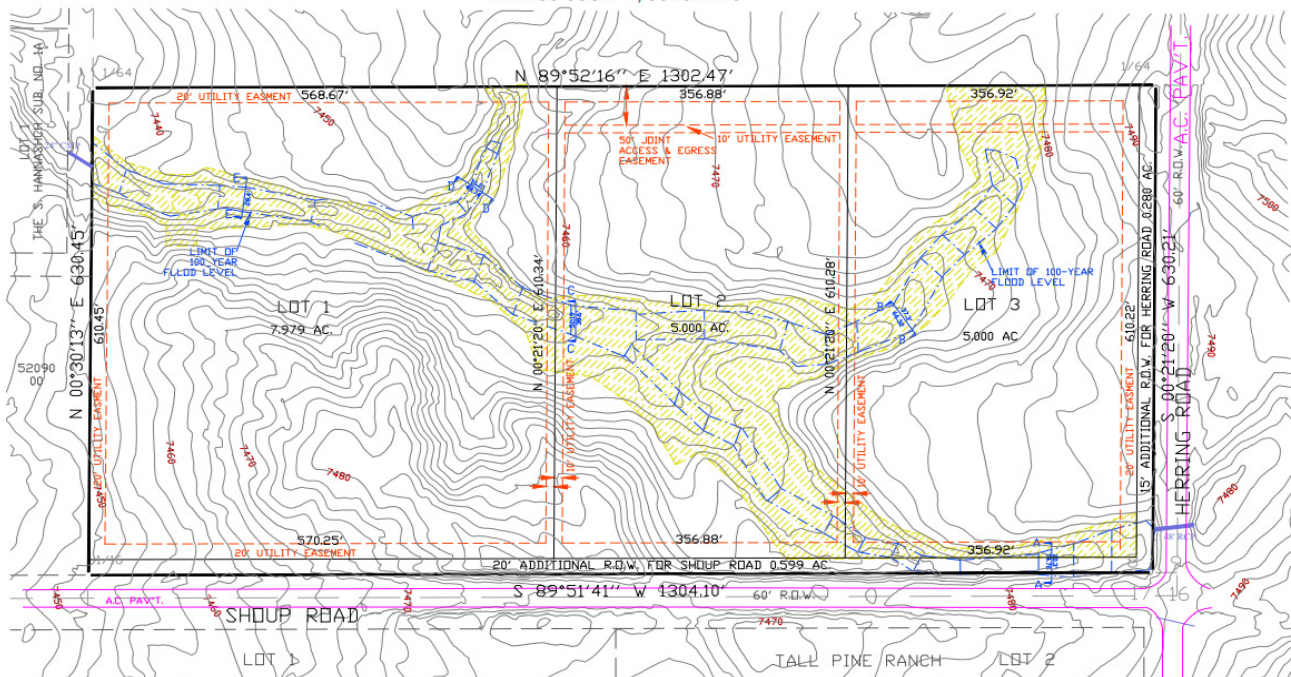
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**Google Site Map**



**POENITSCH SUBDIVISION**

A SUBDIVISION OF THE S1/2, SE1/4, SE1/4 SECTION 8, T.12S., R.65W. OF THE 6TH P.M.  
EL PASO COUNTY, COLORADO







**Parr Engineering & Consulting, Inc.**  
11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.050
Date Evaluated:	02/07/19
Profile Pit#:	Pit #1

Excavator:	Contractor	Total Depth:	9'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N @ 15%
Method:	Profile Pit	Latitude:	39° 0'50.01"N
Auger & Size:	Mini Excavator	Longitude:	104°41'9.30"W

Depth (ft.)	Sample Interval	Lot 1, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 7/2 (Moist)
2								
4								
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
6								
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
8								
		Total Depth= 9'-0"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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### Profile Pit - Log

Job Number:	19.050
Date Evaluated:	02/07/19
Profile Pit#:	Pit #2

Excavator:	Contractor	Total Depth:	7'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 70° W @ 10%
Method:	Profile Pit	Latitude:	39° 0'49.99"N
Auger & Size:	Mini Excavator	Longitude:	104°41'9.45"W

Depth (ft.)	Sample Interval	Lot 1, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 7/2 (Moist)
2								
4								
6								
8		Total Depth= 7'-6"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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## PROFILE PIT EVALUATION REPORT - General Notes, Regulations & Limitations

### General Notes:

This report presents the data obtained pertaining to a Profile Pit Evaluation conducted at the locations indicated on the included Site Map. The purpose of this investigation was to evaluate subsurface soil-profile(s) in the area of the proposed Soil Treatment Area (STA) and to establish design criteria for an On-Site Wastewater Treatment system (OWTS).

### Board of Health Regulations & Regulation No. 43 - Engineered Systems:

At proposed soil treatment area locations where any of the following conditions are present, the system shall be designed by a professional engineer and approved by the Health Department:

1. For soil types 3A, 4, 4A, 5, R-0, R-1 and R-2, and Treatment Levels TL2, TL2N, TL3, and TL3N as specified in Tables 10-1 and 10-1A of this regulation;
2. The maximum seasonal ground water surface is less than four feet below the bottom of the proposed absorption system.
3. A restrictive layer exists less than four feet below the bottom of the proposed absorption system
4. The ground slope is in excess of thirty percent
5. Pressure distribution is used.

### Limitations:

The data presented in this report is specific to the locations of the Profile Pit locations evaluated. It must be understood and accepted that subsurface conditions can, and often do vary across any given area. These variations may not become evident until the time of system installation. If the subsurface conditions are discovered to vary anywhere across the system footprint, Parr Engineering AND the Design Engineer must be notified immediately for further evaluation. If another individual or party relies on this report, they shall indemnify and hold Parr Engineering & Consulting, Inc. harmless for any damages, losses, or expenses that may incur as a result of its use, except as allowed by law.



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## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.051

**Site Location:** Lot 2, Poenitsch Subdivision, 1st Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #1:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #2:** Not Reached

**Depth to Bedrock - Pit #1:** Not Reached  
**Depth to Bedrock - Pit #2:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 1	
<b>Latitude:</b>	39° 0'51.55"N
<b>Longitude:</b>	104°40'59.72"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 2'-0"	<b>Type 3 (LTAR=0.35)</b>
2'-0" - 4'-0"	<b>Type 4 (LTAR=0.20)</b>
4'-0" - 6'-6"	<b>Type 3 (LTAR=0.35)</b>
6'-6" - 9'-0"	<b>Type 3 (LTAR=0.35)</b>

Profile Pit 2	
<b>Latitude:</b>	39° 0'51.56"N
<b>Longitude:</b>	104°40'59.92"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 3'-0"	<b>Type 4 (LTAR=0.20)</b>
3'-0" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 9'-6"	<b>Type 3 (LTAR=0.35)</b>

Location	
<b>Latitude:</b>	<b>Longitude:</b>
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
<b>Average:</b>		N/A Min./In.

**Recommendations:** (1) An Engineered On-Site Wastewater Treatment system (OWTS) is required for this location due to:  
(a) Soil Type 4 identified in the treatment zone of Profile Pit #1 & Profile Pit #2.



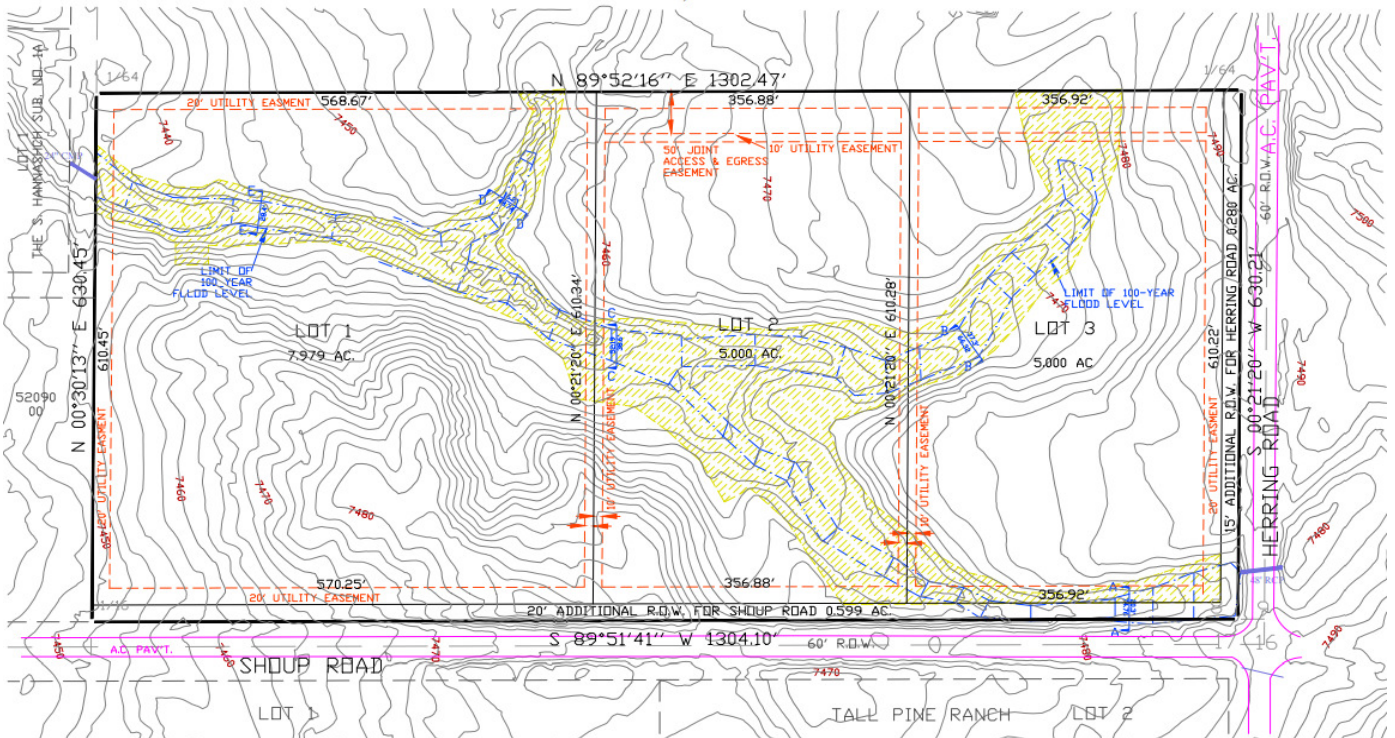
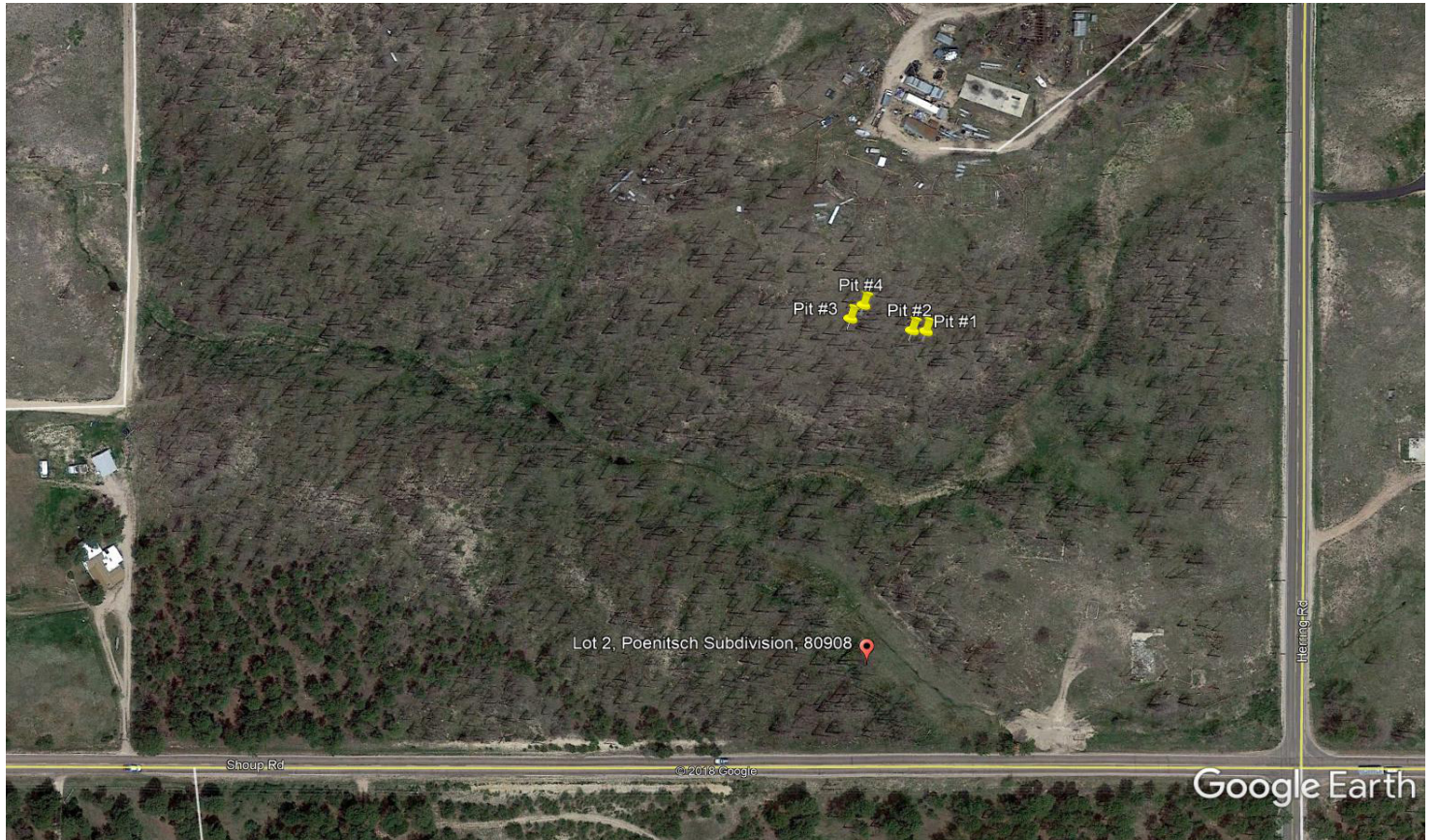
# PARR ENGINEERING & CONSULTING, INC.

Christopher L. Parr, P.E. Principal

11590 Black Forest Road, Suite 10, Colorado Springs, CO 80908

Office: 719-494-0404 Cell: 719-659-1313

## Google Site Map







Parr Engineering & Consulting, Inc.  
11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number: 19.051  
Date Evaluated: 02/07/19  
Profile Pit#: Pit #1

Excavator: Contractor Total Depth: 9'-0"  
Logged By: R.J. & J.D. STA Slope & Direction: N 80° W @ 3%  
Method: Profile Pit Latitude: 39° 0'51.55"N  
Auger & Size: Mini Excavator Longitude: 104°40'59.72"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Clay Loam	Blocky	Moderate	No	Type 3 (LTAR = 0.35)	<35%	10YR 5/4 (Moist)
4		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	10YR 6/6 (Moist)
6		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
8		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
10		Total Depth= 9'-0"						

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



Job Number:	19.051
Date Evaluated:	02/07/19
Profile Pit#:	Pit #2

Excavator:	Contractor	Total Depth:	9'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 80° W @ 3%
Method:	Profile Pit	Latitude:	39° 0'51.56"N
Auger & Size:	Mini Excavator	Longitude:	104°40'59.92"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	10YR 6/6 (Moist)
4		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
6		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
8		Total Depth= 9'-6"						
10								

Evidence of Groundwater:	Not Reached
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Depth to Bedrock:	Not Reached
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**Additional Notes:**



# PARR ENGINEERING & CONSULTING, INC.

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Office: 719-494-0404 Cell: 719-659-1313

## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.051

**Site Location:** Lot 2, Poenitsch Subdivision, 2nd Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #3:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #4:** Not Reached

**Depth to Bedrock - Pit #3:** Not Reached  
**Depth to Bedrock - Pit #4:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 3	
<b>Latitude:</b>	39° 0'51.70"N
<b>Longitude:</b>	104°41'0.81"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 2'-0"	<b>Type 2 (LTAR=0.60)</b>
2'-0" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 9'-6"	<b>Type 3 (LTAR=0.35)</b>

Profile Pit 4	
<b>Latitude:</b>	39° 0'51.86"N
<b>Longitude:</b>	104°41'0.62"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 1'-0"	Topsoil
1'-0" - 2'-0"	<b>Type 2 (LTAR=0.60)</b>
2'-0" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 9'-0"	<b>Type 3 (LTAR=0.35)</b>

Location	
<b>Latitude:</b>	<b>Longitude:</b>
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
Average:		N/A Min./In.

**Recommendations:** (1) A conventional, non-engineered On-Site Wastewater Treatment system (OWTS) is acceptable for this location.



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### Profile Pit - Log

Job Number:	19.051
Date Evaluated:	02/07/19
Profile Pit#:	Pit #3

Excavator:	Contractor	Total Depth:	9'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 80° W @ 3%
Method:	Profile Pit	Latitude:	39° 0'51.70"N
Auger & Size:	Mini Excavator	Longitude:	104°41'0.81"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Loam	Granular	Strong	No	Type 2 (LTAR = 0.60)	<35%	10YR 5/6 (Moist)
4		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	10YR 6/6 (Moist)
6								
8		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
10		Total Depth= 9'-6"						

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.051
Date Evaluated:	02/07/19
Profile Pit#:	Pit #4

Excavator:	Contractor	Total Depth:	9'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 80° W @ 3%
Method:	Profile Pit	Latitude:	39° 0'51.86"N
Auger & Size:	Mini Excavator	Longitude:	104°41'0.62"W

Depth (ft.)	Sample Interval	Lot 2, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Loam	Granular	Strong	No	Type 2 (LTAR = 0.60)	<35%	10YR 5/6 (Moist)
4		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	10YR 6/6 (Moist)
6								
8		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/3 (Moist)
		Total Depth= 9'-0"						
10								

Evidence of Groundwater:	Not Reached
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Depth to Bedrock:	Not Reached
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Additional Notes:





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## PROFILE PIT EVALUATION REPORT - General Notes, Regulations & Limitations

### General Notes:

This report presents the data obtained pertaining to a Profile Pit Evaluation conducted at the locations indicated on the included Site Map. The purpose of this investigation was to evaluate subsurface soil-profile(s) in the area of the proposed Soil Treatment Area (STA) and to establish design criteria for an On-Site Wastewater Treatment system (OWTS).

### Board of Health Regulations & Regulation No. 43 - Engineered Systems:

At proposed soil treatment area locations where any of the following conditions are present, the system shall be designed by a professional engineer and approved by the Health Department:

1. For soil types 3A, 4, 4A, 5, R-0, R-1 and R-2, and Treatment Levels TL2, TL2N, TL3, and TL3N as specified in Tables 10-1 and 10-1A of this regulation;
2. The maximum seasonal ground water surface is less than four feet below the bottom of the proposed absorption system.
3. A restrictive layer exists less than four feet below the bottom of the proposed absorption system
4. The ground slope is in excess of thirty percent
5. Pressure distribution is used.

### Limitations:

The data presented in this report is specific to the locations of the Profile Pit locations evaluated. It must be understood and accepted that subsurface conditions can, and often do vary across any given area. These variations may not become evident until the time of system installation. If the subsurface conditions are discovered to vary anywhere across the system footprint, Parr Engineering AND the Design Engineer must be notified immediately for further evaluation. If another individual or party relies on this report, they shall indemnify and hold Parr Engineering & Consulting, Inc. harmless for any damages, losses, or expenses that may incur as a result of its use, except as allowed by law.



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## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.052

**Site Location:** Lot 3, Poenitsch Subdivision, 1st Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #1:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #2:** Not Reached

**Depth to Bedrock - Pit #1:** Not Reached  
**Depth to Bedrock - Pit #2:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 1	
<b>Latitude:</b>	39° 0'47.96"N
<b>Longitude:</b>	104°40'56.99"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 3'-0"	<b>Type 4 (LTAR=0.20)</b>
3'-0" - 7'-0"	<b>Type 3 (LTAR=0.35)</b>
-	-

Profile Pit 2	
<b>Latitude:</b>	39° 0'47.97"N
<b>Longitude:</b>	104°40'57.31"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 3'-0"	<b>Type 4 (LTAR=0.20)</b>
3'-0" - 7'-6"	<b>Type 3 (LTAR=0.35)</b>
-	-

Location	
Latitude:	Longitude:
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
Average:		N/A Min./In.

**Recommendations:** (1) An Engineered On-Site Wastewater Treatment system (OWTS) is required for this location due to:  
(a) Soil Type 4 identified in the treatment zone of Profile Pit #1 & Profile Pit #2.



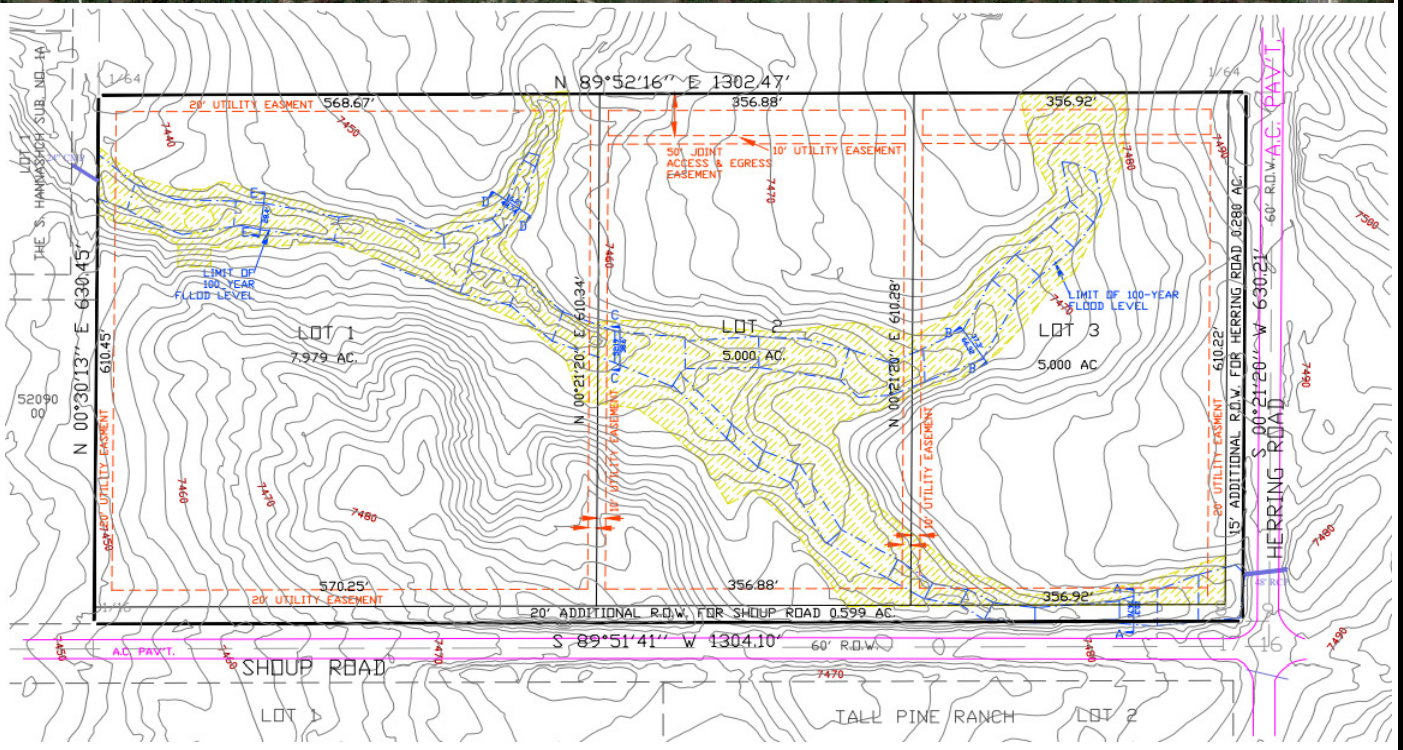


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Office: 719-494-0404 Cell: 719-659-1313

## Google Site Map







Parr Engineering & Consulting, Inc.  
11590 Black Forest Road, Suite 10  
Colorado Springs, Colorado 80908  
Phone: 719-494-0404

### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #1

Excavator:	Contractor	Total Depth:	7'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	W @ 3%
Method:	Profile Pit	Latitude:	39° 0'47.96"N
Auger & Size:	Mini Excavator	Longitude:	104°40'56.99"W

Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
2								
4		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
6								
		Total Depth= 7'-0"						
8								
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #2

Excavator:	Contractor	Total Depth:	7'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	W @ 3%
Method:	Profile Pit	Latitude:	39° 0'47.97"N
Auger & Size:	Mini Excavator	Longitude:	104°40'57.31"W

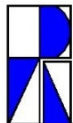
Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 1st Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
2		Sandy Clay	Granular	Strong	No	Type 4 (LTAR = 0.20) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
4		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 5/3 (Moist)
6								
8		Total Depth= 7'-6"						
10								

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:





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## PROFILE PIT EVALUATION

**Date:** February 13, 2019 **Job:** JN: 19.052

**Site Location:** Lot 3, Poenitsch Subdivision, 2nd Location,  
Colorado Springs, CO 80908

**Purpose of Investigation:** To determine general subsurface soil conditions at the site location & to formulate design criteria for the proposed On-Site Wastewater Treatment system (OWTS)

**Field Procedure:** The materials in the various strata of the soil profile pit were visually classified in accordance with the U.S. Department of Agriculture (USDA) standards.



Profile Pit	Yes
Perc Test	-

**Date: (Profile Eval)** February 7, 2019  
**Excavator** Contractor  
**Evaluator** R.J. & J.D.

**Depth to Groundwater (permanent or seasonal) Pit #3:** Not Reached  
**Depth to Groundwater (permanent or seasonal) Pit #4:** Not Reached

**Depth to Bedrock - Pit #3:** Not Reached  
**Depth to Bedrock - Pit #4:** Not Reached

**Other Terrain Features or Soil Conditions:** See Attached Site Map

**Endorsement:** Jared R. Dumke, P.E.

Profile Pit 3	
<b>Latitude:</b>	39° 0'50.09"N
<b>Longitude:</b>	104°40'55.92"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 6'-0"	<b>Type 3 (LTAR=0.35)</b>
6'-0" - 8'-6"	<b>Type 3 (LTAR=0.35)</b>
-	-

Profile Pit 4	
<b>Latitude:</b>	39° 0'49.87"N
<b>Longitude:</b>	104°40'55.94"W
<b>Layer</b>	<b>Soil Type &amp; LTAR</b>
0 - 0'-6"	Topsoil
0'-6" - 4'-6"	<b>Type 3 (LTAR=0.35)</b>
4'-6" - 9'-0"	<b>Type 3 (LTAR=0.35)</b>
-	-

Location	
Latitude:	Longitude:
-	-
-	-
-	-

Perc #1	N/A	Min./In.
Perc #2	N/A	Min./In.
Perc #3	N/A	Min./In.
Average:		N/A Min./In.

**Recommendations:** (1) A conventional, non-engineered On-Site Wastewater Treatment system (OWTS) is acceptable for this site.



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### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #3

Excavator:	Contractor	Total Depth:	8'-6"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 45° W @ 15%
Method:	Profile Pit	Latitude:	39° 0'50.09"N
Auger & Size:	Mini Excavator	Longitude:	104°40'55.92"W

Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 4/3 (Moist)
2								
4								
6		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
8								
10								
		Total Depth= 8'-6"						

Evidence of Groundwater: Not Reached

Depth to Bedrock: Not Reached

Additional Notes:



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### Profile Pit - Log

Job Number:	19.052
Date Evaluated:	02/07/19
Profile Pit#:	Pit #4

Excavator:	Contractor	Total Depth:	9'-0"
Logged By:	R.J. & J.D.	STA Slope & Direction:	N 45° W @ 15%
Method:	Profile Pit	Latitude:	39° 0'49.87"N
Auger & Size:	Mini Excavator	Longitude:	104°40'55.94"W

Depth (ft.)	Sample Interval	Lot 3, Poenitsch Subdivision, 2nd Location, 80908						
		USDA Soil Texture	USDA Soil Structure - Shape	Soil Structure Grade	Redoximorphic Features Present? (Y/N)	Soil Type (from Table 9 in O-14)	% Rock Frag.	Color
		Topsoil						
		Sandy Clay Loam	Granular	Moderate	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 4/3 (Moist)
2								
4								
		Sandy Clay Loam	Granular	Strong	No	Type 3 (LTAR = 0.35) Treatment Level 1	<35%	2.5Y 6/4 (Moist)
6								
8								
		Total Depth= 9'-0"						
10								

Evidence of Groundwater:	Not Reached
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Depth to Bedrock:	Not Reached
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Additional Notes:



# PARR ENGINEERING & CONSULTING, INC.

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## PROFILE PIT EVALUATION REPORT - General Notes, Regulations & Limitations

### General Notes:

This report presents the data obtained pertaining to a Profile Pit Evaluation conducted at the locations indicated on the included Site Map. The purpose of this investigation was to evaluate subsurface soil-profile(s) in the area of the proposed Soil Treatment Area (STA) and to establish design criteria for an On-Site Wastewater Treatment system (OWTS).

### Board of Health Regulations & Regulation No. 43 - Engineered Systems:

At proposed soil treatment area locations where any of the following conditions are present, the system shall be designed by a professional engineer and approved by the Health Department:

1. For soil types 3A, 4, 4A, 5, R-0, R-1 and R-2, and Treatment Levels TL2, TL2N, TL3, and TL3N as specified in Tables 10-1 and 10-1A of this regulation;
2. The maximum seasonal ground water surface is less than four feet below the bottom of the proposed absorption system.
3. A restrictive layer exists less than four feet below the bottom of the proposed absorption system
4. The ground slope is in excess of thirty percent
5. Pressure distribution is used.

### Limitations:

The data presented in this report is specific to the locations of the Profile Pit locations evaluated. It must be understood and accepted that subsurface conditions can, and often do vary across any given area. These variations may not become evident until the time of system installation. If the subsurface conditions are discovered to vary anywhere across the system footprint, Parr Engineering AND the Design Engineer must be notified immediately for further evaluation. If another individual or party relies on this report, they shall indemnify and hold Parr Engineering & Consulting, Inc. harmless for any damages, losses, or expenses that may incur as a result of its use, except as allowed by law.