

September 10, 2019



**ENTECH**  
ENGINEERING, INC.

505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
PHONE (719) 531-5599  
FAX (719) 531-5238

Jim Martens  
8190 Poco Road  
Colorado Springs, CO 80908

Re: Wastewater Study  
8190 Poco Road  
Parcel No. 52280-00-001  
Colorado Springs, Colorado

OWTS report needs to be updated to new standards of the LDC, here is the link with the amendments and the resolution adopting, <https://planningdevelopment.elpasoco.com/wp-content/uploads/LDC-Resolution/19-329-B-OCC-Subdivision-REGS.pdf>. The amendment went into effect September 1, 2019 and the date of payment for the project was September 16, 2019, application is subject to new standards. Among those is 2 test pits are required. See the rest of the requirements and verify conformance

Dear Mr. Martens:

The site was evaluated for individual on-site wastewater treatment systems (OWTS) under the El Paso Land Development Code. One (1) test pit was installed at the location of the test pit is indicated on Figure 1 and on the Septic Suitability Map, Figure 3. Table 2 shows the results of the test pit. The Test Pit Log is shown in Appendix A.

An existing house is located on the eastern lot with septic field and water well. Available El Paso County Health Department records for the existing septic system are included in Appendix D. These records indicate the existing field consists of a trench system installed no deeper than 18 inches.

The Natural Resource Conservation Service (Reference 1), previously the Soil Conservation Service (Reference 2) has been mapped with one soil description. The Soil Survey Map (Reference 1) is presented in Figure 2, and the Soil Survey Descriptions (Reference 2) are presented in Appendix C. The soils are described as having rapid percolation rates.

Soils encountered in the tactile test pits consisted of gravelly sandy loam overlying weathered to formational silty sandstone. The limiting layers encountered in the test pit is the silty sandstone, which corresponds with USDA Soil Type 3A with an LTAR value of 0.30 gallons per day per square foot. Weathered bedrock was encountered at approximately 3 feet in the test pit. Signs of seasonally occurring groundwater were not observed in the test pit. Absorption fields must be maintained a minimum of 4 feet above groundwater or bedrock, or confining layer. Should groundwater or bedrock be encountered within 6 feet of the surface, designed systems will be required.

In summary, it is our opinion the site is suitable for individual on-site wastewater treatment systems (OWTS) and that contamination of surface and subsurface water resources should not occur provided the OWTS sites are evaluated and installed according to El Paso County and State Guidelines and properly maintained. Based on the testing performed designed systems will be required for the new lot. The Septic Suitability Map is presented in Figure 3. Individual soil testing is required for proposed construction on each lot prior to construction. Absorption fields must be located a minimum of 100 feet from any well, including those on adjacent properties. Absorption fields must also be located a minimum of 50 feet from any drainages, floodplains or ponded areas and 25 feet from dry gulches.

Jim Martens  
Wastewater Study  
8190 Poco Road  
Parcel No. 52280-00-001

This report has been prepared for Jim Martens, for application to the proposed project in accordance with generally accepted geologic soil and engineering practices. No other warranty expressed or implied is made.

We trust that this report has provided you with all the information that you required. Should you require additional information, please do not hesitate to contact Entech Engineering, Inc.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

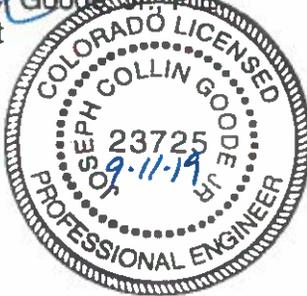
Reviewed by:



Logan L. Langford, P.G.  
Geologist



Joseph C. Goode, P.E.  
President



LLL/III

Encl.

Entech Job No. 190411  
AAprojects/2019/190411 wws

## BIBLIOGRAPHY

1. Natural Resource Conservation *Service*, September 23, 2016. *Web Soil Survey*. United States Department Agriculture, <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
2. United States Department of Agriculture Soil Conservation Service. June 1981. *Soil Survey of El Paso County Area, Colorado*.

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## TABLES

**TABLE 1**  
**SUMMARY OF LABORATORY TEST RESULTS**

CLIENT JIM MARTENS  
 PROJECT 8190 POCO ROAD  
 JOB NO. 190411

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/CONSOL (%)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION
1	TP-1	0-2			25.4						SM	SAND, SILTY
2	TP-1	5-6			29.3	NV	NP		280		SM	WX SANDSTONE, SILTY

**Table 2: Summary Tactile Test Pit Results**

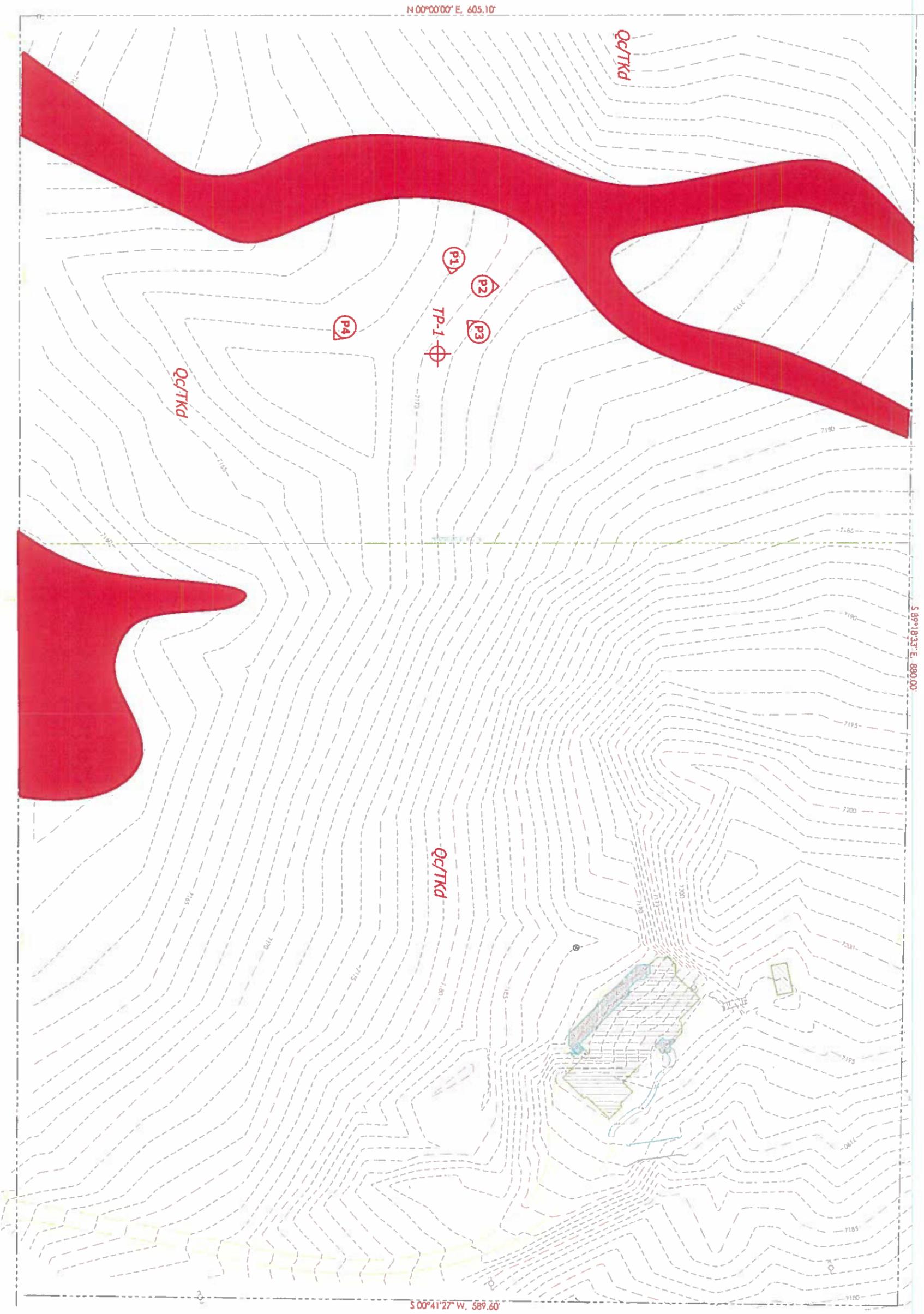
<b>Test Pit No.</b>	<b>USDA Soil Type</b>	<b>LTAR Value</b>	<b>Depth to Bedrock (ft.)</b>	<b>Depth to Seasonally Occurring Groundwater (ft.)</b>
1	3A*	0.30*	3*	N/A

\*- Conditions that will require an engineered OWTS

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## FIGURES

 approximate test pit location and number  
 approximate photograph location and number



S 89°18'33" E, 880.00'



DATE	5/24/19
CHECKED	AS SHOWN
SCALE	AS SHOWN
BY	100411
DATE	7/22/19
BY	1

**SITE PLAN/TEST PIT LOCATION MAP**  
 8190 POCO ROAD  
 COLORADO SPRINGS, CO.  
 FOR: JIM MARTENS



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**ENTECH**  
**ENGINEERING, INC.**  
 565 ELKTON DRIVE  
 COLORADO SPRINGS, CO. 80917 (719) 531-3399

**SOIL SURVEY MAP**  
**8190 POCO ROAD**  
**COLORADO SPRINGS, CO.**  
**FOR: JIM MARTENS**

DRAWN:  
**LLL**

DATE:  
**5/24/19**

CHECKED:

DATE:

JOB NO.:  
**190411**

FIG NO.:  
**2**

All lots require 2 locations, please indicate 2 locations on the site with the existing structure.

N 00°00'00" E, 605.10'



S 89°18'33" E, 880.00'

**LEGEND:**



- POSSIBLE OWTs LOCATIONS



- POSSIBLE OWTs ALTERNATE LOCATIONS



- POSSIBLE HOUSE LOCATIONS



- AREAS WHERE OWTs ARE NOT RECOMMENDED

W

\*- WATER WELLS MUST BE A MINIMUM OF 100 FT FROM OWTs ABSORPTION FIELDS



S 00°41'27" W, 589.60'

DATE	7/19/17
BY	AS SHOWN
APP'D	170637
SCALE	AS SHOWN
3	

SEPTIC SUITABILITY MAP  
 ROLLIN RIDGE ESTATES  
 HODGEN ROAD AND HIGHWAY 83  
 EL PASO COUNTY, CO.  
 FOR: CARL TURSE

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 505 ELKTON DRIVE  
 COLORADO SPRINGS, CO. 80907 (719) 531-5599

REVISION	BY

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## **APPENDIX A: Test Pit Logs**

TEST PIT NO. 1  
 DATE EXCAVATED 4/23/2019  
 Job # 190411

CLIENT LOCATION  
 JIM MARTENS  
 8190 POCO ROAD

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
topsoil sandy loam, brown	1	*						1					
gravelly sandy loam, fine to coarse grained, light brown	2			gr	m	2		2					
weathered to formational silty sandstone, fine to coarse grained, tan	3			ma		3A		3					
	4							4					
	5							5					
	6							6					
	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape

- granular - gr
- platy - pl
- blocky - bl
- prismatic - pr
- single grain - sg
- massive - ma

Soil Structure Grade

- weak - w
- moderate - m
- strong - s
- loose - l



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505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

**TEST PIT LOG**

DRAWN:

DATE

CHECKED:

DATE

L.L.L.

5/11/19

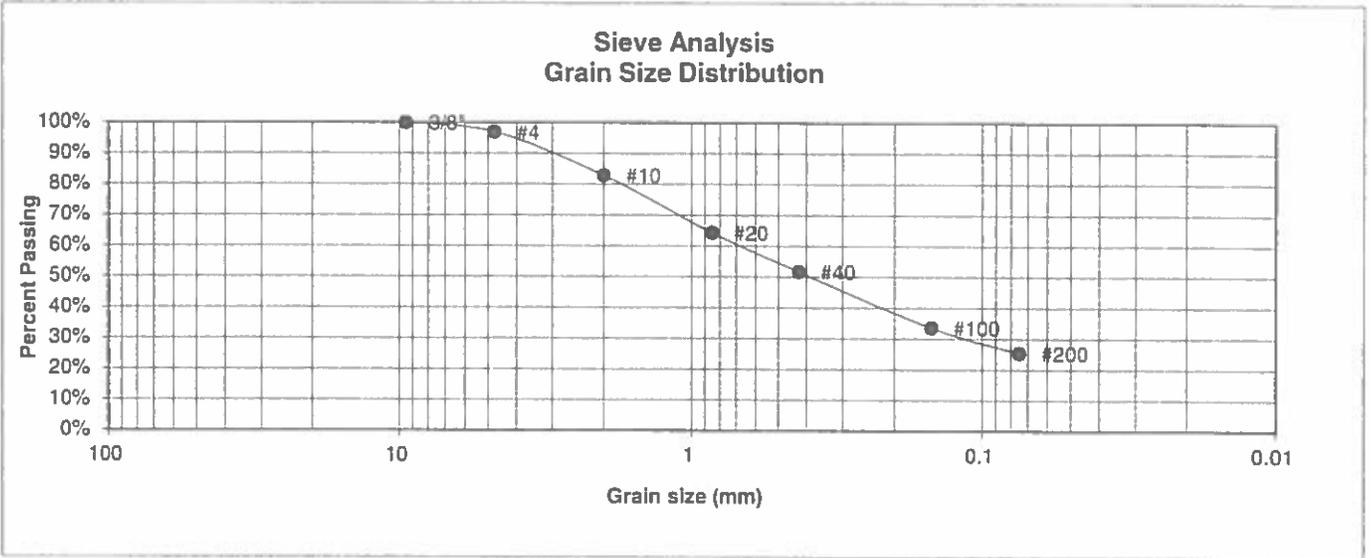
JOB NO:  
190411

FIG NO:  
A-1

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## **APPENDIX B: Laboratory Test Results**

BORING NO.	TP-1	UNIFIED CLASSIFICATION	SM	TEST BY	BL
DEPTH(ft)	0-2	AASHTO CLASSIFICATION		JOB NO.	190411
CLIENT	JIM MARTENS				
PROJECT	8190 POCO ROAD				



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.9%
10	82.9%
20	64.3%
40	51.7%
100	33.6%
200	25.4%

Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



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505 ELKTON DRIVE  
COLORADO SPRINGS, COLORADO 80907

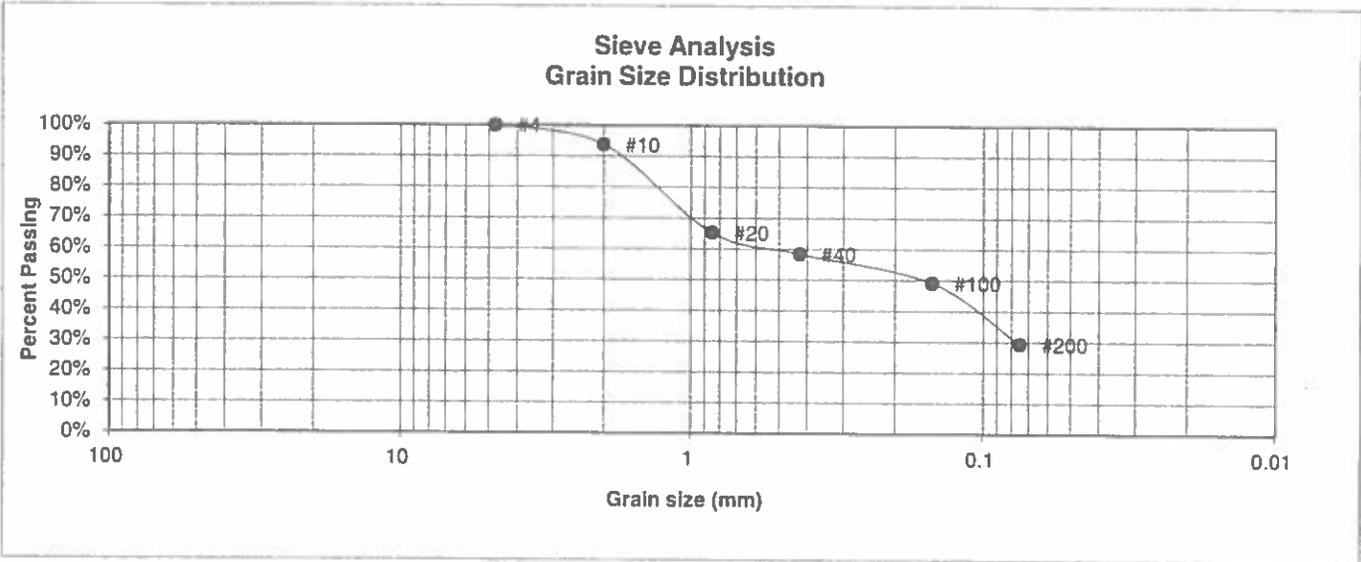
**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED:	DATE:
		LL	5/18/19

JOB NO.  
190411

FIG NO.  
B-1

BORING NO.	TP-1	UNIFIED CLASSIFICATION	SM	TEST BY	BL
DEPTH(ft)	5-6	AASHTO CLASSIFICATION		JOB NO.	190411
CLIENT	JIM MARTENS				
PROJECT	8190 POCO ROAD				



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	93.8%
20	65.3%
40	58.4%
100	49.2%
200	29.3%

**Atterberg Limits**

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

**Swell**

Moisture at start	13.0%
Moisture at finish	24.2%
Moisture increase	11.2%
Initial dry density (pcf)	93
Swell (psf)	280



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505 ELKTON DRIVE  
COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED:	DATE:
		LLL	5/16/19

JOB NO:  
190411  
FIG NO:  
B-2

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## **APPENDIX C: Soil Survey Descriptions**

71—Pring coarse sandy loam, 3 to 8 percent slopes. This deep, noncalcareous, well drained soil formed in sandy sediment derived from arkosic sedimentary rock on valley side slopes and on uplands. Elevation ranges from 6,800 to 7,600 feet. The average annual precipitation is about 17 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is about 120 days.

Typically, the surface layer is dark grayish brown coarse sandy loam about 4 inches thick. The substratum is dark grayish brown coarse sandy loam about 10 inches thick over pale brown gravelly sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Alamosa loam, 1 to 3 percent slopes, along drainageways; Cruckton sandy loam, 1 to 9 percent slopes; Peyton sandy loam, 1 to 5 percent slopes; Peyton sandy loam, 5 to 9 percent slopes; and Tomah-Crowfoot loamy sands, 3 to 8 percent slopes. In some places arkose beds of sandstone and shale are at a depth of 0 to 40 inches.

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

Almost all areas of this soil are used as rangeland. Some areas previously cultivated have been reseeded to grass. This soil is also used for wildlife habitat and homesites.

This soil is well suited to the production of native vegetation suitable for grazing by cattle and sheep. Rangeland vegetation is mainly mountain muhly, little bluestem, needleandthread, Parry oatgrass, and junegrass.

Deferment of grazing in spring helps to maintain vigor and production of the cool-season bunchgrasses. Fencing and properly locating livestock watering facilities help to control grazing.

Windbreaks and environmental plantings generally are suited to this soil. The hazard of soil blowing is the main limitation to the establishment of trees and shrubs. This limitation can be overcome by cultivating only in the tree rows and leaving a strip of vegetation between the rows. Supplemental irrigation may be needed when planting and during dry periods. Trees that are best suited and have good survival are Rocky Mountain juniper, eastern redcedar, ponderosa pine, Siberian elm, Russian-olive, and hackberry. Shrubs that are best suited are skunkbush sumac, lilac, and Siberian peashrub.

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

This soil is well suited for use as homesites. Erosion control practices are needed to control soil blowing and water erosion on construction sites where the ground cover has been removed. Capability subclass IVe.



**ENTECH**  
ENGINEERING, INC.

SCS SOIL DESCRIPTION

Drawn	Date	Checked	Date
		LLL	5/24/19

Job No.

190911

Fig. No.

6-1

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**APPENDIX D: El Paso County Health Department  
Septic Records**

APPROVED: YES  NO  #5228000011

ENVIRONMENTALIST J. CHRISTENSEN

Address 8190 POCO ROAD

Owner JIM AND KAREN MARTENS

Legal Description W 2/3, S2, SE4, NW4 SEC: 28-12-65

Residence , # of bedrooms 4; Commercial ; System Installer KUNAU

SEPTIC TANK:

Commercial ; Noncommercial , L , W , WD   
Construction Material CONCRETE, capacity 1500 gallons.

DISPOSAL FIELD:

Rock Systems:

Trench: depth , width , total length , sq. feet

Bed: depth , length , width , sq. feet

Rock type , depth , under PVC , over PVC

Seepage Pits: # of pits , total # of rings , working depth(s)   
size of pit(s) L X W , lining material , total sq. feet

Rockless Systems:

Chamber: Type INFILTRATOR, number of chambers 39, bed , trench   
sq. ft./section 15.5, reduction allowed 40%, sq. ft. required 998  
total sq. ft. installed 1008, depth of installation 12"-17"

Engineer Design Y or (N), Designing Engineer

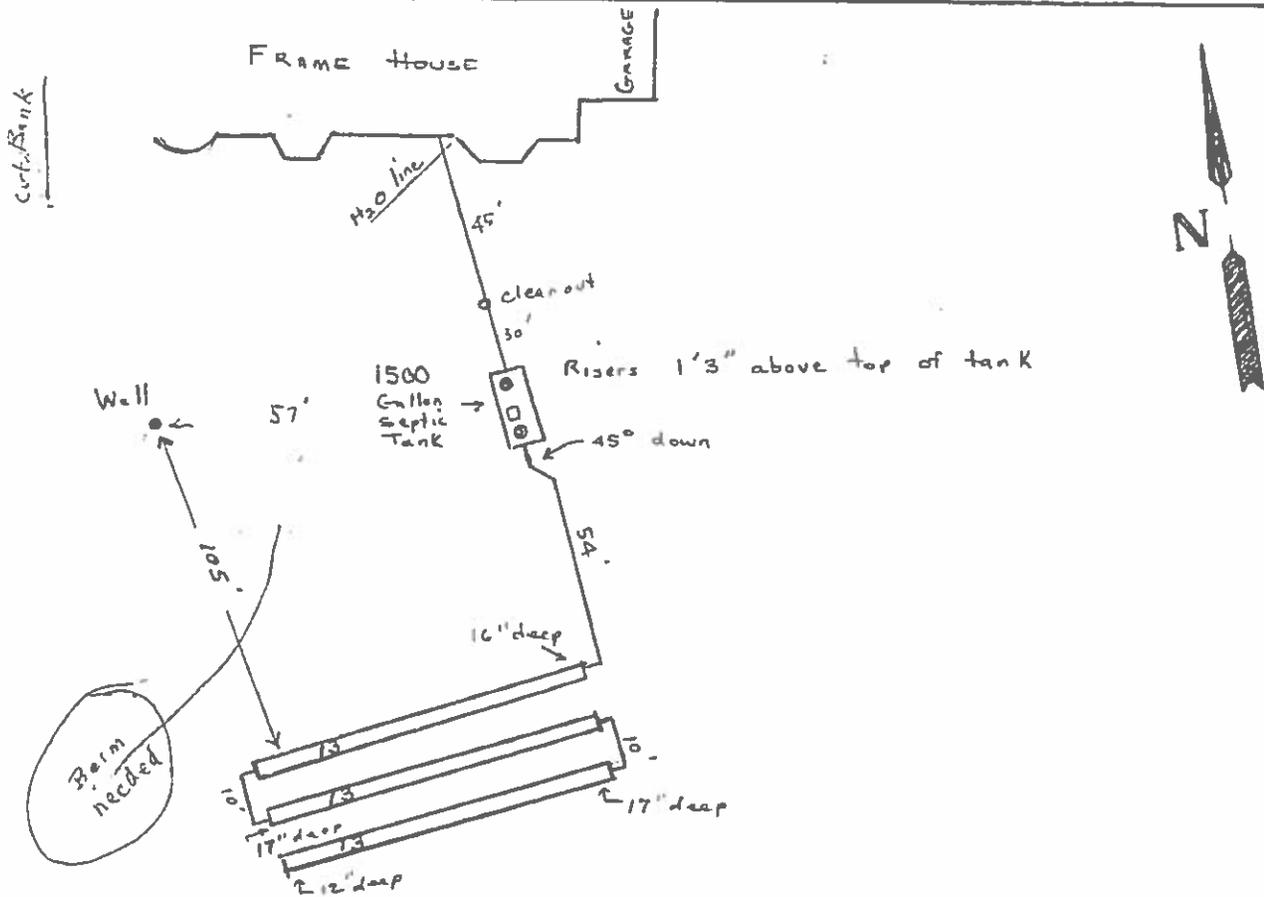
Approval letter provided? Y or (N)

Well 50 feet from tank Y or N 100 feet from leach field Y or N

Well installed at time of septic system inspection (Y) or N Public Water

\*Approval will be revoked if in the future the well is found to be within 50 feet of the septic tank and/or 100 feet of the disposal field.

NOTES: 6" schedule 40 pipe sleeved over 4" SD13 35 sewer pipe from building sewer to septic tank inlet. 05/20/99 Field is backfilled. Builders have left water running & runoff has eroded & exposed chamber in first trench. Need to divert H2O around field.



Poco Rd ↓

Acres 1.2 **EL PASO COUNTY • DEPARTMENT OF HEALTH AND ENVIRONMENT**  
 Water Supply WELL 301 South Union Blvd. • Colorado Springs, Colorado • 578-3125  
 Permit \_\_\_\_\_

**PERMIT**  
**TO CONSTRUCT, ALTER, REPAIR OR MODIFY ANY INDIVIDUAL SEWAGE DISPOSAL SYSTEM**

Issued to J.C. AND KAREN HARTZELS Date 11-30-93  
 Receipt No. 11-30-93

Address of Property 0120 POCO ROAD, W. 1/2, SEC. 13, T.34, SEC. 26-12-65 Phone 599-8091  
 (Permit valid at this address only)

Sewage-Disposal System work to be performed by KUNAU Phone 683-3720  
 This Permit is issued in accordance with 25-10-106 Colorado Revised Statutes 1973, as amended. PERMIT EXPIRES upon completion of 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). This permit is revokable if all stated requirements are not met.

**- THIS PERMIT DOES NOT DENOTE APPROVAL OF ZONING AND ACREAGE REQUIREMENTS -**

Steve J. Enslin, MD  
 DIRECTOR, DEPARTMENT OF HEALTH AND ENVIRONMENT

PERMIT FEE (NOT REFUNDABLE) \$245.00

DATE OF EXPIRATION 11-30-99 David Christie 578-3141  
 ENVIRONMENTALIST

NOTE: LEAVE ENTIRE SEWAGE-DISPOSAL SYSTEM UNCOVERED FOR FINAL INSPECTION. 48 HOUR ADVANCE NOTICE REQUIRED.	
SEPTIC TANK:	BED SYSTEM: SEE PAGE PIT SYSTEM:
1500 gallons	total square feet _____
_____ ft. of trench _____ inches wide	_____ rings or _____ diam. x _____ w/d
_____ ft. of trench _____ inches wide	total square feet _____

NOTES: 1. INSTALL ABSORPTION SYSTEM IN THE AREA OF THE PERCOLATION TEST. ABSORPTION AREA SHALL BE NO DEEPER THAN 18 INCHES BELOW THE EXISTING GROUND SURFACE.

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.

EL PASO COUNTY ENVIRONMENTAL HEALTH SERVICES  
301 South Union Boulevard Colorado Springs, CO 80910-3123

APPLICATION FOR A NEW, REMODEL, REPAIR, OR ADDITION  
TO AN INDIVIDUAL SEWAGE DISPOSAL SYSTEM

mark Lindt  
495-4705

Owner Jim & Karen Martens Phone 599-8091  
Address of Property 8190 Dco Road 80908 Lot Size 12 AC Water Supply Well  
Tax Sch # 52280-00-011 Septic Contractor & Phone # \_\_\_\_\_  
Legal Description W 1/3 of S2, SE4, NW4, Sec 28-12-65  
Type of Building frame Single Family Home Owner's Mailing Address 4910 Ramble Wood 80920

MAXIMUM POTENTIAL BEDROOMS 4  
Basement  N Percolation Test Attached  N Garbage Disposal  N Clothes Washer  N

I have supplied a plot plan as described on the back of this form. I acknowledge the completeness of the application is conditional upon such further mandatory and additional tests and reports as may be required by the Department to be made and furnished by a applicant for purposes of evaluating the application, and issuance of the permit is subject to such terms and conditions as deemed necessary to ensure compliance with rules and regulations adopted pursuant to C.R.S. 10-25-101 et. seq. I hereby certify all represented to be true and correct to the best of my knowledge and belief, and are designed to be relied on by the El Paso County Department of Health and Environment in evaluating the same for purposes of issuing the permit applied for herein. I further understand any falsification or misrepresentation may result in the denial of the application or revocation of any permit granted based upon said application and in legal action for perjury as provided by law.

OWNER'S SIGNATURE Jim Martens Date 11/17/98

DEPARTMENT OF HEALTH USE ONLY		
Absorption Area	Tank Capacity	Date of Site Inspection
<u>998 ft<sup>2</sup></u>	<u>1500 GALLONS</u>	<u>11/19/98</u>
REMARKS:		
<u>Install absorption system in the area of the percolation test. Absorption area shall be no deeper than 18 inches below the existing ground surface.</u>		
EHS INSPECTOR	Date	APPROVED / DENIED
<u>Just Christensen</u>	<u>11/19/98</u>	<input checked="" type="radio"/> APPROVED <input type="radio"/> DENIED
PERMIT #	FEE / NO FEE	DATE TO EPC PLANNING DEPT
<u>12908</u>	<input checked="" type="radio"/> FEE <input type="radio"/> NO FEE	<u>11-19-98</u>
<u>pd 12-1-98</u>		
<u>check 1100</u>		
<u>attached (K)</u>		

We require the ORIGINAL of your percolation (PERC) TEST.  
 The following information must be on your PLOT PLAN.

- Property lines
- Proposed septic system site
- Well(s)
- Building(s)
- Water line
- Subsoil drain(s)

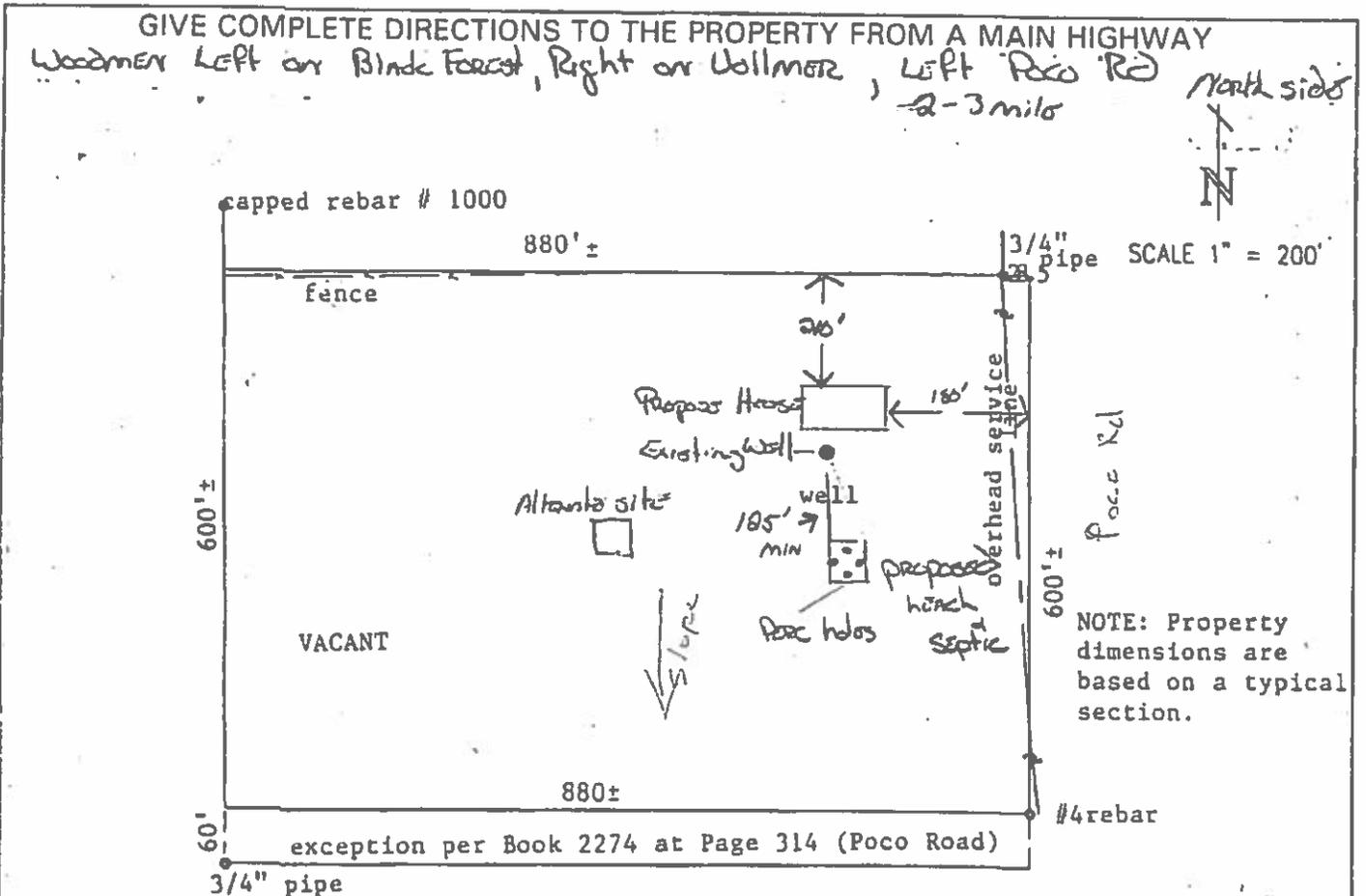
- Property dimensions
- Designated alternate septic system site
- Adjacent property well(s)
- Proposed building(s)
- Cistern

If any of these are within 100 feet of your proposed septic system include on your plot plan

- Spring(s)
- Pond(s)
- Dry Gulch(s)

- Lake(s)
- Stream(s)
- Natural drainage course(s)

PROPERTY AND PERC HOLES MUST BE CLEARLY MARKED OR POSTED



**LEGAL DESCRIPTION**

The West two-thirds (2/3) of the South half of the Southeast Quarter of the Northwest Quarter of Section 28 in Township 12 South Range 65 West of the 6th P.M., except the South 60 feet thereof conveyed to El Paso County for road purposes by Deed recorded in Book 2274 at Page 314, El Paso County, Colorado.

# OWTS\_V1.pdf Markup Summary

Locked (2)

All lots require 2 locations, please indicate 2 locations on the site with the existing structure.

**Subject:** Text Box  
**Page Label:** 10  
**Lock:** Locked  
**Author:** dsdsevigny  
**Date:** 10/8/2019 3:52:45 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

All lots require 2 locations, please indicate 2 locations on the site with the existing structure.

OWTS report needs to be updated to new standards of the LDC, here is the link with the amendments and the resolution adopting: <https://planningdevelopment.elpasoco.com/wp-content/uploads/LDC-Resolution/19-329-BOCC-Subdivision-REGS.pdf>. The amendment goes into effect September 1, 2019 and the date of payment for the project was September 16, 2019, application is subject to new standards. Among those is 2 test pits are required. See the rest of the requirements and verify conformance.

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**Space:**

OWTS report needs to be updated to new standards of the LDC, here is the link with the amendments and the resolution adopting, <https://planningdevelopment.elpasoco.com/wp-content/uploads/LDC-Resolution/19-329-BOCC-Subdivision-REGS.pdf>. The amendment went into effect September 1, 2019 and the date of payment for the project was September 16, 2019, application is subject to new standards. Among those is 2 test pits are required. See the rest of the requirements and verify conformance