

April 15, 2019

Land Development Consultants, Inc.  
3898 Maizeland Road  
Colorado Springs, CO 80909



**ENTECH**  
ENGINEERING, INC.

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

Attn: Dave Hostetler

Re: OWTS Site Evaluation  
1755 East Las Vegas Street  
Colorado Springs, Colorado

Dear Mr. Hostetler:

As requested, personnel of Entech Engineering, Inc. have observed the excavation of two test pits in the area of the proposed on-site wastewater treatment system (OWTS) absorption field location at the above referenced site. This letter presents the results of our testing.

The test pits were excavated on March 26, 2019 to approximate depths of 8 feet. Soils encountered in the test pits consisted of sandy to very sandy clay and gravelly sandy loam. The Test Pit Location Map, Test Pit Logs and Laboratory Test Results are shown in Figures 1 through 4. Bedrock or signs of seasonally occurring groundwater were not observed in the test pits.

Visual and tactile evaluation of the soils was performed. The limiting layer encountered in the test pits is the sandy to very sandy clay, which classified as USDA Soil Type 4A. For design purposes a LTAR Value of 0.15 gallons per day per square foot is recommended, for Treatment Level 1. Due to the commercial use an engineered system will be required. Penetration or removal of the clay soils should be considered for the design of the system. The septic tank and absorption field should be installed in accordance with El Paso County Health Department regulations.

We trust that this has provided you with the information you required. If you have any questions or need additional information, please do not hesitate to contact us.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Logan L. Langford, P.G.  
Geologist

LLL/rm

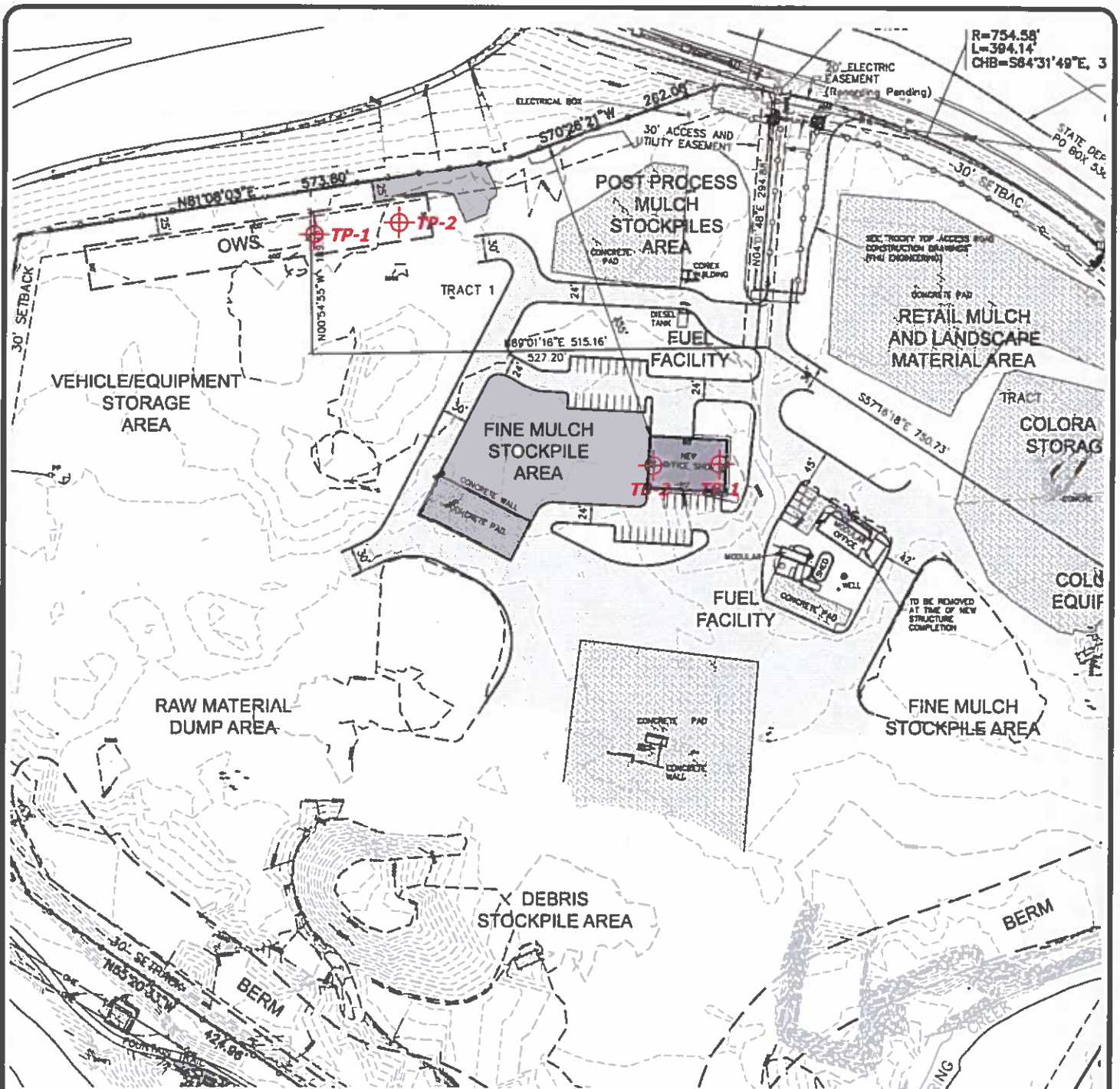
Encl.

Entech Job No. 190395  
AA projects/2019/190395 owts site eval

Reviewed by:

Joseph C. Goode, Jr., P.E.  
President





R=754.58'  
L=384.14'  
CHB=584'31'49"E, 3



**TP- APPROXIMATE TEST PIT LOCATION AND NUMBER**



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505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907 (719) 531-3399

TEST PIT LOCATION MAP  
1755 EAST LAS VEGAS STREET  
COLORADO SPRINGS, COLORADO  
FOR: LAND DEVELOPMENT CONSULTANTS, INC.

JOB NO.:  
190395

FIG NO.:  
1

DRAWN:  
LLL





















DATE:  
4/4/19

CHECKED:

DATE:

TEST PIT NO. 1  
 DATE EXCAVATED 3/26/2019  
 Job # 190395

TEST PIT NO. 2  
 DATE EXCAVATED 3/26/2019  
 CLIENT LAND DEV. CONSULTANTS  
 LOCATION 1755 E. LAS VEGAS ST.

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
sandy to very sandy clay, dark brown	1			gr	w	4A	sandy to very sandy clay, dark brown	1			gr	w	4A
	2							2					
	3							3					
gravelly sandy loam, fine to coarse grained, tan	4			gr	w	2A	gravelly sandy loam, fine to coarse grained, tan	4			gr	w	2A
	5							5					
	6							6					
sandy clay, light brown	7			gr	w	4A		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



**ENTECH**  
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505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

DRAWN:

DATE:

CHECKED:  
*LLC*

DATE:  
*4/11/19*

JOB NO.:

*190395*

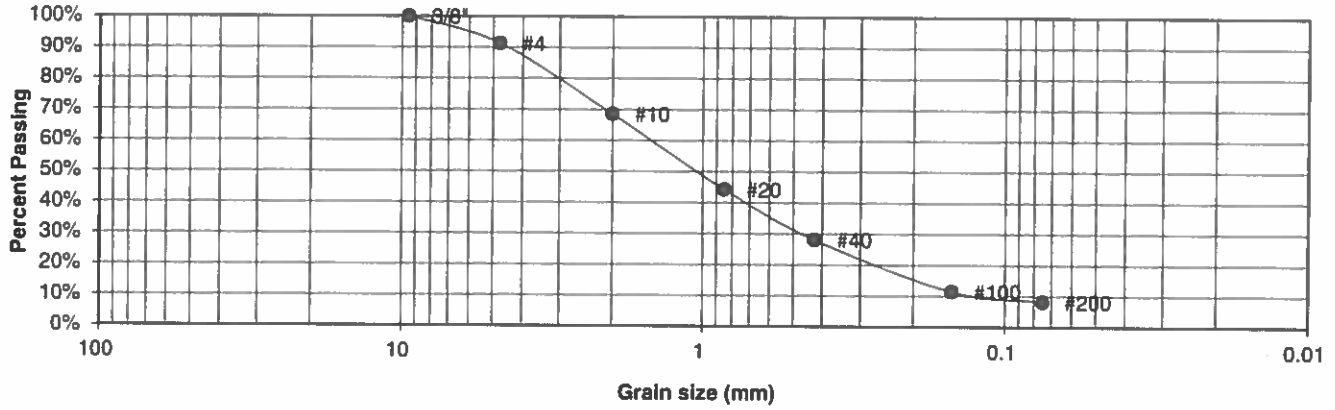
FIG NO.:

*2*

**UNIFIED CLASSIFICATION** SM-SW  
**SOIL TYPE #** 1  
**TEST BORING #** TP-1  
**DEPTH (FT)** 5-6

**CLIENT** LAND DEV. CONSULTANTS  
**PROJECT** 1755 E. LAS VEGAS ST.  
**JOB NO.** 190395  
**TEST BY** BL

**Sieve Analysis  
Grain Size Distribution**



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	91.3%
10	68.5%
20	44.3%
40	28.1%
100	11.5%
200	8.2%

**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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 COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST  
RESULTS**

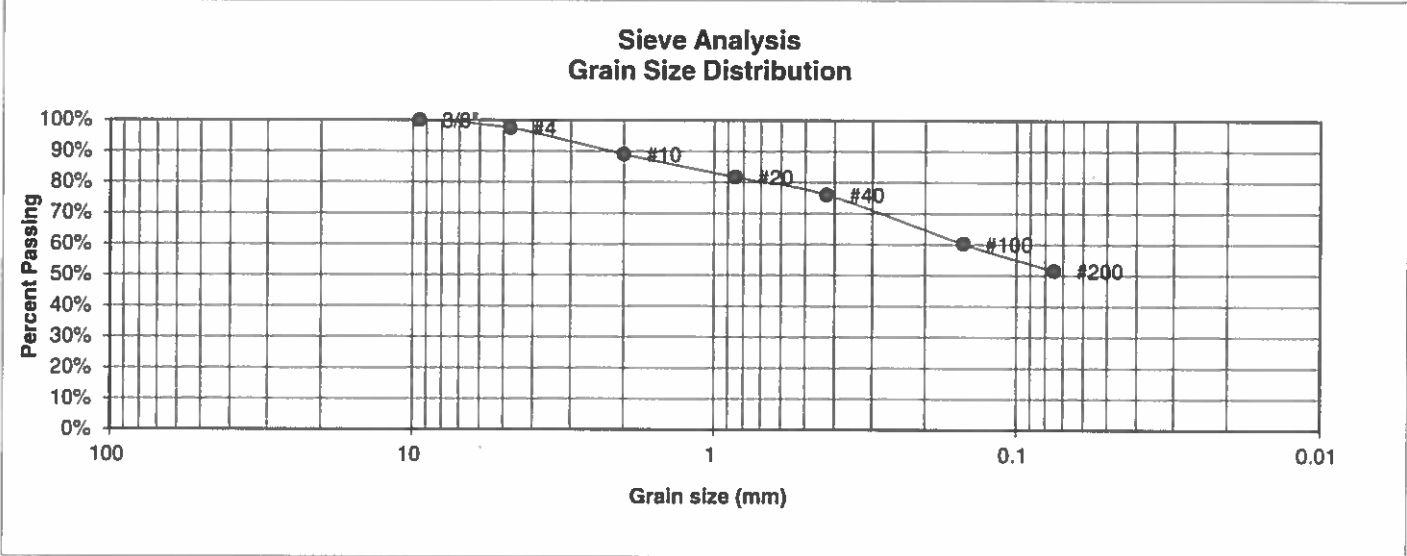
DRAWN:	DATE	CHECKED: LLL	DATE: 4/4/19
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JOB NO.:  
190395

FIG NO.:

3

<b>UNIFIED CLASSIFICATION</b>	CL	<b>CLIENT</b>	LAND DEV. CONSULTANTS
<b>SOIL TYPE #</b>	2	<b>PROJECT</b>	1755 E. LAS VEGAS ST.
<b>TEST BORING #</b>	TP-2	<b>JOB NO.</b>	190395
<b>DEPTH (FT)</b>	2-3	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	97.5%
10	89.0%
20	81.7%
40	76.0%
100	60.2%
200	51.5%

**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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**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED: LLL	DATE 4/4/19
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JOB NO.:  
190395

FIG NO.:

4