



ENTECH
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**WASTEWATER STUDY
ASPEN WILLOW SUBDIVISION
PARCEL NO. 61000-00-298
1480 E. HIGBY ROAD
EL PASO COUNTY, COLORADO**



Prepared for:
Charles Woodall
1480 E. Higby Road
Monument, Colorado 80132

August 21, 2026

PCD No.

Entech Job No. 261137

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1 SUMMARY

Project Location

The project site is located within the SE¼ of Section 20, Township 11 South, Range 66 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located approximately 2 miles east of the town of Monument, Colorado at the southeastern corner of Highby Road and Happy Landing Drive in El Paso County, Colorado. The location of the site is as shown in the Vicinity Map (Figure 1).

Project Description

A four-lot rural residential subdivision is proposed for the 35-acre parcel. An existing equine hospital is located on the property and will remain on proposed Lot 1 with plans for a future residence in the southwestern portion the lot. Lots 2 through 4 will be located on the eastern half of the site. The lots will be five (5) to twenty (20) acres and will be serviced by individual water wells and on-site wastewater treatment systems (OWTS).

Scope of Report

This report presents the results of our geologic evaluation and treatment of engineering geologic hazard study with respect to OWTS proposed for the subdivision.

Land Use and Engineering Geology

This site was found to be suitable for the proposed development; however, geologic conditions in certain areas will impose some minor constraints on development and land use. These include areas of artificial fill, potentially collapsible soils, potentially expansive soils, potential seasonally shallow groundwater areas, and the potential for elevated radon levels. These conditions are discussed in greater detail in this report.

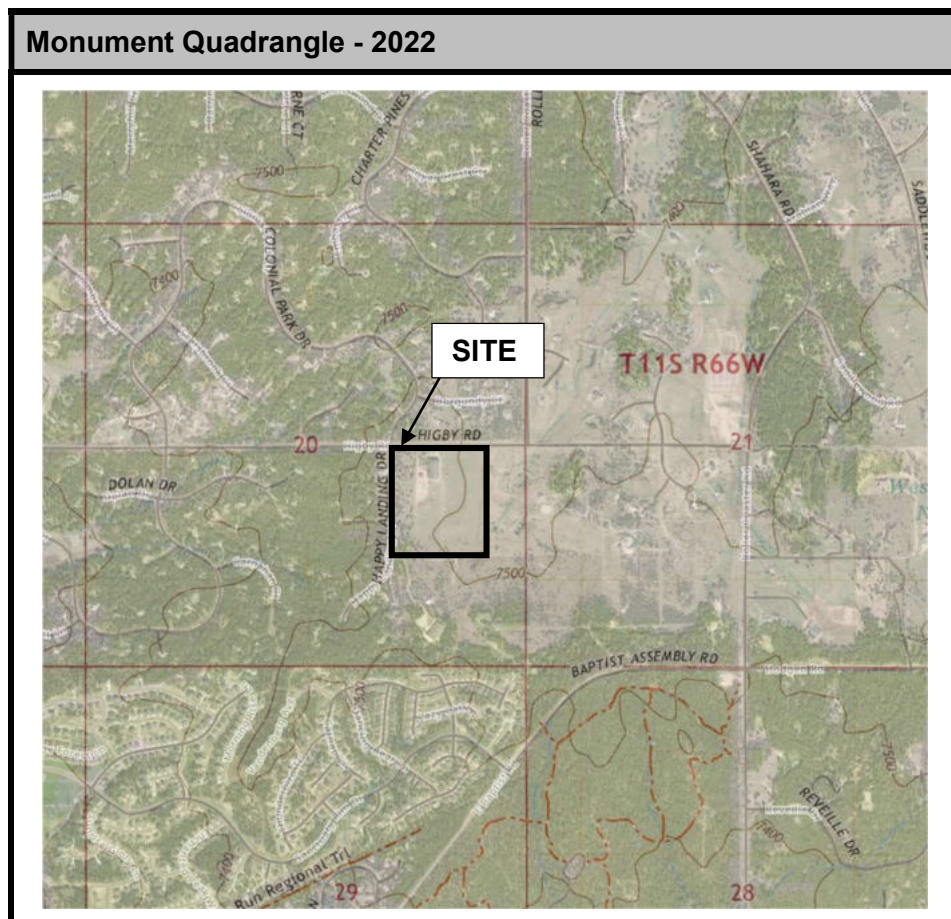
In general, it is our opinion that the development can be achieved if the observed geologic conditions on site are either properly mitigated or avoided. All recommendations are subject to the limitations discussed in the report.

2 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The topography of the site is generally gradually to moderately sloping to the east, with two minor drainage swales in the northern and southern portions of the site. The drainage swales were dry at the time of our site observations. A tributary of West Cherry Creek is located northeast of the site. The site boundaries are indicated in the USGS Map (Exhibit 1). Previous land uses have included agricultural grazing and an existing equine hospital. Vegetation observed on the site includes field grasses, weeds, and Ponderosa Pines primarily in the western portion of the site. Site photographs are included in Appendix A.

The project consists subdividing of the 35-acres into four rural residential lots. The lots will be five (5) to twenty (20) acres and will be serviced by individual water wells and OTWS. The proposed lot configuration is shown in the Site and Exploration Plan (Figure 2). Grading plans were not available at the time of this investigation, however, grading is anticipated to be minimal, and limited to road grading associated with private access driveways.

Exhibit 1: USGS Topography Map



3 SCOPE OF THE REPORT

The scope of this report includes a general geologic analysis utilizing published geologic data. Detailed site-specific mapping was conducted to obtain general information with respect to major geographic and geologic features, geologic descriptions, and their effects on the development of the property in accordance with the El Paso Land Development Code.

4 FIELD INVESTIGATION

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The site was also evaluated using the Web Soil Survey from the Natural Resource Conservation Service (NRCS), formerly known as the Soil Conservation Service (SCS). The position of mappable units within the subject property is shown on the Geologic Map. Our mapping procedures involved both field reconnaissance and measurements and air photo reconnaissance and interpretation. The same mapping procedures have also been utilized to produce the Geology/Engineering Geology Map, which identified pertinent geologic conditions affecting development. The field mapping was performed by personnel of Entech on June 10, 2026. Site photographs are included in Appendix A.

Three (3) test borings were drilled and three (3) tactile test pits were excavated on the site to evaluate the soil conditions and to determine the classification and engineering characteristics of the soils. The borings were drilled to depths of 20 feet using a truck-mounted, continuous flight auger drilling rig supplied and operated by Entech. The test pits were excavated with a mini-excavator operated by Entech to depths of 8 feet.

The locations of the test boring and test pits are indicated on the Site and Exploration Plan (Figure 2). The Test Boring and Test Pit Logs are included in Appendix B, and Laboratory Test Results are included in Appendix C. The results of the testing will be discussed later in this report.

Laboratory testing was performed to classify and determine the engineering characteristics of the soils. Laboratory tests included moisture content testing (ASTM D2216), grain-size analysis (ASTM D6913), and Atterberg Limits testing (ASTM D4318). Results of the laboratory testing are included in Appendix C.

4.1 Previous Investigations

Information from the following reports were used in evaluating the site, 1) Entech, *Soils, Geology, Geologic Hazard, and Wastewater Study, JT Ranch*, (Reference 2), and 2) the Entech, *Soils, Geology, Geologic Hazard, and Wastewater Study, Happy Landing Estates Filing No. 1* (Reference 3).

5 SOIL, GEOLOGY, AND ENGINEERING GEOLOGY

5.1 General Geology

The site lies in the western portion of the Great Plains Physiographic Province along the Palmer Divide. A major structural feature known as the Rampart Range Fault lies approximately 6 miles to the west. This fault marks the boundary between the Great Plains Physiographic Province and the Southern Rocky Mountain Province. The site exists within the southwestern edge of a large structural feature known as the Denver Basin. Bedrock in the area tends to be very gently dipping in a northeasterly direction (Reference 1). The rocks in the area of the site are sedimentary in nature and typically Tertiary to Cretaceous in age. The bedrock underlying the site consists of the Dawson Arkose Formation of Tertiary to Cretaceous Age. Overlying this formation are unconsolidated deposits of alluvium, colluvium, sheetwash, and residual soils of Quaternary Age. The alluvial deposits consist of water deposited sands and gravels, and the residual soils are produced by the in-situ action of weathering of the bedrock on site. Some colluvial soils deposited by gravity and sheetwash exist. The site's stratigraphy will be discussed in more detail in Section 5.3.

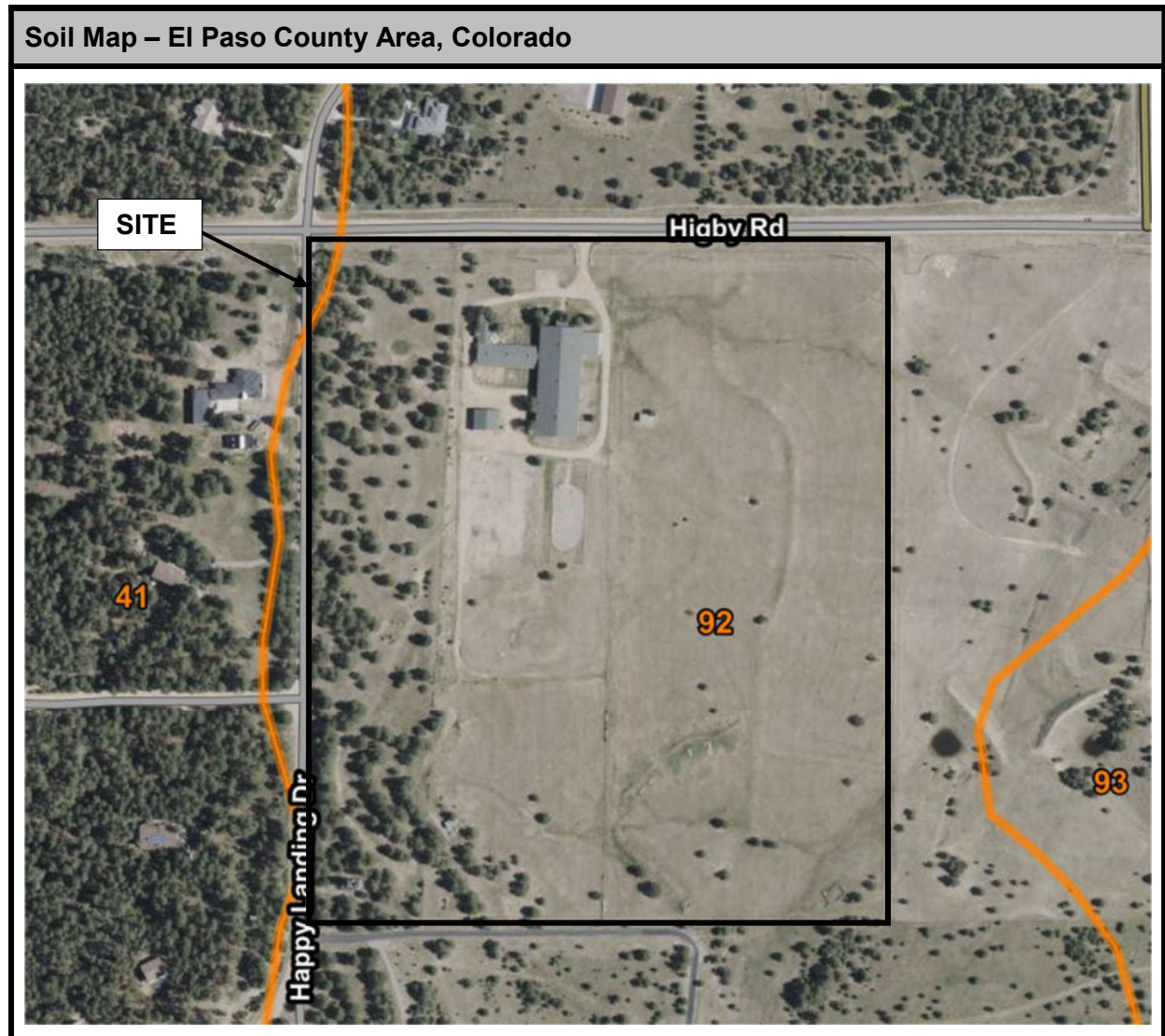
5.2 Soil Conservation Survey

The Natural Resource Conservation Service (Reference 4), previously the Soil Conservation Service (Reference 5), has mapped two soil types on the site. In general, they are gravelly loamy sands to loamy sands. The soils are described in Exhibit 2, and shown in Exhibit 3.

Exhibit 2: Soil Survey Description

Type	Description
41	Kettle gravelly loamy sand, 8 to 40% slopes
92	Tomah-Crowfoot loamy sands, 3 to 8% slopes

Exhibit 3: USDA – Web Soil Survey



Complete descriptions of each soil type are presented in Appendix D. The soils have generally been described as having moderately high to high permeabilities. Limitations on development include limited ability to support a load, shrink-swell potential, and frost action potential. Possible hazards with soil erosion are present on the site. The erosion potential can be controlled with vegetation. The soils have been described to have moderate erosion hazards.

5.3 Site Stratigraphy

The Geologic Map of the Monument Quadrangle showing the site is presented in Exhibit 4 below (Reference 6). The Geology/Engineering Geology Map prepared for the site is presented in Figure 4. Three mappable units were identified on this site that are described as follows:

Qaf Artificial Fill of Holocene Age: These are man-made fill deposits associated with erosion berms and earthen dams on-site.

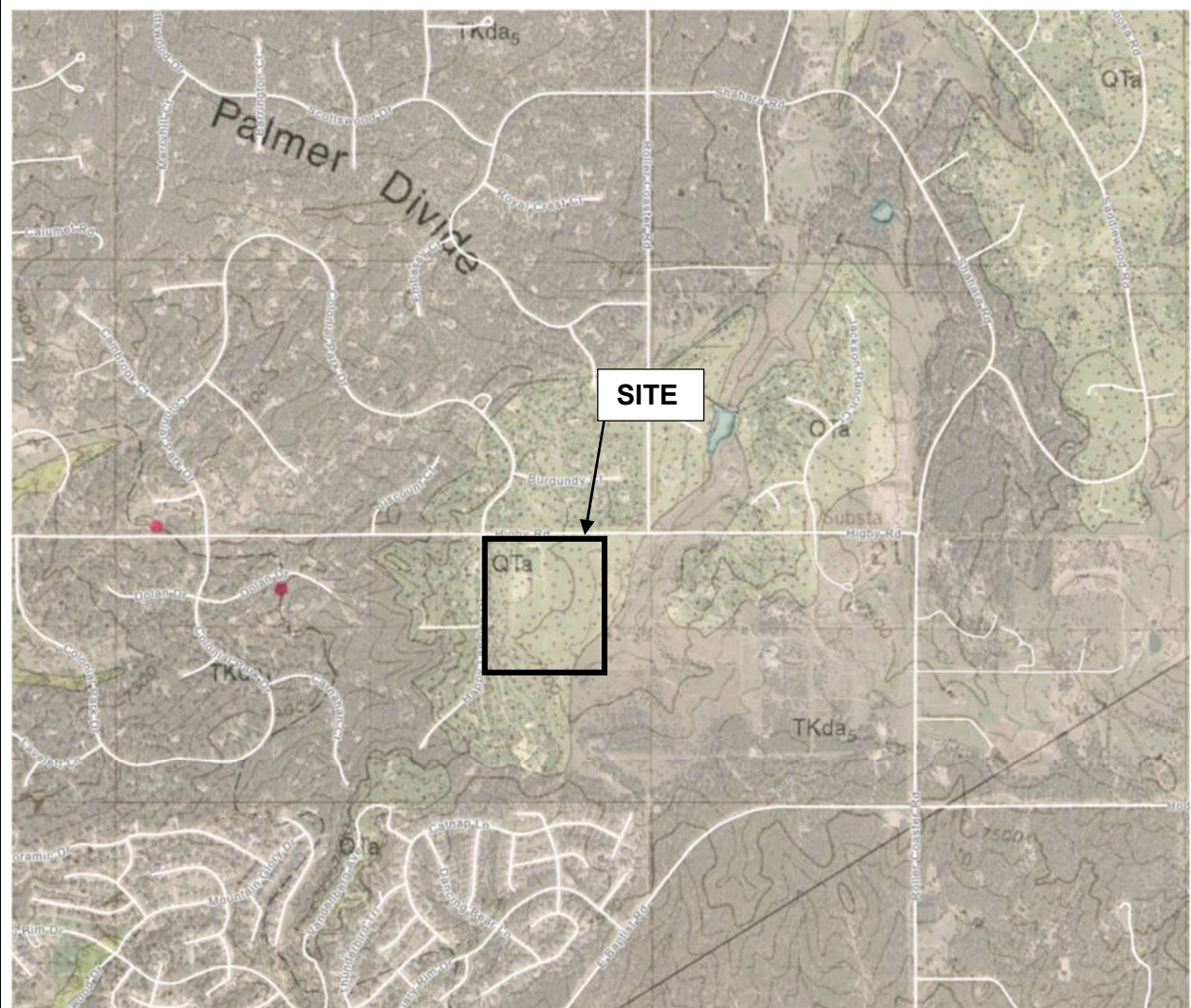
QTa Alluvium of Plamer Divide of Quaternary Age: These materials consist of water-deposited stream terrace deposits. They typically consist of silty to clayey sands with gravelly lenses and may contain areas of pebble and cobble lenses. Much of the material encountered in the profile holes consisted of fine grained sands.

Qc/Tkd Colluvium of Quaternary Age overlying Dawson Formation of Tertiary to Cretaceous Age: The Dawson Formation typically consists of arkosic sandstone with interbedded fine-grained sandstone, siltstone, and claystone. Overlying this formation is a variable layer of colluvium and residual soils. The residual soils were derived from the in-situ weathering of the bedrock materials on-site. These soils consist of clayey sands and sandy clays. The colluvial materials are derived from the bedrock materials and have been re-deposited by the action of sheetwash and gravity.

The soils listed above were mapped from site-specific mapping, the *Geologic Map of the Monument Quadrangle* distributed by the Colorado Geological Survey in 2003 (Reference 6), the *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey in 1979 (Reference 7), and the *Geologic Map of the Denver 1° x 2° Quadrangle*, distributed by the US Geological Survey in 1981 (Reference 8). The Test Borings and Test Pit Logs used in evaluating the site are included in Appendix B. The Geology/Engineering Geology Map prepared for the site is presented in Figure 3.

Exhibit 4: Geologic Map of the Monument Quadrangle

Colorado Geological Survey – OF-02-04



5.4 Soil Conditions

The soils encountered in the test pits can be grouped into one general soil type. The soils were classified using the USDA textural soil classification.

Loamy Sand (Soil Type 1) The loamy sand was encountered in TP-3 at a depth of 3 feet bgs and extended to the termination of the test pit 8 feet.

Sandy Loam (Soil Type 2 and 2A) The gravelly sandy loam and sandy loam with gravel were encountered in all of the test pits at the existing surface grade to 5.5 feet bgs and extended to depths of 1 to 8 feet bgs.

Sandy Clay Loam (Soil Type 3) The sandy clay loam was encountered in TP-2, at the existing surface and extended to 5.5 feet bgs.

The Test Pit Logs are presented in Appendix B. Laboratory Test Results are presented in Appendix C, and a Summary of Laboratory Test Results is presented in Table C-1.

5.5 Groundwater

Groundwater was not encountered in the test borings during or subsequent to drilling which were drilled to 20 feet. Additionally, redoximorphic features were not encountered in the test pits which were excavated to 8 feet. Areas of potentially seasonal shallow groundwater have been mapped in the drainage swales in the northern and southern portions of the site. These areas are discussed in the following section. Fluctuation in groundwater conditions may occur due to variations in rainfall and other factors including development of the site and surrounding areas.

For the sandy materials on site, it should be noted that some groundwater conditions might be encountered due to the variability in the soil profile. Isolated sand and gravel layers within the soils, sometimes only a few feet in thickness and width, can carry water in the subsurface. Groundwater may also flow on top of the underlying bedrock or clays. Builders and planners should monitor potential occurrences of such subsurface water features during construction on-site and mitigate as necessary at the time of construction.

Drainage and Floodplain Areas – Constraint

The site is not located within any mapped floodplains according to FEMA Map No. 08041C0285G (Figure 6, Reference 10). The topography of the site is generally gradually to moderately sloping to the east, with two minor drainage swales in the northern and southern portions of the site. The drainage swales were dry at the time of our site observations. A tributary of West Cherry Creek is located northeast of the site. The drainages onsite were dry at the time of our site observations, however, the potential for seasonal shallow groundwater exists in these areas. These areas are discussed further below. OWTS absorption fields should not be placed in areas where there is the potential for shallow groundwater.

Exhibit 5: FEMA Flood Map

FEMA Map No. 08041C0285G, eff. 12/7/2018



6 ON-SITE WASTEWATER TREATMENT

The site was evaluated for individual on-site wastewater treatment systems in accordance with El Paso Land Development Code. Test pits were located in potential locations of future soil treatment areas on the lots. The approximate locations of the Test Pits are indicated on the Site and Exploration Plan (Figure 2), the Geology/Engineering Geology Map (Figure 3), and the OWTS Suitability Map, Figure 4. Test Pit Logs are included in Appendix B, with Laboratory Test Results presented in Appendix C. Records for the existing OWTS located on the site are included in Appendix E.

The Natural Resource Conservation Service (Reference 4), previously the Soil Conservation Service (Reference 5) has been mapped with two soil descriptions. The Soil Survey Map (Reference 4) is presented in Exhibit 3, and the Soil Survey Descriptions are presented in

Appendix D. The soils are described as having rapid percolation rates. The majority of the soils have been described with moderate to high permeabilities.

Soils encountered in the tactile test pits consisted of loamy sand, sandy loam to gravelly sandy loam, and sandy clay loam. Signs of seasonal occurring groundwater were not encountered in the test pits. The limiting layers encountered in the test pits are the sandy loam (2A), and gravelly sandy clay loam (3). The soil types correspond to LTAR value of 0.80 to 0.35 gallons per day per square foot. Based on the test pits and soil evaluation it is expected that conventional systems may be appropriate for portions of the site. In areas of clayey soils and high rock percentage an engineered OWTS will likely be required. Based on the county records the system for the existing structures consist of an engineered system with pipe and chambers.

On-site Wastewater Systems are to be evaluated for the new lots prior to obtaining a building permit. The systems must meet County Chapter 8 OWTS criteria and State CDPHE criteria including any required mitigation to accommodate respective leach fields and infrastructure including, but not limited to earthwork grading, berming and diversion swale implementation, installation of secondary sand filters or any other higher treatment levels and dosing as required on a per lot basis and determined by test pit results and site topography. There are no identified geologic hazards on the site that are prohibitive to future OWTS design at this time.

In summary, it is our opinion that 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. An OWTS Suitability Map is presented in Figure 4. OWTS sites should not be located within defined drainages. 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.

7 CLOSURE

It is our opinion that the existing geologic engineering and geologic conditions will impose some constraints on development and construction of the site. The majority of these conditions can be mitigated through proper engineering design and construction practices. The proposed development and use are consistent with anticipated geologic and engineering geologic conditions.

It should be pointed out that because of the nature of data obtained by random sampling of such variable and non-homogeneous materials as soil and rock, it is important that we be informed of any differences observed between surface and subsurface conditions encountered in construction and those assumed in the body of this report. Individual investigations for OWTS sites will be required prior to construction. Construction and design personnel should be made familiar with the contents of this report. Reporting such discrepancies to Entech Engineering, Inc. soon after they are discovered would be greatly appreciated and could possibly help avoid construction and development problems.

This report has been prepared for Charles Woodall 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.



Logan L. Langford, P.G.
Sr. Geologist

Reviewed by:



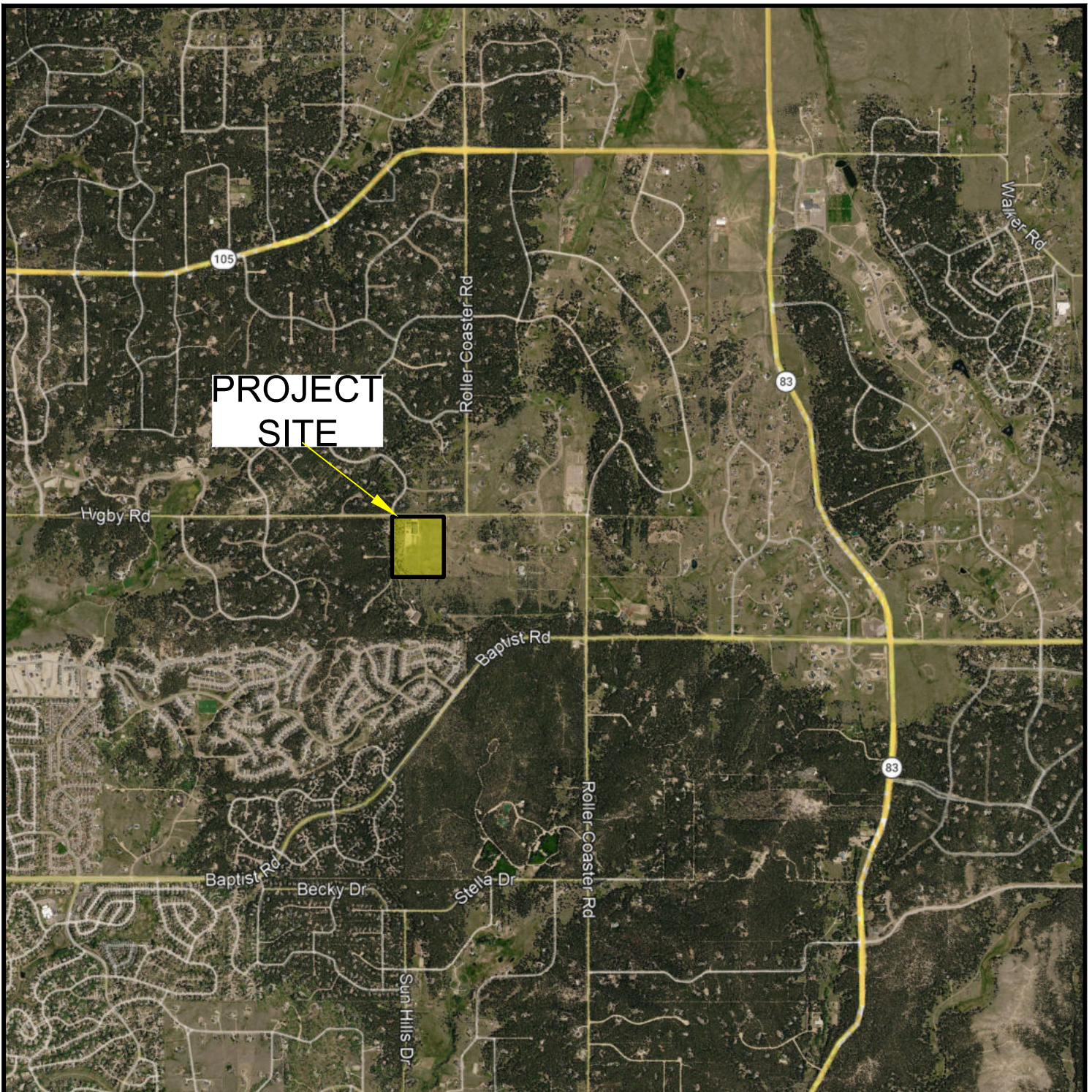
Joseph C. Goode Jr., P.E.
President

LLL/JCG

8 REFERENCES

1. Bryant, Bruce, McGrew, Laura W., and Wobus, Reinhard A. 1981. *Geologic Structure Map of the Denver 1° x 2° Quadrangle, North-Central Colorado*. U.S. Geologic Survey. Map 1-1163.
2. Entech Engineering, Inc., dated October 2, 2015. *Soil, Geology, Geologic Hazard, and Wastewater Study, JT Ranch, Higby and Rollercoaster Road, El Paso County, Colorado*. Entech Job No. 151514.
3. Entech Engineering, Inc., revised date November 15, 2016. *Soil, Geology, Geologic Hazard, and Wastewater Study, Happy Landing Estates Filing No. 1, Happy Landing Drive, El Paso County, Colorado*. Entech Job No. 161646.
4. Natural Resource Conservation Service, June 20, 2007. *Web Soil Survey*. United States Department Agriculture, <http://web soil survey.nrcs.usda.gov>.
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7. Trimble, Donald E. and Machette, Michael N. 1979. *Geologic Map of the Colorado Springs-Castle Rock Area, Front Range Urban Corridor, Colorado*. USGS, Map I-857-F.
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10. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for the City of Colorado Springs, Colorado*. Map Number 08041C0285G.
11. U.S. Fish & Wildlife Service, May 1, 2020. *National Wetlands Inventory*. Department of the Interior, fws.gov/wetlands/data/Mapper.html.

FIGURES

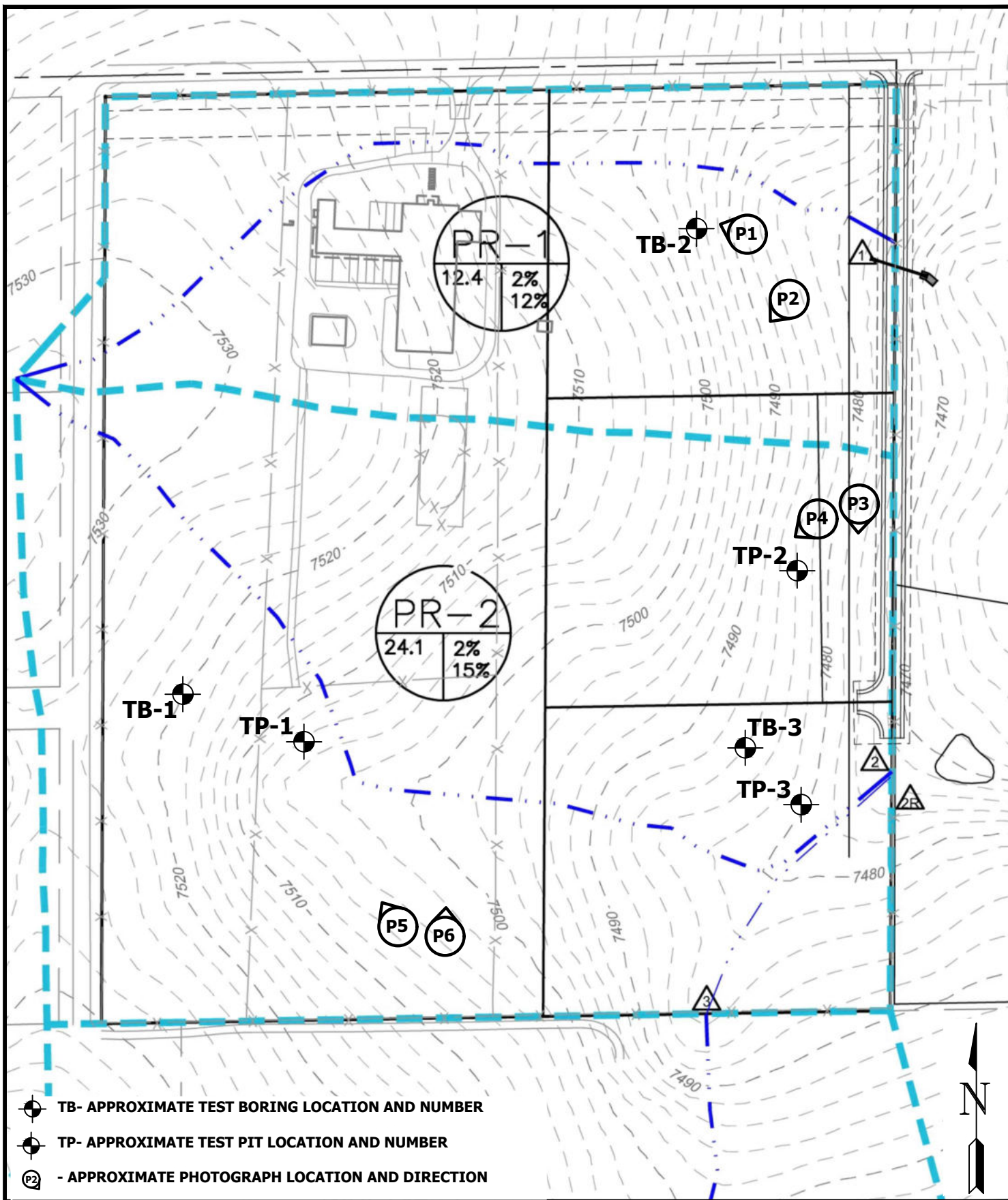


VICINITY MAP

ASPEN WILLOW SUBDIVISION
CHALRES WOODALL

JOB NO.
261137

FIG. 1

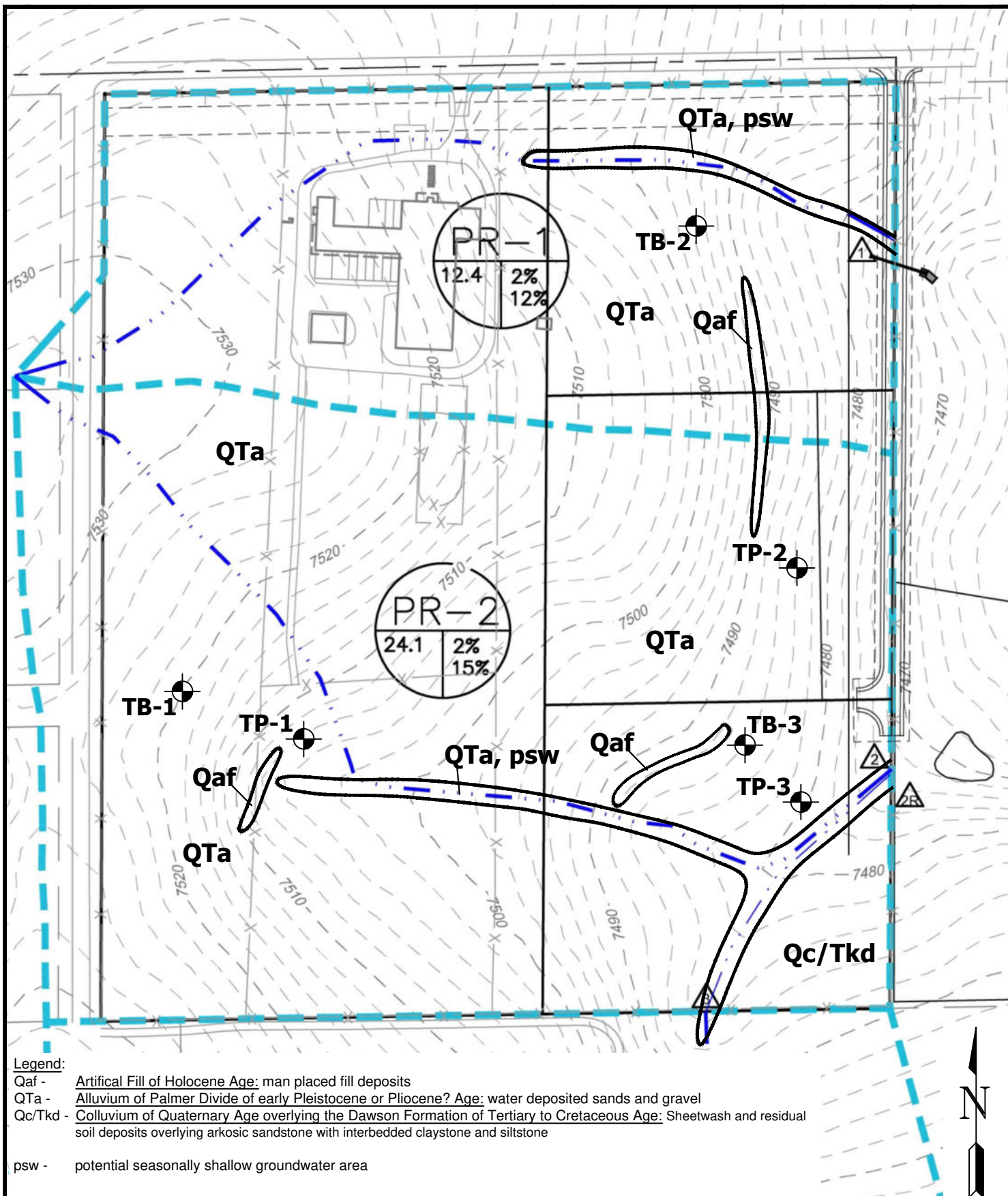


SITE & EXPLORATION PLAN

NORTH PARK SUBDIVISION
NORTH PARK, LLC

JOB NO.
260494

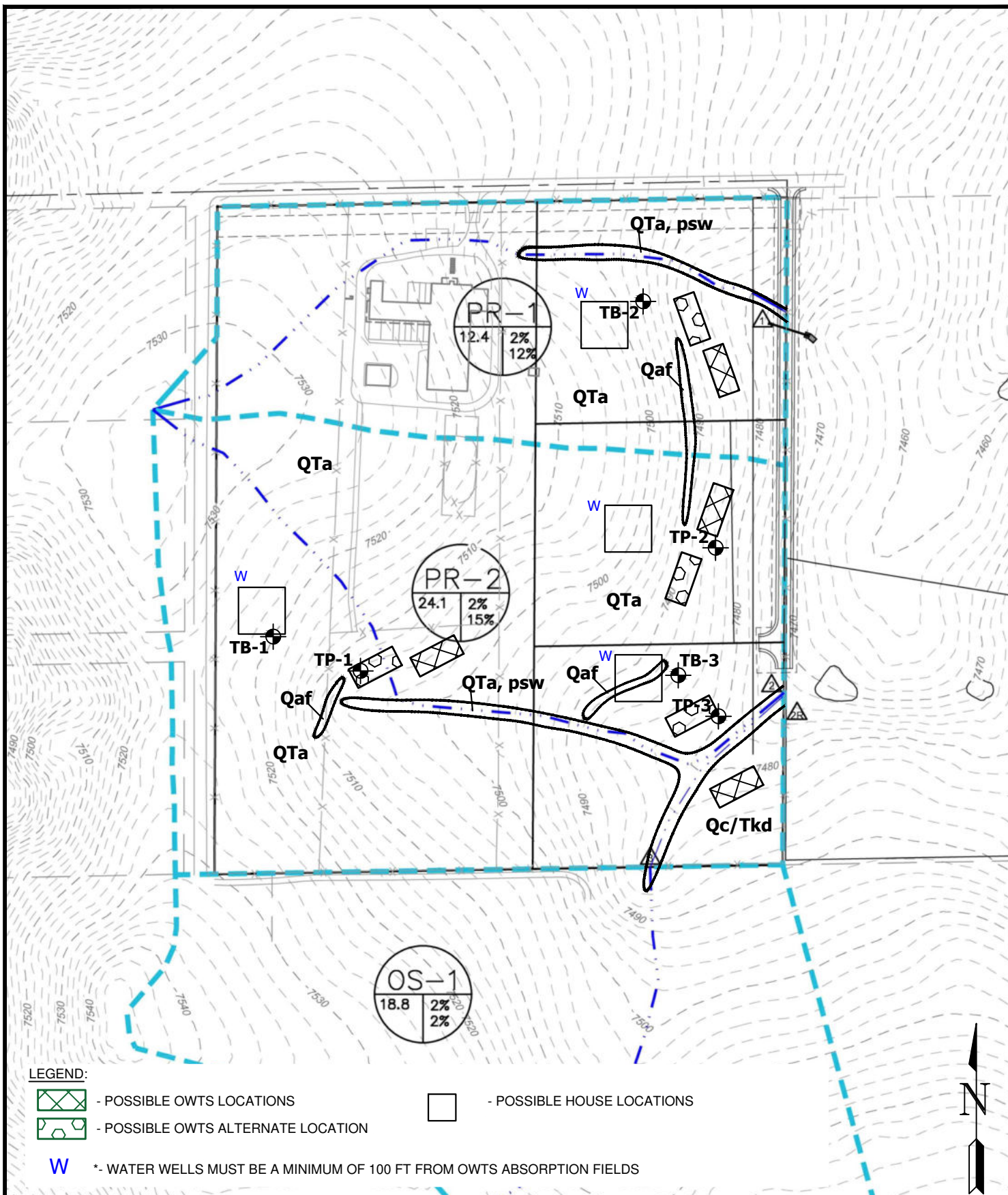
FIG. 3



**GEOLOGY/ENGINEERING
GEOLOGY MAP**
ASPEN WILLOW SUBDIVISION
CHARLES WOODALL

JOB NO.
261137

FIG. 3



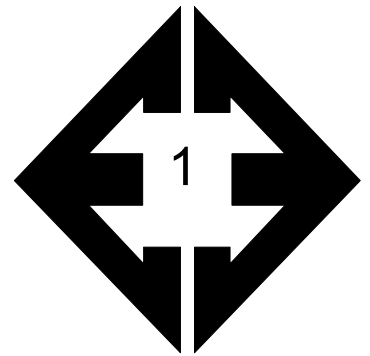
OWTS SUITABILITY MAP

ASPEN WILLOW SUBDIVISION
CHARLES WOODALL

JOB NO.
261137

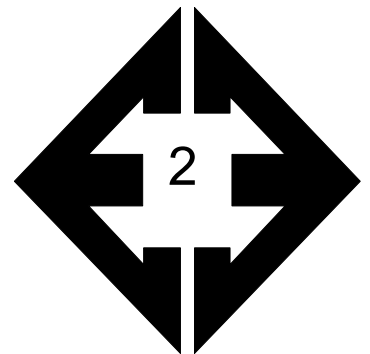
FIG. 4

APPENDIX A: Site Photographs



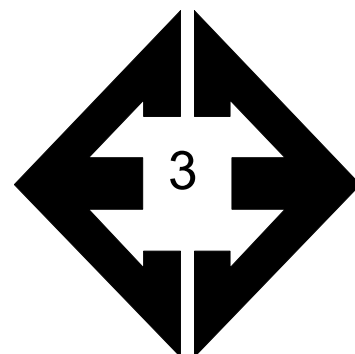
**Looking west from the
northeastern portion of
the site.**

June 10, 2026



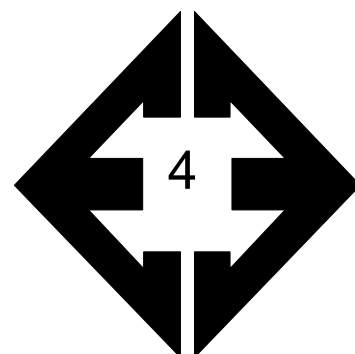
**Looking southwest
from the northeastern
portion of the site.**

June 10, 2026



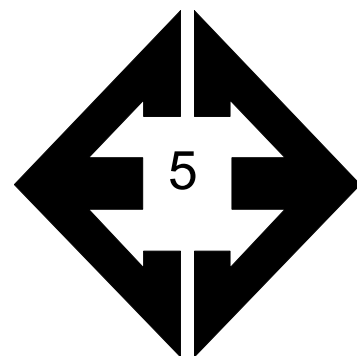
**Looking south from
the eastern side of the
site.**

June 10, 2026



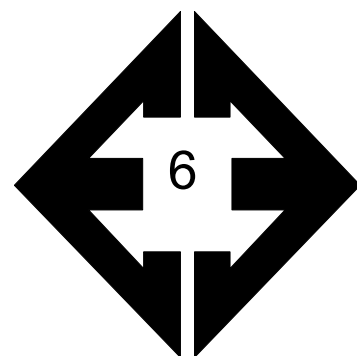
**Looking southwest
from the eastern side
of the site.**

June 10, 2026



**Looking northwest
from the southern
portion of the site.**

June 10, 2026



**Looking north from the
southern portion of the
site.**

June 10, 2026

APPENDIX B: Test Boring and Test Pit Logs

TEST BORING 1
DATE DRILLED 6/10/2026
REMARKS

TEST BORING 2
DATE DRILLED 6/10/2026
REMARKS

DRY TO 20', 6/10/26

6" TOPSOIL
SAND, SILTY, TAN, MEDIUM
DENSE, MOIST

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			12	7.4	1
5			20	4.0	1
10			21	4.4	1
15			12	7.6	1
20			18	8.4	1

DRY TO 20', 6/10/26

6" TOPSOIL
SAND, SILTY, TAN, MEDIUM
DENSE, MOIST

SANDSTONE, EXTREMELY WEAK,
TAN, HIGHLY WEATHERED (SAND,
WITH SILT, DENSE, MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			18	4.1	1
5			22	3.7	1
10			17	5.3	1
15			20	6.9	1
20			44	5.2	2



TEST BORING LOGS

1480 E. HIGBY ROAD
CHARLES WOODALL

JOB NO.
261137

FIG. B-1

TEST BORING 3
DATE DRILLED 6/10/2026
REMARKS

DRY TO 20', 6/10/26

6" TOPSOIL
SAND, SILTY, TAN, MEDIUM
DENSE, MOIST to DRY

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			19	4.3	1
5			13	3.2	1
10			19	5.4	1
15			12	2.6	1
20			13	6.7	1



TEST BORING LOGS
1480 E. HIGBY ROAD
CHARLES WOODALL

JOB NO.
261137
FIG. B-2

TEST PIT 1
DATE DRILLED 6/10/2026
REMARKS

TEST PIT 2
DATE DRILLED 6/10/2026
REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Structure Shape	Structure Grade	Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
topsoil, sandy loam, dark brown, moist	1						topsoil, sandy loam, brown, moist	1					
sandy loam, fine to medium grained, light brown, moist	2						sandy loam, fine to medium grained, light brown, moist	2					
	3							3			gr	m	3
	4			gr	w	2A		4					
	5							5					
sandy loam with gravel, fine to coarse grained, light brown, moist	6						sandy clay, fine to medium grained, light brown, moist	6			gr	w	2A
	7			gr	w	2A		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



TEST BORING LOGS

1480 E. HIGBY ROAD
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FIG. B-3

TEST PIT 3
 DATE DRILLED 6/10/2026
 REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Structure Shape	Structure Grade	Soil Type
topsoil, sandy loam, dark brown, moist	1	*				
sandy loam, fine to medium grained, light brown, moist	2			gr	w	2A
	3					
	4					
loamy sand, fine to coarse grained, light brown, moist	5			sg		1
	6					
	7					
	8					
	9					
	10					

REMARKS	Depth (ft)	Symbol	Samples	Structure Shape	Structure Grade	Soil Type
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	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



TEST BORING LOGS

1480 E. HIGBY ROAD
 CHARLES WOODALL

JOB NO.
 261137

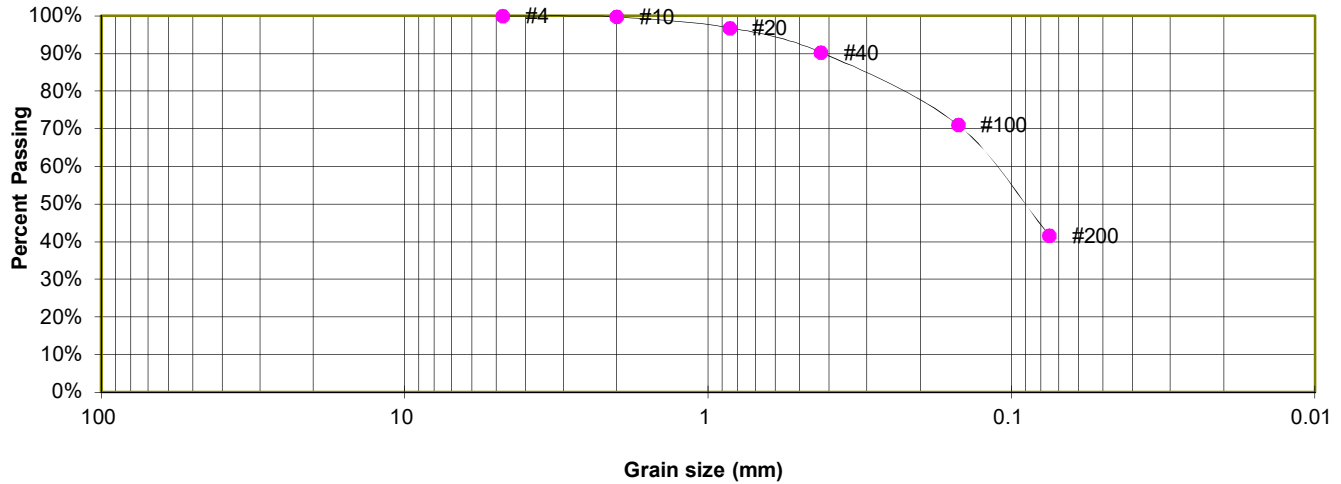
FIG. B-4

APPENDIX C: Laboratory Test Results

TEST BORING	1
DEPTH (FT)	2-3

SOIL DESCRIPTION SAND, SILTY

Sieve Analysis Grain Size Distribution



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.8%
20	96.8%
40	90.3%
100	71.0%
200	41.6%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

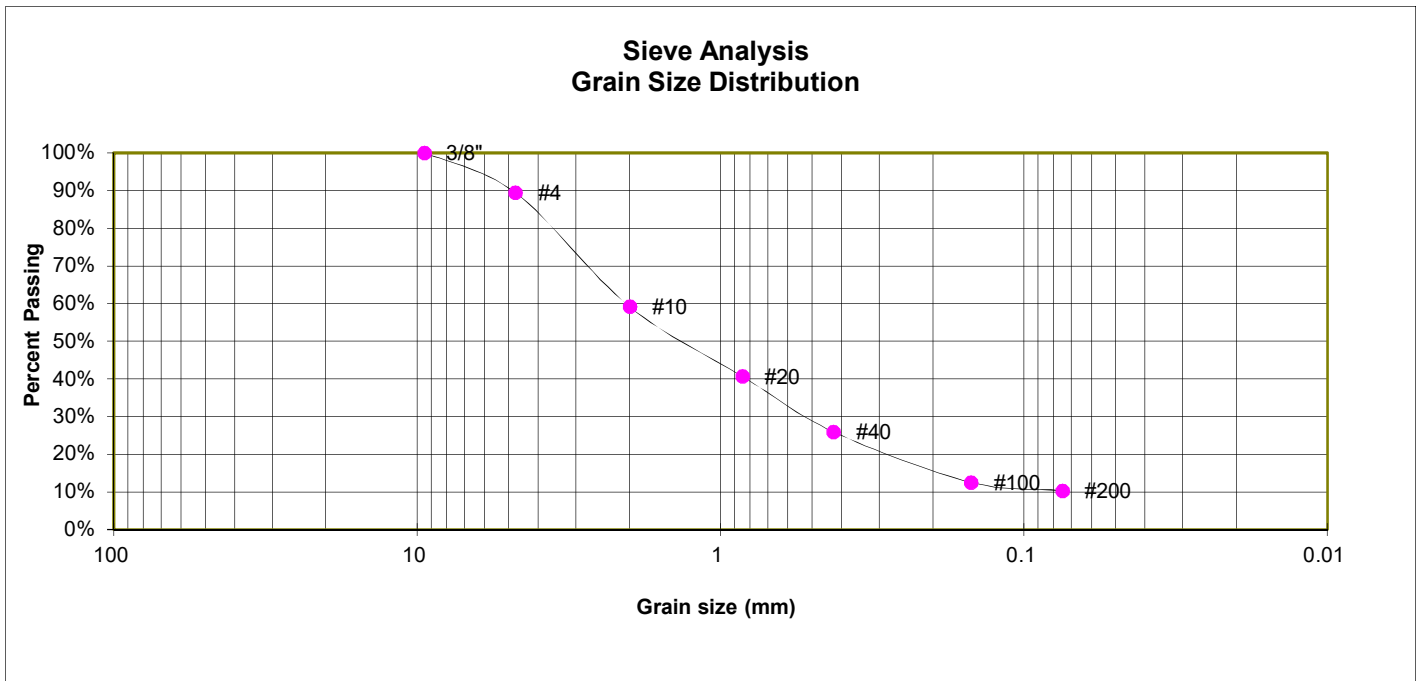
1480 E. HIGBY ROAD
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FIG. C-1

TEST BORING	2
DEPTH (FT)	20

SOIL DESCRIPTION	SANDSTONE (SAND, WITH SILT)
------------------	-----------------------------



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	89.4%
10	59.2%
20	40.7%
40	25.9%
100	12.5%
200	10.3%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM



LABORATORY TEST RESULTS

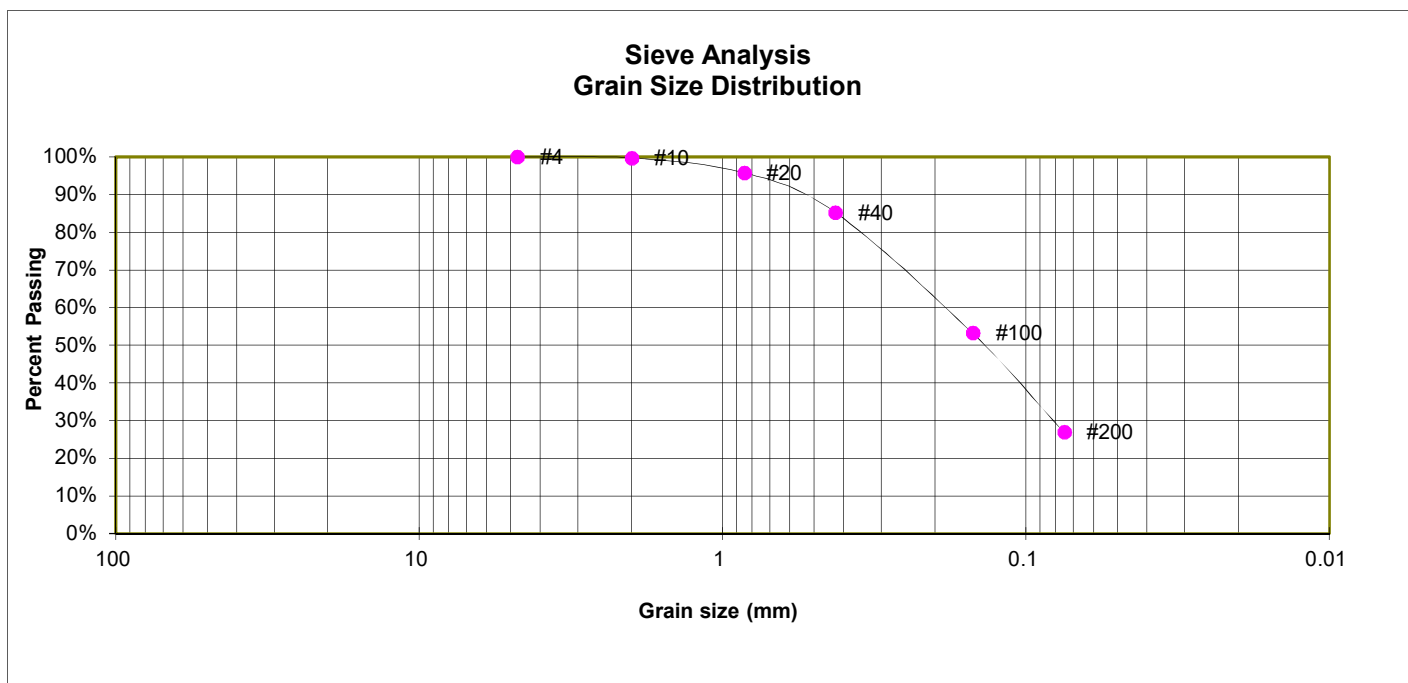
1480 E. HIGBY ROAD
CHARLES WOODALL

JOB NO.
261137

FIG. C-2

TEST BORING	3
DEPTH (FT)	10

SOIL DESCRIPTION	SAND, SILTY
------------------	-------------



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.7%
20	95.8%
40	85.2%
100	53.2%
200	26.9%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

1480 E. HIGBY ROAD
CHARLES WOODALL

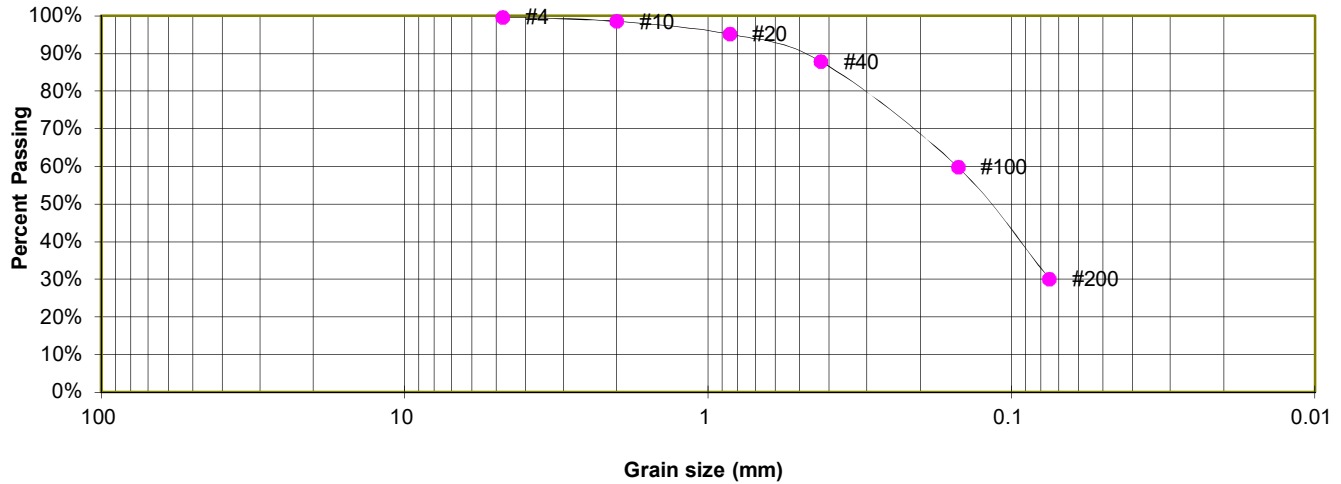
JOB NO.
261137

FIG. C-3

TEST BORING TP-1
DEPTH (FT) 3-4

SOIL DESCRIPTION SAND, SILTY
SOIL TYPE # 2

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	99.7%
10	98.6%
20	95.2%
40	87.9%
100	59.8%
200	30.1%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

1480 E. HIGBY ROAD
CHARLES WOODALL

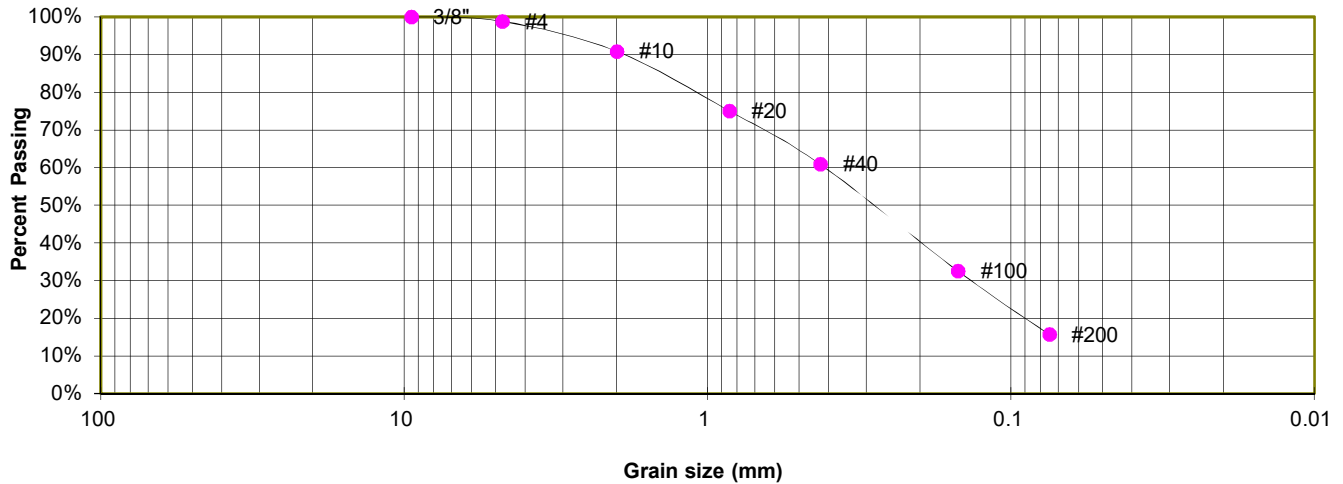
JOB NO.
261137

FIG. C-4

TEST BORING TP-1
DEPTH (FT) 6-7

SOIL DESCRIPTION SAND, SILTY
SOIL TYPE # 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.8%
10	90.9%
20	75.1%
40	60.9%
100	32.6%
200	15.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



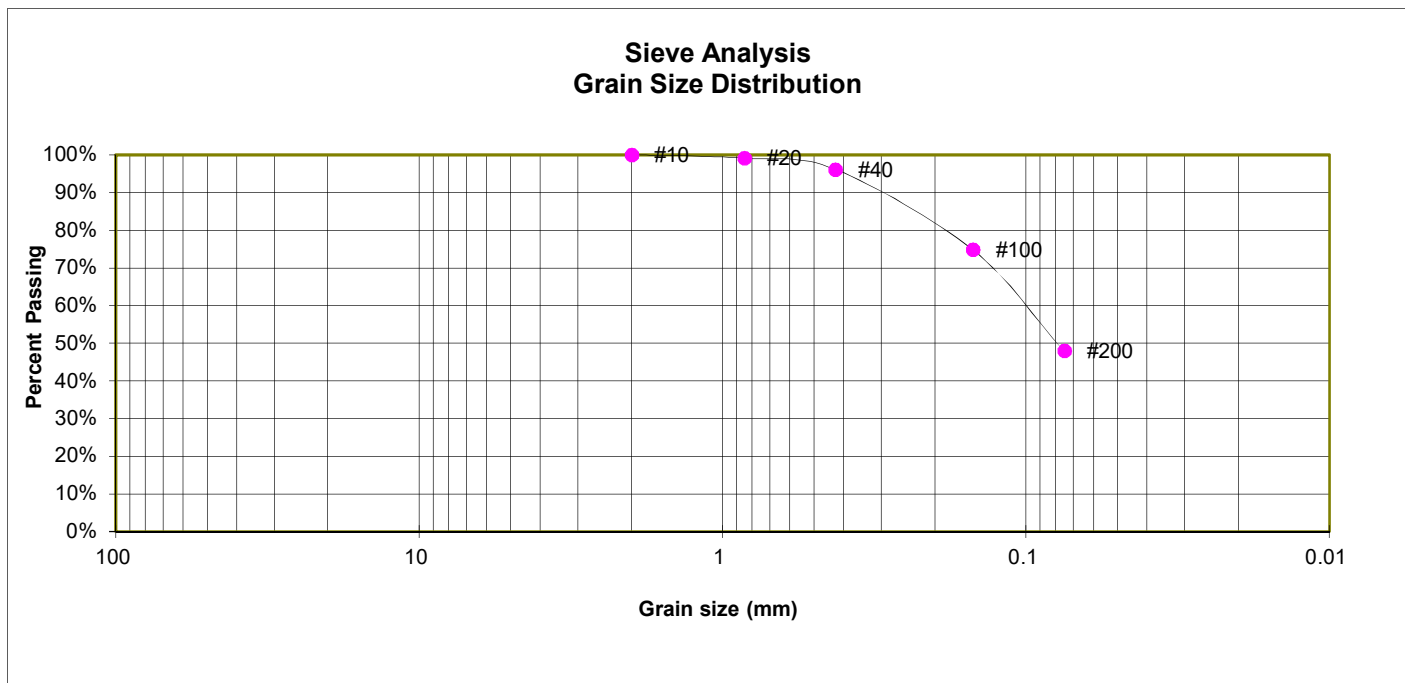
LABORATORY TEST RESULTS

1480 E. HIGBY ROAD
CHARLES WOODALL

JOB NO.
261137

FIG. C-5

TEST BORING	TP-2	SOIL DESCRIPTION SAND, SILTY
DEPTH (FT)	2-3	SOIL TYPE # 3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	100.0%
20	99.1%
40	96.2%
100	74.8%
200	47.9%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

1480 E. HIGBY ROAD
CHARLES WOODALL

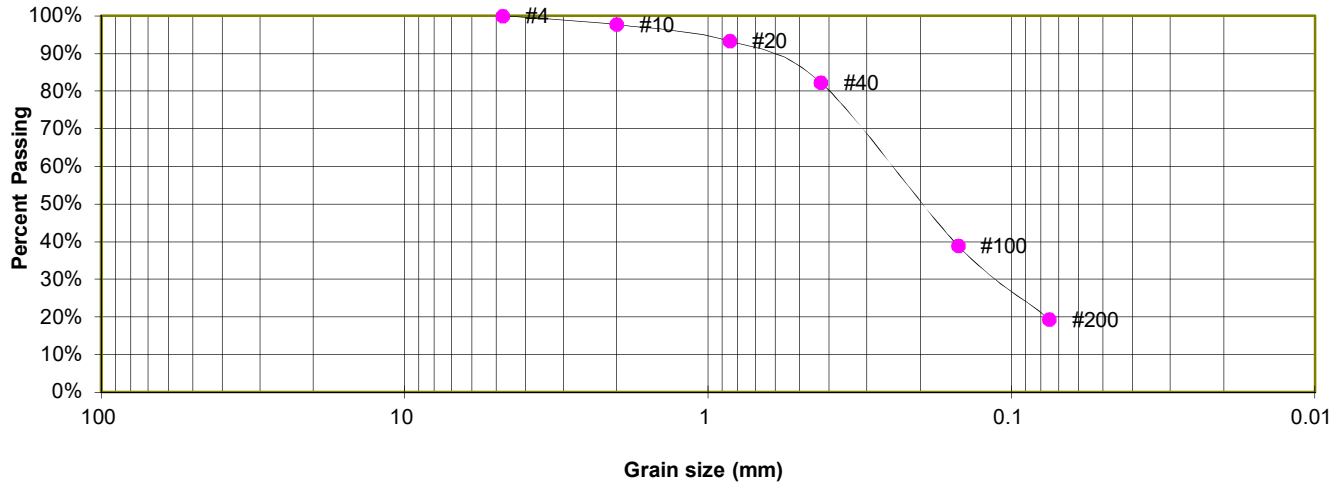
JOB NO.
261137

FIG. C-6

TEST BORING TP-2
DEPTH (FT) 5-6

SOIL DESCRIPTION SAND, SILTY
SOIL TYPE # 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	97.7%
20	93.4%
40	82.3%
100	39.0%
200	19.4%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

1480 E. HIGBY ROAD
CHARLES WOODALL

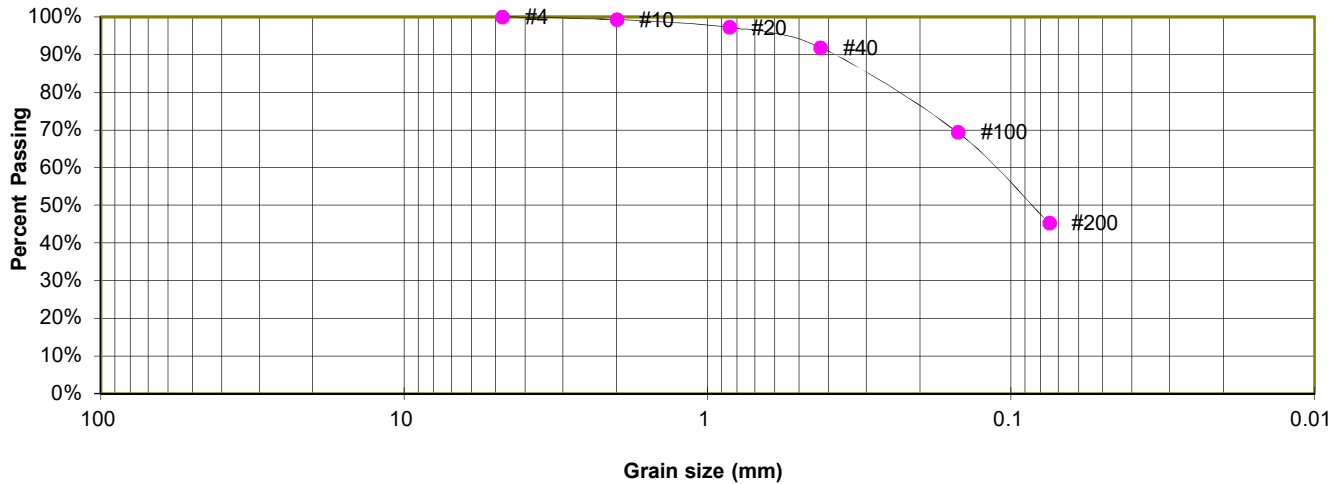
JOB NO.
261137

FIG. C-7

TEST BORING TP-3
DEPTH (FT) 2-3

SOIL DESCRIPTION SAND, SILTY
SOIL TYPE # 3

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.2%
20	97.2%
40	91.9%
100	69.4%
200	45.4%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

1480 E. HIGBY ROAD
CHARLES WOODALL

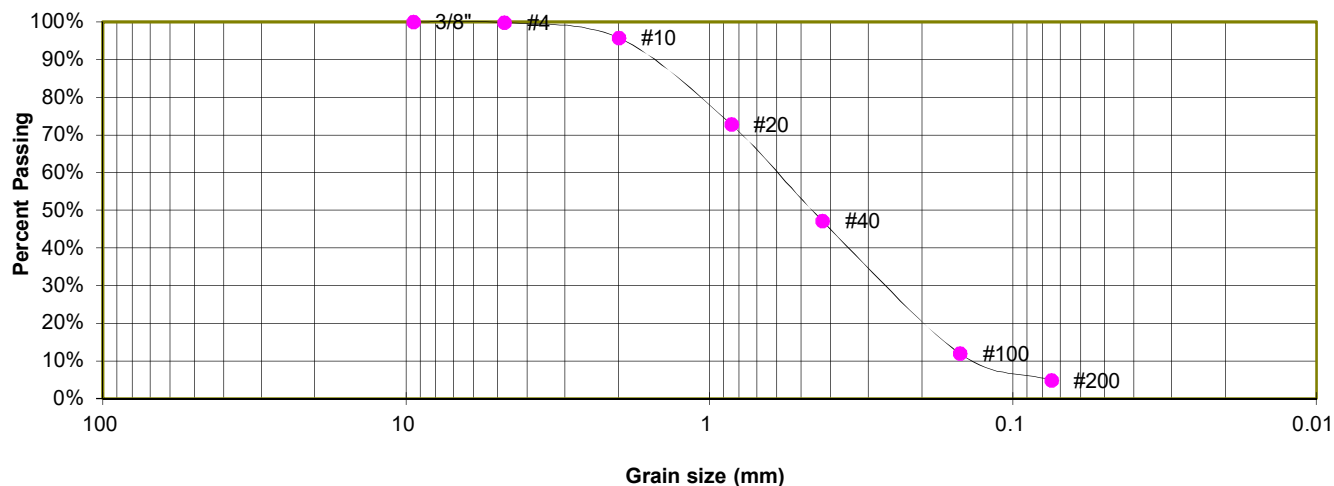
JOB NO.
261137

FIG. C-8

TEST BORING TP-3
DEPTH (FT) 5-6

SOIL DESCRIPTION SAND, SLIGHTLY SILTY
SOIL TYPE # 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.9%
10	95.8%
20	72.8%
40	47.1%
100	12.0%
200	4.9%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW



LABORATORY TEST RESULTS

1480 E. HIGBY ROAD
CHARLES WOODALL

JOB NO.
261137

FIG. C-9

APPENDIX D: USDA Soil Survey Descriptions

El Paso County Area, Colorado

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

Map Unit Setting

National map unit symbol: 368h

Landscape: Uplands

Elevation: 7,000 to 7,700 feet

Farmland classification: Not prime farmland

Map Unit Composition

Kettle and similar soils: 85 percent

Minor components: 15 percent

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

Description of Kettle

Setting

Landscape: Uplands

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

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 supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Ecological site: F048AY908CO - Mixed Conifer

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent

Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 23, Aug 29, 2025

El Paso County Area, Colorado

92—Tomah-Crowfoot loamy sands, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 36b9

Elevation: 7,300 to 7,600 feet

Farmland classification: Not prime farmland

Map Unit Composition

Tomah and similar soils: 50 percent

Crowfoot and similar soils: 30 percent

Minor components: 20 percent

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

Description of Tomah

Setting

Landform: Alluvial fans, Hills

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from arkose and/or residuum weathered from arkose

Typical profile

A - 0 to 10 inches: loamy sand

E - 10 to 22 inches: coarse sand

Bt - 22 to 48 inches: stratified coarse sand to sandy clay loam

C - 48 to 60 inches: coarse sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: R049XY216CO - Sandy Divide

Hydric soil rating: No

Description of Crowfoot

Setting

Landform: Hills, Alluvial fans
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 12 inches: loamy sand
E - 12 to 23 inches: sand
Bt - 23 to 36 inches: sandy clay loam
C - 36 to 60 inches: coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 23, Aug 29, 2025

APPENDIX E: Existing El Paso County Health Department Septic Records

EL PASO COUNTY DEPARTMENT OF HEALTH AND ENVIRONMENT
INDIVIDUAL SEWAGE DISPOSAL SYSTEM INSPECTION FORM

Permit # 4174

Date 11-08-02

APPROVED: YES X NO

ENVIRONMENTALIST Sid Darden

Address 1480 E. Higby Rd.

Owner Charles Woodall

Legal Description

Residence , # of bedrooms ; Commercial X; System Installer J&K Exc.

SEPTIC TANK:

Commercial X; Noncommercial , L , W , WD

Construction Material Precast concrete, capacity 1000 gallons.

DISPOSAL FIELD:

Rock Systems:

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

Bed: depth 12-18", length 33', width 14', sq. feet 462

Rock type Gravel, depth 12", under PVC 6", over PVC 2"

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 , number of chambers , bed , trench

sq. ft./section , reduction allowed %, sq. ft. required

total sq. ft. installed , depth of installation

Engineer Design (Y) or N, Designing Engineer Paul Bryant

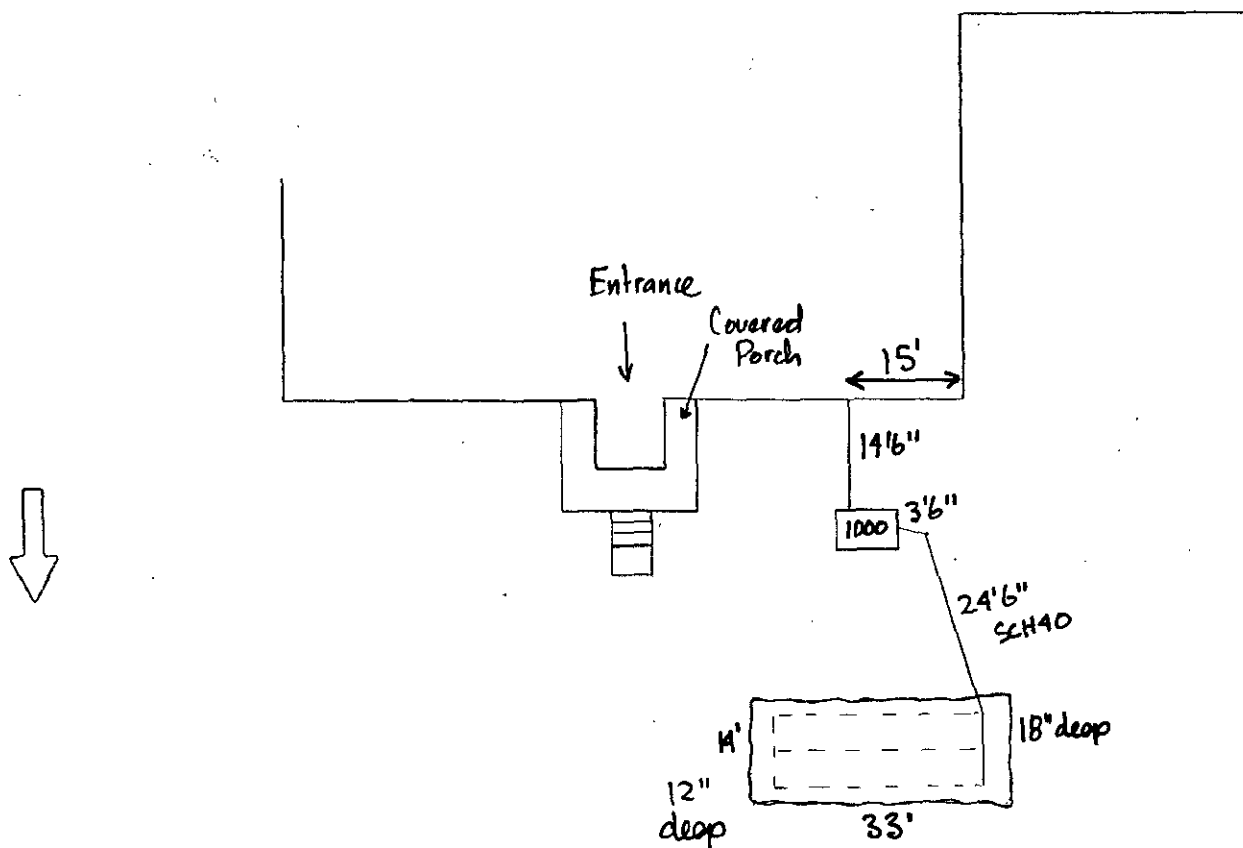
Approval letter provided? (Y) or N

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: Not connected to existing system as planned.



INDIVIDUAL SEWAGE DISPOSAL SYSTEM PERMIT

OWNER NAME: CHARLES WOODALL
ADDRESS: 1480 E HIGBY RD
CITY, STATE, ZIP: MONUMENT CO 80132
INSTALLED BY:

PERMIT NUMBER: ON0004174
DATE PERMITTED: 10/18/2002
PHONE NUMBER: 7194924123

This permit is issued in accordance with 25-10-107 Colorado Revised Statutes. PERMIT EXPIRES upon completion-installation of sewage-disposal system or at the end of twelve (12) months from date of issue- whichever occurs first-(unless work is in progress). If both a building and an ISDS permit are issued for the same property and construction has not commenced prior to the expiration date of the building permit, the ISDS permit shall expire at the same time as the building permit. This permit is revokable if all stated requirements are not met.

Sewage disposal system to be installed by an El Paso County Licensed System Contractor or the property owner.

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

Rosemary C. Baker-Martin

DIRECTOR, EL PASO COUNTY DEPARTMENT OF HEALTH AND ENVIRONMENT

PERMIT EXPIRATION DATE :
Expires twelve months from date of issue

David Firley 578-8117
ENVIRONMENTALIST / PHONE NUMBER*

* NOTE: FOR INSPECTIONS CALL 575-8699 BEFORE 8:30 A.M. OF THE DAY TO BE INSPECTED.
(WEEKENDS & HOLIDAYS EXCLUDED)

LEAVE THE ENTIRE SEWAGE DISPOSAL SYSTEM UNCOVERED FOR FINAL INSPECTION.

WATER SOURCE: WELL

MINIMUM SEPTIC TANK SIZE: P.E. Design GALLONS

MINIMUM ABSORPTION AREA REQUIRED P.E. Design SQ FT

PLANNING DEPARTMENT

OK

ENUMERATION

OK

FLOOD PLAIN

OK

WASTEWATER

N/A

COMMENTS:

SEPTIC REPAIR/ADDITION SHALL BE INSTALLED PER PROFESSIONAL ENGINEER DESIGN DATED 8/23/02 IN ACCORDANCE WITH COUNTY ISDS REGULATIONS. NEW LEACH FIELD SHALL BE INSTALLED IN AREA OF PERCOLATION TEST DATED 9/18/02. AN APPROVAL LETTER FROM ENGINEER IS REQUIRED AFTER FINAL INSTALLATION INSPECTIONS. MAINTAIN ALL REQUIRED DISTANCES.

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

FOR ADMINISTRATIVE USE ONLY

Permit Ready: _____ Called _____ Mailed _____

Final Inspection Requested: BY: JOHN J+K

Date Called In: 11/7 1:33 PM

Phone # 331-4321

Septic Site will be ready: NOW

Inspector

Record I.D.

EL PASO COUNTY ENVIRONMENTAL HEALTH SERVICES

301 South Union Boulevard • Colorado Springs, CO • 80910-3123 • (719) 578-3126 • Fax: (719) 578-3188

APPLICATION FOR AN ON-SITE TREATMENT SYSTEM:

☐ NEW CONSTRUCTION ☐ MINOR REPAIR ☒ MAJOR REPAIR/ADD ☐ P.E. DESIGN

Owner Charles P. Woodall ^{Call John Nelson 632-3384}
 Address of Property 1480 E Hwy 67 Rd, Monument, CO Daytime Phone 719-492-4123
 Legal Description (SEE ATTACHED) City & Zip Monument, CO 80132
 Owner's MAILING Address (Same as above) City, State & Zip _____
 Lot Size 35 AC Tax Schedule # 01000 002 98

Septic Contractor _____ Daytime Phone # _____

Type of Building: ☐ Frame ☐ Modular ☐ Mobile ☒ Commercial ☐ Manufactured ☐ Other _____

Water Supply: ☒ Well or Spring ☐ Cistern ☐ Public Inside City Limits: ☒ No ☐ Yes-City _____

☐ MAIL PERMIT OR ☒ PICK UP PERMIT ☐ THERE IS AN ADDITIONAL RESIDENCE ON THIS PROPERTY

MAXIMUM POTENTIAL BEDROOMS COMMERCIAL

Percolation Test Attached ☒ N Garbage Disposal Y ☒ Basement Y ☒ Clothes Washer Y ☒ 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 an 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. 25-10-107 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

Date 9/12/02

DEPARTMENT OF HEALTH USE ONLY

P.E. Design Minimum Absorption Area. P.E. Design Minimum Tank Capacity 10/11/02 Date of Site Inspection

REMARKS

Septic repair/addition shall be installed per P.E. Design. in accordance with county ISDS regulations. New leach field shall be installed in area at above test dated 9/18/02. An approval letter from engineer is required after final installation inspections. Maintain all required distances.

EHS INSPECTOR

DATE

10/18/02

☒ APPROVED

☐ DENIED

FEE AS OF 8/1/00: NEW CONSTRUCTION \$315. + County Surcharge of \$30. = \$345.00

MAJOR REPAIR/ADDITION \$150

DATE TO PLANNING / WASTEWATER: 10/11

MINOR REPAIR/ADDITION \$75

DATE TO FLOODPLAIN: 10/11

* 10/17/02. Notified John Nelson of addressing & floodplain disapproval. Additionally, need calcs. from P.E. on design. OF

- 1) We request that you have your PERCOLATION (PERC) TEST with an original professional engineer's (PE) stamp and a well log plot of the percolation test holes.
- 2) **PROPERTY ADDRESS OR LOT NUMBER MUST BE POSTED AND CLEARLY VISIBLE FROM ROAD. PERC HOLES MUST BE CLEARLY MARKED.**
- 3) A PLOT PLAN must be drawn (not to scale) on an 8 1/2 x 11 sheet of paper. The plot plan must include:
- | | | |
|------------------------|---|---|
| 1) a north bearing | 4) all buildings (proposed or existing) | 7) driveway (proposed or existing and name of adjoining street) |
| 2) property lines | 5) proposed septic system site | |
| 3) property dimensions | 6) alternate septic system site | |
- 4) Initial any of the following features that apply to your property and INCLUDE them on your PLOT PLAN.
- | | | |
|---------------------|---------------------------------------|---------------------------|
| <u> </u> Well(s) | <u> </u> Adjacent property well(s) | <u> </u> Subsoil drain |
| <u> </u> Cistern | <u> </u> Water line | |
- 5) Initial any of the following that are within 100 feet of your proposed septic system and INCLUDE on your PLOT PLAN.
- | | |
|---------------------------|--|
| <u> </u> Spring(s) | <u> </u> Lake(s) |
| <u> </u> Pond(s) | <u> </u> Stream(s) |
| <u> </u> Dry Gulch(es) | <u> </u> Natural drainage course(s) |

6) GIVE COMPLETE DIRECTIONS TO THE PROPERTY FROM A MAIN HIGHWAY

THE PROPERTY IS JUST WEST OF
THE INTERSECTION OF HIGBY RD. &
ROLLER COASTER RD. ON SOUTH SIDE
OF ROLLER COASTER.