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April 29, 2024
Project No. 17935-LV

ETT CA, LLC
5195 South Las Vegas Boulevard
Las Vegas, Nevada 89119

Subject: On-Site Wastewater Disposal Design Recommendations
Halloran Summit Travel Station
Assessor's Parcel No. (APN) 0570061260000
Southeast Corner of I-15 and Halloran Summit Road
San Bernardino County, California

As requested and authorized, GeoTek, Inc. (GeoTek) has prepared this report to present on-site wastewater disposal design recommendations for the proposed effluent disposal system that will service the new Travel Station that will be located on the southeast corner of I-15 and Halloran Summit Road in San Bernardino County, California. This report presents the results of our evaluation, discussion of our findings and provides design and construction recommendations for the anticipated on-site wastewater disposal system. The disposal system will consist of a septic tank and leach fields.

The appropriate percolation test procedure was determined per the Local Agency Management Program (LAMP) and the Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems by the San Bernadino County Public Health department. It is our understanding that no additional testing is being required by the County of San Bernardino for these design recommendations.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,
GeoTek, Inc.

REGISTERED PROFESSIONAL ENGINEER
RYNE C. STOKER
No. 49754
Exp. 9-30-24
CIVIL
STATE OF CALIFORNIA

Colin J. O'Neill
Staff Geologist

Ryne C. Stoker, P.E.
Principal Engineer

TABLE OF CONTENTS

Enclosures:

SCOPE OF SERVICES

The purpose of this study was to evaluate the percolation rates and physical characteristics of the on-site materials in order to provide design and construction recommendations for an on-site wastewater disposal system. Services provided for this study included the following:

- Review of available published and other data regarding geologic and soil conditions at the site, including previous subsurface exploratory work performed for the site by our firm.

- Compilation of this report that presents our findings and design recommendations for the proposed effluent disposal system.

SITE DESCRIPTION

The subject site consists of approximately 8.2 acres of partially developed land. The site is generally bound by the I-15 interstate to the north, the Mojave National Preserve to the east and south, and Halloran Summit Road to the west. The northern portion of the site consists of land developed with multiple abandoned structures with an active communication tower along the northern border. The southern portion of the site consists of disturbed land with various amounts of trash underlaying the surface soils. The site has slightly rolling hills to the south, but is otherwise relatively flat with surface drainage generally directed to the east. No rock outcroppings were observed within the limits of the site.

It is our understanding that the source of domestic water for the proposed development will be from a well that has yet to be sited and constructed. Three potential abandoned septic systems were observed across the site in preliminary investigations, but are not in the vicinity of the newly proposed effluent disposal system. The specific lateral extent of these abandoned fields are unknown but will need to be properly removed and the area graded.

GeoTek is not aware of any on-site features that may adversely affect the anticipated effluent disposal system but observation of the excavation for the proposed effluent disposal should be performed to identify any adverse soil conditions that may exist.

PROPOSED DEVELOPMENT

It is our understanding that site development would consist of the demolition of the existing abandoned structures and performing typical cut and fill earthwork to attain the desired graded configuration(s) for the construction of an approximately 7,500 square foot convenience store, parking log, fuel canopy, underground fuel tanks, retention basin and 9,000 gallon septic system with associated improvements for each. Finished grades in the area of the leach fields should be similar to existing grades (i.e. post-earthwork construction).

FIELD STUDIES

Subsurface conditions were explored using a truck mounted hollow stem auger drill rig. Twelve explorations were advanced onsite, in addition to seven percolation borings (P-1 through P-6 and P-8). The diameter of the borings was approximately 8 inches. Logs of each exploration are included with this report in Appendix A. The locations and elevations reported on each log are estimates acquired from topographic mapping software and were not surveyed in the field. Field studies were completed in January 2024 by staff geologist, Colin J. O'Neill.

The appropriate percolation test procedure was determined per the Local Agency Management Program (LAMP) and the Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems by the San Bernadino County Public Health department. A three-inch diameter perforated PVC pipe was placed in each of the percolation borings. Gravel approximately ¾-inch in size was place on the bottom 2 inches of the PVC pipe. Measurements, utilizing a measuring tape with 1/8-inch subdivision, were taken at various rates for one to three hours. The rates of measurement as well as duration can be found on the percolation test sheets in Appendix B.

GEOLOGIC AND SOIL CONDITIONS

Subsurface Conditions

Based on our site reconnaissance, subsurface excavations, and review of published geologic maps, the area of the proposed on-site effluent disposal system is underlain by alluvium to the depths explored. In general, the alluvial materials typically consisted of slightly moist, medium to very dense sands with varying amounts of silt, clay and gravel and are considered to have "favorable" characteristics, in accordance with the current standards of the County of San Bernardino LAMP. A more detailed description of these materials is provided on the logs of exploratory borings in Appendix A.

Surface Water

Surface water was not observed during our site reconnaissance or investigation. If encountered during earthwork construction, surface water on this site is the result of precipitation or possibly some minor surface run-off from immediately surrounding areas. Overall site drainage is generally in an easterly direction, as directed by site topography. Provisions for surface drainage will need to be accounted for by the project civil engineer.

Groundwater

Groundwater was not encountered in any of the borings at the time of drilling. Based on a review of information contained on the California Department of Water Resources, Water Data Library, and the USGS Water Resources of the United States, groundwater is reported at a depth greater than 100 feet below ground surface. The depth to groundwater is expected to vary seasonally and localized perched groundwater conditions could be encountered. However, groundwater is not anticipated to impact the planned development.

PERCOLATION TESTING

GeoTek performed percolation testing on February 2, 2024 and February 3, 2024. Percolation testing was performed in general accordance with the *Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems* of the San Bernardino County Public Health, Division of Environmental Health Services (2019).

Summary of Percolation Test Results

The percolation test data results are included in Appendix B. Based on the obtained rates, the on-site materials displayed adequate percolation rates for the design of an on-site wastewater disposal system in accordance with the current standards of the San Bernardino County Public Health, Division of Environmental Health Services (see reference).

Pre-Soaking

The borings (P-2, P-5, and P-8) were initially filled with clear water upon completion of excavation and were presoaked for at least 16 hours prior to commencement of testing. The remaining borings (P-1, P-3, P-4, P-6 and P-8) were presoaked with 12 inches (10 inches above 2 inches of gravel) of clear water that drained within 10 minutes. Percolation testing for these borings commenced immediately after the presoaking procedure.

Testing Procedure

All of the test holes remained open to the original drilled depth of approximately 3 feet due to the installation of the perforated PVC pipe in each of the holes. Measurements utilizing a measuring tape with 1/8-inch division, percolation rates were taken at various time intervals. Each measurement was taken at and the time interval noted and were representative of the percolation rate encountered. Copies of the data sheets are provided in Appendix B.

Percolation Results

Based on the results of the percolation testing, variability of percolation rates were encountered across the site. The percolations rates calculated for the site varied from between, approximately 2.11 minutes per inch to 160 minutes per inch.

In general, a majority of the results were typical of what would be expected for the geotechnical conditions encountered within the onsite explorations, with percolation rates ranging from 2.11 minutes per inch to 30 minutes per inch. However, one percolation rate was recorded with a rate of 160 minutes per inch (P-5). Based on the geotechnical conditions encountered, and the percolation rates of nearby tests, it is the opinion of the undersigned that this percolation rate (160 minutes per inch) is anomalous and should not be considered for septic design. Based upon the explorations and testing performed, it is recommended that a percolation rate of 30 minutes per inch should be utilized for design of the onsite septic system.

Excavation for the leach field should be observed by a representative of GeoTek to evaluate the condition of the soils encountered at the excavation limits, especially in the area of test P-5, to identify any adverse soil conditions that may impact soil percolation rates (i.e., impermeable soil layers, boulders, etc.). If any adverse soil conditions are encountered, specific earthwork recommendations can be provided to ensure that the conditions are suitable and in conformance with the septic system design.

DESIGN RECOMMENDATIONS

Based on conversations with the client, a 9,000-gallon septic tank is currently proposed for the onsite effluent disposal system. The following calculations are provided for the design of the leach field.

Most Conservative MPI Rate – 30.0 minute per inch*
Application Rate (square foot per gallons per day) per the LAMP (2017) – 1.88 ft²/gal per day*
Application Rate (1.88) x flow (3,500 gallons per day) = 6,580 ft² Absorption Area
Absorption Area (6,580 ft²) / (9,000-gallon septic tank ÷ 100 gal) = 73.1 ft²/100 gstc
Absorption Area / Trench Credit Area (7 ft²) = 940 Total Lineal Feet
Design Leach Field = 24 Lines (40 feet long and 5 feet deep)
Recommended Leach Field = 24 Lines (60 feet long and 5 feet deep)
*In accordance with current standards of the County of San Bernardino LAMP

Based on the above preliminary data, it is our judgement that the following apply:

- The planting of trees and large shrubs should be avoided within the area of the septic tank and leach field.

- The planned on-site wastewater disposal system, if utilized and maintained properly, is not anticipated to adversely impact the site or adjacent properties.

- Based on the data presented in this report and using the recommendations set forth, it is the opinion of GeoTek that there is sufficient area on this site to support a primary and expansion on-site wastewater treatment system that will meet the current standards of the County of San Bernardino LAMP.

- The designed system shall be located within the area of the percolation tests performed on-site.

- Based on the data presented in this report and the testing information accumulated, it is the judgement of GeoTek that the groundwater table will not encroach within the current allowable limit set for the by the County of San Bernardino.

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	TO LEACH FIELD
Buildings or Structures*	8 Feet
Property Line Adjoining Private Property	5 Feet
Water Supply Wells	100 Feet
Trees (greater than 10 inches in diameter)	--
Seepage Pits	5 Feet
Disposal Field	4 Feet**
Onsite Domestic Water Service Line	5 Feet
Disposal System Distribution Box	5 Feet
Pressure Public Water Main	--
Flood Plain/100 Year Flood Zone	Refer to Current Uniform Plumbing Code
Groundwater	5 Feet

* Including porches and steps, whetere covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways and similar structures or appurtenances.

**Plus 2-feet for each additional foot or depth in excess of 1 foot below the bottom of the drain line.

INTENT

It is the intent of this report to aid in the design and construction of the proposed development. The professional opinions and geotechnical information contained in this report are not intended to imply total performance of the project or guarantee that unusual or variable conditions not be discovered during or after construction.

The scope of our study is limited to the area explored. This evaluation does not and should in no way be construed to encompass any areas beyond the specific area of the proposed construction as indicated to us by the client. The scope is based on our understanding of the project and the client's needs and geotechnical engineering standards normally used on similar projects in this region.

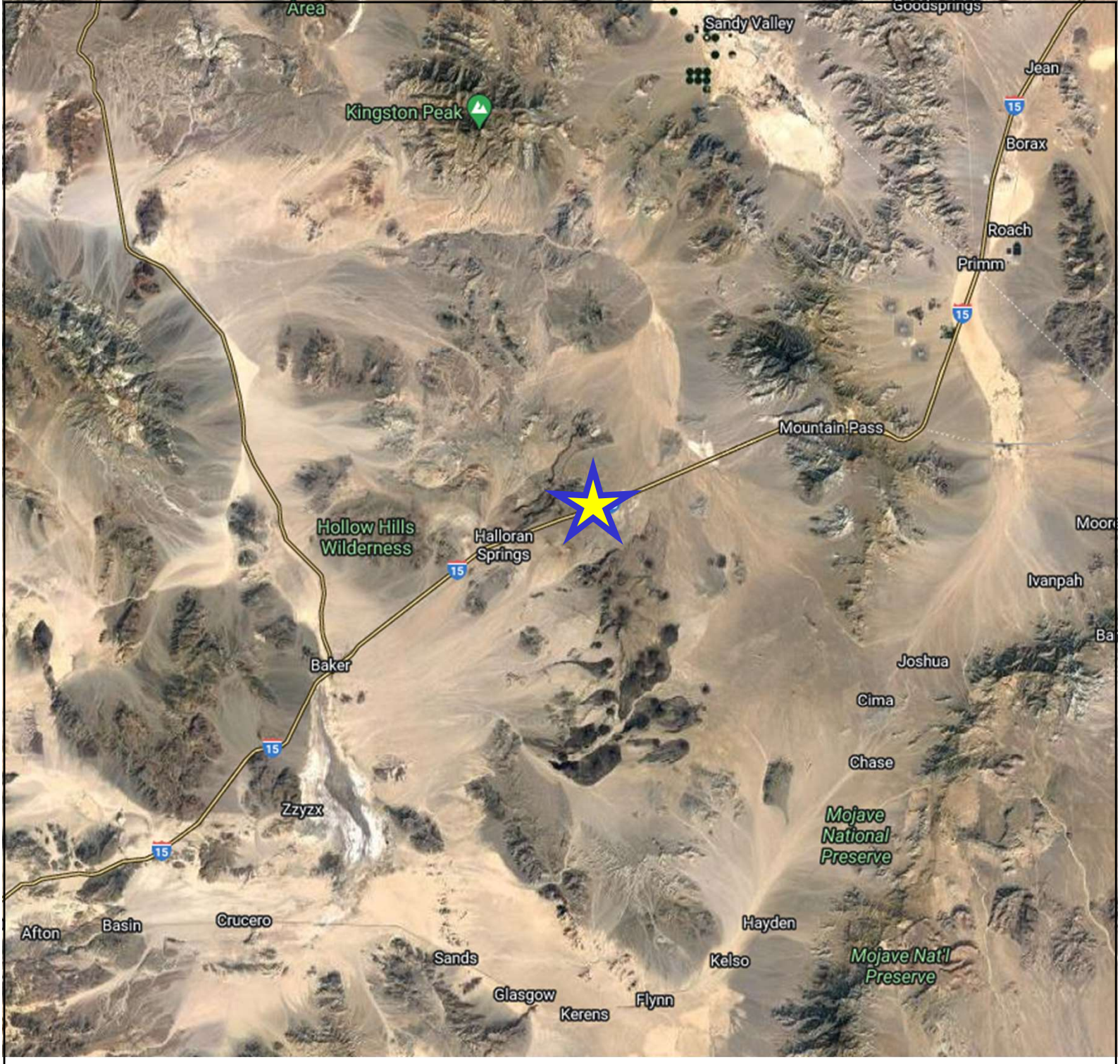
The materials observed on the project site appear to be representative of the area; however, soil conditions and natural materials vary in character between excavations and natural outcrops or conditions exposed during site construction. Site conditions may vary due to seasonal changes or other factors. GeoTek, Inc. assumes no responsibility or liability for work, testing or recommendations performed or provided by others.

Our recommendations are based on the site conditions observed and encountered, and laboratory testing. Our conclusions and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance with current standards of practice and no warranty is expressed or implied. Standards of practice are subject to change with time.

REFERENCES

San Bernardino County Public Health, Division of Environmental Health Services, 2017, "Local Agency Management Program (LAMP) for Onsite Wastewater Treatment Systems," dated May.

San Bernardino County Public Health, Division of Environmental Health Services, 2019, "Percolation Testing and Reporting Standards for Onsite Waste Water Treatment Systems," dated September.



APPROXIMATE SITE LOCATION

N

NOT TO SCALE

GeoTek, Inc.
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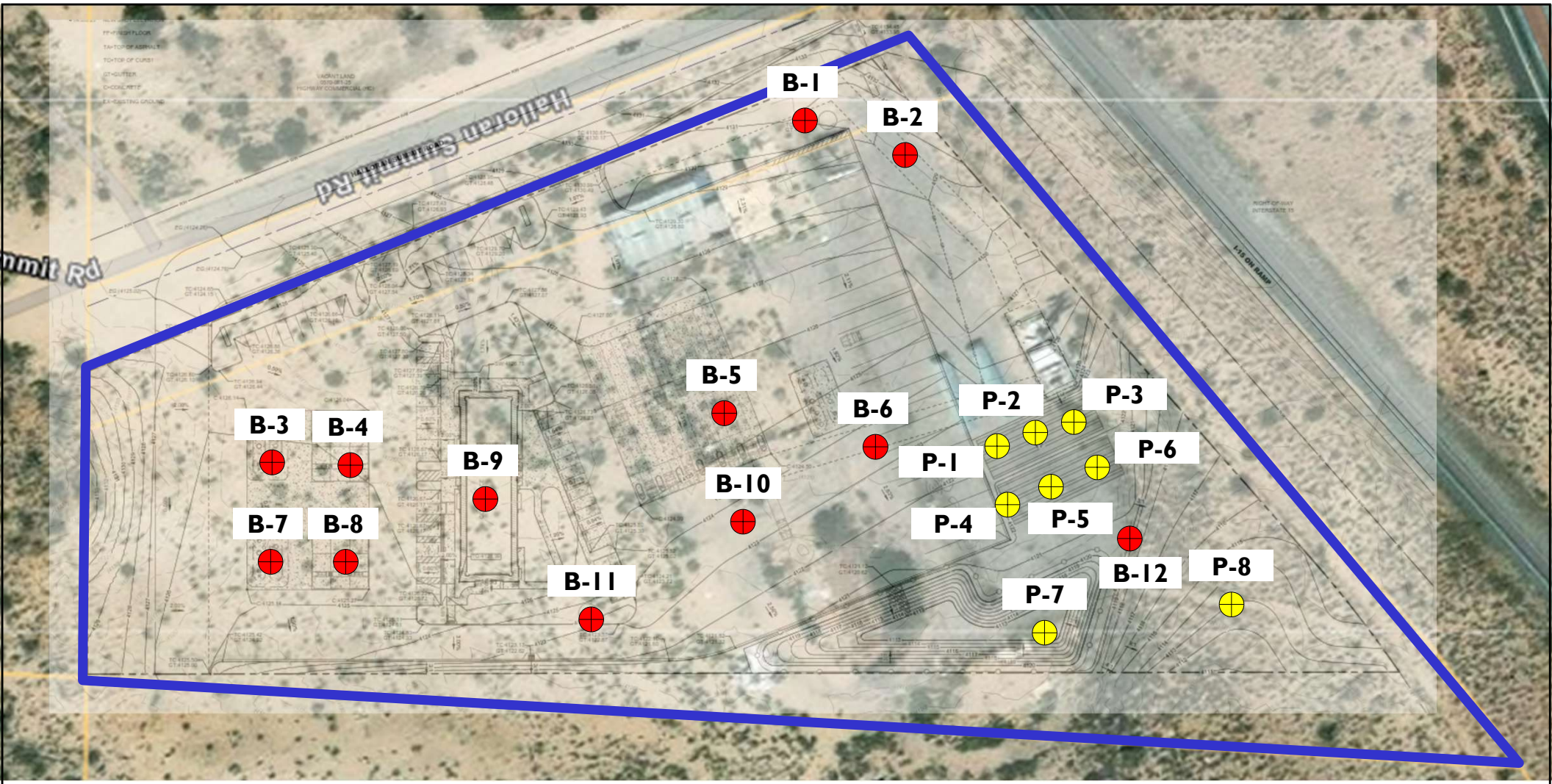
GEOTECHNICAL ENVIRONMENTAL MATERIALS

FIGURE 1
SITE MAP
Halloran Summit Travel Station
San Bernardino County, California
Prepared for: ETT CA, LLC

Project No.:	Report Date:	Drawn By:
17935-LV	April 2024	CJO



APPROXIMATE SITE LOCATION

APPROXIMATE LOCATIONS OF BORINGS

APPROXIMATE LOCATIONS OF PERCOLATION TESTS

NOT TO SCALE

N

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GEOTECHNICAL ENVIRONMENTAL MATERIALS

FIGURE 2
GEOTECHNICAL MAP
Halloran Summit Travel Station
San Bernardino County, California
Prepared for: ETT CA, LLC

Project No.:	Report Date:	Drawn By:
17935-LV	April 2024	CJO

APPENDIX A

BORING LOG GENERAL NOTES

CONSISTENCY OF FINE-GRAINED SOILS		
Unconfined Compressive Strength, Qu, psf	**Standard Penetration or N-Value (SS) Blows/Ft**	**Consistency**
< 500	<2	Very Soft
500 - 1,000	2 - 3	Soft
1,001 - 2,000	4 - 7	Firm
2,001 - 4,000	8 - 16	Stiff
4,001 - 8,000	17 - 32	Very Stiff
> 8,001	32+	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS	
Standard Penetration (SPT) or N-Value (SS) Blows/Ft	**Relative Density**
0 - 3	Very Loose
4 - 9	Loose
10 - 29	Medium Dense
30 - 49	Dense
50+	Very Dense

SPT penetration test using 140 pound hammer, with 30 inch free fall on 2 inch outside diameter(1-3/8 ID) sampler
For ring sampler using 140 lb hammer, with a 30 inch free fall on 3 inch outside diameter (2-1/2 ID) sample,
use N-value x 0.636 to get Standard N-value
For fine grained soil consistency, thumb penetration used per ASTM D-2488

RELATIVE PROPORTIONS OF SAND AND GRAVEL	
Descriptive Term of other constituents	**Percent of Dry Weight**
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY	
Major Component of Sample	**Particle Size**
Boulders	Over 12 inches
Cobbles	3 inches to 12 inches
Gravel	#4 Sieve to 3 inches
Sand	#200 Sieve to #4 Sieve
Silt or Clay	Passing #200 Sieve

RELATIVE HARDNESS OF CEMENTED SOILS (CALICHE)	
Description	**General Characteristics**
Very Dense to Moderately Hard	Partially Cemented Granular Soil - Can be carved with a knife and broken with force by hand.
Very Stiff to Moderately Hard	Partially Cemented Fine-Grained Soil - Can be carved with a knife and broken with force by hand.
Moderately Hard	Moderate hammer blow required to break a sample
Hard	Heavy hammer blow required to break a sample
Very Hard	Repeated heavy hammer blow required to break a sample

MOISTURE CLASSIFICATION	
Description*	**Degree of Saturation**
Dry	0%
Slightly Moist	1% - 50%
Moist	51%-75%
Wet	76% - 99%
Saturated	100%

*Defined as Condition of Sand

BORING LOG LEGEND

MATERIAL DESCRIPTION		
Soil Pattern	**USCS Symbol**	**USCS Classification**
	FILL	Artificial Fill
	GP or GW	Poorly/Well graded GRAVEL
	GM	Silty GRAVEL
	GC	Clayey GRAVEL
	GP-GM or GW-GM	Poorly/Well graded GRAVEL with Silt
	GP-GC or GW-GC	Poorly/Well graded GRAVEL with Clay
	GC-GM	Silty Clayey GRAVEL
	SP or SW	Poorly/Well graded SAND
	SM	Silty SAND
	SC	Clayey SAND
	SP-SM or SW-SM	Poorly/Well graded SAND with Silt
	SP-SC or SW-SC	Poorly/Well graded SAND with Clay
	SC-SM	Silty Clayey SAND
	ML	SILT
	MH	Elastic SILT
	CL-ML	Silty CLAY
	CL	Lean CLAY
	CH	Fat CLAY
	PCEM	PARTIALLY CEMENTED
	CEM	CEMENTED
	BDR	BEDROCK

SAMPLING	
	SPT
	Ring Sample
NR	No Recovery
	Bulk Sample
	Water Table

CONSISTENCY							
Cohesionless Soils		**Cohesive Soils**		**Cementation**		**Bedrock**	
VL	Very Loose	So	Soft	MH	Mod. Hard	ESt	Extremely Strong
L	Loose	F	Firm	H	Hard	VSt	Very Strong
MD	Medium Dense	S	Stiff	VH	Very Hard	St	Strong
D	Dense	VS	Very Stiff			MSt	Moderately Strong
VD	Very Dense					W	Weak
						Fr	Friable

BORING LOG

PROJECT #: 17935-LV
PROJECT: Halloran Summit Travel Center
CLIENT: ETT CA, LLC
LOCATION: ≈ 36.4012º, -115.7904º

LOGGED BY: CJO
METHOD: H. S. A.
DRILLER: BC2
DATE: 1/19/24
ELEVATION: ≈ 4136 ft

BORING NUMBER: B-1

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
0				FILL	(SM) Light Brown Silty SAND with Gravel; Slightly Moist	L / MD				
1				SM	Light Brown Silty SAND with Gravel; Slightly Moist	MD				
2										
3		27								
3		35		SC	Light Brown Clayey SAND with Gravel; Slightly Moist	MD	2.9	117.8		
4		50/5"					2.3	120.1		
5										
5		8		SM	Light Brown Silty SAND with Gravel, trace Clay; Slightly Moist	D				
6		19								
6		18								
7				SC	Light Brown Clayey SAND; Slightly Moist	D				
8										
9										
10				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 30 sec/ft @ 1800 psi	MH				
10		22								
11		50/2"								
12										
13					- Drill Rate: 30 sec/ft @ 1000 psi					
14					- Color Change: Greenish Brown					
15										
15		45								
16		50/1"								
16					**Boring Ends at Approximately 16.0 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4014º, -115.7903º**	**DATE:**	1/19/24
		ELEVATION:	≈ 4138 ft

BORING NUMBER: B-2

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
1				FILL	(SC) Light Brown Clayey SAND with Gravel; Slightly Moist	L MD				
2				SC	Light Brown Clayey SAND with Gravel; Slightly Moist	MD D				
3		17 50/5"		SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	VD	1.8	124.5		
4										
5		21 50/5"								
6										
7				SC	Light Brown Clayey SAND with Gravel; Slightly Moist	MD				
8										
9				PCEM	Light Greenish Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 30 sec/ft @ 1800 psi	MH				
10		23 50/5"								
11										
12										
13										
14					- Drill Rate: 45 sec/ft @ 1800 psi					
15		22 50/3"								
16					**Boring Ends at Approximately 16.0 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

PROJECT #: 17935-LV
PROJECT: Halloran Summit Travel Center
CLIENT: ETT CA, LLC
LOCATION: ≈ 35.4001º, -115.7893º

LOGGED BY: CJO
METHOD: H. S. A.
DRILLER: BC2
DATE: 1/18/24
ELEVATION: ≈ 4131 ft

BORING NUMBER: B-3

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	Dry Density (pcf)	Expansion Index	Other Testing
1	X			FILL	(SM) Light Brown Silty SAND with Gravel; Slightly Moist	L / MD				
2					- No Gravel					
3		7								
4		8		SM	Light Brown Silty SAND, trace Gravel; Slightly Moist	MD				
5		8			- Thin Partially Cemented Layer	D				
6		17				VD				
7		39		SC-SM	Light Brown Silty, Clayey SAND with Gravel, trace Gypsum; Slightly Moist	VD				
8		50/3"								
9				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist	MH				
10					- Drill Rate: 45 sec/ft @ 1800 psi					
11		24								
12		44								
13		50/3"								
14										
15										
16		34								
		50/2"			**Boring Ends at Approximately 16.0 Feet Depth**					
17					**No Groundwater Encountered**					
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4002º, -115.7894º**	**DATE:**	1/18/24
		ELEVATION:	≈ 4131 ft

BORING NUMBER: B-4

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
1				FILL	(SM) Light Brown Silty SAND; Slightly Moist	L / MD			0	
2				SM	Light Brown Silty SAND; Slightly Moist	D / VD				
3	NR	33 50/5"								
4										
5		10								
6		33 50/3"					1.7	127.5		
7				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 30 sec/ft @ 1500 psi	MH				
8										
9										
10					- Thin Non-Cemented Layer					
11		32 50/4"								
12										
13					- Drill Rate: 30 sec/ft @ 1200 psi					
14										
15										
16		36 50/3"			**Boring Ends at Approximately 16.0 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

PROJECT #: 17935-LV
PROJECT: Halloran Summit Travel Center
CLIENT: ETT CA, LLC
LOCATION: ≈ 35.4011º, -115.7896º

LOGGED BY: CJO
METHOD: H. S. A.
DRILLER: BC2
DATE: 1/18/24
ELEVATION: ≈ 4134 ft

BORING NUMBER: B-5

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
1				FILL	(SC) Light Brown Clayey SAND with Gravel; Slightly Moist	L				
2					- Metal Pipe	MD				
						D				
3		16		SC-SM	Light Brown Silty, Clayey SAND with Gravel; Slightly Moist	VD				
4		49 50/4"			- With Gypsum					
5		16		SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	D				
6		24								
7		20								
8				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist	MH				
9					- Drill Rate: 30 sec/ft @ 1000 psi					
10		44								
11		50/3"			- Drill Rate: 30 sec/ft @ 1500 psi					
12					- Thin Cemented Layer					
13					- Thin Cemented Layer					
14										
15		50/5"								
16					**Boring Ends at Approximately 15.5 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4014º, -115.7894º**	**DATE:**	1/18/24
		ELEVATION:	≈ 4132 ft

BORING NUMBER: B-6

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
				FILL	2" AC Pavement over SC-SM; Slightly Moist	MH				
1				FILL	(SC-SM) Light Brown Silty, Clayey SAND; Slightly Moist	MD				
2				SM	Light Brown Silty SAND, trace Gravel; Slightly Moist	D				
3		10				VD				
4		31 50					2.9	120.9		
5										
6		19 18 17								
7				SC	Light Brown Clayey SAND with Gravel; Slightly Moist	D				
8										
9				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 15 sec/ft @ 1000 psi	MH				
10		9								
11		37 46								
12					- Drill Rate: 30 sec/ft @ 1200 psi					
13										
14										
15		27								
16		50/4"			**Boring Ends at Approximately 16.0 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

PROJECT #: 17935-LV
PROJECT: Halloran Summit Travel Center
CLIENT: ETT CA, LLC
LOCATION: ≈ 35.4001º, -115.7890º

LOGGED BY: CJO
METHOD: H. S. A.
DRILLER: BC2
DATE: 1/18/24
ELEVATION: ≈ 4128 ft

BORING NUMBER: B-7

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
1				FILL	(SC-SM) Light Brown Silty, Clayey SAND; Slightly Moist	L MD				
2						D				
3		49 46		SM	Light Brown Silty SAND with Gravel; Slightly Moist	VD				
4		50/3"					2.5	123.9		
5	NR	50/4"		SC	Light Brown Clayey SAND, trace Gravel; Slightly Moist	VD				
6										
7				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 30 sec/ft @ 1500 psi	MH				
8										
9										
10	NR	50/5"								
11										
12										
13										
14										
15	NR	50/3"								
16					**Boring Ends at Approximately 15.5 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4003º, -115.7890º**	**DATE:**	1/18/24
		ELEVATION:	≈ 4128 ft

BORING NUMBER: B-8

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
1				FILL	(GM) Light Brown Silty GRAVEL with Sand, trace Organics; Slightly Moist	L / MD				
2				FILL	(SC-SM) Light Brown Silty, Clayey SAND; Slightly Moist	MD				
3		7								
4		13 11					2.7	125.8		
5						D				
6		15 22 50/4"			- Trash in Sampler					
7				SM	Light Brown Silty SAND, trace Gravel; Slightly Moist	VD	3.6	115.6		
8										
9				SC	Light Brown Clayey SAND; Slightly Moist	VD				
10		33								
11		50/2"		PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; - Drill Rate: 30 sec/ft @ 1500 psi	MH	4.1	120.1		
12										
13					- Drill Rate: 15 sec/ft @ 1000 psi					
14										
15		34								
16		44 50/2"								
17					**Boring Ends at Approximately 16.5 Feet Depth** **No Groundwater Encountered**					
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4005º, -115.7892º**	**DATE:**	1/18/24
		ELEVATION:	≈ 4130 ft

BORING NUMBER: B-9

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
1				FILL	(SC) Light Brown Clayey SAND; Slightly Moist	L / MD				
2				SC	Light Brown Clayey SAND; Slightly Moist - Increase in Sand	D				
3		7								
4		24 50/4"		SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	VD	3.1	114.9		
5										
6	NR	36 50/2"								
7										
8				SM	Light Yellowish Brown Silty SAND; Slightly Moist	VD				
9										
10		35 50/3"		PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 30 sec/ft @ 1200 psi	MH				
11										
12										
13					- Drill Rate: 30 sec/ft @ 1800 psi					
14										
15		22 50/4"								
16					**Boring Ends at Approximately 16.0 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4011º, -115.7892º**	**DATE:**	1/18/24
		ELEVATION:	≈ 4131 ft

BORING NUMBER: B-10

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
0				FILL	2" AC Pavement over SC; Slightly Moist	MH				
1				FILL	(SC) Light Brown Clayey SAND; Slightly Moist	MD				
2				SC	Light Brown Clayey SAND, trace Gypsum; Slightly Moist	D				
3		7				VD				
4	NR	22 35								
5		17		SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	D				
6		22 20								
7										
8				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 15 sec/ft @ 1200 psi	MH				
9										
10		44								
11		50/3"								
12										
13					- Drill Rate: 30 sec/ft @ 1200 psi					
14					- Color Change: Light Yellowish Brown					
15		50/5"								
16					**Boring Ends at Approximately 15.5 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4008º, -115.7890º**	**DATE:**	1/18/24
		ELEVATION:	≈ 4127 ft

BORING NUMBER: B-11

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
1				FILL	(SC) Light Brown Clayey SAND, trace Gravel; Slightly Moist	L / MD				
2				FILL	(SM) Light Brown Silty SAND; Slightly Moist	D				
3		10								
4		17 21			- Trash in Sampler		3.1	111.8		
5				SC	Light Brown Clayey SAND; Slightly Moist	VD				
6		23 50/4"								
7				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 30 sec/ft @ 1200 psi	MH				
8										
9										
10										
11		42 50/4"								
12					- Drill Rate: 45 sec/ft @ 1500 psi					
13										
14										
15		50/5"								
16					**Boring Ends at Approximately 15.5 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4019º, -115.7892º**	**DATE:**	1/19/24
		ELEVATION:	≈ 4127 ft

BORING NUMBER: B-12

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Expansion Index	LABORATORY TESTING: Other Testing
0				FILL	2" AC Pavement over GM; Slightly Moist	MH				
1				FILL	(GM) Dark Brown Silty GRAVEL with Sand; Slightly Moist	MD				
2					- Color Change: Brown	D				
3		17				VD				
		36		SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	VD	3.6	125.4		
4		43					4.0	125.4		
				SP	Light Brown Poorly Graded SAND; Slightly Moist	VD				
5		18								
6		24								
		27								
7										
8				SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist - Decrease in Sand	VD				
9										
10		28								
		50/5"			- Increase in Clay					
11				PCEM	Light Brown PARTIALLY CEMENTED Sand and Gravel; Slightly Moist - Drill Rate: 15 sec/ft @ 1000 psi	MH				
12										
13										
14										
15		17								
		50/5"								
16					**Boring Ends at Approximately 16.0 Feet Depth** **No Groundwater Encountered**					
17										
18										
19										
20										

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BORING LOG

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4018º, -115.7895º**	**DATE:**	2/22/24
		ELEVATION:	≈ 4127 ft

BORING NUMBER: P-1

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				FILL	(SM) Dark Brown Silty SAND with Gravel; Slightly Moist	L / MD				
2				SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	D				
3					**Boring Ends at Approximately 3.0 Feet Depth** **No Groundwater Encountered**					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4017º, -115.7895º**	**DATE:**	2/22/24
		ELEVATION:	≈ 4127 ft

BORING NUMBER: P-2

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				FILL	(SC) Dark Brown Clayey SAND with Gravel; Slightly Moist	L / MD				
2										
3					**Boring Ends at Approximately 3.0 Feet Depth** **No Groundwater Encountered**					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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BORING LOG

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4017º, -115.7894º**	**DATE:**	2/22/24
		ELEVATION:	≈ 4127 ft

BORING NUMBER: P-3

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				FILL	(SM) Dark Brown Silty SAND with Gravel; Slightly Moist	L / MD				
2				SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	MD				
3					**Boring Ends at Approximately 3.0 Feet Depth** **No Groundwater Encountered**					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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BORING LOG

PROJECT #: 17935-LV
PROJECT: Halloran Summit Travel Center
CLIENT: ETT CA, LLC
LOCATION: ≈ 35.4018º, -115.7894º

LOGGED BY: CJO
METHOD: H. S. A.
DRILLER: BC2
DATE: 2/22/24
ELEVATION: ≈ 4127 ft

BORING NUMBER: P-4

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				FILL	(SM) Dark Brown Silty SAND with Gravel; Slightly Moist	L / MD				
2				SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	MD				
3					**Boring Ends at Approximately 3.0 Feet Depth** **No Groundwater Encountered**					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4018º, -115.7894º**	**DATE:**	2/22/24
		ELEVATION:	≈ 4127 ft

BORING NUMBER: P-5

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				FILL	(SC) Dark Brown Clayey SAND with Gravel; Slightly Moist	L / MD				
2										
3					**Boring Ends at Approximately 3.0 Feet Depth** **No Groundwater Encountered**					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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BORING LOG

PROJECT #: 17935-LV
PROJECT: Halloran Summit Travel Center
CLIENT: ETT CA, LLC
LOCATION: ≈ 35.4017º, -115.7894º

LOGGED BY: CJO
METHOD: H. S. A.
DRILLER: BC2
DATE: 2/22/24
ELEVATION: ≈ 4127 ft

BORING NUMBER: P-6

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				FILL	(SM) Dark Brown Silty SAND with Gravel; Slightly Moist	L / MD				
2				SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	MD				
3					**Boring Ends at Approximately 3.0 Feet Depth** **No Groundwater Encountered**					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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BORING LOG

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4018º, -115.7890º**	**DATE:**	2/22/24
		ELEVATION:	≈ 4127 ft

BORING NUMBER: P-6

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				FILL	(SM) Dark Brown Silty SAND with Gravel; Slightly Moist	L / MD				
2										
3				SP-SC	Light Brown Poorly Graded SAND with Clay and Gravel; Slightly Moist	MD				
4										
5										
6										
7										
8					**Boring Ends at Approximately 8.0 Feet Depth** **No Groundwater Encountered**					
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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BORING LOG

GEOTEK

PROJECT #:	17935-LV	**LOGGED BY:**	CJO
PROJECT:	Halloran Summit Travel Center	**METHOD:**	H. S. A.
CLIENT:	ETT CA, LLC	**DRILLER:**	BC2
LOCATION:	**≈ 35.4021º, -115.7891º**	**DATE:**	2/22/24
		ELEVATION:	≈ 4120 ft

BORING NUMBER: P-8

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows / 6 in.	SAMPLES: Soil Pattern	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Consistency	LABORATORY TESTING: Water Content (%)	LABORATORY TESTING: Dry Density (pcf)	LABORATORY TESTING: Swell (%)	LABORATORY TESTING: Other Testing
1				SC	Light Brown Clayey SAND with Gravel; Slightly Moist	L / MD / D				
2										
3					**Boring Ends at Approximately 3.0 Feet Depth** **No Groundwater Encountered**					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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APPENDIX B

PERCOLATION TEST RESULTS

TEST NUMBER P-1

PROJECT NAME	Halloran Summit Travel Station	DATE	2/2/2024
PROJECT LOCATION	Halloran Summit Road		
TEST LOCATION	See Site Plan	REVIEWED BY	
TEST PERFORMED BY	C. O'Neill	REGISTRATION NO.	

TEST DATA

HOLE DIAMETER (inches)	8	DEPTH OF WATER IN HOLE	
TIME OF PRESOAKING (hours)	N/A - Fast Perc	AT START OF TEST (inches)	10
TEST DEPTH (feet)	3		

	TIME	DEPTH TO	DEPTH	PERCOLATION	
TIME OF	DIFFERENCE	WATER	DIFFERENCE	RATE	COMMENTS
READING	(minutes)	(inches)	(inches)	(minutes/inche)	
	(1)		(2)	(1) / (2)	
1:40	-	24	-	-	Start
1:47	7	34	10	0.70	Test
1:47	-	24	-	-	Refill
1:57	10	34	10	1.00	Test
Water Drained within 10 Minutes - Start Percolation Test					
1:57	-	28	-	-	Refill
2:07	10	31 3/4	3 3/4	2.67	Test
2:07	-	28	-	-	Refill
2:17	10	30 1/2	2 1/2	4.00	Test
2:17	-	28	-	-	Refill
2:27	10	30	2	5.00	Test
2:27	-	28	-	-	Refill
2:37	10	29 1/4	1 1/4	8.00	Test
2:37	-	28	-	-	Refill
2:47	10	29 1/4	1 1/4	8.00	Test
2:47	-	28	-	-	Refill
2:57	10	29 1/4	1 1/4	8.00	Test/Finish

SOIL DATA

0.0-1.5' FILL (SM) Dark Brown Silty Sand with Gravel; Slightly Moist

1.5-3.0' (SP-SC) Light Brown Poorly Graded Sand with Clay and Gravel; Slightly Moist

PERCOLATION TEST RESULTS

TEST NUMBER P-2

PROJECT NAME	Halloran Summit Travel Station	DATE	2/2/2024
PROJECT LOCATION	Halloran Summit Road		
TEST LOCATION	See Site Plan	REVIEWED BY	
TEST PERFORMED BY	C. O'Neill	REGISTRATION NO.	

TEST DATA

HOLE DIAMETER (inches)	8	DEPTH OF WATER IN HOLE	
TIME OF PRESOAKING (hours)	20	AT START OF TEST (inches)	10
TEST DEPTH (feet)	3		

TIME OF READING	TIME DIFFERENCE (minutes) (1)	DEPTH TO WATER (inches)	DEPTH DIFFERENCE (inches) (2)	PERCOLATION RATE (minutes/inche) (1) / (2)	COMMENTS
1:04	-	24	-	-	Start
1:14	10	28	6	1.67	Test
1:14	-	24	-	-	Refill
1:24	10	26	4	2.50	Test
Water Did Not Drain Out in 10 Minutes - Presoak Proceedure - Maintained 10" Head for at least 4 Hours					
9:40	-	28	-	-	Start
10:10	30	29 1/4	1 1/4	24.00	Test
10:10	-	28	-	-	Refill
10:40	30	28 7/8	7/8	34.29	Test
10:40	-	28	-	-	Refill
11:10	30	29	1	30.00	Test
11:10	-	28	-	-	Refill
11:40	30	29	1	30.00	Test
11:40	-	28	-	-	Refill
12:10	30	29	1	30.00	Test
12:10	-	28	-	-	Refill
12:40	30	29	1	30.00	Test/Finish

SOIL DATA

0.0-3.0' FILL (SC) Light Brown Clayey Sand with Gravel; Slightly Moist

PERCOLATION TEST RESULTS

TEST NUMBER P-3

PROJECT NAME	Halloran Summit Travel Station	DATE	2/2/2024
PROJECT LOCATION	Halloran Summit Road		
TEST LOCATION	See Site Plan	REVIEWED BY	
TEST PERFORMED BY	C. O'Neill	REGISTRATION NO.	

TEST DATA

HOLE DIAMETER (inches)	8	DEPTH OF WATER IN HOLE	
TIME OF PRESOAKING (hours)	N/A - Fast Perc	AT START OF TEST (inches)	10
TEST DEPTH (feet)	3		

TIME OF READING	TIME DIFFERENCE (minutes) (1)	DEPTH TO WATER (inches)	DEPTH DIFFERENCE (inches) (2)	PERCOLATION RATE (minutes/inche) (1) / (2)	COMMENTS
11:19	-	24	-	-	Start
11:29	10	34	10	1.00	Test
11:29	-	24	-	-	Refill
11:39	10	34	10	1.00	Test
Water Drained within 10 Minutes - Start Percolation Test					
11:40	-	28	-	-	Start
11:50	10	32 1/2	4 1/2	2.22	Test
11:50	-	28	-	-	Refill
12:00	10	31	3	3.33	Test
12:00	-	28	-	-	Refill
12:10	10	31	3	3.33	Test
12:10	-	28	-	-	Refill
12:15	5	29 1/4	1 1/4	4.00	Test
12:15	-	28	-	-	Refill
12:20	5	29 1/4	1 1/4	4.00	Test
12:20	-	28	-	-	Refill
12:25	5	29 1/4	1 1/4	4.00	Test
12:25	-	28	-	-	Refill
12:30	5	29 1/4	1 1/4	4.00	Test
12:30	-	28	-	-	Refill
12:35	5	29 1/4	1 1/4	4.00	Test
12:35	-	28	-	-	Refill
12:40	5	29 1/2	1 1/4	4.00	Test/Finish

SOIL DATA

0.0-1.0' FILL (SM) Dark Brown Silty Sand with Gravel; Slightly Moist

1.0-3.0' (SP-SC) Light Brown Poorly Graded Sand with Clay and Gravel; Slightly Moist

PERCOLATION TEST RESULTS

TEST NUMBER P-4

PROJECT NAME	Halloran Summit Travel Station	DATE	2/2/2024
PROJECT LOCATION	Halloran Summit Road		
TEST LOCATION	See Site Plan	REVIEWED BY	
TEST PERFORMED BY	C. O'Neill	REGISTRATION NO.	

TEST DATA

HOLE DIAMETER (inches)	8	DEPTH OF WATER IN HOLE	
TIME OF PRESOAKING (hours)	N/A - Fast Perc	AT START OF TEST (inches)	10
TEST DEPTH (feet)	3		

TIME OF READING	TIME DIFFERENCE (minutes) (1)	DEPTH TO WATER (inches)	DEPTH DIFFERENCE (inches) (2)	PERCOLATION RATE (minutes/inche) (1) / (2)	COMMENTS
1:40	-	24	-	-	Start
1:48	8	34	10	0.80	Test
1:48	-	24	-	-	Refill
1:57	9	34	10	0.90	Test
Water Drained within 10 Minutes - Start Percolation Test					
1:57	-	28	-	-	Start
2:02	5	31	3	1.67	Test
2:02	-	28	-	-	Refill
2:07	5	30 3/4	2 3/4	1.82	Test
2:07	-	28	-	-	Refill
2:12	5	30 1/2	2 1/2	2.00	Test
2:12	-	28	-	-	Refill
2:17	5	30 1/4	2 1/4	2.22	Test
2:17	-	28	-	-	Refill
2:22	5	30	2	2.50	Test
2:22	-	28	-	-	Refill
2:27	5	29 3/4	1 3/4	2.86	Test
2:27	-	28	-	-	Refill
2:32	5	29 1/2	1 1/2	3.33	Test
2:32	-	28	-	-	Refill
2:37	5	29 1/2	1 1/2	3.33	Test
2:37	-	28	-	-	Refill
2:42	5	29 1/4	1 1/4	4.00	Test
2:42	-	28	-	-	Refill
2:47	5	29 1/4	1 1/4	4.00	Test
2:47	-	28	-	-	Refill
2:52	5	29 1/4	1 1/4	4.00	Test
2:52	-	28	-	-	Refill
2:57	5	29 1/4	1 1/4	4.00	Test/Finish

SOIL DATA

0.0-1.0' FILL (SM) Dark Brown Silty Sand with Gravel; Slightly Moist

1.0-3.0' (SP-SC) Light Brown Poorly Graded Sand with Clay and Gravel; Slightly Moist

PERCOLATION TEST RESULTS

TEST NUMBER P-5

PROJECT NAME	Halloran Summit Travel Station	DATE	2/2/2024
PROJECT LOCATION	Halloran Summit Road		
TEST LOCATION	See Site Plan	REVIEWED BY	
TEST PERFORMED BY	C. O'Neill	REGISTRATION NO.	

TEST DATA

HOLE DIAMETER (inches)	8	DEPTH OF WATER IN HOLE	
TIME OF PRESOAKING (hours)	22	AT START OF TEST (inches)	10
TEST DEPTH (feet)	3		

TIME OF READING	TIME DIFFERENCE (minutes) (1)	DEPTH TO WATER (inches)	DEPTH DIFFERENCE (inches) (2)	PERCOLATION RATE (minutes/inche) (1) / (2)	COMMENTS
11:34	-	24	-	-	Start
11:44	10	30	6	1.67	Test
11:44	-	24	-	-	Refill
11:54	10	32	4	2.50	Test
Water Did Not Drain Out in 10 Minutes - Presoak Proceedure - Maintained 10" Head for at least 4 Hours					
9:10	-	28	-	-	Start
9:40	30	28 1/4	1/4	120.00	Test
10:40	60	28 5/8	3/8	160.00	Test
11:40	60	29	3/8	160.00	Test
12:40	60	29 3/8	3/8	160.00	Test/Finish

SOIL DATA

0.0-3.0' FILL (SC) Brown Clayey Sand with Gravel; Slightly Moist

PERCOLATION TEST RESULTS

TEST NUMBER P-6

PROJECT NAME	Halloran Summit Travel Station	DATE	2/2/2024
PROJECT LOCATION	Halloran Summit Road		
TEST LOCATION	See Site Plan	REVIEWED BY	
TEST PERFORMED BY	C. O'Neill	REGISTRATION NO.	

TEST DATA

HOLE DIAMETER (inches)	8	DEPTH OF WATER IN HOLE	
TIME OF PRESOAKING (hours)	N/A - Fast Perc	AT START OF TEST (inches)	10
TEST DEPTH (feet)	3		

TIME OF READING	TIME DIFFERENCE (minutes) (1)	DEPTH TO WATER (inches)	DEPTH DIFFERENCE (inches) (2)	PERCOLATION RATE (minutes/inche) (1) / (2)	COMMENTS
11:19	-	24	-	-	Start
11:29	10	34	10	1.00	Test
11:29	-	24	-	-	Refill
11:39	10	34	10	1.00	Test
Water Drained within 10 Minutes - Start Percolation Test					
11:39	-	28	-	-	Start
11:49	10	32	6	1.67	Test
11:49	-	28	-	-	Refill
11:59	10	32	6	1.67	Test
11:59	-	28	-	-	Refill
12:04	5	30 1/2	2 1/2	2.00	Test
12:04	-	28	-	-	Refill
12:09	5	30 1/2	2 1/2	2.00	Test
12:09	-	28	-	-	Refill
12:14	5	30 3/8	2 3/8	2.11	Test
12:14	-	28	-	-	Refill
12:19	5	30 3/8	2 3/8	2.11	Test
12:19	-	28	-	-	Refill
12:24	5	30 3/8	2 3/8	2.11	Test
12:24	-	28	-	-	Refill
12:29	5	30 3/8	2 3/8	2.11	Test
12:29	-	28	-	-	Refill
12:34	5	30 3/8	2 3/8	2.11	Test
12:34	-	28	-	-	Refill
12:39	5	30 3/8	2 3/8	2.11	Test/Finish

SOIL DATA

0.0-1.0' FILL (SM) Dark Brown Silty Sand with Gravel; Slightly Moist

1.0-3.0' (SP-SC) Light Brown Poorly Graded Sand with Clay and Gravel; Slightly Moist

PERCOLATION TEST RESULTS

TEST NUMBER P-8

PROJECT NAME	Halloran Summit Travel Station	DATE	2/2/2024
PROJECT LOCATION	Halloran Summit Road		
TEST LOCATION	See Site Plan	REVIEWED BY	
TEST PERFORMED BY	C. O'Neill	REGISTRATION NO.	

TEST DATA

HOLE DIAMETER (inches)	8	DEPTH OF WATER IN HOLE	
TIME OF PRESOAKING (hours)	21	AT START OF TEST (inches)	10
TEST DEPTH (feet)	3		

TIME OF READING	TIME DIFFERENCE (minutes) (1)	DEPTH TO WATER (inches)	DEPTH DIFFERENCE (inches) (2)	PERCOLATION RATE (minutes/inche) (1) / (2)	COMMENTS
1:36	-	24	-	-	Start
1:46	10	30	6	1.67	Test
1:46	-	24	-	-	Refill
1:56	10	28	4	2.50	Test
Water Did Not Drain Out in 10 Minutes - Presoak Proceedure - Maintained 10" Head for at least 4 Hours					
11:20	-	28	-	-	Start
11:50	30	31	3	10.00	Test
11:50	-	28	-	-	Refill
12:20	30	30 1/2	2 1/2	12.00	Test
12:20	-	28	-	-	Refill
12:50	30	29 3/4	1 3/4	17.14	Test
12:50	-	28	-	-	Refill
1:20	30	29 1/2	1 1/2	20.00	Test
1:20	-	28	-	-	Refill
1:50	30	29	1	30.00	Test
1:50	-	28	-	-	Refill
2:20	30	29	1	30.00	Test/Finish

SOIL DATA

0.0-3.0' (SC) Light Brown Clayey Sand with Gravel; Slightly Moist