GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

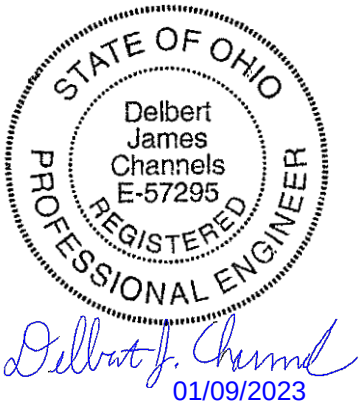
ADDITIONAL
FIELD EXPLORATION AND GEOTECHNICAL ENGINEERING REPORT

PROPOSED SHEETZ STORE & DIESEL REFUELING
S.E. CORNER – ERIE ST. & US HWY 62
MASSILLON, OHIO

Prepared For:

Sheetz Inc.

GPD Project No. 2020117.09
January 9, 2023



520 South Main Street, Suite 2531 | Akron, OH 44311 | 330.572.2100 | **gpdgroup.com**

Contents

Introduction

GPD is pleased to submit the results of a subsurface exploration performed for the aforementioned project. Due to an updated location for the gasoline UST area of the proposed Sheetz Store and the need for an estimated infiltration rate in the region of the proposed basin area, it was determined that additional subsurface information and sampling would be required. Our Geotechnical personnel revisited the site on the date of December 15th, 2022, to complete the additional subsurface investigations. This additional field exploration and Geotechnical engineering report is a supplement to our original subsurface report dated September 1, 2020.

Subsurface Exploration Program

The subsurface exploration conducted by GPD Geotechnical, performed on December 15, 2022, consisted of drilling and sampling at four (4) additional locations at the proposed Sheetz site.

Two (2) UST borings were drilled with a track-mounted 7822DT Geoprobe rotary drill rig using hollow-stem augers and an automatic hammer to advance the boreholes. Representative soil samples were obtained by split-barrel sampling procedure in general accordance with the appropriate ASTM standards. In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (N-Value). This value is used to estimate the in-situ relative density of cohesion-less soils and the consistency of cohesive soils. The sampling depths and penetration distance, plus the standard penetration resistance values, are shown on the UST boring logs. The samples were sealed and returned to the laboratory for testing and classification.

The drill crew prepared Field logs of each UST boring. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent an interpretation of the field logs and include modifications based on observations made by a Geotechnical Engineer and the results of laboratory testing.

Two (2) infiltration borings also took place with a track-mounted 7822DT Geoprobe drill rig. Auger advancement took place at each location to a depth of 8 feet below the existing site grades. Split-barrel sampling took place from 8 feet to 10 feet below grade. Penetration resistance values were not recorded. All recovered samples were sealed in jars and returned to our lab for USDA soil textural analysis testing.

Subsurface Conditions

Asphalt (UST Area) – The existing asphalt pavement encountered at soil boring B-17 & B-18 were measured to thicknesses of 6 inches.

Native Soil – The subgrade soils at the boring locations consisted of soft clay or loose to medium dense sand & silt with varying amounts of gravel. Soil moistures were generally found to be damp to moist. No groundwater was encountered.

Engineering Recommendations

The following engineering recommendations are a supplement our original subsurface investigation and information provided to GPD Group regarding the design of the proposed Sheetz, the field and laboratory testing performed on the soil encountered at this site, and other information discussed in this report. This report does not reflect variations that may occur across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, GPD should be immediately notified so that further evaluation and supplemental recommendations can be provided.

Geotechnical Considerations

Based on the information obtained during this study, the following geotechnical considerations should be taken into account during the planning, design and construction phases of the project. **These geotechnical considerations are provided as a summary of the soils of the specific test locations associated with this investigation and are an addition to the geotechnical considerations of our original subsurface report dated September 1, 2020.**

- The subgrades soils of soil boring B-17 & B-18 are similar or better to those of our original subsurface report. The considerations & foundation recommendations provided in that report are modified as follows: Excavations of the UST area may encounter a loose sand at the planned excavation depths as encountered elsewhere on site. The bottom of the excavation should be compacted by a smooth drum roller (or other vibratory type compactor) after grade is achieved. Due to the fine nature of some of the subgrades at planned UST depth a protective layer of crushed stone may be required to help prevent disturbance. Bedrock encounter is not anticipated for excavations of the UST area. Based on the referenced ODNR bedrock map and water well data, rock should not be encountered until a depth of approximately 100 feet below grade. Groundwater was not encountered in the borings for the UST's and is not anticipated to be an issue during proposed excavations. **Foundations for the UST's could be sized with a maximum allowable soil bearing pressure of 2,500 psf.**

- Planned grade in the region of soil boring B-17 & B-18 will closely match to those of the existing grades. Medium dense silts or soft silts with clays were encountered to a depth of 3 feet below planned grade at the boring locations. Although these subgrades will be removed during excavation for the UST's, a potential exists where these soils could be encountered adjacent to the UST area. If encountered, these silt soils would likely become disturbed during construction activity and/or fail a proof-roll. These subgrades should be handled per section 3.2 "Site Preparation" of our original subsurface report.

- The soils of the infiltration basin in the region of soil boring B-19 & B-20 consisted of a damp to moist, fine to coarse sand with trace amounts of silts & clays. A laboratory test of these soils resulted in a classification as a loamy sand. **The infiltration rate at a proposed basin depth of 8 to 9 feet can be design based on an estimated rate of 2.0 inches/hour.**

Limitations

The analysis and recommendations presented in this report are based upon the data obtained from the borings & and lab tests performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, GPD should be immediately notified so that further evaluation and supplemental recommendations can be provided.

This report has been prepared for the exclusive use of **Sheetz Incorporated** for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless GPD Group reviews the changes and either verifies or modifies the conclusions of this report in writing.

US ROUTE 30 (R/W VARIES)
STATE HIGHWAY PLANS STA-30-7.64

ERIE AVE - SR 21 - US 62 (R/W VARIES)
STATE HIGHWAY PLANS STA-62-16.240

ELLIOTT AVE SW (60' R/W)
(NOT IMPROVED)

ORTT RD SW (60' R/W)

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18 B-19 B-20

Past Borings

Additional Borings/Infiltration

N

0 40 80

20

1"=40'

Horizontal Scale in Feet

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REV.	DATE	DESCRIPTION

SHEETZ STORE
SE CORNER OF ERIE ST. AND US HWY 62
MASSILLON, OH 44646

ISSUED FOR:
PERMIT
BID
CONSTRUCTION
RECORD

PROJECT MANAGER	DESIGNER
JAL	TJW

JOB NO.
2020117.09

C-100

Drawing Name: O:\2020\2020117\09_Massillon\working Files\2022.11.21 Void - Files Contain Diesel Area\void Sheets\dd Docs\20201109 Geotech Site Plan.dwg
November 21, 2022 - mcellarsti

Boring Number: B-17

CLIENT Sheetz, Inc. **PROJECT NAME** Sheetz Store

PROJECT NUMBER 2021117.09 **PROJECT LOCATION** S.E. Corner of Erie St. & US HWY 62, Massillon, Ohio

DATE STARTED December 15, 2022 **COMPLETED** December 15, 2022 **GROUND ELEVATION** 990.50 ft **HOLE SIZE** 6 in

DRILLING CONTRACTOR GPD Geotechnical Services, Inc. **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger - 2 1/4" ID **AT TIME OF DRILLING** --- None

LOGGED BY Dave Campana **CHECKED BY** Thomas Kratz **AT END OF DRILLING** --- None

NOTES Drill Rig: Geoprobe 7822

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		6" ASPHALT										
		Moist, soft, brown, clayey SILT, some sand, little gravel.	SS 1	89	2-2-2 (4)							
		Moist, loose, brown, medium to coarse SAND & GRAVEL, little silt.	SS 2	56	2-2-3 (5)							
5												
		Damp, loose, brown, medium to coarse SAND & GRAVEL, trace of silt.	SS 3	28	2-4-2 (6)							
10												
		Damp, medium dense, tan, fine to coarse SAND, some gravel.	SS 4	89	4-12-12 (24)							
15												
		Damp, medium dense, tan, fine to medium SAND.	SS 5	78	7-7-7 (14)							
20												

Boring terminated at 20.0 feet

Boring Number: B-18

CLIENT Sheetz, Inc.
PROJECT NAME Sheetz Store
PROJECT NUMBER 2021117.09
PROJECT LOCATION S.E. Corner of Erie St. & US HWY 62, Massillon, Ohio
DATE STARTED December 15, 2022 **COMPLETED** December 15, 2022
GROUND ELEVATION 990.50 ft **HOLE SIZE** 6 in
DRILLING CONTRACTOR GPD Geotechnical Services, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 2 1/4" ID
AT TIME OF DRILLING --- None
LOGGED BY Dave Campana **CHECKED BY** Thomas Kratz
AT END OF DRILLING --- None
NOTES Drill Rig: Geoprobe 7822

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		6" ASPHALT										
		Moist, medium dense, brown SILT, some sand & clay.	SS 1	78	9-5-5 (10)							
		Damp to moist, loose, brown, fine to coarse SAND, some gravel & silt.	SS 2	44	3-4-3 (7)							
5												
		Damp, medium dense, brown & tan, fine to coarse SAND, little gravel & silt.	SS 3	72	4-4-7 (11)							
10												
		Damp, medium dense, tan, medium to coarse SAND, little gravel & silt.	SS 4	78	7-9-12 (21)							
15												
		Damp, medium dense, tan, fine to coarse SAND, trace of gravel.	SS 5	89	9-9-11 (20)							
20												

Boring terminated at 20.0 feet

Boring Number: B-19

CLIENT Sheetz, Inc. **PROJECT NAME** Sheetz Store

PROJECT NUMBER 2021117.09 **PROJECT LOCATION** S.E. Corner of Erie St. & US HWY 62, Massillon, Ohio

DATE STARTED December 15, 2022 **COMPLETED** December 15, 2022 **GROUND ELEVATION** 988.00 ft **HOLE SIZE** 6 in

DRILLING CONTRACTOR GPD Geotechnical Services, Inc. **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger - 2 1/4" ID **AT TIME OF DRILLING** --- None

LOGGED BY Dave Campana **CHECKED BY** Thomas Kratz **AT END OF DRILLING** --- None

NOTES Drill Rig: Geoprobe 7822

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				(Augering advanced to 8.0')
8.0				980.0
		SM		(SM) Damp to moist, fine to coarse SAND, trace of silt & clay. **USDA SOIL CLASSIFICATION: Loamy sand** Sand - 84.9% Silt - 9.1% Clay - 6.0% **ESTIMATED INFILTRATION RATE: 2.0 in/hr**
10.0				978.0

Boring terminated at 10.0 feet

Boring Number: B-20

CLIENT Sheetz, Inc. **PROJECT NAME** Sheetz Store

PROJECT NUMBER 2021117.09 **PROJECT LOCATION** S.E. Corner of Erie St. & US HWY 62, Massillon, Ohio

DATE STARTED December 15, 2022 **COMPLETED** December 15, 2022 **GROUND ELEVATION** 988.00 ft **HOLE SIZE** 6 in

DRILLING CONTRACTOR GPD Geotechnical Services, Inc. **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger - 2 1/4" ID **AT TIME OF DRILLING** --- None

LOGGED BY Dave Campana **CHECKED BY** Thomas Kratz **AT END OF DRILLING** --- None

NOTES Drill Rig: Geoprobe 7822

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				(Augering advanced to 8.0')
8.0				980.0
		SM		(SM) Damp to moist, fine to coarse SAND, trace of silt & clay. **USDA SOIL CLASSIFICATION: Loamy sand** Sand - 82.6% Silt - 12.0% Clay - 5.4% **ESTIMATED INFILTRATION RATE: 2.0 in/hr**
10.0				978.0

Boring terminated at 10.0 feet

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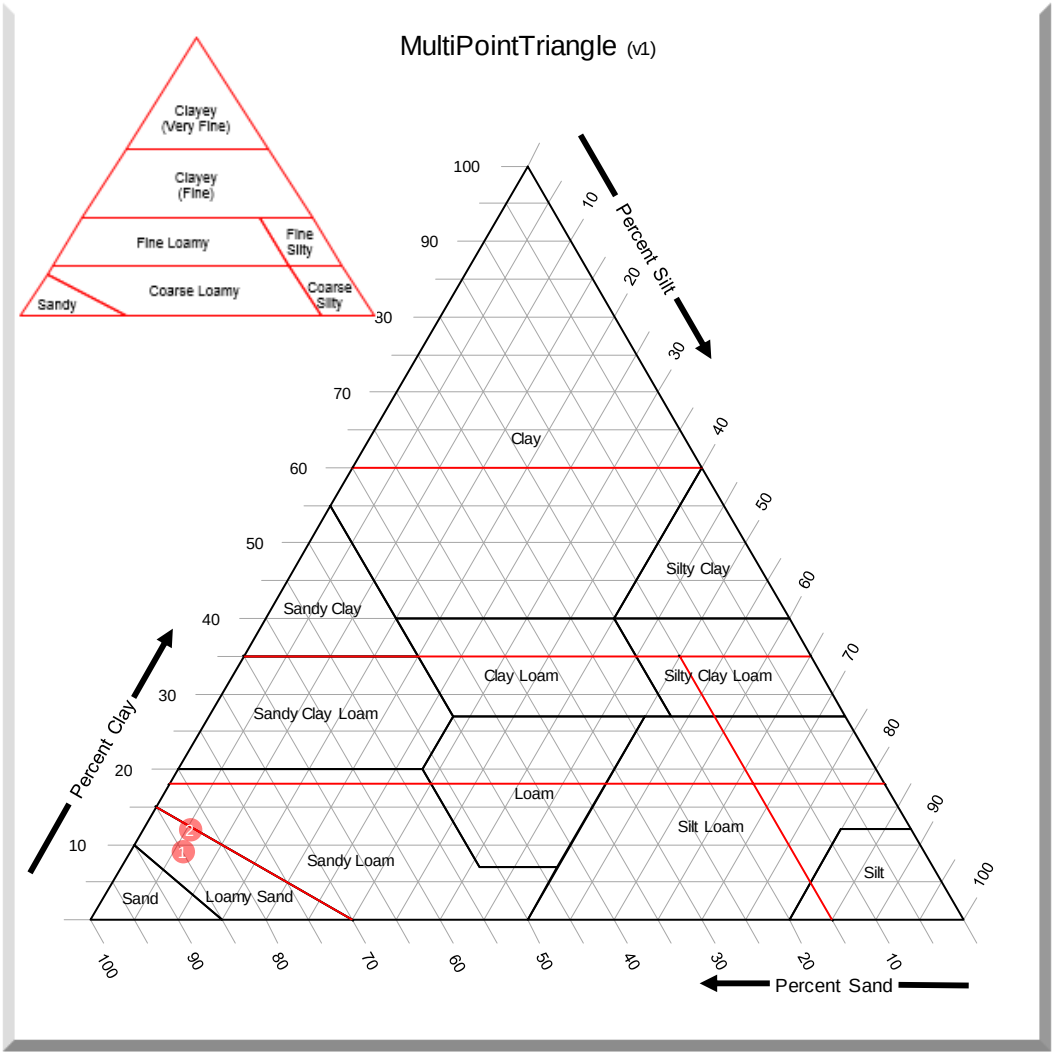
USDA Soil Classification

Project:	Sheetz Massillon	**GPD Project #**	2020117.09
Date:	December 29, 2022	**Lab #**	22243
Location:	Massillon, Ohio		

Sample	Sand % (2 mm – 0.075 mm)	Silt % (0.075 mm – 0.005 mm)	Clay % (<0.005 mm)	USDA Classification
#1: B-19 (8.0'-10.0')	84.9	9.1	6.0	Loamy Sand
#2: B-20 (8.0'-10.0')	82.6	12.0	5.4	Loamy Sand



GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.
HSA: Hollow Stem Auger - typically 3¼" or 4¼ I.D. openings, except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry
R.C.: Diamond Bit Core Sampler
H.A.: Hand Auger
P.A.: Power Auger - Handheld motorized auger

SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
BS: Bulk Sample
PM: Pressuremeter
CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings

SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.
N_{60}: A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)
Q_u: Unconfined compressive strength, TSF
Q_p: Pocket penetrometer value, unconfined compressive strength, TSF
w%: Moisture/water content, %
LL: Liquid Limit, %
PL: Plastic Limit, %
PI: Plasticity Index = (LL-PL),%
DD: Dry unit weight, pcf
▼,▽,▼ Apparent groundwater level at time noted

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N - Blows/foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

GRAIN-SIZE TERMINOLOGY

Component	Size Range
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (¾ in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to ¾ in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.005 mm to 0.075 mm
Clay:	<0.005 mm

PARTICLE SHAPE

Description	Criteria
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

RELATIVE PROPORTIONS OF FINES

Descriptive Term	% Dry Weight
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%

GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

Q_U - TSF	N - Blows/foot	Consistency
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

MOISTURE CONDITION DESCRIPTION

Description	Criteria
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term	% Dry Weight
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

STRUCTURE DESCRIPTION

Description	Criteria
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided:	Fracture planes appear polished or glossy, sometimes striated
Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed:	Inclusion of small pockets of different soils
Layer:	Inclusion greater than 3 inches thick (75 mm)
Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
Parting:	Inclusion less than 1/8-inch (3 mm) thick

SCALE OF RELATIVE ROCK HARDNESS

Q_U - TSF	Consistency
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

ROCK BEDDING THICKNESSES

Description	Criteria
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

ROCK VOIDS

Voids	Void Diameter
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

GRAIN-SIZED TERMINOLOGY

(Typically Sedimentary Rock)

Component	Size Range
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

ROCK QUALITY DESCRIPTION

Rock Mass Description	RQD Value
Excellent	90 -100
Good	75 - 90
Fair	50 - 75
Poor	25 -50
Very Poor	Less than 25

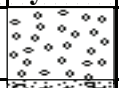
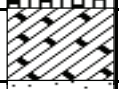
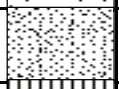
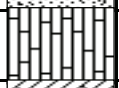
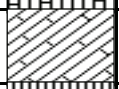
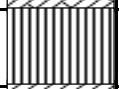
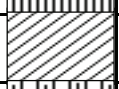
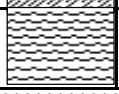
DEGREE OF WEATHERING

Slightly Weathered: Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.

Weathered: Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.

Highly Weathered: Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

Unified Soil Classification System

Major Divisions			Letter	Symbol	Description
Coarse-grained Soils More than ½ retained on the No. 200 Sieve	**Gravels** More than ½ coarse fraction retained on the No. 4 sieve	Clean Gravels	GW		Well-graded gravels and gravel-sand mixtures, little or no fines.
			GP		Poorly-graded gravels and gravel-sand mixtures, little or no fines.
		Gravels With Fines	GM		Silty gravels, gravel-sand-silt mixtures.
			GC		Clayey gravels, gravel-sand-clay mixtures.
	Sands More than ½ passing through the No. 200 sieve	Clean Sands	SW		Well-graded sands and gravelly sands, little or no fines.
			SP		Poorly-graded sands and gravelly sands, little or no fines.
		Sands With Fines	SM		Silty sands, sand-silt mixtures
			SC		Clayey sands, sandy-clay mixtures.
Fine-grained Soils More than ½ passing through the No. 200 Sieve	**Silts and Clays** Liquid Limit less than 50%		ML		Inorganic silts, very fine sands, rock flour, silty or clayey fine sands.
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL		Organic clays of medium to high plasticity.
	Silts and Clays Liquid Limit greater than 50%		MH		Inorganic silts, micaceous or diatomaceous fines sands or silts, elastic silts.
			CH		Inorganic clays of high plasticity, fat clays.
			OH		Organic clays of medium to high plasticity.
Highly Organic Soils			PT		Peat, muck, and other highly organic soils.

Consistency Classification

Granular Soils			*Cohesive Soils*		
Description - Blows Per Foot (Corrected)			Description - Blows Per Foot (Corrected)		
	MCS	SPT		MCS	SPT
Very loose	<5	<4	Very soft	<3	<2
Loose	5 - 15	4 - 10	Soft	3 - 5	2 - 4
Medium dense	16 - 40	11 - 30	Firm	6 - 10	5 - 8
Dense	41 - 65	31 - 50	Stiff	11 - 20	9 - 15
Very dense	>65	>50	Very Stiff	21 - 40	16 - 30
			Hard	>40	>30

MCS = Modified California Sampler SPT = Standard Penetration Test Sampler