GEOTECHNICAL ENGINEERING REPORT

PROPOSED SHEETZ STORE & DIESEL REFUELING
ERIE STREET SOUTH
MASSILLON, OHIO

Prepared For:

Sheetz Inc.

Attention:

David Mastrostefano

GPD Project No. 2020821.57
September 1, 2020

Delbert J. Channels, PE
Director of Geotechnical Services

Contents

SECTION 1

1.0 Introduction

GPD Group is pleased to submit this Geotechnical Report for the aforementioned project. The purpose of this study was to obtain information on the subsurface conditions at the proposed project site and, based on this information, to provide geotechnical recommendations regarding the design and construction of foundations, pavements, and site development for the Sheetz Store. Sixteen (16) borings extending to depths of approximately 10 to 35.0 feet below the existing ground surface were drilled at the site. Individual boring logs and a Boring Location Plan are attached.

1.1 Project Description

The site for the proposed facility is located east of Erie Street South and south of State Route 30, in Massillon, Ohio. At the time of our investigation an existing appliance sales store occupied a portion of the southwest region of the site.

An examination of ODNR sites indicate that there is a gas/oil well northeast of the site and the probable storage tank for the well located on the property at the southeast corner. Research also shows that the property is part of a strip mine, but the portion of the project property does not appear to have been mined. Research also showed that no karst topography exists at the property. ODNR bedrock maps and nearby water well logs suggest bedrock may lie at a depth of approximately 100 feet below the ground surface. Most of the site is currently wooded or covered by younger growth trees/brush.

We understand that the site will be developed for a Sheetz convenience store and car wash with associated pavement sections and fueling stations constructed at the south section of the property. The remainder of the property to the north is planned to contain a diesel refueling center & weigh station with associated pavement sections and truck parking. The new convenience store building will be comprised of a single-story wood or steel-frame structure with brick veneer and a slab-on-grade measuring about 6,500 square feet in plan dimension. Structural loadings are anticipated in line with those of similar size/design Circle K convenience stores, with bearing building walls at 3.5 kips per lineal foot, isolated columns at 60 kips and floor loads at 175 psf. Fueling islands are planned for gasoline west of the new building, with diesel islands and a weigh station north of the building, along with a car wash east of the building. Structural loading conditions for these structures were not available for this writing, however, we anticipate maximum foundation loads will be on the order of 50 kips and 2 kips per lineal foot for individual columns and continuous footings, respectively. Pavements around the proposed store will generally be comprised of conventional asphalt sections subject to light automobile vehicular traffic with occasional delivery trucks. Pavements of the diesel refueling center will generally be comprised of conventional asphalt sections subject to heavy vehicular traffic. Site grading is anticipated to have cuts and fills of up to 5 feet. Existing site grades are between 981 and 991 feet above sea level based on site topographic data.

1.2 Purpose and Scope

The purposes of this report were to investigate subsurface conditions within the proposed structure footprints and pavement locations and to provide geotechnical engineering recommendations for earthwork and foundation design. Specifically, the scope of work included the following:

- Conducting a field exploration program consisting of site reconnaissance and drilling sample borings at selected locations within the proposed structure footprints and pavement location to explore subsurface conditions and collect soil samples.
- Conducting geotechnical engineering laboratory test on sampled soils to assist with soil classifications and estimation of engineering properties.
- Develop geotechnical engineering recommendations for the design and construction of foundations, pavement sections and earthwork for site grading.

SECTION 2

2.0 Subsurface Exploration Program

The subsurface exploration consisted of drilling and sampling sixteen (16) borings at the site to depths ranging from 10 to 35 feet below existing grades. GPD personnel using a handheld GPS unit laid out the boring locations. The locations should be considered accurate only to the degree implied by the means and methods used to define them. The boring locations were cleared for existing utilities per an Ohio 811 call (OUPS) and by GPD Surveying utility locating personnel. Due to the site being heavily wooded or heavy brush, paths to the boring locations were cleared with a brush hog. Minor shifting of some of the boring locations took place due to obstructions.

The borings were drilled with a track-mounted Mobile B-54 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 boring logs. The samples were sealed and returned to the laboratory for testing and classification.

The drill crew prepared Field logs of each 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.

2.1 Laboratory Testing

The samples were classified in the laboratory based on visual observation, texture, and plasticity. The descriptions of the soils indicated on the boring logs are in accordance with the enclosed

General Notes and the Unified Soil Classification System. A brief description of this classification system is attached to this report.

The laboratory testing program consisted of performing the following tests:

- Natural water content tests (ASTM D-2216)
- Atterberg Limit test (ASTM D-4318)
- Sieve analysis (ASTM C-136)
- Standard Proctor (ASTM D-698)

2.2 Subsurface Conditions

Topsoil – Topsoil depths of the wooded areas of the site were found to measure to depths of 4 to 9 inches. The average a crossed our boring locations measured 6.5 inches.

Fill/Possible Fill – A fill/possible fill was encountered at Borings B-9, B-11, and B-13 thru B-16 to depths of 3 to 7 feet consisting of silts & sands with varying amount of gravel. The fill/possible fill was found to be dry to moist and loose to medium dense. Organics were not observed to be present.

Native Soils – Site soils consist of silts and sands with varying levels of gravel & cobbles. Consistencies across the boring locations for the soils were generally very loose to very dense. The soil moistures varied at all locations from damp to wet. Refer to the attached boring logs for additional soil information.

2.3.1 Groundwater Conditions

The borings were monitored while drilling and immediately after completion for the presence and level of groundwater. Groundwater was not encountered in any of the soil borings. Fluctuations of the groundwater level can occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

SECTION 3

3.0 Engineering Recommendations

The following engineering recommendations are based on information provided to GPD Group regarding the design of the proposed project, 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 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.

3.1 Geotechnical Considerations

Based on the information obtained during the course of 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 primary issues we believe are associated with this site. This report must be read in its entirety for a full description of our geotechnical recommendations:

- Foundations and floor slabs of the existing structures should be completely removed during demolition from the footprint of proposed structure or pavement areas. The areas of removed foundations are to be backfilled with an approved material and per the recommendations of this report. Any more stringent municipal demolition requirements will likely take precedence to this report regarding removal of existing structures.

- Very loose silt or sand soils may be encountered at planned building foundation depths, planned subgrades of the building pads or planned grade of the pavement areas. If very loose soils are encountered at planned bearing of the buildings as determined by a Geotechnical Engineer or personnel under the direction of the Engineer, undercuts should occur to an approved subgrade and per the recommendations of this report. If these soils are encountered during a proof-roll of the proposed building pads they should be undercut to an approved stable subgrade and backfilled with the same undercut soil in controlled lifts per the recommendations of this report. This same method can be employed if instability is observed during a proof-roll of the proposed pavement subgrades. If instability exists to depths more than 18 inches below the subgrades a partial undercut could occur and stabilized with a layer of Tensar TX-140 Geogrid followed by controlled lifts of crushed 304 limestone.

- Subgrades consisting of very loose or loose sand should be compacted with a smooth drum vibratory roller.

- Portions of the site consists of fill/possible fill subgrades. Proposed concrete or asphalt pavements can be supported by fills provided they pass a proof-roll with a fully loaded dump truck and do not contain a large percentage of organics or rubble. Unacceptable yielding areas under a proof-roll will either need to be undercut to an approved subgrade and per the recommendation of this report or stabilized with a partial undercut & replacement with Tensar TX-140 Geogrid and crushed 304 limestone. Areas containing subgrades with a large percentage of organics or rubble will need to be completely undercut.

- Excavations of the UST area will likely encounter a loose sand at the planned excavation depths. 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.

- Contingent upon proper site preparation and thorough evaluation of the foundation excavations, it is our opinion that the proposed building can be supported on conventional shallow foundations and slab-on-grade concrete floor slabs.

The following report sections provide detailed recommendations regarding the geotechnical considerations presented above. In the event changes in the project design occur, GPD Group must review this report to determine if modifications to our recommendations are warranted.

3.2 Site Preparation

All vegetation, topsoil, tree roots, organic-containing soils, and any soft or otherwise unsuitable materials should be removed from the site. Based on our borings, we estimate stripping depths of topsoil around 6.5 inches across most of the site.

Subsequent to site clearing and topsoil removal; proof-rolling with heavy construction equipment such as a loaded tandem axle dump truck (approximately 60,000 pound gross) is recommended in to aid in locating unstable subgrade materials. Proof rolling is also recommended in cut areas, and areas left near existing grade after rough grading is completed. Unstable materials located by proof rolling should be removed and replaced with suitable compacted fill material. Areas of very loose to loose sand should be densified with a smooth drum vibratory roller.

It should be noted that the encountered silty and clayey soils may be moisture sensitive and susceptible to disturbance from construction activity, particularly if the soil has a high natural moisture content and/or is wetted by surface water or seepage. It is therefore recommended that construction activities be deferred to the drier seasons. Given the nature of the soils at this site, it is anticipated that portions of the natural soils will likely pump and rut under the weight of heavy construction equipment, especially rubber-tired equipment. Therefore, care should be taken during the site grading operation to provide adequate site drainage and minimize disturbance of soils. Heavy equipment traffic directly on surfaces should be avoided in wet soil areas. It may also be necessary to aerate portions of the subgrade prior to placing additional fill.

Areas of unsuitable soil identified during proof-rolling or subsequent construction operations will need to be stabilized. Based on our borings and our experience during construction of similar structures, subgrade stabilization may be required to facilitate construction. Alternatives for subgrade stabilization could include the following:

Scarification and Recompaction - It may be feasible to scarify, dry, and recompact the exposed soils that are higher in moisture and/or are very loose in consistency. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Even with adequate time and weather, however, stable subgrades may not be achievable if the thickness of the very loose soil is greater than 1 to 1-1/2 feet. Removing sections to greater depths and replacing the material in layers may be necessary.

Crushed Stone - The use of crushed stone or gravel could be used to improve subgrade stability. The thickness and type of crushed stone will depend upon the conditions encountered and the

location of the area to be improved. GPD's on-site Quality Control representative will provide this information as needed. Typical undercut depths would range from 1/2 foot to 1-1/2 feet below finished subgrade elevation. The use of high modulus geotextiles (i.e., engineering fabric or geogrid) could also be considered after underground work such as utility construction is completed. Equipment should not be operated above the fabric or geogrid until one full lift of crushed stone fill is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid should not exceed 1-1/2 inches.

3.3 Fill Material

Any fill or backfill required within structure and pavement limits should be select material, as approved by a qualified geotechnical engineer. A composite sample from the soil boring samples were combined from the 1' to 2.5' sampling depths. A one-point proctor of the composite has yielded a sample that matches to curve "I" of the ODOT one-point proctor curve that has a maximum dry density of 121.7% at an optimum moisture of 11.9%. For all filling operations, the following should be observed:

1. Prior to use, the approved fill material should be tested as outlined in ASTM D-698 to determine the maximum dry density and optimum moisture content for silty or cohesive soils, or ASTM D-4253 and D-4254 for clean granular soils. For each change in borrow material, additional tests will be required.

2. For all fill or backfill used, the fill material should be placed on the approved subgrade in controlled lifts, with each lift compacted to a stable condition, and to a minimum of 98% maximum dry density per ASTM D-698 at a moisture content within 1.5% of optimum for cohesive or silty borrow. Controlled lifts of granular material should be compacted to 80% relative density per ASTM D-4254.

3. All filling operations should be observed by a qualified soils technician with field density tests made, to assure compaction to specification.

Proper moisture control of fine-grained silty soils is critical in attaining the required compaction. It should be noted that both in-situ soils and new fill composed of fine-grained soils are susceptible to disturbance by construction equipment traffic when wet. Thus, construction operations should be planned to prevent such disturbance and the resulting weakening of the subgrade soils. Such precautions would include, but not be limited to grading the site to prevent ponding of water, sealing the subgrade soils at the end of operations each day, and allowing wet subgrades to dry before operating heavy equipment on the soil.

3.4 Foundation Systems

Building Foundations – Foundations comprised of conventional wall and column spread footings bearing on suitable native soils or on properly compacted fill extending to suitable native soil may be sized using a maximum net allowable soil bearing pressure of 2,000 psf. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Wall bearing footings should have a minimum width of 18 inches and isolated column footings should have a minimum width of 36 inches to preclude local shear failure. Perimeter footings and footings beneath unheated areas should bear at or below the

local frost depth for protection (typically 36 inches for this area).

Canopy Foundations - Column spread footings bearing on suitable native soils or on properly compacted fill extending to suitable native soil may be sized using a maximum net allowable soil bearing pressure of 2,000 psf. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Column footings should have a minimum width of 36 inches to preclude local shear failure and should be sized to avoid uplift. Footings should bear at or below the local frost depth for protection (typically 36 inches for this area).

UST Foundations – Subgrades at the anticipated bearing depth of the underground storage tanks of 15 feet will likely consist of medium dense to very stiff silt/clay soils based on borings taken near the UST location. Foundations for the UST's could be sized with a maximum net allowable soil bearing pressure of 2,000 psf. Ground water is not anticipated to have an impact on the excavation for the underground storage tanks, however water seepage could be anticipated from a wet seam(s) which could be removed by localized pumps.

The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. Assuming that footing construction is performed in accordance with our recommendations, it is our opinion that total settlement will be about 1 inch or less. Differential settlement on the order of 2/3 to 3/4 of the total settlement should be anticipated.

The base of all foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed as soon as possible after excavating to minimize bearing soil disturbance. Should the soils at bearing level become excessively dry, saturated, disturbed, or otherwise altered, the affected soil should be removed prior to placing concrete. It may be desirable to stabilize the bottom of excavations with a relatively coarse and well-graded crushed stone or gravel, or a lean concrete mud mat.

All footing excavations should be observed and tested by a qualified Geotechnical Engineer or their representative. Testing should include dynamic cone penetrometer tests and/or other testing deemed necessary by GPD Group. Where unsuitable bearing soils are encountered in the footing excavations, the excavations should be extended deeper to suitable soils where the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The footings could also bear on properly compacted backfill extending down to the suitable soils. Over-excavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of over-excavation depth below footing base elevation. The over-excavation should then be backfilled up to the footing base elevation with well-graded granular material placed in lifts of 8 inches or less in loose thickness and compacted to at least 98 percent of the material's maximum standard Proctor dry density (ASTM D-698). The over-excavation and backfill procedures are described in Figure 1.

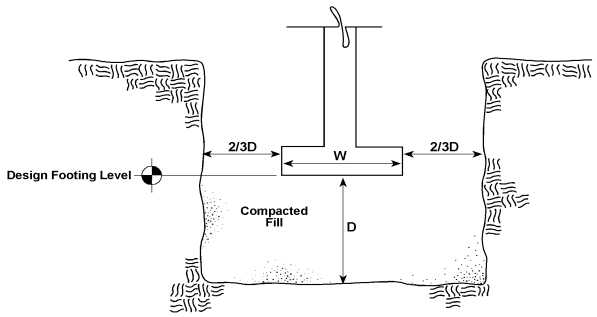

Figure 1: Foundation Over excavation and Backfill Procedure

3.5 Floor Slab Design and Construction

A subgrade prepared and tested as recommended in this report should provide adequate support for lightly loaded floor slabs. We recommend that floor slabs be designed as "floating" slabs, that is, fully ground supported and structurally independent of any building footings or walls. This is to minimize the possibility of floor slab cracking because of differential movements between the slab and the foundation. The slabs should be appropriately reinforced to support the proposed loads.

For design purposes, a modulus of subgrade reaction (K) equal to 125 pounds per cubic inch (pci) should be used for a properly prepared subgrade as discussed herein. Estimated maximum settlement of the floor slabs with relatively light loads is on the order of 1/2 inch. As a minimum, the floor slabs should be supported on a 4-inch compacted layer of free draining, granular subbase material. The purpose of this layer is to help distribute concentrated loads and act as a capillary break beneath the slab. If the owner is concerned about moisture vapor transmission through the concrete floor slab, a vapor barrier should be used.

3.6 Excavations

Excavation walls required for the fuel tank installation shall be sloped or shored per the requirements of OSHA regulations. Based on the borings performed at this site, we recommend that the excavations be designed using an OSHA Type "C" soil classification. The excavation bottom shall be graded to provide a smooth, firm and stable foundation that is free from rocks and other obstructions. Excavations that extend greater than 20 feet shall be designed and approved by a professional engineer. Any required dewatering should be accomplished via sump pits. Water should be discharged in a manner as not to introduce silt laden water into storm sewers or other local bodies of water.

3.7 Pavements

3.7.1 Flexible Asphalt Pavement

Conventional flexible pavement and rigid pavement sections for parking areas and roadways are considered appropriate for the proposed project pending proper site preparation as discussed herein. The following pavement design is based on an estimated California Bearing Ratio (CBR) value of 4.

Traffic patterns and anticipated loading conditions will be mostly semi-tractor trailers. According to Sheetz personnel a total of about 264 semi trucks will enter and leave the facility daily (based on the number of diesel fueling stations), with 1 pass per visit. Given this usage, we are assuming the lifetime design traffic loading will be 2,600,000 ESAL's. In the event traffic loading conditions do not align with assumptions stated above, GPD should be notified and afforded the opportunity to review these pavement sections and provide supplemental recommendations based on this new information.

Prior to paving, the prepared subgrade shall be proof-rolled using a loaded tandem axle dump truck. **Unstable materials located by proof rolling should be removed and replaced with suitable compacted fill material, or partially undercut and stabilized with Tensar TX-140 Geogrid covered with ODOT 304 limestone.** GPD recommends that granular aggregate base material, in compliance with Ohio Department of Transportation specifications, be used under all pavement and concrete surfaces. The material should be placed and compacted as discussed in Section 3.3. The pavement sections may be placed after the subgrade has been properly compacted, fine-graded, and proof-rolled. The work shall be done in accordance with local and state specifications. Furthermore, GPD or an Independent Testing Consultant (ITC) should be retained to provide testing on all subgrade, aggregate base and asphalt/concrete materials.

It is important to note that the recommended asphalt pavement sections are based on assumed post-construction traffic loading conditions. If pavements are to be constructed and utilized by construction traffic, the recommended sections will likely prove insufficient for the associated loads which could result in unanticipated distress, reduced lifespan, and/or premature failure.

An asphalt pavement section has been provided in Table 1 for a normal-duty (car only) & heavy-duty pavement sections using standard Sheetz specifications, which are acceptable.

Table 1: Recommended Flexible Asphalt Pavement Sections

RECOMMENDED THICKNESSES (INCHES)*		
PAVEMENT MATERIAL*	**NORMAL-DUTY PAVEMENT SECTION**	**HEAVY-DUTY PAVEMENT SECTION**
Asphalt Surface Course (Item 441, Type I; ODOT Approved)	1.5	2.0
Asphalt Intermediate Course (Item 441, Type 2; ODOT Approved)	4.5	5.0**
Graded Aggregate Base (Item 304; ODOT Approved)	8.0	8.0

** Pavement and subbase materials should conform to ODOT guidelines. **2 Layers*

All recommended asphalt materials shall conform to Ohio Department of Transportation (ODOT) design criteria. The maximum proportion of Recycled Asphalt Pavement (RAP) to virgin aggregates shall not exceed 20 percent of the total mix. All HMA placed shall be compacted to between 92 and 97 percent of the materials theoretical maximum density as determined by AASHTO Method T-209 and placed per ODOT thickness guidelines provided in Reference Section 406.

3.7.2 Rigid Concrete Pavement

Table 2 provides a concrete pavement section for normal-duty and heavy-duty pavements using standard Sheetz designs.

Table 2: Recommended Rigid Concrete Pavement Sections

RECOMMENDED THICKNESSES (INCHES)*		
PAVEMENT MATERIAL*	**NORMAL-DUTY PAVEMENT SECTION**	**HEAVY-DUTY PAVEMENT SECTION**
Concrete Pavement	6.0	6.0
Graded Aggregate Base (Item 304; ODOT Approved)	8.0	8.0

** Portland cement concrete should conform to ODOT guidelines and be adequately reinforced per ACI recommendations*

The minimum concrete pavement design sections should conform to an allowable construction tolerance of plus or minus 0.25 inches. The concrete should be air-entrained (5.5% ±1.5%), be fiber reinforced, and have a minimum compressive strength of 4,000 psi after 28 days of laboratory curing per ASTM C-31.

Layout of saw-cut control joints should form square panels, and the depth of saw-cut joints should be approximately ¼ of the concrete slab thickness. Joints should be spaced a maximum of 12 and 15 feet for light- and heavy-duty pavements, respectively. The joints should be sawed within six (6) hours of concrete placement or as soon as the concrete has developed sufficient strength to support workers and equipment. Synthetic fiber may be utilized in approved mix designs but should not be intended to replace steel reinforcement. It is recommended that the concrete pavement be minimally reinforced with welded steel wire mesh in general accordance with ACI recommendations.

SECTION 4

4.0 Additional Design and Construction Considerations

4.1 Seismic Considerations

Based on the subsurface profile found in the test boring, a Seismic Site Classification "D" should be used for design of the structures according to the "International Building Code and Related Codes, Section 1613.5.2 Site Class Definitions.

4.2 Surface Drainage

Adequate drainage should be provided at the site to minimize any increase in moisture content of the foundation materials. All pavement or parking areas should be sloped away from the structures to prevent ponding of water. Water should not be allowed to pond adjacent to the pavement edges.

4.3 Subsurface Drainage

At the time of this investigation, no groundwater was encountered at the boring locations. Surface water entering excavations could have an impact on installation of the buried fuel storage tanks and backfill placement. Conventional dewatering methods, such as pumping from sumps, should be adequate for temporary removal of any surface water or groundwater encountered during excavation at the site. If springs or other significant groundwater is exposed during the excavation process, it may be necessary to install permanent trench drains to remove this water away from the building and pavements. The location and design of any trench drains should be determined at the time of construction, if warranted.

4.4 General Comments

GPD Group should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Subsequent to the demolition of the existing building and pavements, GPD should also be retained to provide testing and observation during site preparation and fill placement operations as well as during the foundation, floor slab and pavement construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings 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 or between borings and areas covered by the existing facility. 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.

The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

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.

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MN (8.5° W)

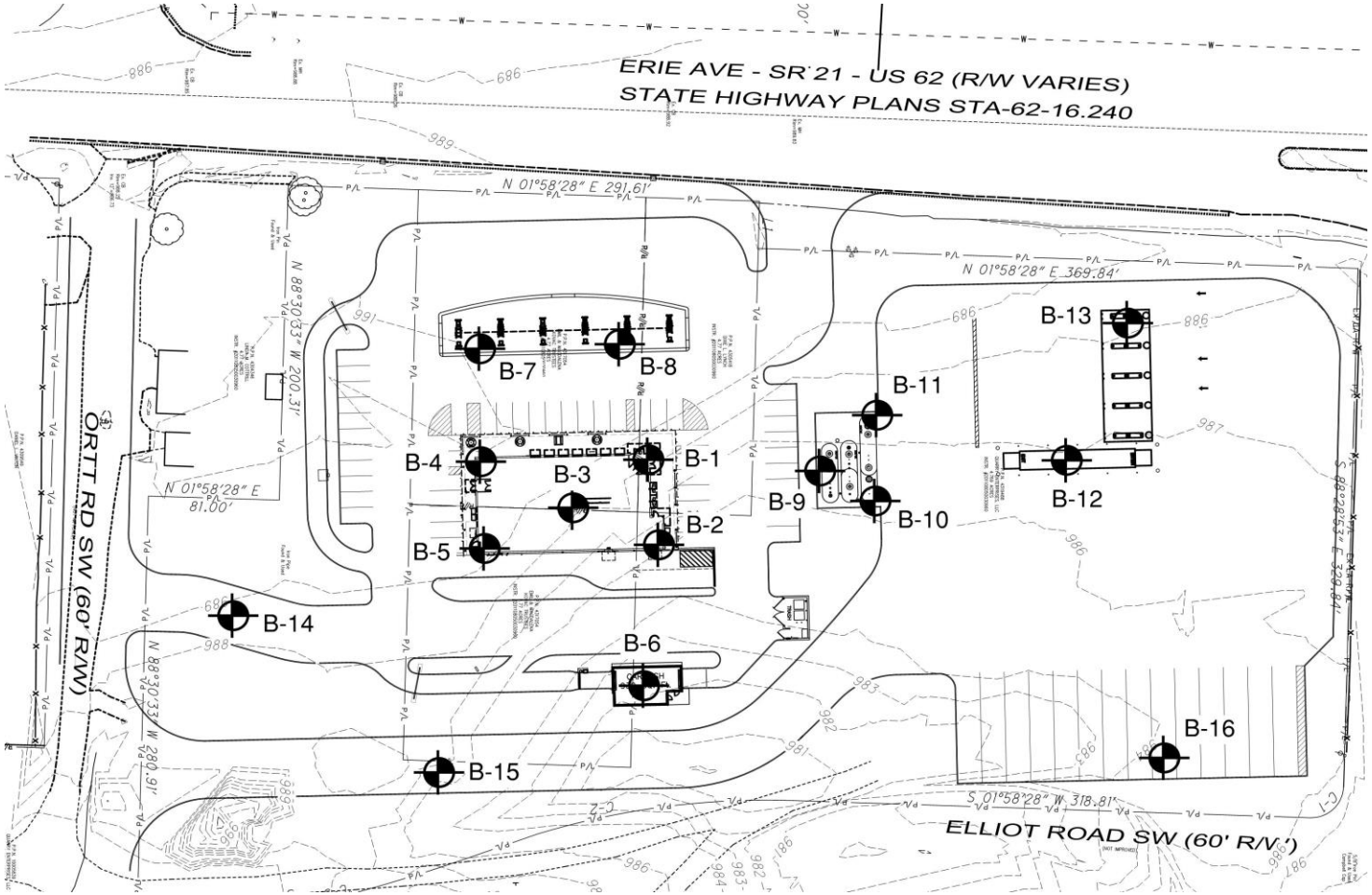
0 600 1200 1800 2400 3000 3600 ft
Data Zoom 13-1

GPD GROUP

SITE LOCATION MAP

Sheetz Store
Erie Street South, Massillon, Ohio
GPD Project Number: 2020821.57
Date: August 2020

LOCATION PLAN



Legend

Soil Boring: ⊕

PROJECT: Sheetz Store

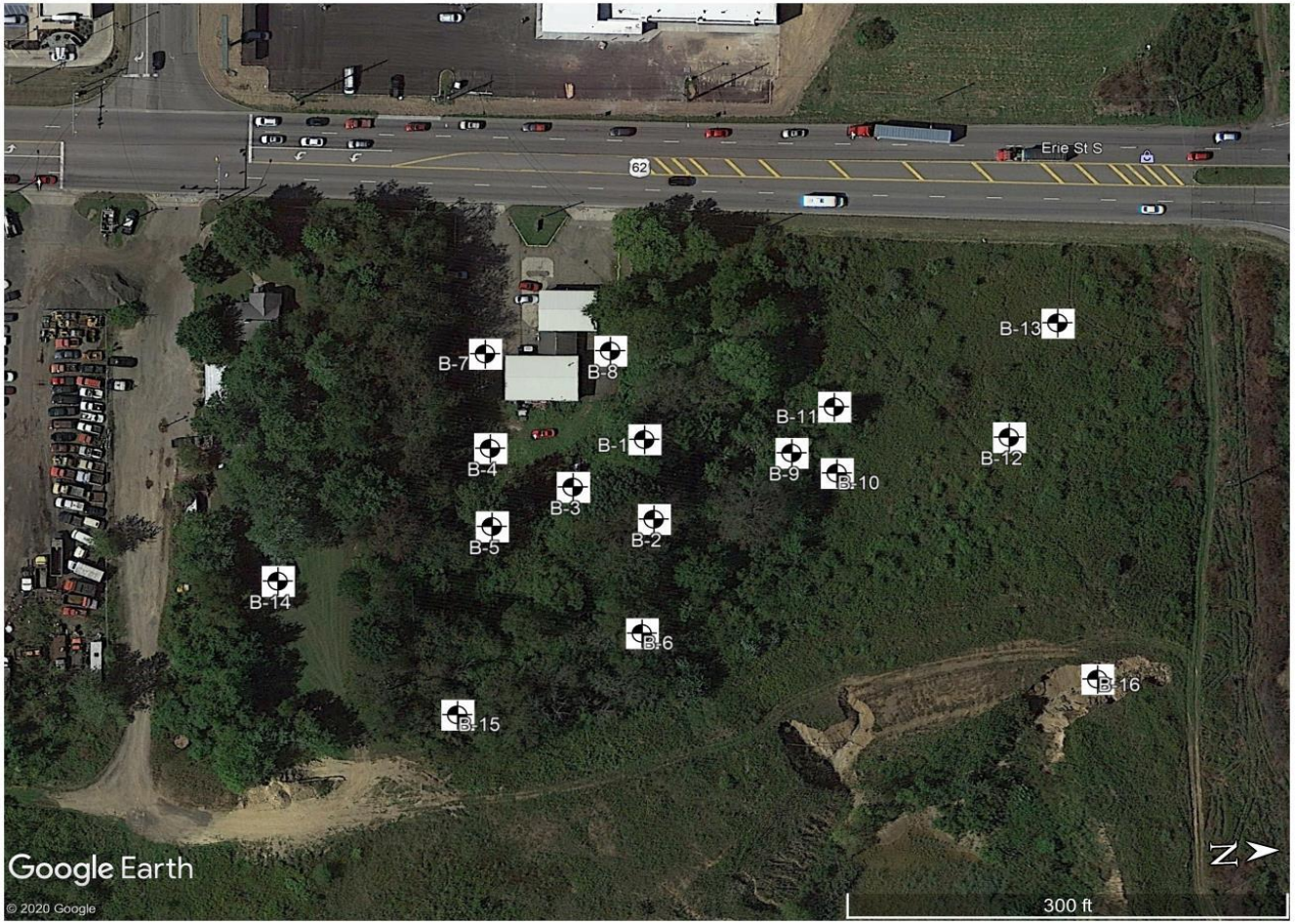
PROJECT NUMBER: 2020821.57 **DATE**: 8/30/2020

LOCATION: Erie Street South, Massillon, Ohio

GPD GEOTECHNICAL SERVICES, INC.®

520 South Main Street, Suite 2531 ☐ Akron, Ohio 44311 ☐ (330)733-6748

LOCATION PLAN



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Soil Boring: ⊕

PROJECT: Sheetz Store

PROJECT NUMBER: 2020821.57 **DATE**: 8/30/2020

LOCATION: Erie Street South, Massillon, Ohio

GPD GEOTECHNICAL SERVICES, INC.®

520 South Main Street, Suite 2531 ☐ Akron, Ohio 44311 ☐ (330)733-6748

Boring Number: B-1

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 4, 2020 **COMPLETED** August 4, 2020 **GROUND ELEVATION** 988 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. Hole closure 8.0'

NOTES Mobil B-54

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" TOPSOIL.										
		Damp to moist, very loose to loose, brown SILT, some san, minor gravel.	SS 1	33	WOH/3"-2-2			14				
		Damp, loose, brown, fine to coarse SAND, minor gravel & silt.	SS 2	83	4-4-3 (7)							
5												
		Damp, very loose, brown, fine to coarse SAND, some gravel & silt.	SS 3	44	3-1-2 (3)							
10												
		Damp, medium dense, brown & tan, fine to medium SAND, minor gravel.	SS 4	44	3-4-7 (11)							
15												
		Damp, dense, brown, fine to coarse SAND, some gravel.	SS 5	33	10-17-14 (31)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-2

CLIENT Sheetz Inc.
PROJECT NAME Sheetz Store
PROJECT NUMBER 2020821.52
PROJECT LOCATION Erie Street South, Massillon, Ohio
DATE STARTED August 10, 2020 **COMPLETED** August 10, 2020
GROUND ELEVATION 986 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. Hole closure 16.2'
NOTES Mobil B-54

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		9" TOPSOIL.										
		Damp, loose, brown SILT, some sand, minor gravel.	SS 1	67	2-4-4 (8)			12				
		Damp, loose, brown, fine to coarse SAND, some silt & gravel.	SS 2	44	8-3-4 (7)			8				
5												
		Damp, medium dense, brown & tan, fine to medium SAND, minor gravel.	SS 3	78	4-5-7 (12)							4
10												
		Damp, loose, brown & tan, fine to medium SAND, minor gravel.	SS 4	78	4-4-5 (9)							
15												
		Damp, medium dense, brown, fine to coarse SAND, some gravel.	SS 5	83	4-7-20 (27)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-3

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 4, 2020 **COMPLETED** August 4, 2020 **GROUND ELEVATION** 988 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. Hole closure 12.5'

NOTES Mobil B-54

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		8" TOPSOIL.										
		Damp, medium dense, brown SILT, some sand, trace of gravel.	SS 1	94	5-6-8 (14)			11				
		Damp, loose, brown, fine to coarse SAND, some gravel, minor silt.	SS 2	39	6-3-4 (7)							
5												
		Damp, loose, brown, fine to coarse SAND, some gravel, minor silt.	SS 3	72	1-2-2 (4)							
10												
		Damp, very loose, brown, medium to coarse SAND, trace of gravel.	SS 4	61	5-1-2 (3)							
15												
		Damp, medium dense, brown, fine to medium SAND & GRAVEL.	SS 5	78	6-5-6 (11)							
20												
		Damp, very dense, brown, fine to coarse SAND, GRAVEL & COBBLES.	SS 6	83	6-13-15 (28)							
25												
		Damp, medium dense, brown, medium to coarse SAND, minor gravel.	SS 7	53	15-35-50/3"							
30												
		Damp, brown SILT, minor sand.	SS 8	83	8-12-13 (25)							
35												

Boring terminated at 35.0 feet

Boring Number: B-4

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 5, 2020 **COMPLETED** August 5, 2020 **GROUND ELEVATION** 991 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. Hole closure 6'

NOTES Mobil B-54

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		8" TOPSOIL.										
		Damp, medium dense, brown SILT, minor sand & clay.	SS 1	83	7-6-6 (12)			14				
		Damp to moist, loose, brown, medium to coarse SAND, some gravel, minor silt.	SS 2	78	5-4-3 (7)							
5												
		Moist, loose, brown, fine to coarse SAND, some gravel, minor silt.	SS 3	83	2-2-3 (5)							
10												
		Damp, medium dense, brown, medium to coarse SAND, trace of gravel.	SS 4	78	3-4-6 (10)							
15												
		Damp, medium dense, brown & tan, fine to medium SAND, trace of gravel.	SS 5	78	3-5-8 (13)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-5

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 6, 2020 **COMPLETED** August 6, 2020 **GROUND ELEVATION** 988 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. Hole closure 6'

NOTES Mobil B-54

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		8" TOPSOIL.										
		Damp, medium dense, brown SILT, some sand, minor gravel.	SS 1	78	8-10-9 (19)			11				
		Damp, loose, brown, fine to coarse SAND & GRAVEL.	SS 2	61	4-2-3 (5)							
5												
		Damp, medium dense, brown, fine to medium SAND, minor gravel.	SS 3	78	4-5-6 (11)							
10												
		Damp, medium dense, brown, fine to coarse SAND & GRAVEL.	SS 4	72	6-6-7 (13)							
15												
		Damp, medium dense, brown & tan, fine to medium SAND, minor gravel.	SS 5	78	4-5-7 (12)							
20												

Boring terminated at 20.0 feet

Boring Number: B-6

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 6, 2020 **COMPLETED** August 6, 2020 **GROUND ELEVATION** 982.5 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. Hole closure 6'

NOTES Mobil B-54

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" TOPSOIL.										
		Damp, loose, brown, fine to coarse SAND & GRAVEL, some silt.	SS 1	11	5-3-3 (6)							
		Moist, loose, brown, fine to coarse SAND, some silt & gravel.	SS 2	78	3-2-2 (4)							
5												
		Damp, loose, brown, fine to coare SAND & GRAVEL.	SS 3	61	1-3-3 (6)							
10												
		Moist, loose, brown, fine to medium SAND; CLAY seam.	SS 4	67	2-3-3 (6)							
15												
		Moist to wet, loose, brown, medium to coarse SAND & GRAVEL.	SS 5	56	5-3-4 (7)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-7

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 5, 2020 **COMPLETED** August 5, 2020 **GROUND ELEVATION** 991 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. Hole closure 7'

NOTES Mobil B-54

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			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		5" ASPHALT.										
		Moist, loose, brown SILT, some sand.	SS 1	94	6-4-2 (6)			24	23	16	7	
		Moist, loose, brown, fine to coarse SAND, trace of gravel.	SS 2	100	4-3-3 (6)							
5												
		Damp, medium dense, brown, fine to medium SAND, trace of gravel.	SS 3	72	9-9-9 (18)							
10												
		Damp to moist, medium dense, brown, fine to coarse SAND, some gravel.	SS 4	61	2-5-10 (15)							
15												
		Damp, medium dense, brown & tan, fine to medium SAND, trace of gravel.,	SS 5	83	5-8-11 (19)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-8

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 5, 2020 **COMPLETED** August 5, 2020 **GROUND ELEVATION** 990.5 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. Hole closure 8'

NOTES Mobil B-54

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		4" ASPHALT.										
		Moist, medium dense, brown, fine to medium SAND, some silt & gravel.	SS 1	89	7-6-5 (11)							
		Damp to moist, loose, brown, medium to coarse SAND & SILT, minor gravel.	SS 2	67	5-3-4 (7)			14				
5												
		Moist, loose, brown, fine to coarse SAND, minor silt & gravel.	SS 3	72	3-5-5 (10)							
10												
		Damp to moist, medium dense, brown, medium to coarse SAND, some gravel.	SS 4	67	12-9-10 (19)							
15												
		Moist, medium dense, brown & tan, fine to medium SAND, trace of gravel.	SS 5	78	7-10-11 (21)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-9

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 6, 2020 **COMPLETED** August 6, 2020 **GROUND ELEVATION** 986.5 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. Hole closure 7'

NOTES Mobil B-54

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		8" TOPSOIL.										
		Damp, medium dense, brown, medium to coarse SAND, some silt & gravel. (Possible fill)	SS 1	67	6-5-6 (11)							
		Damp, loose, brown, fine to coarse SAND, minor gravel & silt.	SS 2	78	4-3-3 (6)							
5												
		Damp, loose, brown & tan, fine to coarse SAND, minor gravel.	SS 3	83	4-4-3 (7)							
10												
		Moist, very loose, brown, fine to medium SAND, trace of gravel.	SS 4	94	2-1-2 (3)							
15												
		Damp to moist, loose, brown, medium to coarse SAND; Fine SAND seams.	SS 5	89	4-4-5 (9)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-10

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 6, 2020 **COMPLETED** August 6, 2020 **GROUND ELEVATION** 986.5 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. Hole closure 8'

NOTES Mobil B-54

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" TOPSOIL.										
		Damp, medium dense, brown SILT, minor sand, trace of gravel.	SS 1	61	6-5-5 (10)			14				
		Damp, loose, brown, fine to coarse SAND, some gravel, minor silt.	SS 2	83	5-3-3 (6)							
5												
		Damp, loose, brown, fine to coarse SAND, some gravel.	SS 3	83	4-3-4 (7)							
10												
		Damp, loose, brown, fine to medium SAND, trace of gravel.	SS 4	89	2-2-2 (4)							
15												
		Damp to moist, loose, tan, fine SAND.	SS 5	89	4-5-4 (9)							
20												

Boring terminated at 20.0 feet

Boring Number: B-11

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 6, 2020 **COMPLETED** August 6, 2020 **GROUND ELEVATION** 987.5 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** 8.00 ft / Elev 979.50 ft Wet seam.

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

NOTES Mobil B-54

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		7" TOPSOIL.										
		Damp, medium dense, brown, medium to coarse SAND, some gravel & silt. (Possible fill)	SS 1	67	5-6-6 (12)							
		Damp, loose, tan & brown, fine to medium SAND, trace of gravel.	SS 2	67	3-3-3 (6)							
5												
		Damp to moist, loose, brown, fine to coarse SAND, some gravel. ▽	SS 3	61	3-3-5 (8)							
10												
		Damp, loose, brown & tan, fine to medium SAND, trace of gravel.	SS 4	83	3-3-4 (7)							
15												
		Damp, loose, brown, fine to coarse SAND, minor gravel.	SS 5	89	3-4-4 (8)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-12

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 6, 2020 **COMPLETED** August 6, 2020 **GROUND ELEVATION** 987 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. Hole closure 7'

NOTES Mobil B-54

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" TOPSOIL.										
		Damp, medium dense, brown, medium to coarse SAND, some gravel & silt.	SS 1	78	8-6-7 (13)							
		Damp, loose, brown, fine to coarse SAND, some gravel, minor silt.	SS 2	56	3-2-5 (7)							
5												
		Damp, medium dense, brown, fine to coarse SAND & GRAVEL.	SS 3	78	8-9-8 (17)							
10												
		Damp, medium dense, brown, medium to coarse SAND, minor gravel.	SS 4	83	8-7-10 (17)							
15												
		Damp, medium dense, brown, fine to coarse SAND & GRAVEL.	SS 5	67	5-7-9 (16)							
20												

Boring terminated at 20.0 feet

Boring Number: B-13

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 6, 2020 **COMPLETED** August 6, 2020 **GROUND ELEVATION** 988 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. Hole closure 6'

NOTES Mobil B-54

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" TOPSOIL.										
		Damp, medium dense, brown, fine to coarse SAND, some silt, minor gravel. (Possible fill)	SS 1	100	6-5-6 (11)			10				
		Damp, loose, brown, fine to coarse SAND, minor gravel & silt.	SS 2	67	3-3-3 (6)							
5												
		Damp, loose, brown, fine to coarse SAND & GRAVEL.	SS 3	67	3-4-3 (7)							
10												
		Damp, very loose, brown & tan, fine to medium SAND, trace of gravel.	SS 4	89	2-1-2 (3)							
15												
		Damp to moist, loose, brown, fine to coarse SAND, minor gravel.	SS 5	78	2-3-3 (6)							
20												

Boring terminated at 20.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRIST\JOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-14

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 10, 2020 **COMPLETED** August 10, 2020 **GROUND ELEVATION** 987 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 Mobil B-54

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 (%)
0.0		5" TOPSOIL.										
		Damp, medium dense, brown, fine to coarse SAND, some gravel & silt. (Possible fill)	SS 1	94	4-9-11 (20)			12				
2.5		Damp, medium dense, brown, fine to coarse SAND, some gravel.	SS 2	56	6-6-4 (10)							
5.0												
7.5		Damp, loose, brown, fine to coarse SAND, minor gravel.	SS 3	67	2-3-5 (8)							
10.0												

Boring terminated at 10.0 feet

GENERALIZED SUBSURFACE PROFILE - GINT STD US LAB.GDT - 9/1/20 10:34 - F:\GPD GIL\CHRISTJOBS\2020\2020821\821.57 - SHEETZ INC. - SHEETZ MASSILLON, OHIO\B-1 THROUGH B-16.GPJ

Boring Number: B-15

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 10, 2020 **COMPLETED** August 10, 2020 **GROUND ELEVATION** 987 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. Hole closure 7.8'

NOTES Mobil B-54

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 (%)
0.0		6" TOPSOIL.										
		Dry, medium dense, brown SILT, some sand & gravel. (Fill)	SS 1	89	8-15-14 (29)			6				
2.5		Damp, loose, brown, fine to coarse SAND & GRAVEL.	SS 2	78	5-4-5 (9)							
5.0												
7.5		Damp, medium dense, brown, fine to coarse SAND, some gravel.	SS 3	72	6-7-7 (14)							
10.0												

Boring terminated at 10.0 feet

Boring Number: B-16

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

PROJECT NUMBER 2020821.52 **PROJECT LOCATION** Erie Street South, Massillon, Ohio

DATE STARTED August 10, 2020 **COMPLETED** August 10, 2020 **GROUND ELEVATION** 984 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.

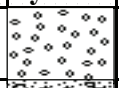
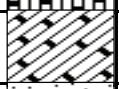
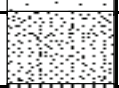
LOGGED BY Dave Campana **CHECKED BY** Thomas Kratz **AT END OF DRILLING** --- None. Hole closure 6.8'

NOTES Mobil B-54

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 (%)
0.0		Damp, loose, dark brown SILT, some sand & gravel. (Fill)										
			SS 1	94	7-5-4 (9)			12				
2.5		Damp to moist, loose, dark brown, medium to coarse SAND, some gravel & silt. (Possible fill)										
			SS 2	94	3-3-2 (5)							
5.0												
7.5		Damp, loose, brown, fine to medium SAND.										
			SS 3	50	2-2-3 (5)							
10.0												

Boring terminated at 10.0 feet

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

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.