January 17, 2025

American Structurepoint, Inc.
2550 Corporate Exchange Drive, Suite 300
Columbus, OH 43231

Attention: Mr. Tom Hibbard, P.E.

Reference: **Utility Exploration – Data Summary Report**
CUY-90-6.69 Pavement Replacement (PID 76779)
Cleveland, Cuyahoga County, Ohio
S&ME Project No. 1179-20-021

Mr. Hibbard:

S&ME, Inc. (S&ME) has completed the supplemental Utility Exploration for the proposed storm sewer improvements being planned as part of the proposed CUY-90-6.69 pavement replacement project in Cuyahoga County, OH. This work was performed in accordance with our revised proposal dated November 25, 2024, which received advanced authorization from American Structurepoint, Inc. (ASI), on November 13, 2024, after receiving advanced authorization from ODOT. This Data Summary Report presents the results of the additional utility explorations performed between Lakeside Avenue (on the west) and West Boulevard (on the east).

♦ Project Information

S&ME was requested by ODOT D12 to perform twenty-nine (29) utility explorations to provide subsurface information related to the construction of storm sewer improvements during Part 1 of the CUY-90-6.69 Pavement Replacement project between Lakeside Avenue (on the west) to West Boulevard (on the east). The requested depths of the borings ranged from 14 to 41 feet deep. The requested scope of work also included updating the previously prepared Roadway Soil Profile Sheets for this project to incorporate the results of the new utility borings. These sheets are being completed, and an updated set will be submitted at a later date under separate cover.

Additionally, during the scoping of this utility boring program, S&ME identified a highly variable bedrock surface profile in the vicinity of the Valley View Drive overpass bridge and the west abutment of the bridge carrying IR 90 over the Rocky River. Because of the highly variability bedrock surface profile identified on the available historic boring logs, and its potential impact on the installation of the proposed storm sewer, ODOT D12 requested that S&ME also perform a geophysical investigation consisting of one (1) line of 2D MASW (Multi-Channel Analysis of Surface Waves) from approximately 200 feet west of Valley View Drive to the western abutment of the Rocky River bridge, a distance of approximately 400 feet. The findings of this MASW survey are also being submitted in a separate report.

♦ Field Exploration

A Plan of Explorations showing the approximate locations of the borings and MASW survey performed during this Utility Exploration program is included as Plates 2A through 2K of the Appendix. S&ME selected and marked the

borings in the field at the approximate locations approved by ODOT District 12. A handheld GPS with sub-meter horizontal accuracy was used to record these locations. S&ME provided these coordinates to ASI, who then determined the ground surface elevation at each location. The coordinates obtained by S&ME and the ground surface elevations provided by ASI are included on the individual boring logs on Plates 5 through 37 of the Appendix.

During the period of December 3 through 18, 2024, a total of twenty-nine (29) utility borings (see Table 1) were performed to explore the existing soils in the vicinity of the proposed utility improvements to be completed as part of the CUY-90-6.69 project. These borings were positioned in the existing outside and inside shoulders of eastbound and westbound IR 90 and the HA (Hillard Boulevard to IR 90 eastbound) and W2A (W. 140th Street to IR 90 eastbound) ramps. Twenty-four (24) of the twenty-nine (29) borings encountered bedrock, and bedrock was cored in twelve (12) of these borings.

Table 1 – Summary of As-Drilled Boring Depths

Boring ID*	Depth (ft)	Boring ID*	Depth (ft)	Boring ID*	Depth (ft)
B-002-5-24	15	B-023-1-24	14.4	B-044-1-24	15
B-003-2-24	25	B-025-2-24	14	B-048-6-24	14.3
B-005-2-24	30	B-026-3-24	15	B-049-4-24	17
B-006-1-24	41	B-028-2-24	16	B-051-6-24	16.5
B-012-2-24	25	B-029-1-24	16.4	B-053-1-24	14.4
B-013-1-24	16.3	B-031-1-24	16.5	B-054-3-24	14
B-015-1-24	25	B-034-1-24	17.5	B-056-1-24	17.7
B-018-3-24	24	B-037-2-24	41.2	B-057-3-24	29
B-019-2-24	24	B-041-3-24	15	B-059-5-24	40.3
B-021-2-24	18.5	B-043-3-24	15		

*Hereafter referred to without the two-digit year designation

The borings were advanced by truck- or ATV-mounted drill rigs using a 3¼-inch I.D. hollow-stem auger. Disturbed, but representative, samples were procured by lowering a 2-inch O.D. split-barrel sampler to the bottom of the boring and then driving the sampler with blows from a 140-pound hammer freely falling 30 inches (AASHTO T206 – Standard Penetration Test, SPT). SPT samples were examined immediately after recovery and representative portions were preserved in airtight glass jars. Upon completion of each boring, groundwater observations were recorded, and the boring was backfilled using soil cuttings mixed with bentonite or a cement/bentonite mixture. The pavement surface was repaired with cold-patch asphalt.

In accordance with the ODOT *Specifications for Geotechnical Explorations* (*SGE*), the hammer system on the drill rigs was calibrated in accordance with ASTM D4633. Three rigs were utilized to perform the borings and the drill rod energy and calibration dates are as follows:

- OTB Mobile B-57 Truck Rig, calibrated on 12/22/2022 with a drill rod energy of 91.0%.
- OTB D50 ATV Rig, calibrated on 12/22/2022 with a drill rod energy of 79.1%
- Wertz CME 55 Truck Rig, calibrated on 10/4/2024 with a drill rod energy of 92.8%

The drill rod energies exceeding 90% have been limited to 90% per Section 404.3 of the ODOT *SGE*. In 12 borings, bedrock was cored with a NQ size diamond bit core barrel using water as a circulating fluid. Recovered bedrock core specimens were placed in cardboard or wooden rock core storage boxes for observation and transport, with select bedrock specimens preserved in plastic for potential unconfined strength testing in the laboratory.

At each boring location S&ME obtained an 8-inch diameter core of the existing pavement prior to performing the drilling and sampling. Each recovered core was observed in the field and the thickness of the pavement materials was recorded, and the thickness of the underlying base materials were then measured.

In the field, experienced personnel performed the following specific duties: preserved all recovered soil samples; prepared a log of each boring; made seepage and groundwater observations; obtained hand-penetrometer measurements in soil samples exhibiting cohesion; measured the recovered pavement cores; and coordinated with the S&ME Project Engineer so that the program of explorations could be modified, if necessary, because of unanticipated conditions. All recovered soil samples and pavement cores were transported to the laboratory of S&ME for further identification and testing.

♦ Laboratory Testing Program

In the laboratory, all soil samples were tested for natural moisture content in accordance with ODOT specifications, and complete classification test series (liquid/plastic limit determination and sieve/short hydrometer analysis) were performed on representative specimens recovered from each boring. Select specimens of intact rock were tested to determine the unit weight and unconfined compressive strength of the bedrock.

Based on the results of the laboratory testing program, material descriptions contained on the field logs of the borings were modified, if necessary, and laboratory-corrected boring logs are included as Plates 5 through 37 in the Appendix. Shown on these logs are: descriptions of the soil and bedrock stratigraphy encountered; depths from which samples were preserved; sampling efforts (blow-counts) required to obtain the specimens in the borings; calculated N_{60} values for the SPT sample attempts; sampling depths; laboratory test results; seepage and groundwater observations; values of hand-penetrometer measurements made in soil samples exhibiting cohesion; the bedrock Rock Quality Designation (RQD) percentage, and bedrock recovery percentage. For your reference, hand-penetrometer values are roughly equivalent to the unconfined compressive strength of the cohesive fraction of the soil sample.

Soils have been classified in general accordance with Section 603 of the ODOT *SGE* and described in general accordance with Section 602. Bedrock has been classified and described in general accordance with Section 605 of the ODOT *SGE*. An explanation of the symbols and terms used on the boring logs, definitions of the special adjectives used to denote the minor soil components and bedrock, and information pertaining to sampling and identification are presented on Plates 3 through 4B of the Appendix. ODOT classifications, including Group Indices, determined from the results of the laboratory testing program are also provided on the boring logs.

♦ Exploration Findings

Existing Pavement Thickness

Table 2 summarizes the thickness of materials encountered within the pavement section at each boring location.

Table 2 – Pavement Section Thickness Summary

Boring Number	Asphalt (in.)	Concrete (in.)	Granular Base (in.)	Notes
B-002-5-24	3½	9	13½	
B-003-2-24	4	--	8	
B-005-2-24	3¼	10½	8	Reinforcing steel encountered in concrete
B-006-1-24	3	9	12	
B-012-2-24	4	8	12	Asphalt was underlain by 2 inches of granular material
B-013-1-24	2½	10½	11	
B-015-1-24	3	12	9	
B-018-3-24	4	12	3	
B-019-2-24	4	11	4	
B-021-2-24	3	11½	9½	
B-023-1-24	2	10	6	
B-025-2-24	3	10	5	
B-026-3-24	3	9	6	
B-028-2-24	2	9	--	
B-029-1-24	3½	9½	5	
B-031-1-24	4½	8½	8	Asphalt underlain by 1 inch of granular material. Reinforcing steel encountered in concrete.
B-034-1-24	2	9	4	Reinforcing steel encountered in concrete. Additional 4½ inches of asphalt present beneath concrete.
B-037-2-24	4	8	6	
B-041-3-24	4	10	5	
B-043-3-24	3¼	10¾	5	
B-044-1-24	14	--	--	
B-048-6-24	14	--	3	
B-049-4-24	12	--	6	
B-051-6-24	12	--	6	
B-053-1-24	12	--	6	
B-054-3-24	12	--	8	

Table 2 (continued) – Pavement Section Thickness Summary

Boring Number	Asphalt (in.)	Concrete (in.)	Granular Base (in.)	Notes
B-056-1-24	14	--	11	
B-057-3-24	5	10½	5	
B-059-5-24	4	11¼	11	

General Subsurface Conditions

The borings drilled during this exploration encountered a wide variety of materials beneath the pavement, including uncontrolled fill, fill/possible fill, natural soil, and bedrock which are generally summarized in the following sections. Please refer to the individual boring (Plates 5 through 37 in the Appendix) for more detailed descriptions of the materials encountered in each exploration. Because of the wide spacing between explorations, inferences should not be made regarding the subsurface conditions in the areas between or away from the borings without performing additional borings or other field verification.

Sta. 533+00 to Sta. 574+00 IR 90 Mainline and Ramp HA

This section is from the Hilliard Boulevard overpass to the west abutment of the bridge over the Rocky River and includes Borings B-002-5 through B-012-2 and Boring B-006-1 performed on Ramp HA (Hilliard Boulevard to IR 90 eastbound). Conditions encountered within this station range may be generally described as follows:

- Possible fill was encountered in Borings B-005-2 and B-012-2 to depths of 3.4 and 11.5 feet, respectively. The fill materials in Boring B-005-2 consisted of very stiff to hard brown and/or gray SILT AND CLAY (A-6a), and loose to medium dense COARSE AND FINE SAND (A-3a) in Boring B-012-2.
- Natural soil consisting predominantly of very stiff to hard brown and/or gray SANDY SILT (A-4a), SILT AND CLAY (A-6a) and SILTY CLAY (A-6b) or dense to very dense SANDY SILT (A-4a). A few layers of medium dense to dense brown GRAVEL WITH SAND (A-1-b) and FINE SAND (A-3) were also present immediately beneath the granular base in Boring B-006-1. In Boring B-012-2, the natural soils consisted predominantly of loose brown and gray COARSE AND FINE SAND (A-3a) with thin layers of medium stiff to stiff brown SILT AND CLAY (A-6a).
- Bedrock was only encountered in Boring B-006-1 at a depth of 37 feet and consisted of highly weathered, very weak, gray SHALE.
- Seepage or groundwater was encountered in Borings B-006-1 and B-012-2 between depths of 3.7 and 18 feet.

Sta. 585+00 to Sta. 610+00 IR 90 Mainline

This section extends from the east abutment of the bridge over the Rocky River to approximately 450 feet west of the Woodward Avenue overpass. Borings performed within this section include B-013-1 through B-019-2. Conditions encountered within this station range may be generally described as follows:

- Existing fill consisting of medium dense gray GRAVEL WITH SAND (A-1-b) and/or very stiff to hard SILT AND CLAY (A-6a) in Borings B-013-1 and B-015-1 to depths ranging from 3.5 to 4.0 feet.
- Natural soil in Borings B-018-3 and B-019-2 consisting of hard gray SILT AND CLAY (A-6a) and described as being similar to severely weathered shale bedrock.
- SHALE bedrock in all borings, encountered between depths of 3.5 and 4.0 feet, ranged from severely to slightly weathered, very weak to moderately strong and gray to dark gray/black.
- Seepage or groundwater was encountered in Borings B-013-1 and B-018-3 between depths of 4.0 and 12.5 feet.

Sta. 610+00 to Sta. 654+00 IR 90 Mainline

This section extends from 450 feet west of the Woodward Avenue overpass to approximately 100 feet east of the Warren Road overpass. Borings performed within this section include B-021-2 through B-031-1. Conditions encountered within this station range may be generally described as follows:

- Existing fill consisting of very stiff gray SILT AND CLAY (A-6a) only in Boring B-029-1 to a depth of 1.7 feet.
- SHALE bedrock in all borings, encountered between depths of 0.9 and 2.0 feet, ranged from severely to slightly weathered, slightly to moderately strong and gray or dark brown. In all except Boring B-029-1 where bedrock was beneath existing fill, bedrock was encountered immediately beneath the granular base layer.
- Seepage or groundwater was encountered in Borings B-028-2, B-029-1 and B-031-1 between depths of 1.1 and 10.5 feet.

Sta. 654+00 to Sta. 710+00 IR 90 Mainline and Ramp W2A

This section runs from approximately 100 feet east of the Warren Road overpass to approximately 1,500 feet east of the Berea Road overpass (a little west of the W. 117th Street Interchange) and includes Ramp W2A from W. 140th Street to IR 90 eastbound. Borings performed within this section include B-034-1 through B-044-1. The subsurface conditions encountered within this station range may be generally described as follows:

- Soils visually identified as fill or possible fill were encountered in all of the borings within this section to depths ranging from 5.5 to 24.5 feet and consisted of stiff to hard brown, gray and/or black SILT AND CLAY (A-6a), SILTY CLAY (A-6b) and CLAY (A-7-6). Boring B-041-3 was terminated within fill soils.
- UNCONTROLLED FILL was encountered at the base of the existing fill in Borings B-034-1, B-037-2 and B-043-3 at depths of 11.3, 24.0 and 10.0 feet, respectively. The layers ranged from 0.5 to 2.5 feet thick and included brick, slag, concrete, wood and/or metal fragments or shale boulders.
- Natural soils consisted predominantly of stiff to hard brown and gray SANDY SILT (A-4a), SILT AND CLAY (A-6a), SILTY CLAY (A-6b) and CLAY (A-7-6) with a layer of dense brown and gray GRAVEL WITH SAND, SILT, AND CLAY (A-2-6) immediately above bedrock in Boring B-043-3.
- SHALE bedrock in all borings, except Boring B-041-3, encountered between depths of 11.5 to 31.8 feet, ranged from highly to severely weathered, very weak to slightly strong and gray or brown.
- Seepage or groundwater was encountered in Borings B-034-1, B-037-2, B-043-3 and B-044-1 between depths of 3.5 and 13.5 feet.

Sta. 724+00 to Sta. 769+00 IR 90 Mainline

This section runs along the IR 90 mainline from the west edge of the W. 117th Street Interchange to West Boulevard. Borings performed within this section include Borings B-048-6 through B-059-5, which encountered conditions that may be generally described as follows:

- Existing fill and possible fill were encountered to depths ranging from 3.5 to 16.4 feet in all of the borings within this section except Borings B-048-6 and B-049-4. These materials consisted of very soft to hard brown, gray or black SILT AND CLAY (A-6a) and SILTY CLAY (A-6b), or loose to very dense brown, gray or black GRAVEL WITH SAND (A-1-b), GRAVEL WITH SAND AND SILT (A-2-4), GRAVEL WITH SAND, SILT AND CLAY (A-2-6), COARSE AND FINE SAND (A-3a) and SANDY SILT (A-4a).
- Natural soil consisting of very stiff to hard gray or brown SANDY SILT (A-4a) and SILT AND CLAY (A-6a) with occasional layers of loose to dense gray or brown GRAVEL WITH SAND AND SILT (A-2-4), SANDY SILT (A-4a) and SILT (A-4b) were encountered in Borings B-057-3 and B-059-5. Natural soils were not encountered in Boring B-049-4 where bedrock was immediately beneath the granular base and in Boring B-056-1 where fill was present down to the top of rock.
- SHALE bedrock in all borings, encountered between depths of 1.5 and 19.1 feet, ranged from severely to slightly weathered, very weak to slightly strong and gray to dark gray.
- Seepage or groundwater was encountered in Borings B-049-4, B-056-1, B-057-3 and B-059-5 between the depths of 2.4 and 16 feet.

Bedrock Unconfined Strength Test Results Summary

Table 3 summarizes the results of the unconfined strength test results for specimens tested in the laboratory.

Table 3 – Summary of Unconfined Compressive Strength Test Results

Boring ID	Depth Range (ft)	UCS* (psi)	UDW** (pcf)	Boring ID	Depth Range (ft)	UCS* (psi)	UDW** (pcf)
B-015-1-24	13.0′ – 13.4′	3,902	149.2	B-026-3-24	11.7′ – 12.1′	2,006	149.0
B-015-1-24	20.0′ – 20.4′	2,350	151.1	B-028-2-24	13.5′ – 13.9′	2,631	149.9
B-018-3-24	20.4′ – 20.8′	732	144.6	B-049-4-24	11.6′ – 12.0′	1,406	144.2
B-019-2-24	23.4′ – 23.8′	2,433	147.8	B-056-1-24	14.2′ – 14.6′	2,070	152.8
B-021-2-24	13.2′ – 13.6′	5,514	145.7	B-057-3-24	23.3′ – 23.7′	2,617	148.0
B-023-1-24	12.5′ – 12.9′	6,967	151.3	B-057-3-24	27.9′ – 28.3′	535	153.5
B-025-2-24	9.1′ – 9.5′	2,071	146.8	B-059-5-24	29.9′ – 30.3′	2,454	148.9
B-026-3-24	7.3′ – 7.7′	4,198	148.5	B-059-5-24	36.0′ – 36.4′	3,217	148.6

*Unconfined Compressive Strength **Unit Dry Weight

♦ Final Considerations

This data report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions and recommendations contained in this report are based upon

applicable standards of our practice in this geographic area at the time this report was prepared. No other representation or warranty either express or implied, is made.

We relied on project information given to us to develop our conclusions and recommendations. If project information described in this report is not accurate, or if it changes during project development, we should be notified of the changes so that we can modify our recommendations based on this additional information if necessary.

Our conclusions and recommendations are based on limited data from a field exploration program. Subsurface conditions can vary widely between explored areas. Some variations may not become evident until construction. If conditions are encountered which appear different than those described in our report, we should be notified. This report should not be construed to represent subsurface conditions for the entire site.

Unless specifically noted otherwise, our field exploration program did not include an assessment of regulatory compliance, environmental conditions or pollutants or presence of any biological materials (mold, fungi, bacteria). If there is a concern about these items, other studies should be performed. S&ME can provide a proposal and perform these services if requested.

S&ME should be retained to review the final plans and specifications to confirm that our recommendations are properly interpreted and implemented. The recommendations in this report are contingent on S&ME's review of final plans and specifications followed by our observation and monitoring of earthwork and pavement construction activities.

♦ Closing

We appreciate having been given the opportunity to be of continued service on this project. If you have any questions regarding this submission, please do not hesitate to contact our office.

Sincerely,

S&ME, Inc.

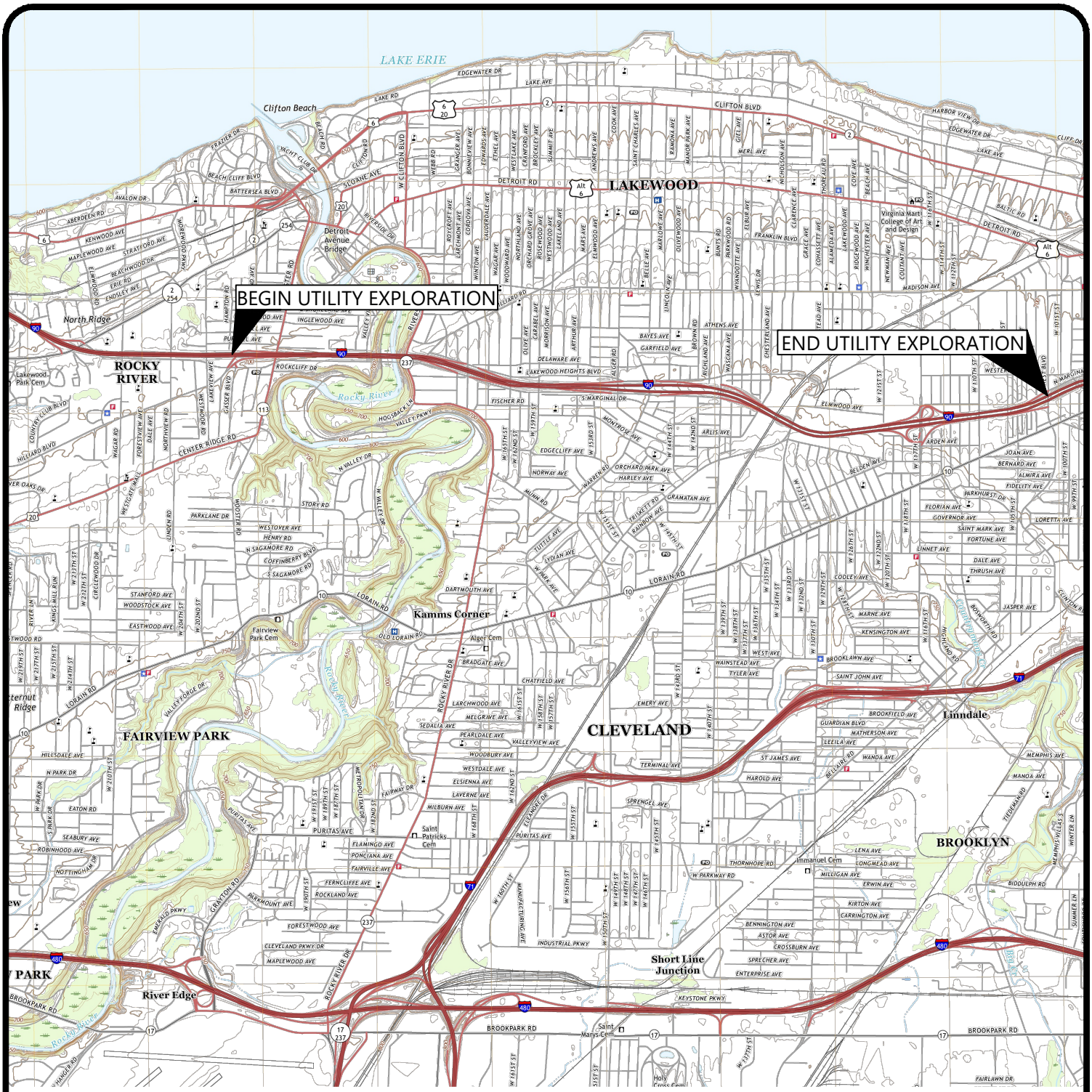
Brian K. Sears, P.E.
Project Manager | Senior Engineer

Richard S. Weigand, P.E.
Principal Engineer | Senior Reviewer

Submitted: Electronic copy (PDF) to Tom Hibbard, Ed Kagel and Kelsey Morton

Attachments:
Plate 1 – Vicinity Map
Plate 2 – Plan of Borings
Plate 3 – Soil Legend
Plates 4A-4B – Rock Legend
Plates 5-37 – Boring Logs
Plates 38-51 – Rock Core Photos
Plates 52-67 – Unconfined Compressive Strength Test Results

Appendix



N

Project Location
Cuyahoga County, Ohio

USGS Mapping:
Lakewood USGS Quad

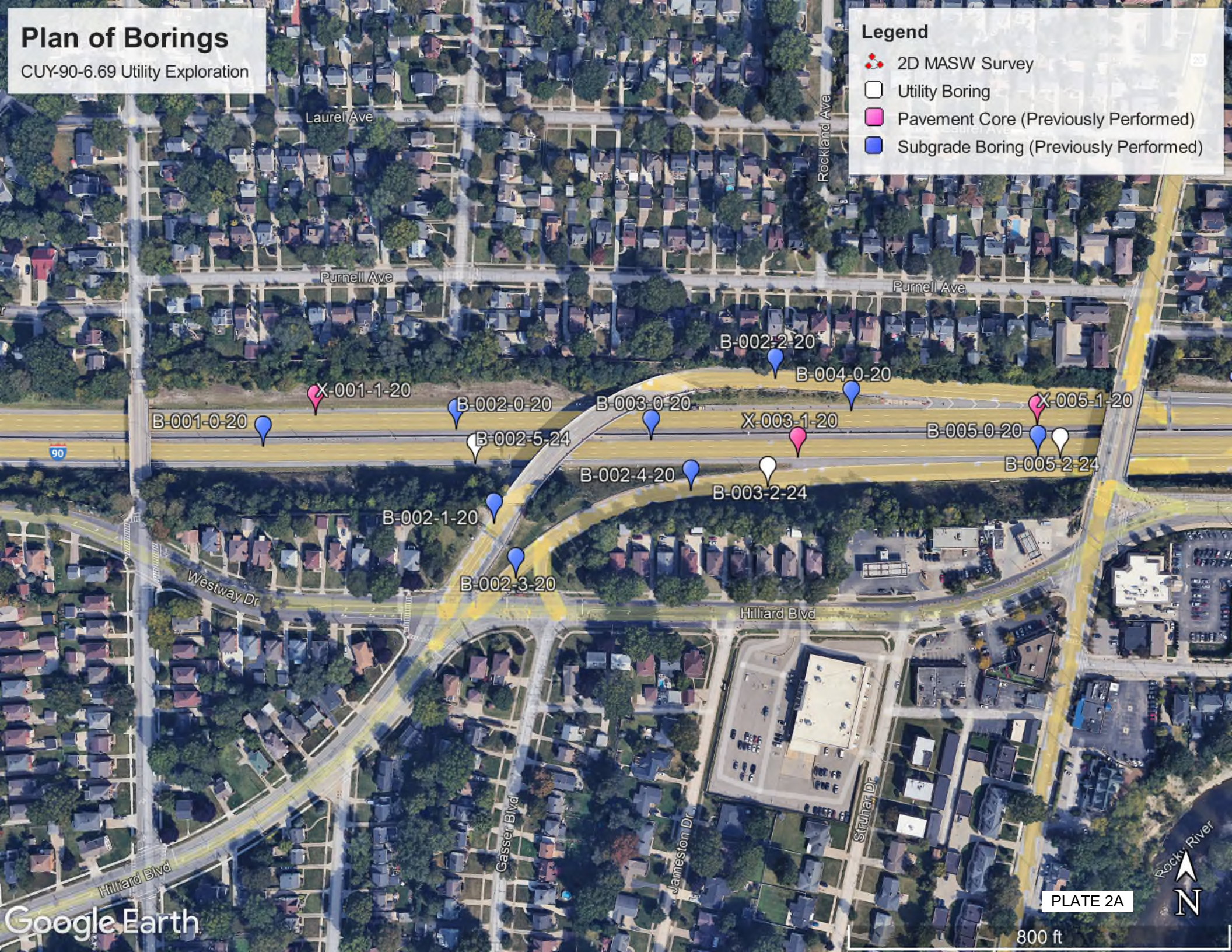
0 4000 8000
GRAPHIC SCALE (IN FEET)

Drawing Path: T:\Columbus-1170\Projects\2020\1179-20-021_ASL_CUY-90-6.83 Pavement\CAD\Construction\Utility Borings\Vicinity Map.dwg

Vicinity Map

Utility Exploration
CUY-90-6.69 Pavement Reconstruction
Cleveland, Cuyahoga County, Ohio

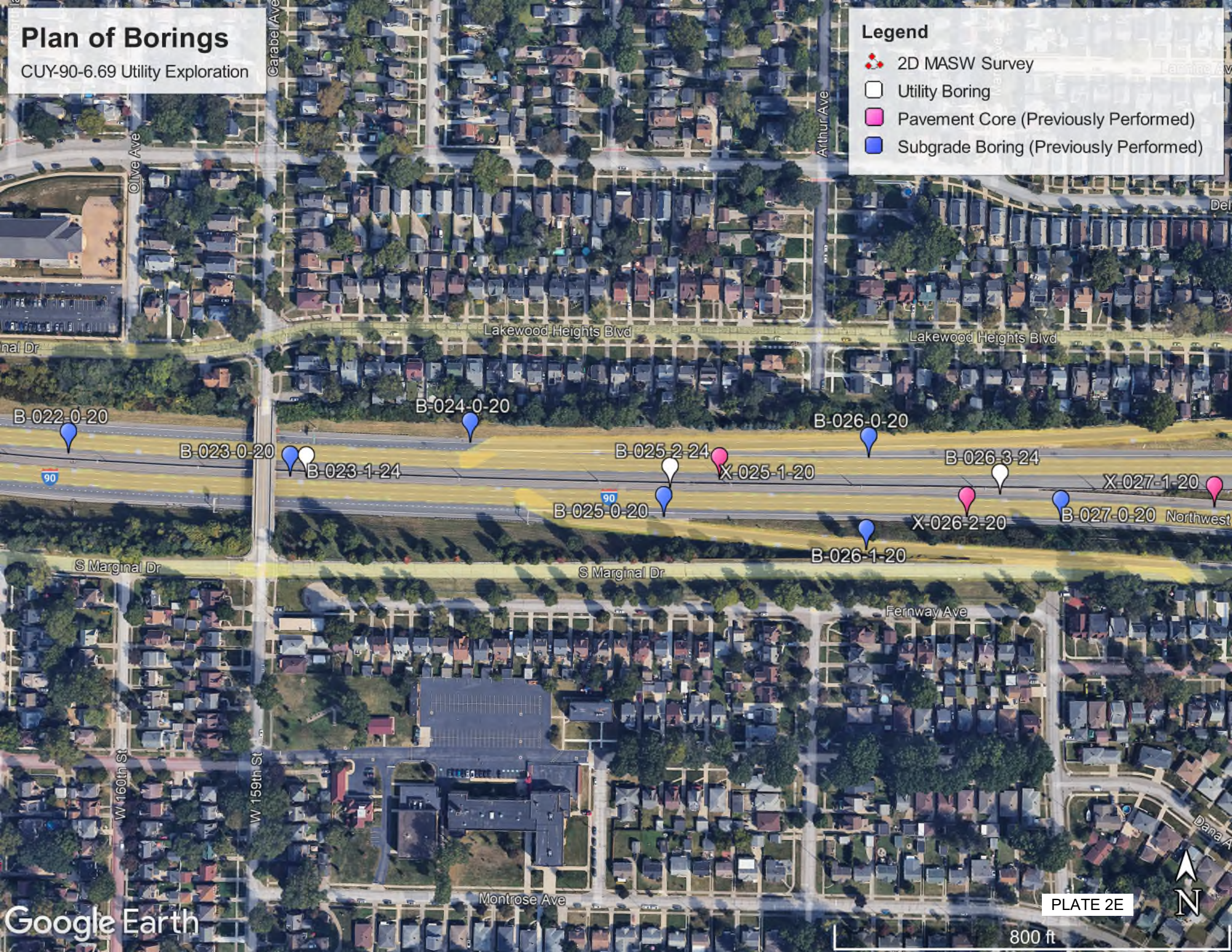
SCALE:	FIGURE NO.
GRAPHIC	1
DATE:	
01-16-2025	
PROJECT NUMBER	
1179-20-021	


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
2D MASW Survey
Utility Boring
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
Laurel Ave
Rockland Ave
Purnell Ave
Purnell Ave
B-002-2-20
B-004-0-20
X-001-1-20
B-002-0-20
B-003-0-20
X-005-1-20
B-001-0-20
X-003-1-20
B-005-0-20
B-002-5-24
B-005-2-24
B-002-4-20
B-003-2-24
B-002-1-20
B-002-3-20
Westway Dr
Hilliard Blvd
Hilliard Blvd
Gasser Blvd
Jamesion Dr
Struhar Dr
Rocky River
90
PLATE 2A
N
800 ft
Google Earth

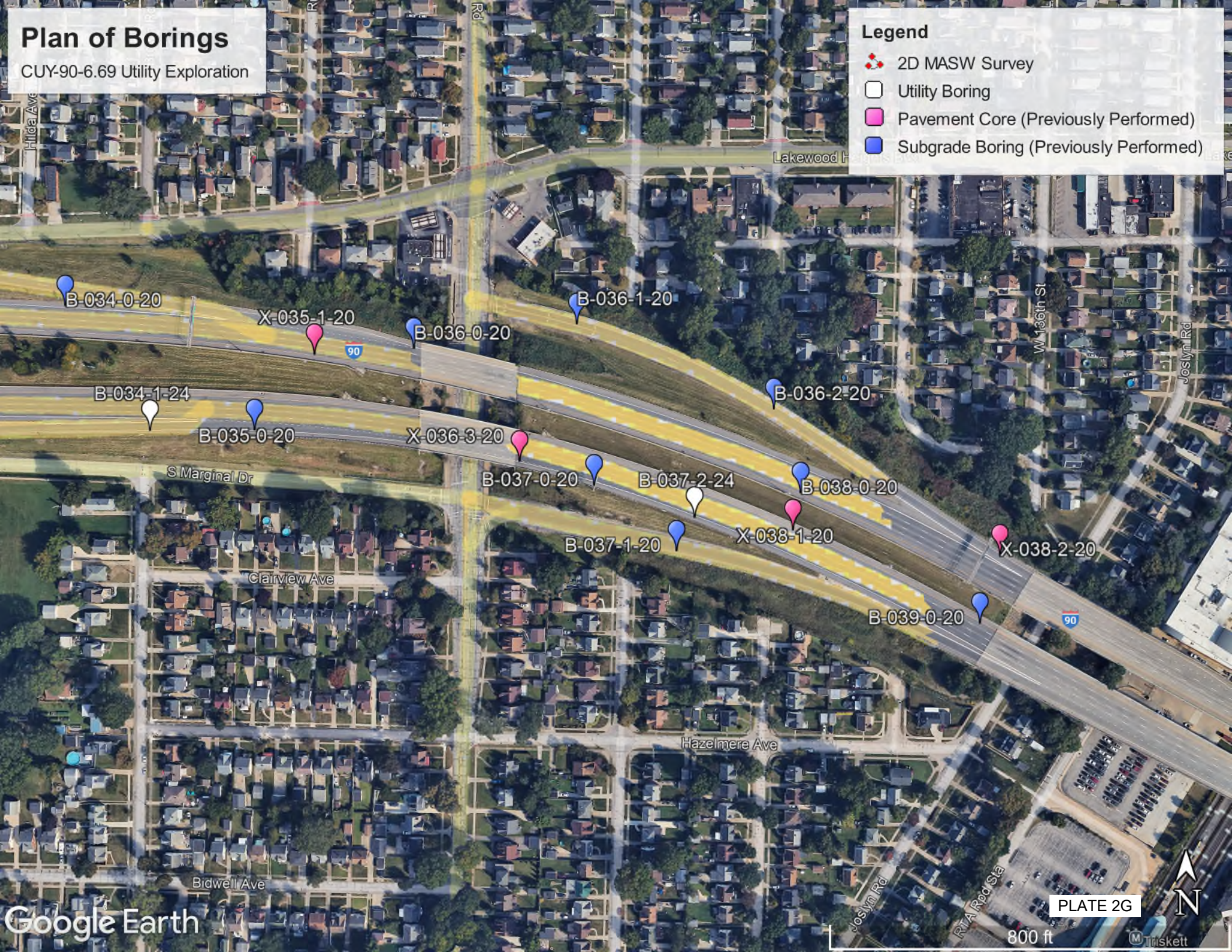

Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
2D MASW Survey
Utility Boring
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
Colahan Dr
Mitchell Ave
B-006-0-20
B-006-1-24
B-007-0-20
X-007-1-20
B-008-0-20
B-009-0-20
B-010-0-20
X-010-1-20
B-011-0-20
90
Hilliard Blvd
Hilliard Blvd
Rockcliff Dr
Rockcliff Dr
Rockcliff Dr
Valley Pkwy
Valley Pkwy
Rocky River
Google Earth
PLATE 2B
N
800 ft


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
2D MASW Survey
Utility Boring
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
B-012-0-20
B-011-0-20
B-012-2-24
X-012-1-20
X-012-2-20
B-013-0-20
B-013-1-24
B-014-0-20
B-015-1-24
B-015-0-20
Northwest Fwy
Hilliard Blvd
Hilliard Rd
Riverside Dr
Cleveland Metro Park Dr
Valley View Dr
Winfield Ave
Indianola Ave
Rocky River
Lakewood Heig
90
PLATE 2C
800 ft
N
Google Earth


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
2D MASW Survey
Utility Boring
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
B-016-0-20
B-016-2-20
B-016-1-20
B-017-0-20
X-017-1-20
B-018-0-20
B-018-3-24
X-018-2-20
B-019-0-20
B-018-1-20
B-019-1-20
B-019-2-24
X-019-1-20
B-020-0-20
B-021-0-20
B-021-2-24
X-021-1-20
Concord Dr
Niagara Dr
McKinley Ave
Glenbury Ave
Eldred Ave
Northland Ave
Delaware Ave
N Marginal Dr
S Marginal Dr
Ogontz Ave
Seneca Ave
PLATE 2D
N
800 ft
Google Earth


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
2D MASW Survey
Utility Boring
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
Carabel Ave
Olive Ave
Arthur Ave
Lakewood Heights Blvd
Lakewood Heights Blvd
B-022-0-20
B-024-0-20
B-026-0-20
B-023-0-20
B-023-1-24
B-025-2-24
X-025-1-20
B-026-3-24
X-027-1-20
B-025-0-20
X-026-2-20
B-027-0-20
Northwest
B-026-1-20
S Marginal Dr
S Marginal Dr
Fernway Ave
W 160th St
W 159th St
Montrose Ave
Google Earth
PLATE 2E
N
800 ft

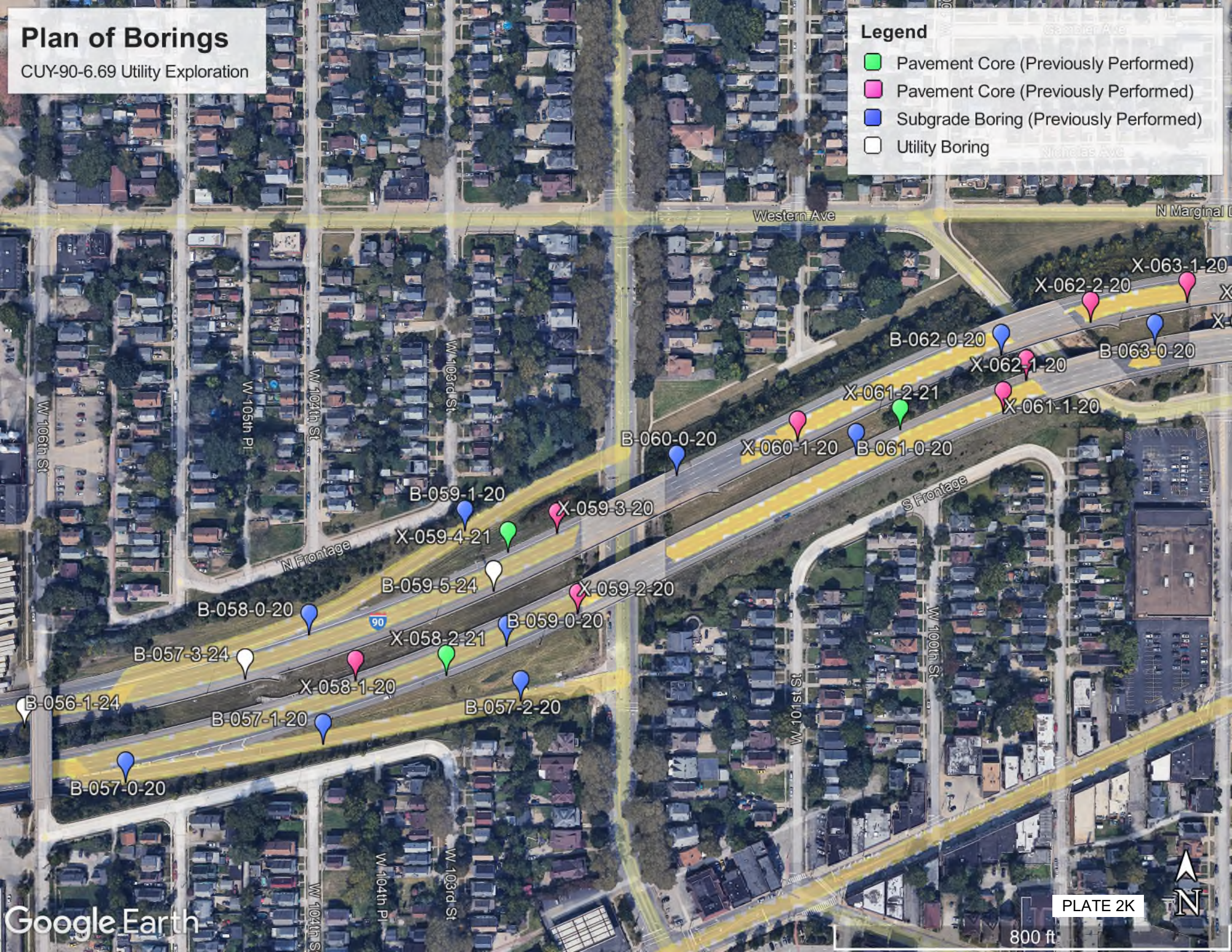

Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
2D MASW Survey
Utility Boring
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
B-028-1-20
B-028-0-20
B-028-2-24
B-029-1-24
B-030-0-20
X-030-1-20
B-029-0-20
B-031-1-24
B-031-0-20
B-032-0-20
B-032-1-20
B-033-1-20
B-033-0-20
Delaware Ave
Emily Ave
Adeline St
Hilda Ave
S Marginal Dr
Fernway Ave
Fernway Ave
Warren Rd
W 146th St
Broxton Ave
Alger Rd
90
Google Earth
PLATE 2F
N
800 ft


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
2D MASW Survey
Utility Boring
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
B-034-0-20
X-035-1-20
B-036-0-20
B-036-1-20
B-034-1-24
B-035-0-20
X-036-3-20
B-036-2-20
B-037-0-20
B-037-2-24
B-038-0-20
X-038-1-20
B-037-1-20
X-038-2-20
B-039-0-20
S Marginal Dr
Clairview Ave
Hazelmere Ave
Bidwell Ave
Lakewood
W 136th St
Joslyn Rd
RTA Rpd Sta
90
800 ft
N
PLATE 2G
Google Earth
Triskett


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
Pavement Core (Previously Performed)
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
Utility Boring
Berea Rd
Elmwood Ave
Elmwood Ave
X-039-1-20
B-040-0-20
90
Northwest Fwy
X-041-1-20
B-041-0-20
90
X-041-2-21
B-041-3-24
B-042-0-20
B-044-0-20
B-044-1-24
B-043-3-24
X-042-1-20
X-043-1-20
B-045-0-20
B-043-0-20
X-043-2-21
Triskett Rd
Triskett Rd
Berea Rd
Google Earth
PLATE 2H
N
800 ft

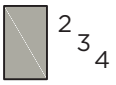

Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
Pavement Core (Previously Performed)
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
Utility Boring
B-051-2-20
B-049-2-20
Elmwood Ave
B-051-1-20
B-052-0
X-051-5-21
B-049-1-20
B-050-0-20
B-051-6-24
X-049-3-20
X-050-3-20
90
B-049-4-24
X-051-4-20
B-048-0-20
B-048-6-24
B-049-0-20
B-051-0-20
B-050-2-20
B-046-0-20
X-047-1-21
X-048-4-20
X-048-5-21
B-048-1-20
B-047-0-20
B-048-3-20
Cloverdale
B-048-2-20
B-050-1-20
Arden Ave
Google Earth
PLATE 2I
N
800 ft


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
Pavement Core (Previously Performed)
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
Utility Boring
W 115th St
W 114th St
W 112th St
W 111th St
W 110th St
Belmont Ave
S Frontage
Arden Ave
B-051-2-20
B-051-3-20
B-051-1-20
B-052-0-20
X-051-5-21
B-051-6-24
X-050-3-20
X-051-4-20
B-051-0-20
B-050-2-20
B-050-1-20
B-053-1-24
B-053-0-20
B-054-0-20
X-054-1-20
B-054-3-24
B-055-0-20
X-054-2-21
X-055-1-21
B-056-0-20
B-056-1-24
90
PLATE 2J
N
800 ft
Google Earth


Plan of Borings
CUY-90-6.69 Utility Exploration
Legend
Pavement Core (Previously Performed)
Pavement Core (Previously Performed)
Subgrade Boring (Previously Performed)
Utility Boring
Western Ave
N Marginal
X-063-1-20
X-062-2-20
B-062-0-20
B-063-0-20
X-062-1-20
X-061-2-21
X-061-1-20
B-060-0-20
X-060-1-20
B-061-0-20
S Frontage
B-059-1-20
X-059-3-20
X-059-4-21
N Frontage
B-059-5-24
X-059-2-20
B-058-0-20
B-059-0-20
X-058-2-21
B-057-3-24
X-058-1-20
B-056-1-24
B-057-2-20
B-057-1-20
B-057-0-20
W 106th St
W 105th Pl
W 104th St
W 103rd St
W 100th St
W 101st St
W 104th Pl
90
Google Earth
PLATE 2K
N
800 ft

ODOT SOIL LOG LEGEND

The STANDARD PENETRATION TEST (SPT) as defined by AASHTO T206 (or ASTM D1586) is a method to obtain a disturbed soil sample for examination and testing and to obtain relative density and consistency information. A standard 1.4-inch I.D./2-inch O.D. split-barrel sampler is driven three 6-inch increments (see graphic at right) with a 140 lb. hammer freely falling 30 inches. The hammer can either be of a trip, free-fall design, or actuated by a rope and cathead. The SPT N Value is determined by adding the number of blows from the 2nd and 3rd 6-inch increments.



SPT BLOWCOUNT CORRECTION FOR HAMMER EFFICIENCY (N_{60}) is determined by the following equation: $N_{60} = N * [$ Drill Rod Energy Ratio (%) / 60], and where the drill rod energy ratio is determined in accordance with ASTM D4633. If the drill rod energy ratio exceeds 90%, it is limited to 90% to determine the N_{60} value and is shown on the log as 90*.

SHELBY TUBE (ST) samples are obtained by hydraulically pushing a thin-walled tube (typically 3-inches in diameter) to obtain a relatively undisturbed sample for testing of fine-grained soils to determine engineering properties such as strength, compressibility, permeability, and density. Shelby tubes are sampled in general accordance with ASTM D1587 (AASHTO T207).

DESCRIPTIVE ORDER OF SOIL STRATA: Consistency/Density, color, ODOT soil classification description, minor soil constituents with percentage modifiers, organic content, miscellaneous constituents or descriptions, relative moisture condition.

ODOT SOIL CLASSIFICATION DESCRIPTION AND SYMBOL

- **GRAVEL** (A-1-a)
- **GRAVEL WITH SAND** (A-1-B)
- **FINE SAND** (A-3)
- **COARSE AND FINE SAND** (A-3a)
- **GRAVEL WITH SAND AND SILT** (A-2-4 OR A-2-5)
- **GRAVEL WITH SAND, SILT AND CLAY** (A-2-6 OR A-2-7)
- **SANDY SILT** (A-4a)
- **SILT** (A-4b)
- **ELASTIC SILT AND CLAY** (A-5)
- **SILT AND CLAY** (A-6a)
- **SILTY CLAY** (A-6b)
- **ELASTIC CLAY** (A-7-5)
- **CLAY** (A-7-6)
- **ORGANIC SILT** (A-8a)
- **ORGANIC CLAY** (A-8b)
- **PEAT**
- **UNCONTROLLED FILL**
- **BOULDERY ZONE**
- **SOD/ROOTMAT/ TOPSOIL**
- **PAVEMENT OR BASE**
- **CONCRETE**

SOIL LOG SYMBOLS

SS - Split-Spoon Sample

ST - Shelby Tube Sample

TR - Top of Rock

REC - Sample Recovery, %

HP - Hand Penetrometer Value, tsf

LOI - Loss on Ignition Test, %

Qu - Unconfined Compressive Strength

γd - Dry Unit Weight, pcf

γm - Moist Unit Weight, pcf

GR - Gravel Content, %

CS - Coarse Sand Content, %

FS - Fine Sand Content, %

SI - Silt Content, %

CL - Clay Content, %

LL - Liquid Limit

PL - Plastic Limit

PI - Plasticity Index

WC - Natural Water Content, %

NOTE: Particle size contents are expressed % by weight.

PARTICLE SIZE

Particle	Size	US Sieve Size
Boulder	>300 mm (12 in.)	12 in.
Cobble	75 - 300 mm (3 - 12 in.)	3 - 12 in.
Coarse gravel	19 - 75 mm (3/4 - 3 in.)	3/4 - 3 in.
Fine gravel	2 - 19 mm (0.08 - 3/4 in.)	#10 - 3/4 in.
Coarse sand	0.42 - 2.0 mm	#40 - #10
Fine sand	0.074 - 0.42 mm	#200 - #40
Silt	0.005 - 0.074 mm	NA
Clay	< 0.005 mm	NA

FINE-GRAINED SOIL
(Relative Consistency)

	N_{60}	HP
Very soft	< 2 bpf	< 0.25 tsf
Soft	2 - 4 bpf	> 0.25 - 0.5 tsf
Medium stiff	5 - 8 bpf	> 0.5 - 1.0 tsf
Stiff	9 - 15 bpf	> 1.0 - 2.0 tsf
Very stiff	16 - 30 bpf	> 2.0 - 4.0 tsf
Hard	> 30 bpf	> 4.0 tsf

COARSE-GRAINED SOIL
(Relative Density)

	N_{60}
Very loose	< 5 bpf
Loose	5 - 10 bpf
Medium dense	11 - 30 bpf
Dense	31 - 50 bpf
Very dense	> 50 bpf

MINOR CONSTITUENTS
(% By Weight)

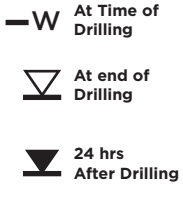
	Percentage
Trace	0% - 10%
Little	>10% - 20%
Some	>20% - 35%
"And"	≥ 35%

ORGANIC CONTENT OF SOIL
(Determined by ASTM D2974 or AASHTO T267)

Classification	Percentage
Slightly organic	2% - 4%
Moderately organic	>4% - 10%
Highly organic	> 10%

RELATIVE MOISTURE CONDITION

Dry	Cohesive - Powdery, WC well below PL Granular - No moisture present
Damp	Cohesive - Leaves very little moisture when pressed, WC < PL Granular - Internal moisture, little to no surface moisture
Moist	Cohesive - Leaves moisture when pressed, PL < WC < LL - 3 Granular - Free water on surface, shiny appearance
Wet	Cohesive - Mushy, WC near or above LL Granular - Voids filled with free water



Free water (seepage or groundwater) observation made anytime during the drilling process. Depending on time of reading and drilling methodologies, this value may be influenced by the drilling process.

Free water measurement soon after the drilling processes are complete, and the borehole is at final depth. Drilling fluids, if introduced during drilling, may influence this measurement.

Free water measurements made in a borehole hours to days after drilling is complete including the time elapsed (i.e., "24 hrs" as shown at left). Depending on subsurface conditions, elapsed time, drilling process, etc. this observation may reflect a stabilized level.

REFERENCES:

Ohio Department of Transportation (ODOT), Specifications for Geotechnical Explorations (SGE)

ODOT ROCK CORE LOG LEGEND

DESCRIPTIVE ORDER FOR ROCK STRATA

Bedrock type, color, weathering, strength, texture, bedding, other descriptors, type and condition of discontinuities, unit RQD, unit recovery.

When alternating layers occur between two distinct rock types, describe the material as "Interbedded" with the major rock type first, with estimated percentage, and the secondary rock type second, with estimated percentage. Provide the unit RQD and unit recovery, then describe each rock type in detail.

For spread footings founded on or into bedrock, describe discontinuities using the modified Rock Mass Rating (RMR) system (degree of fracturing, aperture width and surface roughness). For drilled shafts extending into bedrock, describe discontinuities using the Geologic Strength Index (GSI) system (discontinuity structure and surface condition). For rock cut slopes, describe discontinuities using both the modified RMR and GSI systems.

COMMON OHIO BEDROCK TYPES AND SYMBOLS


SHALE


SILTSTONE


LIMESTONE

COAL


CLAYSTONE/ MUDSTONE


SANDSTONE


DOLOMITE


UNDERCLAY/ FIRECLAY

WEATHERING

Unweathered	No evidence of chemical or mechanical alternation of the rock mass. Mineral crystals have a bright appearance with no discoloration. Fractures show little or no staining on surfaces.
Slightly Weathered	Slight discoloration of the rock surface with minor alterations along discontinuities. Less than 10% of the rock volume presents alteration.
Moderately Weathered	Portions of the rock mass are discolored with a dull appearance. Surfaces may have a pitted appearance with weathering "halos". Isolated zones of varying rock strengths.
Highly Weathered	Entire rock mass appears discolored and dull. Some pockets of slightly to moderately weathered rock and some areas of severely weathered materials may be present.
Severely Weathered	Majority of the rock mass reduced to a soil-like state. Zones of more resistant rock may be present, but the material can generally be molded and crumbled by hand pressures.

STRENGTH

		APPROX. UNCONFINED COMPRESSIVE STRENGTH (PSI)
Extremely Strong	Cannot be scratched by a knife or sharp pick. Chipping off hand specimens requires hard repeated blows of a geologist's hammer.	> 30,000
Very Strong	Cannot be scratched by a knife or sharp pick. Breaking off hand specimens requires hard repeated blows of a geologist's hammer.	30,000 - 15,000
Strong	Can be scratched with a knife or pick with difficulty. Requires hard hammer blows to detach hand specimen.	15,000 - 7,500
Moderately Strong	Can be scratched with a knife or pick. Gouges ¼" deep can be excavated by a pick. Requires moderate hammer blows to detach specimen.	7,500 - 3,600
Slightly Strong	Can be gouged 0.05 inch deep by firm pressure with a knife or pick point. Can excavate small pieces (1-inch) by hard blows with a pick.	3,600 - 1,500
Weak	Can be gouged readily by a knife or pick or excavated in small fragments by moderate blows of a pick. Small, thin pieces can be broken by hand.	1,500 - 750
Very Weak	Can be carved with a knife and excavated readily with a pick. Pieces 1 inch or more thick can be broken by hand. Can be scratched by fingernail.	750 - 40

TEXTURE

Boulder	> 12 in.
Cobble	12 - 3 in.
Gravel	3 - 0.08 in.
Coarse Sand	0.08 - 0.02 in.
Medium Sand	0.02 - 0.01 in.
Fine Sand	0.01 - 0.005 in.
Very Fine Sand	0.005 - 0.003 in.

BEDDING

Very Thick Bedded	> 36 in.
Thick Bedded	36 in. - 18 in.
Medium Bedded	18 in. - 10 in.
Thin Bedded	10 in. - 2 in.
Very Thin Bedded	2 in. - 0.4 in.
Laminated	0.4 in. - 0.1 in.
Thinly Laminated	< 0.1 in.

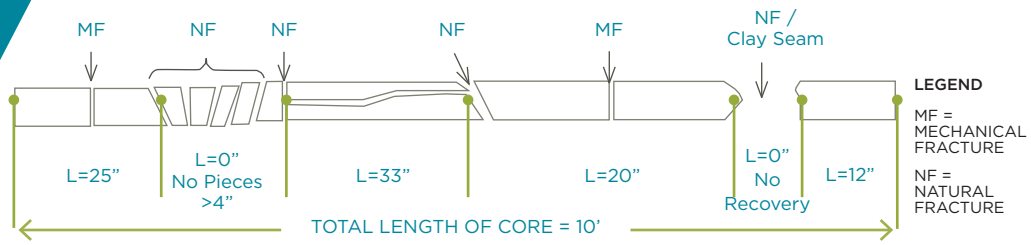
ODOT ROCK CORE LOG LEGEND

ROCK CORE RECOVERY

Recovery to be determined by core run and by rock unit (layer).

$$\text{REC}_{(\text{Recovery})} = \frac{\text{Length of Rock Core Recovered}}{\text{Length of Core Run}} \times 100$$

ROCK QUALITY DESIGNATION (RQD)



$$\text{RQD}_{(\text{Equation})} = \left(\frac{\Sigma \text{ Core with Length (L)} \geq 4"}{\text{Core Run or Interval Total Length}}\right) \times 100$$

$$\text{RQD}_{(\text{Example})} = \left(\frac{25" + 33" + 20" + 12"}{120"}\right) \times 100 = 75\%$$

DESCRIPTORS

Arenaceous - Sandy

Argillaceous - Clayey

Brecciated - Contains angular gravel

Calcareous - Contains calcium carbonate

Carbonaceous - Contains carbon

Cherty - Contains chert

Conglomeritic - Contains rounded gravel

Crystalline - Contains crystalline structure

Dolomitic - Contains Ca/Mg carbonate

Ferriferous - Contains iron

Fissile - Thin planar partings

Fossiliferous - Contains fossils

Friable - Easily broken down

Micaceous - Contains mica

Pyritic - Contains pyrite

Siliceous - Contains silica

Stylolitic - Contains stylotites

Vuggy - Contains openings

DISCONTINUITIES IN BEDROCK

Fault	Fracture which expresses displacement parallel to the surface that does not result in a polished surface.
Joint	Planar fracture that does not express displacement. Generally occurs at regularly spaced intervals.
Shear	Fracture which expresses displacement parallel to the surface that results in polished surfaces or slickensides.
Bedding	A surface produced along a bedding plane.
Contact	A surface produced along a contact plane. (generally not seen in Ohio)

MODIFIED RMR DISCONTINUITY TERMS

DEGREE OF FRACTURING

Unfractured	>10 ft.
Intact	10 ft. – 3 ft.
Slightly Fractured	3 ft. – 1 ft.
Moderately Fractured	12 in. – 4 in.
Fractured	4 in. – 2 in.
Highly Fractured	< 2 in.

APERTURE WIDTH

Open	> 0.2 in.
Narrow	0.2 in. - 0.05 in.
Tight	< 0.05 in.

SURFACE ROUGHNESS

Very Rough	Near vertical steps and ridges occur on the discontinuity surface.
Slightly Rough	Asperities on the discontinuity surface are distinguishable and can be felt.
Slickensided	Surface has a smooth, glassy finish with visual evidence of striation.

GSI DISCONTINUITY TERMS

ROCK MASS STRUCTURE

Intact or Massive	Intact rock with few widely spaced discontinuities
Blocky	Well interlocked undisturbed rock mass, formed by 3 intersecting discontinuity sets
Very Blocky	Interlocked, partially disturbed mass formed by 4 or more joint sets
Blocky/ Disturbed/Seamy	Angular blocks formed by many intersecting discontinuity sets, bedding planes
Disintegrated	Poorly interlocked, heavily broken rock mass
Laminated/ Sheared	Lack of blockiness due to close spacing of weak shear planes

SURFACE CONDITION

Very Good	Very rough, fresh unweathered surfaces
Good	Rough, slightly weathered, iron stained surfaces
Fair	Smooth, moderately weathered and altered surfaces
Poor	Slickensided, high weathered surface with compact coatings
Very Poor	Slickensided, highly weathered surface with soft clay coatings

REFERENCES: OHIO DEPARTMENT OF TRANSPORTATION (ODOT), SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS (SGE).

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 533+39, 51' RT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 675.2 (MSL) EOB: 15.0 ft.
START: 12/9/24 END: 12/9/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.471848 N, 81.841063 W

EXPLORATION ID **B-002-5-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 675.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3-1/2 INCHES	674.9																	
CONCRETE - 9 INCHES	674.2																	
GRANULAR BASE - 13-1/2 INCHES	673.0																	
Hard gray **SILT AND CLAY**, little fine to coarse sand, trace fine to coarse gravel, damp.		1																
		2	11 6 8	21	44	SS-1	-	-	-	-	-	-	-	-	-	15	A-1-b (V)	
		3																
		4	4 6 9	23	100	SS-2	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	
		5																
		6																
		7	4 7 8	23	100	SS-3	4.5+	10	9	10	26	45	31	17	14	13	A-6a (9)	
		8																
		9	4 9 10	29	100	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	
	664.7	10																
Hard gray **SANDY SILT**, some clay, trace fine to coarse gravel, damp.		11																
		12	7 13 13	39	100	SS-5	4.5+	7	10	14	40	29	24	14	10	9	A-4a (7)	
		13																
		14	9 15 15	45	100	SS-6	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	
	660.2	EOB 15																

NOTES:
- No water encountered during drilling.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG DEVICE; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 5

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 39+40, 0' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: WERTZ / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: RAMP HA
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 10/4/24	ELEVATION: 678.4 (MSL) EOB: 25.0 ft.
START: 12/13/24 END: 12/13/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.471719 N, 81.838872 W

EXPLORATION ID **B-003-2-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 678.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4 INCHES	678.1																	
GRANULAR BASE - 5 INCHES	677.7																	
GRAVEL - 3 INCHES	677.4																	
Hard gray **SILT AND CLAY**, little fine to coarse sand, trace fine gravel, damp.		1																
		2	24 6 14	30	67	SS-1	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	
		3																
		4	11 18 19	56	89	SS-2	4.5+	-	-	-	-	-	-	-	-	10	A-6a (V)	
	672.9	5																
Hard gray **SANDY SILT**, some clay, trace fine to coarse gravel, damp.		6																
		7	11 19 23	63	89	SS-3	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	
		8																
	667.9	9	11 17 21	57	100	SS-4	4.5+	9	9	11	40	31	26	16	10	9	A-4a (7)	
Hard gray **SILT AND CLAY**, little fine to coarse sand, trace fine gravel, damp.		10																
		11																
		12	16 22 23	68	94	SS-5	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	
		13																
		14	11 17 21	57	100	SS-6	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	
		15																
		16	12 17 23	60	100	SS-7	4.5+	-	-	-	-	-	-	-	-	12	A-6a (V)	
		17																
		18																
		19	8 12 15	41	89	SS-8	-	5	7	7	28	53	30	18	12	13	A-6a (9)	
	656.4	20																
Hard gray **SANDY SILT**, little clay, trace fine gravel, damp.		21																
		22																
		23																
	653.4	24	24 31 47	117	100	SS-9	-	-	-	-	-	-	-	-	-	10	A-4a (V)	
	EOB	25																

NOTES:
- No water encountered during drilling.
- Borehole caved at 16.5' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 6

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 545+38, 49' RT	EXPLORATION ID B-005-2-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 681.4 (MSL) EOB: 30.0 ft.	PAGE 1 OF 2
START: 12/17/24 END: 12/17/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.471882 N, 81.836688 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 681.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3-1/4 INCHES	681.1	1																
CONCRETE - 10-1/2 INCHES	680.2																	
GRANULAR BASE - 8 INCHES	679.5	2																
POSSIBLE FILL: Very stiff to hard gray **SILT AND CLAY**, little fine to coarse sand, trace fine gravel, damp.	678.0	3	3 3 7	15	44	SS-1	2.0-4.5	-	-	-	-	-	-	-	-	17	A-6a (V)	
Very stiff to hard brown and gray **SILTY CLAY**, little fine to coarse sand, trace fine gravel, damp.		4	10 13 12	38	78	SS-2	4.5+	-	-	-	-	-	-	-	-	8	A-6b (V)	
		5																
		6																
		7	7 11 13	36	67	SS-3	4.5+	-	-	-	-	-	-	-	-	11	A-6b (V)	
		8																
		9	9 10 11	32	78	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6b (V)	
		10																
		11																
		12	5 7 11	27	83	SS-5	4.0-4.5	-	-	-	-	-	-	-	-	13	A-6b (V)	
		13																
		14	5 10 12	33	89	SS-6	4.5+	4	6	7	27	56	34	18	16	15	A-6b (10)	
		15																
		16																
@ 16.4' to 16.7', gray sandy silt seam		17	5 9 9	27	89	SS-7A	4.5+	-	-	-	-	-	-	-	-	15	A-6b (V)	
						SS-7B	4.0	-	-	-	-	-	-	-	-	12	A-6b (V)	
		18																
	662.4	19	8	56	100	SS-8A	4.5+	-	-	-	-	-	-	-	-	10	A-6b (V)	
Hard gray **SANDY SILT**, some clay, trace fine gravel, damp.			12 25			SS-8B	4.5+	2	2	29	46	21	19	14	5	10	A-4a (6)	
		20																
		21																
		22																
		23																
		24	18 23 30	80	100	SS-9	4.5+	9	11	13	42	25	24	16	8	8	A-4a (6)	
		25																
		26																
		27																
		28																
	651.9	29	13 16	72	100	SS-10A	-	-	-	-	-	-	-	-	-	7	A-4a (V)	

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/17/25 15:31 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 7

S&ME JOB: 117920021

PID: 76779	BR ID: N/A	PROJECT: CUY-90-6.69	STATION / OFFSET: 545+38, 49' RT	START: 12/17/24	END: 12/17/24	PG 2 OF 2	**B-005-2-24**

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
Hard gray **SILT AND CLAY**, little fine gravel, little fine to coarse sand, damp.	651.9 651.4	EOB 30	32			SS-10B	4.5+	-	-	-	-	-	-	-	-	9	A-6a (V)	

NOTES:
- No water encountered during drilling.
- Borehole caved at 22.0' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG DEVICE; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/17/25 15:31 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 8

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 51+37, 2' LT	EXPLORATION ID B-006-1-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: RAMP HA	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 688.7 (MSL) EOB: 41.0 ft.	PAGE 1 OF 2
START: 12/13/24 END: 12/13/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.471840 N, 81.834510 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 688.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3 INCHES	688.4																	
CONCRETE - 9 INCHES	687.7																	
GRANULAR BASE - 12 INCHES	686.7																	
Dense brown **GRAVEL WITH SAND**, trace silt, damp.	685.5		9 13 14	41	100	SS-1A	-	-	-	-	-	-	-	-	-	-	A-1-b (V)	
						SS-1B	-	-	-	-	-	-	-	-	-	16	A-1-b (V)	
Medium dense brown **FINE SAND**, little coarse sand, trace silt, damp.			6 9 10	29	100	SS-2	-	-	-	-	-	-	-	-	-	6	A-3 (V)	
	682.5	W 682.5																
Very stiff to hard gray **SILT AND CLAY**, some fine to coarse sand, trace fine gravel, moist to wet.			3 2 3	8	39	SS-3	3.0	-	-	-	-	-	-	-	-	25	A-6a (V)	
			2 2 2	6	100	SS-4	3.0	9	10	16	30	35	30	18	12	18	A-6a (7)	
			2 3 2	8	100	SS-5	4.5+	-	-	-	-	-	-	-	-	19	A-6a (V)	
			2 3 2	8	44	SS-6	3.5	-	-	-	-	-	-	-	-	19	A-6a (V)	
			3 4 5	14	100	SS-7	4.5+	-	-	-	-	-	-	-	-	17	A-6a (V)	
			4 7 8	23	100	SS-8	4.5+	-	-	-	-	-	-	-	-	16	A-6a (V)	
	666.7																	
Very stiff to hard gray **SANDY SILT**, some clay, little fine gravel, few shale fragments, damp.			3 4 5	14	100	SS-9	3.5-4.5	13	12	12	30	33	27	18	9	17	A-4a (6)	
	662.2																	
Very-dense gray **SANDY SILT**, some clay, little fine gravel, few shale fragments, damp.			13 15 26	62	100	SS-10	-	-	-	-	-	-	-	-	-	9	A-4a (V)	

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 9

S&ME JOB: 117920021

PID: 76779	BR ID: N/A	PROJECT: CUY-90-6.69	STATION / OFFSET: 51+37, 2' LT	START: 12/13/24	END: 12/13/24	PG 2 OF 2	**B-006-1-24**

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
Very-dense gray **SANDY SILT**, some clay, little fine gravel, few shale fragments, damp. *(continued)*	658.7	31																
	656.7	32																
Hard gray **SILTY CLAY**, little fine gravel, trace fine to coarse sand, few shale fragments, damp.		33																
		34	9															
		35	17 18	53	100	SS-11	-	18	1	1	44	36	37	21	16	8	A-6b (10)	
	651.7	36																
		37	TR															
SHALE, gray, highly weathered, very weak.		38																
		39	16 38 50/4"	-	100	SS-12	-	-	-	-	-	-	-	-	-	5	Rock (V)	
	647.7	40																
		EOB 41																

NOTES:
- Water encountered at 6.2'.
- Borehole caved at 39.7' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 10

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 574+07, 60' RT	EXPLORATION ID B-012-2-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 692.9 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 12/17/24 END: 12/17/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.471764 N, 81.826229 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 692.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4 INCHES	692.6																	
GRANULAR FILL - 2 INCHES	692.4																	
CONCRETE - 8 INCHES	691.7																	
GRANULAR BASE - 12 INCHES	690.7																	
POSSIBLE FILL: Loose to medium dense brown **COARSE AND FINE SAND**, little fine gravel, little silt, trace clay, damp.		W 689.2	14 7 7	21	72	SS-1A	-	-	-	-	-	-	-	-	-	15	A-3a (V)	
						SS-1B	-	-	-	-	-	-	-	-	-	10	A-3a (V)	
			3 8 10	27	72	SS-2	-	-	-	-	-	-	-	-	-	10	A-3a (V)	
			5 4 4	12	89	SS-3	-	14	15	56	11	4	NP	NP	NP	9	A-3a (0)	
			5 3 3	9	67	SS-4	-	-	-	-	-	-	-	-	-	10	A-3a (V)	
	681.4	W 681.4	2 1 0	2	67	SS-5A	-	-	-	-	-	-	-	-	-	16	A-3a (V)	
Medium stiff to stiff brown **SILT AND CLAY**, little fine to coarse sand, trace fine gravel, damp.	679.9					SS-5B	0.5-1.5	-	-	-	-	-	-	-	-	25	A-6a (V)	
Loose brown **COARSE AND FINE SAND**, little silt, trace clay, trace fine to coarse gravel, damp.			2 2 2	6	100	SS-6	-	-	-	-	-	-	-	-	-	15	A-3a (V)	
@16.1' to 16.5', clay seam			2 2 3	8	89	SS-7	-	6	9	68	11	6	NP	NP	NP	9	A-3a (0)	
	674.2	W 674.9																
Stiff brown **SILT AND CLAY**, little fine to coarse sand, trace fine gravel, moist.	673.9					SS-8A	-	-	-	-	-	-	-	-	-	32	A-3a (V)	
			1 1 1	3	83	SS-8B	1.0-1.5	-	-	-	-	-	-	-	-	32	A-6a (V)	
						SS-8C	-	-	-	-	-	-	-	-	-	30	A-3a (V)	
Very loose to loose brown becoming gray **COARSE AND FINE SAND**, some silt, trace clay, wet.																		
	667.9	EOB	1 2 3	8	100	SS-9	-	0	5	65	23	7	NP	NP	NP	44	A-3a (0)	

NOTES:
- Seepage encountered at 3.7' and 11.5' during drilling.
- Water encountered at 18' during drilling.
- Borehole caved at 14' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG DEVICE; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 11

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / J. MINCHAK	DRILL RIG: OTB ATV D50	STATION / OFFSET: 585+31, 5' RT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 698.9 (MSL) EOB: 16.3 ft.
START: 12/10/24 END: 12/10/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79.1	COORD: 41.471843 N, 81.822127 W

EXPLORATION ID **B-013-1-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 698.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 2-1/2 INCHES	698.7																	
CONCRETE - 10-1/2 INCHES	697.8																	
GRANULAR BASE - 11 INCHES	696.9																	
FILL: Medium dense gray **GRAVEL WITH SAND**, trace silt, damp.	695.7		7 6 5	15	78	SS-1A	-	-	-	-	-	-	-	-	-	-	A-1-b (V)	
						SS-1B	-	-	-	-	-	-	-	-	-	5	A-1-b (V)	
Hard gray **SILT AND CLAY**, trace fine to coarse sand, trace fine to coarse gravel, damp.	694.9	W TR 694.9	3 50/5"	-	100	SS-2A	4.5+	-	-	-	-	-	-	-	-	10	A-6a (V)	
						SS-2B	-	-	-	-	-	-	-	-	-	10	Rock (V)	
SHALE, gray, severely weathered, very weak.			50/5"	-	100	SS-3	-	-	-	-	-	-	-	-	-	8	Rock (V)	
	687.9		40 44 48	121	100	SS-4	-	-	-	-	-	-	-	-	-	15	Rock (V)	
SHALE, gray, highly weathered, weak to slightly strong.			43 50/5"	-	100	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
			45 50/4"	-	100	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	682.6	EOB	50/3"	-	100	SS-7	-	-	-	-	-	-	-	-	-	-	Rock (V)	

NOTES:
- Water encountered at 4.0' during drilling.
- Water measured at 14.1' inside augers at end of drilling.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG DEVICE; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 12

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB ATV D50	STATION / OFFSET: 591+90, 6' RT	EXPLORATION ID B-015-1-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 710.5 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 12/10/24 END: 12/18/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 79.1	COORD: 41.471580 N, 81.819753 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 710.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3 INCHES	710.2																	
CONCRETE - 12 INCHES	709.2																	
GRANULAR BASE - 9 INCHES	708.5																	
FILL: Very stiff gray **SILT AND CLAY**, little to some fine to coarse sand, little fine gravel, few shale fragments, damp.	707.0		5 6 5	15	67	SS-1	2.5	-	-	-	-	-	-	-	-	12	A-6a (V)	
SHALE, gray, severely weathered, very weak to weak.		TR	36 50/3"	-	100	SS-2	-	-	-	-	-	-	-	-	-	8	Rock (V)	
			50/4"	-	50	SS-3	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	700.5		50/5"	-	100	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE, dark gray to black, slightly to moderately weathered, slightly to moderately strong, laminated to thick bedded, fissile, few diagonal fractures, highly to moderately fractured, tight to narrow aperture, slightly rough surfaces, RQD = 49%, REC = 95%. @ 13.0' - 13.4'; Q_u = 3,902 psi; γ_d = 149.2 pcf			42		98	NQ-5											CORE	
			21		100	NQ-6											CORE	
@ 16.0', change to gray			62		100	NQ-7											CORE	
@ 20.0' - 20.4'; Q_u = 2,350 psi; γ_d = 151.1 pcf			54		83	NQ-8											CORE	
	685.5	EOB																

NOTES:
- No water encountered during drilling.
- Rock coring performed in offset hole 5' east of original boring with OTB Mobile B-57 rig on 12/18/24.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE

PLATE 13

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 603+78, 6' RT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: WERTZ / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 10/4/24	ELEVATION: 713.6 (MSL) EOB: 24.0 ft.
START: 12/11/24 END: 12/11/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.470596 N, 81.815623 W

EXPLORATION ID **B-018-3-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 713.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4 INCHES	713.3																	
CONCRETE - 12 INCHES	712.3																	
GRANULARL BASE - 3 INCHES	712.0																	
Hard gray **SILT AND CLAY**, some fine to coarse gravel (shale fragments), similar to severely weathered shale, dry to damp.	710.1	TR	6 11 50/4"	-	100	SS-1	-	-	-	-	-	-	-	-	-	5	A-6a (V)	
SHALE, gray, highly to severely weathered, weak to slightly strong.			40 50/3"	-	100	SS-2	-	-	-	-	-	-	-	-	-	5	Rock (V)	
			50/2"	-	100	SS-3	-	-	-	-	-	-	-	-	-	-	Rock (V)	
			50/3"	-	100	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		W 701.1	50/3"	-	100	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
			50/2"	-	100	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	
			50/4"	-	75	SS-7	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	694.6		50/2"	-	100	SS-8	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE, gray, moderately to highly weathered, very weak to weak, thinly laminated to very thickly bedded, fissile, highly fractured to moderately fractured, narrow aperture, slightly rough surfaces, RQD = 32%, REC = 100%. @ 20.4' - 20.8'; Q_u = 732 psi; γ_d = 144.6 pcf	689.6	EOB	32		100	NQ-9											CORE	

NOTES
- Water encountered at 12.5' during drilling.
- Water was not observed in the augers prior to rock coring.
- Borehole caved at 16.0' after rock core barrel removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 14

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 609+32, 6' RT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: WERTZ / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 10/4/24	ELEVATION: 715.7 (MSL) EOB: 24.0 ft.
START: 12/11/24 END: 12/11/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.470118 N, 81.813706 W

EXPLORATION ID **B-019-2-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 715.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4 INCHES	715.4																	
CONCRETE - 11 INCHES	714.4																	
GRANULAR BASE - 4 INCHES	714.1																	
Hard gray **SILT AND CLAY**, some fine to coarse gravel (shale fragments), similar to severely weathered shale, dry to damp.	712.2	TR	7 12 28	60	72	SS-1	-	-	-	-	-	-	-	-	-	9	A-6a (V)	
SHALE, gray, highly to severely weathered, weak to slightly strong.			27 18 14	48	78	SS-2	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			8 11 14	38	83	SS-3	-	-	-	-	-	-	-	-	-	8	Rock (V)	
			9 9 50/3"	-	80	SS-4	-	-	-	-	-	-	-	-	-	7	Rock (V)	
			50/3"	-	100	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	701.7		50/2"	-	100	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE, gray, moderately to highly weathered, weak to slightly strong, thinly laminated to thick bedded, highly fractured to moderately fractured, narrow aperture, slightly rough surfaces, RQD = 51%, REC = 100%. @ 23.4' - 23.8'; Q_u = 2,433 psi; γ_d = 147.8 pcf	691.7	EOB	51		100	NQ-7	-										CORE	

NOTES
- Water not encountered during drilling.
- The borehole caved at 13.0' after rock core barrel removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 15

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 616+67, 7' RT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 711.7 (MSL) EOB: 18.5 ft.
START: 12/11/24 END: 12/11/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.469682 N, 81.811084 W

EXPLORATION ID **B-021-2-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 711.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3 INCHES	711.4																	
CONCRETE - 11-1/2 INCHES	710.5																	
GRANULAR BASE - 9-1/2 INCHES	709.7	TR																
SHALE, gray, severely weathered, very weak to weak.		1	11	-	100	SS-1A	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	
		2	50/5"			SS-1B	-	-	-	-	-	-	-	-	-	5	Rock (V)	
		3																
		4	50/4"	-	100	SS-2	-	-	-	-	-	-	-	-	-	4	Rock (V)	
		5																
		6	29	-	100	SS-3	-	-	-	-	-	-	-	-	-	6	Rock (V)	
	703.2	7	50/3"															
		8																
SHALE, gray, slightly to moderately weathered, moderately strong, laminated to thick bedded, highly fractured to moderately fractured, narrow aperture, slighty rough surfaces, 0.5-inch limestone seam at 12.6', RQD = 84%, REC = 100%.		9	67		100	NQ-4											CORE	
		10																
		11																
		12	81		100	NQ-5											CORE	
@ 13.2' - 13.6'; Q_u = 5,514 psi; γ_d = 145.7 pcf		13																
		14																
		15																
		16	93		100	NQ-6											CORE	
		17																
	693.2	18																
		EOB																

NOTES:
- Water not encountered during drilling.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG DEVICE; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 16

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 621+70, 5' RT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 713.5 (MSL) EOB: 14.4 ft.
START: 12/11/24 END: 12/11/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.469562 N, 81.808516 W

EXPLORATION ID **B-023-1-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 713.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 2 INCHES	713.3																	
CONCRETE - 10 INCHES	712.5																	
GRANULAR BASE - 6 INCHES	712.0	TR																
SHALE, gray, severely weathered, very weak to weak.		1																
		2	2 50/5"	-	100	SS-1	-	-	-	-	-	-	-	-	-	4	Rock (V)	
		3																
		4	40 50/2"	-	100	SS-2	-	-	-	-	-	-	-	-	-	4	Rock (V)	
	706.5	5																
		6																
SHALE, gray, slightly to moderately weathered, moderately strong, laminated to thick bedded, highly fractured to moderately fractured, narrow aperture, slightly rough surfaces, RQD = 55%, REC = 91%.		7																
		8																
		9	36		83	NQ-3											CORE	
		10																
		11																
		12																
@ 12.5' - 12.9'; Q_u = 6,967 psi; γ_d = 151.3 pcf		13	76		100	NQ-4											CORE	
	699.1	EOB 14																

NOTES:
- Water not encountered during drilling.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG DEVICE; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 17

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 629+07, 4' RT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 715.9 (MSL) EOB: 14.0 ft.
START: 12/18/24 END: 12/18/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.469504 N, 81.805830 W

EXPLORATION ID **B-025-2-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 715.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3 INCHES	715.6																	
CONCRETE - 10 INCHES	714.8																	
GRANULAR BASE - 5 INCHES	714.4	TR																
SHALE, gray, severely to highly weathered, very weak to weak.		1	4 19 9	42	83	SS-1	-	-	-	-	-	-	-	-	-	10	Rock (V)	
	711.9	2	50/3"	-	100	SS-2	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE, gray, moderately to highly weathered, weak to slightly strong, thin bedded, fissile, highly to moderately fractured, narrow to open aperture, slightly rough surfaces, 0.5-inch limestone seam at 17.6', RQD = 29%, REC = 100%.		3 4 5 6 7 8																
@ 9.1' - 9.5'; Q_u = 2,071 psi; γ_d = 146.8 pcf		9 10 11 12 13	29		100	NQ-3	-										CORE	
	701.9	EOB 14																

NOTES:
- Water not encountered during drilling.
- Borehole caved at 9.0' after removing core barrel.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 18

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 635+74, 8' RT	EXPLORATION ID B-026-3-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 718.2 (MSL) EOB: 15.0 ft.	PAGE 1 OF 1
START: 12/18/24 END: 12/18/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.469469 N, 81.803397 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 718.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3 INCHES	717.9																	
CONCRETE - 9 INCHES	717.2																	
GRANULAR BASE - 6 INCHES	716.7	TR																
SHALE, gray, severely to highly weathered, very weak to weak.		1																
		2	21															
		3	33 50	125	94	SS-1	-	-	-	-	-	-	-	-	-	13	Rock (V)	
		4	18 50/2"	-	88	SS-2	-	-	-	-	-	-	-	-	-	11	Rock (V)	
	713.2	5																
SHALE, gray, moderately to highly weathered, slightly to moderately strong, laminated to thick bedded, fissile, highly to moderately fractured, narrow aperture, slightly rough surfaces, 1-inch limestone seam at 13', RQD = 40%, REC = 100%.		6																
@ 7.3' - 7.7'; Q_u = 4,198 psi; γ_d = 148.5 pcf		7																
		8																
		9																
		10	40		100	NQ-3	-										CORE	
@ 11.7' - 12.1'; Q_u = 2,006 psi; γ_d = 149.0 pcf		11																
		12																
		13																
		14																
	703.2	EOB 15																

NOTES:
- Water not encountered during drilling.
- The borehole caved at 5.0' after removing core barrel.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTWPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 19

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 642+38, 27' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 10/4/24	ELEVATION: 720.5 (MSL) EOB: 16.0 ft.
START: 12/16/24 END: 12/16/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.469541 N, 81.800972 W

EXPLORATION ID **B-028-2-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 720.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT - 2 INCHES	720.4																	
CONCRETE - 9 INCHES	719.6	TR																
SHALE, gray, highly weathered, very weak to weak, few clay seams, dry.		1																
		2	20	-	92	SS-1A	-	-	-	-	-	-	-	-	-	8	Rock (V)	
		3	50			SS-1B	-	-	-	-	-	-	-	-	-	5	Rock (V)	
		4	36	-	100	SS-2A	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			50/5"			SS-2B	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		5																
	W 714.5	6	50/5"	-	100	SS-3	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	713.1	7																
SHALE, gray, highly weathered, weak, fissile, dry.		8																
	711.5	9	50/2"	-	100	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE, gray, highly to moderately weathered with some severely weathered seams, slightly strong, laminated to thick bedded, fissile, highly fractured to moderately fractured, narrow aperture, slightly rough surfaces, RQD = 62%, REC = 88%.		10																
		11																
		12	62		88	NQ-5											CORE	
@ 13.5' - 13.9'; Q_u = 2,631 psi; γ_d = 149.9 pcf		13																
		14																
		15																
	704.5	EOB 16																

NOTES
- Water was encountered during drilling at 6.0'.
- The borehole caved at 9.0' and water was measured at 5.5' after removing augers.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; BENTONITE AND CEMENT GROUT

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 20

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / J. MINCHAK	DRILL RIG: OTB ATV D50	STATION / OFFSET: 648+33, 33' LT	EXPLORATION ID B-029-1-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 722.4 (MSL) EOB: 16.4 ft.	PAGE 1 OF 1
START: 12/11/24 END: 12/11/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79.1	COORD: 41.469538 N, 81.798801 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 722.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3-1/2 INCHES	722.1																	
CONCRETE - 9-1/2 INCHES	721.3																	
GRANULAR BASE - 5 INCHES	720.9																	
FILL: Very stiff gray **SILT AND CLAY**, some fine to coarse sand, little fine to coarse gravel, few shale fragments, moist.	720.7	TR	14 50	-	83	SS-1A SS-1B	3.0 -	- -	- -	- -	- -	- -	- -	- -	- -	23 6	A-6a (V) Rock (V)	
SHALE, gray, severely weathered, very weak to weak.		W 718.3	34 50	-	58	SS-2	-	-	-	-	-	-	-	-	-	11	Rock (V)	
	716.9	W 716.3	34 50/3"	-	89	SS-3	-	-	-	-	-	-	-	-	-	18	Rock (V)	
SHALE, dark gray, severely to highly weathered, very weak to weak, few zones of clay.	714.4																	
SHALE, dark gray, highly weathered, weak.			33 50/4"	-	60	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
- Few very weak zones from 11.0' to 13.5'.			39 50/4"	-	50	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
			50/4"	-	50	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	706.0	EOB	50/5"	-	20	SS-7	-	-	-	-	-	-	-	-	-	-	Rock (V)	

NOTES
- Seepage observed in base material at 1.1'.
- Seepage encountered at 4.1' during drilling.
- Water encountered at 6.1' during drilling.
- Water measured at 11.0' in the augers at completion.
- Borehole caved at 12.5' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/17/25 15:37 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 21

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / J. MINCHAK	DRILL RIG: OTB ATV D50	STATION / OFFSET: 653+43, 42' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 729.2 (MSL) EOB: 16.5 ft.
START: 12/11/24 END: 12/11/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79.1	COORD: 41.469543 N, 81.796940 W

EXPLORATION ID **B-031-1-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 729.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4-1/2 INCHES	728.8																	
GRANULAR FILL - 1 INCH	728.7																	
CONCRETE - 8-1/2 INCHES	728.0																	
GRANULAR BASE - 8 INCHES	727.3	W TR 727.3																
SHALE, gray and dark brown, highly to severely weathered, very weak to weak.		1	17 35 50/5"	-	100	SS-1	-	-	-	-	-	-	-	-	-	9	Rock (V)	
		2																
		3																
		4	28 50/4"	-	90	SS-2	-	-	-	-	-	-	-	-	-	6	Rock (V)	
		5																
		6	39 50/5"	-	73	SS-3	-	-	-	-	-	-	-	-	-	4	Rock (V)	
		7																
		W 721.7																
		8																
		9	50/5"	-	100	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		W 718.7																
		10																
		11	50	-	100	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		12																
		13																
		14	50/5"	-	80	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	714.2																	
SHALE, gray, highly weathered, weak.		15																
	712.7	16 EOB	45	-	100	SS-7	-	-	-	-	-	-	-	-	-	-	Rock (V)	

NOTES
- Seepage encountered at 1.9', 7.5', and 10.5'.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 22

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / J. MINCHAK	DRILL RIG: OTB ATV D50	STATION / OFFSET: 66+74, 2' RT	EXPLORATION ID B-034-1-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: RAMP W2A	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 764.9 (MSL) EOB: 17.5 ft.	PAGE 1 OF 1
START: 12/13/24 END: 12/13/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79.1	COORD: 41.468959 N, 81.792098 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 764.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 2 INCHES	764.7																	
CONCRETE - 9 INCHES	764.0																	
ASPHALT - 4-1/2 INCHES	763.6																	
GRANULAR BASE - 4 INCHES	763.3																	
FILL: Very stiff dark gray to black **SILT AND CLAY**, some fine to coarse sand, little fine to coarse gravel, damp.		W 761.1	4 5 5	13	61	SS-1	3.0-4.0	-	-	-	-	-	-	-	-	11	A-6a (V)	
			2 5 4	12	78	SS-2	3.0-4.0	-	-	-	-	-	-	-	-	10	A-6a (V)	
	758.5		2 3 2	7	61	SS-3A	2.0-3.0	-	-	-	-	-	-	-	-	13	A-6a (V)	
FILL: Stiff to very stiff gray, black and brown **SILTY CLAY**, some fine to coarse sand, some fine to coarse gravel, few concrete fragments, damp.						SS-3B	1.0-3.0	-	-	-	-	-	-	-	-	16	A-6b (V)	
	753.6		2 3 4	9	94	SS-4	1.5-3.0	23	19	10	17	31	39	21	18	15	A-6b (5)	
UNCONTROLLED FILL: Brick, slag, concrete and wood debris.	752.7		19 50/2"	-	100	SS-5A	3.5	-	-	-	-	-	-	-	-	15	A-6b (V)	
						SS-5B	-	-	-	-	-	-	-	-	-	29	Visual (V)	
Stiff to hard gray mottled brown **SILT AND CLAY**, some fine to coarse sand, trace fine gravel, few shale fragments, damp to moist.			2 4 4	11	78	SS-6	1.5-2.5	4	6	19	28	43	40	17	23	19	A-6b (12)	
	748.3	TR	7 10 14	32	72	SS-7A	4.5+	-	-	-	-	-	-	-	-	19	A-6b (V)	
SHALE, gray, severely weathered, very weak, few clay seams.	747.4	EOB				SS-7B	-	-	-	-	-	-	-	-	-	19	Rock (V)	

NOTES:
- Seepage encountered at 3.8'.
- Borehole caved at 12.0' and was dry after augers removed.
- Auger refusal encountered at 11.3' in uncontrolled fill. The boring was offset 4 feet east and 3 feet south and completed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 23

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB ATV D50	STATION / OFFSET: 678+13, 84' RT	EXPLORATION ID B-037-2-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 781.5 (MSL) EOB: 41.2 ft.	PAGE 1 OF 2
START: 12/13/24 END: 12/16/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79.1	COORD: 41.468498 N, 81.788144 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 781.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4 INCHES	781.2																	
CONCRETE - 8 INCHES	780.5																	
GRANULAR BASE - 6 INCHES	780.0																	
FILL: Very stiff to hard gray **SILT AND CLAY**, "and" fine to coarse gravel (mostly shale fragments), some fine to coarse sand, damp.			4 6 5	15	61	SS-1	3.0-4.5	-	-	-	-	-	-	-	-	16	A-6a (V)	
			4 4 5	12	72	SS-2	2.5-4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	
		W 775.2	4 8 10	24	89	SS-3	3.5-4.5+	37	13	9	22	19	34	20	14	10	A-6a (2)	
	773.5																	
FILL: Stiff to very stiff gray and black **SILT AND CLAY**, some fine to coarse gravel (mostly shale fragments), some fine to coarse sand, damp.			3 3 4	9	67	SS-4	1.5-2.5	-	-	-	-	-	-	-	-	12	A-6a (V)	
	771.0																	
FILL: Very stiff to hard gray and reddish-brown **SILTY CLAY**, some fine to coarse sand, little fine to coarse gravel, few shale fragments, damp.			5 8 11	25	67	SS-5	3.5-4.5	-	-	-	-	-	-	-	-	13	A-6b (V)	
	768.5																	
FILL: Very stiff to hard gray **SILT AND CLAY**, some fine to coarse gravel (mostly shale fragments), some fine to coarse sand, damp to moist.			4 5 5	13	72	SS-6	2.0-4.0	-	-	-	-	-	-	-	-	11	A-6a (V)	
			4 10 14	32	100	SS-7	3.5-4.5+	28	12	10	26	24	36	21	15	11	A-6a (5)	
			4 8 11	25	100	SS-8	3.5-4.5+	-	-	-	-	-	-	-	-	21	A-6a (V)	
	757.5																	
UNCONTROLLED FILL: Concrete, metal and brick debris.	757.0		26 50/4"	-	100	SS-9A	2.0-	-	-	-	-	-	-	-	-	14	A-6a (V)	
						SS-9B	3.0 -	-	-	-	-	-	-	-	-	6	Visual (V)	
Stiff brown and gray **CLAY**, "and" silt, little fine to coarse sand, moist.																		
			2 1 3	5	100	SS-10	1.0-1.5	0	1	13	44	42	45	24	21	27	A-7-6 (13)	

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:20 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 24

S&ME JOB: 117920021

PID: 76779	BR ID: N/A	PROJECT: CUY-90-6.69	STATION / OFFSET: 678+13, 84' RT	START: 12/13/24	END: 12/16/24	PG 2 OF 2	**B-037-2-24**

MATERIAL DESCRIPTION AND NOTES	ELEV. 751.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
Stiff brown and gray **CLAY**, "and" silt, little fine to coarse sand, moist. *(continued)*	749.7	TR																
SHALE, dark brown and gray, severely to highly weathered, very weak.	744.7		20 50/5"	-	73	SS-11	-	-	-	-	-	-	-	-	-	8	Rock (V)	
SHALE, gray, highly weathered, weak.	740.3	EOB	50/5"	-	100	SS-12	-	-	-	-	-	-	-	-	-	-	Rock (V)	
			50/2"	-	100	SS-13	-	-	-	-	-	-	-	-	-	-	Rock (V)	

NOTES:
- Seepage was encountered at 6.3'.
- Borehole caved at 22.0' and was "dry" after removing augers.
- SS-1 through SS-8 (0' - 20') were drilled on 12/13/24 with a Deitrich D50 ATV rig (Energy Ratio 79.1%)
- SS-9 through SS-13 (20' - 41.2') were drilled on 12/16/24 with a Mobile B-57 Truck rig (Energy Ratio 91%, limited to 90% per SGE)

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 698+49, 34' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: WERTZ / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 10/4/24	ELEVATION: 772.3 (MSL) EOB: 15.0 ft.
START: 12/17/24 END: 12/17/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.466229 N, 81.781395 W

EXPLORATION ID **B-041-3-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 772.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4 INCHES	772.0																	
CONCRETE - 10 INCHES	771.2																	
GRANULAR BASE - 5 INCHES	770.8																	
FILL: Hard gray **SILT AND CLAY**, little fine to coarse sand, little fine to coarse gravel, few organic pockets, moist.	769.3		3 50/4"	-	90	SS-1	1.5	-	-	-	-	-	-	-	-	22	A-6a (V)	
FILL: Very stiff gray **CLAY**, "and" fine to coarse gravel, some fine to coarse gravel, little silt, damp.			8 5 5	15	44	SS-2	2.5	-	-	-	-	-	-	-	-	24	A-7-6 (V)	
			6 7 10	26	89	SS-3	2.5	-	-	-	-	-	-	-	-	24	A-7-6 (V)	
	761.8		9 7 10	26	44	SS-4	3.0	38	11	10	20	21	48	23	25	14	A-7-6 (5)	
FILL: Stiff to very stiff brown becoming gray **SILT AND CLAY**, some fine to coarse gravel, little fine to coarse sand, contains few brick and asphalt fragments, moist.			5 5 8	20	100	SS-5	-	-	-	-	-	-	-	-	-	19	A-6a (V)	
	757.3	EOB	3 4 8	18	83	SS-6	2.0	-	-	-	-	-	-	-	-	21	A-6a (V)	

NOTES
- Borehole caved at 11.5 feet and was "dry" after removing augers.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 26

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 704+07, 33' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 759.7 (MSL) EOB: 15.0 ft.
START: 12/6/24 END: 12/6/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.465839 N, 81.779478 W

EXPLORATION ID **B-043-3-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 759.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 3-1/4 INCHES	759.4																	
CONCRETE - 10-3/4 INCHES	758.5																	
GRANULAR BASE - 5 INCHES	758.0																	
FILL: Stiff to hard dark brown and gray **SILTY CLAY**, some fine to coarse sand, some fine to coarse gravel, few brick, slag and wood fragments, damp to moist.		W 756.2	3 5 12	26	72	SS-1	2.5-4.5	-	-	-	-	-	-	-	-	18	A-6b (V)	
	754.2		3 4 4	12	50	SS-2	1.0	26	14	13	24	23	38	21	17	24	A-6b (5)	
FILL: Stiff to hard dark gray **SILT AND CLAY**, some fine to coarse gravel, some fine to coarse sand, few shale fragments, damp.			3 3 4	11	0	SS-3	3.0-4.5	-	-	-	-	-	-	-	-	19	A-6a (V)	
	749.7		2 1 22	35	50	SS-4	1.0-1.5	24	12	10	31	23	34	22	12	19	A-6a (5)	
UNCONTROLLED FILL (possible construction debris) or shale boulder.	747.2		32 32 37	104	6	SS-5	-	-	-	-	-	-	-	-	-	7	Visual (V)	
Dense brown and gray **GRAVEL WITH SAND, SILT AND CLAY**, few shale fragments, damp.	745.6	TR	8 13 17	45	89	SS-6A	-	-	-	-	-	-	-	-	-	11	A-2-6 (V)	
SHALE, gray, highly weathered, very weak to weak.	744.7	EOB				SS-6B	-	-	-	-	-	-	-	-	-	9	Rock (V)	

NOTES
- Encountered water at 3.5' during drilling.
- Drillers reported hard drilling from approximately 9' to 12'.
- Borehole caved at 7.0 feet and water was measured at 6.0 feet after the augers were removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 27

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 709+47, 35' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 754.9 (MSL) EOB: 15.0 ft.
START: 12/6/24 END: 12/6/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.465905 N, 81.777542 W

EXPLORATION ID **B-044-1-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 754.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 14 INCHES	753.7																	
FILL: Stiff to very stiff gray with dark brown **CLAY**, some silt, little fine to coarse sand, trace fine gravel, slight organic odor, damp.	751.4		2 3 6	14	78	SS-1	1.8-2.8	-	-	-	-	-	-	-	-	19	A-7-6 (V)	
POSSIBLE FILL: Very stiff to hard brown mottled gray **SILTY CLAY**, some fine to coarse sand, little fine gravel, slight organic odor, damp.	749.4		3 5 6	17	72	SS-2	3.5-4.5+	-	-	-	-	-	-	-	-	20	A-6b (V)	
Stiff to very stiff brown mottled with gray **CLAY**, little fine to coarse sand, trace fine gravel, damp.	748.2		2 4 4	12	72	SS-3A	1.8-2.5	1	2	12	30	55	61	21	40	30	A-7-6 (20)	
						SS-3B	1.0-2.5	-	-	-	-	-	-	-	-	25	A-6a (V)	
Stiff to very stiff brown mottled with gray **SILT AND CLAY**, little fine to coarse sand, trace fine gravel, medium stiff zone from 9.5' to 9.8', damp.	744.4		3 3 4	11	89	SS-4	2.0-3.0	4	7	13	35	41	34	20	14	21	A-6a (10)	
Hard gray **SANDY SILT**, little clay, trace fine gravel, similar to severely weathered shale, dry.	743.4		4 12 28	60	100	SS-5A	4.5+	-	-	-	-	-	-	-	-	5	A-4a (V)	
SHALE, dark gray, highly to severely weathered, very weak.	742.8	TR				SS-5B	-	-	-	-	-	-	-	-	-	8	Rock (V)	
SHALE, gray, highly weathered, weak to slightly strong.	741.9					SS-5C	-	-	-	-	-	-	-	-	-	4	Rock (V)	
SHALE, dark gray, severely weathered, very weak to weak, many thin clay seams.	740.7	W 741.4	28 37 22	89	100	SS-6A	-	-	-	-	-	-	-	-	-	11	Rock (V)	
SHALE, gray, highly to severely weathered, very weak to weak.	739.9	EOB				SS-6B	-	-	-	-	-	-	-	-	-	12	Rock (V)	

NOTES
- Groundwater encountered during drilling at 13.5'.
- Borehole caved at 8.5' and was "dry" after removing augers.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE

PLATE 28

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 724+85, 33' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: WERTZ / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 10/4/24	ELEVATION: 740.6 (MSL) EOB: 14.3 ft.
START: 12/17/24 END: 12/17/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.466438 N, 81.771975 W

EXPLORATION ID **B-048-6-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 740.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 14 INCHES	739.4																	
GRANULAR BASE - 3 INCHES	739.1																	
Very stiff gray **SILT AND CLAY**, little fine to coarse sand, little fine gravel, damp to moist.		1	3 6 8	21	83	SS-1	3.0	-	-	-	-	-	-	-	-	15	A-6a (V)	
	736.1	2																
		3	9 13 50	95	78	SS-2A	3.5	-	-	-	-	-	-	-	-	7	A-6a (V)	
SHALE, gray, highly to severely weathered, very weak to weak.		TR 4				SS-2B	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		5	50	-	100	SS-3	-	-	-	-	-	-	-	-	-	5	Rock (V)	
		6																
		7																
		8																
		9	50	-	100	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	729.6	10																
SHALE, gray, highly weathered, weak.		11	50	-	100	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		12																
		13																
	726.3	14 EOB	50	-	0	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	
			50/4"	-	100	SS-7	-	-	-	-	-	-	-	-	-	-	Rock (V)	

NOTES:
- No water encountered during drilling.
- Borehole caved at 11.0' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 29

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 730+15, 35' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 10/4/24	ELEVATION: 735.8 (MSL) EOB: 17.0 ft.
START: 12/17/24 END: 12/17/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.466628 N, 81.770060 W

EXPLORATION ID **B-049-4-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 735.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 12 INCHES	734.8																	
GRANULAR BASE - 6 INCHES	734.3	TR																
SHALE, gray, highly to severely weathered, very weak to weak.		1	43 50/4"	-	100	SS-1	-	-	-	-	-	-	-	-	-	5	Rock (V)	
		2																
		3	50/4"	-	100	SS-2	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		4 W 731.3																
	730.8	5																
SHALE, gray, highly weathered, weak.		6	50/5"	-	100	SS-3	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		7																
		8																
	726.8	9	40 50/2"	-	100	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE, dark gray, slightly to moderately weathered, weak to slightly strong, laminated to thick bedded, fractured to moderately fractured, narrow aperature, slightly rough surfaces, RQD = 8%, REC = 98%.		10																
@ 11.6' - 12.0'; Q_u = 1,406 psi; γ_d = 144.2 pcf		11																
		12																
		13	8		98	NQ-5	-										CORE	
		14																
		15																
		16																
	718.8	17 EOB																

NOTES:
- Groundwater encountered at 4.5' during drilling.
- Borehole caved at 8.0' and was dry after core barrel removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

PLATE 30

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 738+27, 33' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: WERTZ / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 10/4/24	ELEVATION: 728.4 (MSL) EOB: 16.5 ft.
START: 12/9/24 END: 12/9/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.466908 N, 81.767119 W

EXPLORATION ID **B-051-6-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 728.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 12 INCHES	727.4																	
GRANULAR BASE - 6 INCHES	726.9																	
FILL: Hard gray **SILTY CLAY**, little fine to coarse sand, trace fine gravel, damp to moist.	724.9	1	3 5 5	15	72	SS-1	4.5+	-	-	-	-	-	-	-	-	17	A-6b (V)	
Hard gray **SANDY SILT**, "and" clay, trace fine gravel, damp.	719.9	2 3 4 5 6 7 8	5 5 7	18	100	SS-2	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	
			5 5 6	17	100	SS-3	4.5+	8	13	13	28	38	24	14	10	12	A-4a (6)	
SHALE, gray, highly to severely weathered, very weak to weak.	712.9	TR 9 10 11 12 13 14 15	38 50/2"	-	100	SS-4	-	-	-	-	-	-	-	-	-	8	Rock (V)	
			32 26 16	63	89	SS-5	-	-	-	-	-	-	-	-	-	7	Rock (V)	
			16 21 50/2"	-	100	SS-6	-	-	-	-	-	-	-	-	-	7	Rock (V)	
SHALE, gray, highly weathered, weak.	711.9	EOB 16	50	-	100	SS-7	-	-	-	-	-	-	-	-	-	5	Rock (V)	

NOTES:
- No water encountered during drilling.
- Borehole caved at 10.0' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 31

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: WERTZ / R. JACKSON	DRILL RIG: WERTZ CME 55 TRUCK	STATION / OFFSET: 744+94, 32' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: WERTZ / N. KACHMAR	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 10/4/24	ELEVATION: 723.6 (MSL) EOB: 14.4 ft.
START: 12/9/24 END: 12/9/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	COORD: 41.467138 N, 81.764704 W

EXPLORATION ID **B-053-1-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 723.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 12 INCHES	722.6																	
GRANULAR BASE - 6 INCHES	722.1																	
FILL: Very dense gray and black **GRAVEL WITH SAND**, trace to little silt, trace clay, fwe asphalt and shale fragments, damp.	720.1	1																
		2	28 25 15	60	94	SS-1		-	-	-	-	-	-	-	-	11	A-1-b (V)	
		3																
Very stiff gray **SANDY SILT**, "and", trace fine gravel, damp.		4																
		5	10 10 10	30	100	SS-2	2.0-3.5	-	-	-	-	-	-	-	-	19	A-4a (V)	
		6																
		7	6 7 5	18	100	SS-3	2.0	3	6	8	42	41	23	13	10	17	A-4a (8)	
	715.1	8																
Hard gray **SANDY SILT**, some clay, similar to severely weathered shale, dry to damp.		9																
		10	7 10 7	26	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-4a (V)	
	712.6	TR 11																
SHALE, gray, very weak to weak, highly to severely weathered.		12	17 14 50/4"	-	100	SS-5		-	-	-	-	-	-	-	-	10	Rock (V)	
		13																
	709.2	EOB 14	50/4"	-	50	SS-6		-	-	-	-	-	-	-	-	-	Rock (V)	

NOTES:
- Water not encountered during drilling.
- Borehole caved at 9.0' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 32

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / J. MINCHAK	DRILL RIG: OTB ATV D50	STATION / OFFSET: 751+25, 35' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/22/22	ELEVATION: 719.2 (MSL) EOB: 14.0 ft.
START: 12/9/24 END: 12/9/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79.1	COORD: 41.467367 N, 81.762424 W

EXPLORATION ID **B-054-3-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 719.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 12 INCHES	718.2																	
GRANULAR BASE - 8 INCHES	717.5																	
FILL: Very dense dark brown and gray **GRAVEL WITH SAND**, little silt, trace clay, many slag fragments, damp.	716.7	2	7 26 20	61	78	SS-1A	-	-	-	-	-	-	-	-	-	12	A-1-b (V)	
						SS-1B	-	-	-	-	-	-	-	-	-	14	A-4a (V)	
FILL: Dense to very dense gray **SANDY SILT**, some fine to coarse gravel (shale fragments), little clay, damp.	715.2	4	8 13 14	36	100	SS-2A	-	-	-	-	-	-	-	-	-	11	A-4a (V)	
	714.8					SS-2B	-	-	-	-	-	-	-	-	-	8	A-3a (V)	
FILL: Dense brown **COARSE AND FINE SAND**, little silt, trace clay, damp.						SS-2C	-	-	-	-	-	-	-	-	-	10	A-4a (V)	
Very stiff gray **SANDY SILT**, some fine to coarse gravel (shale fragments), little clay, damp.	711.2	7	6 12 12	32	78	SS-3	3.0-4.0	26	23	12	25	14	21	16	5	12	A-4a (1)	
		TR 8																
SHALE, gray, highly to severely weathered, very weak.	708.7	9	17 50	-	100	SS-4	-	-	-	-	-	-	-	-	-	6	Rock (V)	
SHALE, gray, highly weathered, very weak to weak.		11	50/4"	-	50	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	705.2	EOB 14	50/4"	-	50	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	

NOTES:
- Water not encountered during drilling.
- Borehole caved at 12.0' and was dry after augers removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS MIXED WITH BENTONITE

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 33

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 758+20, 34' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 717.6 (MSL) EOB: 17.7 ft.
START: 12/3/24 END: 12/3/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.467611 N, 81.759913 W

EXPLORATION ID **B-056-1-24**

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 14 INCHES	717.6																	
GRANUALR BASE - 11 INCHES	716.4																	
FILL: Hard brownish gray **SILT AND CLAY**, some fine to coarse sand, trace to little fine gravel, few concrete, slag and brick fragments, damp.	715.5		3 4 6	15	78	SS-1A	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	
	715.1					SS-1B	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	
FILL: Hard gray and black **SANDY SILT**, some clay, trace fine gravel, few slag and shale fragments, calcareous, damp.	714.1		6 5 7	18	78	SS-2	-	54	12	12	14	8	24	16	8	10	A-2-4 (0)	
FILL: Medium dense gray **GRAVEL WITH SAND AND SILT**, trace clay, few slag fragments, damp.	712.1																	
POSSIBLE FILL: Loose brown **GRAVEL WITH SAND, SILT AND CLAY**, few shale fragments, damp.	711.1	W 711.1 TR	2 12 20	48	100	SS-3A	-	-	-	-	-	-	-	-	-	14	A-2-6 (V)	
						SS-3B	-	-	-	-	-	-	-	-	-	4	Rock (V)	
SHALE, gray, highly to severely weathered, very weak.			50/5"	-	100	SS-4	-	-	-	-	-	-	-	-	-	-	Rock (V)	
		W 706.6	23 50/1"	-	100	SS-5	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	706.0																	
SHALE, gray, highly weathered, very weak to weak.			50/2"	-	50	SS-6	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	703.6																	
SHALE, dark gray, slightly to moderately weathered, slightly strong, laminated to thick bedded, highly fractured to moderately fractured, narrow aperature, slightly rough surfaces, RQD = 43%, REC = 100%. @ 14.2' - 14.6'; Q_u = 2,070 psi; γ_d = 152.8 pcf			43		100	NQ-7											CORE	
	699.9	EOB																

NOTES:
- The asphalt from 5 inches to 14 inches was deteriorated.
- Seepage observed at 6.5'.
- Water encountered during drilling at 11.0'.
- No water accumulated in the augers prior to rock coring.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS WITH CEMENT

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 34

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 763+06, 36' LT	EXPLORATION ID B-057-3-24
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90	
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 726.6 (MSL) EOB: 29.0 ft.	PAGE 1 OF 1
START: 12/10/24 END: 12/10/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.467904 N, 81.758199 W	

MATERIAL DESCRIPTION AND NOTES	ELEV. 726.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 5 INCHES	726.2																	
CONCRETE - 10-1/2 INCHES	725.3																	
GRANULAR BASE - 5 INCHES	724.9																	
FILL: Stiff gray and dark gray **SILT AND CLAY**, some fine to coarse sand, trace fine gravel, moist.	724.5		5 3 7	15	78	SS-1A	1.5-2.0	-	-	-	-	-	-	-	-	15	A-6a (V)	
						SS-1B	-	-	-	-	-	-	-	-	-	13	A-3a (V)	
FILL: Medium dense brown **COARSE AND FINE SAND**, little silt, trace clay, trace fine gravel, damp.	722.5		6 11 12	35	78	SS-2A	-	-	-	-	-	-	-	-	-	13	A-3a (V)	
						SS-2B	-	-	-	-	-	-	-	-	-	22	A-4a (V)	
Dense gray **SANDY SILT**, trace fine gravel, trace clay, moist.	720.6																	
Hard gray **SANDY SILT**, some clay, little fine to coarse gravel, damp.	718.1		5 6 13	29	89	SS-3	4.5+	19	10	13	34	24	23	14	9	11	A-4a (5)	
Dense gray **GRAVEL WITH SAND AND SILT**, trace clay, many shale fragments, damp.	716.1		9 11 17	42	72	SS-4	-	-	-	-	-	-	-	-	-	9	A-2-4 (V)	
SHALE, gray, highly to severely weathered, very weak, partly similar to soil from 15.5' to 16.7'.		TR	22 41 50/3"	-	73	SS-5	-	-	-	-	-	-	-	-	-	5	Rock (V)	
		W 713.1	22 31 50/4"	-	56	SS-6	-	-	-	-	-	-	-	-	-	10	Rock (V)	
		W 710.6																
	709.9		5 17 50/3"	-	100	SS-7A	-	-	-	-	-	-	-	-	-	13	Rock (V)	
SHALE, gray, highly to severely weathered, very weak to weak.	706.6		50/2"	-	50	SS-8	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE, dark gray, moderately to highly weathered, very weak to slightly strong, thinly laminated to thick bedded, highly fractured to moderately fractured, narrow aperture, slightly rough surfaces, clay seam at 24.8', RQD = 35%, REC = 100%. @ 23.3' - 23.7'; Q_u = 2,617 psi; γ_d = 148.0 pcf @ 27.9' - 28.3'; Q_u = 535 psi; γ_d = 153.5 pcf			33		100	NQ-9											CORE	
NOTES: - Seepage encountered at 13.5' and 16.0'. - No water accumulated in the augers prior to rock coring. - Borehole caved at 16.0' and water was measured at 11.0'.	697.6	EOB	38		100	NQ-10											CORE	

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS WITH CEMENT

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINT\WPROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 35

S&ME JOB: 117920021

PROJECT: CUY-90-6.69	DRILLING FIRM / OPERATOR: OTB / C. SVITAK	DRILL RIG: OTB MOBILE B-57	STATION / OFFSET: 768+23, 33' LT
TYPE: UTILITY	SAMPLING FIRM / LOGGER: S&ME / S. SMITH	HAMMER: CME AUTOMATIC	ALIGNMENT: IR 90
PID: 76779 BR ID: N/A	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 12/22/22	ELEVATION: 736.3 (MSL) EOB: 40.3 ft.
START: 12/4/24 END: 12/4/24	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 90*	COORD: 41.468375 N, 81.756440 W

EXPLORATION ID **B-059-5-24**

PAGE 1 OF 2

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 4 INCHES	736.3																	
CONCRETE - 11-1/4 INCHES	736.0																	
GRANULAR BASE - 11 INCHES	735.0																	
FILL: Medium dense brown **SANDY SILT**, trace to little clay, trace fine gravel, few pockets of silty clay, moist.	734.1		4 5 6	17	78	SS-1	-	-	-	-	-	-	-	-	-	11	A-4a (V)	
FILL: Very stiff to hard brown **SILT AND CLAY**, some fine to coarse sand, some fine gravel, damp.	732.8		4 7 8	23	83	SS-2	3.5-4.5+	26	13	12	24	25	29	16	13	11	A-6a (4)	
			4 5 5	15	67	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	
	727.8																	
FILL: Medium dense black **COARSE AND FINE SAND**, contains cinders, wood, brick fragments, intermixed with gravel and pockets of silty clay, damp.	727.0		4 5 15	30	78	SS-4A	-	-	-	-	-	-	-	-	-	26	A-3a (V)	
	726.3					SS-4B	4.0-4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	
FILL: Hard dark brown **SILT AND CLAY**, little to some fine to coarse sand, little fine gravel, few slag, shale and brick fragments, damp.	724.7		4 6 3	14	61	SS-5A	-	-	-	-	-	-	-	-	-	9	A-1-b (V)	
						SS-5B	0.0-0.2	-	-	-	-	-	-	-	-	15	A-6a (V)	
FILL: Medium dense **GRAVEL WITH SAND** (predominantly lightweight slag), trace silt, dry.	723.3																	
FILL: Very soft brown **SILT AND CLAY**, some fine to coarse sand, little fine gravel, few slag fragments, damp to moist.	722.1		2 2 2	6	89	SS-6A	1.5-2.0	15	12	22	27	24	31	19	12	19	A-6a (4)	
						SS-6B	1.0-2.0	-	-	-	-	-	-	-	-	23	A-6b (V)	
FILL: Stiff brown and dark brown **SILT AND CLAY**, some fine to coarse sand, little fine to coarse gravel, damp.	719.9																	
FILL: Stiff to very stiff dark brown **SILTY CLAY**, little to some fine to coarse sand, little fine gravel, few brick fragments, damp.	719.1		2 4 2	9	100	SS-7A	3.0-4.0	-	-	-	-	-	-	-	-	25	A-6b (V)	
						SS-7B	-	-	-	-	-	-	-	-	-	24	A-4a (V)	
	718.3					SS-7C	-	-	-	-	-	-	-	-	-	26	A-4b (V)	
Loose dark brown **SANDY SILT**, little clay, moist.	717.2																	
Loose brown and gray **SILT**, "and" fine sand, little clay, trace coarse sand, moist.	716.9	TR	3 7 16	35	72	SS-8A	4.5+	1	2	6	27	64	33	20	13	19	A-6a (9)	
						SS-8B	-	-	-	-	-	-	-	-	-	11	Rock (V)	
						SS-8C	-	-	-	-	-	-	-	-	-	14	Rock (V)	
Hard gray **SILT AND CLAY**, trace fine to coarse sand, trace fine gravel, damp.	715.3																	
SHALE, dark gray, slightly to highly weathered, weak.																		
SHALE, gray, severely weathered (soil like structure), very weak.																		
SHALE, gray, slightly to highly weathered, very weak to weak.			50/5"	-	100	SS-9	-	-	-	-	-	-	-	-	-	-	Rock (V)	
	706.8		50/2"	-	100	SS-10	-	-	-	-	-	-	-	-	-	-	Rock (V)	

S&ME ODOT LOG (8.5X11) - SGE 01/2019 - OH DOT.GDT - 1/16/25 20:21 - R:\SERVICE LINES\CS-2557\COLUMBUS\GINTW\PROJECTS\117920021_SEWER BORINGS.GPJ

PLATE 36

S&ME JOB: 117920021

PID: 76779	BR ID: N/A	PROJECT: CUY-90-6.69	STATION / OFFSET: 768+23, 33' LT	START: 12/4/24	END: 12/4/24	PG 2 OF 2	**B-059-5-24**

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
SHALE, gray, moderately to highly weathered, slightly strong, laminated to thick bedded, highly fractured to slightly fractured, pyritic, narrow aperture, slightly rough surfaces, RQD = 39%, REC = 90%. *(continued)*	706.3	31																
@ 29.9' - 30.3'; Q_u = 2,454 psi; γ_d = 148.9 pcf		32	52		99	NQ-11											CORE	
		33																
		34																
		35																
@ 36.0' - 36.4'; Q_u = 3,217 psi; γ_d = 148.6 pcf		36																
		37																
		38	23		82	NQ-12											CORE	
		39																
	696.0	40 EOB																

NOTES:
- Seepage observed at 2.4' and 8.9'
- Borehole caved at 28.0' and water was measured at 21.0' after core barrel removed.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; SOIL CUTTINGS WITH CEMENT

2.0’

B-015-1-24 (1 of 2)

BR: NQ-5 10.0’

ER: NQ-5 14.0’

BR: NQ-6 14.0’

ER: NQ-6 16.0’

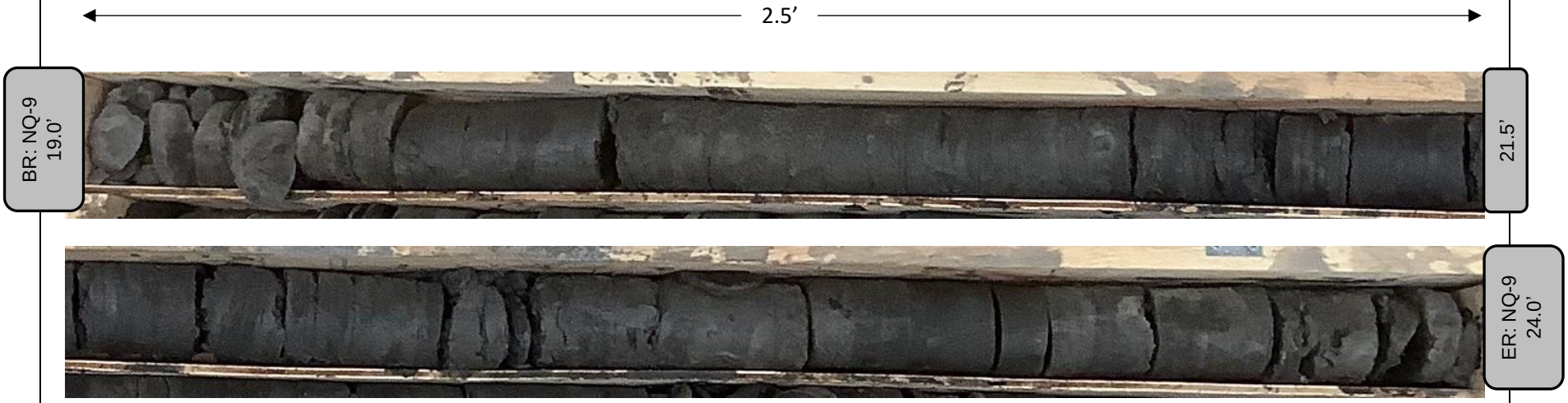
Run #:	Depth		Recovery		RQD	
NQ-5	10.0’	14.0’	47”/48”	98%	20”/48”	42%
NQ-6	14.0’	16.0’	24”/24”	100%	5”/24”	21%
CUY-90-6.69 PID 76779						

2.0’

B-015-1-24 (2 of 2)

Run #:	Depth		Recovery		RQD	
NQ-7	16.0’	21.0’	60”/60”	100%	37”/60”	62%
NQ-8	21.0’	25.0’	40”/48”	83%	26”/48”	54%
CUY-90-6.69 PID 76779						

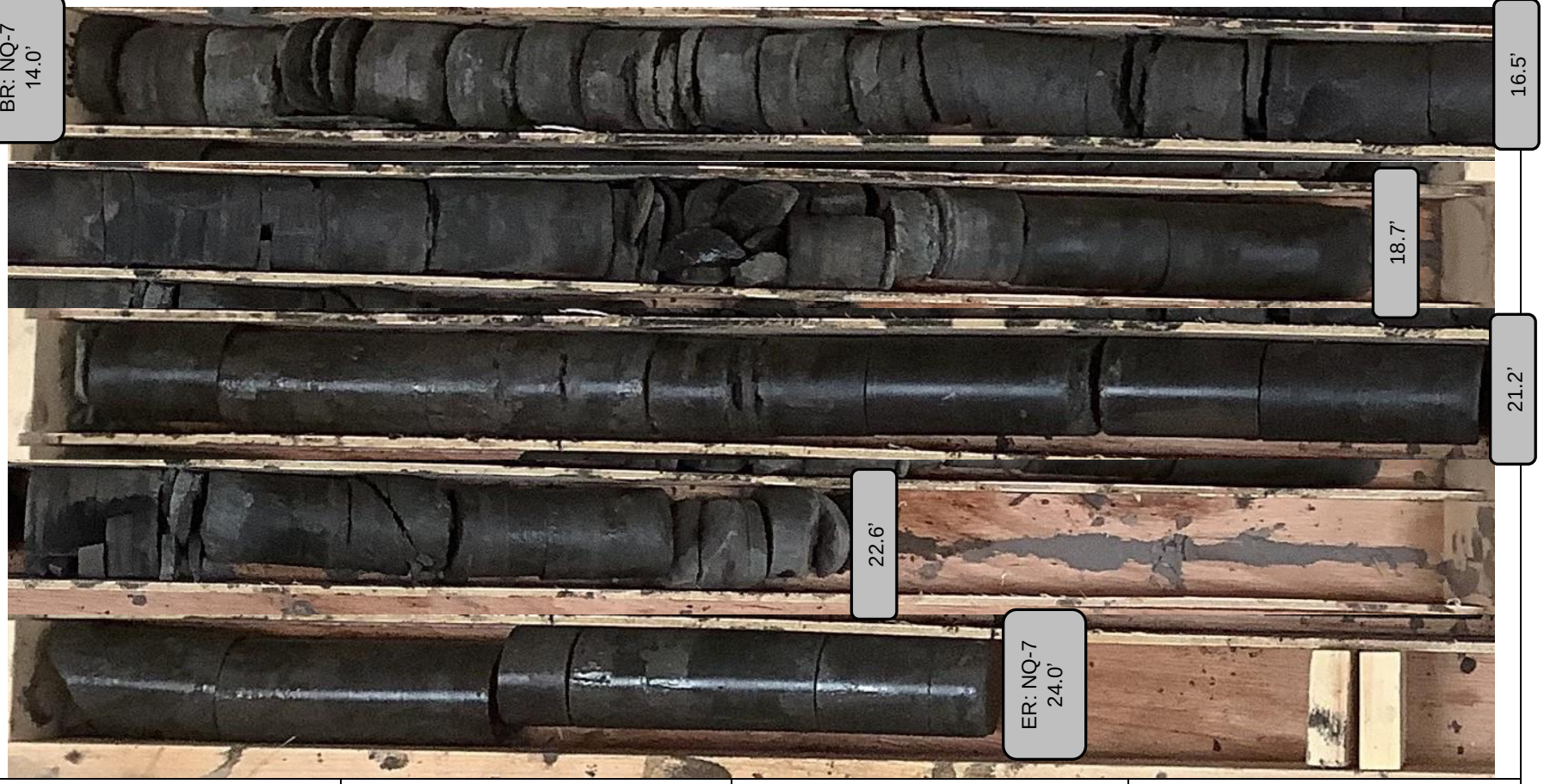
B-018-3-24



Run #:	Depth		Recovery		RQD	
NQ-9	19.0’	24.0’	60”/60”	100%	19”/60”	32%
CUY-90-6.69 PID 76779						

2.0’

B-019-2-24



Run #:	Depth		Recovery		RQD	
NQ-7	14.0’	24.0’	120”/120”	100%	61”/120”	51%

CUY-90-6.69 PID 76779

2.0’

B-021-2-24

Run #:	Depth		Recovery		RQD	
NQ-4	8.5’	10.5’	24”/24”	100%	16”/24”	67%
NQ-5	10.5’	13.5’	36”/36”	100%	29”/36”	81%
NQ-6	13.5’	18.5’	60”/60”	100%	56”/60”	93%
CUY-90-6.69 PID 76779						

2.0’

B-023-1-24

Run #:	Depth		Recovery		RQD	
NQ-3	7.0’	10.9’	39”/47”	83%	17”/47”	36%
NQ-4	10.9’	14.4’	42”/42”	100%	32”/47”	76%
CUY-90-6.69 PID 76779						

2.0’

B-025-2-24 (1 of 2)

ER: NQ-3
4.0’

Run #:	Depth		Recovery		RQD	
NQ-3	4.0’	14.0’	120”/120”	100%	35”/120”	29%
CUY-90-6.69 PID 76779						

2.0’

B-025-2-24 (2 of 2)

See previous page for core run information

CUY-90-6.69 PID 76779

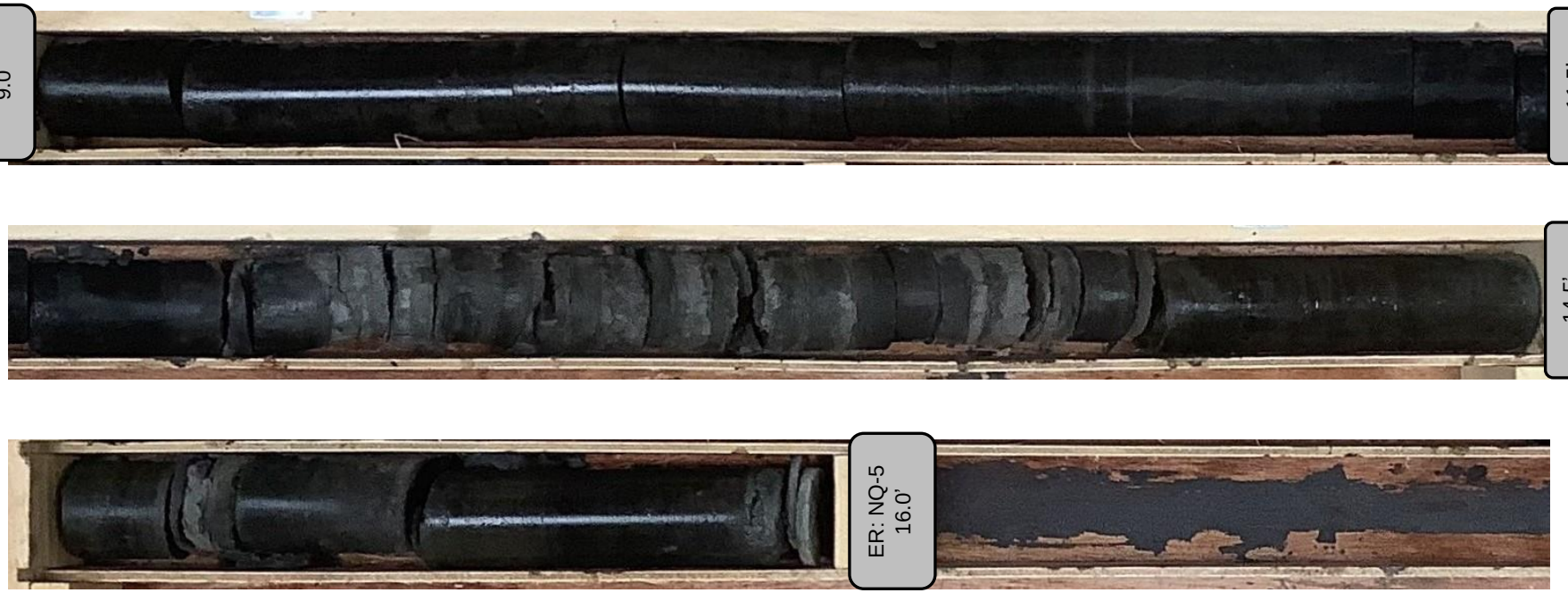
2.5’

B-026-3-24

Run #:	Depth		Recovery		RQD	
NQ-3	5.0’	15.0’	120”/120”	100%	48”/120”	40%
CUY-90-6.69 PID 76779						

B-028-2-24

2.5’



Run #:	Depth		Recovery		RQD	
NQ-5	9.0’	16.0’	74”/84”	88%	52”/84”	62%
CUY-90-6.69 PID 76779						

2.5’

B-049-4-24

Run #:	Depth		Recovery		RQD	
NQ-5	9.0’	17.0’	94”/96”	98%	8”/96”	8%

CUY-90-6.69 PID 76779

2.0’

B-056-1-24

Run #:	Depth		Recovery		RQD	
NQ-7	14.0’	17.7’	44”/44”	100%	19”/44”	43%
CUY-90-6.69 PID 76779						

2.0’

B-057-3-24

Run #:	Depth		Recovery		RQD	
NQ-9	20.0’	25.0’	60”/60”	100%	20”/60”	33%
NQ-10	25.0’	29.0’	48”/48”	100%	18”/48”	38%
CUY-90-6.69 PID 76779						

2.0’

B-059-5-24

Run #:	Depth		Recovery		RQD	
NQ-11	29.5’	35.3’	67”/69”	97%	36”/69”	52%
NQ-12	35.3’	40.3’	49”/60”	82%	14”/60”	23%
CUY-90-6.69 PID 76779						

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	01/09/25
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	01/07/25
Client Name:	ASI		
Client Address:	2550 Corporate Exchange, Suite 300, Columbus, OH 43231	Received Date:	12/19/24
Boring ID:	B-015-1-24, NQ-1	Depth/Elev., ft:	13.0 - 13.4
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***2.8*** **%** ***Dry Unit Weight*** ***149.2*** **pcf**

Compressive Strength ***3,902*** **psi**

Before Test

After Test

Strain rate: 0.03 in/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J Manning	Paula J Manning	Laboratory Manager	1/9/2025
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	01/09/25
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	01/07/25
Client Name:	ASI		
Client Address:	2550 Corporate Exchange, Suite 300, Columbus, OH 43231	Received Date:	12/19/24
Boring ID:	B-015-1-24, NQ-3	Depth/Elev., ft:	20.0 - 20.4
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.3*** **%** ***Dry Unit Weight*** ***151.1*** **pcf**

Compressive Strength ***2,350*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J Manning	Paula J Manning	Laboratory Manager	1/9/2025
Technical Responsibility	*Signature*	*Position*	*Date*

S&ME, Inc - Corporate
3201 Spring Forest Road
Raleigh, NC 27618

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/26/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/20/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	12/16/24
Boring ID:	B-018-3-24, NQ-9	Depth/Elev., ft:	20.4 - 20.8
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***4.5*** **%** ***Dry Unit Weight*** ***144.6*** **pcf**

Compressive Strength ***732*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J. Manning	Paula J Manning	Laboratory Manager	12/26/2024
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/26/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/20/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	12/16/24
Boring ID:	B-019-2-24, NQ-7	Depth/Elev., ft:	23.4 - 23.8
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.3*** **%** ***Dry Unit Weight*** ***147.8*** **pcf**

Compressive Strength ***2,433*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J. Manning	Paula J Manning	Laboratory Manager	12/26/2024
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/30/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/27/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	05/21/19
Boring ID:	B-021-2-24, NQ-5	Depth/Elev., ft:	13.2 - 13.6
Sample Description:	SHALE, gray		

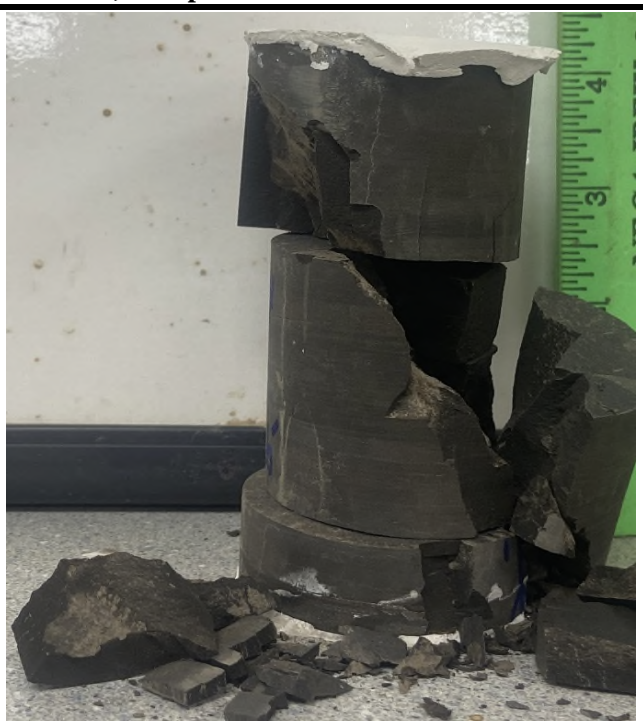
Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***2.7*** **%** ***Dry Unit Weight*** ***145.7*** **pcf**

Compressive Strength ***5,514*** **psi**

Before Test



After Test

Strain rate: 0.03 in/min.

Notes / Deviations / References: **Specimen contained horizontal fractures. Specimen end preparation was not done in accordance with ASTM D4543. Specimen capped using gypsum in accordance with ASTM C617, based on previous similar samples. Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement. However, the test method chosen was based on nearby historic rock strength of <5,000 psi.**

Paula J. Manning	Paula J Manning	Lab Manager	12/30/2024
Technical Responsibility	*Signature*	*Position*	*Date*

PLATE 56

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

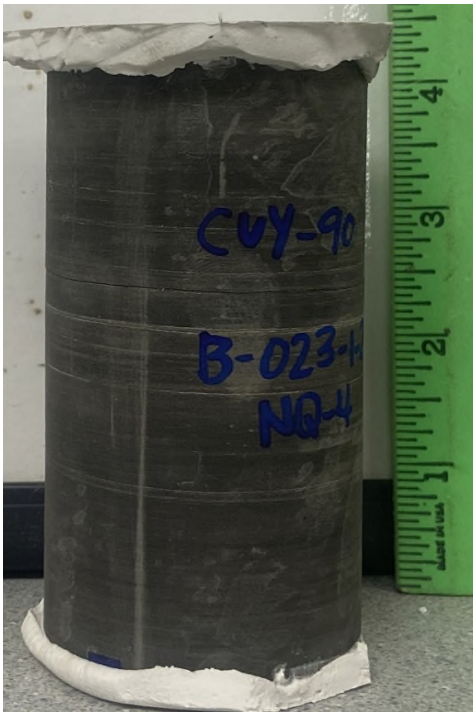
Project No.:	1179-20-021	Report Date:	12/30/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/27/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	05/21/19
Boring ID:	B-023-1-24, NQ-4	Depth/Elev., ft:	12.5 - 12.9
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

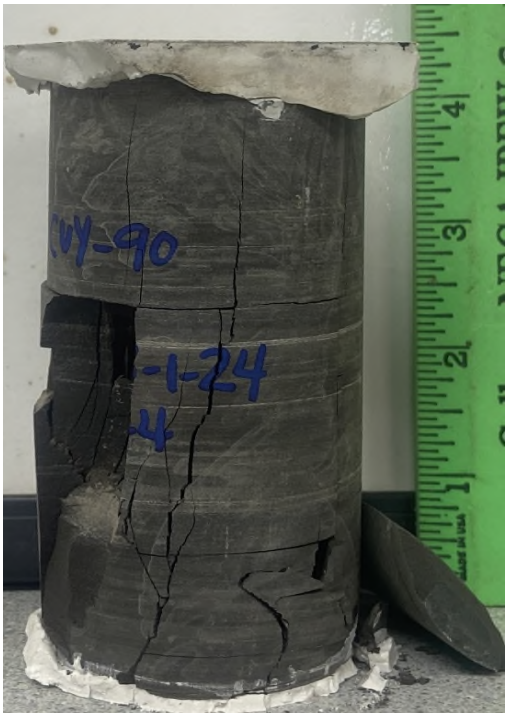
Test Results

Moisture Content ***2.5*** **%** ***Dry Unit Weight*** ***151.3*** **pcf**

Compressive Strength ***6,967*** **psi**



Before Test



After Test

Strain rate: 0.03 in/min.

Notes / Deviations / References: **Specimen contained horizontal fractures. Specimen end preparation was not done in accordance with ASTM D4543. Specimen capped using gypsum in accordance with ASTM C617, based on previous similar samples. Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement. However, the test method chosen was based on nearby historic rock strength of <5,000 psi.**

Paula J. Manning	Paula J Manning	Lab Manager	12/30/2024
Technical Responsibility	*Signature*	*Position*	*Date*

PLATE 57

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	01/09/25
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	01/07/25
Client Name:	ASI		
Client Address:	2550 Corporate Exchange, Suite 300, Columbus, OH 43231	Received Date:	12/19/24
Boring ID:	B-025-2-24, NQ-3	Depth/Elev., ft:	9.1 - 9.5
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.7*** **%** ***Dry Unit Weight*** ***146.8*** **pcf**

Compressive Strength ***2,071*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J Manning	Paula J Manning	Laboratory Manager	1/9/2025
Technical Responsibility	*Signature*	*Position*	*Date*

S&ME, Inc - Corporate
3201 Spring Forest Road
Raleigh, NC 27618

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	01/09/25
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	01/07/25
Client Name:	ASI		
Client Address:	2550 Corporate Exchange, Suite 300, Columbus, OH 43231	Received Date:	12/19/24
Boring ID:	B-026-3-24, NQ-3	Depth/Elev., ft:	7.3 - 7.7
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***2.9*** **%** ***Dry Unit Weight*** ***148.5*** **pcf**

Compressive Strength ***4,198*** **psi**

Before Test

After Test

Strain rate: 0.03 in/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J Manning	Paula J Manning	Laboratory Manager	1/9/2025
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	01/09/25
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	01/07/25
Client Name:	ASI		
Client Address:	2550 Corporate Exchange, Suite 300, Columbus, OH 43231	Received Date:	12/19/24
Boring ID:	B-026-3-24, NQ-3	Depth/Elev., ft:	11.7 - 12.1
Sample Description:	SHALE, gray		

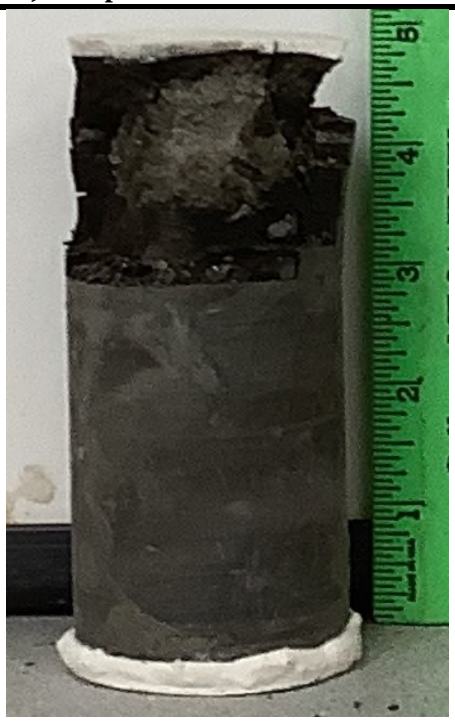
Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.0*** **%** ***Dry Unit Weight*** ***149.0*** **pcf**

Compressive Strength ***2,006*** **psi**

Before Test



After Test

Strain rate: 0.03 in/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J Manning	Paula J Manning	Laboratory Manager	1/9/2025
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

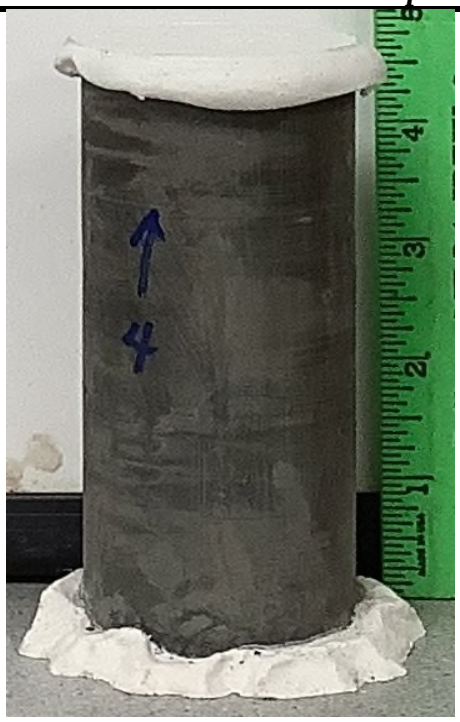
Project No.:	1179-20-021	Report Date:	01/09/25
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	01/07/25
Client Name:	ASI		
Client Address:	2550 Corporate Exchange, Suite 300, Columbus, OH 43231	Received Date:	12/19/24
Boring ID:	B-028-2-24, NQ-5	Depth/Elev., ft:	13.5 - 13.9
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***2.6*** **%** ***Dry Unit Weight*** ***149.9*** **pcf**

Compressive Strength ***2,631*** **psi**



Before Test

After Test

Strain rate: 0.03 in/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J Manning	Paula J Manning	Laboratory Manager	1/9/2025
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	01/09/25
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	01/07/25
Client Name:	ASI		
Client Address:	2550 Corporate Exchange, Suite 300, Columbus, OH 43231	Received Date:	12/19/24
Boring ID:	B-049-4-24, NQ-5	Depth/Elev., ft:	11.6 - 12.0
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.3*** **%** ***Dry Unit Weight*** ***144.2*** **pcf**

Compressive Strength ***1,406*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J Manning	Paula J Manning	Laboratory Manager	1/9/2025
Technical Responsibility	*Signature*	*Position*	*Date*

PLATE 62

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/13/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/12/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	12/09/24
Boring ID:	B-056-1-24, NQ-7	Depth/Elev., ft:	14.2 - 14.6
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***2.6*** **%** ***Dry Unit Weight*** ***152.8*** **pcf**

Compressive Strength ***2,070*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J. Manning	Paula J Manning	Laboratory Manager	12/13/2024
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/26/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/20/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	12/16/24
Boring ID:	B-057-3-24, NQ-9	Depth/Elev., ft:	23.3 - 23.7
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.0*** **%** ***Dry Unit Weight*** ***148.0*** **pcf**

Compressive Strength ***2,617*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J. Manning	Paula J Manning	Laboratory Manager	12/26/2024
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/26/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/20/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	12/16/24
Boring ID:	B-057-3-24, NQ-10	Depth/Elev., ft:	27.9 - 28.3
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.2*** **%** ***Dry Unit Weight*** ***153.5*** **pcf**

Compressive Strength ***535*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J. Manning	Paula J Manning	Laboratory Manager	12/26/2024
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/13/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/12/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	12/09/24
Boring ID:	B-059-5-24, NQ-11	Depth/Elev., ft:	29.9 - 30.3
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.1*** **%** ***Dry Unit Weight*** ***148.9*** **pcf**

Compressive Strength ***2,454*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J. Manning	Paula J Manning	Laboratory Manager	12/13/2024
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D7012C-01
Revision No. 1
Revision Date: 07/14/17

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D 7012 Method C

Quality Assurance

S&ME, Inc. - Columbus: 6190 Enterprise Court, Dublin, Ohio 43016

Project No.:	1179-20-021	Report Date:	12/13/24
Project Name:	CUY-90-6.69 Utility Borings	Test Date(s):	12/12/24
Client Name:	American Structurepoint		
Client Address:	2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio	Received Date:	12/09/24
Boring ID:	B-059-5-24, NQ-12	Depth/Elev., ft:	36.0 - 36.4
Sample Description:	SHALE, gray		

Angle of load relative to lithology: Approximately perpendicular to bedding plane

Test Results

Moisture Content ***3.1*** **%** ***Dry Unit Weight*** ***148.6*** **pcf**

Compressive Strength ***3,217*** **psi**

Before Test

After Test

Strain rate: 0.9 %/min.

Notes / Deviations / References: **Specimen end preparation not done in accordance with ASTM D4543.**

Specimen capped using high strength gypsum in accordance with ASTM C617.

Test results for specimens not meeting this requirement may differ from test results obtained from specimens meeting this requirement.

Paula J. Manning	Paula J. Manning	Laboratory Manager	12/13/2024
Technical Responsibility	*Signature*	*Position*	*Date*