

**MAR-529-2.59
ODOT PID NO: 112818
MARION COUNTY, OHIO**

**DRAFT SUBGRADE
EXPLORATION REPORT**

Prepared For:
**ODOT District Six
400 East William Street
Delaware, OH 43015**

Prepared By:
**Resource International, Inc.
6350 Presidential Gateway
Columbus, OH 43231**

Rii Project No. W-20-161

April 2021



RESOURCE INTERNATIONAL, INC.

6350 Presidential Gateway
Columbus, Ohio 43231
T: 614.823.4949

April 21, 2021

Mr. Anthony Turowski, P.E.
Planning Engineer
ODOT District Six
400 East William Street
Delaware, Ohio 43015

**Re: Draft Subgrade Exploration Report
MAR-529-2.59
ODOT PID No. 112818
Marion County, Ohio
Rii Project No. W-20-161**

Mr. Turowski:

Resource International, Inc. (Rii) is pleased to submit this draft subgrade exploration report for the above referenced project. Engineering logs have been prepared and are attached to this report along with the results of laboratory testing. This report includes recommendations for the proposed improvements along SR 529 between SLM 2.59 and 9.33 in Marion County, Ohio.

We sincerely appreciate the opportunity to be of service to you on this project. If you have any questions regarding the Subgrade exploration or this report, please contact us.

Sincerely,

RESOURCE INTERNATIONAL, INC.

Peyman P. Majidi, P.E.
Project Engineer

Jonathan P. Sterenberg, P.E.
Vice President – Geotechnical Services

Enclosure: Draft Subgrade Exploration Report

ISO 9001:2015 QMS

Committed to providing a high quality,
accurate service to our clients in a timely manner

Planning

Engineering

Construction
Management

Technology

TABLE OF CONTENTS

Section	Page
EXECUTIVE SUMMARY	i
Exploration and Findings	i
Analysis and Recommendations	i
1.0 INTRODUCTION	1
2.0 GEOLOGY AND OBSERVATIONS OF THE PROJECT	1
2.1 Site Geology	1
2.2 Existing Site Conditions.....	2
3.0 EXPLORATION.....	2
4.0 FINDINGS.....	4
4.1 Surface Materials	4
4.2 Subsurface Soils.....	5
4.3 Bedrock.....	5
4.4 Groundwater.....	5
5.0 ANALYSES AND RECOMMENDATIONS.....	6
5.1 Pavement Subgrade Recommendations.....	6
5.1.1 <i>Subgrade Stabilization</i>	6
5.1.2 <i>Subgrade Design Considerations</i>	7
5.1.3 <i>Unsuitable Subgrade Recommendations</i>	8
5.2 Full Depth Reclamation	8
5.3 Construction Considerations	9
5.3.1 <i>Excavation Considerations</i>	9
5.4 Groundwater Considerations	9
6.0 LIMITATIONS OF STUDY.....	10

APPENDICES

Appendix I	Vicinity Map and Boring Plan
Appendix II	Description of Soil Terms
Appendix III	Boring Logs: B-001-0-20 through B-089-0-20
Appendix IV	MAR-529-2.59 DCP logs
Appendix V	Photographic Pavement Core Logs
Appendix VI	GB1 Subgrade Stabilization Summary

EXECUTIVE SUMMARY

Resource International, Inc. (Rii) has completed a subgrade exploration report for the design and construction of the proposed improvements to the eastbound and westbound shoulders of State Route 529 between SLM 2.59 and 9.33 in Marion County. It is understood that consideration is being given to full depth reclamation (FDR) for the shoulder reconstruction.

Exploration and Findings

Between March 1 and 9, 2021, a total of forty-five (45) borings, designated as B-001-0-20 through B-089-0-20 were drilled by ODOT drilling crews to completion depths of 7.5 feet below the existing pavement surface. In addition, forty-four (44) dynamic cone penetrometer (DCP), designated as D-003-0-21 through D-088-0-21 were performed to depth of between 30 to 40 inches below the bottom of the existing pavement. The boring and DCP locations are illustrated on the boring plan presented in Appendix I of this report.

All borings and DCP tests were performed within the existing pavement. Pavement cores were obtained from selected boring locations. The borings and pavement cores encountered 8.0 to 14.0 inches of reinforced concrete pavement underlain by 2.0 to 10.5 inches of aggregate base. Pavement thicknesses in the DCP tests were measured between 4.0 and 16.0 inches of asphalt.

Underlying the pavement materials in the borings, predominantly natural cohesive soils with seams of granular soils were encountered to boring termination depths.

Analysis and Recommendations

Pavement Subgrade Recommendations

The subgrade soils along the alignment are anticipated to consist of predominantly cohesive materials comprised of soft to hard clay, silty clay, silt and clay, sandy silt and silt. Based on the soil conditions encountered during the drilling phase, it is estimated that the subgrade soils within the upper portions of the proposed subgrade will require some level of stabilization under ODOT GB1. Based on the results of the GB1 analysis, the overall average site parameters based on all of the soil borings performed as part of this exploration are as follows:

Overall Average Site Parameters

Average N_{60L}	Average PI	Average Moisture	Average Optimum Moisture	Average Group Index	Design CBR
10	19	19	16	12	5



Applying the averages in the preceding table and based on the results of the GB-1 analysis, the following global stabilization options are recommended within the project limits:

Option 1. Chemically stabilize the entire subgrade with 14-inches of cement, as per ODOT Construction and Materials Specification (CMS) Item 206. For estimating purposes, utilize a cement content of 5.0 percent by weight of soil. Actual application rates shall be verified by the contractor under Item 206.06 Mixture Design for Chemically Stabilized Soils.

Option 2. Stabilize the entire subgrade via a 12-inch undercut and replacement with ODOT item 703.16C granular material, Type B, C or D installed over ODOT Item 712.09 Geotextile Fabric, Type D as detailed in accordance with ODOT Item 204.

Per ODOT GB1 requirements, the entire subgrade should be stabilized using one of the global stabilization options provided above. Upon completion of the stabilization, the entire subgrade should be proof rolled to verify that stability has been achieved.

California Bearing Ratio (CBR) values from the soil borings had an average of 5, while DCP values displayed average CBR values ranging from 4 to 12 with average site CBR value of 7. Based on the conditions encountered across the subject site, **it is recommended that pavement design be based on a CBR value of 5** with a corresponding resilient modulus, MR, of 8,400 psi. Correlation charts indicate a modulus of subgrade reaction (K) of 135 pci and a soil support value (SSV) of 3.8.

Unsuitable subgrade soil consisting of silt (ODOT A-4b) soil was identified in boring B-018-0-20 and B-086-0-20 to depth of 3.0 feet below existing grade. If excavation and replacement option has been elected as the preferred alternative, silt encountered within the subgrade should be over excavated to a depth of 36 inches below the top of the proposed subgrade or to its entirety, whichever is less. For planning purposes, it is assumed the unsuitable subgrade soils (ODOT A-4b) extends from mid length between borings B-017-0-20 and B-021-0-20 and between borings B-085-0-20 and B-089-0-20, for an overall length of approximately 2,400 feet.

It is understood that ODOT is considering full depth reclamation (FDR) for the reconstruction of the shoulder pavement. Rii recommends the use of FDR with cement as a stabilizing agent.

Mix designs for the FDR should be performed in accordance with ODOT Special Provision for FDR Chemical Stabilization, dated March 24, 2010. Rii can be available to provide a mix design for the full depth reclamation using samples of the existing materials and the stabilizing agent (cement). For preliminary estimating purposes, a cement content of 6



percent may be considered, along with a total treatment depth of 12 inches from the top of the pavement surface.

Please note that this executive summary does not contain all the information presented in the report. The unabridged Subgrade exploration report should be read in its entirety to obtain a more complete understanding of the information presented.



1.0 INTRODUCTION

This report is a presentation of the subgrade exploration performed for the design and construction of the proposed improvements to the eastbound and westbound shoulders of State Route 529 between SLM 2.59 and 9.33 in Marion County. It is understood that consideration is being given to full depth reclamation (FDR) for the shoulder reconstruction. The project area is shown on the vicinity map presented in Appendix I.

2.0 GEOLOGY AND OBSERVATIONS OF THE PROJECT

2.1 Site Geology

Both the Illinoian and Wisconsinan glaciers advanced over two-thirds of the State of Ohio, leaving behind glacial features such as moraines, kame deposits, lacustrine deposits and outwash terraces. The glacial and non-glacial regions comprise five physiographic sections grouped by age, depositional process and geomorphic occurrence. Physiographically, the site lies within the Central Ohio Clayey Till Plain Region of the Till Plains Section. The Central Ohio Clayey Till Plains is covered with well-defined ground and end moraines composed of clayey till deposits with sparse lake basins throughout. A ground moraine is the sheet of debris left after a steady retreat of the ice. An end moraine is a ridge like accumulation of till marking a standstill position of a present or past glacial front. The debris left behind by the ice ranges in composition, from clay sizes to boulders (including silt, sand, and gravel). A lake basin contains lacustrine sand in laminated to thin sheets.

Based on the bedrock geology and topography maps of the site, obtained from the Ohio Department of Natural Resources (ODNR), the bedrock underlying the project is comprised of three different units ranging from Middle Devonian to Upper Devonian in age. The project traverses, from west to east and in ascending order of age, the Delaware Limestone, the Olentangy Shale, and the Ohio Shale Formations. The Delaware Limestone lies beneath the western portion of the project from west of US 23 to just west of SR-98. The Olentangy Shale underlies the project from just west of SR 98 to approximately 0.4 miles east of SR 98. The rest of the project, from 0.4 miles east of SR 98 to the eastern project limit, is underlain by the Ohio Shale Formation. The contacts between these formations are separated by unconformities or breaks or gaps in the geologic record either by an interruption in deposition or an erosion event. The Delaware Limestone can be characterized as being argillaceous, cherty, and carbonaceous, gray to brown in color, with thin to massive bedding planes. The limestone ranges in thickness from 0 to 105 feet thick with chert nodules and chert layers, along with a petroliferous odor. The Olentangy Shale formation consists of greenish gray (upper portion) to gray (lower portion), clayey, pyritic shale which locally contains lenses and nodules of limestone. This formation ranges from 20 to 55 feet thick. The upper most unit encountered beneath the site is the Ohio Shale Formation. The Ohio Shale Formation is further subdivided into three (3) members (in descending order), the Cleveland, Chagrin, and Huron Members. The Cleveland Member consists of black shale which is thickest in



the north-central portion of Ohio, but thins towards the south and east and is absent in Northeastern Ohio. The Chagrin Member consists of gray to greenish-gray shale, siltstone, and very fine-grained sandstone, eventually grading into either the overlying Cleveland Member or the underlying Huron Member. The Huron Member is mostly comprised of black, carbonaceous shale with calcareous concretions common in the lower portion of the unit. The Ohio Shale Formation ranges between approximately 250 and 500 feet thick.

The bedrock surface is somewhat hummocky and irregular in the vicinity of the site, but generally slopes upward from west to east beneath the project limits. The bedrock is lowest in a small valley, which runs north-south between US 23 and SR 98, at an elevation of approximately 920 feet mean sea level (msl). The bedrock surface rises slightly between SR 98 and Mautz Yeager Road, then slopes downward slightly from there to East River Road, and then rises again to a crest beneath Claridon Ashley Road where it is highest at an elevation of 960+ feet msl. None of the borings drilled for this project encountered the bedrock surface. With surface elevations at the boring locations ranging from approximately 971 feet to 1005 feet, the depth to bedrock lies approximately 35 to 60 feet below the ground surface.

2.2 Existing Site Conditions

The project site is located along the alignment of Marion-Cardington Road East, SR 529 in the southeast part of city of Marion, the county seat of Marion County, Ohio. SR 529 is classified as a major collector within the limits of the project, and is situated in an east-west direction. The roadway accommodates one lane of traffic in each direction. The roadway predominantly spans farm fields.

3.0 EXPLORATION

Between March 1 and 9, 2021, a total of forty-five (45) borings, designated as B-001-0-20 through B-089-0-20 were drilled by ODOT drilling crews to completion depths of 7.5 feet below the existing pavement surface. In addition, forty-four (44) dynamic cone penetrometer (DCP), designated as D-003-0-21 through D-088-0-21 were performed to depth of between 30 to 40 inches below the bottom of the existing pavement. The boring and DCP locations are illustrated on the boring plan presented in Appendix I of this report.

GPS coordinates of the boring and DCP locations were obtained by RII using a handheld GPS unit. Ground surface elevations were estimated using Google Earth.

The borings were drilled with a CME-55 truck mounted rotary drilling machine, utilizing a 3.25-inch inside diameter, hollow stem auger to advance the holes. In general, standard penetration test (SPT) and split spoon sampling were performed using continuous sampling to the boring termination depth within each of the borings. The SPT, per the American Society for Testing and Materials (ASTM) designation D1586, is conducted



using a 140-pound hammer falling 30.0 inches to drive a 2.0-inch outside diameter split spoon sampler 18.0 inches. Rii utilized a calibrated automatic drop hammer to generate consistent energy transfer to the sampler. Driving resistance is recorded on the boring logs in terms of blows per 6.0-inch interval of the driving distance. The second and third intervals are added to obtain the number of blows per foot (N). Standard penetration blow counts aid in determining soil properties applicable in pavement and foundation system design. Measured blow count (N) values are corrected to an equivalent (60%) energy ratio, N_{60} , by the following equation. Both values are represented on boring logs in Appendix III.

$$N_{60} = N_m * (ER/60)$$

Where:

N_m = measured N value

ER = drill rod energy ratio, expressed as a percent, for the system used

The automatic hammer for the CME-55 drill rig used for this project was calibrated on September 15, 2020 and has a drill rod energy ratio of 83.6 percent. Upon completion of drilling, the borings were backfilled with either soil cuttings generated during the drilling process or a mixture of soil cuttings and bentonite hole plug. Where borings penetrated the existing subgrade, the pavement surface was patched with an equivalent thickness of quickset concrete. During drilling, Rii personnel prepared field logs showing the encountered subsurface conditions. Soil samples obtained from the drilling operation were preserved and sealed in glass jars and delivered to the soil laboratory. In the laboratory, the soil samples were visually classified and select samples were tested, as noted in Table 1.

Table 1. Laboratory Test Schedule

Laboratory Test	Test Designation	Number of Tests Performed
Natural Moisture Content	ASTM D 2216	184
Plastic and Liquid Limits	AASHTO T89, T90	93
Gradation – Sieve/Hydrometer	AASHTO T88	94
Sulfate Content – Colorimetric Method	ODOT S1122	46

The tests performed are necessary to classify existing soil according to the Ohio Department of Transportation (ODOT) classification system and to estimate engineering properties of importance for pavement and foundation design and construction recommendations. Results of the laboratory testing are presented on the boring logs in Appendix III. A description of the soil terms used throughout this report is presented in Appendix II.



Hand penetrometer readings, which provide a rough estimate of the unconfined compressive strength of the soil, were reported on the boring logs in units of tons per square foot (tsf) and were utilized to classify the consistency of the cohesive soil in each layer. An indirect estimate of the unconfined compressive strength of the cohesive split spoon samples can also be made from a correlation with the blow counts (N_{60}). Please note that split spoon samples are considered to be disturbed and the laboratory determination of their shear strengths may vary from undisturbed conditions.

4.0 FINDINGS

Interpreted engineering logs have been prepared based on the field logs, visual examination of samples and laboratory test results. Classification follows the current version of the ODOT Specifications for Subgrade Explorations (SGE). The following is a summary of what was found in the test borings and what is represented on the boring logs.

4.1 Surface Materials

Pavement cores were obtained from selected boring and DCP locations. Table 2 displays the pavement thickness and aggregate base in each boring.

Table 2. Summary of Pavement Cores

Boring ID	Asphalt Thickness (in)	Aggregate Base Thickness (in)
B-002-0-20	12.25	4.0
B-017-0-20	8.0	10.5
B-022-0-20	10.0	8.0
B-037-0-20	10.0	8.0
B-042-0-20	11.25	6.0
B-057-0-20	2.75	6.0
B-062-0-20	11.5	5.0
B-077-0-20	10.5	8.0
B-082-0-20	10.0	4.0

It is understood that that pavement cores were performed within the existing pavement. The borings and pavement cores encountered between 8.0 to 14.0 inches of asphalt overlaying 2.0 to 10.5 inches of aggregate base. The cores were inspected in lab and appeared to be in highly degraded to fair condition. For further details and photographic logs of the pavement cores please see Appendix IV. Pavement thicknesses in the DCP tests were measured between 4.0 and 16.0 inches of asphalt.



4.2 Subsurface Soils

Underlying the pavement materials in the borings, predominantly natural cohesive soils with seams of granular soils were encountered to boring termination depths. The cohesive soils were described as brown, brownish gray, dark gray clay, silt and clay, silty clay, sandy silt and silt (ODOT A-7-6, A-6b, A-6a, A-4a and A-4b). Seams of granular soils were generally described as brown sand and gravel, gravel with sand and silt and gravel with sand, silt and clay (ODOT A-1-b, A-2-4 and A-2-6).

The shear strength and consistency of the cohesive soils are primarily derived from the hand penetrometer values (HP). The cohesive soils encountered across the site ranged from soft ($0.25 < \text{HP} \leq 0.5$ tsf) to hard ($4.5 < \text{HP}$ tsf). The unconfined compressive strength of the cohesive soil samples tested, obtained from the hand penetrometer, ranged from 0.5 tsf to over 4.5 tsf (limit of instrument).

Natural moisture contents of the soil samples tested ranged from 6 to 30 percent. In general, the soils exhibited natural moisture contents estimated to be slightly above optimum moisture levels.

Sulfate testing was performed in all of the borings in accordance with the ODOT S1122 Colorimetric Method in the upper soils of the existing subgrade along the proposed alignments, as outlined in the current ODOT SGE and Geotechnical Bulletin Number 1: Plan Subgrades (GB1). Based on the results of the testing, the sulfate contents of the subgrade soils range from 47 to 390 parts per million (ppm or mg/kg of material). Results of the sulfate testing at each boring location tested are provided on the respective boring log in Appendix III.

4.3 Bedrock

Bedrock was not encountered in any of the borings performed for this investigation.

4.4 Groundwater

Groundwater was initially encountered during in boring B-026-0-20 and B-029-0-20 at the depth of 6.0 and 4.0 feet below existing grade, respectively. Groundwater was not encountered in any remaining borings, either during or at completion of drilling.

Please note that short-term water level readings, especially in cohesive soils, are not necessarily an accurate indication of the actual groundwater level. In addition, groundwater levels or the presence of groundwater are considered to be dependent on seasonal fluctuations in precipitation. A more comprehensive description of what was encountered during the drilling process may be found on the boring logs in Appendix III.



5.0 ANALYSES AND RECOMMENDATIONS

Data obtained from the drilling and testing program have been used to determine pavement foundation and support capabilities for the soils encountered at the site. These parameters have been used to provide guidelines for the design of the pavement foundation systems, as well as the construction specifications related to the placement of the pavement and general earthwork recommendations, which are discussed in the following paragraphs.

DCP data provided by ODOT is utilized in confirming and corroborating the CBR values determined from subgrade soil parameter.

5.1 Pavement Subgrade Recommendations

The subgrade soils along the alignment, within the project corridor, are anticipated to consist of predominantly cohesive materials comprised of soft to hard clay, silty clay, silt and clay, sandy silt and silt (ODOT A-7-6, A-6b, A-6a, A-4a and A-4b). Based on the soil conditions encountered during the drilling phase, it is estimated that the subgrade soils within the upper portions of the proposed subgrade will require some level of stabilization under ODOT GB1. Profile information was not available at the time of this report; however, it is anticipated that the proposed subgrade will generally match the existing subgrade, and that minor amounts of earthwork cut or fill may be required to achieve the proposed subgrade elevations.

5.1.1 Subgrade Stabilization

Based on the ODOT GB1 guidelines, when approximately 30 percent or more of the subgrade area requires stabilization, consideration should be given to utilizing a global stabilization option. For this project, approximately 77 percent of the subgrade area is anticipated to require stabilization based on the soil borings performed. Per ODOT GB1, global stabilization recommendations are based upon the overall average site parameters, as noted in Table 3.

Table 3. Average Site Parameters

Average N_{60L}	Average PI	Average Moisture	Average Optimum Moisture	Average Group Index	Average CBR
10	19	19	16	12	5

Applying the averages in Table 3 and based on the results of the GB-1 analysis the following global stabilization options are recommended within the project limits:



Option 3. Chemically stabilize the entire subgrade with 14-inches of cement, as per ODOT Construction and Materials Specification (CMS) Item 206. For estimating purposes, utilize a cement content of 5.0 percent by weight of soil. Actual application rates shall be verified by the contractor under Item 206.06 Mixture Design for Chemically Stabilized Soils.

Option 4. Stabilize the entire subgrade via a 12-inch undercut and replacement with ODOT item 703.16C granular material, Type B, C or D installed over ODOT Item 712.09 Geotextile Fabric, Type D as detailed in accordance with ODOT Item 204.

Per ODOT GB1 requirements the entire subgrade should be stabilized using one of the global stabilization options provided above. Upon completion of the stabilization, the entire subgrade should be proof rolled to verify that stability has been achieved.

5.1.2 Subgrade Design Considerations

California Bearing Ratio (CBR) values from the soil parameters from the soil borings ranged from 3 to 12 with an average of 5, while DCP values displayed average CBR values ranging from 4 to 12 with average site CBR value of 7. Based on the conditions encountered across the subject site, **it is recommended that pavement design be based on a CBR value of 5** with a corresponding resilient modulus, M_R , of 6,000 psi. Correlation charts indicate a modulus of subgrade reaction (K) of 135 pci and a soil support value (SSV) of 3.8.

Per ODOT GB1, soils with sulfate content in excess of 5,000 ppm cannot be chemically stabilized due to the potential for sulfate heave in the soil. Based on the results of the testing, the sulfate contents of the subgrade soils range from 47 to 390 ppm. Therefore, soil with sulfate content greater than 5,000 ppm was not encountered in any boring.

Please note that the recommended CBR values assume that the materials utilized for the subgrade in fill areas are equivalent to, or better than materials at the existing subgrade elevation. Sources of borrow material should be designated in advance of construction. The material should be tested in the laboratory to verify the soil exhibits a minimum design CBR value of 5.

Pavement design is dependent on the inclusion of adequate surface and subsurface drainage in order to maintain the compacted subgrade near optimum moisture conditions throughout the lifetime of the pavement. If underdrain systems are considered, they should be installed in accordance to the specifications presented in Item 204 of the ODOT CMS.



5.1.3 Unsuitable Subgrade Recommendations

Unsuitable subgrade soil consisting of silt (ODOT A-4b) soil was identified in boring B-018-0-20 and B-086-0-20 to depth of 3.0 feet below existing grade. If excavation and replacement option has been elected as the preferred alternative, silt encountered within the subgrade should be over excavated to a depth of 36 inches below the top of the proposed subgrade or to its entirety, whichever is less. For planning purposes, it is assumed the unsuitable subgrade soils (ODOT A-4b) extends from mid length between borings B-017-0-20 and B-021-0-20 and between borings B-085-0-20 and B-089-0-20, for an overall length of approximately 2,400 feet. Over excavations should be replaced with ODOT Item 204 Embankment. If cement stabilization option has been elected as the preferred alternative, then 14-inches of stabilization depth should be considered. Actual limits of the unsuitable subgrade and corresponding undercut should be determined by the Project Engineer in the field based on the results of proof rolling and subgrade observations in accordance with ODOT CMS Item 204 as well as guidance provided under Item 204 in the ODOT Construction Administration Manual of Procedures (MOP).

5.2 Full Depth Reclamation

It is understood that ODOT is considering full depth reclamation (FDR) for the reconstruction of the shoulder pavement. Rii recommends the use of FDR with cement as a stabilizing agent. This method is a process where the existing wearing asphalt is milled, while the remaining material including base, subbase as well as portions of the subgrade section is pulverized and mixed with sufficient water and stabilizing agent (i.e. cement). This mix is then used as an asphalt treated base course. After the pavement has had time to cure, a wearing surface is then applied to the reclaimed surface. This is primarily used to protect the recycled pavement from water entering into the mix and causing distress or early failures.

Among the benefits of this option are: increased structural capacity and durability, as well as a shortened construction schedule. There would be minimal need to haul off the millings, as the majority of these would be incorporated into the mix of the stabilized base course.

Mix designs for the FDR should be performed in accordance with ODOT Special Provision for FDR Chemical Stabilization, dated March 24, 2010. Rii can be available to provide a mix design for the full depth reclamation using samples of the existing materials and the stabilizing agent (cement). For preliminary estimating purposes, a cement content of 6 percent may be considered, along with a total treatment depth of 12 inches from the top of the pavement surface.



5.3 Construction Considerations

All site work shall conform to local codes and to the latest ODOT CMS, including that all excavation and embankment preparation and construction should follow ODOT Item 200 (Earthwork).

5.3.1 Excavation Considerations

All excavations should be shored / braced or laid back at a safe angle in accordance to Occupational Safety and Health Administration (OSHA) guidelines. During excavation, if slopes cannot be laid back to OSHA Standards due to adjacent structures or other obstructions, temporary shoring may be required. The following table should be utilized as a general guide for implementing OSHA guidelines when estimating excavation back slopes at the various boring locations. Actual excavation back slopes must be field verified by qualified personnel at the time of excavation in strict accordance with OSHA guidelines.

Table 4. Excavation Back Slopes

Soil	Maximum Back Slope	Notes
Soft to Medium Stiff Cohesive	1.5 : 1.0	Above Ground Water Table and No Seepage
Stiff Cohesive	1.0 : 1.0	Above Ground Water Table and No Seepage
Very Stiff to Hard Cohesive	0.75 : 1.0	Above Ground Water Table and No Seepage
All Granular & Cohesive Soil Below Ground Water Table or with Seepage	1.5 : 1.0	None

5.4 Groundwater Considerations

Based on the groundwater observations made during drilling, seepage and/or groundwater is not anticipated to be encountered during construction at the site. Where/if groundwater is encountered, proper groundwater control measures should be implemented to prevent disturbance to excavation bottoms consisting of cohesive soil, and to prevent the possible development of a quick or “boiling” condition if soft/loose silts and/or fine sands are encountered. It is preferable that the groundwater level, if encountered, be maintained at least 24.0 inches below the deepest excavation. Any seepage or groundwater encountered at this site should be able to be controlled by pumping from temporary sumps. Note that determining and maintaining actual groundwater levels during construction is the responsibility of the contractor.



6.0 LIMITATIONS OF STUDY

The above recommendations are predicated upon construction inspection by a qualified soil technician under the direct supervision of a professional Subgrade engineer. Adequate testing and inspection during construction are considered necessary to assure an adequate foundation system and are part of these recommendations.

The recommendations for this project were developed utilizing soil and bedrock information obtained from the test borings that were made at the proposed site for the current investigation. Resource International is not responsible for the data, conclusions, opinions or recommendations made by others during previous investigations at this site. At this time we would like to point out that soil borings only depict the soil and bedrock conditions at the specific locations and time at which they were made. The conditions at other locations on the site may differ from those occurring at the boring locations.

The conclusions and recommendations herein have been based upon the available soil and bedrock information and the design details furnished by a representative of the owner of the proposed project. Any revision in the plans for the proposed construction from those anticipated in this report should be brought to the attention of the Subgrade engineer to determine whether any changes in the foundation or earthwork recommendations are necessary. If deviations from the noted subsurface conditions are encountered during construction, they should also be brought to the attention of the Subgrade engineer.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater or surface water within or beyond the site studied. Any statements in this report or on the test boring logs regarding odors, staining of soils or other unusual conditions observed are strictly for the information of our client.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted Subgrade engineering principles and practices. Resource International is not responsible for the conclusions, opinions or recommendations made by others based upon the data included.

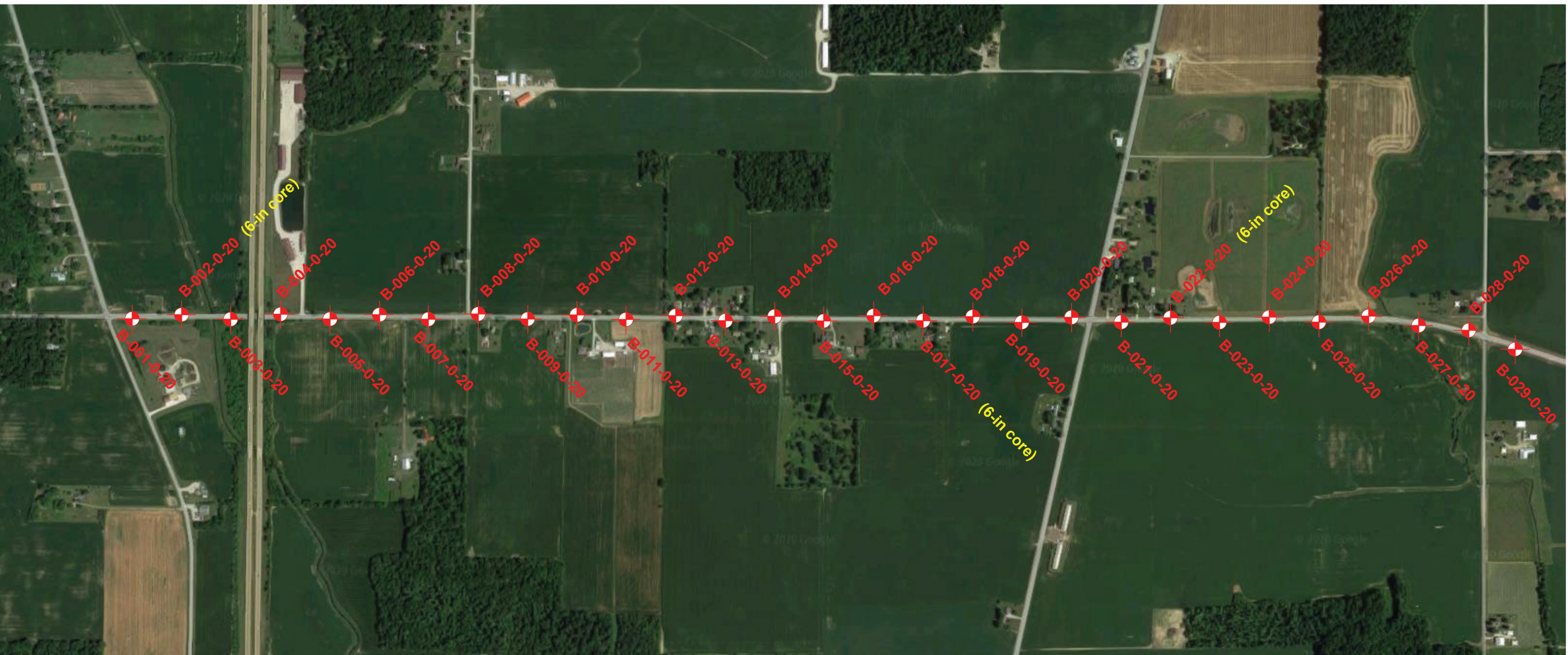


APPENDIX I

VICINITY MAP AND BORING PLAN

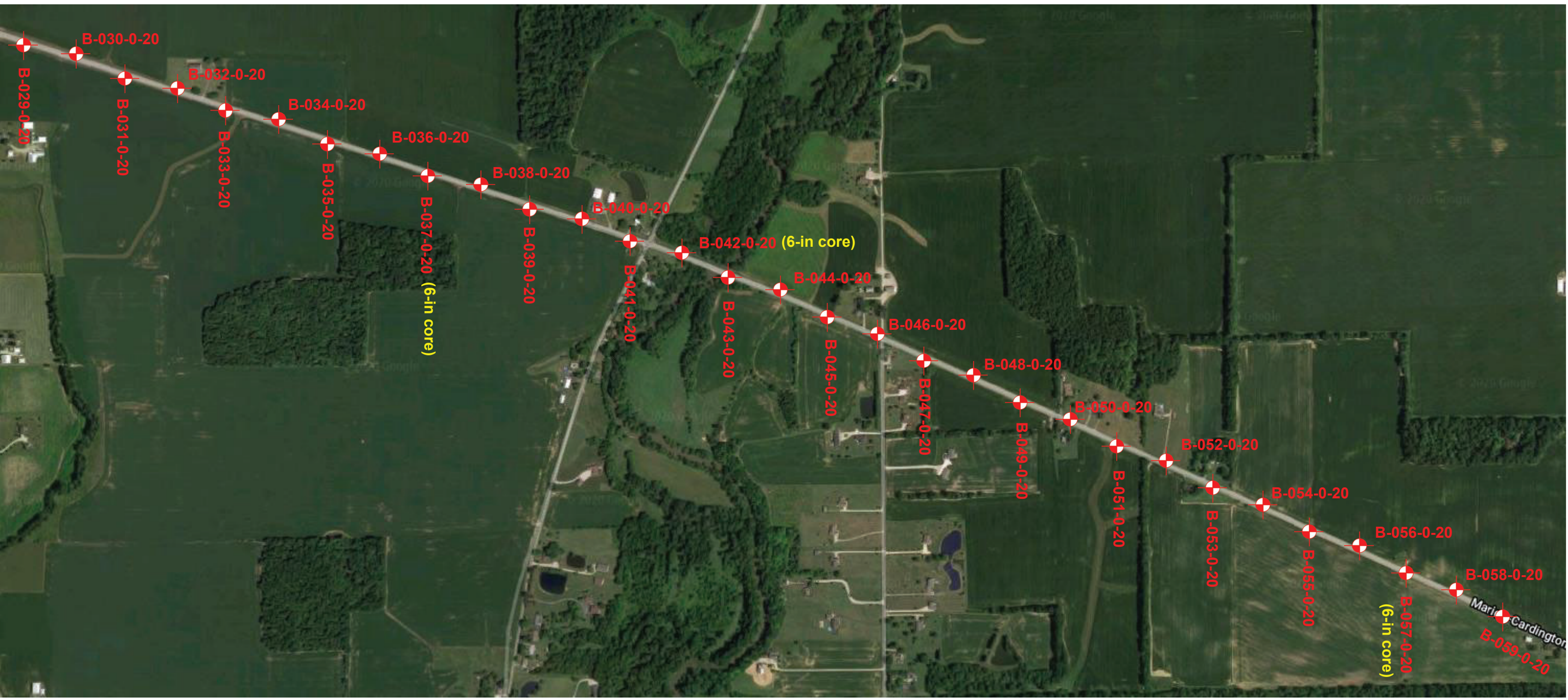


ODOT District 6 GES Task 6-M
MAR-529-2.59
Boring Plan
Rii Project No. W-20-161
April 9, 2021



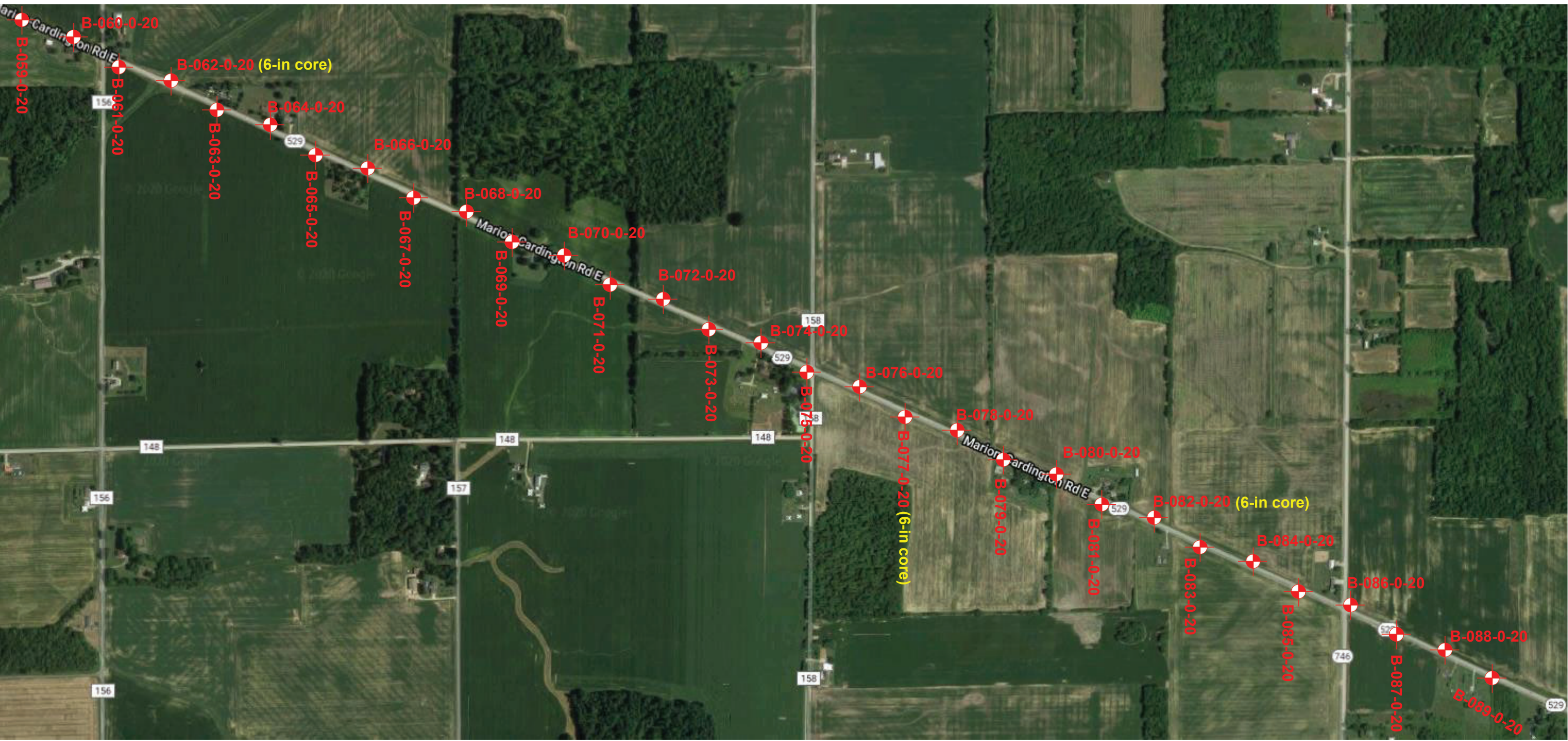


ODOT District 6 GES Task 6-M
MAR-529-2.59
Boring Plan
Rii Project No. W-20-161
April 9, 2021





ODOT District 6 GES Task 6-M
MAR-529-2.59
Boring Plan
Rii Project No. W-20-161
April 9, 2021



APPENDIX II

DESCRIPTION OF SOIL TERMS

DESCRIPTION OF SOIL TERMS

The following terminology was used to describe soils throughout this report and is generally adapted from ASTM 2487/2488 and ODOT Specifications for Geotechnical Explorations.

Granular Soils - The relative compactness of granular soils is described as:
ODOT A-1, A-2, A-3, A-4 (non-plastic) or USCS GW, GP, GM, GC, SW, SP, SM, SC, ML (non-plastic)

<u>Description</u>	<u>Blows per foot – SPT (N₆₀)</u>	
Very Loose	Below	5
Loose	5	- 10
Medium Dense	11	- 30
Dense	31	- 50
Very Dense	Over	50

Cohesive Soils - The relative consistency of cohesive soils is described as:
ODOT A-4, A-5, A-6, A-7, A-8 or USCS ML, CL, OL, MH, CH, OH, PT

<u>Description</u>	<u>Unconfined Compression (tsf)</u>	
Very Soft	Less than	0.25
Soft	0.25	- 0.5
Medium Stiff	0.5	- 1.0
Stiff	1.0	- 2.0
Very Stiff	2.0	- 4.0
Hard	Over	4.0

Gradation - The following size-related denominations are used to describe soils:

<u>Soil Fraction</u>	<u>USCS Size</u>	<u>ODOT Size</u>
Boulders	Larger than 12"	Larger than 12"
Cobbles	12" to 3"	12" to 3"
Gravel coarse	3" to ¾"	3" to ¾"
Gravel fine	¾" to 4.75 mm (¾" to #4 Sieve)	¾" to 2.0 mm (¾" to #10 Sieve)
Sand coarse	4.75 mm to 2.0 mm (#4 to #10 Sieve)	2.0 mm to 0.42 mm (#10 to #40 Sieve)
Sand medium	2.0 mm to 0.42 mm (#10 to #40 Sieve)	-
Sand fine	0.42 mm to 0.074 mm (#40 to #200 Sieve)	0.42 mm to 0.074 mm (#40 to #200 Sieve)
Silt	0.074 mm to 0.005 mm (#200 to 0.005 mm)	0.074 mm to 0.005 mm (#200 to 0.005 mm)
Clay	Smaller than 0.005 mm	Smaller than 0.005 mm

Modifiers of Components - Modifiers of components are as follows:

<u>Term</u>	<u>Range</u>	
Trace	0%	- 10%
Little	10%	- 20%
Some	20%	- 35%
And	35%	- 50%

Moisture Table - The following moisture-related denominations are used to describe cohesive soils:

<u>Term</u>	<u>Range - USCS</u>	<u>Range - ODOT</u>
Dry	0% to 10%	Well below Plastic Limit
Damp	>2% below Plastic Limit	Below Plastic Limit
Moist	2% below to 2% above Plastic Limit	Above PL to 3% below LL
Very Moist	>2% above Plastic Limit	
Wet	≥ Liquid Limit	3% below LL to above LL

Organic Content – The following terms are used to describe organic soils:

<u>Term</u>	<u>Organic Content (%)</u>
Slightly organic	2-4
Moderately organic	4-10
Highly organic	>10

Bedrock – The following terms are used to describe the relative strength of bedrock:

<u>Description</u>	<u>Field Parameter</u>
Very Weak	Can be carved with knife and scratched by fingernail. Pieces 1 in. thick can be broken by finger pressure.
Weak	Can be grooved or gouged with knife readily. Small, thin pieces can be broken by finger pressure.
Slightly Strong	Can be grooved or gouged 0.05 in deep with knife. 1 in. size pieces from hard blows of geologist hammer.
Moderately Strong	Can be scratched with knife or pick. 1/4 in. size grooves or gouges from blows of geologist hammer.
Strong	Can be scratched with knife or pick with difficulty. Hard hammer blows to detach hand specimen.
Very Strong	Cannot be scratched by knife or pick. Hard repeated blows of geologist hammer to detach hand specimen.
Extremely Strong	Cannot be scratched by knife or pick. Hard repeated blows of geologist hammer to chip hand specimen.



CLASSIFICATION OF SOILS

Ohio Department of Transportation

(The classification of a soil is found by proceeding from top to bottom of the chart. The first classification that the test data fits is the correct classification.)

SYMBOL	DESCRIPTION	Classification		LL _O /LL × 100*	% Pass #40	% Pass #200	Liquid Limit (LL)	Plastic Index (PI)	Group Index Max.	REMARKS
		AASHTO	OHIO							
	Gravel and/or Stone Fragments	A-1-a			30 Max.	15 Max.		6 Max.	0	Min. of 50% combined gravel, cobble and boulder sizes
	Gravel and/or Stone Fragments with Sand	A-1-b			50 Max.	25 Max.		6 Max.	0	
	Fine Sand	A-3			51 Min.	10 Max.	NON-PLASTIC		0	
	Coarse and Fine Sand	--	A-3a			35 Max.		6 Max.	0	Min. of 50% combined coarse and fine sand sizes
	Gravel and/or Stone Fragments with Sand and Silt	A-2-4				35 Max.	40 Max.	10 Max.	0	
		A-2-5			41 Min.					
	Gravel and/or Stone Fragments with Sand, Silt and Clay	A-2-6				35 Max.	40 Max.	11 Min.	4	
		A-2-7			41 Min.					
	Sandy Silt	A-4	A-4a	76 Min.		36 Min.	40 Max.	10 Max.	8	Less than 50% silt sizes
	Silt	A-4	A-4b	76 Min.		50 Min.	40 Max.	10 Max.	8	50% or more silt sizes
	Elastic Silt and Clay	A-5		76 Min.		36 Min.	41 Min.	10 Max.	12	
	Silt and Clay	A-6	A-6a	76 Min.		36 Min.	40 Max.	11 - 15	10	
	Silty Clay	A-6	A-6b	76 Min.		36 Min.	40 Max.	16 Min.	16	
	Elastic Clay	A-7-5		76 Min.		36 Min.	41 Min.	≤ LL-30	20	
	Clay	A-7-6		76 Min.		36 Min.	41 Min.	> LL-30	20	
	Organic Silt	A-8	A-8a	75 Max.		36 Min.				W/o organics would classify as A-4a or A-4b
	Organic Clay	A-8	A-8b	75 Max.		36 Min.				W/o organics would classify as A-5, A-6a, A-6b, A-7-5 or A-7-6
MATERIAL CLASSIFIED BY VISUAL INSPECTION										
	Sod and Topsoil		Uncontrolled Fill (Describe)		Bouldery Zone		Peat			
	Pavement or Base									

* Only perform the oven-dried liquid limit test and this calculation if organic material is present in the sample.

APPENDIX III

BORING LOGS:

B-001-0-20 through B-089-0-20

BORING LOGS

Definitions of Abbreviations

- AS = Auger sample
- HP = Unconfined compressive strength as determined by a hand penetrometer (tons per square foot)
- LOI = Percent organic content (by weight) as determined by ASTM D2974 (loss on ignition test)
- PID = Photo-ionization detector reading (parts per million)
- QR = Unconfined compressive strength of intact rock core sample as determined by ASTM D2938 (pounds per square inch)
- QU = Unconfined compressive strength of soil sample as determined by ASTM D2166 (pounds per square foot)
- RC = Rock core sample
- REC = Ratio of total length of recovered soil or rock to the total sample length, expressed as a percentage
- RQD = Rock quality designation – estimate of the degree of jointing or fracture in a rock mass, expressed as a percentage:

$$\frac{\sum \text{segments equal to or longer than 4.0 inches}}{\text{core run length}} \times 100$$

- S = Sulfate content (parts per million)
- SPT = Standard penetration test blow counts, per ASTM D1586. Driving resistance recorded in terms of blows per 6-inch interval while letting a 140-pound hammer free fall 30 inches to drive a 2-inch outer diameter (O.D.) split spoon sampler a total of 18 inches. The second and third intervals are added to obtain the number of blows per foot (N).
- SS = Split spoon sample
- 2S = For instances of no recovery from standard SS interval, a 2.5 inch O.D. split spoon is driven the full length of the standard SS interval plus an additional 6.0 inches to obtain a representative sample. Only the final 6.0 inches of sample is retained. Blow counts from 2S sampling are not correlated with N_{60} values.
- 3S = Same as 2S, but using a 3.0 inch O.D. split spoon sampler.
- TR = Top of rock
- W = Initial water level measured during drilling
- ▼ = Water level measured at completion of drilling


Classification Test Data

Gradation (as defined on Description of Soil Terms):

- GR = % Gravel
- SA = % Sand
- SI = % Silt
- CL = % Clay

Atterberg Limits:

- LL = Liquid limit
- PL = Plastic limit
- PI = Plasticity Index
- WC = Water content (%)


	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-001-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 975.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/9/21 END: 3/9/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549472, -83.078082	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO ₄ ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.2' - ASPHALT (14.0")	975.0																		
0.3' - AGGREGATE BASE (4.0")	973.8 973.5	1																	
STIFF, GRAY TO BROWNISH GRAY SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	972.0	2	4 4 5	13	83	SS-1	2.00	5	4	10	46	35	40	25	15	24	A-6a (10)	100	
STIFF TO HARD, GRAY TO BROWNISH GRAY CLAY , SOME SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		3	2 3 4	10	100	SS-2	1.50	2	2	10	35	51	53	21	32	25	A-7-6 (19)	-	
		4	3 3 4	10	33	SS-3	3.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
		5	3 3 4	10	33	SS-3	3.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
		6	3 3 4	10	33	SS-3	3.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
	967.5	7	3 3 4	10	33	SS-3	3.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
		EOB	4 4 5	13	100	SS-4	4.25	-	-	-	-	-	-	-	-	16	A-6b (V)	-	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:18 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-002-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 975.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/9/21 END: 3/9/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549500, -83.076645	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
								GR	CS	FS	SI	CL	LL	PL	PI					
1.2' - ASPHALT (14.0")	975.0																	X		
0.3' - AGGREGATE (MACADAM) BASE (4.0")	973.8 973.5	1																X		
BROWNISH GRAY SILT AND CLAY , SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	972.0	2	4	13	0	AS-1	-	3	8	13	39	37	33	18	15	20	A-6a (10)	220	X	
STIFF TO VERY STIFF, DARK GRAY TO BROWN AND DARK BROWN SILTY CLAY , LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, DAMP TO MOIST.		3	6	17	44	SS-2	1.50	20	7	10	35	28	34	18	16	21	A-6b (8)	-	X	
		4	7	5	17	100	SS-3	3.50	-	-	-	-	-	-	-	-	14	A-6b (V)	-	X
		5	5	7	17	100	SS-3	3.50	-	-	-	-	-	-	-	-	14	A-6b (V)	-	X
		6	8	12	29	100	SS-4	2.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	X
	967.5	7	12	9	29	100	SS-4	2.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	X
		EOB																		

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-006-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 980.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549500, -83.070886	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL		
								GR	CS	FS	SI	CL	LL	PL	PI						
0.8' - ASPHALT (9.0")	980.0																				
0.7' - AGGREGATE (MACADAM) BASE (9.0")	979.2																				
	978.5	1																			
VERY STIFF, BROWNISH GRAY SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	977.0	2	3	4	5	13	89	SS-1	3.00	8	4	9	26	53	34	17	17	18	A-6b (11)	<100	
		3	4	7	9	22	100	SS-2	3.50	12	8	11	37	32	30	17	13	16	A-6a (8)	-	
VERY STIFF, BROWN AND GRAY SILT AND CLAY , LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, DAMP TO MOIST.		4	7	9	22	100	SS-2	3.50	12	8	11	37	32	30	17	13	16	A-6a (8)	-		
		5	7	9	12	29	100	SS-3	4.00	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
	972.5	6	8	12	28	100	SS-4	4.00	-	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
		7	8	12	28	100	SS-4	4.00	-	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
		EOB																			

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\G\I8\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-009-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 977.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549453, -83.066560	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			ODOT CLASS (GI)	SO4 ppm	BACK FILL	
								GR	CS	FS	SI	CL	LL	PL	PI				WC
1.2' - ASPHALT (14.0")	977.0																		
0.3' - AGGREGATE BASE (4.0")	975.8 975.5	1																	
VERY STIFF, DARK GRAY SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	974.0	2	4	5	14	89	SS-1	2.50	2	3	10	51	34	40	21	19	18	A-6b (12)	<100
STIFF, DARK GRAY TO GRAY CLAY , "AND" SILT, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		3	2	3	10	83	SS-2	1.50	3	1	7	43	46	48	20	28	23	A-7-6 (17)	-
		4																	
		5	3	3	8	83	SS-3	1.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	-
		6																	
		7	3	3	11	89	SS-4	1.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	-
	969.5	EOB																	

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING


ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch. .

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-010-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 977.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549481, -83.065111	

MATERIAL DESCRIPTION AND NOTES	ELEV. 977.0	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL		
								GR	CS	FS	SI	CL	LL	PL	PI						
0.7' - ASPHALT (8.0")	976.3																				
0.8' - AGGREGATE (MACADAM) BASE (10.0")	975.5	1																			
VERY STIFF, GRAY SILTY CLAY , LITTLE FINE GRAVEL, TRACE COARSE TO FINE SAND, MOIST.	974.0	2	4	4	13	78	SS-1	3.00	13	3	7	38	39	37	19	18	24	A-6b (11)	<100		
STIFF, GRAY CLAY , SOME SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	972.5	3	3	4	13	100	SS-2	2.00	8	6	9	35	42	43	19	24	23	A-7-6 (14)	-		
VERY STIFF, BROWN SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	969.5	4	4	6	8	20	89	SS-3	4.00	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		5	6	8	10	25	100	SS-4	4.00	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		6																			
		7																			
		EOB																			

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-013-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 978.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549433, -83.060776	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	978.0																		
0.5' - AGGREGATE BASE (6.0")	977.0	1																	
STIFF, DARK GRAY SILTY CLAY , SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, DAMP. -WOOD FRAGMENTS IN SS-1	976.5	2	3	8	67	SS-1	1.50	7	18	10	33	32	40	21	19	17	A-6b (10)	150	
	975.0	3	2	7	67	SS-2	1.50	8	8	17	37	30	43	20	23	30	A-7-6 (12)	-	
SOFT TO STIFF, DARK GRAY TO GRAY CLAY , "AND" SILT, SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST. -TRACE ORGANICS IN SS-2		4	2	3															
		5	1	4	100	SS-3	0.50	-	-	-	-	-	-	-	-	29	A-7-6 (V)	-	
		6	2	1															
		7	1	7	100	SS-4	0.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	-	
	970.5	EOB	3																

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-014-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 979.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549456, -83.059334	

MATERIAL DESCRIPTION AND NOTES	ELEV. 979.0	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	978.0	1																X	
0.5' - AGGREGATE (MACADAM) BASE (6.0")	977.5																	X	
MEDIUM STIFF, BROWN SILTY CLAY , SOME FINE TO COARSE SAND, SOME FINE GRAVEL, MOIST.	976.0	2	14 6 5	15	100	SS-1	0.75	35	15	7	22	21	36	19	17	21	A-6b (4)	120	X
MEDIUM DENSE, BROWN STONE FRAGMENTS WITH SAND, SILT, AND CLAY , MOIST.	974.5	3	3 6 14	28	11	SS-2	-	-	-	-	-	-	-	-	-	13	A-2-4 (V)	-	X
SOFT, BROWN SILTY CLAY , SOME FINE TO COARSE SAND, SOME FINE GRAVEL, DAMP. -LIMESTONE FRAGMENTS IN SS-3	971.5	4	8 8 7	21	0	SS-3	-	22	14	10	31	23	34	17	17	14	A-6b (7)	-	X
	971.5	5	6 6 9	21	44	SS-4	0.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	X
		6																X	
		7																X	
		EOB																X	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-017-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 982.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549403, -83.055012	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI	WC			
0.6' - ASPHALT (8.0")	982.0																		
0.9' - AGGREGATE (MACADAM) BASE (10.5")	981.4																		
MEDIUM STIFF, GRAY SANDY SILT , SOME CLAY, TRACE FINE GRAVEL, MOIST.	980.5	1																	
		2	4																
		3	4	11	100	SS-1	1.00	5	9	14	43	29	29	21	8	23	A-4a (7)	130	
STIFF, GRAY TO BROWN CLAY , SOME SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	979.0	4																	
		5	3																
		6	4	14	100	SS-2	2.00	8	7	12	35	38	41	18	23	21	A-7-6 (13)	-	
VERY STIFF, BROWN TO BROWNISH GRAY SANDY SILT , LITTLE CLAY, TRACE FINE GRAVEL, DAMP.	977.5	7																	
		8	6																
		9	4	15	100	SS-3	2.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		10	6																
		11	4	7															
		12	6																
	974.5	EOB	10	31	100	SS-4	3.00	-	-	-	-	-	-	-	-	14	A-4a (V)	-	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-018-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 981.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549426, -83.053572	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI			
0.7' - ASPHALT (8.0")	981.0																	
0.8' - AGGREGATE (MACADAM) BASE (10.0")	980.3	1																
STIFF, GRAY TO BROWN SILT, SOME CLAY, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	979.5	2	4	11	89	SS-1	1.50	6	6	12	50	26	29	20	9	19	A-4b (8)	<100
STIFF TO VERY STIFF, BROWNISH GRAY SILTY CLAY, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.	978.0	3	2	10	78	SS-2	2.00	3	4	11	41	41	40	18	22	22	A-6b (13)	-
-LIMESTONE FRAGMENTS IN SS-3		4	3	10	78	SS-2	2.00	3	4	11	41	41	40	18	22	22	A-6b (13)	-
		5	3	10	56	SS-3	1.50	-	-	-	-	-	-	-	-	20	A-6b (V)	-
		6	4	10	56	SS-3	1.50	-	-	-	-	-	-	-	-	20	A-6b (V)	-
		7	5	18	100	SS-4	3.00	-	-	-	-	-	-	-	-	16	A-6b (V)	-
	973.5	EOB	8															

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-021-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 979.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/4/21 END: 3/4/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549381, -83.049251	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.2' - ASPHALT (14.0")	979.0																		
0.3' - AGGREGATE BASE (4.0")	977.8	1																	
STIFF, DARK GRAY SILT AND CLAY, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	977.5	2	3	4	11	100	SS-1	1.50	10	6	17	43	24	32	20	12	18	A-6a (7)	230
SOFT TO STIFF, BROWNISH GRAY CLAY, "AND" SILT, SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	976.0	3	2	3	10	100	SS-2	0.50	1	2	20	41	36	48	15	33	21	A-7-6 (18)	-
		4	2	3	4														
		5	2	2	6	50	SS-3	0.50	-	-	-	-	-	-	-	-	22	A-7-6 (V)	-
		6	2	2															
		7	2	3	13	89	SS-4	1.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	-
	971.5	EOB	6																


02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: <u>MAR-529-2.59 FDR</u>	DRILLING FIRM / OPERATOR: <u>ODOT / CAREY</u>	DRILL RIG: <u>CME 55 TRUCK</u>	STATION / OFFSET: <u>'</u>	EXPLORATION ID B-022-0-20
	TYPE: <u>ROADWAY</u>	SAMPLING FIRM / LOGGER: <u>ODOT / MCLEISH</u>	HAMMER: <u>CME AUTOMATIC</u>	ALIGNMENT: <u>SR 529</u>	
	PID: <u>112818</u> SFN: <u></u>	DRILLING METHOD: <u>2.25" HSA</u>	CALIBRATION DATE: <u>4/15/20</u>	ELEVATION: <u>979.0 (MSL)</u> EOB: <u>7.5 ft.</u>	PAGE
	START: <u>3/3/21</u> END: <u>3/3/21</u>	SAMPLING METHOD: <u>SPT</u>	ENERGY RATIO (%): <u>83.6</u>	LAT / LONG: <u>40.549419, -83.047807</u>	1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
								GR	CS	FS	SI	CL	LL	PL	PI					
0.8' - ASPHALT (10.0")	979.0																			
0.7' - AGGREGATE (MACADAM) BASE (8.0")	978.2	1																		
VERY STIFF, DARK GRAY SILT AND CLAY , SOME FINE TO COARSE SAND, LITTLE FINE GRAVEL, MOIST.	977.5	2	9	4	11	83	SS-1	2.75	13	11	10	40	26	32	20	12	24	A-6a (7)	240	
	976.0	3	3	4	13	0	AS-2	-	12	7	9	38	34	40	16	24	28	A-6b (13)	-	
VERY STIFF, BROWNISH GRAY SILTY CLAY , LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, MOIST.		4	3	4	5															
		5	3	5	6	15	100	SS-3	3.00	-	-	-	-	-	-	-	-	17	A-6b (V)	-
		6																		
		7	4	4	4	11	0	AS-4	-	-	-	-	-	-	-	-	-	22	A-6b (V)	-
	971.5	EOB																		

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-025-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 975.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/4/21 END: 3/4/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549425, -83.043482	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
								GR	CS	FS	SI	CL	LL	PL	PI					
1.2' - ASPHALT (14.0")	975.0																			
	973.8	1																		
0.3' - AGGREGATE BASE (4.0")	973.5																			
STIFF TO VERY STIFF, BROWN SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		2	8	5	14	56	SS-1	2.00	8	10	8	38	36	38	20	18	10	A-6b (11)	150	
		3	4	5	8	18	100	SS-2	2.00	5	7	11	33	44	38	19	19	18	A-6b (12)	-
		4	5	8	10	25	100	SS-3	3.00	-	-	-	-	-	-	-	-	15	A-6b (V)	-
		5	8	10	11	26	100	SS-4	4.00	-	-	-	-	-	-	-	-	15	A-6b (V)	-
		6	6	8	11	26	100	SS-4	4.00	-	-	-	-	-	-	-	-	15	A-6b (V)	-
	967.5	7																		

EOB

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-026-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 972.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/3/21 END: 3/3/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.549457, -83.042042	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			ODOT CLASS (GI)	SO4 ppm	BACK FILL		
								GR	CS	FS	SI	CL	LL	PL	PI				WC	
0.8' - ASPHALT (10.0")	972.0																			
0.7' - AGGREGATE (MACADAM) BASE (8.0")	971.2																			
	970.5	1																		
STIFF TO VERY STIFF, BROWNISH GRAY TO GRAY SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE TO LITTLE FINE GRAVEL, DAMP TO MOIST.		2	11	17	67	SS-1	2.50	11	11	9	37	32	38	20	18	17	A-6b (10)	210		
		3	2																	
		4	3	5	11	83	SS-2	2.00	4	5	10	37	44	39	18	21	23	A-6b (12)	-	
	967.5	5	26	24	26	70	89	SS-3	-	52	15	7	-	26	-	-	-	14	A-2-4 (V)	-
DENSE TO VERY DENSE, GRAY GRAVEL WITH SAND AND SILT , TRACE CLAY, MOIST TO WET. -ASPHALT FRAGMENTS IN SS-3		6	7																	
		7	10	12	31	22	SS-4	-	-	-	-	-	-	-	-	-	16	A-2-4 (V)	-	
	964.5	EOB																		

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER ENCOUNTERED INITIALLY @ 6.0'
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-045-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 976.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/8/21 END: 3/8/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.543170, -83.015916	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO ₄ ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	976.0																		
0.5' - AGGREGATE BASE (6.0")	975.0	1																	
STIFF TO VERY STIFF, GRAY TO BROWNISH GRAY SILT AND CLAY , LITTLE TO SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.	974.5	2	3	10	11	SS-1	-	-	-	-	-	-	-	-	16	A-6a (V)	390		
		3	3	15	100	SS-2	2.00	4	13	10	37	36	33	20	13	11	A-6a (9)	-	
		4	4	20	100	SS-3	2.00	7	7	11	35	40	31	18	13	25	A-6a (9)	-	
		5	4	26	100	SS-4	3.00	-	-	-	-	-	-	-	-	17	A-6a (V)	-	
		6	6																
	968.5	7	7	12															
		EOB																	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch. .

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\8\PROJECTS\2020\W-20-161.GPJ

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-046-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 979.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/2/21 END: 3/2/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.542786, -83.014645	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	979.0																		
0.5' - AGGREGATE (MACADAM) BASE (6.0")	978.0	1																	
VERY STIFF, BROWN SILT AND CLAY , SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	977.5	2	9																
	976.0	3	4	11	78	SS-1	2.50	2	8	13	38	39	34	19	15	22	A-6a (10)	410	
		4	2	4	13	100	SS-2	3.00	23	7	10	29	31	37	18	19	15	A-6b (9)	-
VERY STIFF TO HARD, BROWN TO BROWNISH GRAY SILTY CLAY , SOME FINE GRAVEL, LITTLE COARSE TO FINE SAND, DAMP.	971.5	5	4	14	100	SS-3	3.00	-	-	-	-	-	-	-	-	15	A-6b (V)	-	
		6	5	5															
		7	3	7	21	100	SS-4	4.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-
		EOB	8																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

RESOURCE INTERNATIONAL, INC.

	PROJECT: <u>MAR-529-2.59 FDR</u>	DRILLING FIRM / OPERATOR: <u>ODOT / CAREY</u>	DRILL RIG: <u>CME 55 TRUCK</u>	STATION / OFFSET: <u>'</u>	EXPLORATION ID B-049-0-20
	TYPE: <u>ROADWAY</u>	SAMPLING FIRM / LOGGER: <u>ODOT / MCLEISH</u>	HAMMER: <u>CME AUTOMATIC</u>	ALIGNMENT: <u>SR 529</u>	PAGE 1 OF 1
	PID: <u>112818</u> SFN: <u></u>	DRILLING METHOD: <u>2.25" HSA</u>	CALIBRATION DATE: <u>4/15/20</u>	ELEVATION: <u>978.0 (MSL)</u> EOB: <u>7.5 ft.</u>	
	START: <u>3/8/21</u> END: <u>3/8/21</u>	SAMPLING METHOD: <u>SPT</u>	ENERGY RATIO (%): <u>83.6</u>	LAT / LONG: <u>40.541427, -83.010703</u>	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI	WC			
1.0' - ASPHALT (12.0")	978.0																		
0.5' - AGGREGATE BASE (6.0")	977.0 976.5	1																	
VERY STIFF, DARK GRAY SILT AND CLAY , TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	976.5	2	6	11	83	SS-1	3.00	3	4	6	41	46	34	21	13	19	A-6a (9)	140	
SOFT TO MEDIUM STIFF, BROWN CLAY , "AND" SILT, TRACE COARSE TO FINE SAND, MOIST.	973.5	3	2	8	0	AS-2	-	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
		4	3	3															
		5	2	2	7	100	SS-3	1.00	0	2	9	38	51	51	20	31	27	A-7-6 (18)	-
	970.5	6	2	3															
	970.5	7	2	2	6	100	SS-4	0.50	-	-	-	-	-	-	-	26	A-7-6 (V)	-	


EOB

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


RESOURCE INTERNATIONAL, INC.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____							EXPLORATION ID B-050-0-20										
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529																	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 979.0 (MSL) EOB: 7.5 ft.							PAGE 1 OF 1										
	START: 3/2/21 END: 3/2/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.541004, -83.009365																	
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		979.0							GR	CS	FS	SI	CL	LL	PL	PI					
1.0' - ASPHALT (12.0")		978.0	1																		
0.5' - AGGREGATE (MACADAM) BASE (6.0")		977.5																			
MEDIUM DENSE, GRAY GRAVEL WITH SAND , WET.			2	6 4 4	11	-	SS-1	-	-	-	-	-	-	-	-	-	16	A-1-b (V)	100		
		976.0	3																		
MEDIUM DENSE, BROWNISH GRAY GRAVEL WITH SAND, SILT, AND CLAY , DAMP.			4	3 4 7	15	33	SS-2	-	-	-	-	-	-	-	-	-	8	A-2-6 (V)	-		
		974.5	5	4 5 6	15	100	SS-3	4.00	5	17	9	35	34	33	18	15	20	A-6a (9)	-		
VERY STIFF, BROWN SILT AND CLAY , LITTLE TO SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.			6																		
		971.5	7	4 7 10	24	100	SS-4	4.00	9	8	11	36	36	33	18	15	14	A-6a (9)	-		
			EOB																		

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-053-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 977.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/8/21 END: 3/8/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.539681, -83.005545	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	977.0																		
0.5' - AGGREGATE BASE (6.0")	976.0	1																	
MEDIUM STIFF, BROWNISH GRAY SILT AND CLAY , TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	975.5	2	8	11	94	SS-1	1.00	9	2	5	36	48	33	18	15	23	A-6a (10)	<100	
STIFF, BROWNISH GRAY CLAY , "AND" SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	974.0	3	3																
	972.5	4	4	13	100	SS-2	1.50	3	4	11	36	46	41	18	23	19	A-7-6 (13)	-	
VERY STIFF, BROWNISH GRAY TO DARK GRAY SANDY SILT , LITTLE CLAY, TRACE FINE GRAVEL, MOIST.		5	7	21	83	SS-3	3.00	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
		6	7	8															
		7	12	33	100	SS-4	3.50	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
	969.5	7	12	12															
			EOB																

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

RESOURCE INTERNATIONAL, INC.



PROJECT: MAR-529-2.59 FDR
 TYPE: ROADWAY
 PID: 112818 SFN:
 START: 3/2/21 END: 3/2/21

DRILLING FIRM / OPERATOR: ODOT / CAREY
 SAMPLING FIRM / LOGGER: ODOT / MCLEISH
 DRILLING METHOD: 2.25" HSA
 SAMPLING METHOD: SPT

DRILL RIG: CME 55 TRUCK
 HAMMER: CME AUTOMATIC
 CALIBRATION DATE: 4/15/20
 ENERGY RATIO (%): 83.6

STATION / OFFSET:
 ALIGNMENT: SR 529
 ELEVATION: 976.0 (MSL) EOB: 7.5 ft.
 LAT / LONG: 40.539255, -83.004209

EXPLORATION ID
B-054-0-20

PAGE
 1 OF 1


MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	976.0																		
0.5' - AGGREGATE (MACADAM) BASE (6.0")	975.0	1																	
MEDIUM DENSE, DARK GRAY GRAVEL WITH SAND AND SILT , TRACE CLAY, WET.	974.5																		
		2	7																
			4	11	17	SS-1	-	-	-	-	-	-	-	-	24	A-2-4 (V)	<100		
		3	4																
			2																
MEDIUM STIFF TO STIFF, DARK GRAY TO BROWNISH GRAY SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	973.0																		
		4	3	11	17	SS-2	1.00	-	-	-	-	-	-	-	11	A-6a (V)	-		
		5	4	13	89	SS-3	2.00	9	6	8	35	42	32	19	13	15	A-6a (9)	-	
		6	4	5															
	970.0		4																
VERY STIFF, BROWNISH GRAY SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.			6																
	968.5		4	21	100	SS-4	3.50	10	7	11	37	35	37	19	18	19	A-6b (11)	-	
		7	6	9															

EOB

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-057-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 980.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/8/21 END: 3/8/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.537881, -83.000279	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (G)	SO ₄ ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	980.0																	X	
0.5' - AGGREGATE BASE (6.0")	979.0	1																X	
STIFF, DARK BROWNISH GRAY SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	978.5																	X	
	977.0	2	6 4	14	0	AS-1	-	5	8	10	45	32	38	23	15	19	A-6a (10)	140	X
STIFF, BROWN TO BROWNISH GRAY CLAY , "AND" SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	977.0	3	5 4	13	0	AS-2	-	5	4	7	37	47	52	19	33	23	A-7-6 (18)	-	X
	974.0	4	4 3	10	56	SS-3	2.00	-	-	-	-	-	-	-	-	28	A-7-6 (V)	-	X
VERY STIFF, BROWNISH GRAY SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	972.5	5	4 3	10	89	SS-4	3.00	-	-	-	-	-	-	-	-	17	A-6a (V)	-	X
		6																X	
		7																X	
		EOB																X	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: <u>MAR-529-2.59 FDR</u>	DRILLING FIRM / OPERATOR: <u>ODOT / CAREY</u>	DRILL RIG: <u>CME 55 TRUCK</u>	STATION / OFFSET: <u> </u>	EXPLORATION ID B-058-0-20
	TYPE: <u>ROADWAY</u>	SAMPLING FIRM / LOGGER: <u>ODOT / MCLEISH</u>	HAMMER: <u>CME AUTOMATIC</u>	ALIGNMENT: <u>SR 529</u>	
	PID: <u>112818</u> SFN: <u> </u>	DRILLING METHOD: <u>2.25" HSA</u>	CALIBRATION DATE: <u>4/15/20</u>	ELEVATION: <u>980.0 (MSL)</u> EOB: <u>7.5 ft.</u>	PAGE 1 OF 1
	START: <u>3/2/21</u> END: <u>3/2/21</u>	SAMPLING METHOD: <u>SPT</u>	ENERGY RATIO (%): <u>83.6</u>	LAT / LONG: <u>40.537458, -82.998939</u>	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
								GR	CS	FS	SI	CL	LL	PL	PI					
0.8' - ASPHALT (10.0")	980.0																			
0.4' - AGGREGATE (MACADAM) BASE (4.0")	979.2	1																	X	
VERY STIFF, DARK GRAY SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	978.8	2	7																X	
		3	4	11	56	SS-1	3.00	8	7	5	46	34	38	23	15	17	A-6a (10)	160	X	
	977.0	4	2	3	10	67	SS-2	1.00	15	3	8	32	42	50	21	29	25	A-7-6 (17)	-	X
MEDIUM STIFF TO STIFF, DARK GRAY TO BROWNISH GRAY CLAY , SOME SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.		5	2	3	10	100	SS-3	1.50	0	3	12	41	44	47	19	28	26	A-7-6 (17)	-	X
		6	3	4																X
	972.5	7	3	10	56	SS-4	1.50	-	-	-	-	-	-	-	-	-	20	A-7-6 (V)	-	X
EOB																			X	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-061-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 976.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/8/21 END: 3/8/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.536083, -82.994998	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO ₄ ppm	BACK FILL		
								GR	CS	FS	SI	CL	LL	PL	PI						
1.0' - ASPHALT (12.0")	976.0																	X			
	975.0	1																X			
0.5' - AGGREGATE BASE (6.0")	974.5	2	3	3	8	78	SS-1	1.50	3	15	13	37	32	29	19	10	17	A-4a (7)	350	D	
STIFF, BROWN SANDY SILT , SOME CLAY, TRACE FINE GRAVEL, DAMP.	973.0	3	4	6	12	25	78	SS-2	3.00	7	10	13	40	30	27	17	10	13	A-4a (7)	-	D
VERY STIFF TO HARD, BROWNISH GRAY TO BROWN SANDY SILT , SOME CLAY, TRACE FINE GRAVEL, DAMP.		4	10	10	10	28	83	SS-3	4.50	-	-	-	-	-	-	-	-	13	A-4a (V)	-	D
			5	9	10	14	33	100	SS-4	4.50	-	-	-	-	-	-	-	13	A-4a (V)	-	D
	968.5	7						EOB										D			

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch. .


02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-062-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 975.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/1/21 END: 3/1/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.535702, -82.993814	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.1' - ASPHALT (13.0")	975.0																		
0.4' - AGGREGATE (MACADAM) BASE (5.0")	973.9	1																	
VERY STIFF, BROWNISH GRAY SILT AND CLAY , SOME COARSE TO FINE SAND, LITTLE FINE GRAVEL, DAMP.	973.5																		
		2	5																
		3	6	14	56	SS-1	3.00	12	15	9	28	36	34	19	15	13	A-6a (8)	360	
	972.0																		
STIFF, BROWNISH GRAY TO GRAY AND GRAYISH BROWN CLAY , "AND" SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		4	1																
		5	2	7	67	SS-2	2.00	1	3	11	48	37	41	22	19	28	A-7-6 (12)	-	
		6	3																
		7	4	13	67	SS-3	2.00	-	-	-	-	-	-	-	-	29	A-7-6 (V)	-	
		8	5																
		9	3																
	967.5	EOB	2	7	100	SS-4	2.00	-	-	-	-	-	-	-	-	24	A-7-6 (V)	-	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-065-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 986.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/8/21 END: 3/8/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.534356, -82.989986	

MATERIAL DESCRIPTION AND NOTES	ELEV. 986.0	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
1.0' - ASPHALT (12.0")	985.0	1																	
0.5' - AGGREGATE BASE (6.0")	984.5	2	5																
STIFF, GRAY SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.	983.0	2	4	11	61	SS-1	2.00	10	9	11	35	35	35	19	16	25	A-6b (9)	320	
VERY STIFF TO HARD, BROWN SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.		3	4																
		4	4	14	50	SS-2	2.50	-	-	-	-	-	-	-	-	17	A-6b (V)	-	
		5	7																
		5	8	25	78	SS-3	4.00	8	9	12	35	36	35	18	17	14	A-6b (10)	-	
		6	10																
		6	7																
-LARGE GRAVEL FRAGMENT IN SS-4	978.5	7	9	29	100	SS-4	4.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
		7	12																

EOB

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: _____				EXPLORATION ID	
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529				B-066-0-20	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 987.0 (MSL) EOB: 7.5 ft.		PAGE		1 OF 1	
	START: 3/1/21 END: 3/1/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.533926, -82.988639					

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.8' - ASPHALT (9.5")	987.0																		
0.3' - SAND BASE (3.0")	986.2	1																	
STIFF, GRAY SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	985.9	2	3	15	1	SS-1	2.00	6	4	8	40	42	35	19	16	22	A-6b (10)	300	
	984.0	3	3	6															
STIFF TO VERY STIFF, GRAY CLAY , "AND" SILT, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		4	3	13	83	SS-2	1.50	2	2	5	37	54	58	21	37	25	A-7-6 (20)	-	
		5	3	4	14	SS-3	2.50	-	-	-	-	-	-	-	-	21	A-7-6 (V)	-	
		6	4	6															
		7	4	5	15	SS-4	3.00	-	-	-	-	-	-	-	-	19	A-7-6 (V)	-	
	979.5																		
		EOB																	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-069-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 989.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/9/21 END: 3/9/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.532573, -82.984681	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.8' - ASPHALT (10.0")	989.0																		
0.7' - AGGREGATE BASE (8.0")	988.2	1																	
SOFT, DARK GRAYISH BROWN SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	987.5	2	3	6	89	SS-1	0.50	5	6	8	54	27	34	19	15	22	A-6a (10)	200	
	986.0	3	2																
SOFT TO VERY STIFF, BROWN CLAY , "AND" SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		4	3	8	89	SS-2	0.50	1	4	8	51	36	51	19	32	25	A-7-6 (18)	-	
		5	2	8	83	SS-3	1.00	-	-	-	-	-	-	-	-	24	A-7-6 (V)	-	
		6	4	4	13	100	SS-4	2.50	-	-	-	-	-	-	-	18	A-7-6 (V)	-	
	981.5	7	5																

EOB

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.


	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____		EXPLORATION ID B-070-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529		
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 987.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1	
	START: 3/1/21 END: 3/1/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.532155, -82.983338		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (G)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.9' - ASPHALT (11.0")	987.0																		
0.3' - AGGREGATE (MACADAM) BASE (3.0")	986.1	1																	
STIFF, BROWNISH DARK GRAY SILT AND CLAY , LITTLE FINE GRAVEL, TRACE COARSE TO FINE SAND, DAMP. -TRACE ORGANICS IN SS-1	985.8	2	6	4	13	78	SS-1	2.00	12	4	5	49	30	35	22	13	21	A-6a (9)	240
	984.0	3	3	3	10	61	SS-2	1.50	1	3	7	54	35	42	19	23	25	A-7-6 (14)	-
SOFT TO STIFF, BROWNISH DARK GRAY CLAY , SOME SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.		4	2	2	7	44	SS-3	0.50	-	-	-	-	-	-	-	-	21	A-7-6 (V)	-
		5	2	2	3	7	SS-3	0.50	-	-	-	-	-	-	-	-	21	A-7-6 (V)	-
		6	2	2	3	7	SS-4	0.50	-	-	-	-	-	-	-	-	22	A-7-6 (V)	-
	979.5	7	2	2	3	7	SS-4	0.50	-	-	-	-	-	-	-	-	22	A-7-6 (V)	-
		EOB																	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


	PROJECT: <u>MAR-529-2.59 FDR</u>	DRILLING FIRM / OPERATOR: <u>ODOT / CAREY</u>	DRILL RIG: <u>CME 55 TRUCK</u>	STATION / OFFSET: _____	EXPLORATION ID B-073-0-20
	TYPE: <u>ROADWAY</u>	SAMPLING FIRM / LOGGER: <u>ODOT / MCLEISH</u>	HAMMER: <u>CME AUTOMATIC</u>	ALIGNMENT: <u>SR 529</u>	
	PID: <u>112818</u> SFN: _____	DRILLING METHOD: <u>2.25" HSA</u>	CALIBRATION DATE: <u>4/15/20</u>	ELEVATION: <u>990.0 (MSL)</u> EOB: <u>7.5 ft.</u>	PAGE 1 OF 1
	START: <u>3/9/21</u> END: <u>3/9/21</u>	SAMPLING METHOD: <u>SPT</u>	ENERGY RATIO (%): <u>83.6</u>	LAT / LONG: <u>40.530789, -82.979389</u>	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.8' - ASPHALT (10.0")	990.0																		
0.7' - AGGREGATE BASE (8.0")	989.2	1																	
STIFF, GRAY SILT AND CLAY , LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, DAMP.	988.5	2	5																
	987.0	3	4	11	56	SS-1	2.00	16	5	7	32	40	35	23	12	18	A-6a (8)	<100	
MEDIUM STIFF TO STIFF, GRAY TO BROWN CLAY , "AND" SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.		4	3	4	13	100	SS-2	1.50	1	3	8	38	50	49	21	28	24	A-7-6 (17)	-
		5	2	2	7	61	SS-3	1.00	-	-	-	-	-	-	-	-	28	A-7-6 (V)	-
		6	3	2	3														
	982.5	7	4	4	11	100	SS-4	2.00	-	-	-	-	-	-	-	-	22	A-7-6 (V)	-
		EOB																	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING


ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' "	EXPLORATION ID B-074-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN:	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 990.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/1/21 END: 3/1/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.530420, -82.978175	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			ODOT CLASS (GI)	SO4 ppm	BACK FILL	
								GR	CS	FS	SI	CL	LL	PL	PI				WC
1.0' - ASPHALT (12.0")	990.0																	[Cross-hatch pattern]	
VERY STIFF, GRAYISH BROWN SILT AND CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP. -TRACE ORGANICS IN SS-1	989.0	1	4															[Diagonal hatching pattern]	
	987.0	2	4 5	13	89	SS-1	2.50	5	4	8	39	44	35	23	12	21	A-6a (9)	<100	[Diagonal hatching pattern]
		3	3															[Diagonal hatching pattern]	
STIFF TO VERY STIFF, GRAYISH BROWN SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.		4	4 5	13	89	SS-2	1.50	5	5	12	40	38	40	18	22	20	A-6b (13)	-	[Diagonal hatching pattern]
		5	4 5 6	15	100	SS-3	3.00	-	-	-	-	-	-	-	-	22	A-6b (V)	-	[Diagonal hatching pattern]
		6	5 6															[Diagonal hatching pattern]	
	982.5	7	5 6 9	21	100	SS-4	2.50	-	-	-	-	-	-	-	-	21	A-6b (V)	-	[Diagonal hatching pattern]
			EOB																

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\G18\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-077-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 994.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/9/21 END: 3/9/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.529063, -82.974241	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.9' - ASPHALT (10.5")	994.0																		
0.7' - AGGREGATE BASE (8.0")	993.2	1																	
GRAY SANDY SILT, SOME CLAY, LITTLE FINE GRAVEL, DAMP.	992.5	2	5																
	991.0	3	5	13	0	AS-1	-	13	10	11	38	28	29	24	5	12	A-4a (6)	<100	
4		4	4	11	67	SS-2	1.50	10	6	8	38	38	42	19	23	22	A-7-6 (14)	-	
5		2	4	11	94	SS-3	2.00	-	-	-	-	-	-	-	-	22	A-7-6 (V)	-	
STIFF TO VERY STIFF, BROWNISH GRAY TO BROWN CLAY, "AND" SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.	991.0	6	4	4															
		7	2	4	13	100	SS-4	2.50	-	-	-	-	-	-	-	17	A-7-6 (V)	-	
	986.5	7	4	5															
		EOB																	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ


NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-078-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 995.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/1/21 END: 3/1/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.528637, -82.972897	

MATERIAL DESCRIPTION AND NOTES	ELEV. 995.0	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.8' - ASPHALT (10.0")	994.2																	X	
0.2' - AGGREGATE BASE (2.0") STIFF, GRAYISH BROWN SANDY SILT , LITTLE FINE GRAVEL, TRACE COARSE TO FINE SAND, DRY.	994.0	1	10															X	
	992.0	2	5 7	17	22	SS-1	-	13	3	6	29	49	29	23	6	6	A-4a (8)	<100	X
	992.0	3	3															X	
STIFF TO VERY STIFF, BROWNISH GRAY CLAY , "AND" SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		4	4 5	13	78	SS-2	2.50	5	5	9	38	43	42	19	23	26	A-7-6 (14)	-	X
		5	3 4	10	83	SS-3	3.00	-	-	-	-	-	-	-	-	20		-	X
		6	3															-	X
	987.5	7	4 7	15	100	SS-4	2.00	-	-	-	-	-	-	-	-	16		-	X
		EOB																	

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\G\I8\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-081-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 1000.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/9/21 END: 3/9/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.527288, -82.969048	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1000.0	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL		
								GR	CS	FS	SI	CL	LL	PL	PI						
1.0' - ASPHALT (12.0")	999.0	1																			
0.5' - AGGREGATE BASE (6.0")	998.5	2	8	5	14	61	SS-1	1.00	1	2	21	51	25	36	20	16	16	A-6b (10)	120		
MEDIUM STIFF TO STIFF, BROWNISH GRAY SILTY CLAY , SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	997.0	3	2	3	10	100	SS-2	2.00	10	8	16	37	29	32	17	15	27	A-6a (8)	-		
STIFF TO VERY STIFF, BROWN TO BROWNISH GRAY SILT AND CLAY , SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		4	5	3	10	89	SS-3	2.00	-	-	-	-	-	-	-	-	17	A-6a (V)	-		
		5	4	3	4																
		6	5	3	4																
		7	4	8	10	25	89	SS-4	4.00	-	-	-	-	-	-	-	20	A-6a (V)	-		
	992.5	EOB																			

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH.DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING


ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: ' _____	EXPLORATION ID B-082-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 999.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/1/21 END: 3/1/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.526861, -82.967709	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.8' - ASPHALT (10.0")	999.0																		
0.3' - AGGREGATE BASE (4.0")	998.2	1																	
MEDIUM STIFF, DARK BROWNISH GRAY SANDY SILT , SOME CLAY, LITTLE FINE GRAVEL, MOIST.	997.9	2	2	8	78	SS-1	1.00	12	12	6	46	24	29	19	10	25	A-4a (7)	140	
	996.0	3	3																
MEDIUM STIFF TO STIFF, DARK BROWNISH GRAY CLAY , "AND" SILT, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		4	2	10	89	SS-2	1.00	3	3	6	40	48	53	20	33	18	A-7-6 (19)	-	
		5	3																
		6	33	52	11	SS-3	1.50	-	-	-	-	-	-	-	-	16	A-7-6 (V)	-	
		7	4																
	991.5	EOB	4	13	100	SS-4	2.00	-	-	-	-	-	-	-	-	17	A-7-6 (V)	-	

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:19 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: <u>MAR-529-2.59 FDR</u>	DRILLING FIRM / OPERATOR: <u>ODOT / CAREY</u>	DRILL RIG: <u>CME 55 TRUCK</u>	STATION / OFFSET: <u>'</u>	EXPLORATION ID B-085-0-20	
	TYPE: <u>ROADWAY</u>	SAMPLING FIRM / LOGGER: <u>ODOT / MCLEISH</u>	HAMMER: <u>CME AUTOMATIC</u>	ALIGNMENT: <u>SR 529</u>		
	PID: <u>112818</u> SFN: <u></u>	DRILLING METHOD: <u>2.25" HSA</u>	CALIBRATION DATE: <u>4/15/20</u>	ELEVATION: <u>1003.0 (MSL)</u> EOB: <u>7.5 ft.</u>	PAGE 1 OF 1	
	START: <u>3/9/21</u> END: <u>3/9/21</u>	SAMPLING METHOD: <u>SPT</u>	ENERGY RATIO (%): <u>83.6</u>	LAT / LONG: <u>40.525495, -82.963761</u>		


MATERIAL DESCRIPTION AND NOTES	ELEV. 1003.0	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (G)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.8' - ASPHALT (10.0")																		X	
0.7' - AGGREGATE BASE (8.0")		1002.2																X	
STIFF, GRAY SILT AND CLAY , SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST.		1001.5																/	
			5															/	
			4															/	
			3															/	
1000.0			3															/	
STIFF TO VERY STIFF, GRAY TO BROWN SILTY CLAY , LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.			4															/	
			3															/	
			5															/	
			7															/	
			6															/	
			9															/	
			14															/	
		995.5																/	
																		/	
																		/	
																		/	
																		/	
																		/	
																		/	
																		/	

EOB

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:20 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

	PROJECT: MAR-529-2.59 FDR	DRILLING FIRM / OPERATOR: ODOT / CAREY	DRILL RIG: CME 55 TRUCK	STATION / OFFSET: _____	EXPLORATION ID B-086-0-20
	TYPE: ROADWAY	SAMPLING FIRM / LOGGER: ODOT / MCLEISH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 529	
	PID: 112818 SFN: _____	DRILLING METHOD: 2.25" HSA	CALIBRATION DATE: 4/15/20	ELEVATION: 1005.0 (MSL) EOB: 7.5 ft.	PAGE 1 OF 1
	START: 3/1/21 END: 3/1/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 40.525070, -82.962431	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
								GR	CS	FS	SI	CL	LL	PL	PI				
0.9' - ASPHALT (10.5")	1005.0																		
0.3' - AGGREGATE (MACADAM) BASE (3.0")	1004.1 1003.8	1																X	
HARD, GRAYISH BROWN SILT, SOME CLAY, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	1002.0	2	14 6 4	14	89	SS-1	4.50	7	5	11	52	25	29	19	10	19	A-4b (8)	180	▲
VERY STIFF, BROWN AND GRAY SILTY CLAY, LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, MOIST.		3	3														A-6b (13)	-	▲
		4	2 4	8	0	AS-2	-	7	4	8	50	31	39	17	22	22	A-6b (13)	-	▲
		5	3 4 5	13	100	SS-3	3.00	-	-	-	-	-	-	-	-	19	A-6b (V)	-	▲
		6															A-6b (V)	-	▲
		7	4 6	14	100	SS-4	2.50	-	-	-	-	-	-	-	-	18	A-6b (V)	-	▲
	997.5	EOB																	▲

02019 RII STAND ODOT LOG SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:20 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.



PROJECT: MAR-529-2.59 FDR
 TYPE: ROADWAY
 PID: 112818 SFN:
 START: 3/9/21 END: 3/9/21

DRILLING FIRM / OPERATOR: ODOT / CAREY
 SAMPLING FIRM / LOGGER: ODOT / MCLEISH
 DRILLING METHOD: 2.25" HSA
 SAMPLING METHOD: SPT

DRILL RIG: CME 55 TRUCK
 HAMMER: CME AUTOMATIC
 CALIBRATION DATE: 4/15/20
 ENERGY RATIO (%): 83.6

STATION / OFFSET: '
 ALIGNMENT: SR 529
 ELEVATION: 997.0 (MSL) EOB: 7.5 ft.
 LAT / LONG: 40.523713, -82.958680

EXPLORATION ID
B-089-0-20

PAGE
 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL			
								GR	CS	FS	SI	CL	LL	PL	PI							
0.8' - ASPHALT (10.0")	997.0																					
0.7' - AGGREGATE BASE (8.0")	996.2	1																				
VERY STIFF, GRAYISH BROWN SILT AND CLAY, LITTLE FINE GRAVEL, TRACE COARSE TO FINE SAND, MOIST.	995.5	2	3	4	5	13	89	SS-1	2.50	18	3	6	35	38	30	18	12	22	A-6a (8)	200		
	994.0	3	3	4	7	15	100	SS-2	2.00	6	5	8	34	47	47	20	27	21	A-7-6 (16)	-		
		4	6	8	9	24	100	SS-3	4.5+	-	-	-	-	-	-	-	-	-	15	A-7-6 (V)	-	
STIFF TO HARD, GRAYISH BROWN TO BROWN CLAY, SOME SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.	989.5	5	6	9	25	100	SS-4	4.50	-	-	-	-	-	-	-	-	-	15	A-7-6 (V)	-		
		6	6	9	9	25	100	SS-4	4.50	-	-	-	-	-	-	-	-	15	A-7-6 (V)	-		
	989.5	7																				
EOB																						

02019 RII STAND ODOT LOG.SULF (8.5 X 11) - OH DOT.GDT - 4/9/21 14:20 - U:\GIS\PROJECTS\2020\W-20-161.GPJ

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: Compacted with the auger 4 lbs bentonite chips and soil cuttings. Pavement patched with asphalt cold patch.

APPENDIX IV

DCP LOGS



DCP TEST DATA

Project: MAR-529-2.59
Exploration ID: D-003-0-21
Surface Elevation: 972.1
Lat / Long: 40.549455, -83.075209

PID: 112818
Date: 3/15/2021
Surface Materials*: Asphalt (6")
Test Starting Depth (ft): 0.5

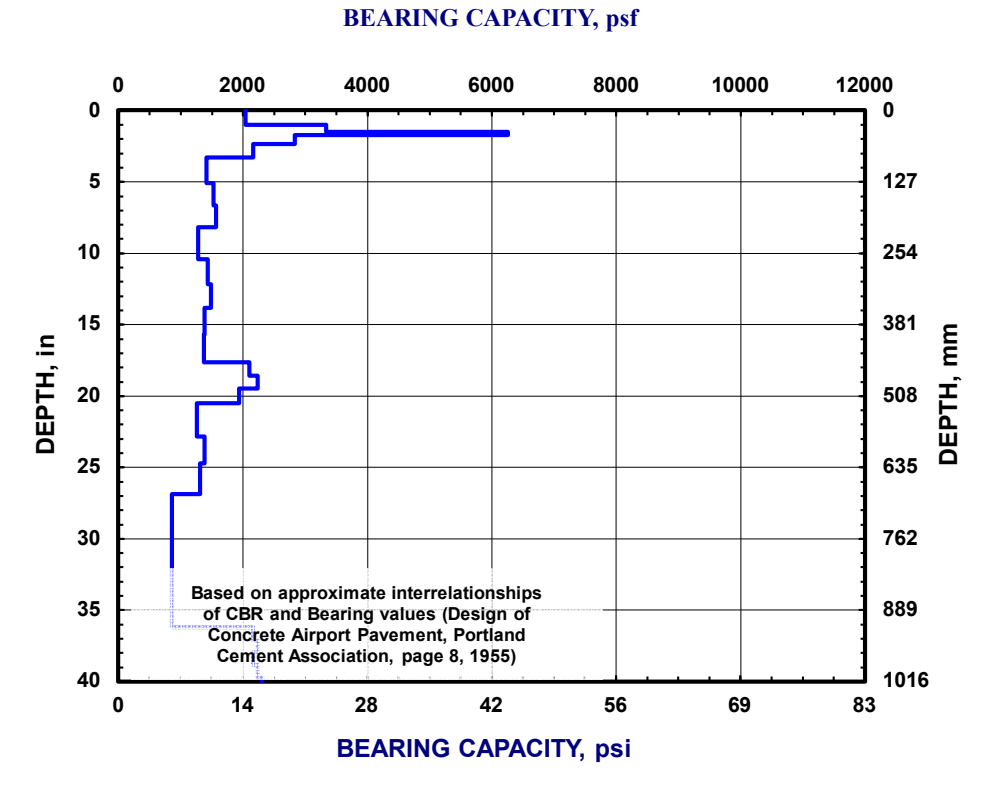
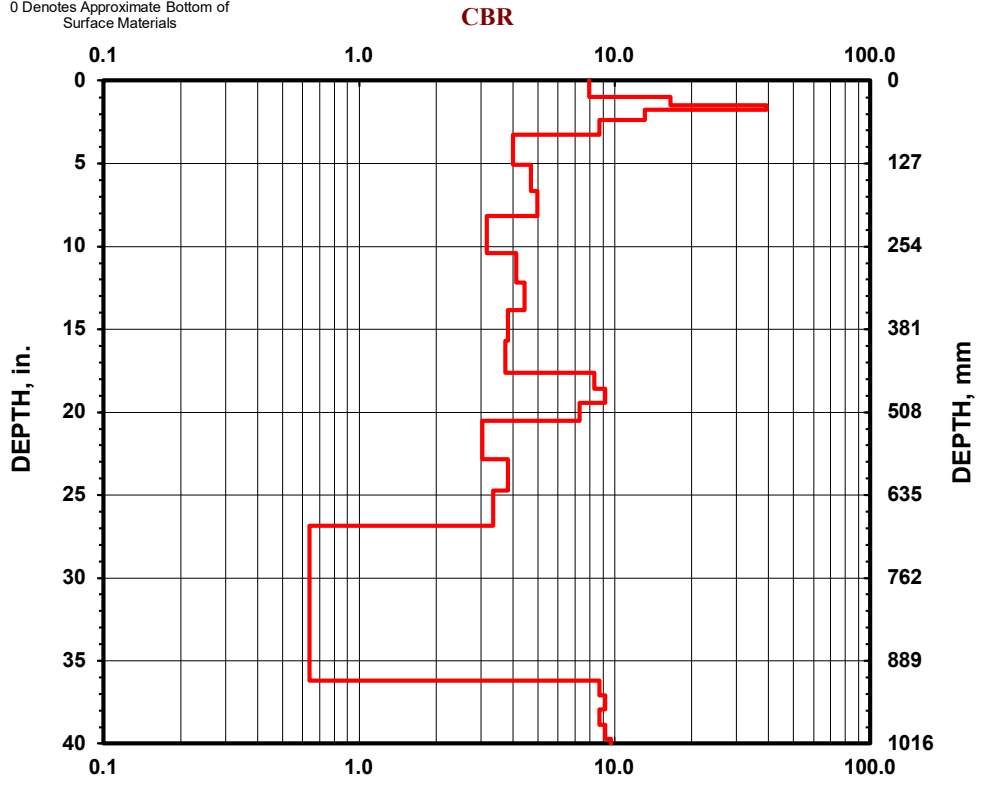
- Hammer**
- 10.1 lbs.
 - 17.6 lbs.
 - Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

- Soil Type**
- CH
 - CL
 - All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	25	1
1	38	1
1	44	1
1	44	1
1	60	1
1	83	1
1	129	1
1	169	1
1	207	1
1	264	1
1	309	1
1	351	1
1	399	1
1	448	1
1	472	1
1	494	1
1	521	1
1	580	1
1	628	1
1	682	1
1	919	1
1	942	1
1	964	1
1	987	1
1	1009	1
1	1030	1
1	1052	1
1	1075	1
1	1119	1

0 Denotes Approximate Bottom of Surface Materials



Based on approximate interrelationships of CBR and Bearing values (Design of Concrete Airport Pavement, Portland Cement Association, page 8, 1955)

NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-004-0-21
 Surface Elevation: 972.7
 Lat / Long: 40.549509, -83.073776

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (13")*
 Test Starting Depth (ft): 1.1

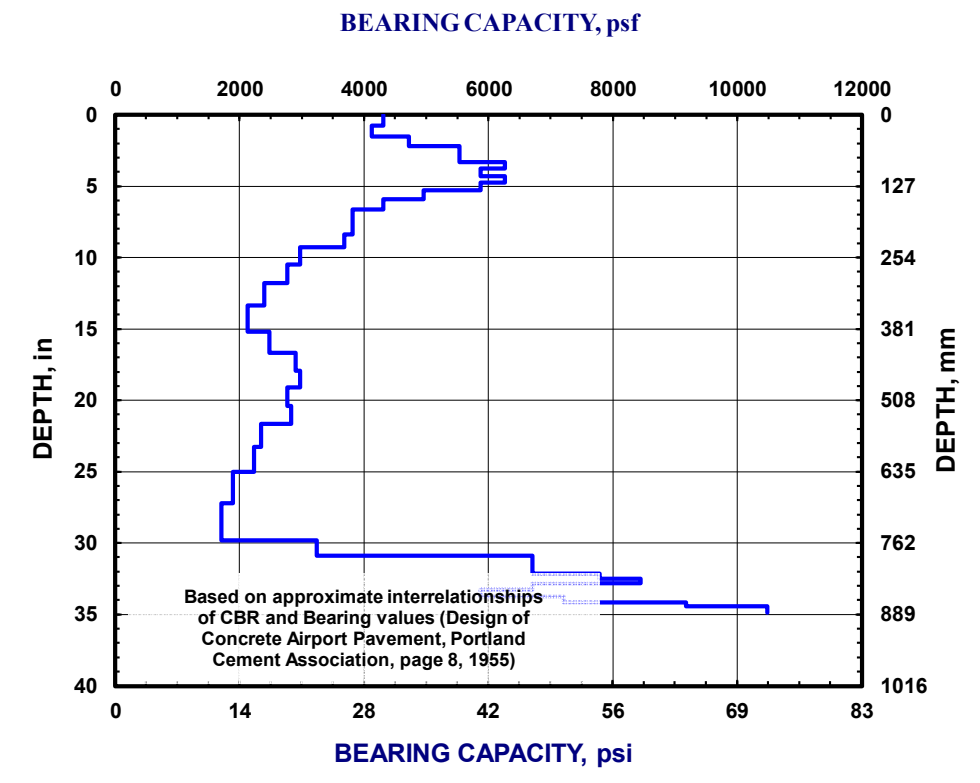
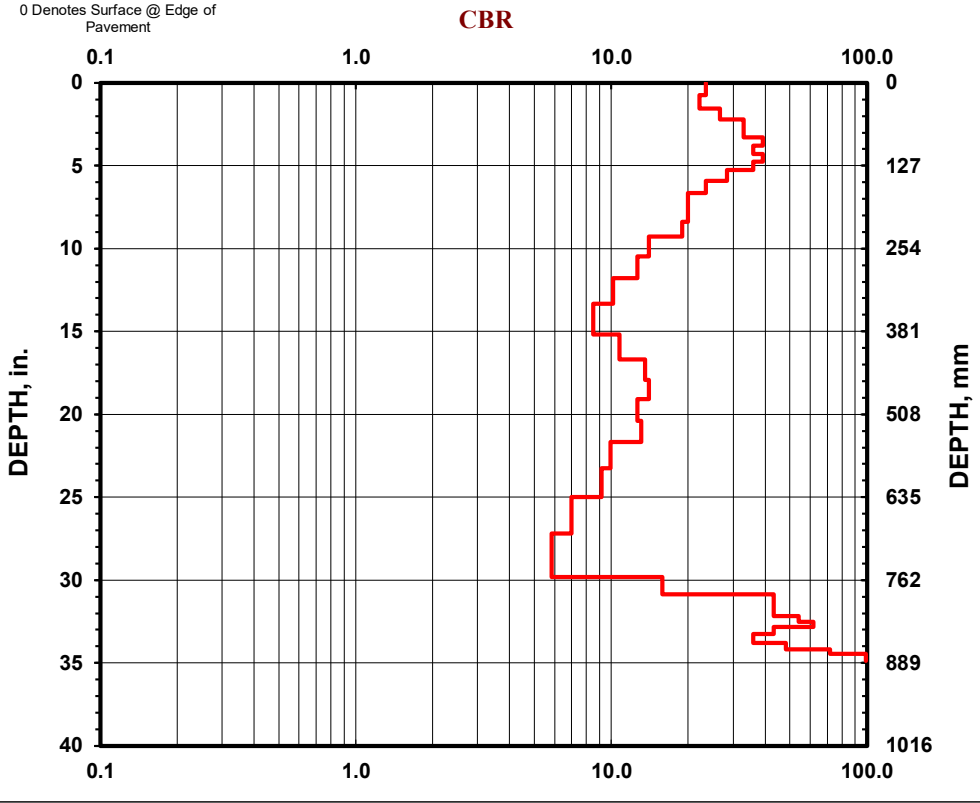
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	19	1
2	39	1
2	56	1
2	70	1
2	84	1
2	96	1
2	109	1
2	121	1
2	134	1
2	150	1
2	169	1
2	191	1
2	213	1
2	236	1
2	266	1
2	299	1
2	339	1
2	386	1
2	424	1
2	455	1
2	485	1
2	518	1
2	550	1
2	591	1
2	635	1
2	691	1
2	757	1
2	784	1
2	795	1
2	806	1
2	817	1
2	826	1
2	834	1
2	845	1
2	858	1
2	868	1
2	875	1
2	880	1
2	883	1
2	885	1
2	885	1
2	885	1

0 Denotes Surface @ Edge of Pavement



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate. Moved to edge of pavement due to shallow refusal in lane.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-007-0-21
 Surface Elevation: 978.3
 Lat / Long: 40.549451, -83.069444

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (6")
 Test Starting Depth (ft): 0.6

Hammer

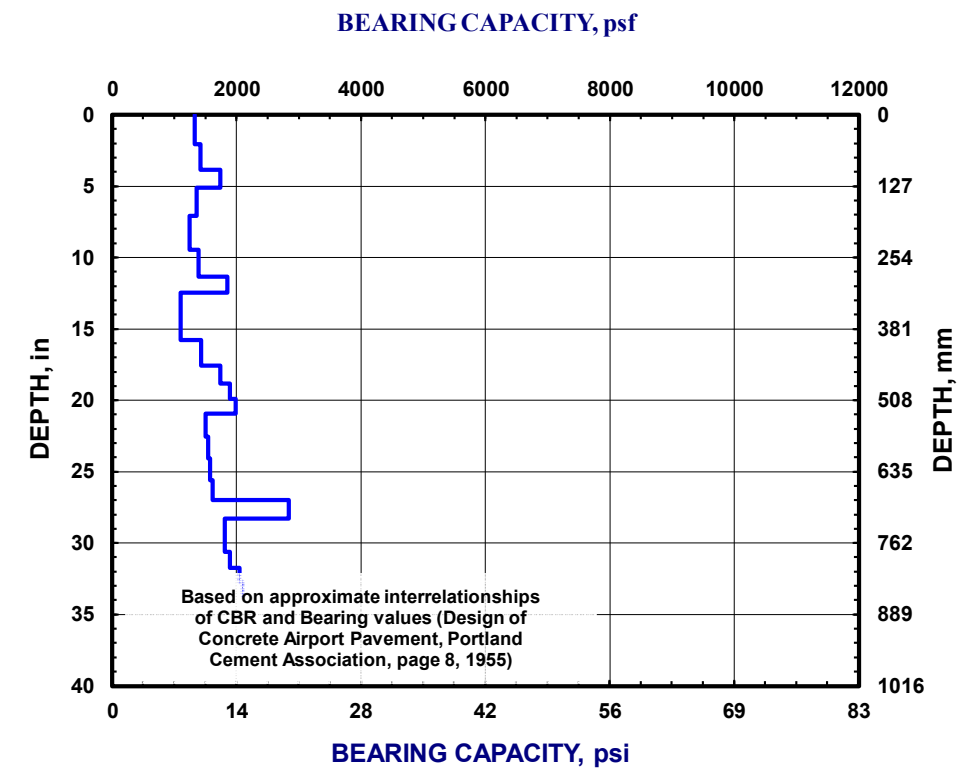
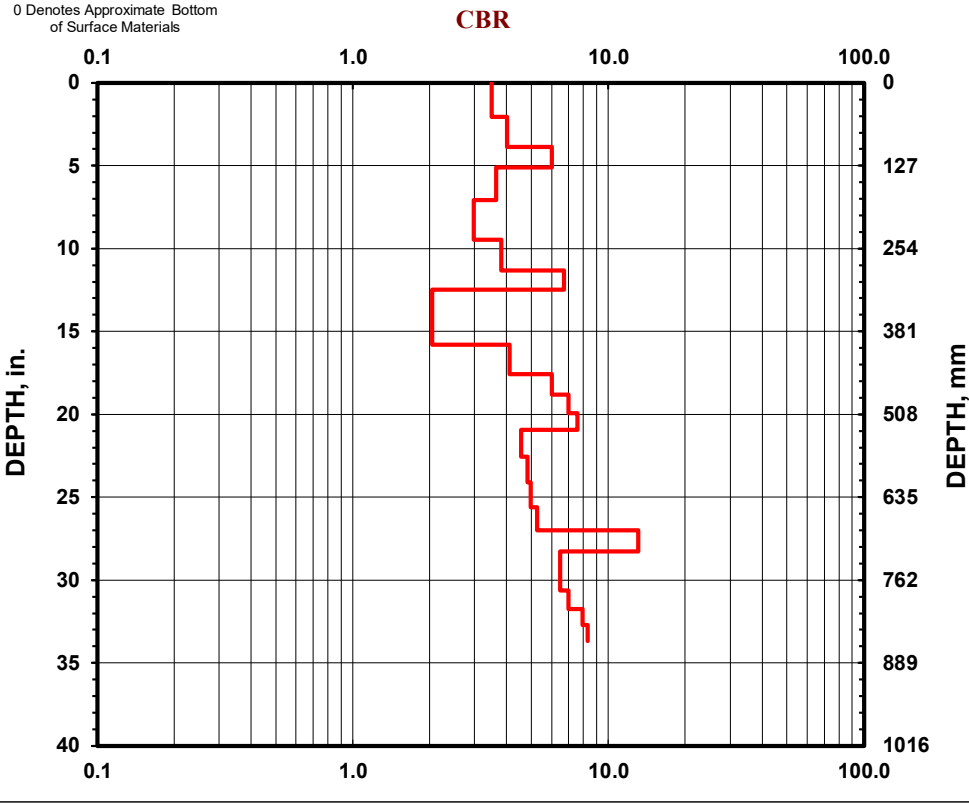
- 10.1 lbs.
- 17.6 lbs.
- Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type

- CH
- CL
- All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	52	1
1	98	1
1	130	1
1	180	1
1	240	1
1	288	1
1	317	1
1	401	1
1	446	1
1	478	1
1	506	1
1	532	1
1	573	1
1	612	1
1	650	1
1	686	1
1	702	1
1	718	1
1	748	1
1	778	1
1	806	1
1	831	1
1	855	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-008-0-21
 Surface Elevation: 977.7
 Lat / Long: 40.549496, -83.068007

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (10")
 Test Starting Depth (ft): 0.8

Hammer

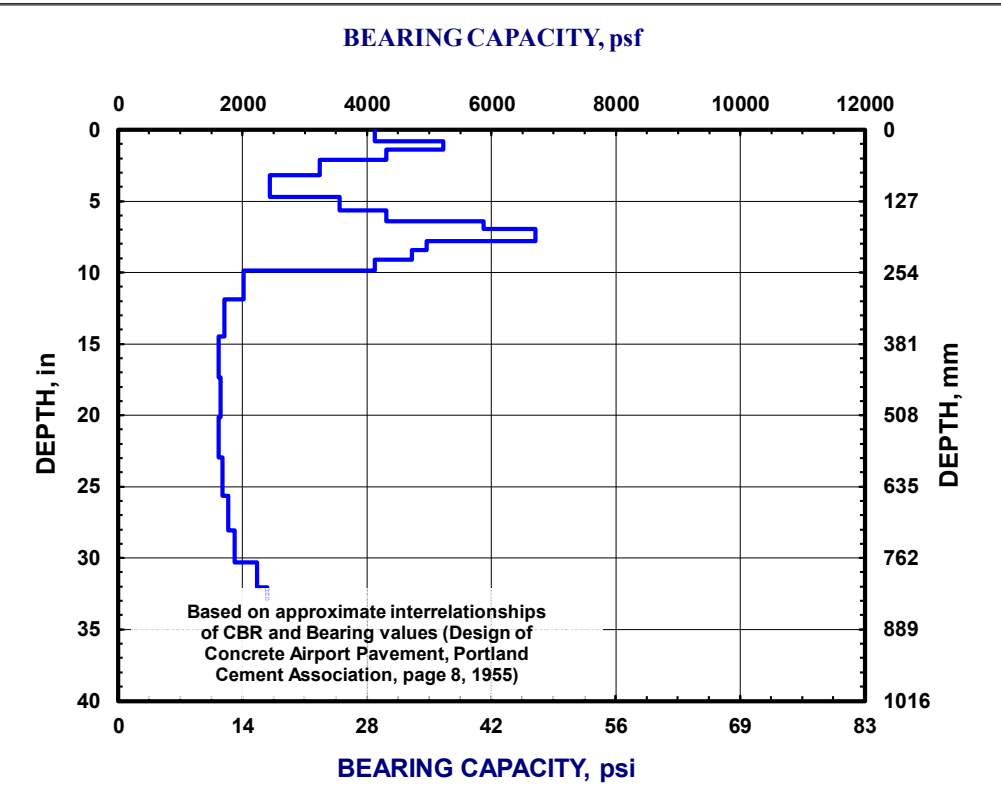
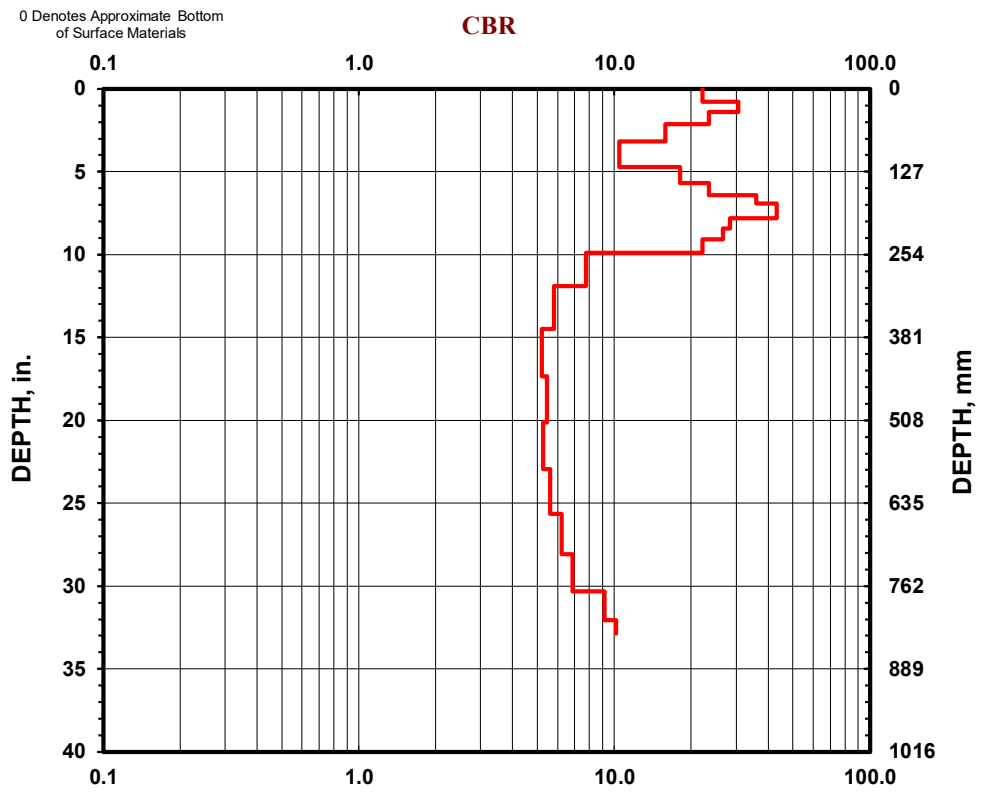
10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type

CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	20	1
2	35	1
2	54	1
2	81	1
2	120	1
2	144	1
2	163	1
2	176	1
2	187	1
2	198	1
2	214	1
2	231	1
2	251	1
2	302	1
2	368	1
2	441	1
2	511	1
2	583	1
2	651	1
2	713	1
2	770	1
2	814	1
1	834	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-011-0-21
 Surface Elevation: 977.3
 Lat / Long: 40.549433, -83.06367

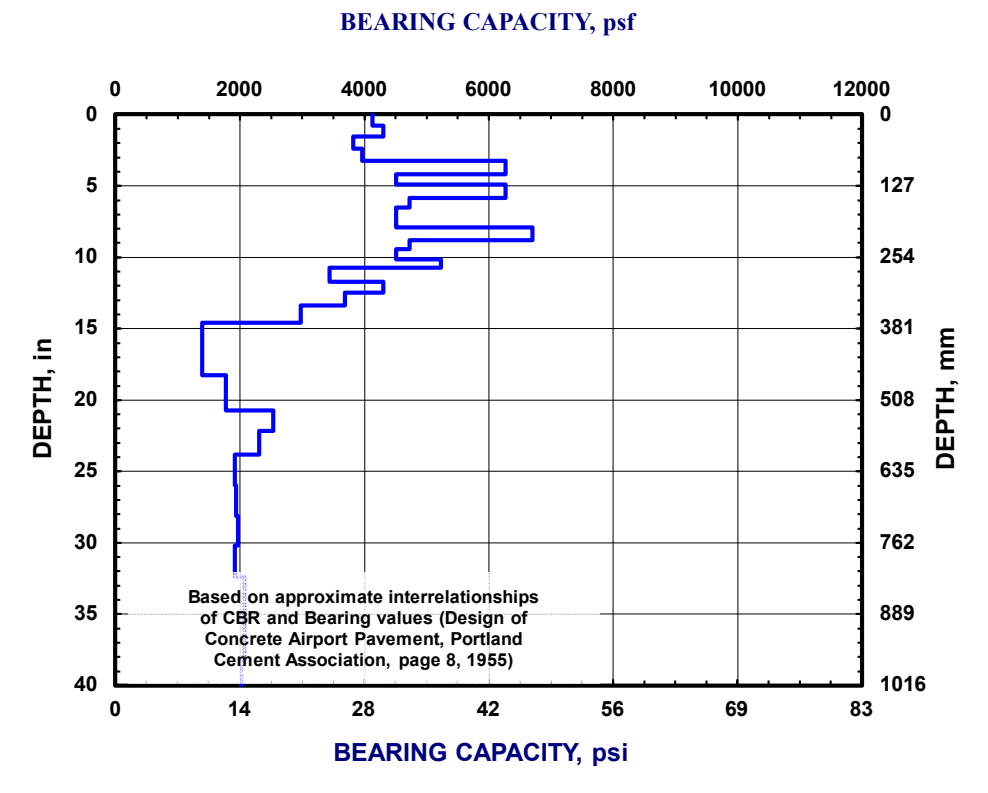
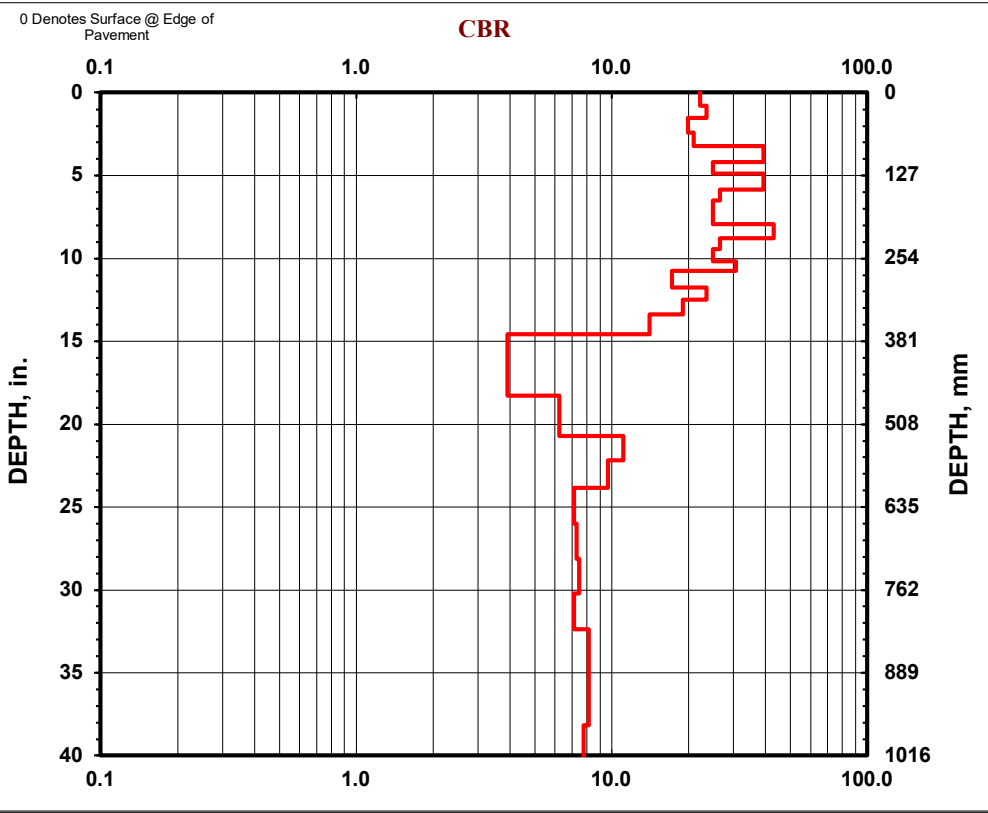
PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (7.5")*
 Test Starting Depth (ft): 0.8

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	20	1
2	39	1
2	61	1
2	82	1
2	94	1
2	106	1
2	124	1
2	136	1
2	148	1
2	165	1
2	183	1
2	201	1
2	212	1
2	223	1
2	240	1
2	258	1
2	273	1
2	298	1
2	317	1
2	340	1
2	370	1
2	464	1
2	526	1
2	563	1
2	605	1
2	660	1
2	714	1
2	767	1
2	822	1
2	871	1
2	920	1
2	969	1
2	1020	1
2	1070	1
2	1117	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate. Moved to edge of pavement due to shallow refusal in lane.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-012-0-21
 Surface Elevation: 976.2
 Lat / Long: 40.54948, -83.062232

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (10")
 Test Starting Depth (ft): 0.8

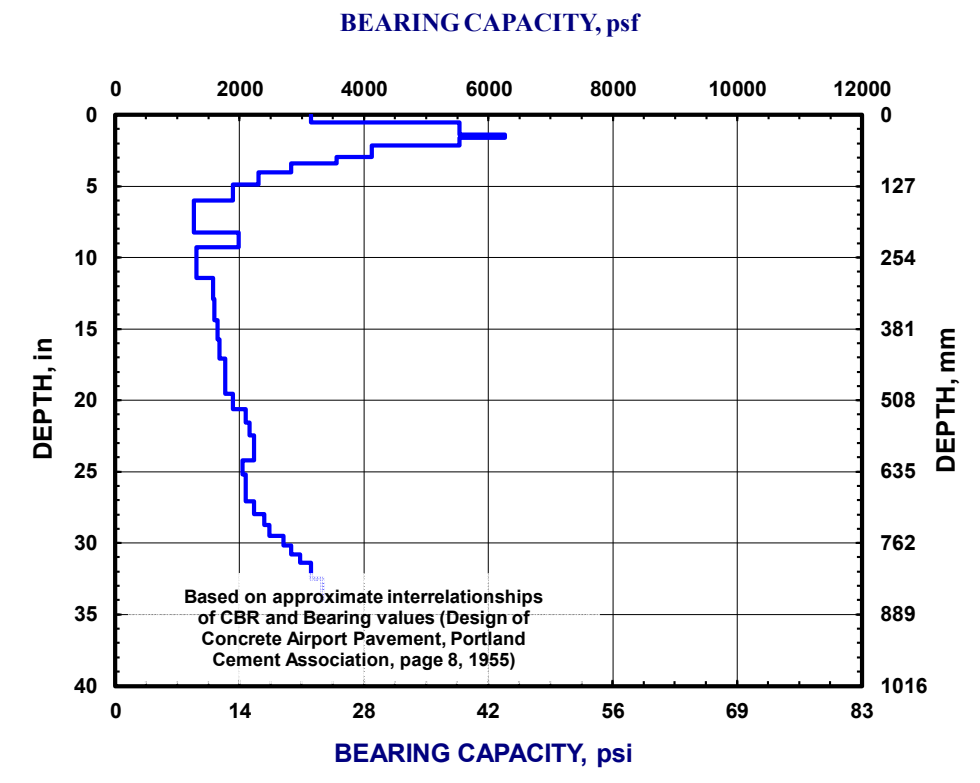
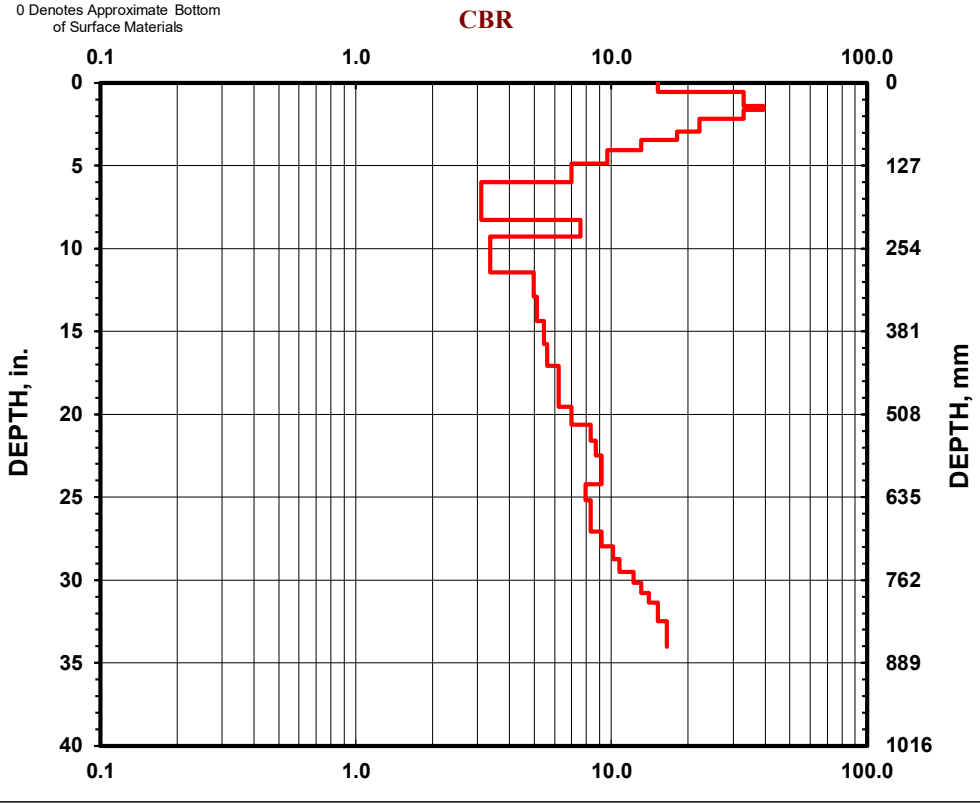
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	14	1
1	21	1
1	28	1
1	35	1
1	41	1
1	48	1
1	55	1
1	65	1
1	75	1
1	87	1
1	103	1
1	124	1
1	152	1
1	210	1
1	236	1
1	290	1
1	328	1
1	365	1
1	400	1
1	434	1
1	465	1
1	496	1
1	524	1
1	548	1
1	571	1
1	593	1
1	615	1
1	640	1
1	664	1
1	688	1
1	710	1
1	730	1
1	749	1
1	766	1
1	782	1
1	797	1
1	811	1
1	825	1
1	838	1
1	851	1
1	864	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-015-0-21
 Surface Elevation: 978
 Lat / Long: 40.549402, -83.057898

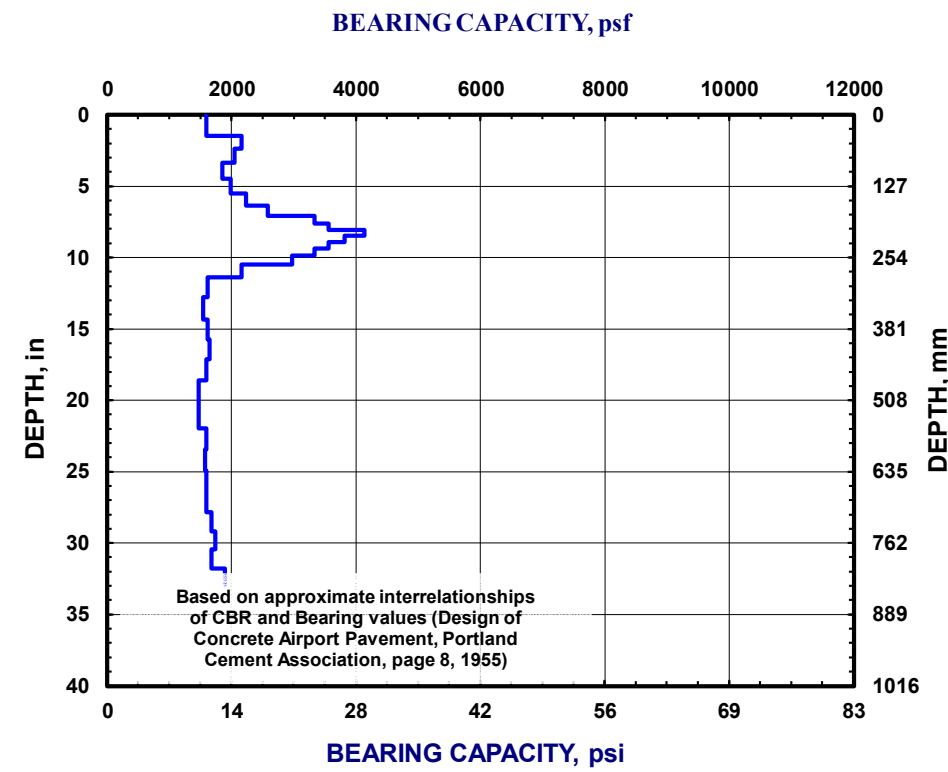
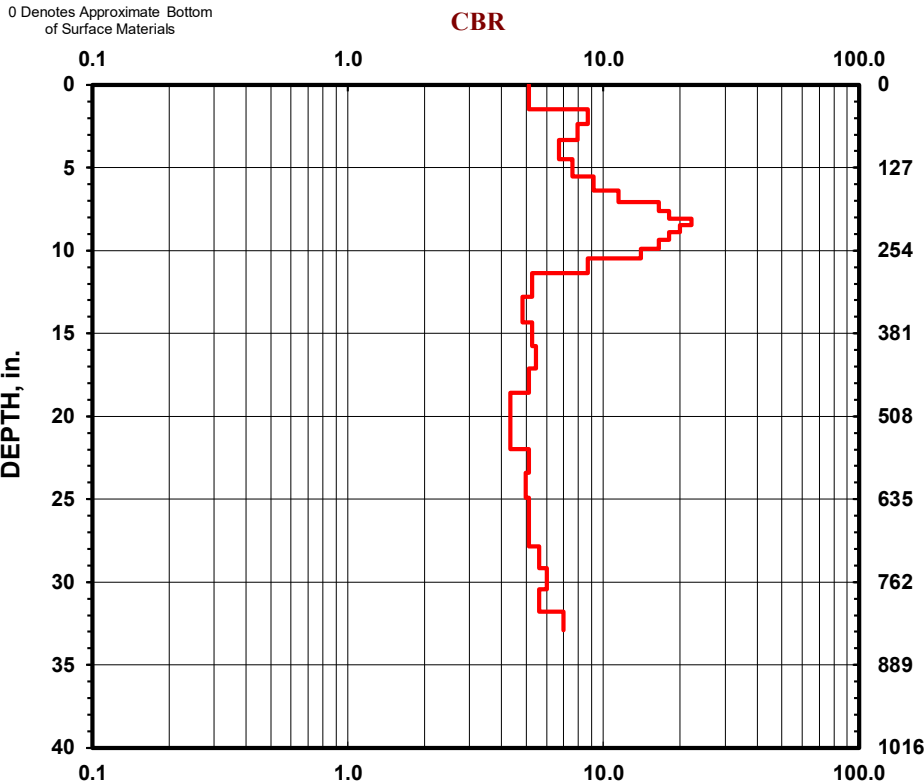
PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	37	1
1	60	1
1	85	1
1	114	1
1	140	1
1	162	1
1	180	1
1	193	1
1	205	1
1	215	1
1	226	1
1	238	1
1	251	1
1	266	1
1	289	1
1	325	1
1	364	1
1	400	1
1	435	1
1	472	1
1	515	1
1	558	1
1	595	1
1	633	1
1	670	1
1	707	1
1	741	1
1	773	1
1	807	1
1	835	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-016-0-21
 Surface Elevation: 978.8
 Lat / Long: 40.54945, -83.056457

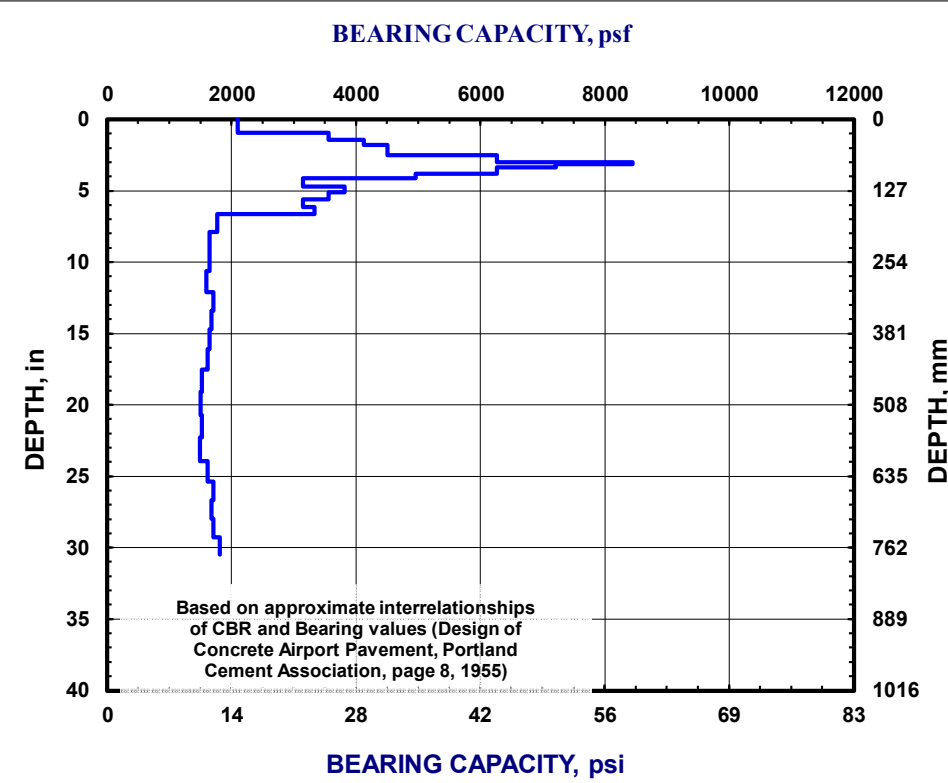
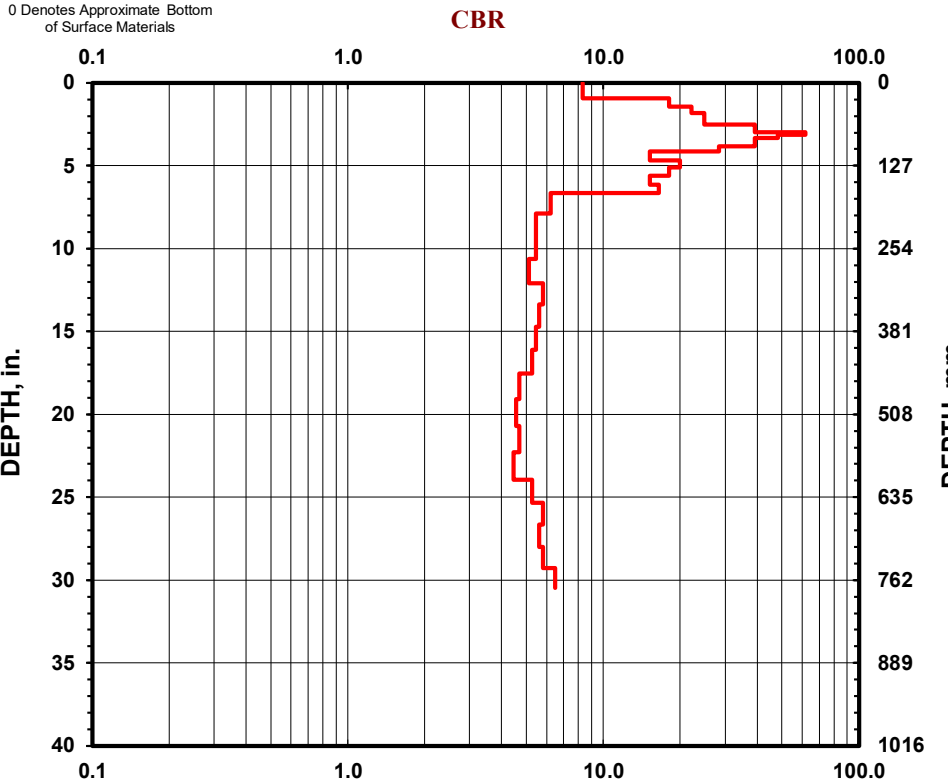
PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (12")
 Test Starting Depth (ft): 1.0

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	24	1
1	36	1
1	46	1
1	55	1
1	64	1
1	70	1
1	76	1
1	80	1
1	85	1
1	91	1
1	97	1
1	105	1
1	119	1
1	130	1
1	142	1
1	156	1
1	169	1
1	200	1
1	235	1
1	270	1
1	307	1
1	340	1
1	374	1
1	409	1
1	445	1
1	485	1
1	526	1
1	566	1
1	608	1
1	644	1
1	677	1
1	711	1
1	744	1
1	774	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-019-0-21
 Surface Elevation: 979
 Lat / Long: 40.549376, -83.052137

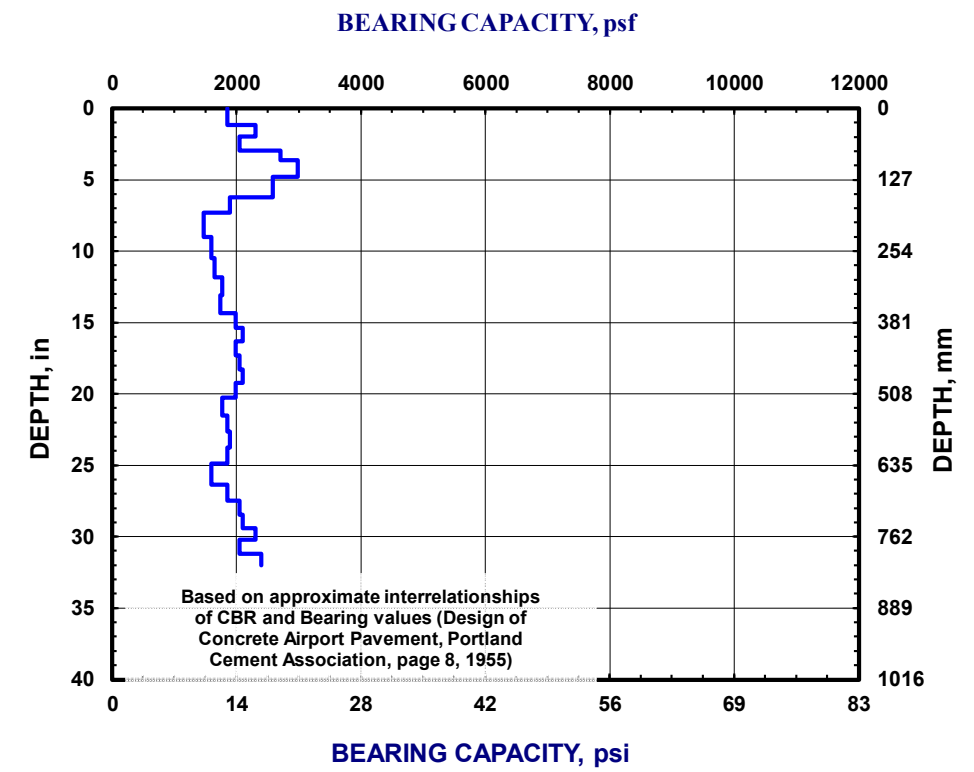
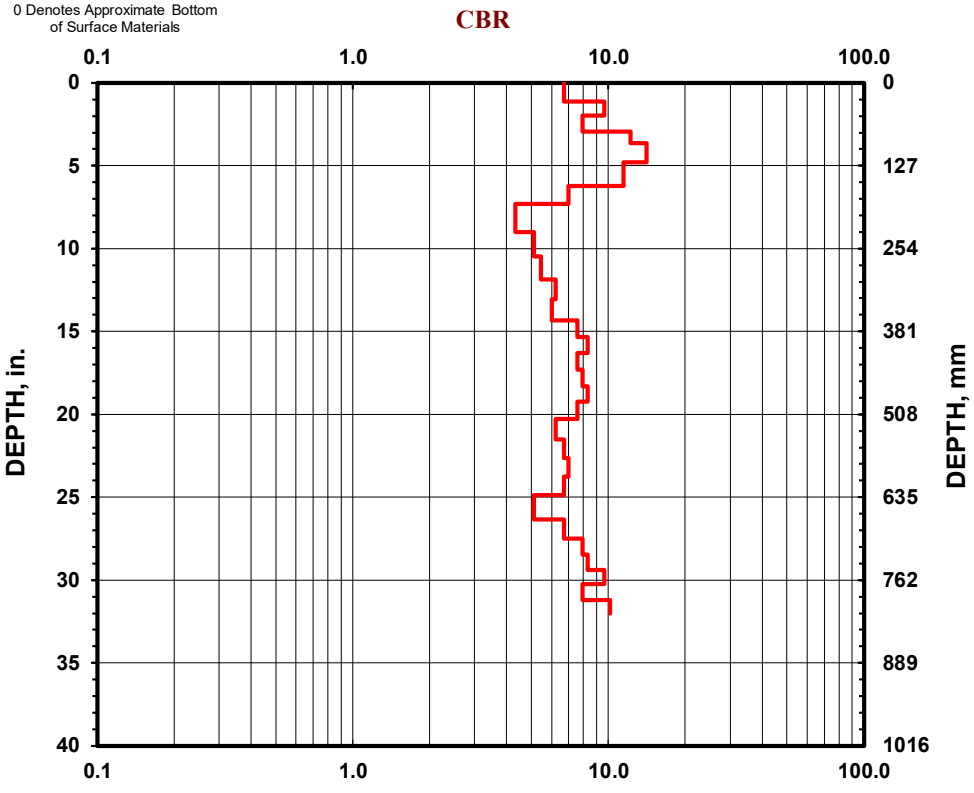
PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (12")
 Test Starting Depth (ft): 1.0

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	29	1
1	50	1
1	75	1
1	92	1
1	107	1
1	122	1
1	140	1
1	158	1
1	186	1
1	229	1
1	266	1
1	301	1
1	332	1
1	364	1
1	390	1
1	414	1
1	440	1
1	465	1
1	489	1
1	515	1
1	546	1
1	575	1
1	603	1
1	632	1
1	669	1
1	698	1
1	723	1
1	747	1
1	768	1
1	793	1
1	813	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-020-0-21
 Surface Elevation: 977.9
 Lat / Long: 40.549427, -83.050693

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (12")
 Test Starting Depth (ft): 1.0

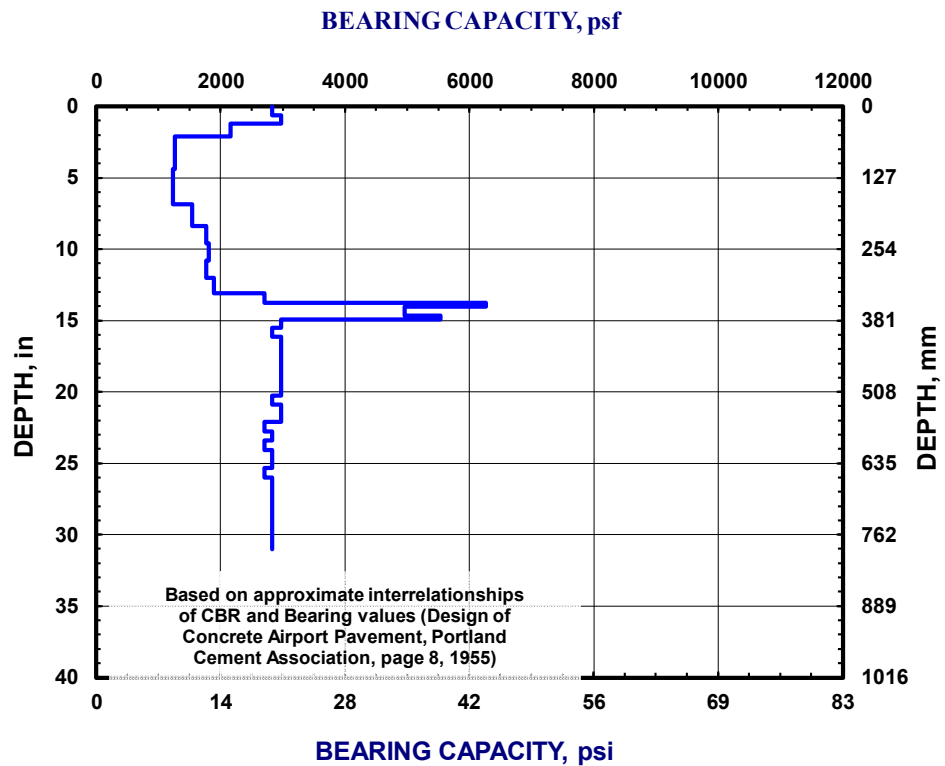
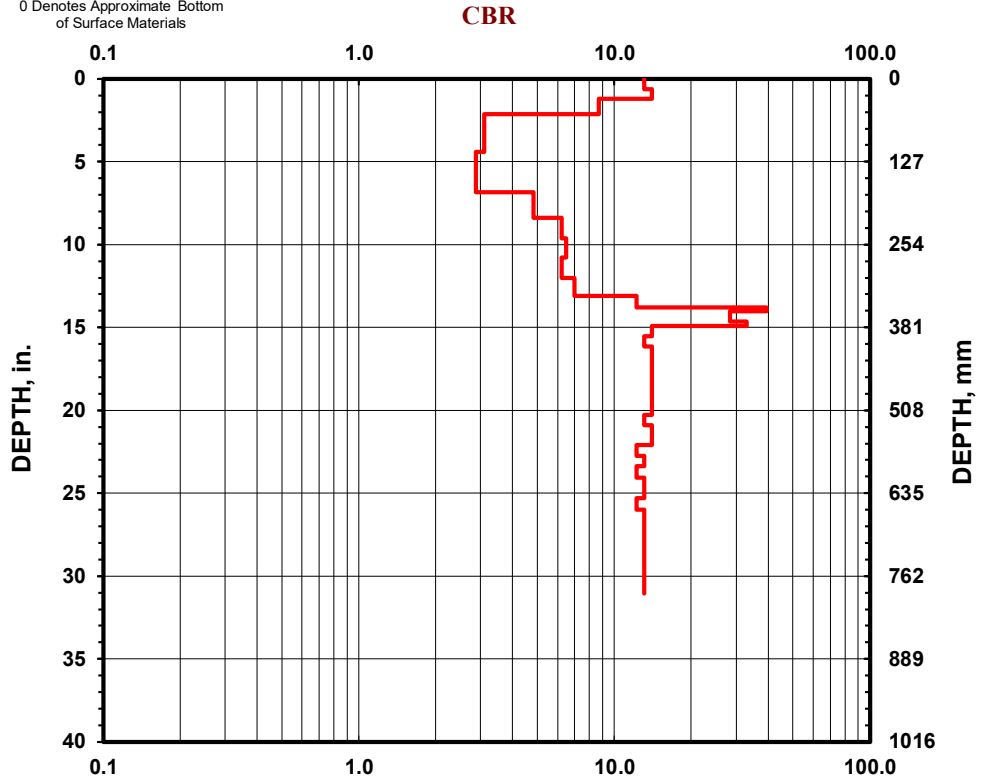
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	16	1
1	31	1
1	54	1
1	112	1
1	174	1
1	213	1
1	244	1
1	274	1
1	305	1
1	333	1
1	350	1
1	356	1
1	364	1
1	372	1
1	379	1
1	394	1
1	410	1
1	425	1
1	440	1
1	455	1
1	470	1
1	485	1
1	500	1
1	515	1
1	531	1
1	546	1
1	561	1
1	578	1
1	594	1
1	611	1
1	627	1
1	643	1
1	660	1
1	676	1
1	692	1
1	708	1
1	724	1
1	740	1
1	756	1
1	772	1
1	788	1
2	820	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-023-0-21
 Surface Elevation: 974.9
 Lat / Long: 40.549386, -83.046376

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

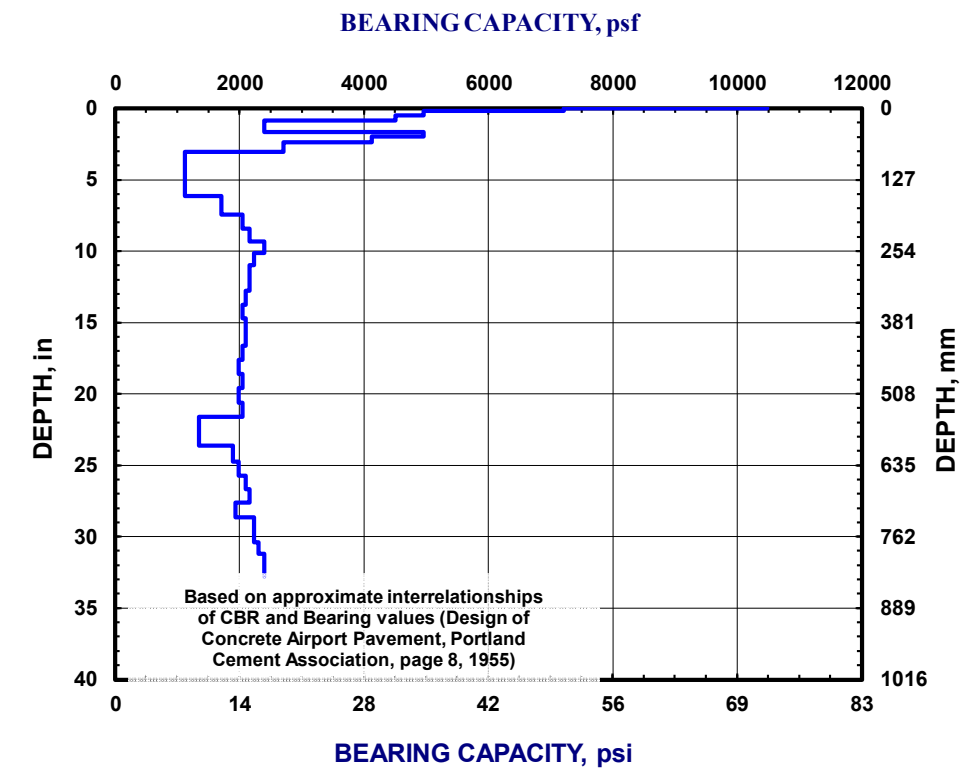
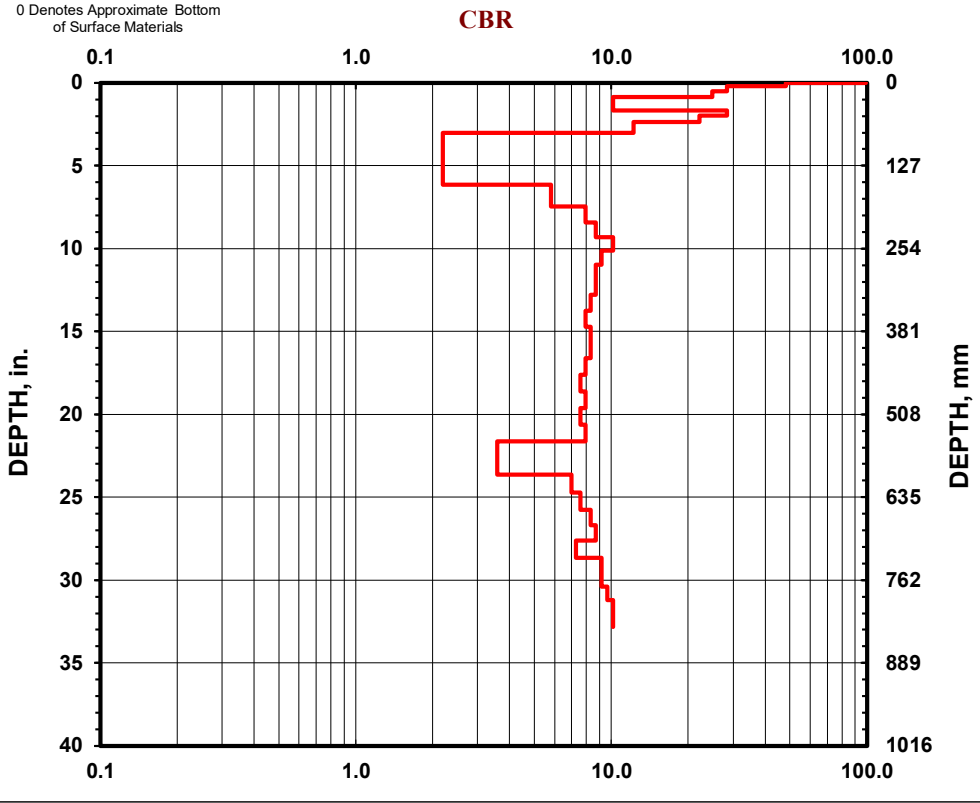
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	0	1
1	5	1
1	13	1
1	22	1
1	22	1
1	42	1
1	50	1
1	60	1
1	77	1
1	77	1
1	156	1
1	189	1
1	214	1
1	237	1
1	257	1
1	279	1
1	302	1
1	325	1
1	349	1
1	374	1
1	398	1
1	422	1
1	447	1
1	473	1
1	498	1
1	524	1
1	549	1
1	549	1
1	600	1
1	628	1
1	654	1
1	678	1
1	701	1
1	728	1
1	750	1
1	772	1
1	793	1
1	813	1
1	833	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-024-0-21
 Surface Elevation: 973.9
 Lat / Long: 40.549452, -83.044927

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

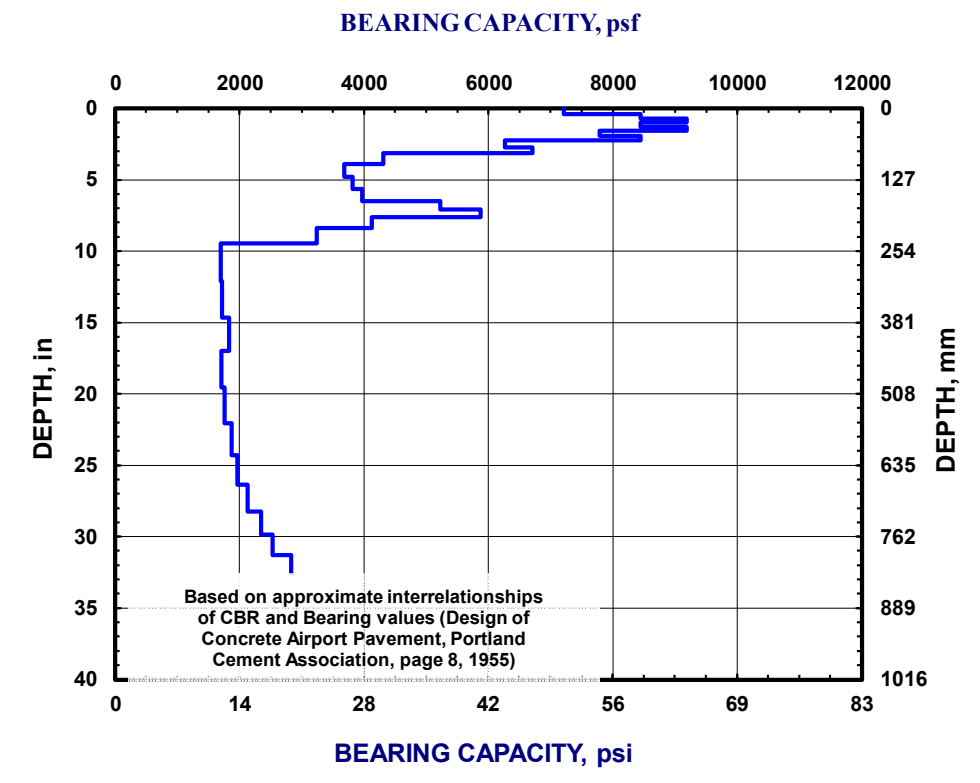
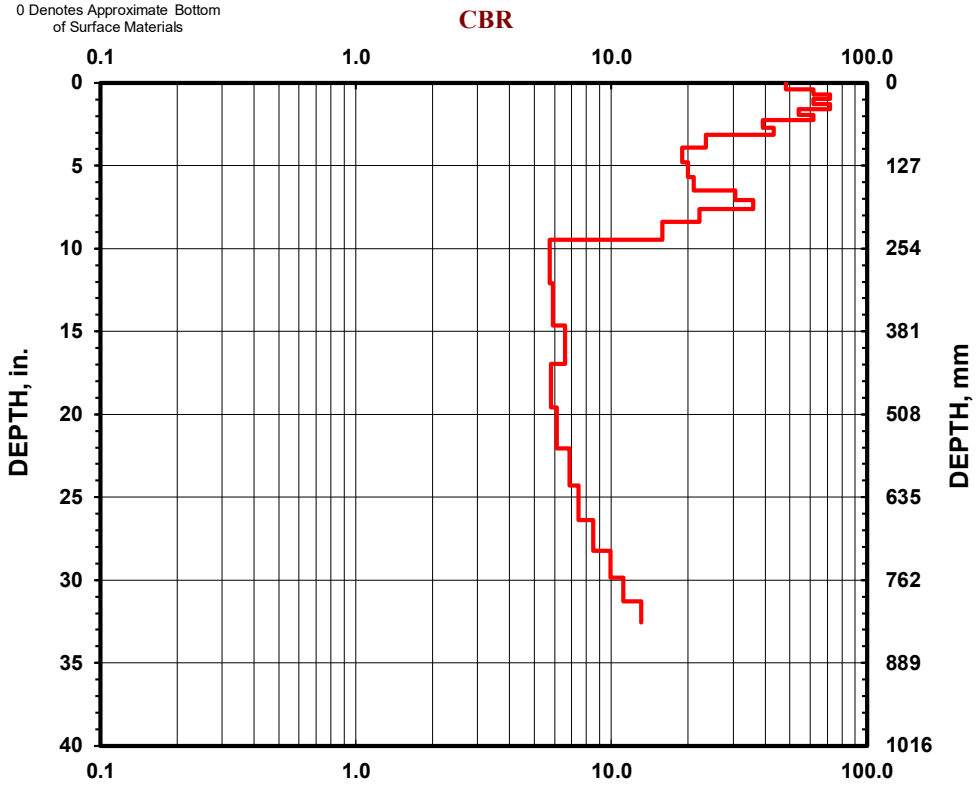
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	10	1
2	18	1
2	25	1
2	33	1
2	40	1
2	49	1
2	57	1
2	69	1
2	80	1
2	99	1
2	122	1
2	144	1
2	165	1
2	180	1
2	193	1
2	213	1
2	240	1
2	307	1
2	372	1
2	431	1
2	497	1
2	560	1
2	617	1
2	670	1
2	717	1
2	758	1
2	795	1
2	827	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-027-0-21
 Surface Elevation: 970.4
 Lat / Long: 40.549325, -83.040605

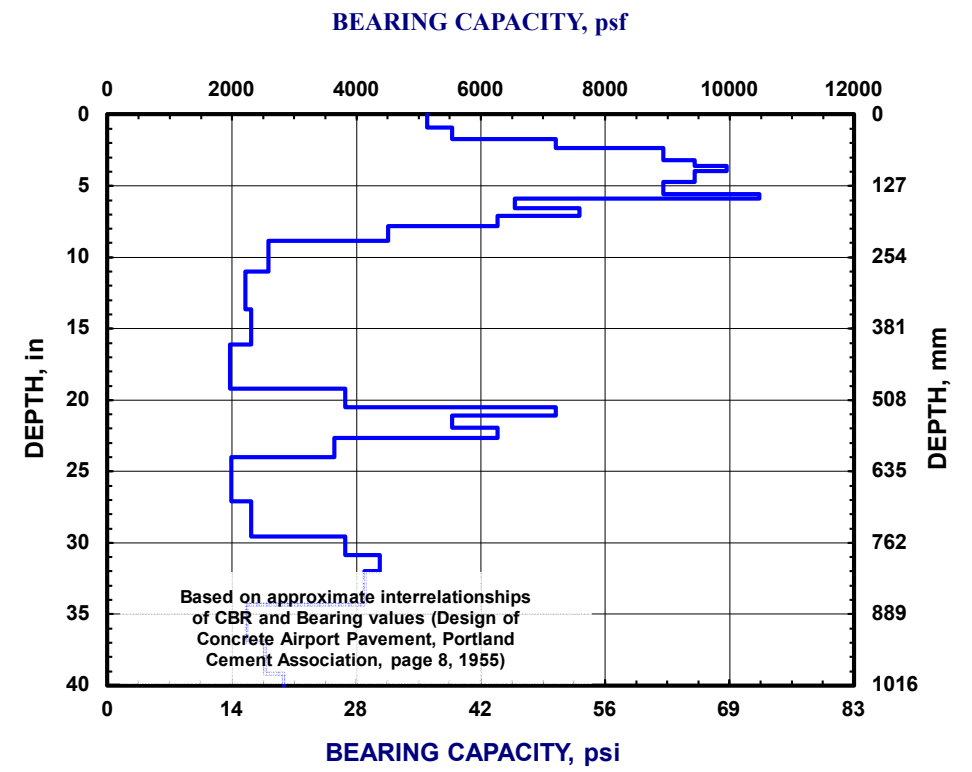
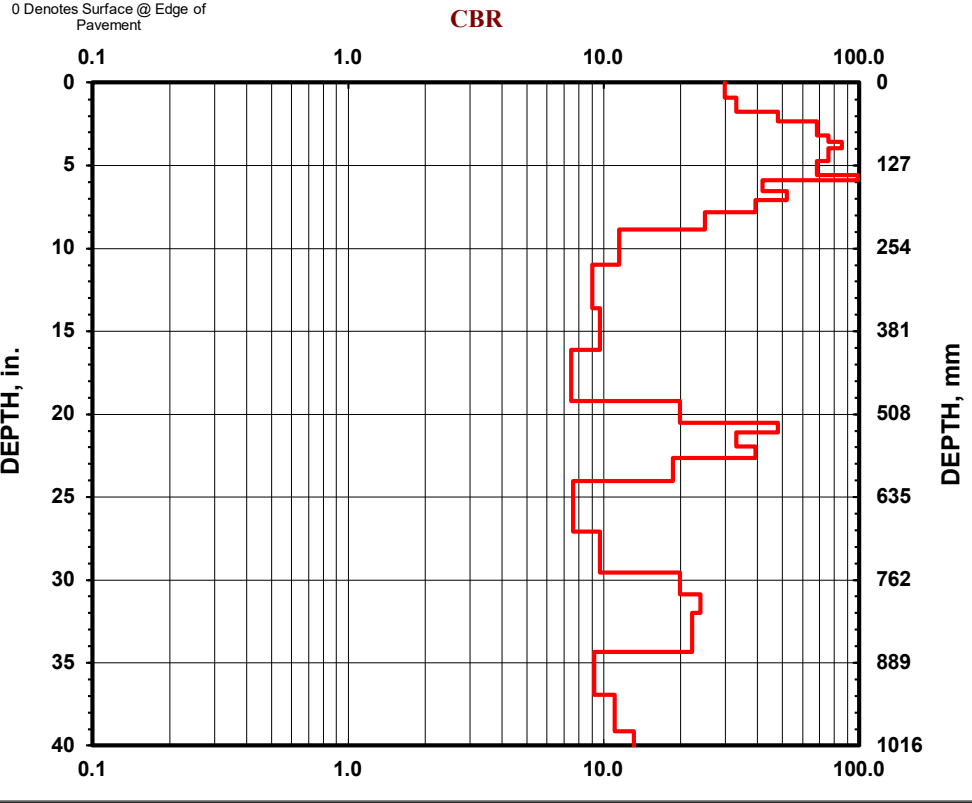
PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (6")*
 Test Starting Depth (ft): 1.1

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
3	23	1
3	44	1
3	59	1
3	70	1
3	81	1
3	91	1
3	100	1
3	110	1
3	120	1
3	131	1
3	142	1
3	149	1
3	166	1
3	180	1
3	198	1
3	225	1
3	279	1
3	346	1
3	409	1
3	488	1
3	521	1
3	536	1
3	557	1
3	575	1
3	610	1
3	688	1
3	751	1
3	784	1
3	812	1
3	842	1
3	872	1
3	938	1
3	994	1
3	1042	1
3	1074	1
3	1104	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate. Moved to edge of pavement due to shallow refusal in lane.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-028-0-21
 Surface Elevation: 971.3
 Lat / Long: 40.549177, -83.039186

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

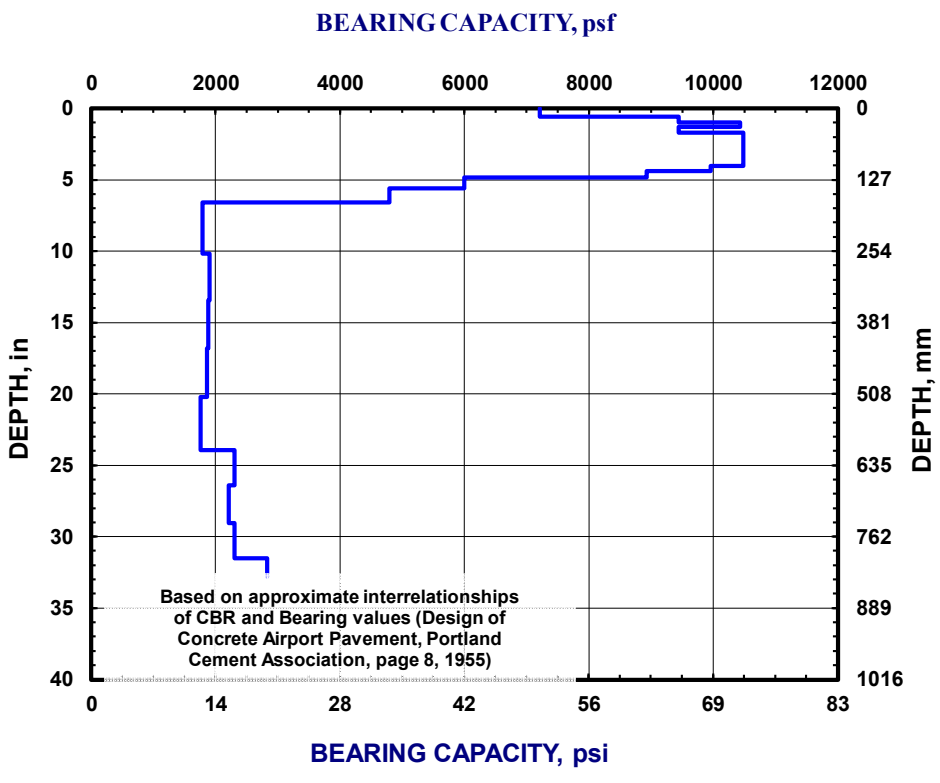
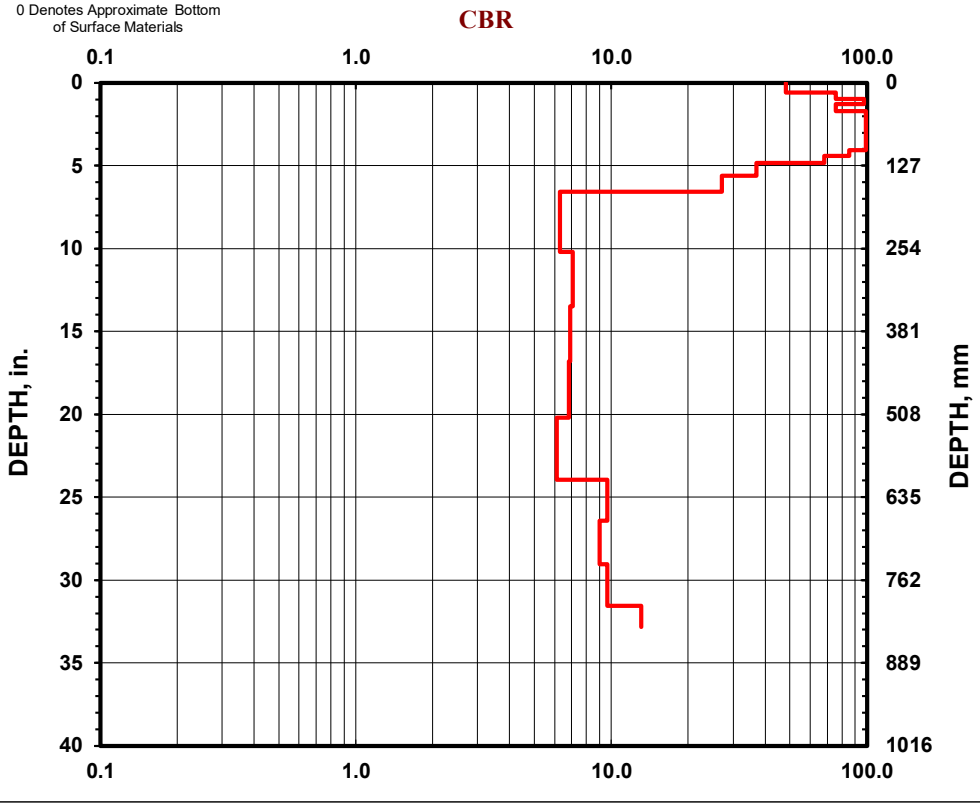
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
3	15	1
3	25	1
3	33	1
3	43	1
3	50	1
3	55	1
3	60	1
3	64	1
3	68	1
3	73	1
3	77	1
3	81	1
3	86	1
3	92	1
3	97	1
3	103	1
3	112	1
3	123	1
3	142	1
3	167	1
3	259	1
3	342	1
3	427	1
3	513	1
3	608	1
3	671	1
3	738	1
3	801	1
2	833	

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-031-0-21
 Surface Elevation: 972.9
 Lat / Long: 40.548138, -83.035065

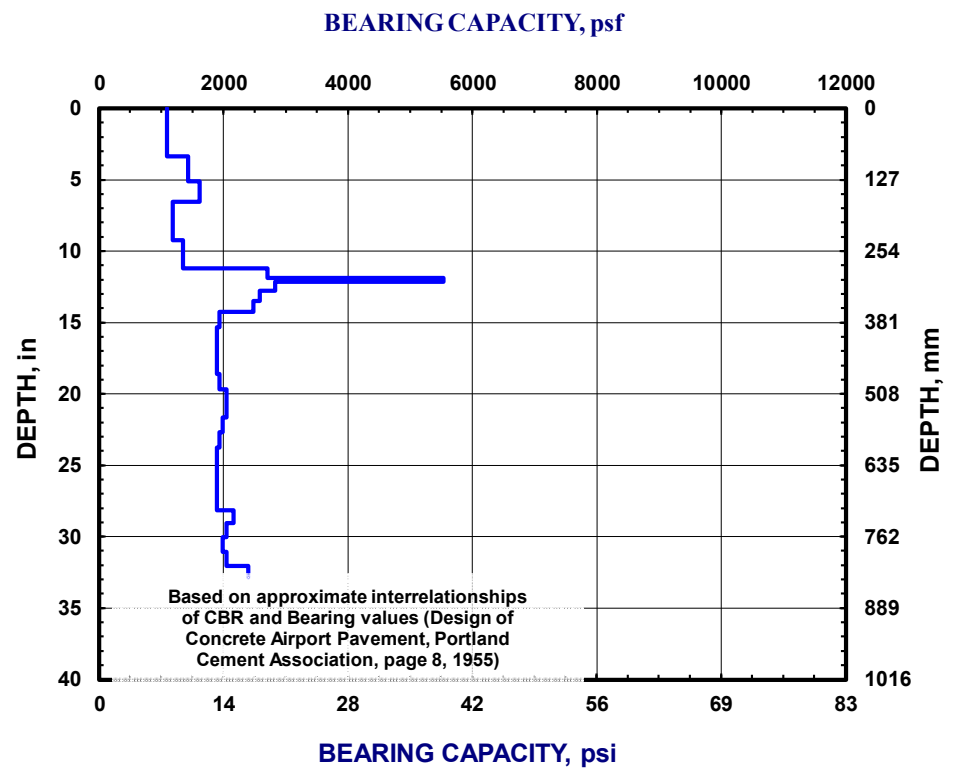
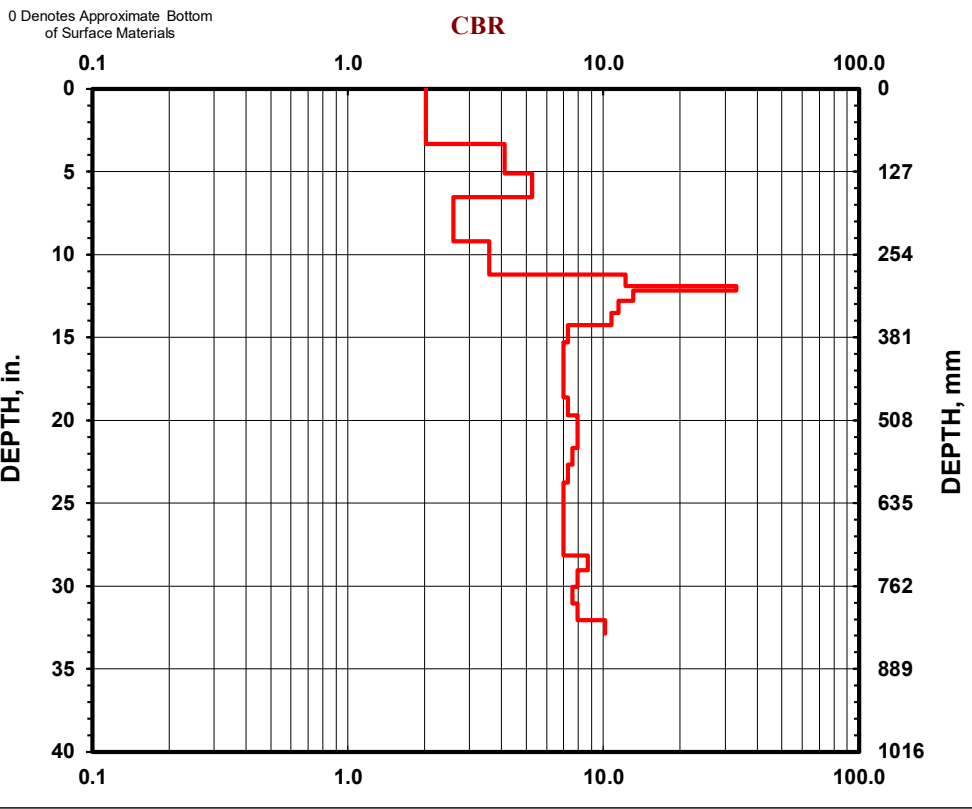
PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (14")
 Test Starting Depth (ft): 1.2

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	85	1
1	130	1
1	166	1
1	234	1
1	285	1
1	302	1
1	309	1
1	325	1
1	343	1
1	362	1
1	389	1
1	417	1
1	445	1
1	473	1
1	500	1
1	525	1
1	550	1
1	576	1
1	603	1
1	631	1
1	659	1
1	687	1
1	715	1
1	738	1
1	763	1
1	789	1
1	814	1
1	834	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-032-0-21
 Surface Elevation: 972.3
 Lat / Long: 40.547849, -83.033673

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (12")
 Test Starting Depth (ft): 1.0

Hammer

10.1 lbs.

17.6 lbs.

Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

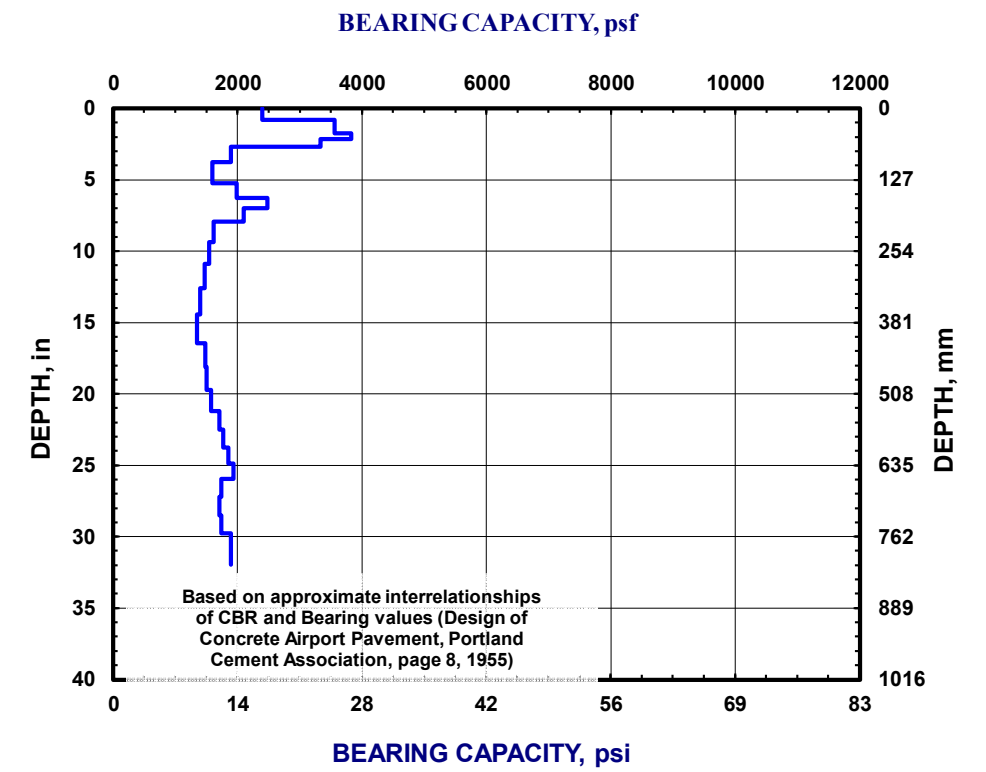
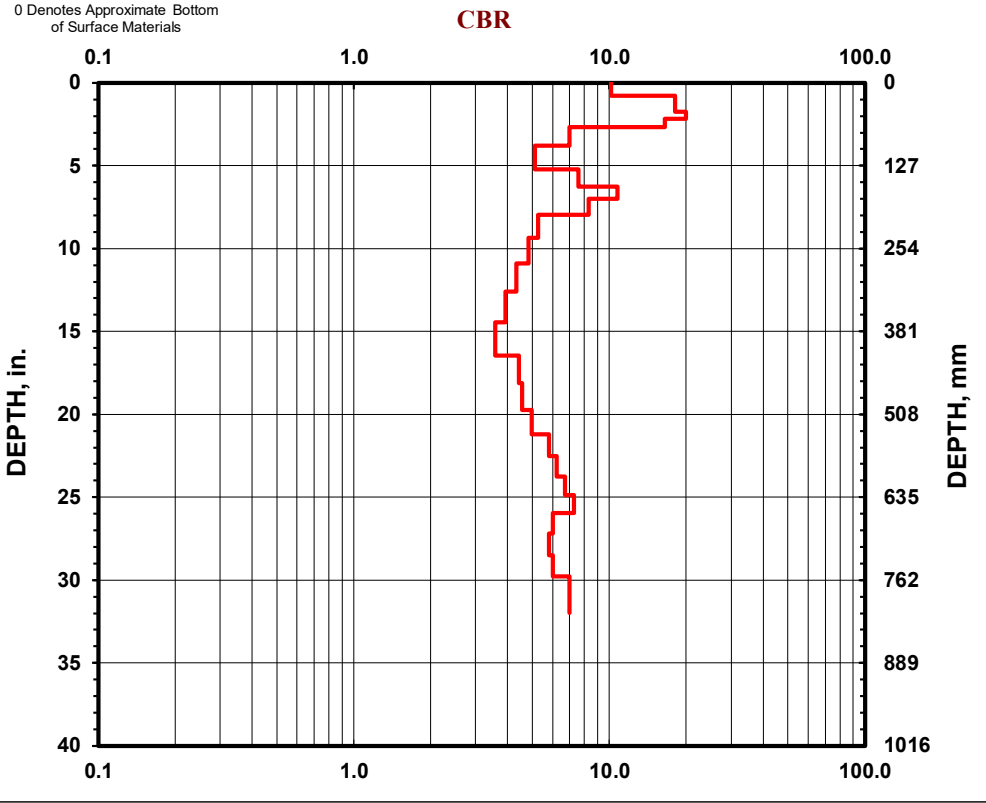
Soil Type

CH

CL

All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	20	1
1	32	1
1	44	1
1	55	1
1	68	1
1	96	1
1	133	1
1	159	1
1	178	1
1	202	1
1	238	1
1	277	1
1	320	1
1	367	1
1	418	1
1	460	1
1	501	1
1	539	1
1	572	1
1	603	1
1	632	1
1	659	1
1	691	1
1	724	1
1	756	1
1	784	1
1	812	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-035-0-21
 Surface Elevation: 972.8
 Lat / Long: 40.546784, -83.029562

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (14")
 Test Starting Depth (ft): 1.2

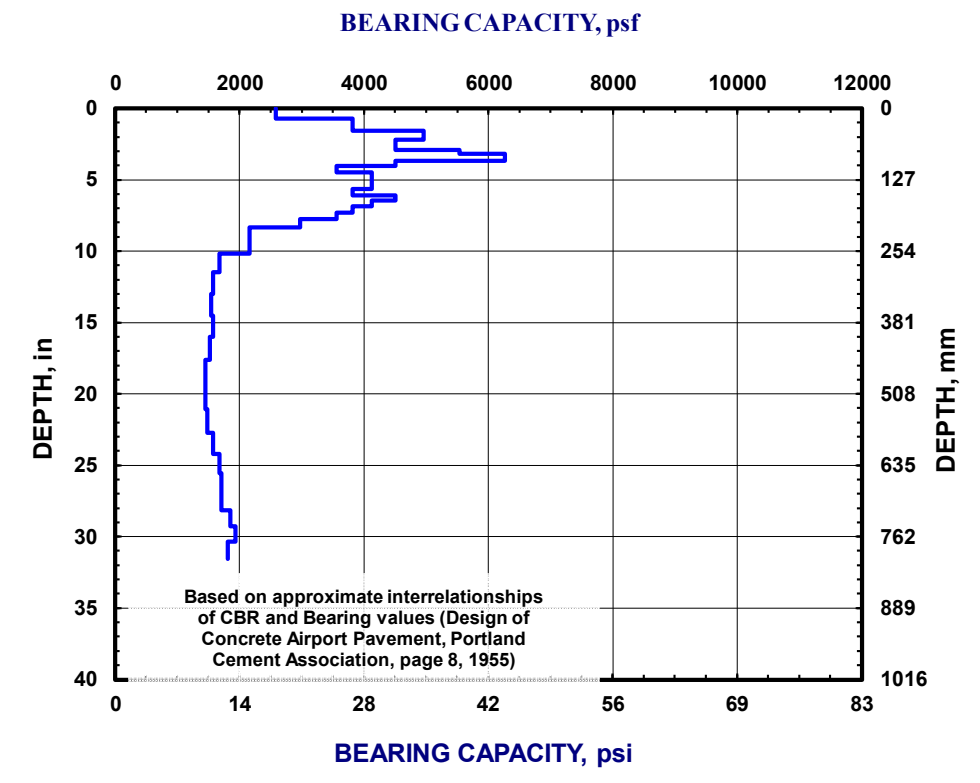
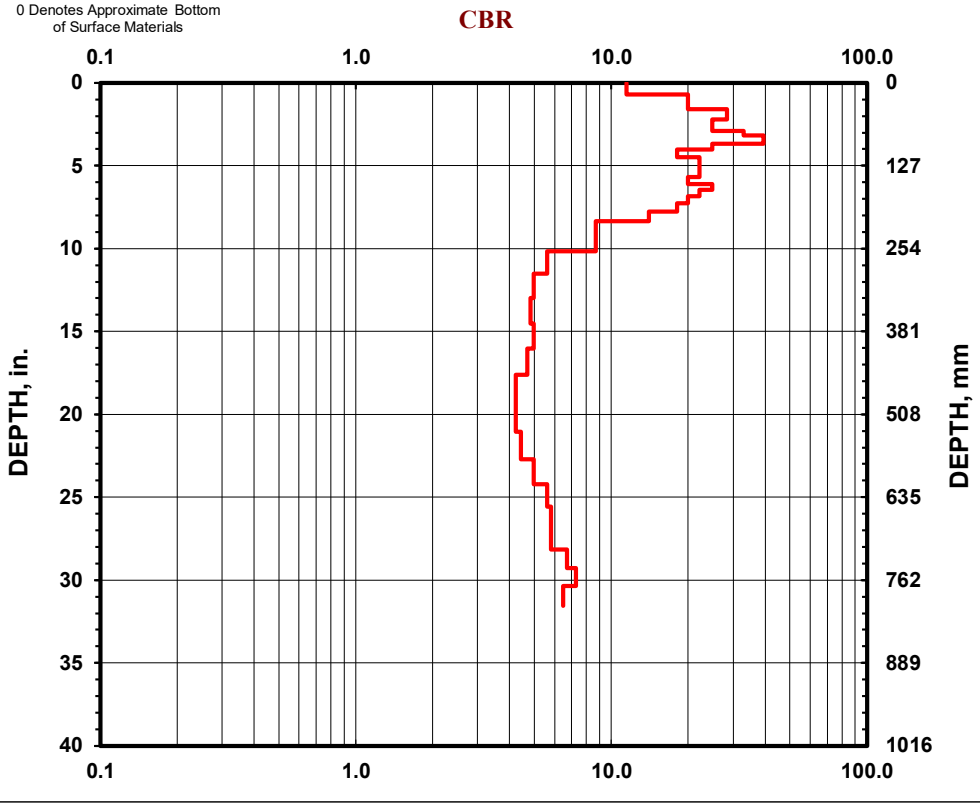
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	18	1
1	29	1
1	40	1
1	48	1
1	56	1
1	65	1
1	74	1
1	81	1
1	87	1
1	93	1
1	102	1
1	114	1
1	124	1
1	134	1
1	144	1
1	155	1
1	164	1
1	174	1
1	185	1
1	197	1
1	212	1
1	235	1
1	258	1
1	292	1
1	330	1
1	369	1
1	407	1
1	447	1
1	491	1
1	535	1
1	577	1
1	615	1
1	649	1
1	682	1
1	715	1
1	744	1
1	771	1
1	801	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-036-0-21
 Surface Elevation: 974.9
 Lat / Long: 40.546503, -83.028181

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

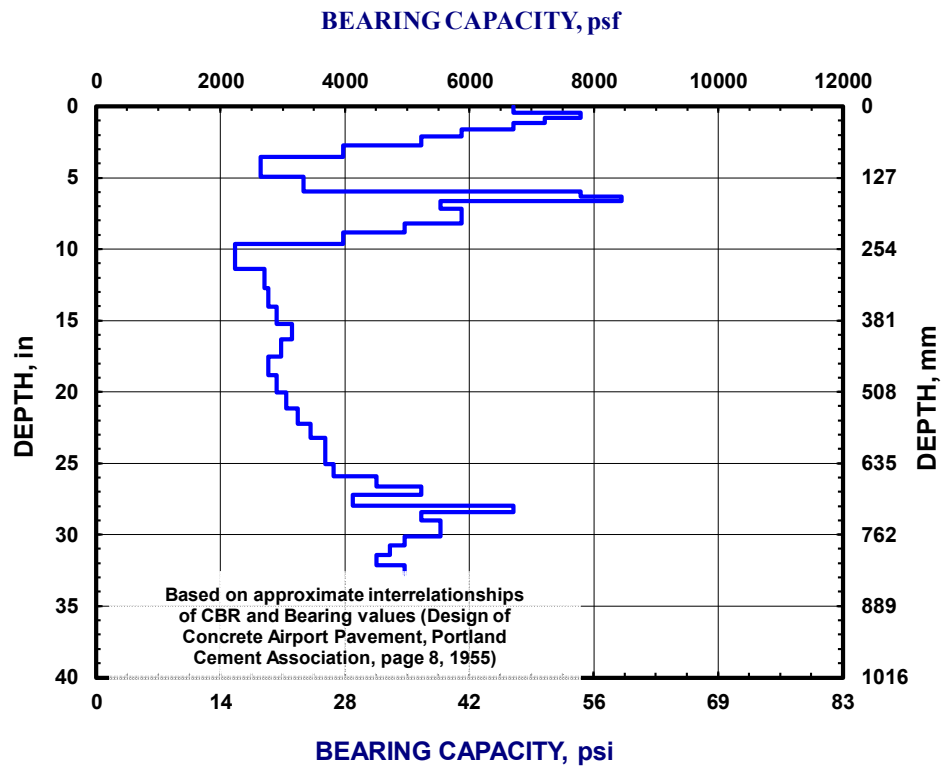
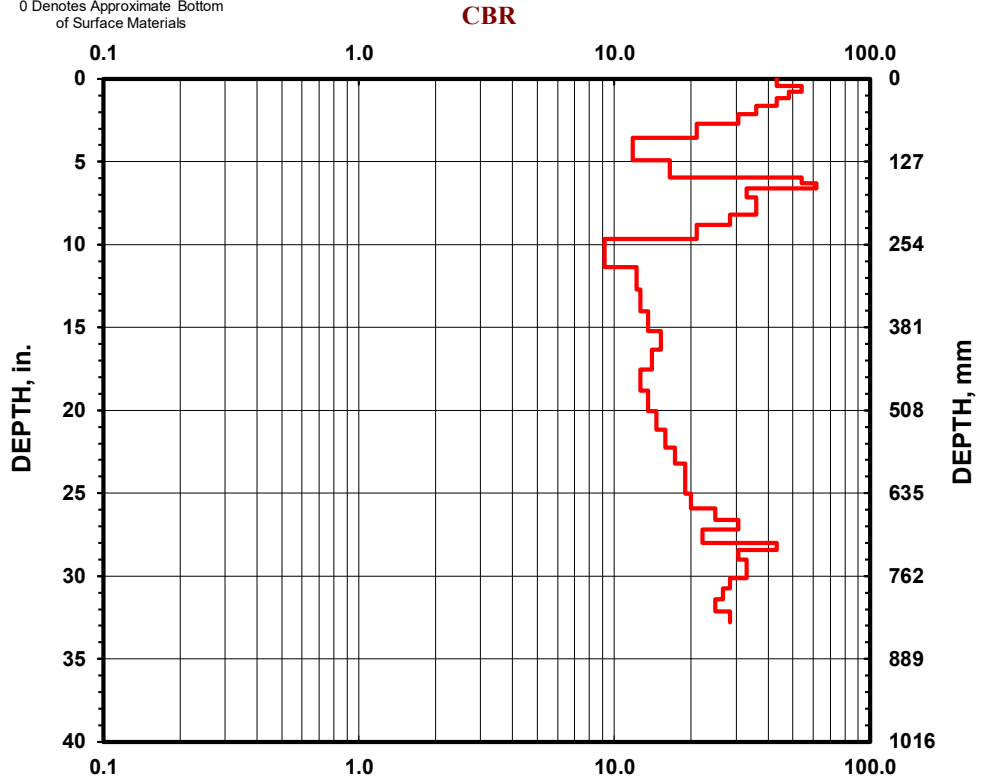
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	11	1
2	20	1
2	30	1
2	41	1
2	54	1
2	69	1
2	90	1
2	125	1
2	151	1
2	160	1
2	168	1
2	182	1
2	195	1
2	208	1
2	224	1
2	245	1
2	289	1
2	323	1
2	356	1
2	387	1
2	415	1
2	445	1
2	478	1
2	509	1
2	538	1
2	565	1
2	590	1
2	613	1
2	636	1
2	658	1
2	676	1
2	691	1
2	711	1
2	722	1
2	737	1
2	751	1
2	765	1
2	781	1
2	798	1
2	816	1
2	832	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-040-0-21
 Surface Elevation: 974.5
 Lat / Long: 40.545163, -83.022673

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

Hammer

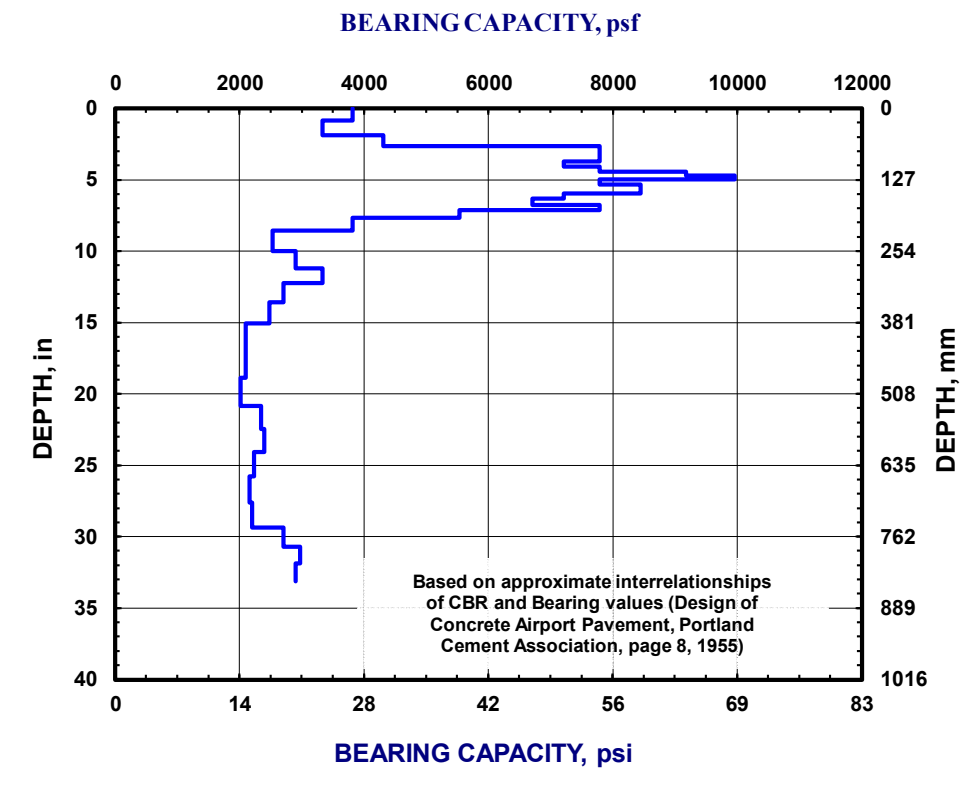
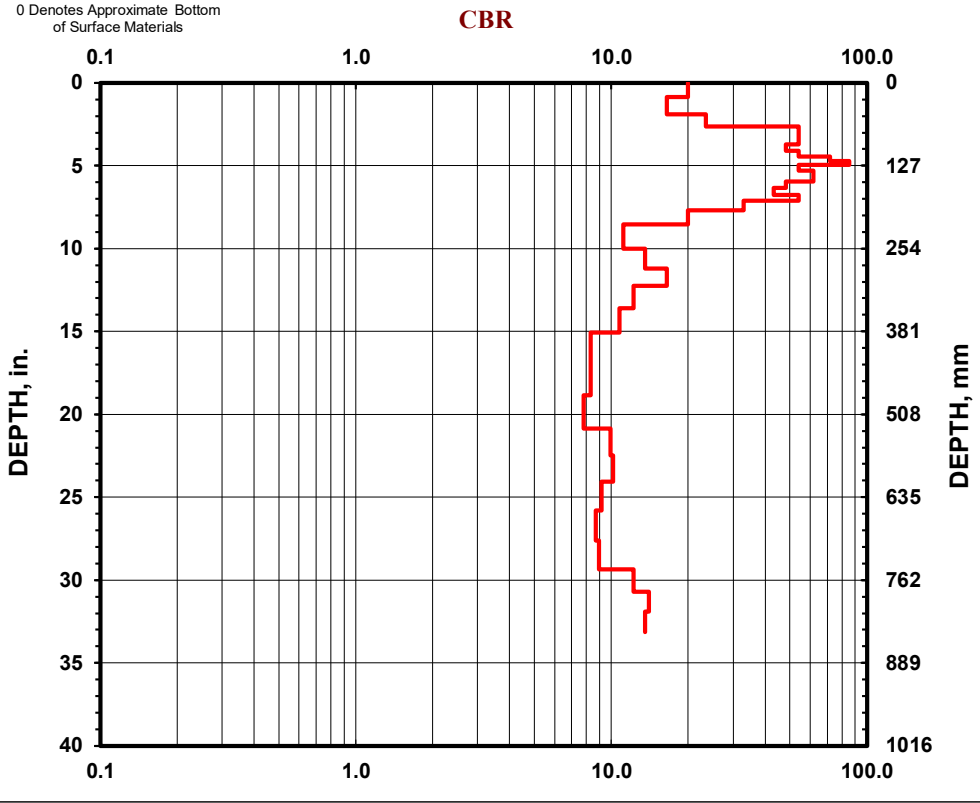
10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type

CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	22	1
2	48	1
2	67	1
2	76	1
2	85	1
2	94	1
2	104	1
2	113	1
2	120	1
2	126	1
2	135	1
2	143	1
2	151	1
2	161	1
2	172	1
2	181	1
2	195	1
2	217	1
2	254	1
2	285	1
2	311	1
2	345	1
2	383	1
2	431	1
2	479	1
2	530	1
2	571	1
2	611	1
2	655	1
2	701	1
2	746	1
2	780	1
2	810	1
2	841	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-043-0-21
 Surface Elevation: 970.182
 Lat / Long: 40.543988, -83.018588

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

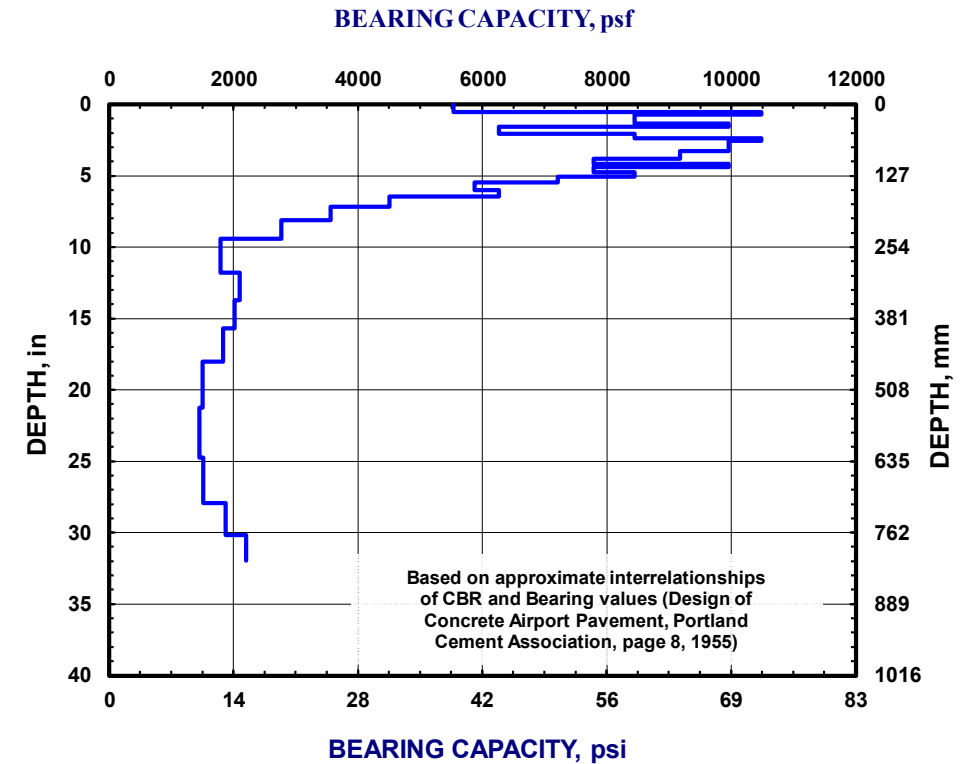
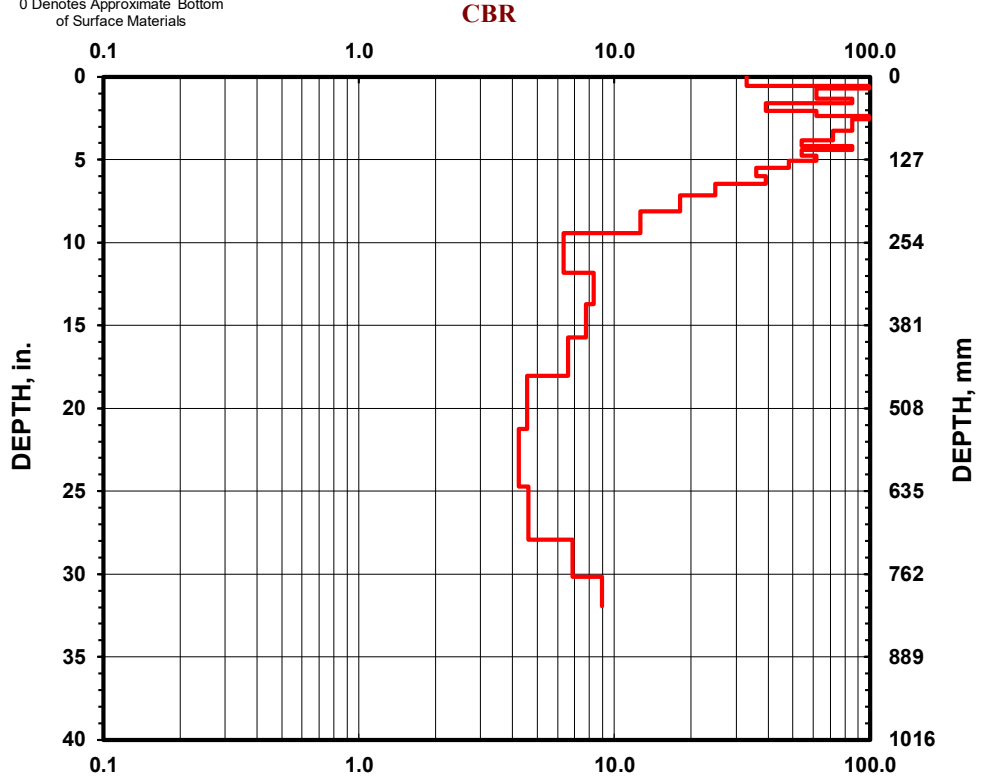
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	14	1
2	18	1
2	26	1
2	34	1
2	40	1
2	52	1
2	60	1
2	65	1
2	71	1
2	77	1
2	83	1
2	90	1
2	97	1
2	106	1
2	112	1
2	121	1
2	129	1
2	139	1
2	152	1
2	164	1
2	182	1
2	206	1
2	239	1
2	300	1
2	348	1
2	399	1
2	458	1
2	540	1
2	628	1
2	709	1
2	766	1
2	811	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-044-0-21
 Surface Elevation: 968.535
 Lat / Long: 40.543632, -83.017226

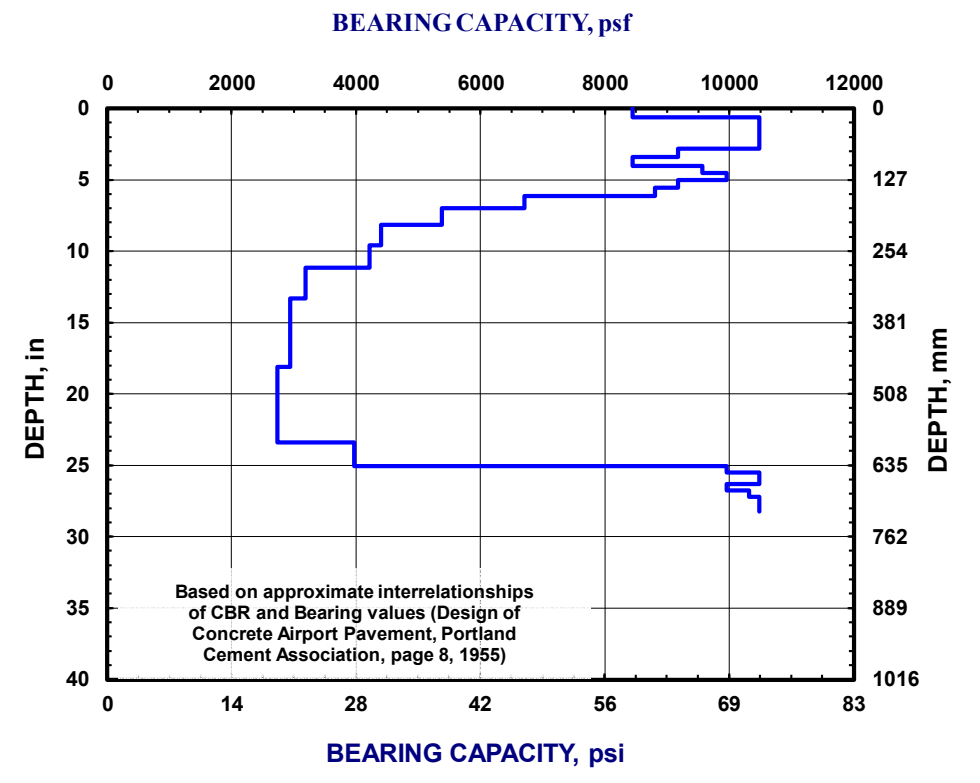
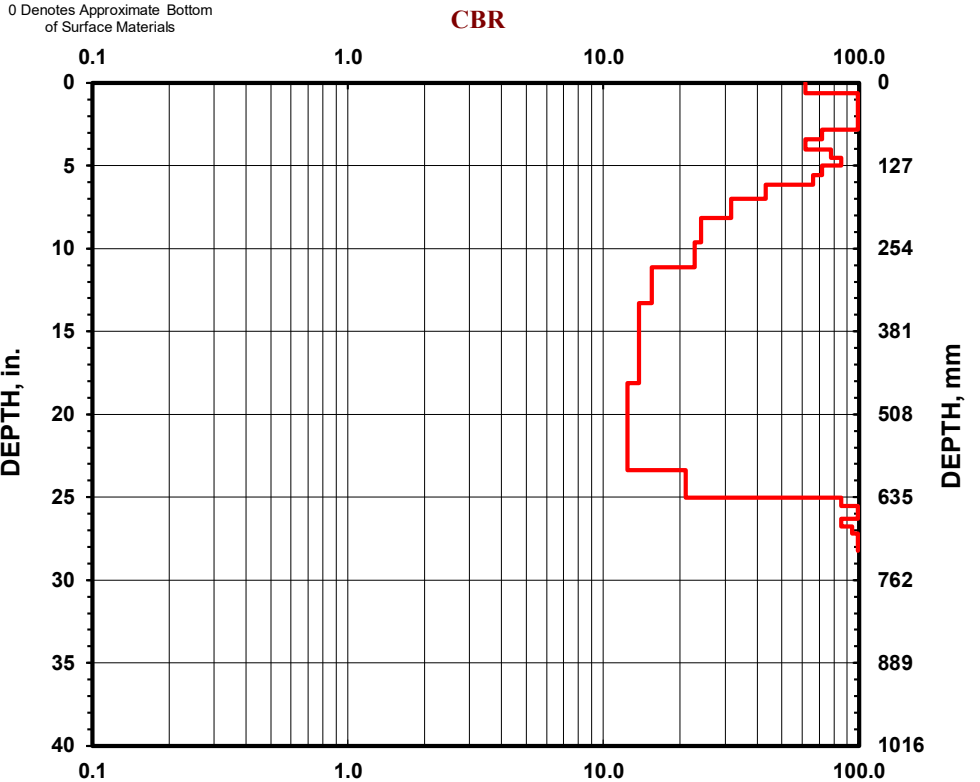
PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

- Hammer
- 10.1 lbs.
 - 17.6 lbs.
 - Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

- Soil Type
- CH
 - CL
 - All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
4	16	1
4	25	1
4	33	1
4	42	1
4	52	1
4	62	1
4	72	1
4	86	1
4	102	1
4	115	1
4	127	1
4	141	1
4	156	1
4	178	1
4	207	1
4	244	1
4	283	1
4	338	1
4	399	1
4	460	1
4	527	1
4	594	1
4	636	1
4	648	1
4	658	1
4	668	1
4	680	1
4	691	1
4	698	1
4	703	1
4	708	1
4	712	1
4	717	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-047-0-21
 Surface Elevation: 976.5
 Lat / Long: 40.542298, -83.013343

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (4")
 Test Starting Depth (ft): 0.6

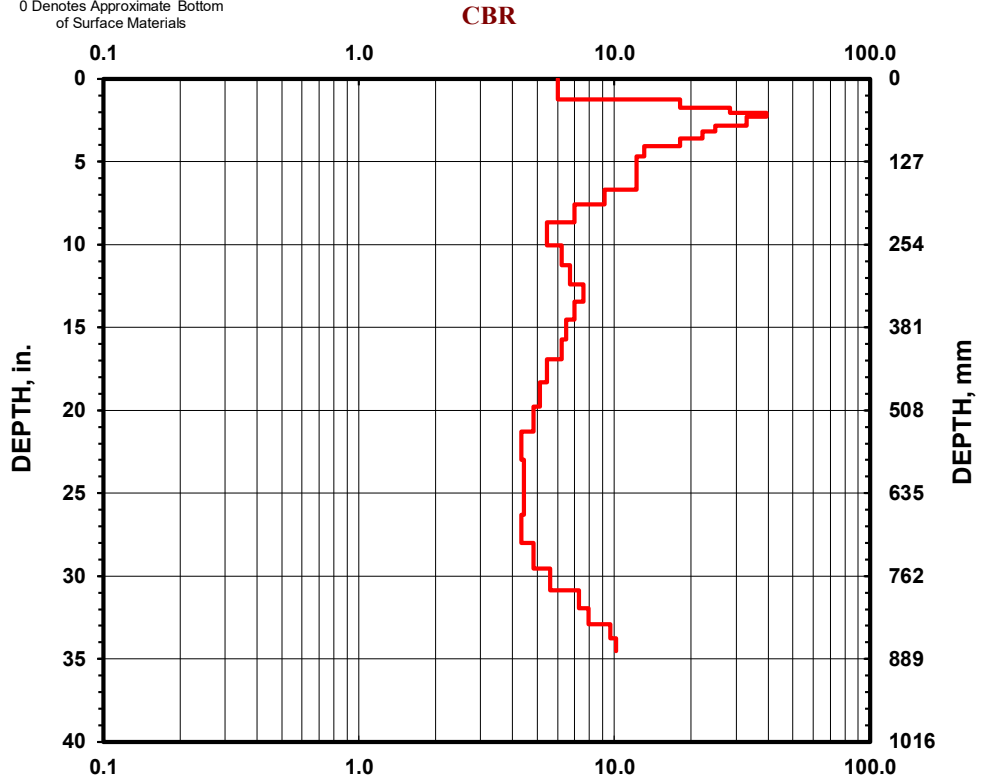
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

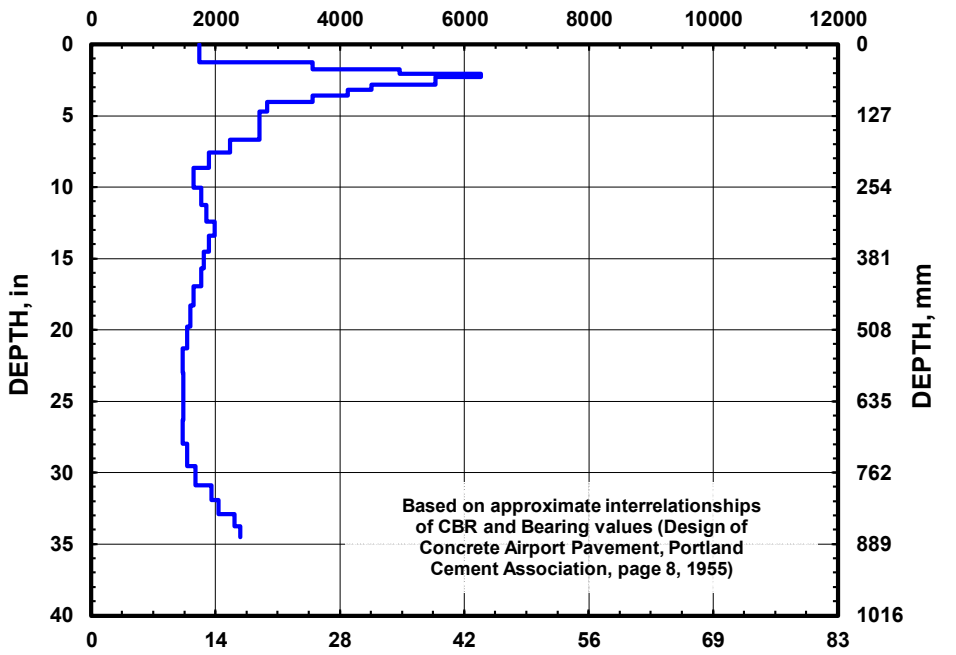
Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	32	1
1	44	1
1	52	1
1	58	1
1	65	1
1	72	1
1	81	1
1	91	1
1	103	1
1	119	1
1	136	1
1	153	1
1	170	1
1	192	1
1	220	1
1	255	1
1	286	1
1	315	1
1	341	1
1	369	1
1	399	1
1	430	1
1	465	1
1	502	1
1	541	1
1	584	1
1	626	1
1	668	1
1	711	1
1	750	1
1	784	1
1	811	1
1	836	1
1	857	1
1	877	1

0 Denotes Approximate Bottom of Surface Materials



BEARING CAPACITY, psf



Based on approximate interrelationships of CBR and Bearing values (Design of Concrete Airport Pavement, Portland Cement Association, page 8, 1955)

BEARING CAPACITY, psi

NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: **MAR-529-2.59**
 Exploration ID: **D-048-0-21**
 Surface Elevation: **976.7**
 Lat / Long: **40.541907, -83.011999**

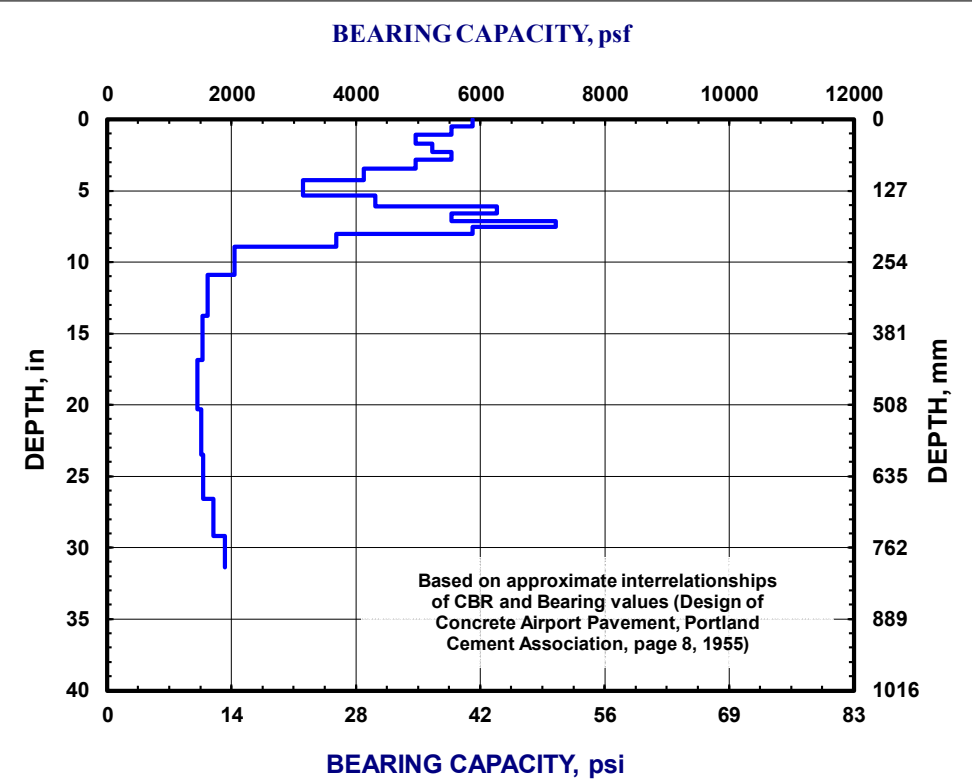
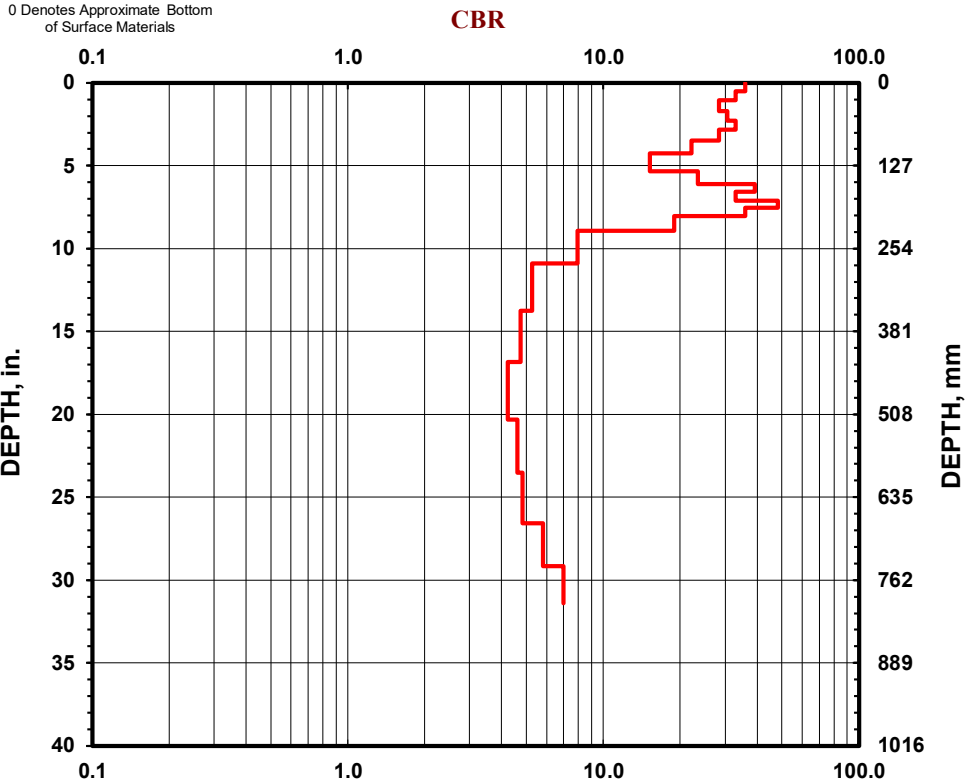
PID: **112818**
 Date: **3/17/2021**
 Surface Materials*: **Asphalt (12")**
 Test Starting Depth (ft): **1.0**

- Hammer
- 10.1 lbs.
 - 17.6 lbs.
 - Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

- Soil Type
- CH
 - CL
 - All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	13	1
2	27	1
2	43	1
2	58	1
2	72	1
2	88	1
2	108	1
2	136	1
2	155	1
2	167	1
2	181	1
2	191	1
2	204	1
2	227	1
2	277	1
2	349	1
2	428	1
2	516	1
2	597	1
2	675	1
2	741	1
2	797	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: **MAR-529-2.59**
 Exploration ID: **D-051-0-21**
 Surface Elevation: **973.2**
 Lat / Long: **40.540541, -83.008142**

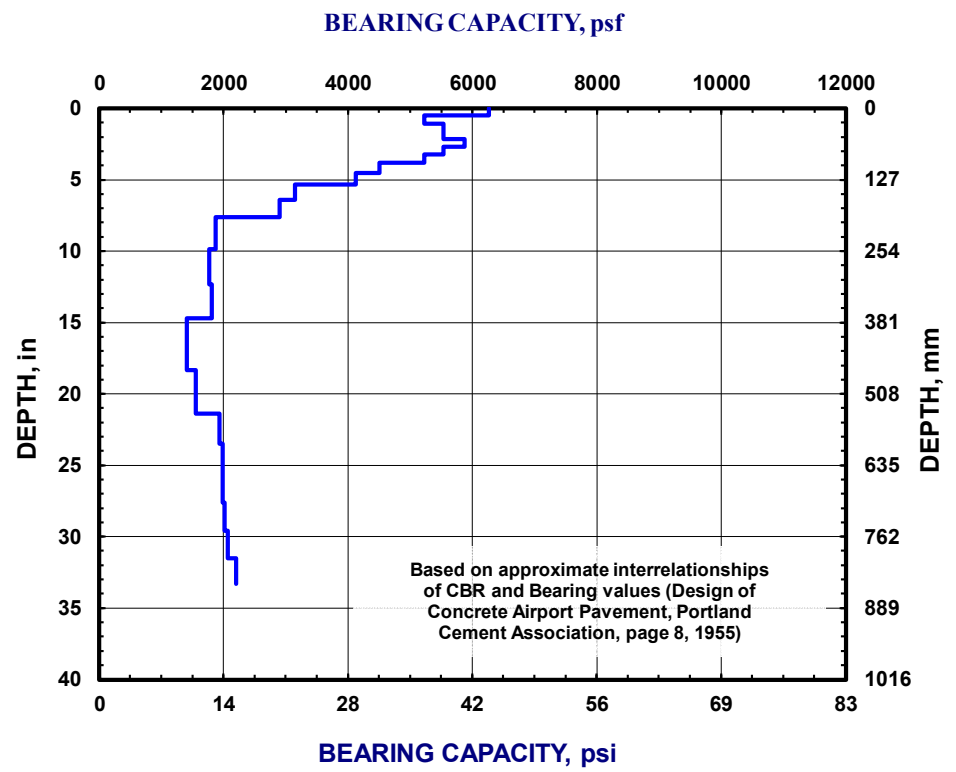
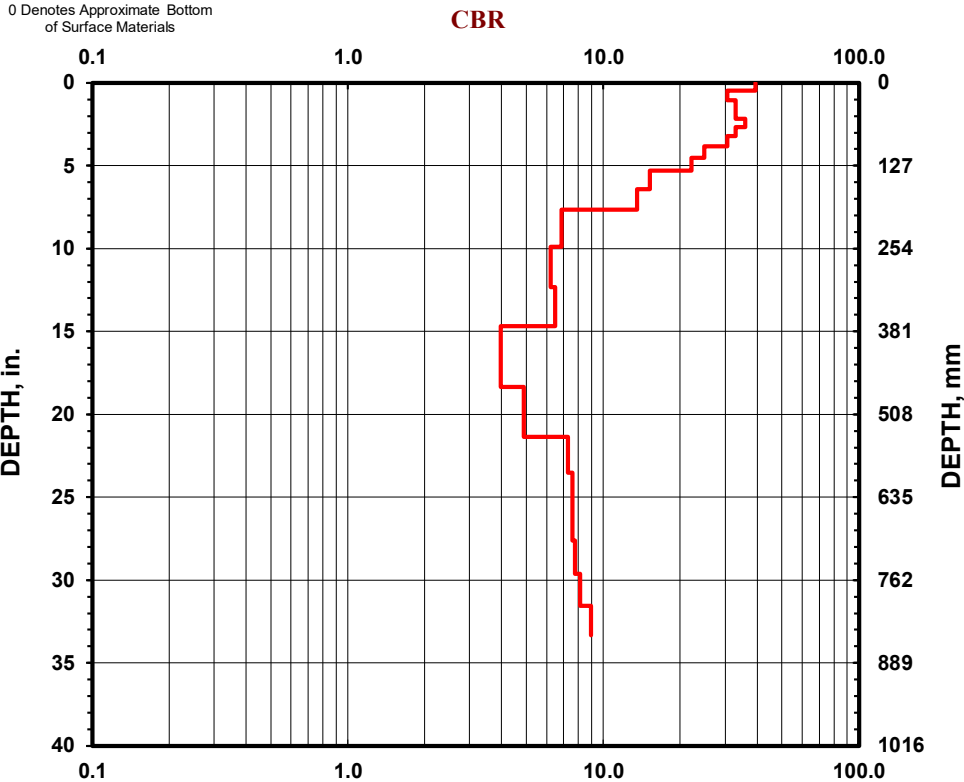
PID: **112818**
 Date: **3/15/2021**
 Surface Materials*: **Asphalt (10")**
 Test Starting Depth (ft): **0.8**

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	12	1
2	27	1
2	41	1
2	55	1
2	68	1
2	82	1
2	97	1
2	115	1
2	135	1
2	163	1
2	194	1
2	251	1
2	313	1
2	373	1
2	466	1
2	543	1
2	597	1
2	649	1
2	701	1
2	752	1
2	801	1
2	846	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-052-0-21
 Surface Elevation: 975.4
 Lat / Long: 40.540159, -83.00684

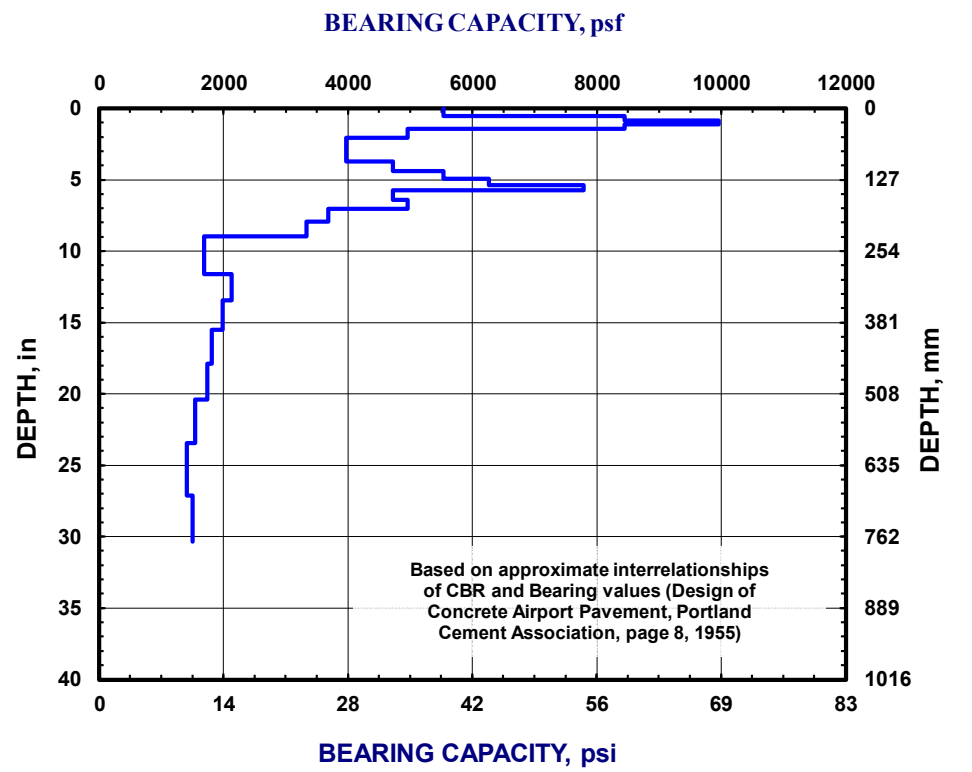
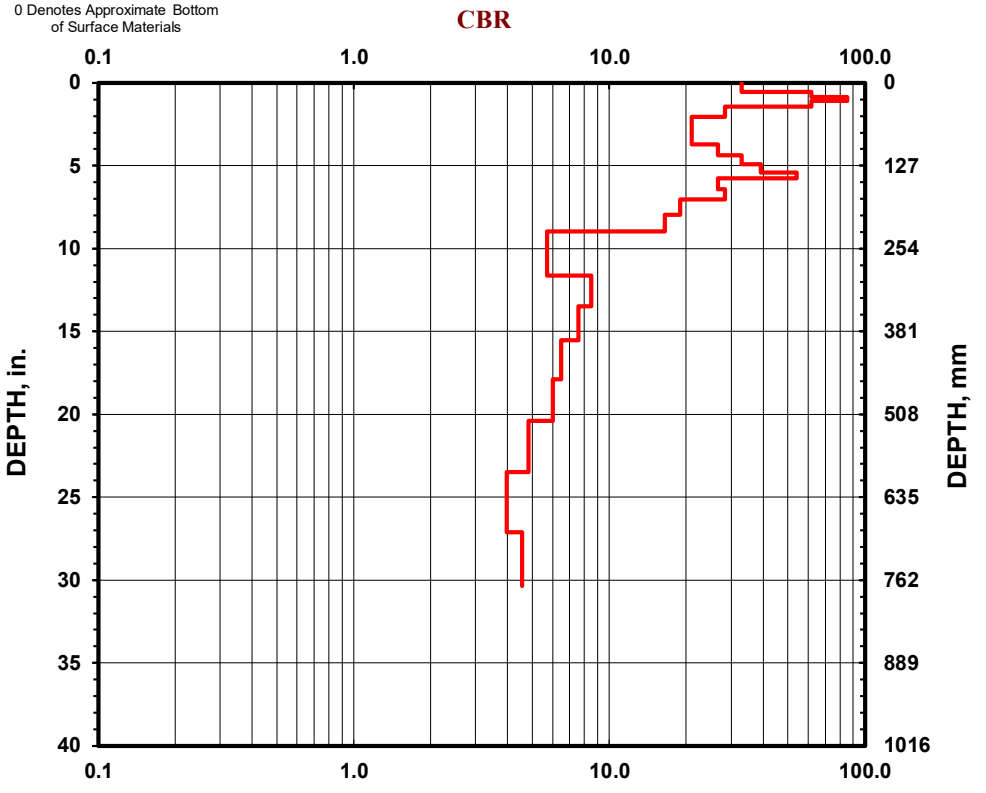
PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (12")
 Test Starting Depth (ft): 1.0

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	14	1
2	22	1
2	28	1
2	36	1
2	52	1
2	73	1
2	94	1
2	111	1
2	125	1
2	137	1
2	146	1
2	163	1
2	179	1
2	202	1
2	228	1
2	295	1
2	342	1
2	394	1
2	454	1
2	518	1
2	596	1
2	689	1
2	771	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-055-0-21
 Surface Elevation: 976.3
 Lat / Long: 40.538758, -83.002908

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (10")
 Test Starting Depth (ft): 0.8

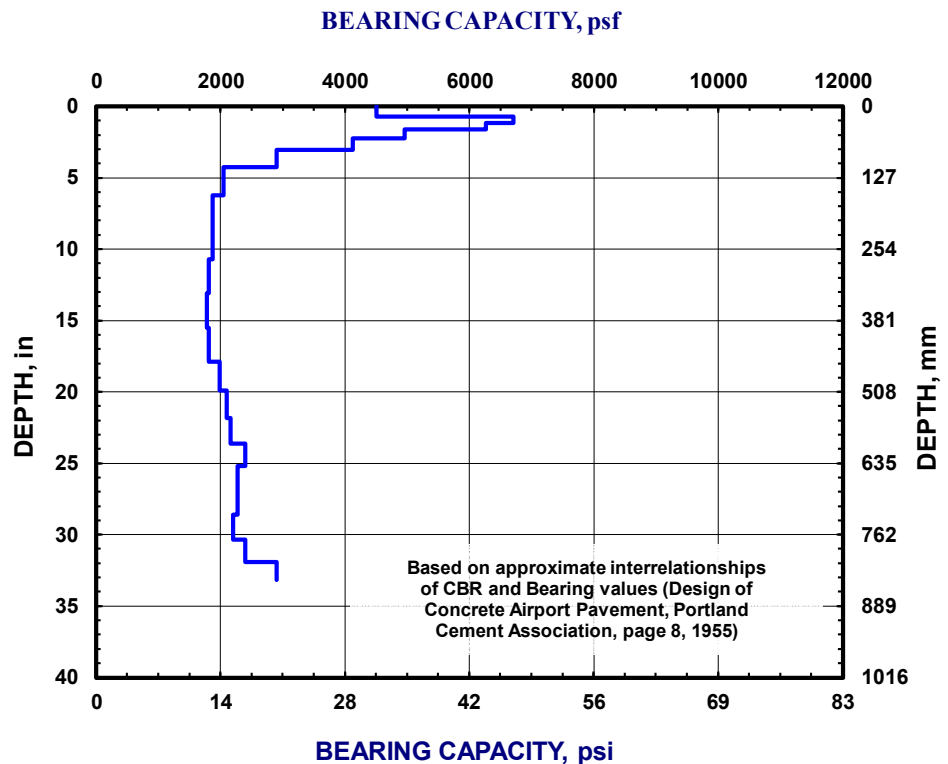
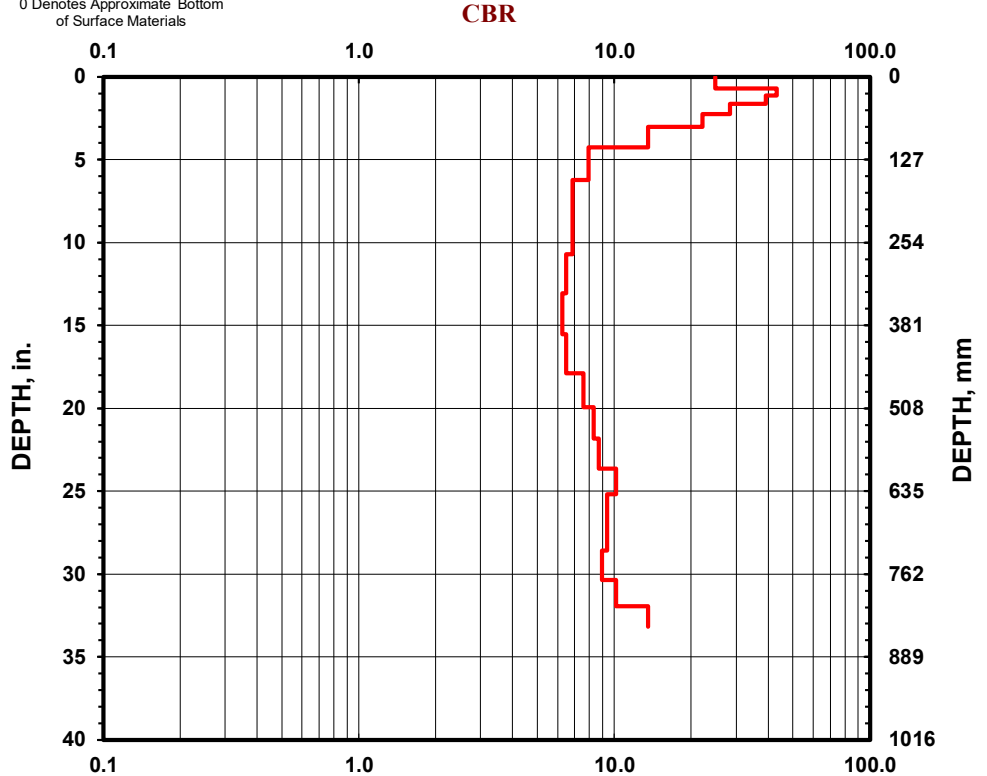
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	18	1
2	29	1
2	41	1
2	57	1
2	77	1
2	108	1
2	158	1
2	215	1
2	272	1
2	332	1
2	394	1
2	454	1
2	506	1
2	554	1
2	600	1
2	640	1
2	683	1
2	726	1
2	771	1
2	811	1
2	842	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-056-0-21
 Surface Elevation: 978.5
 Lat / Long: 40.538365, -83.00158

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

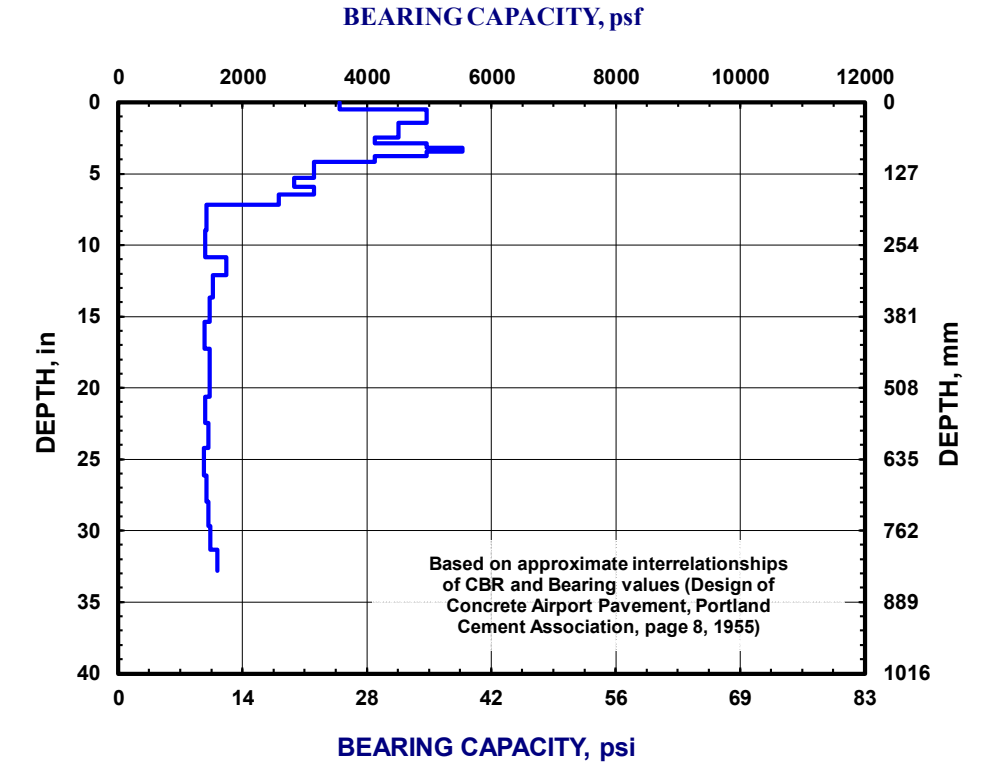
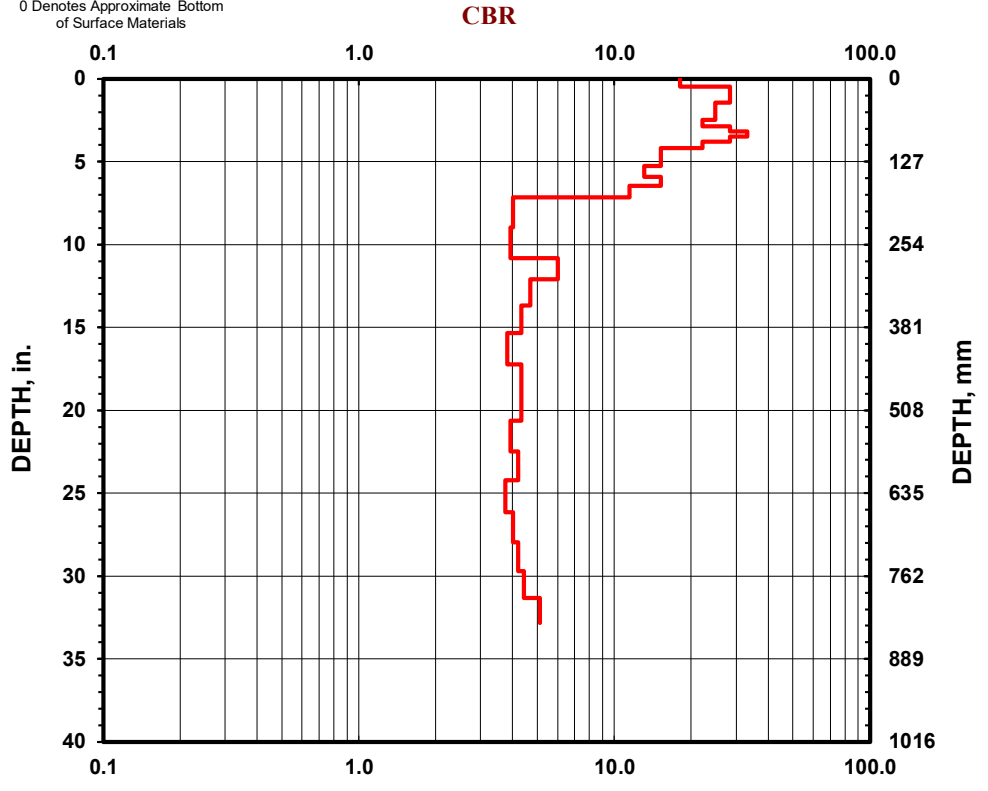
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	12	1
1	20	1
1	28	1
1	36	1
1	45	1
1	54	1
1	63	1
1	73	1
1	81	1
1	88	1
1	96	1
1	106	1
1	120	1
1	134	1
1	150	1
1	164	1
1	182	1
1	228	1
1	275	1
1	307	1
1	347	1
1	390	1
1	438	1
1	481	1
1	524	1
1	571	1
1	615	1
1	664	1
1	710	1
1	754	1
1	796	1
1	833	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-059-0-21
 Surface Elevation: 979.9
 Lat / Long: 40.536969, -82.99765

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (11.5")
 Test Starting Depth (ft): 1.0

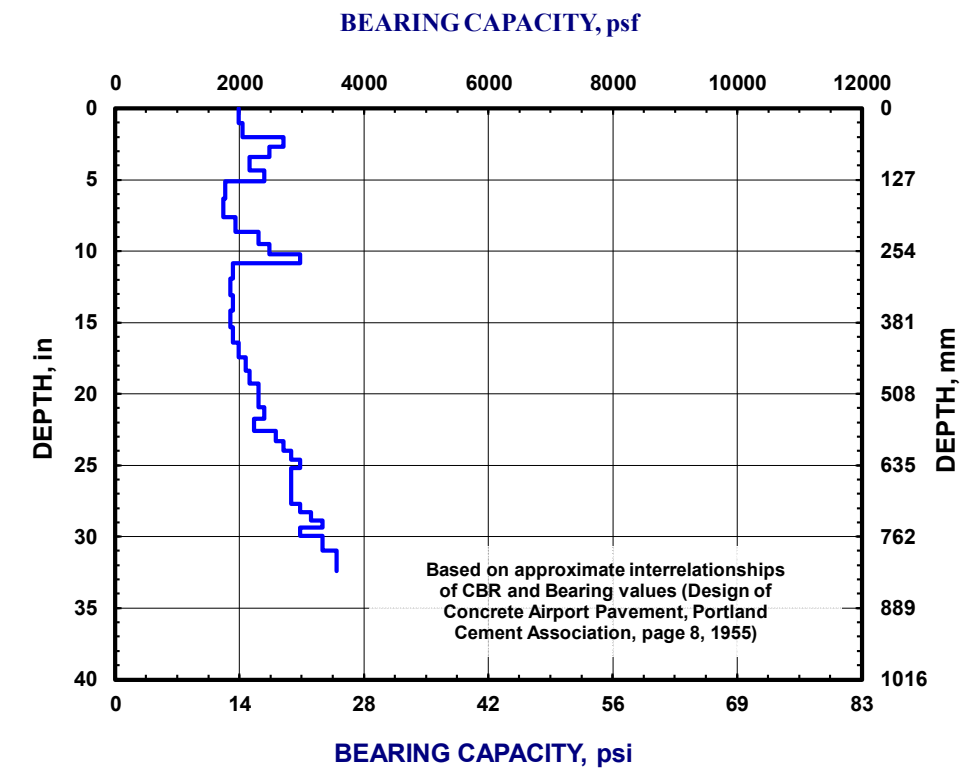
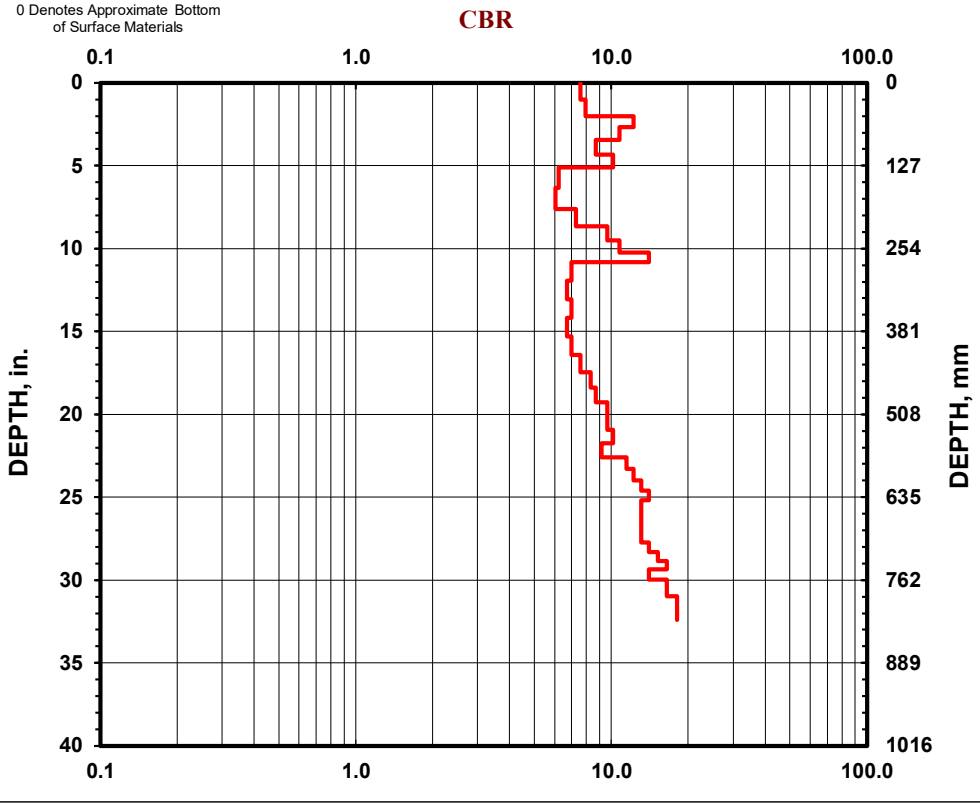
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	26	1
1	51	1
1	68	1
1	87	1
1	110	1
1	130	1
1	161	1
1	193	1
1	220	1
1	241	1
1	260	1
1	275	1
1	303	1
1	332	1
1	360	1
1	389	1
1	417	1
1	443	1
1	467	1
1	490	1
1	511	1
1	532	1
1	552	1
1	574	1
1	592	1
1	609	1
1	625	1
1	640	1
1	656	1
1	672	1
1	688	1
1	704	1
1	719	1
1	733	1
1	746	1
1	761	1
1	774	1
1	787	1
1	799	1
1	811	1
1	823	1
1	823	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-060-0-21
 Surface Elevation: 980.8
 Lat / Long: 40.536571, -82.9963

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11")
 Test Starting Depth (ft): 0.9

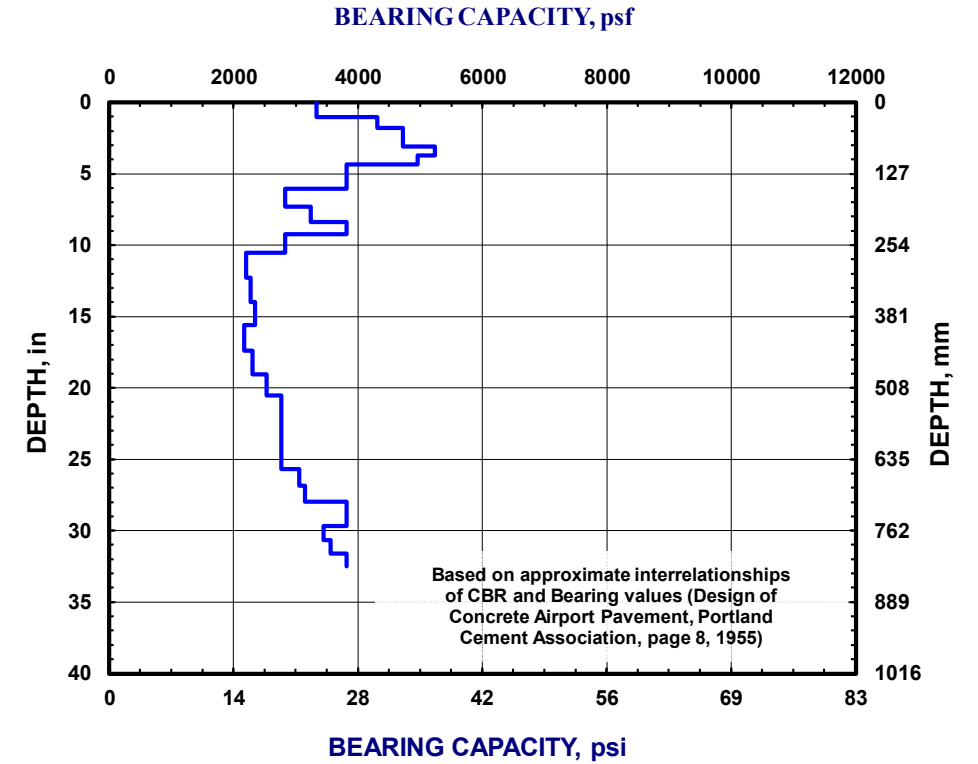
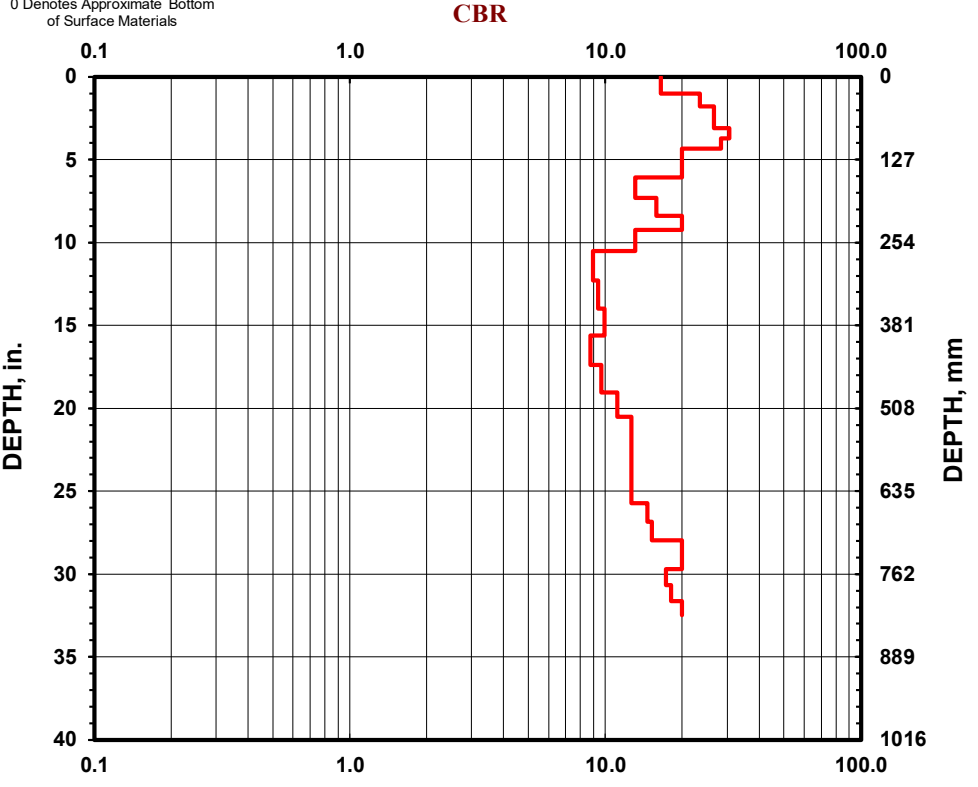
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	26	1
2	45	1
2	62	1
2	79	1
2	94	1
2	110	1
2	132	1
2	154	1
2	186	1
2	213	1
2	235	1
2	267	1
2	312	1
2	355	1
2	396	1
2	442	1
2	484	1
2	521	1
2	554	1
2	587	1
2	620	1
2	653	1
2	682	1
2	710	1
2	732	1
2	754	1
2	779	1
2	803	1
2	825	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-063-0-21
 Surface Elevation: 980.6
 Lat / Long: 40.535222, -82.992542

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (11.5")
 Test Starting Depth (ft): 1.0

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

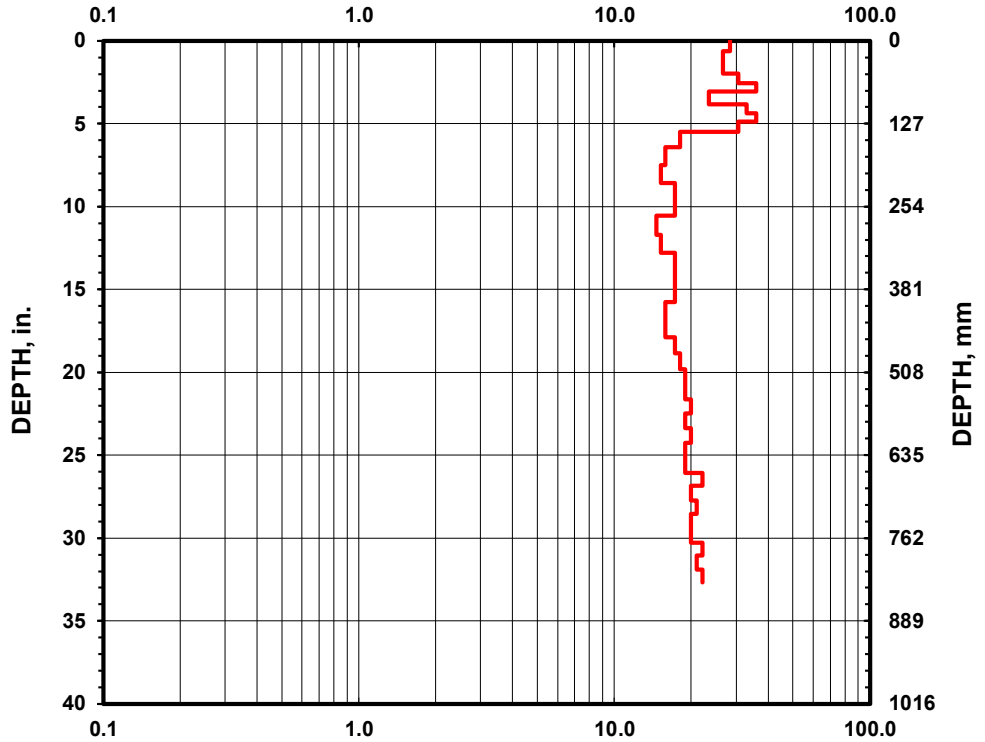
Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

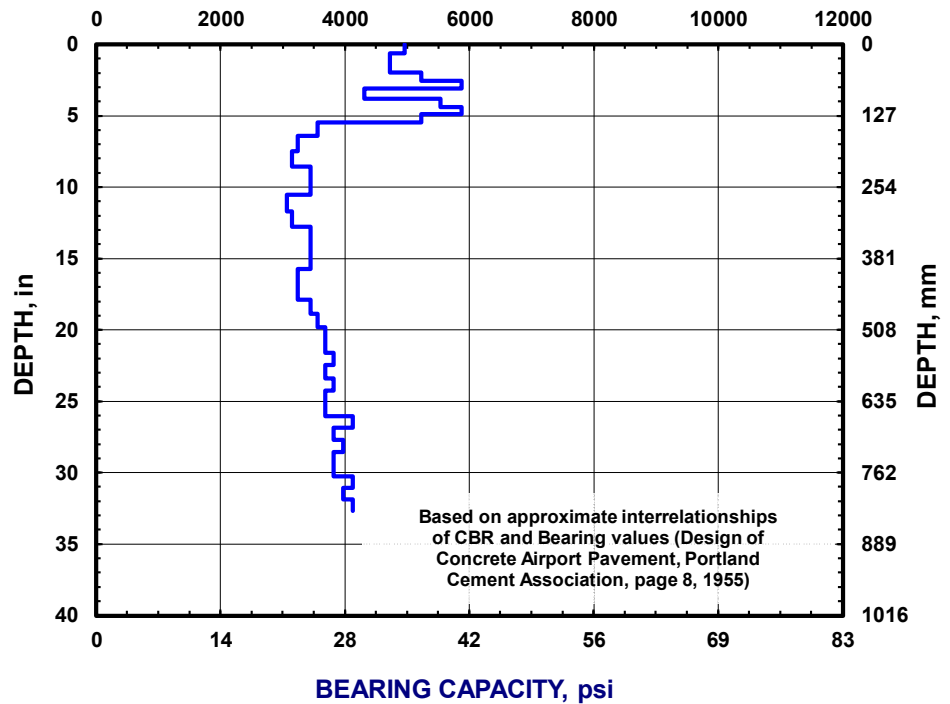
No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	16	1
2	33	1
2	50	1
2	65	1
2	78	1
2	97	1
2	111	1
2	124	1
2	139	1
2	163	1
2	190	1
2	218	1
2	243	1
2	268	1
2	297	1
2	325	1
2	350	1
2	375	1
2	400	1
2	427	1
2	454	1
2	479	1
2	503	1
2	526	1
2	549	1
2	571	1
2	594	1
2	616	1
2	639	1
2	662	1
2	682	1
2	704	1
2	725	1
2	747	1
2	769	1
2	789	1
2	810	1
2	830	1

0 Denotes Approximate Bottom of Surface Materials

CBR



BEARING CAPACITY, psf



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-064-0-21
 Surface Elevation: 980.9
 Lat / Long: 40.534859, -82.9913

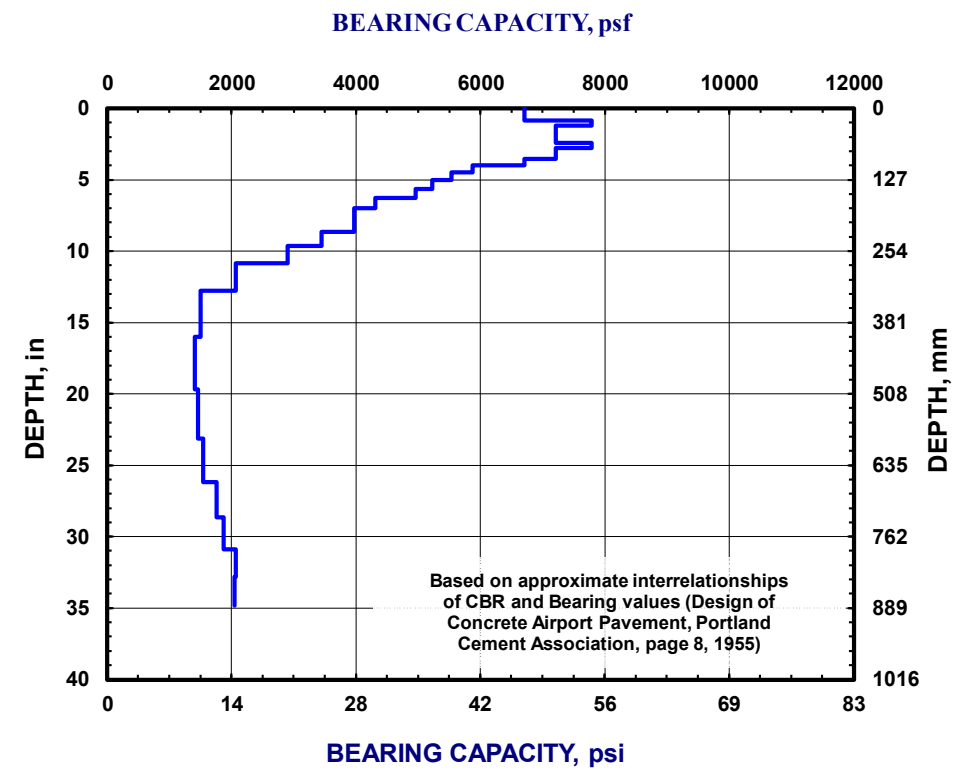
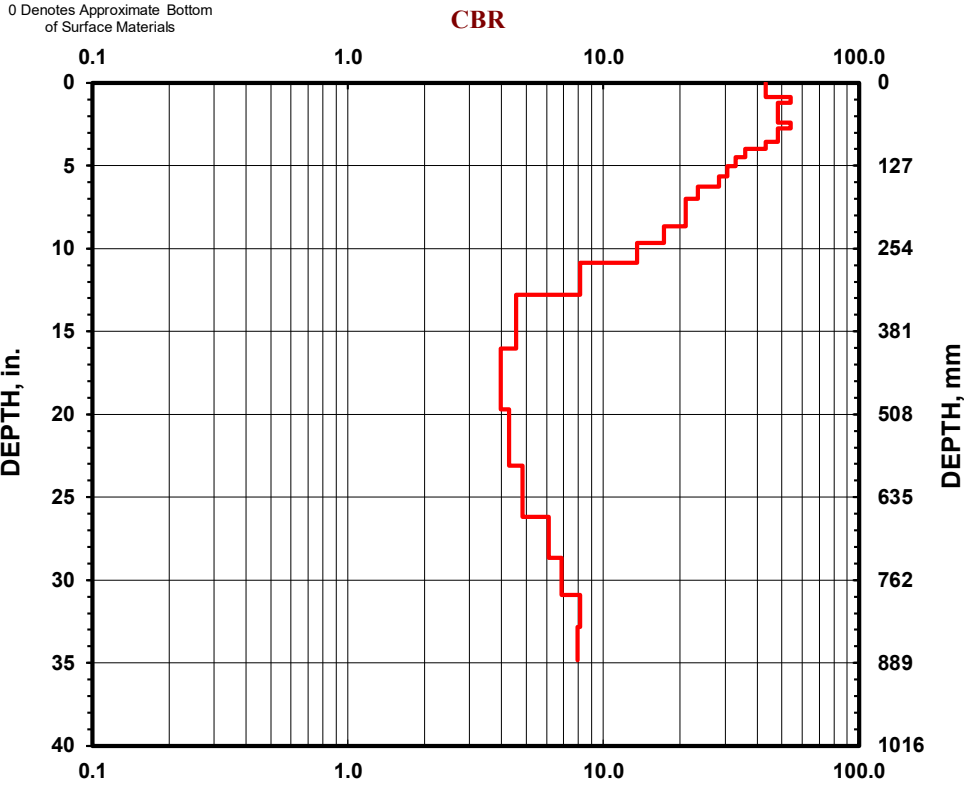
PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (9.0")
 Test Starting Depth (ft): 0.8

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	11	1
2	22	1
2	31	1
2	41	1
2	51	1
2	61	1
2	70	1
2	80	1
2	90	1
2	101	1
2	114	1
2	128	1
2	143	1
2	159	1
2	178	1
2	199	1
2	220	1
2	245	1
2	276	1
2	325	1
2	407	1
2	500	1
2	587	1
2	665	1
2	728	1
2	785	1
2	834	1
2	884	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-067-0-21
 Surface Elevation: 988.1
 Lat / Long: 40.533443, -82.987343

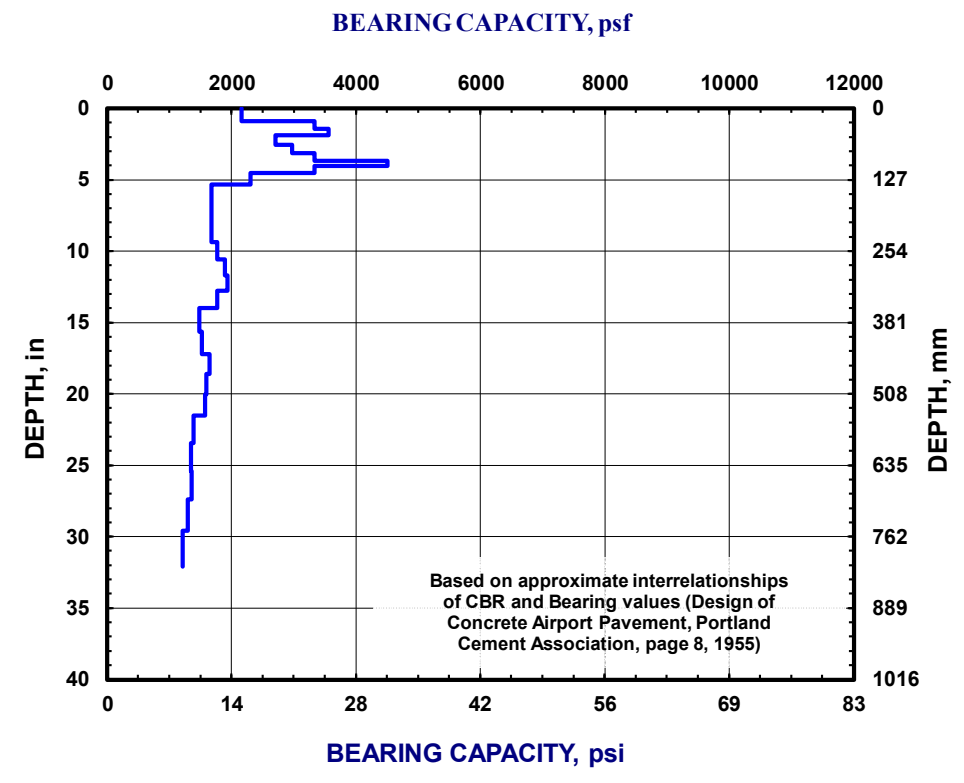
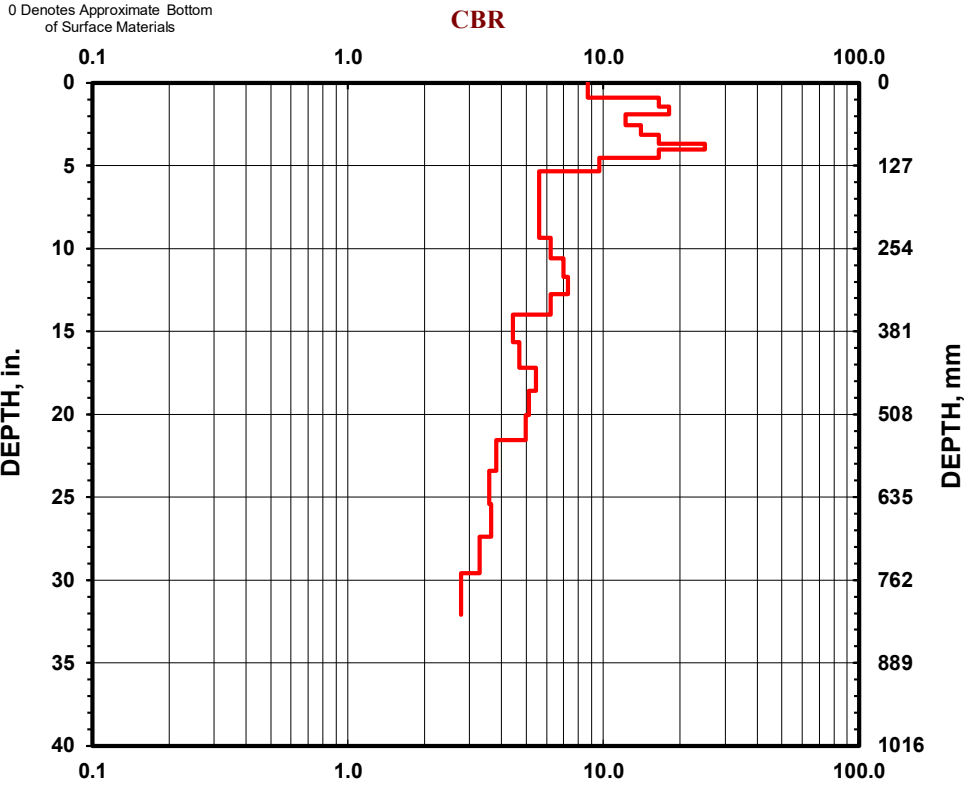
PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (7.5")
 Test Starting Depth (ft): 0.8

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	23	1
1	36	1
1	48	1
1	65	1
1	80	1
1	93	1
1	102	1
1	115	1
1	136	1
1	170	1
1	204	1
1	238	1
1	269	1
1	297	1
1	324	1
1	355	1
1	397	1
1	437	1
1	472	1
1	509	1
1	547	1
1	595	1
1	646	1
1	696	1
1	751	1
1	815	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
Exploration ID: D-068-0-21
Surface Elevation: 985.9
Lat / Long: 40.533057, -82.985996

PID: 112818
Date: 3/17/2021
Surface Materials*: Asphalt (10.0")
Test Starting Depth (ft): 0.8

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

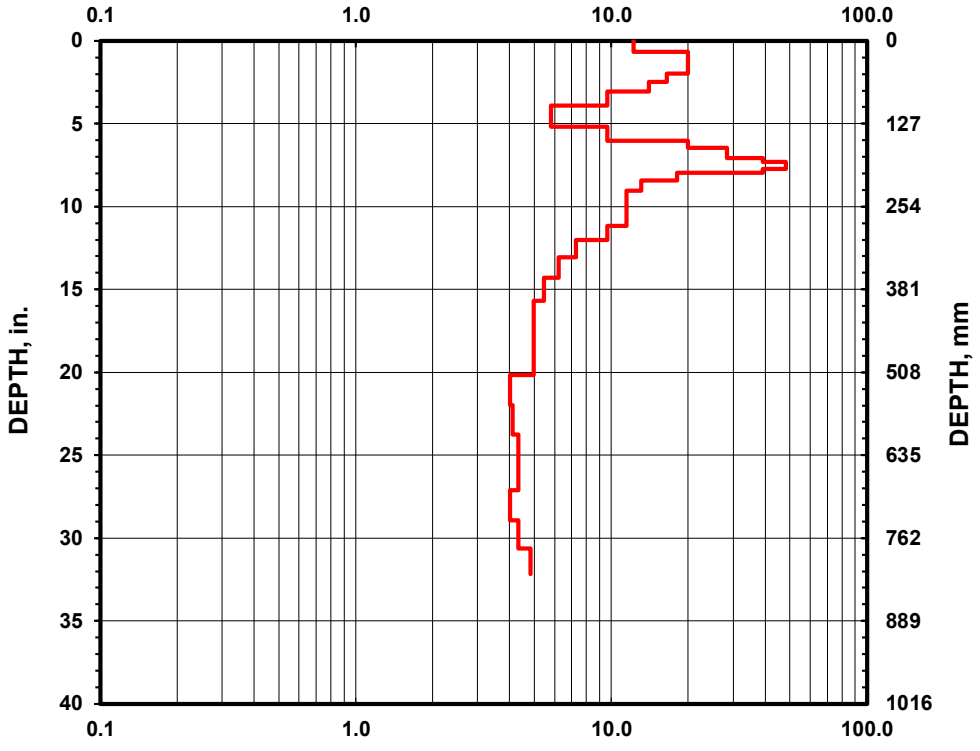
Office of Geotechnical Engineering
Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

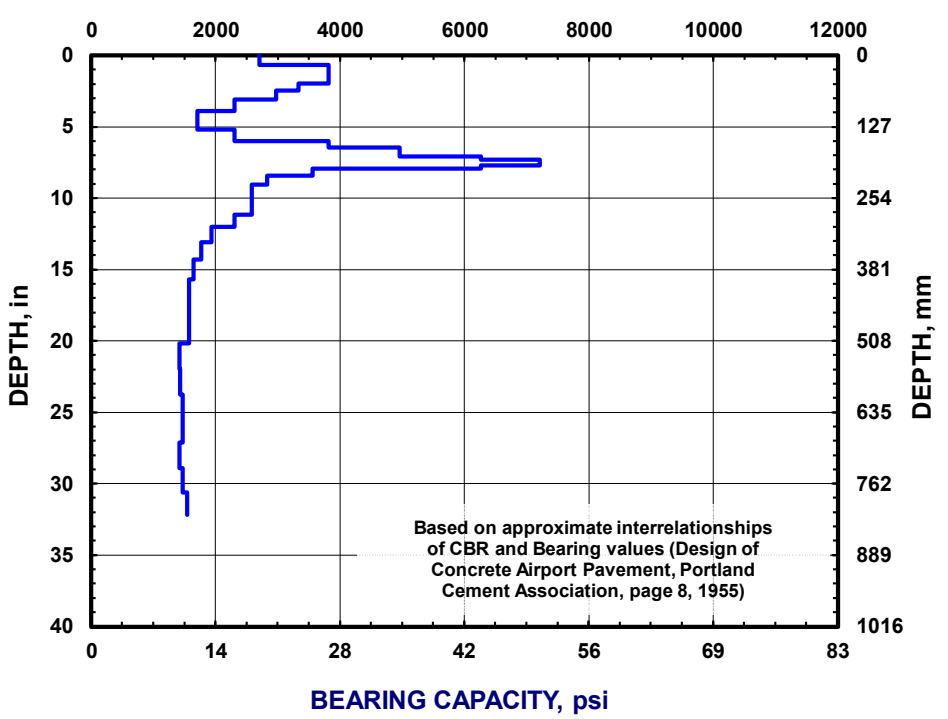
No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	17	1
1	28	1
1	39	1
1	50	1
1	63	1
1	78	1
1	99	1
1	132	1
1	153	1
1	164	1
1	172	1
1	180	1
1	186	1
1	191	1
1	196	1
1	202	1
1	214	1
1	230	1
1	248	1
1	266	1
1	284	1
1	305	1
1	332	1
1	363	1
1	398	1
1	436	1
1	474	1
1	512	1
1	558	1
1	603	1
1	646	1
1	689	1
1	735	1
1	778	1
1	817	1

0 Denotes Approximate Bottom of Surface Materials

CBR



BEARING CAPACITY, psf



Based on approximate interrelationships of CBR and Bearing values (Design of Concrete Airport Pavement, Portland Cement Association, page 8, 1955)

NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: **MAR-529-2.59**
 Exploration ID: **D-071-0-21**
 Surface Elevation: **986.4**
 Lat / Long: **40.531664, -82.98204**

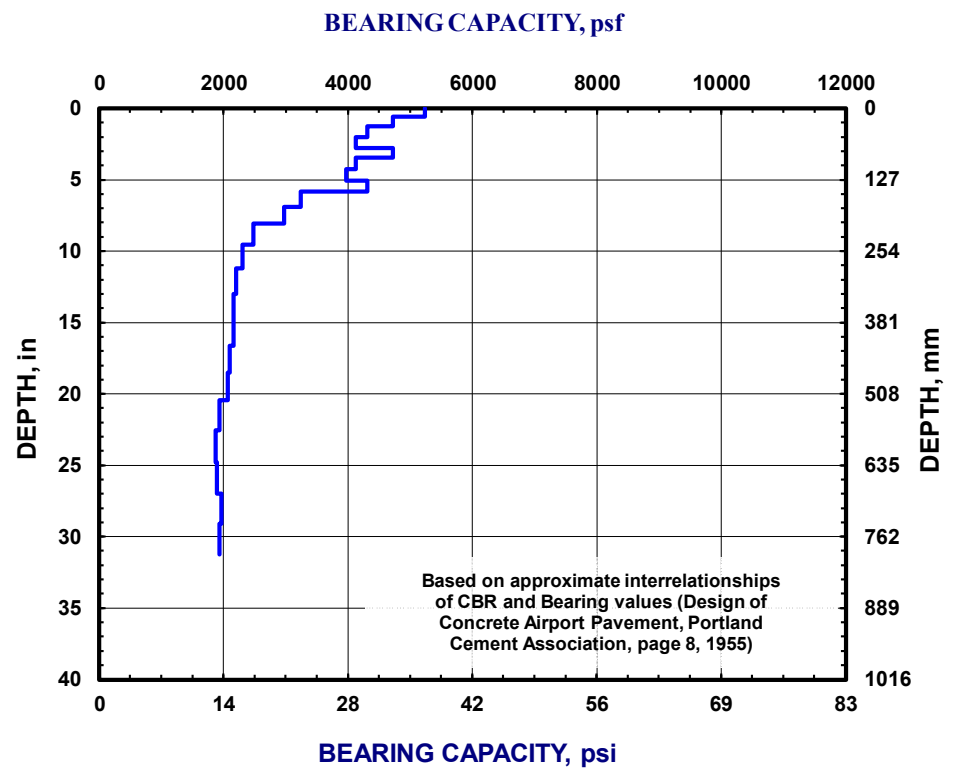
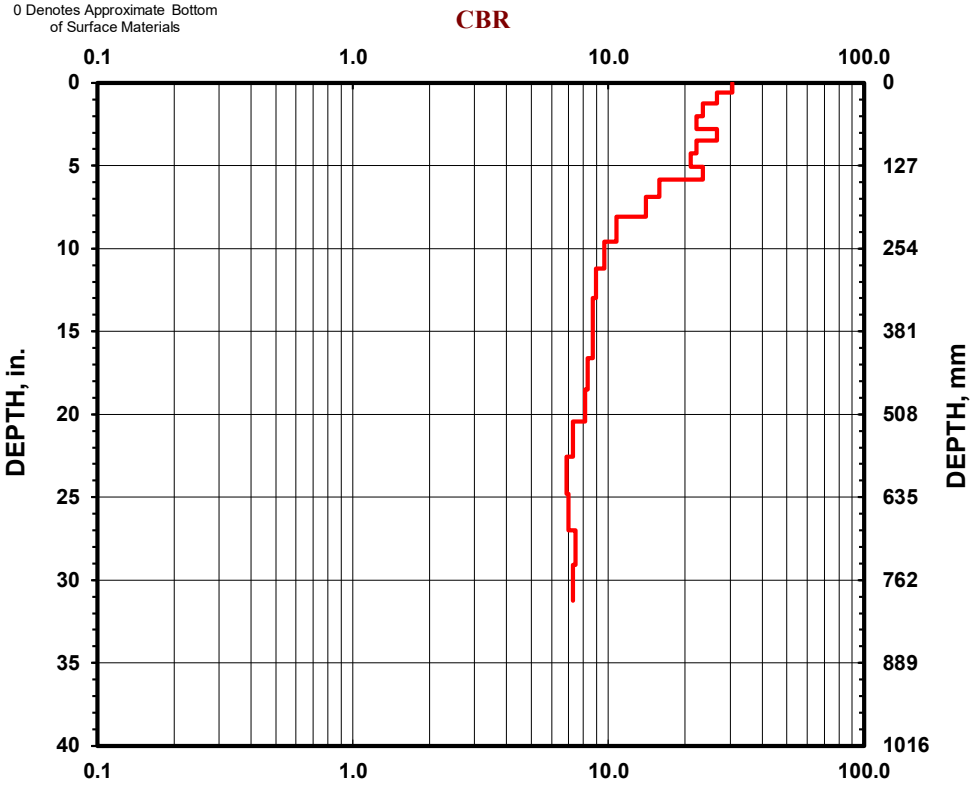
PID: **112818**
 Date: **3/15/2021**
 Surface Materials*: **Asphalt (12.0")**
 Test Starting Depth (ft): **1.0**

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	15	1
2	32	1
2	51	1
2	71	1
2	88	1
2	108	1
2	129	1
2	148	1
2	175	1
2	205	1
2	243	1
2	285	1
2	330	1
2	376	1
2	422	1
2	470	1
2	519	1
2	573	1
2	630	1
2	686	1
2	739	1
2	793	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
Exploration ID: D-072-0-21
Surface Elevation: 988.7
Lat / Long: 40.531255, -82.980693

PID: 112818
Date: 3/17/2021
Surface Materials*: Asphalt (13.5")
Test Starting Depth (ft): 1.1

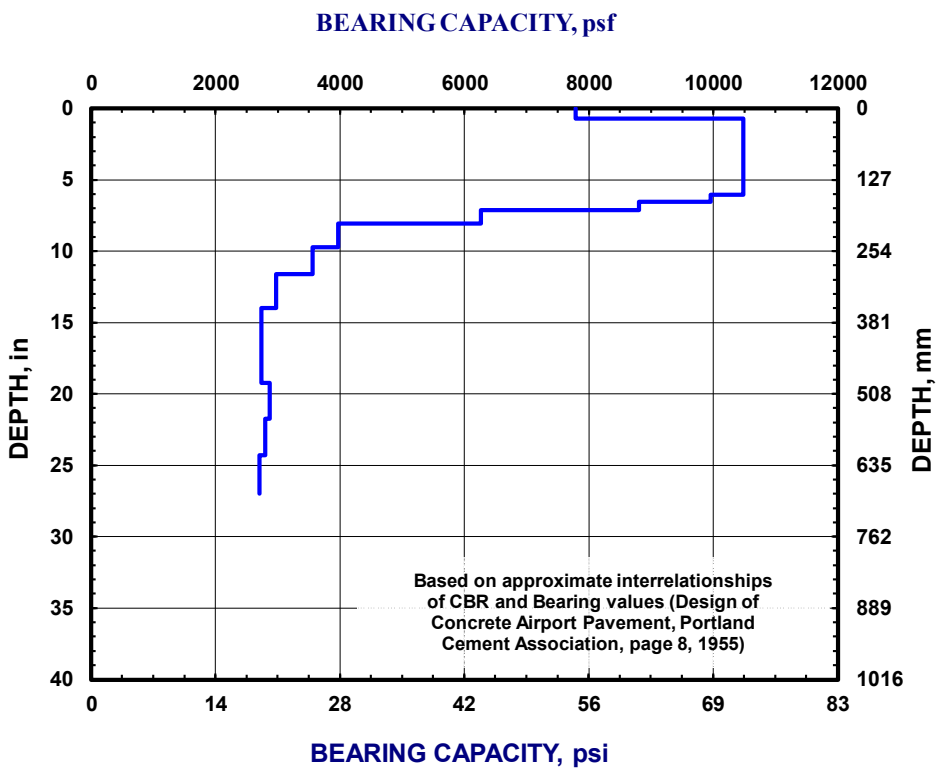
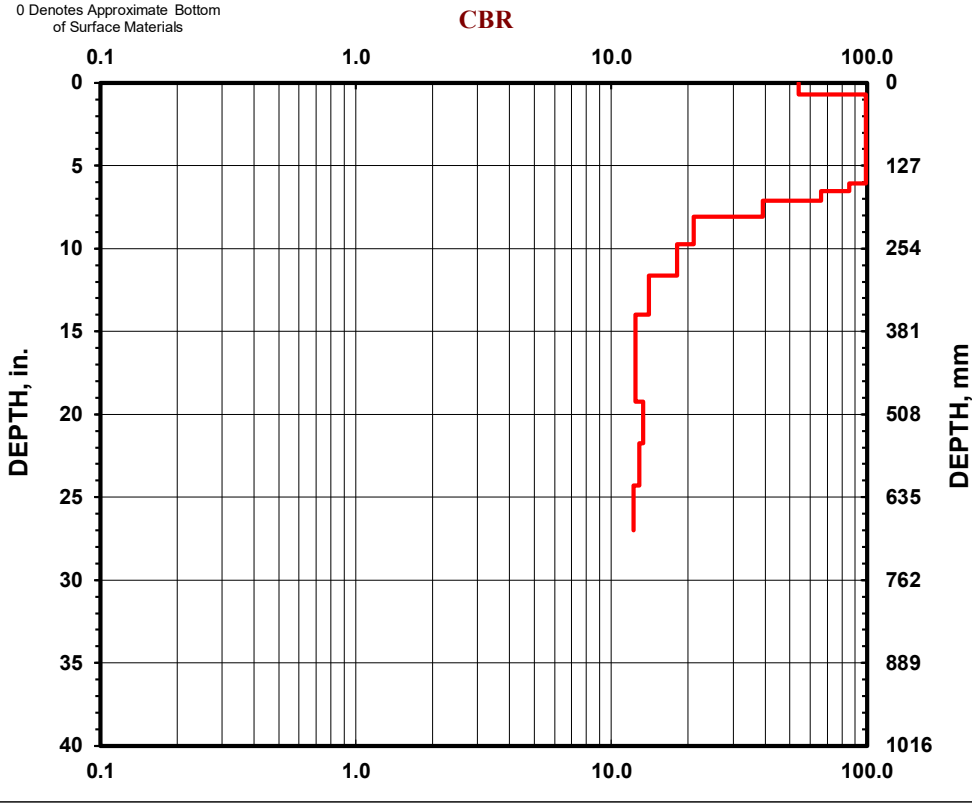
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
4	18	1
4	24	1
4	30	1
4	35	1
4	41	1
4	47	1
4	54	1
4	59	1
4	65	1
4	71	1
4	76	1
4	81	1
4	85	1
4	92	1
4	101	1
4	109	1
4	115	1
4	121	1
4	128	1
4	137	1
4	145	1
4	154	1
4	166	1
4	181	1
4	205	1
4	247	1
4	295	1
4	355	1
4	422	1
4	489	1
4	552	1
4	617	1
4	685	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
Exploration ID: D-075-0-21
Surface Elevation: 991.1
Lat / Long: 40.529936, -82.976889

PID: 112818
Date: 3/15/2021
Surface Materials*: Asphalt (11.5")
Test Starting Depth (ft): 1.0

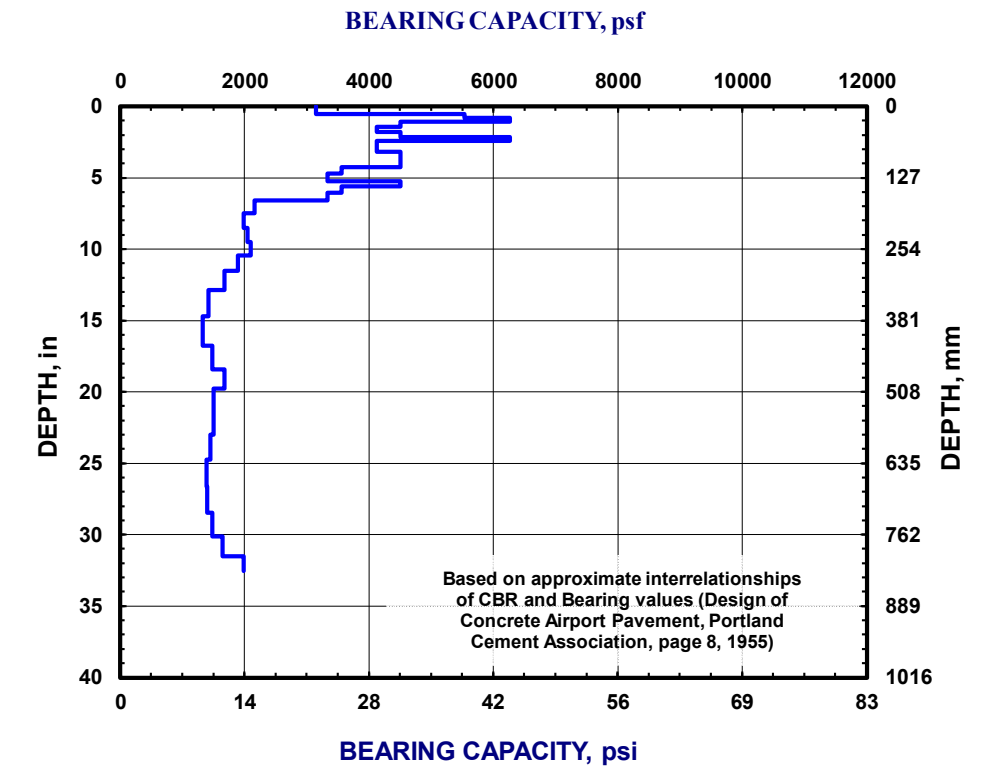
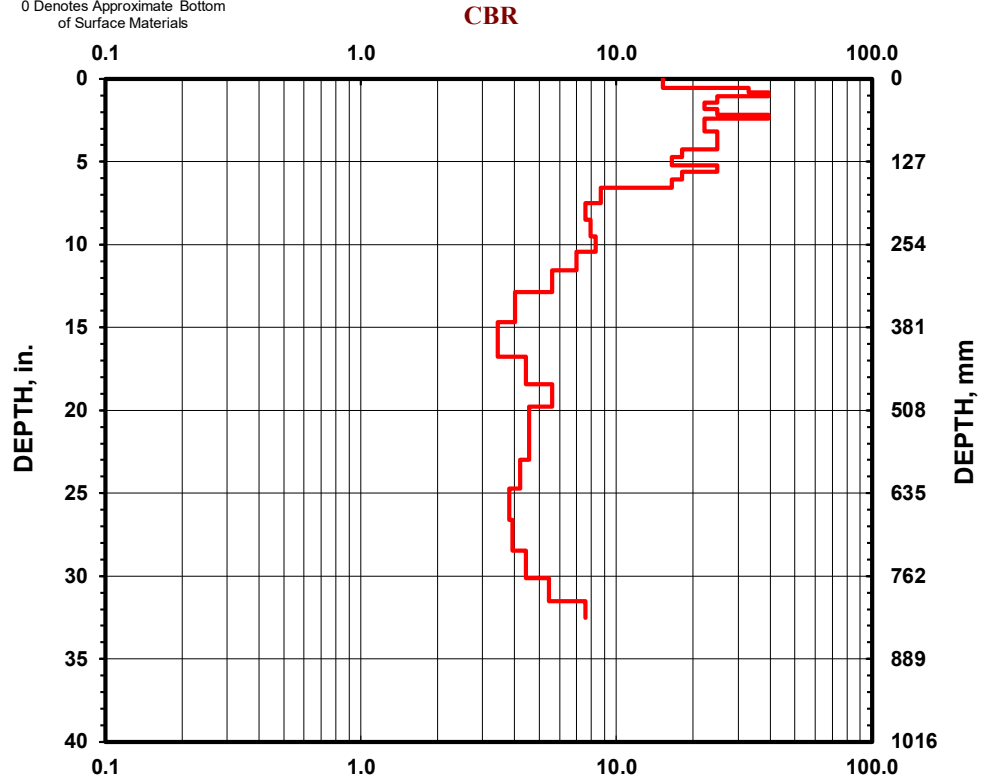
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	14	1
1	21	1
1	27	1
1	36	1
1	46	1
1	55	1
1	61	1
1	71	1
1	81	1
1	90	1
1	99	1
1	108	1
1	120	1
1	133	1
1	142	1
1	154	1
1	167	1
1	190	1
1	216	1
1	241	1
1	265	1
1	293	1
1	327	1
1	373	1
1	426	1
1	468	1
1	502	1
1	543	1
1	584	1
1	628	1
1	676	1
1	723	1
1	765	1
1	800	1
1	826	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
Exploration ID: D-076-0-21
Surface Elevation: 991.3
Lat / Long: 40.529534, -82.975551

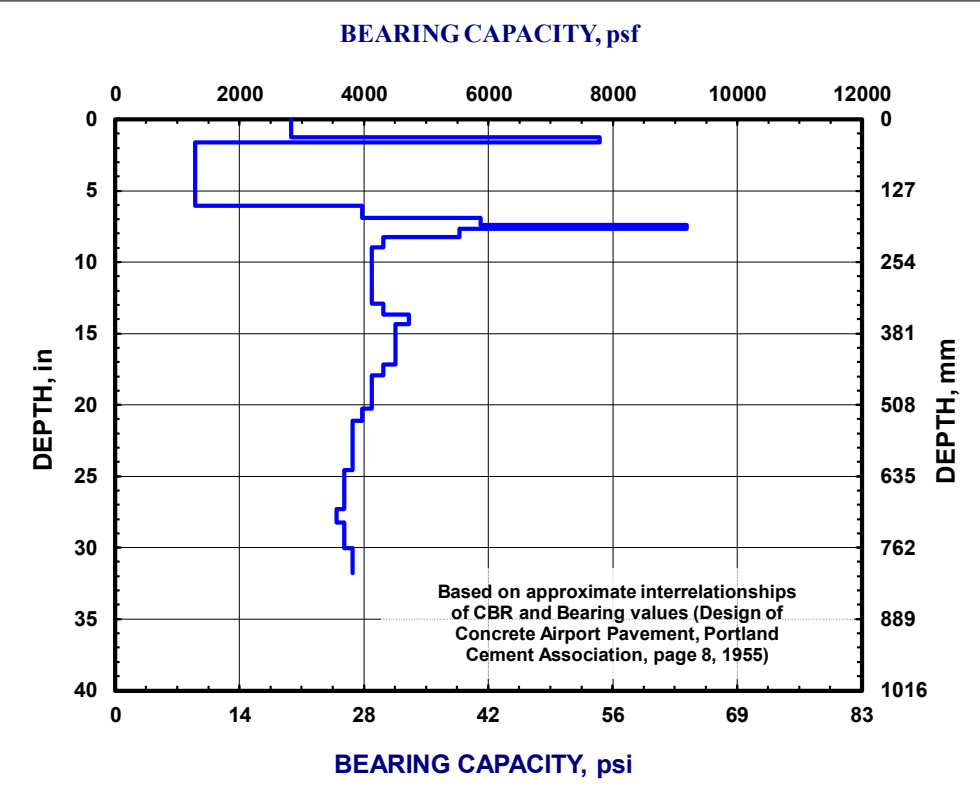
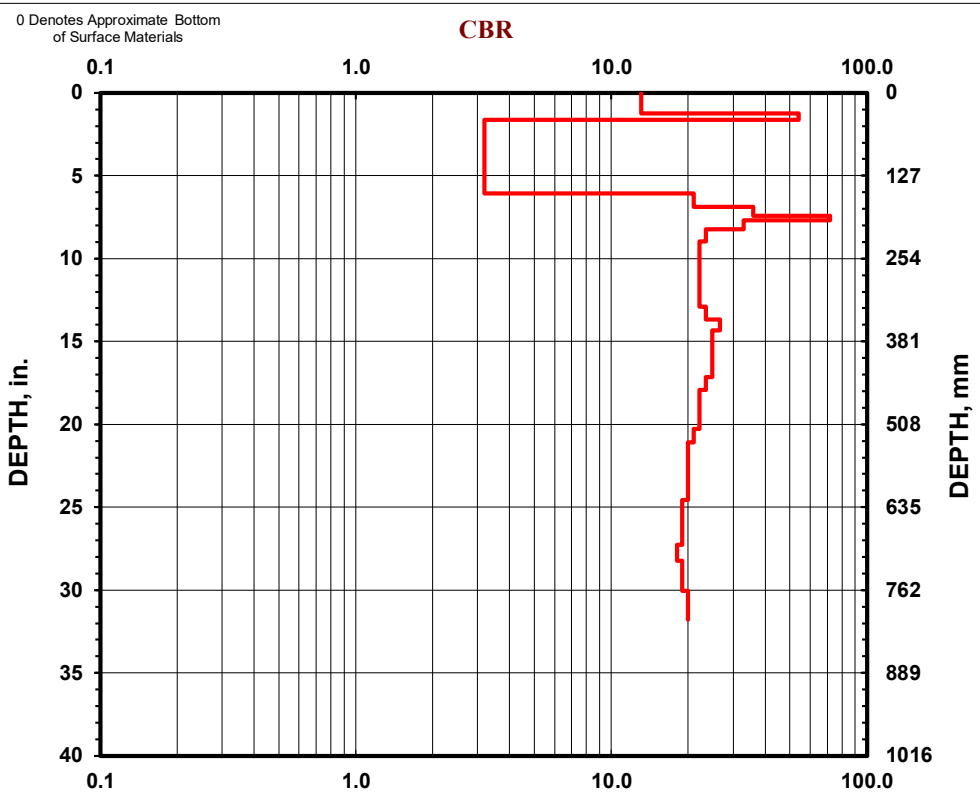
PID: 112818
Date: 3/17/2021
Surface Materials*: Asphalt (12.5")
Test Starting Depth (ft): 1.0

- Hammer**
- 10.1 lbs.
 - 17.6 lbs.
 - Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

- Soil Type**
- CH
 - CL
 - All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	32	1
2	41	1
2	154	1
2	175	1
2	188	1
2	195	1
2	209	1
2	228	1
2	248	1
2	268	1
2	288	1
2	308	1
2	328	1
2	347	1
2	364	1
2	382	1
2	400	1
2	418	1
2	436	1
2	455	1
2	475	1
2	495	1
2	515	1
2	536	1
2	558	1
2	580	1
2	602	1
2	624	1
2	647	1
2	670	1
2	693	1
2	717	1
2	740	1
2	763	1
2	785	1
2	807	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
Exploration ID: D-079-0-21
Surface Elevation: 994.2
Lat / Long: 40.528144, -82.971603

PID: 112818
Date: 3/15/2021
Surface Materials*: Asphalt (11.5")
Test Starting Depth (ft): 1.0

- Hammer**
- 10.1 lbs.
 - 17.6 lbs.
 - Both hammers used

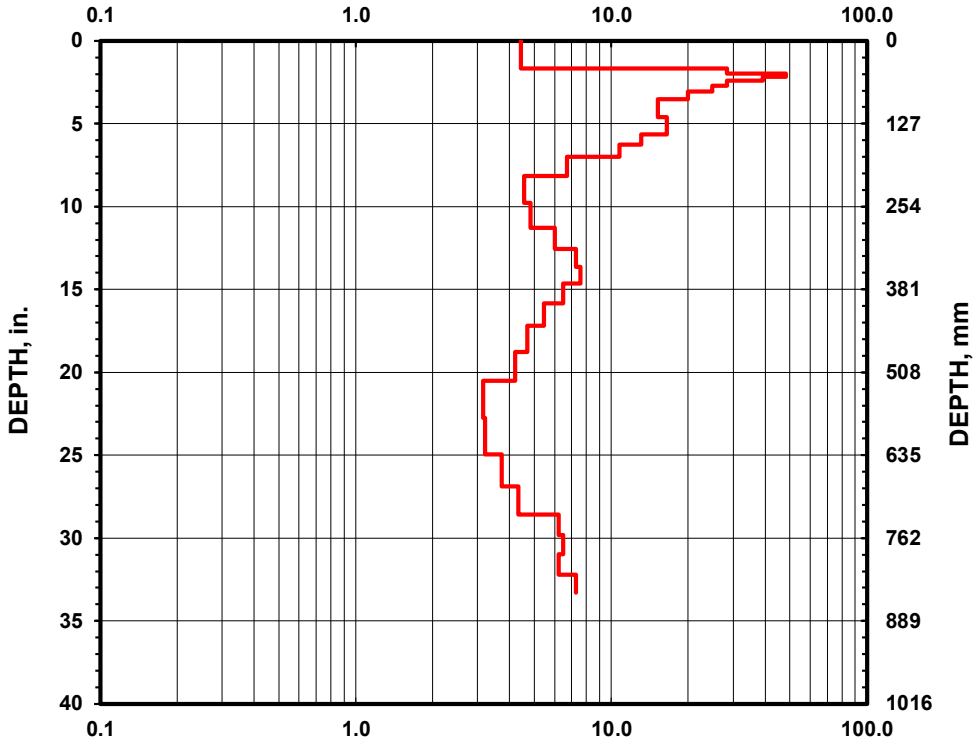
Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

- Soil Type**
- CH
 - CL
 - All other soils

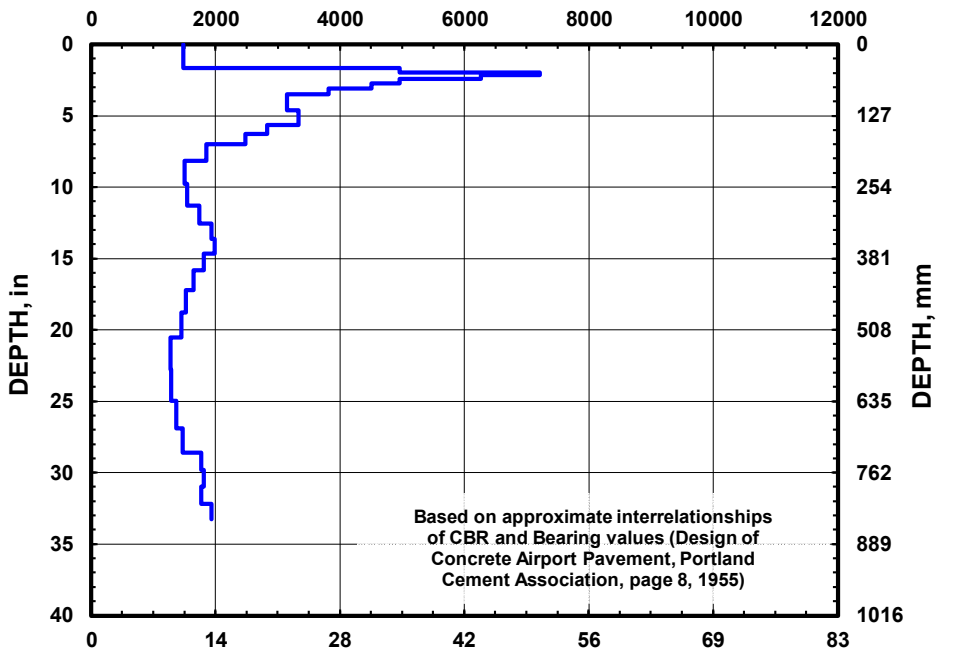
No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	42	1
1	50	1
1	55	1
1	61	1
1	69	1
1	78	1
1	89	1
1	103	1
1	117	1
1	130	1
1	143	1
1	159	1
1	178	1
1	207	1
1	248	1
1	287	1
1	319	1
1	346	1
1	372	1
1	402	1
1	437	1
1	477	1
1	521	1
1	578	1
1	634	1
1	683	1
1	726	1
1	757	1
1	787	1
1	818	1
1	845	1

0 Denotes Approximate Bottom of Surface Materials

CBR



BEARING CAPACITY, psf



Based on approximate interrelationships of CBR and Bearing values (Design of Concrete Airport Pavement, Portland Cement Association, page 8, 1955)

BEARING CAPACITY, psi

NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-080-0-21
 Surface Elevation: 995.2
 Lat / Long: 40.527729, -82.970248

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (12.5")
 Test Starting Depth (ft): 1.0

Hammer

- 10.1 lbs.
- 17.6 lbs.
- Both hammers used

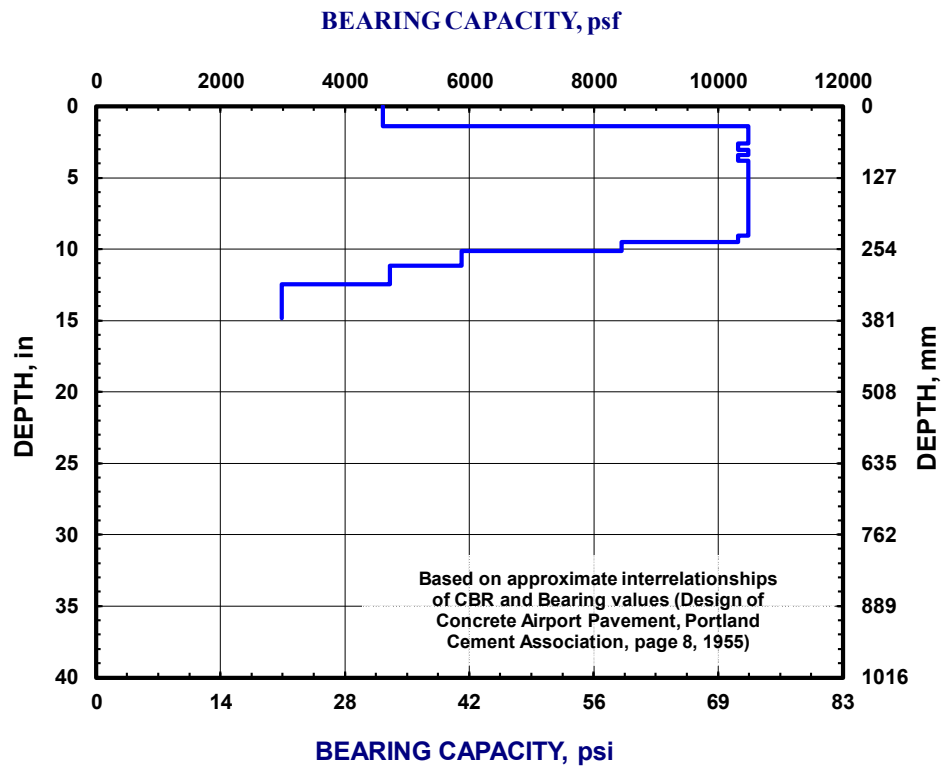
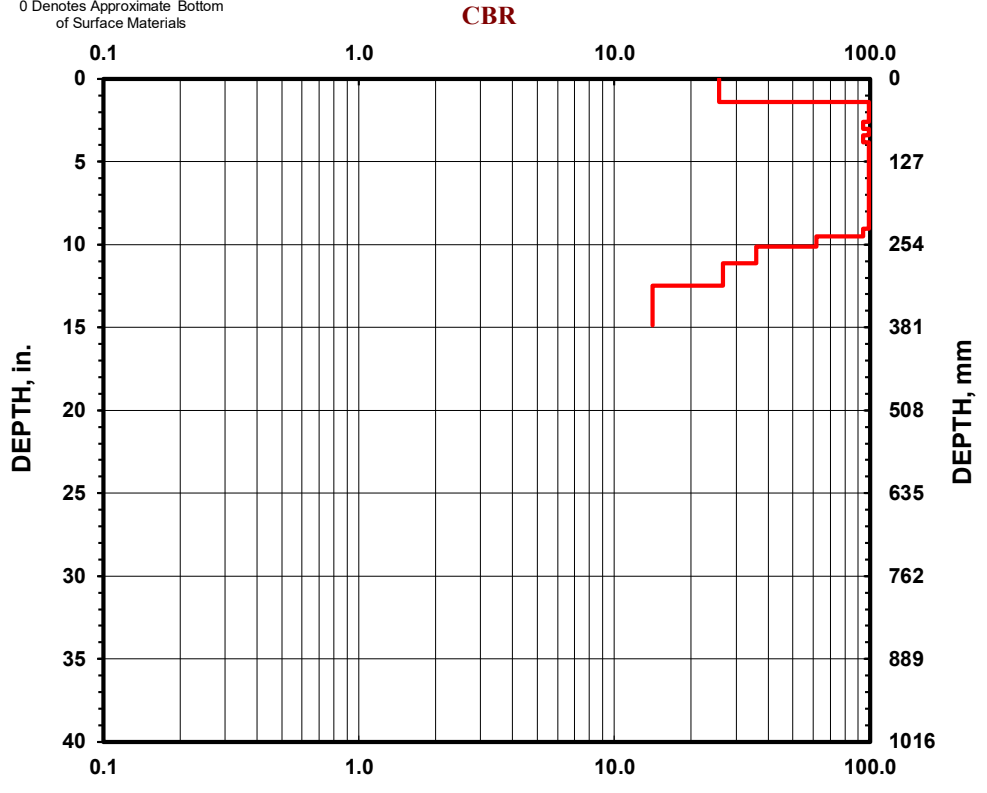
Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type

- CH
- CL
- All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
4	35	1
4	44	1
4	51	1
4	58	1
4	66	1
4	77	1
4	86	1
4	97	1
4	107	1
4	115	1
4	122	1
4	128	1
4	132	1
4	139	1
4	144	1
4	151	1
4	159	1
4	164	1
4	169	1
4	175	1
4	180	1
4	187	1
4	195	1
4	200	1
4	208	1
4	215	1
4	222	1
4	230	1
4	241	1
4	257	1
4	283	1
4	317	1
4	377	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-083-0-21
 Surface Elevation: 999.5
 Lat / Long: 40.526371, -82.966409

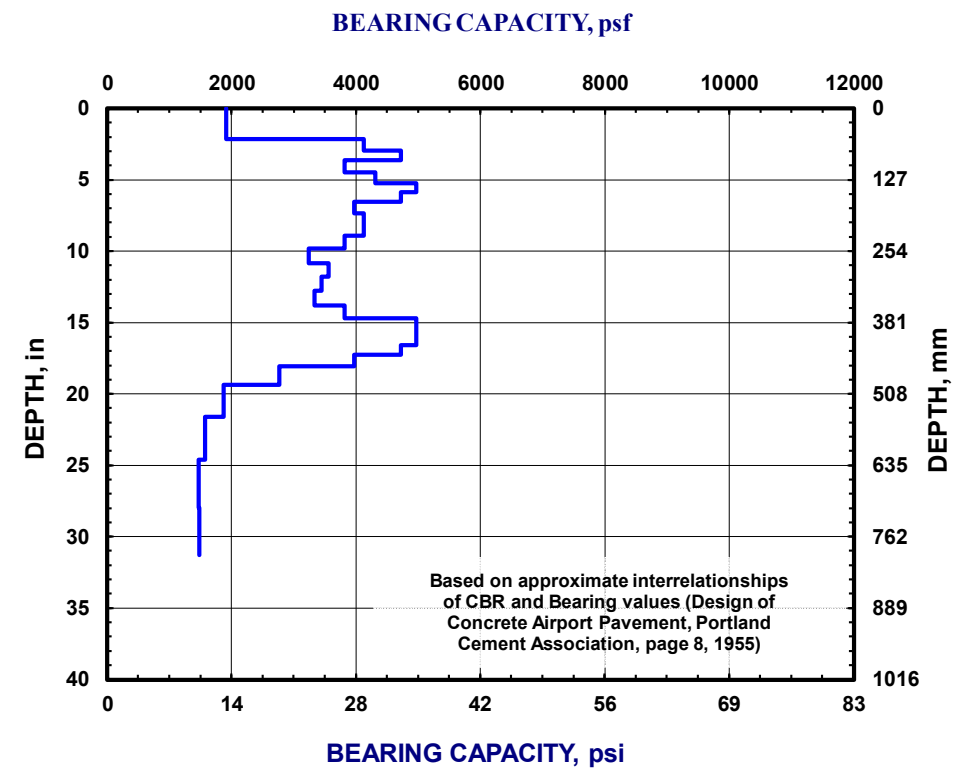
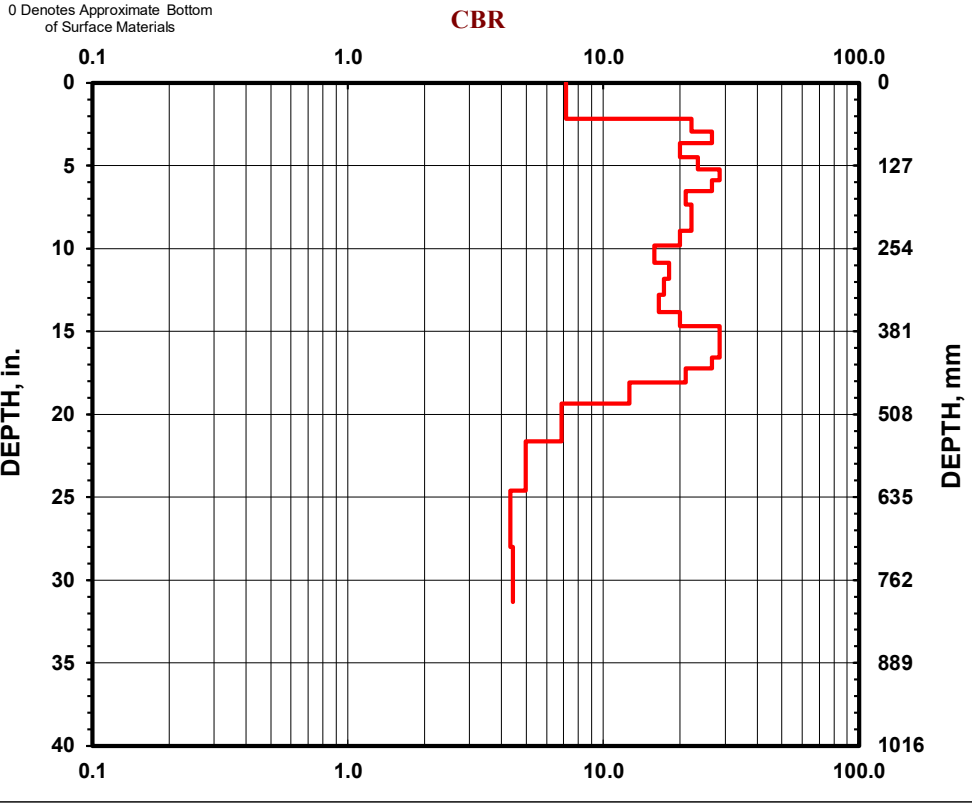
PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (11.0")
 Test Starting Depth (ft): 0.9

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	55	1
2	75	1
2	92	1
2	114	1
2	133	1
2	149	1
2	166	1
2	187	1
2	207	1
2	227	1
2	249	1
2	276	1
2	300	1
2	325	1
2	351	1
2	373	1
2	389	1
2	405	1
2	421	1
2	438	1
2	459	1
2	492	1
2	549	1
2	625	1
2	711	1
2	795	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-084-0-21
 Surface Elevation: 1001.2
 Lat / Long: 40.525965, -82.965067

PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (11.0")
 Test Starting Depth (ft): 0.9

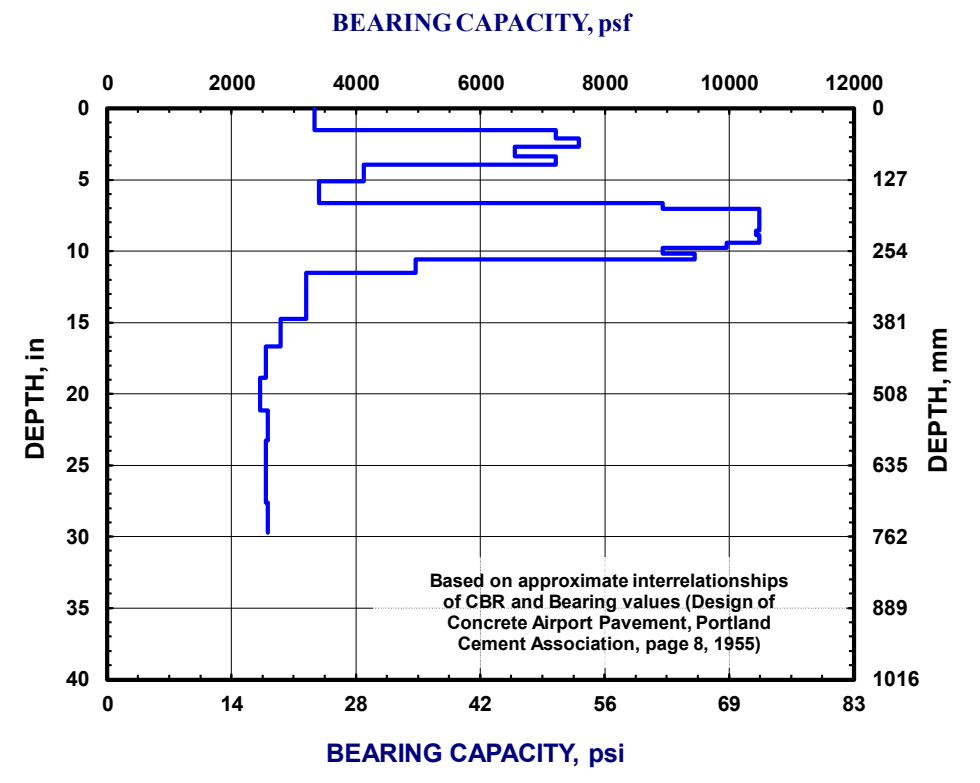
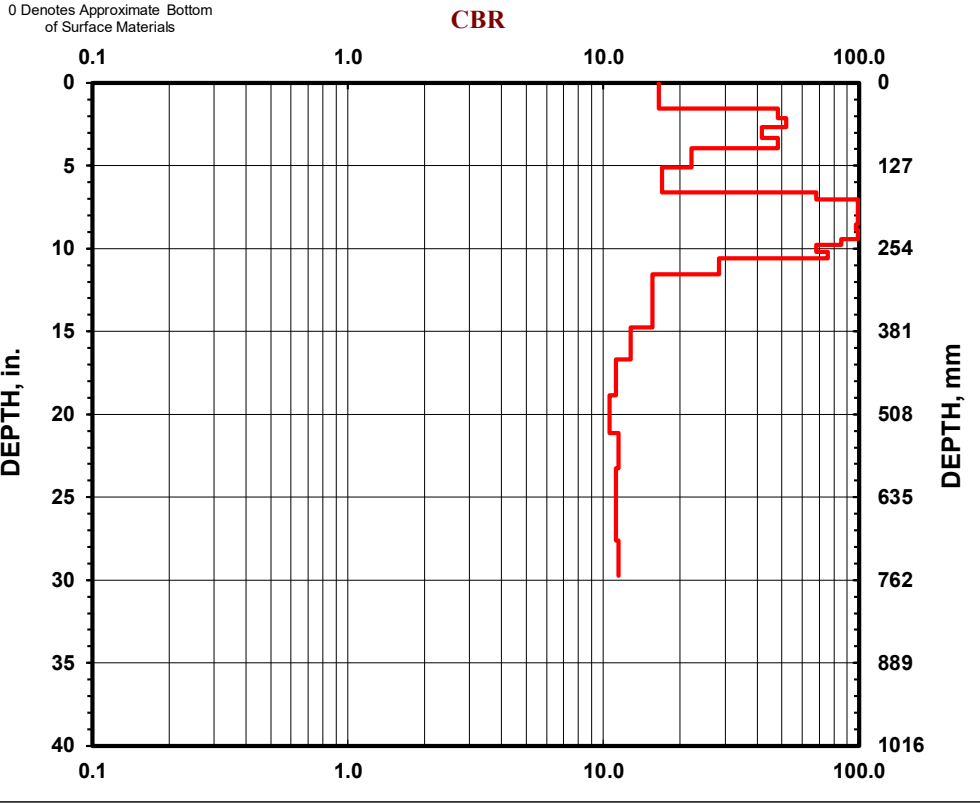
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
3	39	1
3	54	1
3	68	1
3	85	1
3	100	1
3	130	1
3	168	1
3	179	1
3	186	1
3	193	1
3	199	1
3	205	1
3	211	1
3	217	1
3	225	1
3	232	1
3	239	1
3	248	1
3	259	1
3	269	1
3	293	1
3	334	1
3	375	1
3	424	1
3	479	1
3	537	1
3	591	1
3	646	1
3	701	1
3	755	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-087-0-21
 Surface Elevation: 1002.7
 Lat / Long: 40.524564, -82.961145

PID: 112818
 Date: 3/15/2021
 Surface Materials*: Asphalt (9.5")
 Test Starting Depth (ft): 0.8

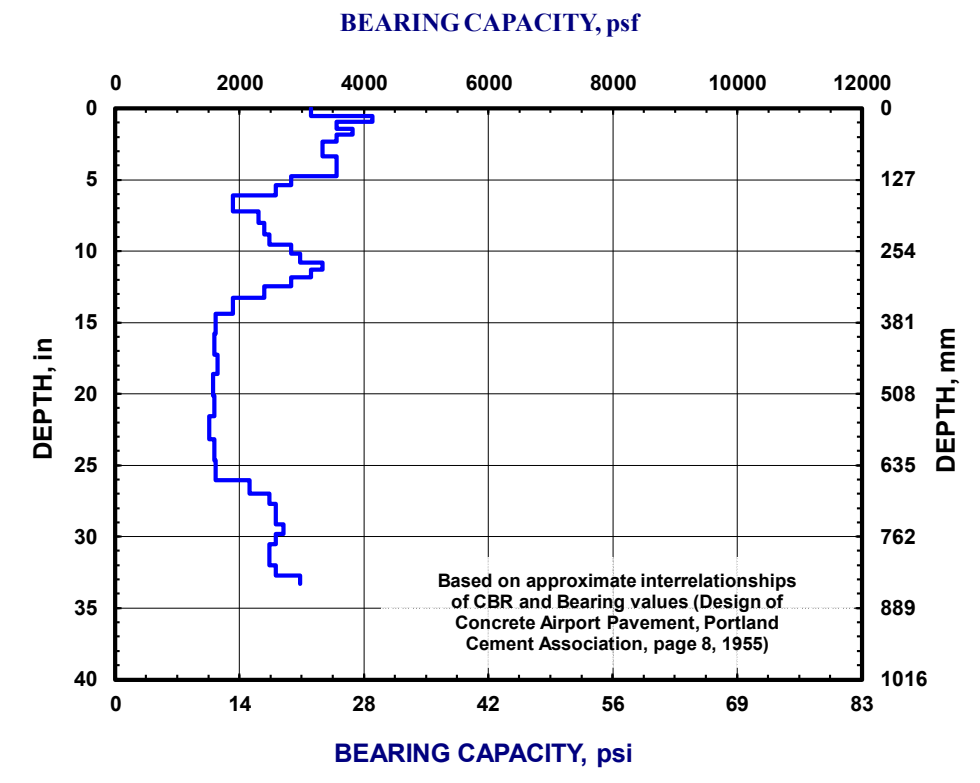
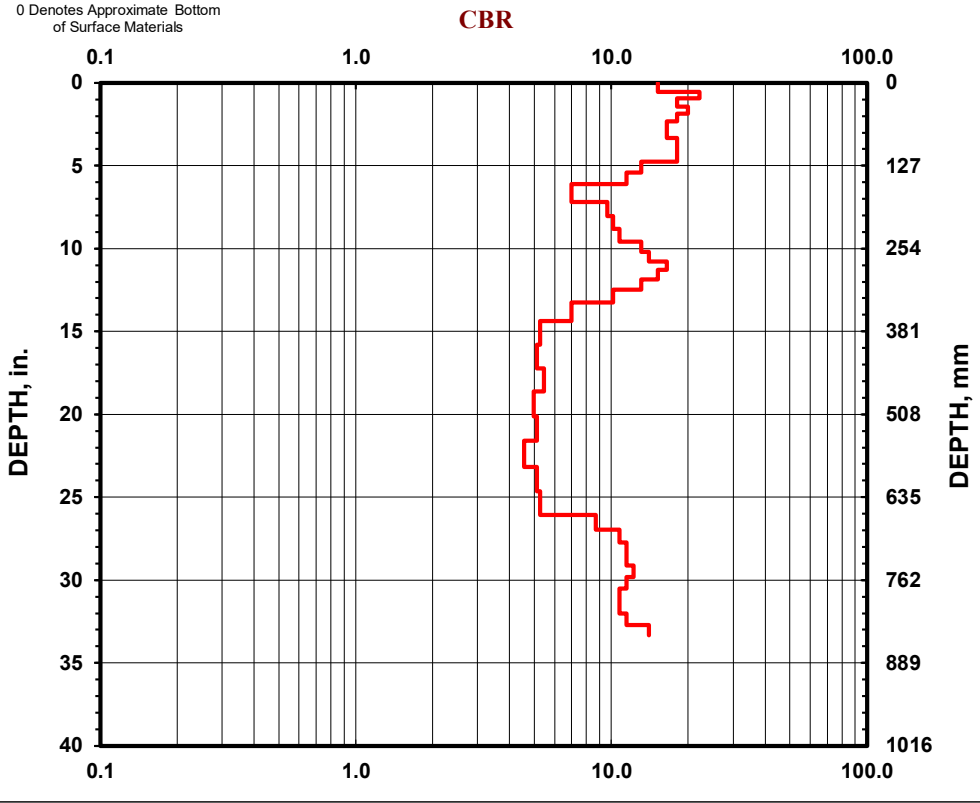
Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	14	1
1	24	1
1	36	1
1	47	1
1	59	1
1	72	1
1	85	1
1	97	1
1	109	1
1	121	1
1	137	1
1	155	1
1	183	1
1	204	1
1	224	1
1	243	1
1	259	1
1	274	1
1	287	1
1	301	1
1	317	1
1	337	1
1	365	1
1	401	1
1	438	1
1	473	1
1	511	1
1	548	1
1	589	1
1	626	1
1	662	1
1	685	1
1	704	1
1	722	1
1	740	1
1	757	1
1	775	1
1	794	1
1	813	1
1	831	1
1	846	1

0 Denotes Approximate Bottom of Surface Materials



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.



DCP TEST DATA

Project: MAR-529-2.59
 Exploration ID: D-088-0-21
 Surface Elevation: 999.1
 Lat / Long: 40.524148, -82.959835

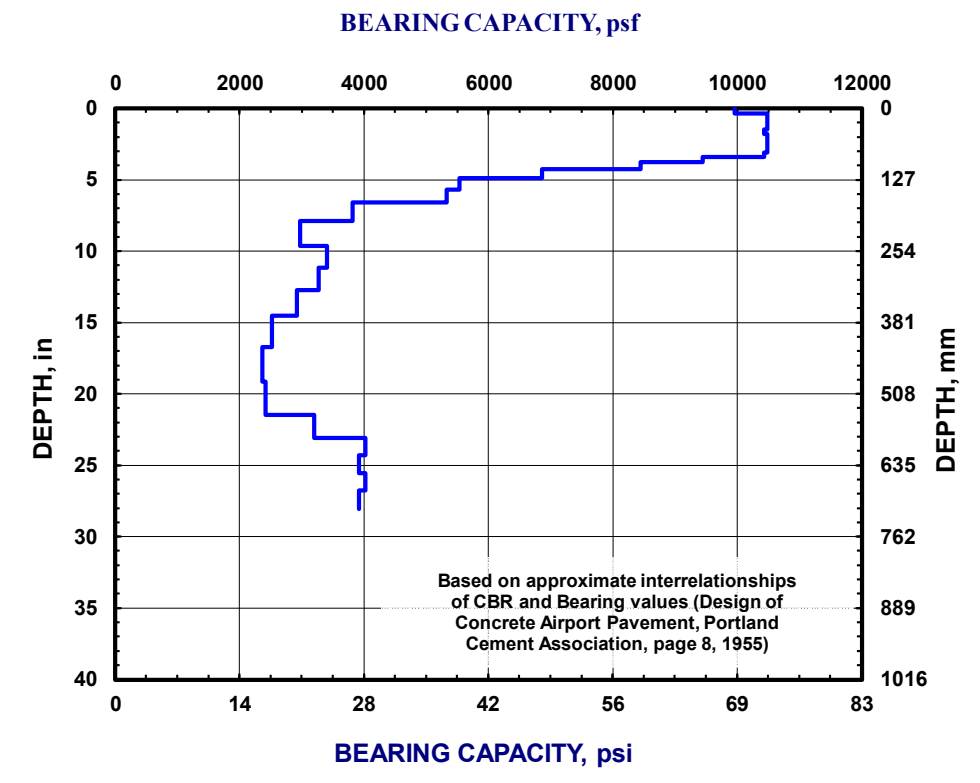
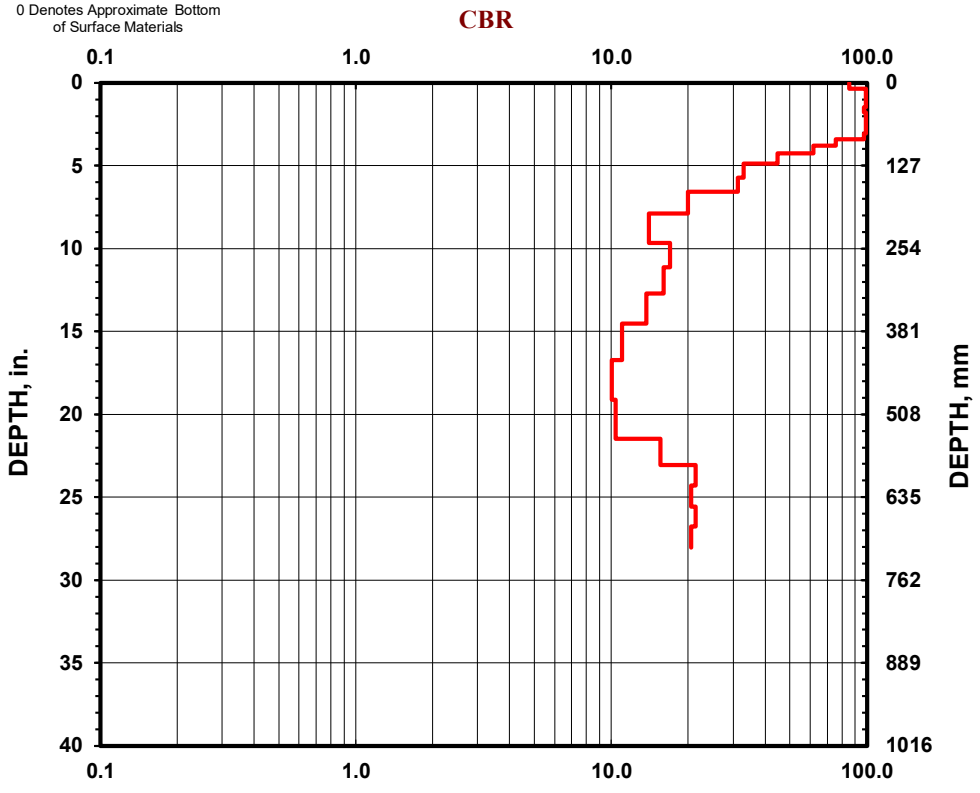
PID: 112818
 Date: 3/17/2021
 Surface Materials*: Asphalt (16")
 Test Starting Depth (ft): 1.3

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Office of Geotechnical Engineering
 Geology, Exploration, and Laboratory Section
<http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical>

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
3	9	1
3	14	1
3	19	1
3	24	1
3	28	1
3	32	1
3	37	1
3	45	1
3	50	1
3	57	1
3	64	1
3	71	1
3	78	1
3	86	1
3	96	1
3	108	1
3	124	1
3	145	1
3	167	1
3	200	1
3	245	1
3	283	1
3	323	1
3	369	1
3	425	1
3	486	1
3	545	1
3	586	1
3	617	1
3	649	1
3	680	1
3	712	1



NOTES: The latitude, longitude, and elevation values are from a Trimble Geo7X handheld GPS. *Due to method of advancement, surface material values are approximate.

APPENDIX V

Pavement Core Data Sheet



6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION _____
 JOB No. W-20-161
 BORING/CORE No. B-002-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-002-0-20	1.75	✓							
	1.25	✓							
	1.50	✓							
	1.00	✓							
	1.75	✓							
	1.00	✓							
	2.00		✓						
	2.00		✓						
	4.00					✓			

- Core is broken @ 3.0" and 9.0".
- Break at 3.0" is smooth and along a lift surface.
- Break along 9.0" lift is degraded and irregular.
- Bottom of core is irregular from large rocks being embedded within the bottom of the core.

Total Pavement Thickness = 12.25 in. Total Asphalt Thickness = 12.25 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 4.00 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-017-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-017-0-20	1.50	✓							
	0.50		✓						
	1.00	✓							
	1.00	✓							
	0.25	✓							
	1.50		✓						
	1.00		✓						
	1.25		✓						
	10.50					✓			

- Core is broken @ 6.75', with irregular break.
- There are a lot of voids in the top surface lift and there is a broken piece out of the side of the core from 5.0-6.75".
- Bitumen rich from 3.75-4.25".
- Bottom lift is broken in half and not fully recovered.
- Strong aromatic hydrocarbon odor to sample.

Total Pavement Thickness = 8.00 in. Total Asphalt Thickness = 8.00 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 10.50 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-022-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-022-0-20	1.25	✓							
	1.75	✓							
	1.00	✓							
	1.50	✓							
	0.75			✓					
	2.00		✓						
	1.00		✓						
	0.75	✓							
	8.00					✓			

- Core broken @ 3.0".
- Voids, large and small, present throughout core.
- Highly degraded @ 3.0".
- Bottom two lifts are bitumen-rich.
- Bottom of last lift is irregularly shaped on the bottom from embedded large aggregate.

Total Pavement Thickness = 10.00 in. Total Asphalt Thickness = 10.00 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 8.00 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-037-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-037-0-20	1.25	✓							
	1.00	✓							
	3.50			✓					
	4.25		✓						
	8.00					✓			

- Core is intact.
- Top two lifts are in good condition.
- Third lift (which could be 2 lifts) has a large concentration of voids.

Total Pavement Thickness = 10.00 in. Total Asphalt Thickness = 10.00 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 8.00 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-042-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-042-0-20	1.50	✓							
	1.75	✓							
	1.00	✓							
	1.00	✓							
	1.50	✓							
	1.75		✓						
	2.75		✓						
	6.00					✓			

- Core is broken, however, it appears it occurred after sitting.
- Core lifts are hard to determine.
- Voids are present @ 7.5-8.0" and 10.0-10.5"
- Some large aggregate are embedded in bottom of asphalt.

Total Pavement Thickness = 11.25 in. Total Asphalt Thickness = 11.25 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 6.00 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-057-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-057-0-20	1.50	✓							
	1.25	✓							
	6.00					✓			

- Three pieces are partially intact that are 2.75", 2.5", and 2.5" in lengths.
- Core is highly broken and degraded. Lift thicknesses are not able to be determined.

Total Pavement Thickness = 2.75 in. Total Asphalt Thickness = 2.75 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 6.00 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-062-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-062-0-20	1.75	✓							
	1.00	✓							
	1.00	✓							
	1.75	✓							
	2.00		✓						
	4.00		✓						
	5.00					✓			

- Core is broken into 4 sections.
 - Core broken @ 2.75", 3.75", 7.5".
 Core is in bad condition.
 Layers were presumed from core measurements of below core - in photograph. Unknown if order of pieces were correct.

Total Pavement Thickness = 11.50 in. Total Asphalt Thickness = 11.50 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 5.00 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-077-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-077-0-20	1.75	✓							
	4.00		✓						
	4.75		✓						
	8.00					✓			

- Core is broken @ 5.75".
- Core is in fair condition.

Total Pavement Thickness = 10.50 in. Total Asphalt Thickness = 10.50 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 8.00 in.





6350 Presidential Gateway
 Columbus, Ohio 43231
 Telephone: (614) 823-4949
 Fax Number: (614) 823-4990

Pavement Core Data Summary

PROJECT MAR-529-2.59
 LOCATION 0
 JOB No. W-20-161
 BORING/CORE No. B-082-0-20
 DATE CORE OBTAINED 3/9/2021
 CORE OBTAINED BY ODOT / CAREY + MCLEISH

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Asphalt			Concrete	Aggregate/Granular Base	Other		
		Surface	Intermediate	Base					
B-082-0-20	2.00	✓							
	1.75		✓						
	2.00			✓					
	4.25			✓					
	4.00					✓			

- Core is broken @ 5.75".
- Core is in fair condition except along break.
- Bottom of the last lift contains voids.

Total Pavement Thickness = 10.00 in. Total Asphalt Thickness = 10.00 in. Total Concrete Thickness = 0.00 in. Total Base Thickness = 4.00 in.



APPENDIX VI

GB1

OHIO DEPARTMENT OF TRANSPORTATION**OFFICE OF GEOTECHNICAL ENGINEERING****PLAN SUBGRADES
Geotechnical Bulletin GB1****MARC-529-2.59
112818****Subgrade exploration along SR 529 from SLM 5.29 to SLM 9.33 in Marion County,
Ohio.****Resource International Inc.****Prepared By: Peyman Majidi, PE
Date prepared: Monday, April 5, 2021****Peyman Majidi, PE
6350 Presidential Gateway
Columbus, OH 43231
614.823.4949****peymanm@resourceinternational.com****NO. OF BORINGS: 45**

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-20	MAR-529-2.59				CME 55	84	975.0	973.5	1.5 C
2	B-002-0-20	MAR-529-2.59				CME 55	84	975.0	973.5	1.5 C
3	B-005-0-20	MAR-529-2.59				CME 55	84	979.0	977.5	1.5 C
4	B-006-0-20	MAR-529-2.59				CME 55	84	980.0	978.5	1.5 C
5	B-009-0-20	MAR-529-2.59				CME 55	84	977.0	975.5	1.5 C
6	B-010-0-20	MAR-529-2.59				CME 55	84	977.0	975.5	1.5 C
7	B-013-0-20	MAR-529-2.59				CME 55	84	978.0	976.5	1.5 C
8	B-014-0-20	MAR-529-2.59				CME 55	84	979.0	977.5	1.5 C
9	B-017-0-20	MAR-529-2.59				CME 55	84	982.0	980.5	1.5 C
10	B-018-0-20	MAR-529-2.59				CME 55	84	981.0	979.5	1.5 C
11	B-021-0-020	MAR-529-2.59				CME 55	84	979.0	977.5	1.5 C
12	B-022-0-20	MAR-529-2.59				CME 55	84	979.0	977.5	1.5 C
13	B-025-0-20	MAR-529-2.59				CME 55	84	975.0	973.5	1.5 C
14	B-026-0-20	MAR-529-2.59				CME 55	84	972.0	970.5	1.5 C
15	B-029-0-20	MAR-529-2.59				CME 55	84	973.0	971.5	1.5 C
16	B-030-0-20	MAR-529-2.59				CME 55	84	973.0	971.5	1.5 C
17	B-033-0-20	MAR-529-2.59				CME 55	84	973.0	971.5	1.5 C
18	B-034-0-20	MAR-529-2.59				CME 55	84	972.0	970.5	1.5 C
19	B-037-0-20	MAR-529-2.59				CME 55	84	976.0	974.5	1.5 C
20	B-038-0-20	MAR-529-2.59				CME 55	84	976.0	974.5	1.5 C
21	B-041-0-20	MAR-529-2.59				CME 55	84	974.0	972.5	1.5 C
22	B-042-0-20	MAR-529-2.59				CME 55	84	974.0	972.5	1.5 C
23	B-045-0-20	MAR-529-2.59				CME 55	84	976.0	974.5	1.5 C
24	B-046-0-20	MAR-529-2.59				CME 55	84	979.0	977.5	1.5 C
25	B-049-0-20	MAR-529-2.59				CME 55	84	978.0	976.5	1.5 C
26	B-050-0-20	MAR-529-2.59				CME 55	84	979.0	977.5	1.5 C
27	B-053-0-20	MAR-529-2.59				CME 55	84	977.0	975.5	1.5 C
28	B-054-0-20	MAR-529-2.59				CME 55	84	976.0	974.5	1.5 C
29	B-057-0-20	MAR-529-2.59				CME 55	84	980.0	978.5	1.5 C
30	B-058-020	MAR-529-2.59				CME 55	84	980.0	978.8	1.2 C
31	B-061-0-20	MAR-529-2.59				CME 55	84	976.0	974.5	1.5 C
32	B-62-0-20	MAR-529-2.59				CME 55	84	975.0	973.5	1.5 C
33	B-065-0-20	MAR-529-2.59				CME 55	84	986.0	984.5	1.5 C
34	B-066-0-20	MAR-529-2.59				CME 55	84	987.0	985.9	1.1 C
35	B-069-0-20	MAR-529-2.59				CME 55	84	989.0	987.5	1.5 C
36	B-070-0-20	MAR-529-2.59				CME 55	84	987.0	985.8	1.2 C
37	B-073-0-20	MAR-529-2.59				CME 55	84	990.0	988.5	1.5 C
38	B-074-0-20	MAR-529-2.59				CME 55	84	990.0	989.0	1.0 C
39	B-077-0-20	MAR-529-2.59				CME 55	84	994.0	992.5	1.5 C
40	B-78-0-20	MAR-529-2.59				CME 55	84	995.0	994.0	1.0 C
41	B-081-0-20	MAR-529-2.59				CME 55	84	1000.0	998.5	1.5 C
42	B-082-0-20	MAR-529-2.59				CME 55	84	999.0	997.9	1.1 C
43	B-085-0-20	MAR-529-2.59				CME 55	84	1003.0	1001.5	1.5 C
44	B-086-0-20	MAR-529-2.59				CME 55	84	1005.0	1003.8	1.2 C
45	B-089-0-20	MAR-529-2.59				CME 55	84	997.0	995.5	1.5 C

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics					Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)	
			From	To	From	To	N ₆₀	N _{60L}		LL	PL	PI	% Silt	% Clay	P200	M _c	M _{OPT}	Class		GI	Unsuitable	Unstable	Unsuitable		Unstable
1	B 001-0 20	1	1.5	3.0	0.0	1.5	13	10	2	40	25	15	46	35	81	24	20	A-6a	10	100		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	10		1.5	53	21	32	35	51	86	25	18	A-7-6	19			HP & Mc			
		3	4.5	6.0	3.0	4.5	10		3.5							16	16	A-6b	16						
		4	6.0	7.5	4.5	6.0	13		4.25							16	16	A-6b	16						
2	B 002-0 20	1	1.5	3.0	0.0	1.5	13	13		33	18	15	39	37	76	20	14	A-6a	10	220		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	17		1.5	34	18	16	35	28	63	21	16	A-6b	8			HP & Mc			
		3	4.5	6.0	3.0	4.5	17		3.5							14	16	A-6b	16						
		4	6.0	7.5	4.5	6.0	29		2.5							16	16	A-6b	16						
3	B 005-0 20	1	1.5	3.0	0.0	1.5	11	8	1.5	34	18	16	40	22	62	19	16	A-6b	8	250		HP & Mc		12"	
		2	3.0	4.5	1.5	3.0	13		2	35	17	18	35	35	70	17	16	A-6b	10						
		3	4.5	6.0	3.0	4.5	18		2.5							14	16	A-6b	16						
		4	6.0	7.5	4.5	6.0	8		1.5							15	16	A-6b	16						
4	B 006-0 20	1	1.5	3.0	0.0	1.5	13	13	3	34	17	17	26	53	79	18	16	A-6b	11	60					
		2	3.0	4.5	1.5	3.0	22		3.5	30	17	13	37	32	69	16	14	A-6a	8						
		3	4.5	6.0	3.0	4.5	29		4							15	14	A-6a	10						
		4	6.0	7.5	4.5	6.0	28		4							16	14	A-6a	10						
5	B 009-0 20	1	1.5	3.0	0.0	1.5	14	8	2.5	40	21	19	51	34	85	18	16	A-6b	12	47					
		2	3.0	4.5	1.5	3.0	10		1.5	48	20	28	43	46	89	23	18	A-7-6	17			HP & Mc			
		3	4.5	6.0	3.0	4.5	8		1.5							25	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	11		1.5							25	18	A-7-6	16						
6	B 010-0 20	1	1.5	3.0	0.0	1.5	13	13	3	37	19	18	38	39	77	24	16	A-6b	11	40		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	13		2	43	19	24	35	42	77	23	18	A-7-6	14			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	20		4							14	14	A-6a	10						
		4	6.0	7.5	4.5	6.0	25		4							14	14	A-6a	10						
7	B 013-0 20	1	1.5	3.0	0.0	1.5	8	4	1.5	40	21	19	33	32	65	17	16	A-6b	10	150		HP		12"	
		2	3.0	4.5	1.5	3.0	7		1.5	43	20	23	37	30	67	30	18	A-7-6	12			HP & Mc			
		3	4.5	6.0	3.0	4.5	4		0.5							29	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	7		0.5							25	18	A-7-6	16						
8	B 014-0 20	1	1.5	3.0	0.0	1.5	15	0	0.75	36	19	17	22	21	43	21	16	A-6b	4	120		HP & Mc		18"	
		2	3.0	4.5	1.5	3.0	11									13	10	A-2-4	0			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	0			34	17	17	31	23	54	14	16	A-6b	7						
		4	6.0	7.5	4.5	6.0	44		0.5							16	16	A-6b	16						
9	B 017-0 20	1	1.5	3.0	0.0	1.5	11	11	1	29	21	8	43	29	72	23	16	A-4a	7	130		HP & Mc		12"	
		2	3.0	4.5	1.5	3.0	14		2	41	18	23	35	38	73	21	18	A-7-6	13			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	15		2.5							14	10	A-4a	8						
		4	6.0	7.5	4.5	6.0	31		3							14	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics					Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)	
			From	To	From	To	N ₆₀	N _{60L}		LL	PL	PI	% Silt	% Clay	P200	M _c	M _{OPT}	Class		GI	Unsuitable	Unstable	Unsuitable		Unstable
10	B 018-0 20	1	1.5	3.0	0.0	1.5	11	10	1.5	29	20	9	50	26	76	19	15	A-4b	8	87	A-4b	HP & Mc	18"	12"	
		2	3.0	4.5	1.5	3.0	10		2	40	18	22	41	41	82	22	16	A-6b	13			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	10		1.5							20	16	A-6b	16						
		4	6.0	7.5	4.5	6.0	18		3							16	16	A-6b	16						
11	B 021-0 02	1	1.5	3.0	0.0	1.5	11	6	1.5	32	20	12	43	24	67	18	15	A-6a	7	230		HP & Mc		12"	
		2	3.0	4.5	1.5	3.0	10		0.5	48	15	33	41	36	77	21	18	A-7-6	18			HP & Mc			
		3	4.5	6.0	3.0	4.5	6		0.5							22	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	13		1.5							25	18	A-7-6	16						
12	B 022-0 20	1	1.5	3.0	0.0	1.5	11	11	2.75	32	20	12	40	26	66	24	15	A-6a	7	240		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	13			40	16	24	38	34	72	28	16	A-6b	13			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	15		3							17	16	A-6b	16						
		4	6.0	7.5	4.5	6.0	11									22	16	A-6b	16						
13	B 025-0 20	1	1.5	3.0	0.0	1.5	14	14	2	38	20	18	38	36	74	10	16	A-6b	11	150					
		2	3.0	4.5	1.5	3.0	18		2	38	19	19	33	44	77	18	16	A-6b	12						
		3	4.5	6.0	3.0	4.5	25		3							15	16	A-6b	16						
		4	6.0	7.5	4.5	6.0	26		4							15	16	A-6b	16						
14	B 026-0 20	1	1.5	3.0	0.0	1.5	17	11	2.5	38	20	18	37	32	69	17	16	A-6b	10	210					
		2	3.0	4.5	1.5	3.0	11		2	39	18	21	37	44	81	23	16	A-6b	12			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	70					20	6	26	14	10	A-2-4	0							
		4	6.0	7.5	4.5	6.0	31								16	10	A-2-4	0							
15	B 029-0 20	1	1.5	3.0	0.0	1.5	13	13	3.5	38	21	17	43	31	74	19	16	A-6b	11	350		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	21		4.5	32	18	14	38	36	74	16	14	A-6a	9						
		3	4.5	6.0	3.0	4.5	24		4.5							17	14	A-6a	10						
		4	6.0	7.5	4.5	6.0	28		4							18	14	A-6a	10						
16	B 030-0 20	1	1.5	3.0	0.0	1.5	14	14		37	21	16	34	28	62	23	16	A-6b	8	110		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	17		3	39	19	20	36	39	75	19	16	A-6b	12			Mc			
		3	4.5	6.0	3.0	4.5	26		4							14	10	A-4a	8						
		4	6.0	7.5	4.5	6.0	33		4							15	10	A-4a	8						
17	B 033-0 20	1	1.5	3.0	0.0	1.5	13	13	2.5	32	22	10	43	36	79	17	17	A-4a	8	360					
		2	3.0	4.5	1.5	3.0	15		2.5	46	21	25	35	48	83	24	18	A-7-6	15			Mc			
		3	4.5	6.0	3.0	4.5	15		2.5							15	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	22		4.5							15	18	A-7-6	16						
18	B 034-0 20	1	1.5	3.0	0.0	1.5	11	8		41	26	15	42	29	71	16	23	A-7-6	9	370		N ₆₀		12"	
		2	3.0	4.5	1.5	3.0	8		0.5	51	19	32	36	36	72	22	18	A-7-6	17			HP & Mc			
		3	4.5	6.0	3.0	4.5	8		1							23	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	8		0.5							25	18	A-7-6	16						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics					Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)	
			From	To	From	To	N ₆₀	N _{60L}		LL	PL	PI	% Silt	% Clay	P200	M _c	M _{OPT}	Class		GI	Unsuitable	Unstable	Unsuitable		Unstable
19	B 037-0 20	1	1.5	3.0	0.0	1.5	10	7	2	41	26	15	52	30	82	26	23	A-7-6	10	390		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	11		2.5	51	21	30	35	50	85	28	18	A-7-6	18			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	8		0.5							29	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	7		0.5							21	18	A-7-6	16						
20	B 038-0 20	1	1.5	3.0	0.0	1.5	11	10							13	6	A-1-b	0	310						
		2	3.0	4.5	1.5	3.0	10		0.5							12	14	A-6a	10			HP			
		3	4.5	6.0	3.0	4.5	13		1	37	22	15	36	39	75	15	17	A-6a	10						
		4	6.0	7.5	4.5	6.0	10		1.5	51	22	29	33	51	84	27	19	A-7-6	18						
21	B 041-0 20	1	1.5	3.0	0.0	1.5	13	13	2	33	20	13	38	41	79	18	15	A-6a	9	150		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	21		4	43	20	23	34	45	79	22	18	A-7-6	14			Mc			
		3	4.5	6.0	3.0	4.5	31		4							15	14	A-6a	10						
		4	6.0	7.5	4.5	6.0	35		4.5							13	14	A-6a	10						
22	B 042-0 20	1	1.5	3.0	0.0	1.5	15	14	2.5	34	18	16	30	40	70	17	16	A-6b	9	180					
		2	3.0	4.5	1.5	3.0	14		3	32	17	15	34	31	65	17	14	A-6a	8			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	17		3							15	14	A-6a	10						
		4	6.0	7.5	4.5	6.0	18		2.5							16	14	A-6a	10						
23	B 045-0 20	1	1.5	3.0	0.0	1.5	10	10							16	14	A-6a	10	390		N ₆₀		12"		
		2	3.0	4.5	1.5	3.0	15		2	33	20	13	37	36	73	11	15	A-6a	9						
		3	4.5	6.0	3.0	4.5	20		2	31	18	13	35	40	75	25	14	A-6a	9						
		4	6.0	7.5	4.5	6.0	26		3							17	14	A-6a	10						
24	B 046-0 20	1	1.5	3.0	0.0	1.5	11	11	2.5	34	19	15	38	39	77	22	14	A-6a	10	410		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	13		3	37	18	19	29	31	60	15	16	A-6b	9						
		3	4.5	6.0	3.0	4.5	14		3							15	16	A-6b	16						
		4	6.0	7.5	4.5	6.0	21		4.5							16	16	A-6b	16						
25	B 049-0 20	1	1.5	3.0	0.0	1.5	11	6	3	34	21	13	41	46	87	19	16	A-6a	9	140		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	8								19	14	A-6a	10			N ₆₀ & Mc				
		3	4.5	6.0	3.0	4.5	7		1	51	20	31	38	51	89	27	18	A-7-6	18						
		4	6.0	7.5	4.5	6.0	6		0.5							26	18	A-7-6	16						
26	B 050-0 20	1	1.5	3.0	0.0	1.5	11	11							16	6	A-1-b	0	100						
		2	3.0	4.5	1.5	3.0	15								8	10	A-2-6	4							
		3	4.5	6.0	3.0	4.5	15		4	33	18	15	35	34	69	20	14	A-6a	9						
		4	6.0	7.5	4.5	6.0	24		4	33	18	15	36	36	72	14	14	A-6a	9						
27	B 053-0 20	1	1.5	3.0	0.0	1.5	11	11	1	33	18	15	36	48	84	23	14	A-6a	10	60		HP & Mc		12"	
		2	3.0	4.5	1.5	3.0	13		1.5	41	18	23	36	46	82	19	18	A-7-6	13			HP			
		3	4.5	6.0	3.0	4.5	21		3							16	10	A-4a	8						
		4	6.0	7.5	4.5	6.0	33		3.5							16	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics					Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)	
			From	To	From	To	N ₆₀	N _{60L}		LL	PL	PI	% Silt	% Clay	P200	M _c	M _{OPT}	Class		GI	Unsuitable	Unstable	Unsuitable		Unstable
28	B 054-0 20	1	1.5	3.0	0.0	1.5	11							24	10	A-2-4	0	60		N ₆₀ & Mc		12"			
		2	3.0	4.5	1.5	3.0	11	1						11	14	A-6a	10			HP					
		3	4.5	6.0	3.0	4.5	13	2	32	19	13	35	42	77	15	14	A-6a	9							
		4	6.0	7.5	4.5	6.0	21	3.5	37	19	18	37	35	72	19	16	A-6b	11							
29	B 057-0 20	1	1.5	3.0	0.0	1.5	14		38	23	15	45	32	77	19	18	A-6a	10	140						
		2	3.0	4.5	1.5	3.0	13		52	19	33	37	47	84	23	18	A-7-6	18			N ₆₀ & Mc				
		3	4.5	6.0	3.0	4.5	10	2						28	18	A-7-6	16								
		4	6.0	7.5	4.5	6.0	10	3						17	14	A-6a	10								
30	B 058-0 0	1	1.5	3.0	0.3	1.8	11	3	38	23	15	46	34	80	17	18	A-6a	10	160		N ₆₀		12"		
		2	3.0	4.5	1.8	3.3	10	1	50	21	29	32	42	74	25	18	A-7-6	17			HP & Mc				
		3	4.5	6.0	3.3	4.8	10	1.5	47	19	28	41	44	85	26	18	A-7-6	17							
		4	6.0	7.5	4.8	6.3	10	1.5						20	18	A-7-6	16								
31	B 061-0 20	1	1.5	3.0	0.0	1.5	8	1.5	29	19	10	37	32	69	17	14	A-4a	7	350		HP & Mc		12"		
		2	3.0	4.5	1.5	3.0	25	3	27	17	10	40	30	70	13	12	A-4a	7							
		3	4.5	6.0	3.0	4.5	28	4.5						13	10	A-4a	8								
		4	6.0	7.5	4.5	6.0	33	4.5						13	10	A-4a	8								
32	B 62-0- 0	1	1.5	3.0	0.0	1.5	14	3	34	19	15	28	36	64	13	14	A-6a	8	360						
		2	3.0	4.5	1.5	3.0	7	2	41	22	19	48	37	85	28	19	A-7-6	12			N ₆₀ & Mc				
		3	4.5	6.0	3.0	4.5	13	2						29	18	A-7-6	16								
		4	6.0	7.5	4.5	6.0	7	2						24	18	A-7-6	16								
33	B 065-0 20	1	1.5	3.0	0.0	1.5	11	2	35	19	16	35	35	70	25	16	A-6b	9	320		N ₆₀ & Mc		12"		
		2	3.0	4.5	1.5	3.0	14	2.5						17	16	A-6b	16								
		3	4.5	6.0	3.0	4.5	25	4	35	18	17	35	36	71	14	16	A-6b	10							
		4	6.0	7.5	4.5	6.0	29	4.5						16	16	A-6b	16								
34	B 066-0 20	1	1.5	3.0	0.4	1.9	15	2	35	19	16	40	42	82	22	16	A-6b	10	300		Mc				
		2	3.0	4.5	1.9	3.4	13	1.5	58	21	37	37	54	91	25	18	A-7-6	20			HP & Mc				
		3	4.5	6.0	3.4	4.9	14	2.5						21	18	A-7-6	16								
		4	6.0	7.5	4.9	6.4	15	3						19	18	A-7-6	16								
35	B 069-0 20	1	1.5	3.0	0.0	1.5	6	0.5	34	19	15	54	27	81	22	14	A-6a	10	200		HP & Mc		24"		
		2	3.0	4.5	1.5	3.0	8	0.5	51	19	32	51	36	87	25	18	A-7-6	18			HP & Mc				
		3	4.5	6.0	3.0	4.5	8	1						24	18	A-7-6	16								
		4	6.0	7.5	4.5	6.0	13	2.5						18	18	A-7-6	16								
36	B 070-0 20	1	1.5	3.0	0.3	1.8	13	2	35	22	13	49	30	79	21	17	A-6a	9	240		N ₆₀ & Mc		12"		
		2	3.0	4.5	1.8	3.3	10	1.5	42	19	23	54	35	89	25	18	A-7-6	14			HP & Mc				
		3	4.5	6.0	3.3	4.8	7	0.5						21	18	A-7-6	16								
		4	6.0	7.5	4.8	6.3	7	0.5						22	18	A-7-6	16								

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics					Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)	
			From	To	From	To	N ₆₀	N _{60L}		LL	PL	PI	% Silt	% Clay	P200	M _C	M _{OPT}	Class		GI	Unsuitable	Unstable	Unsuitable		Unstable
37	B 073-0 20	1	1.5	3.0	0.0	1.5	11	7	2	35	23	12	32	40	72	18	18	A-6a	8	53		N ₆₀		12"	
		2	3.0	4.5	1.5	3.0	13		1.5	49	21	28	38	50	88	24	18	A-7-6	17			HP & Mc			
		3	4.5	6.0	3.0	4.5	7		1							28	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	11		2							22	18	A-7-6	16						
38	B 074-0 20	1	1.5	3.0	0.5	2.0	13	13	2.5	35	23	12	39	44	83	21	18	A-6a	9	33		N ₆₀ & Mc		12"	
		2	3.0	4.5	2.0	3.5	13		1.5	40	18	22	40	38	78	20	16	A-6b	13			HP & Mc			
		3	4.5	6.0	3.5	5.0	15		3							22	16	A-6b	16						
		4	6.0	7.5	5.0	6.5	21		2.5							21	16	A-6b	16						
39	B 077-0 20	1	1.5	3.0	0.0	1.5	13	11		29	24	5	38	28	66	12	19	A-4a	6	60					
		2	3.0	4.5	1.5	3.0	11		1.5	42	19	23	38	38	76	22	18	A-7-6	14			HP & Mc			
		3	4.5	6.0	3.0	4.5	11		2							22	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	13		2.5							17	18	A-7-6	16						
40	B 78-0- 0	1	1.5	3.0	0.5	2.0	17	10		29	23	6	29	49	78	6	18	A-4a	8	40					
		2	3.0	4.5	2.0	3.5	13		2.5	42	19	23	38	43	81	26	18	A-7-6	14			N ₆₀ & Mc			
		3	4.5	6.0	3.5	5.0	10		3							20									
		4	6.0	7.5	5.0	6.5	15		2							16									
41	B 081-0 20	1	1.5	3.0	0.0	1.5	14	10	1	36	20	16	51	25	76	16	16	A-6b	10	120		HP		12"	
		2	3.0	4.5	1.5	3.0	10		2	32	17	15	37	29	66	27	14	A-6a	8			N ₆₀ & Mc			
		3	4.5	6.0	3.0	4.5	10		2							17	14	A-6a	10						
		4	6.0	7.5	4.5	6.0	25		4							20	14	A-6a	10						
42	B 082-0 20	1	1.5	3.0	0.4	1.9	8	8	1	29	19	10	46	24	70	25	14	A-4a	7	140		HP & Mc		12"	
		2	3.0	4.5	1.9	3.4	10		1	53	20	33	40	48	88	18	18	A-7-6	19			HP			
		3	4.5	6.0	3.4	4.9	52		1.5							16	18	A-7-6	16						
		4	6.0	7.5	4.9	6.4	13		2							17	18	A-7-6	16						
43	B 085-0 20	1	1.5	3.0	0.0	1.5	10	10	2	29	18	11	55	19	74	23	14	A-6a	8	170		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	14		2.5							16	16	A-6b	16						
		3	4.5	6.0	3.0	4.5	17		2	37	19	18	35	38	73	18	16	A-6b	11						
		4	6.0	7.5	4.5	6.0	32		4							16	16	A-6b	16						
44	B 086-0 20	1	1.5	3.0	0.3	1.8	14	8	4.5	52	25	27	29	19	48	19	20	A-4b	8	180		A-4b		21"	
		2	3.0	4.5	1.8	3.3	8			50	31	19	39	17	56	22	26	A-6b	9			N ₆₀			
		3	4.5	6.0	3.3	4.8	13		3							19	16	A-6b	16						
		4	6.0	7.5	4.8	6.3	14		2.5							18	16	A-6b	16						
45	B 089-0 20	1	1.5	3.0	0.0	1.5	13	13	2.5	30	18	12	35	38	73	22	14	A-6a	8	200		N ₆₀ & Mc		12"	
		2	3.0	4.5	1.5	3.0	15		2	47	20	27	34	47	81	21	18	A-7-6	16			Mc			
		3	4.5	6.0	3.0	4.5	24		4.5							15	18	A-7-6	16						
		4	6.0	7.5	4.5	6.0	25		4.5							15	18	A-7-6	16						

PID: 112818

County-Route-Section: MARC-529-2.59

No. of Borings: 45

Geotechnical Consultant: Resource International Inc.

Prepared By: Peyman Majidi, PE

Date prepared: 4/5/2021

Chemical Stabilization Options		
320	Rubblize & Roll	No
206	Cement Stabilization	Option
	Lime Stabilization	Option
206	Depth	14"

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L): Average(HP):	12" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design CBR	5
-----------------------	----------

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	1%	$HP \leq 0.5$	8%
$N_{60} < 12$	40%	$0.5 < HP \leq 1$	7%
$12 \leq N_{60} < 15$	24%	$1 < HP \leq 2$	30%
$N_{60} \geq 20$	22%	$HP > 2$	43%
M+	31%		
Rock	0%		
Unsuitable	1%		

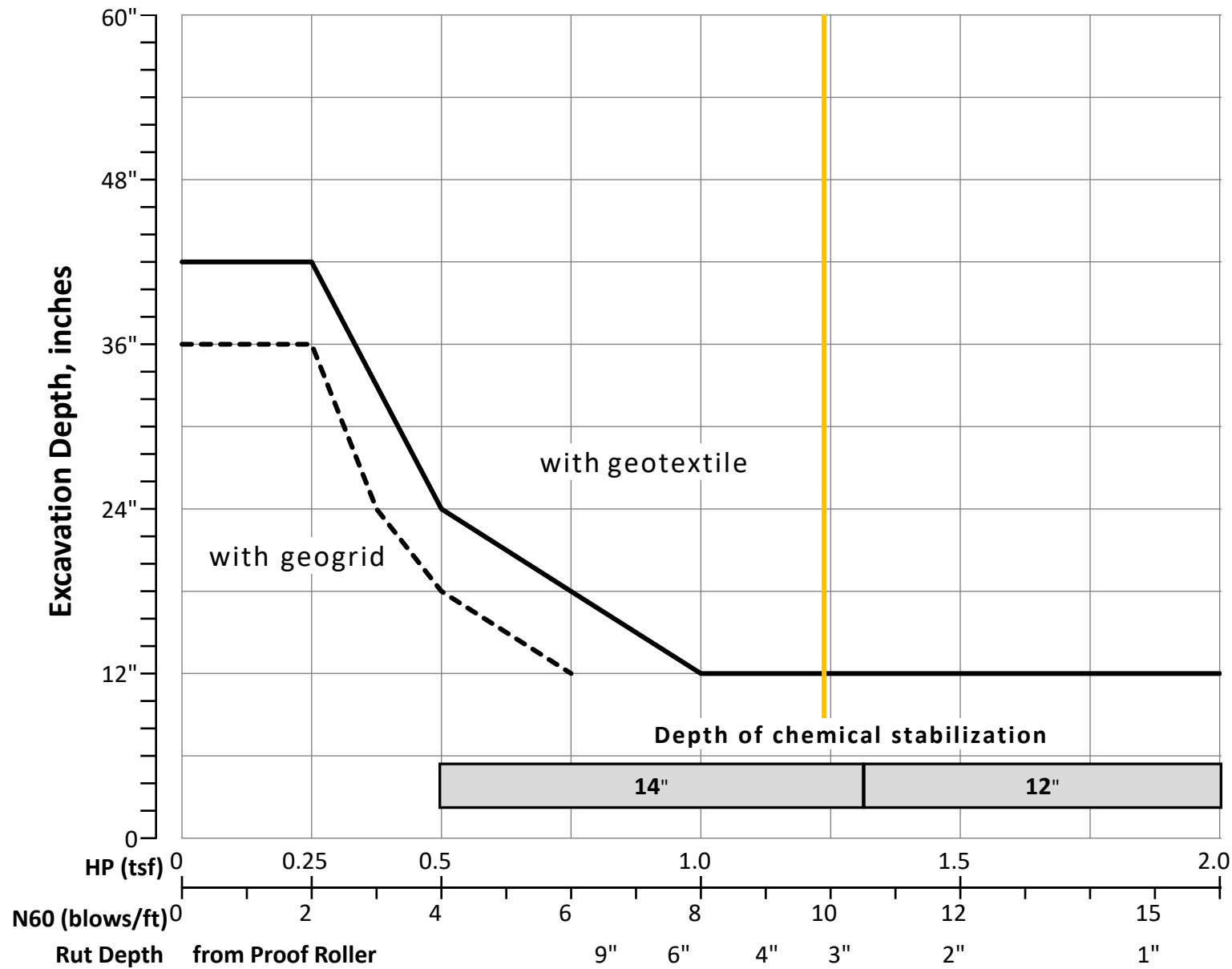
Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	77%
Unstable	74%
Unsuitable	2%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_c	M_{OPT}	GI
Average	15	10	2.34	38	20	19	38	36	74	19	16	12
Maximum	70	14	4.50	58	31	37	55	54	91	30	26	20
Minimum	0	0	0.50	27	15	5	20	6	26	6	6	0

Classification Counts by Sample																			
ODOT Class	Rock	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-3	A-3a	A-4a	A-4b	A-5	A-6a	A-6b	A-7-5	A-7-6	A-8a	A-8b	Totals
Count	0	0	2	4	0	1	0	0	0	15	2	0	45	51	0	58	0	0	178
Percent	0%	0%	1%	2%	0%	1%	0%	0%	0%	8%	1%	0%	25%	29%	0%	33%	0%	0%	100%
% Rock Granular Cohesive	0%	12%										88%							100%
Surface Class Count	0	0	2	2	0	1	0	0	0	7	2	0	26	26	0	24	0	0	90
Surface Class Percent	0%	0%	2%	2%	0%	1%	0%	0%	0%	8%	2%	0%	29%	29%	0%	27%	0%	0%	100%

GB1 Figure B – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
2.34	2.00	<input type="checkbox"/> HP
9.91	10.00	<input type="checkbox"/> N60L

Average HP —
 Average N_{60L} —