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May 31, 2019

Mr. Joshua Slaga, PE
Project Manager
GPD Group
520 South Main Street, Suite 2531
Akron, OH 44311
(330) 572-3515 (O)
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jslaga@gpdgroup.com

Re: Geotechnical Subsurface Exploration Report
Proposed MED-57 and Seville Road Intersection Improvement Project
PID No. 107578
Wadsworth, Medina County, Ohio
PSI Project No.: 0142-1920

Dear Mr. Slaga:

Per your request, Professional Service Industries, Inc. (PSI) is pleased to submit this Geotechnical Engineering Services Report for the above referenced project. The results of this exploration, together with our recommendations, are to be found in the accompanying report.

After the plans and specifications are complete, PSI should review the final design and specifications in order to verify that the earthwork and recommendations are properly interpreted and implemented. **It is considered imperative that the geotechnical engineer and/or its representative be present during earthwork operations and pavement installations to observe the field conditions with respect to the design assumptions and specifications. PSI will not be held responsible for interpretations and field quality control observations made by others.**

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.



Joseph Corrigan
Project Engineer

Surya Thapa, P.E.
Geotechnical Department Manager

A. Veeramani, P.E.
Director/Principal Consultant

Subsurface Exploration Report

For the Proposed

MED-57-1.48 Intersection Improvement Project
SR-57 and Seville Road
PID No. 107578
Wadsworth, Medina County, Ohio

Prepared for

GPD Group
520 South Main Street, Suite 2531
Akron, OH 44311

Prepared by

Professional Service Industries, Inc.
5555 Canal Road
Cleveland, OH 44125

PSI Project No. 0142-1920

Joseph Corrigan
Project Engineer

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TABLE OF CONTENTS

LIST OF APPENDICES

EXECUTIVE SUMMARY

The project involves field exploration and pavement recommendations for the proposed improvement of the MED-57 and Seville Road intersection in the City of Wadsworth, Medina County, Ohio. The proposed project limits are approximately 1,500 feet in length along MED-57 and approximately 1,000 feet in length along Seville Road. The test borings for this exploration were advanced through the existing pavement or other surface materials at the locations selected and field located by PSI. The following brief summary of the exploration findings and geotechnical considerations for this project are presented below:

- A total of ten (10) SPT soil test borings and six (6) pavement cores were performed within the project limits between May 10 and May 21, 2019. The test borings were drilled to depths of 10 to 15 feet below the existing grades.

- At boring locations B-001, B-002, B-005, B-006, B-007, and B-010, the surface of the site was covered with a 7- to 8.5-inch-thick layer of asphalt concrete, underlain by a 6- to 10-inch-thick layer of aggregate base material. At boring locations B-003, B-004, B-008, and B-009, the surface of the site was covered with an 11- to 13-inch-thick layer of topsoil, with some sand and gravel. The thickness of the surface materials should be expected to vary throughout the site.

- The surface materials at all test boring locations except B-004 were underlain by fill materials, which were encountered to depths ranging from 2.5 to 4.0 feet below the existing grades. Fill soils consisted of gravel with sand (A-1-b), gravel with sand and silt (A-2-4), fine sand (A-3), coarse and fine sand (A-3a), and sandy silt (A-4a), with varying amounts of clay, asphalt, and slag fragments. The fill soils exhibited moisture contents ranging from approximately 7 to 20 percent. The cohesive fill soils exhibited a stiff to very stiff consistency, and the granular fill soils exhibited a loose to dense relative density, based on the Standard Penetration Tests.

- The surface and fill materials at all boring locations were underlain by natural soils. The natural soils extended to the terminal depths of exploration of about 10 to 15 feet below the existing surface grades. The natural soils consisted of gravel with sand (A-1-b), gravel with sand and silt (A-2-4), fine sand (A-3), coarse and fine sand (A-3a), sandy silt (A-4a), and clay (A-7-6). Natural soils exhibited moisture contents ranging from 9 to 32 percent. The natural cohesive soils exhibited a medium stiff to hard consistency, and natural granular soils exhibited a medium dense to dense relative density, based on the Standard Penetration Tests.

- Groundwater was encountered in all test borings, at depths ranging from 4.5 to 9.0 feet below the existing grade during the drilling operations.

- An average **CBR value of 10** was established for the existing subgrade according to the GB-1 analysis.

The summary should be used in conjunction with the entire subsurface exploration report since the summary sheet cannot include all details of investigation findings.

1 PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

This report presents the results of a geotechnical subsurface exploration and evaluation conducted for GPD Group in connection with the proposed MED-57 Intersection Improvement Project at State Route 57 and Seville Road, in the City of Wadsworth, Medina County, Ohio. PSI's services for this project were performed in accordance with PSI Proposal No. 0142-247561, dated June 15, 2018. Authorization to perform this exploration and analysis was in the form of a signed Project Authorization Form by GPD Group, dated March 1, 2019.

1.2 PROJECT DESCRIPTION

Based on the provided information, it is understood that the proposed development will include construction of a modern roundabout at the intersection of State Route 57 and Seville Road in Wadsworth, Medina County, Ohio. The project limit is approximately 1,500 feet in length along SR-57 and approximately 1,000 feet in length along Seville Road. The proposed roundabout alignment will be paved with asphalt, and will have one lane within the roundabout, with one approach lane and one exit lane for each street intersecting the roundabout. The proposed project also includes water main and sanitary sewer line replacement within the project area. No other information was available at the time of this report.

No specific grading or topographic plan was provided at the time of this report. However, based on topographic information obtained from the Medina County GIS website, the existing road section is relatively flat, with an elevation difference of about 4 feet (984' to 980' MSL) from south to north along SR-57, and an elevation difference of about 5 feet (978.5' to 983.5') from west to east along Seville Road. PSI understands that minimal grade alterations (less than 1 foot of cut and fill) will be made for this project.

No other information was available at the time of this report. If any of the above project information is incorrect or has changed, please inform PSI so that we may amend the recommendations presented in this report, if appropriate.

The geotechnical recommendations presented in this report are based on the available project information, the proposed location and orientation of the pavement widening section on the site and the subsurface materials described in this report. If any of the information we have been given or have assumed is incorrect, please contact us so that we may amend the recommendations presented accordingly. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to explore the soil and groundwater conditions at the site and to prepare recommendations, from a geotechnical engineering viewpoint, relative to the design and construction of the proposed roadway improvement project. Our scope for this service included a project site reconnaissance, drilling and sampling ten (10) test borings and pavement cores, completing a laboratory testing program, and submitting an engineering analysis and evaluation of the subsurface materials.

While ten (10) pavement cores were planned to be performed in association with the soil test borings, due to the placement of only six (6) test borings within the existing pavement alignment, only six (6) pavement cores were performed in association with the test borings.

The scope of services for the geotechnical exploration did not include an environmental assessment for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors, colors or unusual or suspicious items or conditions are strictly for the information of the client.

2 SITE DESCRIPTION AND OBSERVATIONS OF THE PROJECT

2.1 SITE LOCATION AND DESCRIPTION

The proposed intersection improvement project, for which this subsurface exploration has been performed, will be located at the intersection of SR-57 and Seville Road in the City of Wadsworth, Medina County, Ohio. This intersection is bordered by commercial properties and farm fields. The surface of the existing roadway, upon which this exploration was conducted, is covered with asphalt concrete. No specific grading or topographic plan was provided at the time of this report. However, based on topographic information obtained from the Medina County GIS website, the existing road section is relatively flat, with an elevation difference of about 4 feet (984' to 980' MSL) from south to north along SR-57, and an elevation difference of about 5 feet (978.5' to 983.5') from west to east along Seville Road. The surface drainage was good to fair at the time of the field drilling operations. PSI recommends that all utility lines be checked and marked prior to construction activities.

2.2 SITE GEOLOGY

According to the Medina County Soil Survey, Medina County is in parts of two physiographic provinces: Great Central Lowlands and the glaciated part of the Appalachian Plateau. The topography is generally nearly level to sloping with a general rise in elevation from west to east. Most of the soils in Medina County are underlain by glacial drift or till deposits from the Wisconsin Glaciation. About two-thirds of Medina County drains into Lake Erie mainly by way of the Rocky River and the East Branch of Black River. The remaining one-third is in the Ohio River watershed.

The availability and quantity of ground water in the vicinity of the project area is dependent on the local aquifer type and specific location. According to Ground-Water Resources of Medina County (ODNR 1978); ground water in the project area is generally obtained from sand and gravel deposits or sandstone-shale formations. The principal aquifer is the Sharon conglomerate. Wells may produce yields as high as 100 to 500 gpm from the sand and gravel deposits, and limited yields of up to 15 gpm from the sandstone-shale formations.

3 EXPLORATION

3.1 HISTORICAL BORINGS REFERENCED

No historical boring information was available within the project limits.

3.2 FIELD DRILLING OPERATIONS

As discussed in the Purpose and Scope of Services section, a total of ten (10) test borings and six (6) associated pavement cores were taken within the project limits. The test borings were drilled to depths of about 10 to 15 feet each below the existing grades. The borings were drilled at the approximate locations shown on the Boring Location Plan presented in the Appendix of this report. The number of the test borings was selected and field located by a representative of PSI prior to field drilling operations.

Prior to the soil sampling at the boring locations, the existing pavement structures were cored utilizing portable coring equipment. The borings were then advanced into the ground using hollow stem augers mounted on a truck-mounted drill rig. The split spoon sampling procedures used during this exploration are in basic accordance with Ohio Department of Transportation Specifications for Subsurface Exploration section 303.3 (Type A and B).

The split spoon sampler was first seated 6 inches to penetrate any loose cuttings and then driven an additional 1.5 feet with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler each 6-inch increment was recorded. The penetration resistance "N value" is designated as the number of hammer blows required to drive the sampler the final foot and an index to cohesion for clays and relative density for sands.

3.3 LABORATORY TESTING

The soil samples obtained during the field exploration were transported to the laboratory and visually examined. The soil samples obtained from the drilling operation were tested for moisture content (AASHTO T-265), liquid limits (AASHTO T-89), plastic limits (AASHTO T-90), grain size analyses (AASHTO T-88), and sulfate contents (TEX-145). The samples were classified in general accordance with the ODOT Specifications for Subsurface Investigations, Classification of Soil. Descriptions and lab test data of the soils encountered in the test borings are provided on the Boring Logs included in the Appendix. Groundwater conditions, standard penetration resistances, and other pertinent information are also included. The remaining soil samples will be retained at our office for 60 days from the date of this report and then discarded.

4 FINDINGS

4.1 ROADWAY BORINGS

The composition and approximate thicknesses of the existing surface materials, pavement and base materials encountered at the test boring locations are listed in the table below:

Bore No.	Asphalt (Inches)	Base (Inches)	Bore No.	Asphalt (Inches)	Base (Inches)
B-001	8.5	6.0	B-006	7.75	6.0
B-002	7.0	6.0	B-007	8.0	10.0
*B-003	--	--	*B-008	--	--
*B-004	--	--	*B-009	--	--
B-005	8.0	6.0	B-010	8.5	9.5

*No pavement core taken, boring performed outside existing pavement.

The thickness of the asphalt concrete and aggregate base should be expected to vary throughout the site. At boring locations B-001, B-002, B-005, B-006, B-007, and B-010, the surface of the site was covered with a 7- to 8.5-inch-thick layer of asphalt concrete, underlain by a 6- to 10-inch-thick layer of aggregate base material. At boring locations B-003, B-004, B-008, and B-009, the surface of the site was covered with an 11- to 13-inch-thick layer of topsoil, with some sand and gravel.

The surface materials at all test boring locations except B-004 were underlain by fill materials, which were encountered to depths ranging from 2.5 to 4.0 feet below the existing grades. Fill soils consisted of gravel with sand (A-1-b), gravel with sand and silt (A-2-4), fine sand (A-3), coarse and fine sand (A-3a), and sandy silt (A-4a), with varying amounts of clay, asphalt, and slag fragments. The fill soils exhibited moisture contents ranging from approximately 7 to 20 percent. The cohesive fill soils exhibited a stiff to very stiff consistency, and the granular fill soils exhibited a loose to dense relative density, based on the Standard Penetration Tests.

The surface and fill materials at all boring locations were underlain by natural soils. The natural soils extended to the terminal depths of exploration of about 10 to 15 feet below the existing surface grades. The natural soils consisted of gravel with sand (A-1-b), gravel with sand and silt (A-2-4), fine sand (A-3), coarse and fine sand (A-3a), sandy silt (A-4a), and clay (A-7-6). Natural soils exhibited moisture contents ranging from 9 to 32 percent. The natural cohesive soils exhibited a medium stiff to hard consistency, and natural granular soils exhibited a medium dense to dense relative density, based on the Standard Penetration Tests.

Please note that the subsurface description is of a generalized nature, which is provided to highlight the major strata encountered. The boring logs and laboratory test data included in the Appendix should be reviewed for specific information at the individual boring locations. The stratifications shown on the boring logs represent the conditions only at the actual test positions. Variations may occur and should be expected between the boring locations. The stratifications represent the approximate boundary between the subsurface materials, and the transition may be gradual or not clearly defined.

4.2 GROUNDWATER CONDITIONS

Groundwater was encountered in all test borings, at depths ranging from 4.5 to 9.0 feet below the existing grade during the drilling operations. Note that groundwater levels fluctuate seasonally as a function of rainfall. During a time of year or weather different from the time of drilling, there may be a considerable change in the water table. Furthermore, the water levels in the boreholes often are not representative of the actual groundwater level, because the boreholes remain open for a relatively short time. Therefore, we recommend that the contractor determine the actual groundwater levels at the time of construction to evaluate groundwater impact on the construction procedures.

5 EVALUATION AND RECOMMENDATIONS

5.1 SITE PREPARATION AND EARTHWORK OPERATIONS

It is recommended that all site preparation and earthwork operations be conducted in accordance with the following generalized procedures:

Areas of the site where the roadway reconstruction or new pavement areas are to be located, shall have all existing asphalt concrete, base course, grass, trees, gravel, landscaping, topsoil, highly organic soils, excessively soft/loose or wet soils, and all other deleterious materials, completely removed from the proposed construction areas. The existing fill material, as evidenced at test boring locations B-001, B-005, B-006, B-009, B-013, and B-014, should be stabilized as discussed below.

ODOT's guidelines for geotechnical engineering titled *GB1: Plan Subgrades* dated January 18, 2019 and *GB1: Subgrade Analysis Spreadsheet*, have been utilized as a guideline for development of the recommendations included in this report. Per ODOT requirements stated above, typically materials with in-place moisture contents exceeding the optimum moisture content by 3 percent or more, or materials exhibiting low SPT N-Values ("blow counts"), require subgrade undercutting or stabilization to obtain adequate pavement support.

Based on ODOT's GB1, the approximate stations along the proposed project that will likely require undercutting and replacement are as shown in the following table:

Boring	Sulfate Content (ppm) (1'-2.5' Sample)	Rec. Minimum Undercut (inches)	Global Stabilization (Inches)	Recommended CBR Value
B-001	--	--	12	10
B-002	--	--		
B-003	<100	12		
B-004	<100	--		
B-005	<100	--		
B-006	--	--		
B-007	420	12		
B-008	--	--		
B-009	--	--		
B-010	780	24		

Utilizing the test boring and laboratory results, ODOT guidelines and our analysis, it is anticipated that, within the approximate limits outlined above, removal and replacement of the unsuitable soils, to a depth of 12 inches below the subgrade with geotextile, will be required for the proposed project. Please refer to the Appendix table titled *Soil Investigation Summary,* for the exact recommended depths and limits of the undercutting and cement stabilization. The sulfate test results indicate that sulfate content is less than 3,000 ppm. Based on our calculations, 3 out of 10 boring locations in the proposed roadway reconstruction areas will require subgrade stabilization to depths ranging from 12 to 24 inches below the existing grade.

712.09 Geotextile Fabric Type D should be utilized at the bottom of the undercut areas for the undercut/replacement option. The undercut areas can be replaced with compacted 703.16.C granular Type B, C, or D fill materials.

Careful visual control of clearing and stripping operations should be maintained to assure that all deleterious materials are removed. The extent to which deleterious materials are to be removed should be determined in the field following visual observation of the exposed subgrades. Subsequent to the site area clearing and stripping, all structural subgrade sectors should be subjected to critical proof-rolling operations and careful observation of subgrade reactions. Any sectors that exhibit instability are to be undercut or stabilized to such depths as may be necessary to assure satisfactory supporting properties. The undercut areas shall be backfilled with approved fill materials, placed and compacted under carefully controlled procedures as described below.
All areas that are to receive structural fill should be filled on a critically controlled, lift-by-lift basis, employing select, clean, organically free materials. All structural fill should be verified and approved by the project's geotechnical engineer prior to placement. Individual fill lifts are to be of maximum 8-inch loose measure thickness and each individual lift is to be adjusted in moisture content to within plus or minus two 2 percent of the optimum moisture content, as determined in accordance with ASTM Standard Proctor method D-698. However, for granular fill materials, the moisture-density compaction curve for the fill will not be sensitive to placement moisture. Accordingly, the density defined for an energy corresponding to ASTM D-698 should be used for control of fill placement. The fill materials are to be systematically compacted such that an in-place density of at least 98 percent of the maximum laboratory density as determined in accordance with the above-referenced ASTM method is achieved. Specifications should require that the resulting subgrade and fill materials' densities be verified by test measurements conducted by the geotechnical engineer.

Careful attention will be required in fine-grading the subgrade surfaces in order to eliminate undulations and depressions that would tend to collect water. The pavement subgrade surface should be graded in a manner such that positive drainage towards the pavement edges and/or drainage systems will be insured.

Throughout the course of the earthwork operations, surface grades are to be maintained to facilitate positive drainage within the construction area and to prevent inundation of either the existing subgrade or new fill material. No water should be allowed to impound on the subgrade surfaces during this time.

5.2 PAVEMENT DESIGN AND CONSTRUCTION

Pavement design for the roadway structures will include proper preparation of subgrade sectors, careful design of the pavement area drainage systems and utilization of an aggregate base course with an asphalt concrete surface course.

Inclusion of adequate permanent surface and subsurface drainage systems along and beneath the roadway is considered imperative in order to maintain the compacted subgrades as close to optimum moisture conditions as possible. A subsurface drainage system consisting of perforated drain pipes bedded in and backfilled with suitable filter materials should be installed along either side of all roadways at an elevation, such that groundwater will be maintained a minimum of 3 feet below the top of the pavement structures. The filter around the drainage members is to terminate in direct contact with the aggregate base course for the pavements. All subgrade sectors should be graded to direct water by gravity toward the drainage lines. At all low points and at regular intervals, lateral underdrain lines connected to suitably located outlet points are to be provided. Site surface grades should be such that no pavement sectors are allowed to impound water. All surface and subsurface water is to be directed to the existing or new storm sewer line or drainage ditches.

The results of the laboratory tests and GB1 analysis indicate that a **CBR value of 10** can be utilized for the design of the proposed pavement structures, provided that the subgrade materials consist of properly compacted structural fill or natural soils, as recommended.

All materials to be employed and field operations required in connection with the contemplated pavement structures should follow recommendations and procedural details as per the Ohio Department of Transportation.

5.3 DRAINAGE

Inclusion of adequate permanent surface and subsurface drainage systems along and beneath the roadway is considered imperative in order to maintain the compacted subgrades as close to optimum moisture conditions as possible. A subsurface drainage system consisting of perforated drain pipes bedded in and backfilled with suitable filter materials should be installed along either side of all roadways at an elevation, such that groundwater will be maintained a minimum of 3 feet below the top of the pavement structures. The filter around the drainage members is to terminate in direct contact with the aggregate base course for the pavements. All subgrade sectors should be graded to direct water by gravity toward the drainage lines. At all low points and at regular intervals, lateral underdrain lines connected to suitably located outlet points are to be provided. Site surface grades should be such that no pavement sectors are allowed to impound water. All surface and subsurface water is to be directed to the existing or new storm sewer line or drainage ditches.

5.4 GROUNDWATER CONTROL

Groundwater was encountered in all test borings, at depths ranging from 4.5 to 9.0 feet below the existing grade during the drilling operations. Groundwater and/or seepage may be encountered during excavation. Accordingly, a gravity drainage system, sump pump or other conventional dewatering procedure, as deemed necessary by the field conditions, should be implemented throughout construction such that the groundwater is controlled and maintained at an elevation of at least 2 feet below the excavation bottom at all times. Every effort should be made to keep the excavations dry if water is encountered.

5.5 EXCAVATIONS

In Federal Register, Volume 54, No. 209 (October, 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, Part 1926, Subpart P." This document was issued to better insure the safety of workers entering trenches or excavations. It is mandated by this federal regulation that all excavations, whether they be utility trenches, basement excavations or foundation excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced. If they are not followed closely, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person" as defined in "CFR Part 1926," should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

We are providing this information solely as a service to our client. PSI is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred. If the excavations are left open and exposed to the elements for a significant length of time, desiccation of the clays may create minute shrinkage cracks which could allow large pieces of clay to collapse or slide into the excavation.

Materials removed from the excavation should not be stockpiled immediately adjacent to the excavation, inasmuch as this load may cause a sudden collapse of the embankment.

5.6 WEATHER CONSIDERATIONS

The soils encountered at this site are known to be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. Care should be exercised during the grading operations at the site. Due to the fine-grained nature of the surficial soils, the traffic of heavy equipment, including heavy compaction equipment, may very well create pumping and a general deterioration of those soils in the presence of water. Therefore, the grading should, if at all possible, be performed during a dry season. A layer of crushed stone may be required to allow the movement of construction traffic over the site during the rainy season. The contractor should maintain positive site drainage and if wet/pumping conditions occur, the contractor will be responsible to over excavate the wet soils and replace them with a properly compacted engineered fill. During wet seasons, limestone stabilization may be required to place engineered fill.

6 GEOTECHNICAL RISK

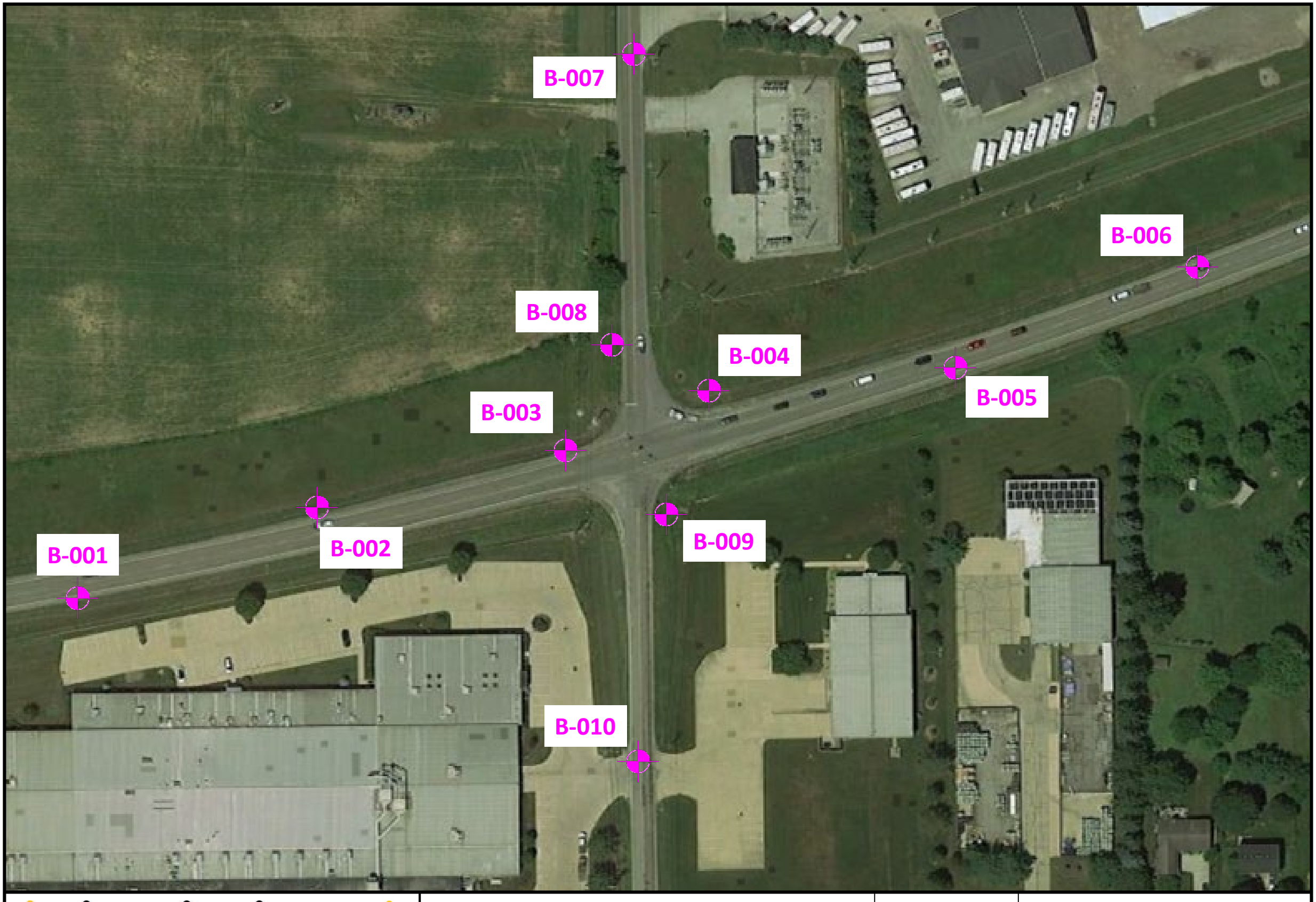
The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. Site exploration identifies actual subsurface conditions only at those points where samples are taken. A geotechnical report is based on conditions that existed at the time of the subsurface exploration. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding sections constitute PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

7 REPORT LIMITATIONS

The recommendations submitted in this report are based on the available subsurface information obtained by PSI and design details furnished by Mr. Joshua Slaga, P.E., of GPD Group for the proposed project. If there are any revisions to the plans for the proposed project, or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be retained to determine if changes in the recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the geotechnical recommendations for the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein, have been presented after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics and engineering geology. No other warranties are implied or expressed.

After the plans and specifications are complete, it is recommended that PSI be provided the opportunity to review the final design and specifications, in order to verify that the earthwork and recommendations are properly interpreted and implemented. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of GPD Group, for the specific application to the proposed Intersection Improvement Project along SR-57 in the City of Wadsworth, Medina County, Ohio.



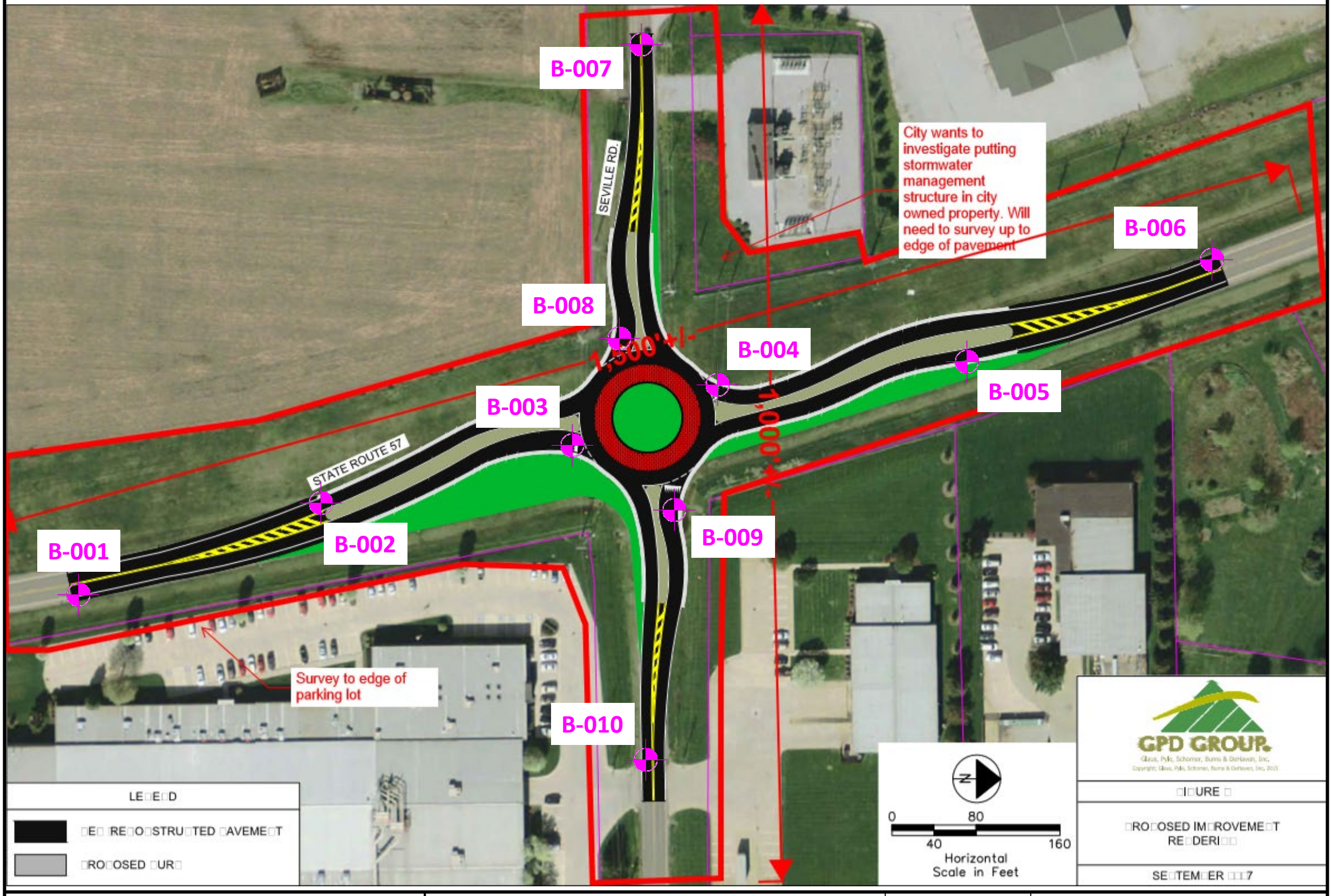
intertek psi

Roundabout Intersection
SR-57 and Seville Road
Wadsworth, Medina County, OH

Prepared By: JC
Date: 3/22/19
Not to Scale

Boring Location Plan

PSI Project No. 0142-1920



intertek psi	**Roundabout Intersection** **SR-57 and Seville Road** **Wadsworth, Medina County, OH**	**Prepared By: JC** **Date: 3/22/19** **Not to Scale**	**Boring Location Plan** **PSI Project No. 0142-1920**

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Bulletin GB1

Instructions: Enter data in the shaded cells only.
(Enter state route number, project description,county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

MED-57-1.48
107578
Intersection Improvement at MED-57 and Seville Road
Extending 1,500 feet along MED-57 and 1,000 feet along Seville Road

Intertek-PSI

Prepared By: Alagaiya Veeramani
Date prepared: Thursday, May 30, 2019

Alagaiya Veeramani
Professional Services Industries, Inc.
5555 Canal Road
Valley View, Ohio 44125
216-447-1335
alagaiya.veeramani@intertek.com

NO. OF BORINGS: 10

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-19	MED-57	N/A	10	Rt	Diedrich D50 Truck	90	100.0	100.0	0.0
2	B-002-0-19	MED-57	N/A	15	Lt	Diedrich D50 Truck	90	100.0	100.0	0.0
3	B-003-0-19	MED-57	N/A	22	Lt	CME 55 ATV	87	100.0	100.0	0.0
4	B-004-0-19	MED-57	N/A	50	Lt	CME 55 ATV	87	100.0	100.0	0.0
5	B-005-0-19	MED-57	N/A	15	Rt	Diedrich D50 Truck	90	100.0	100.0	0.0
6	B-006-0-19	MED-57	N/A	15	Lt	Diedrich D50 Truck	90	100.0	100.0	0.0
7	B-007-0-19	Seville Rd	N/A	5	Lt	Diedrich D50 Truck	90	100.0	100.0	0.0
8	B-008-0-19	Seville Rd	N/A	15	Rt	CME 55 ATV	87	100.0	100.0	0.0
9	B-009-0-19	Seville Rd	N/A	20	Lt	CME 55 ATV	87	100.0	100.0	0.0
10	B-010-0-19	Seville Rd	N/A	5	Rt	Diedrich D50 Truck	90	100.0	100.0	0.0

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.4 10/1/2018

#	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	SS-1	1.0	2.5	1.0	2.5	35		0.75	18	16	2	10	6	16	7	6	A-1-b	0						
	001-0	SS-2	2.5	4.0	2.5	4.0	17			21	17	4	24	10	34	13	10	A-2-4	0						
	19	SS-3	4.0	5.5	4.0	5.5	21									11	8	A-3a	0						
		SS-4	5.5	7.0	5.5	7.0	21	17								15	8	A-3a							
2	B	SS-1	1.0	2.5	1.0	2.5	17		1	NP	NP	NP	4	3	7	20	6	A-1-b	0						
	002-0	SS-2	2.5	4.0	2.5	4.0	14		2	21	16	5	30	11	41	18	11	A-4a	1						
	19	SS-3	4.0	5.5	4.0	5.5	27									11	8	A-3a	0						
		SS-4	5.5	7.0	5.5	7.0	20	14								21	8	A-3a							
3	B	SS-1	1.0	2.5	1.0	2.5	12		2.5	20	13	7	23	15	38	16	10	A-4a	1			N_{60} & Mc		12"	12" 204 Geotextile
	003-0	SS-2	3.5	5.0	3.5	5.0	6		1	45	18	27	38	39	77	30	18	A-7-6	16						
	19	SS-3	6.0	7.5	6.0	7.5	12			NP	NP	NP	10	4	14	19	8	A-3a							
		SS-4	8.5	10.0	8.5	10.0	25	6								18	8	A-3a							
4	B	SS-1	1.0	2.5	1.0	2.5	4			16	16	0	17	11	28	19	8	A-3a	0						
	004-0	SS-2	3.5	5.0	3.5	5.0	12			24	17	7	13	8	21	19	10	A-2-4	0						
	19	SS-3	6.0	7.5	6.0	7.5	12									17	8	A-3							
		SS-4	8.5	10.0	8.5	10.0	12	4		NP	NP	NP	8	2	10	17	8	A-3							
5	B	SS-1	1.0	2.5	1.0	2.5	35			NP	NP	NP	4	3	7	14	8	A-3	0						
	005-0	SS-2	2.5	4.0	2.5	4.0	27		1.5	NP	NP	NP	3	3	6	18	8	A-3	0						
	19	SS-3	4.0	5.5	4.0	5.5	23									9	8	A-3a	0						
		SS-4	5.5	7.0	5.5	7.0	6	6	0.5							24	8	A-3a							
6	B	SS-1	1.0	2.5	1.0	2.5	35			NP	NP	NP	6	3	9	12	8	A-3	0						
	006-0	SS-2	2.5	4.0	2.5	4.0	23			NP	NP	NP	2	6	8	13	8	A-3	0						
	19	SS-3	4.0	5.5	4.0	5.5	23		4.5							22	10	A-4a	8						
		SS-4	5.5	7.0	5.5	7.0	17	17	4.5							21	10	A-4a							
7	B	SS-1	1.0	2.5	1.0	2.5	26		1.5	22	17	5	22	30	52	16	12	A-4a	3			HP & Mc		12"	12" 204 Geotextile
	007-0	SS-2	2.5	4.0	2.5	4.0	9		0.5	21	15	6	28	13	41	20	10	A-4a	1						
	19	SS-3	4.0	5.5	4.0	5.5	9		1							19	10	A-4a	8						
		SS-4	5.5	7.0	5.5	7.0	20	9	0.5							15	10	A-4a							
8	B	SS-1	1.0	2.5	1.0	2.5	13			19	15	4	21	7	28	12	10	A-2-4	0						
	008-0	SS-2	3.5	5.0	3.5	5.0	17			NP	NP	NP	11	6	17	16	8	A-3a	0						
	19	SS-3	6.0	7.5	6.0	7.5	12			NP	NP	NP	6	3	9	17	6	A-1-b							
		SS-4	8.5	10.0	8.5	10.0	7	12	3							24	8	A-3a							
9	B	SS-1	1.0	2.5	1.0	2.5	9		0.5	NP	NP	NP	9	4	13	8	6	A-1-b	0						
	009-0	SS-2	3.5	5.0	3.5	5.0	10		2	NP	NP	NP	6	5	11	17	8	A-3a	0						
	19	SS-3	6.0	7.5	6.0	7.5	20		1.5							16	8	A-3a							
		SS-4	8.5	10.0	8.5	10.0	20	9		41	20	21	39	60	99	24	18	A-7-6							
10	B	SS-1	1.0	2.5	1.0	2.5	21		0.5	18	15	3	37	13	50	13	10	A-4a	3			HP & Mc		24"	24" 204 Geotextile
	010-0	SS-2	2.5	4.0	2.5	4.0	15		2	22	16	6	36	22	58	18	11	A-4a	5						
	19	SS-3	4.0	5.5	4.0	5.5	27		1.5							15	10	A-4a	8						
		SS-4	5.5	7.0	5.5	7.0	32	15								15	10	A-4a							

PID: 107578

County-Route-Section: MED-57-1.48

No. of Borings: 10

Geotechnical Consultant: Intertek-PSI

Prepared By: Alagaiya Veeramani

Date prepared: Thursday, May 30, 2019

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

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

Design CBR	10

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	3%	HP ≤ 0.5	14%
$N_{60} < 12$	19%	0.5 < HP ≤ 1	11%
$12 \leq N_{60} < 15$	19%	1 < HP ≤ 2	19%
$N_{60} \geq 20$	47%	HP > 2	8%
M+	8%		
Rock	0%		
Unsuitable	0%		

Excavate and Replace at Surface	
Average	5''
Maximum	24''
Minimum	0''

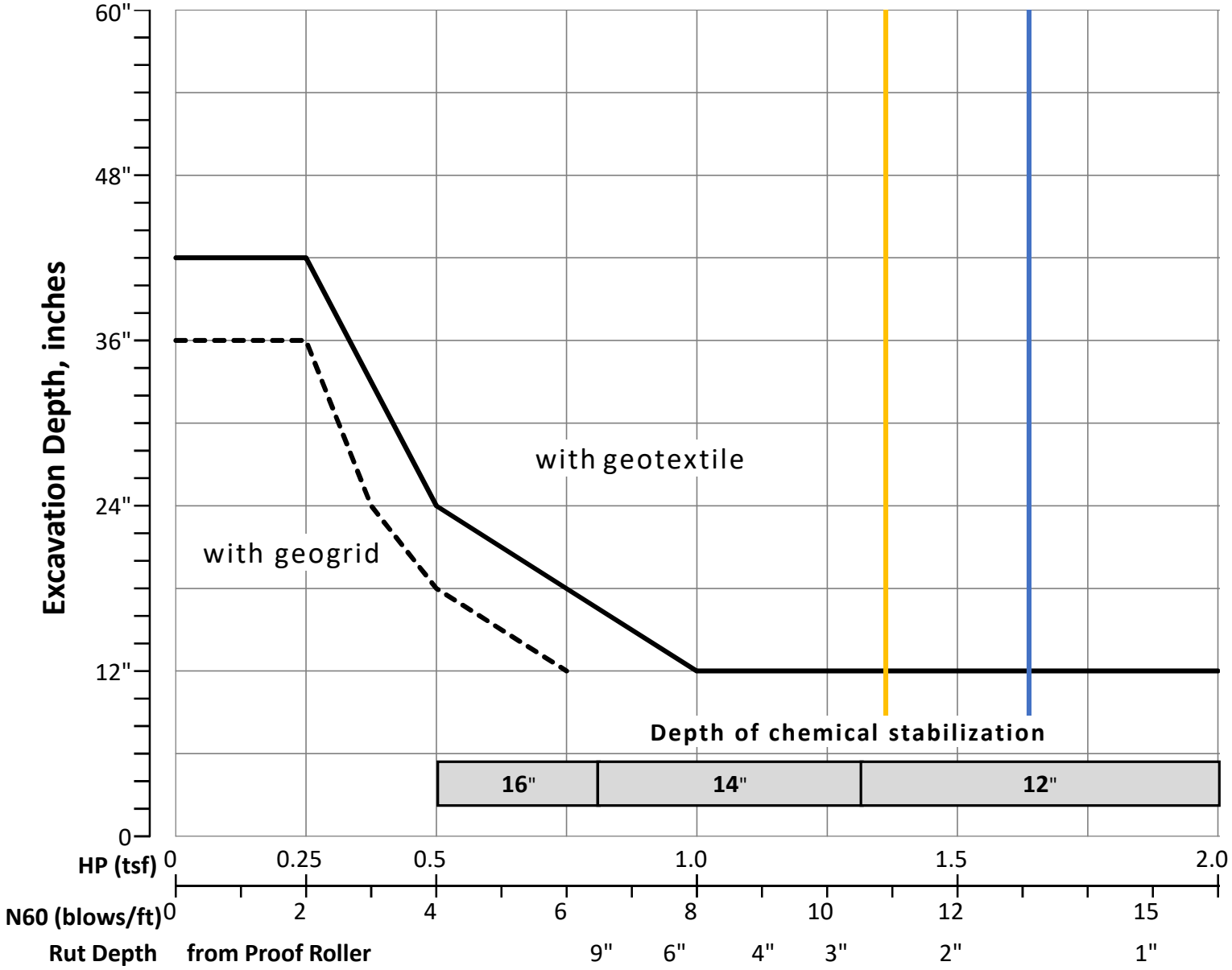
% Proposed Subgrade Surface	
Unstable & Unsuitable	19%
Unstable	19%
Unsuitable	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	18	11	1.64	24	16	7	17	12	29	17	9	2
Maximum	35	17	4.50	45	20	27	39	60	99	30	18	16
Minimum	4	4	0.50	16	13	0	2	2	6	7	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	4	3	0	0	0	6	13	12	0	0	0	0	0	2	0	0	40
Percent	0%	0%	10%	8%	0%	0%	0%	15%	33%	30%	0%	0%	0%	0%	0%	5%	0%	0%	100%
% Rock|Granular|Cohesive	0%	95%									5%								100%
Surface Class Count	0	0	3	2	0	0	0	4	1	6	0	0	0	0	0	0	0	0	16
Surface Class Percent	0%	0%	19%	13%	0%	0%	0%	25%	6%	38%	0%	0%	0%	0%	0%	0%	0%	0%	100%

GB1 Figure B – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
1.64	0.50	☐ HP
10.90	6.00	☐ N60L

Average HP
Average N_{60L}

The subgrade analysis workbook consists of five worksheets. Each worksheet functions independently. In all of the worksheets the fields are color coded as follows:

- Every yellow highlighted field indicates a field to be entered by the user.
- Every salmon field is to indicate a problem/issue.
- Every gray or green field is a heading/informational field.

IMPORTANT: The sequence of filling out the data needs to be followed as outlined below:

1. Cover Sheet: this worksheet is designed for the purpose of entering the project information. Enter all the following fields:

County-Route-Section	This includes the county, route, section number assigned to the project.
PID	the Project Identification Number
Project Description	See Cover Sheet for list of example details
Geotechnical Consultant	The Geotechnical Consultant performing the analysis.
Prepared By	The preparer of the subgrade analysis
Date prepared	The date the analysis is performed.
Contact Information	Name, address, telephone #, and email address
No. of Borings	Enter the total number of borings within the alignment that is being analyzed.

2. Boring Logs Entry Worksheet: this worksheet has a programming code that will run in the background every time the sheet is activated and will make the sheet unresponsive for less than a minute. The code is designed to read the total number of borings from the cover sheet and generate the needed number of fields.
   a. All yellow highlighted fields are user's entry.
   b. ODOT has developed a text table export from gINT *(GB 1 Borings Log Entry Tab)* that will allow for copy and paste of all highlighted fields with the exception of proposed subgrade elevation. The designer must provide a proposed subgrade elevation in order for the spreadsheet to function properly.
   c. The Cut/Fill field is a calculated field that, based on the difference between the boring elevation and the proposed subgrade elevation, will highlight the cell either gray and adds the letter "C" to the end in a cut situation or highlights the cell in light purple and adds the letter "F" to the end in a fill situation.
   d. Every duplicate boring ID will be highlighted in salmon background and red text.
   e. **IMPORTANT**: After entering all the borings' information, the user must click "Add Subgrade Analysis Entry Fields" button. This will generate all the required fields in the "Subgrade Analysis" Worksheet.

3. Subgrade Analysis Worksheet:
   a. The boring number and boring ID is read from the "Boring Logs Entry Worksheet" excluding every boring that has six feet or more of fill.
   b. All yellow highlighted fields are to be entered by the user and salmon highlighted fields indicates a problem or issue.
   c. Every sample that has a Sulfate Content greater than or equal to 3000 will be highlighted in light salmon background. Every sample that has a Sulfate Content greater than or equal to 8000 will be highlighted in darker salmon background. Note the revised sulfate criteria in GB1 issued July 20, 2018.

d. Unsuitable/Unstable:

i. Unsuitable samples that are within 3 feet of the top of subgrade will be highlighted with salmon background and the class will be showing in this field.

ii. Unstable Samples that are within 3 feet of top of subgrade will be highlighted with salmon background and text to indicate the problem as follows:

Criterion	Stabilization Need Check	Text displayed in the field
A-1-a, A-1-b, A-3, or A-3a Soil Class	No Stabilization is needed	
HP ≥ 1.875	No Stabilization is needed	
N_{60} ≥ 15	No Stabilization is needed	
1.875 ≥ HP ≥ 1.5 and M_c≥ Opt. M_c+3	Unstable Subgrade	HP & Mc
15 ≥ N_{60} ≥ 12 and M_c≥ Opt. M_c+3	Unstable Subgrade	N_{60} & Mc
HP ≤ 1.5	Unstable Subgrade	HP
N_{60} ≤ 12	Unstable Subgrade	N_{60}

iii. The field is formulated to check for HP first and check for N_{60} second.

e. Excavate and Replace (Item 204) is going to be calculated based on the subgrade depth for each sample indicating an unsuitable or unstable problem.

f. Recommendation:

i. Geotextile Option is calculated and rounded to a multiple of 3 inches based on the subgrade depth for every sample indicating an unsuitable or unstable problem.

ii. GEOGRID Option is only offered in case of unstable subgrade problem and if the geotextile option indicates the need to excavate greater than 12 inches.

PLEASE NOTE: The Problem, Excavate & Replace, and Recommendation Fields are the responsibility of the Designer. These fields are being enhanced to attempt to capture the ODOT philosophy regarding the GB1 stabilization chart, but are considered still under development. If there are discrepancies between the spreadsheet output and the GB1 chart - the chart governs in conjunction with engineering judgement. Please contact Steve Taliaferro at stephen.taliaferro@dot.ohio.gov if you have any questions.

PLEASE NOTE: It is the Designer's responsibility to identify the most representative data when samples have been separated into multiple specimen (say 1.5 to 2.3 feet and 2.3 to 3.0 feet). The spreadsheet is not capable at this time of addressing this issue within a direct data export from gINT.

4. Results Summary:
All fields in this sheet are password protected and are either calculated or read from the other worksheets.

5. Graph Worksheet:
This worksheet is designed to read the average N_{60L} and the average HP from the Cover Sheet and plot a blue line for Average HP and orange line for Average N_{60L} on GB1 Figure B – Subgrade Stabilization. The Override Table can be used to enter HP and/or N_{60L} values that are different than the calculated averages. The Override values will change the global undercut recommendation in the Results Summary.

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: DIEDRICH D50 TRUCK	STATION / OFFSET: 10' RT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: SR 57 CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 984.0 (MSL) EOB: 10.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	LAT / LONG: 41.008685, -81.752786

EXPLORATION ID B-001-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 984.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
8.5" ASPHALT PAVEMENT																			
6" AGGREGATE BASE	982.8																		
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND**, TRACE SILT/CLAY, TRACE ASPHALT/SLAG FRAGMENTS, MOIST (FILL)	981.5		18 14 9	35	100	SS-1	0.75	43	27	14	10	6	18	16	2	7	A-1-b (0)	-	
	981.0		6 4 7	17	56	SS-2A	-	29	20	17	24	10	21	17	4	13	A-2-4 (0)	-	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST (FILL)						SS-2B	-	-	-	-	-	-	-	-	-	-	A-3a (V)	-	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, LITTLE GRAVEL, MOIST TO WET			8 7 7	21	78	SS-3	-	-	-	-	-	-	-	-	-	11	A-3a (V)	-	
			7 7 7	21	83	SS-4	-	-	-	-	-	-	-	-	-	15	A-3a (V)	-	
			6 8 6	21	72	SS-5	-	-	-	-	-	-	-	-	-	16	A-3a (V)	-	
	W 975.0		3 5 6	17	78	SS-6	-	-	-	-	-	-	-	-	-	15	A-3a (V)	-	
	974.0	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: DIEDRICH D50 TRUCK	STATION / OFFSET: 15' LT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: SR 57 CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 982.5 (MSL) EOB: 10.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	LAT / LONG: 41.009379, -81.753083

EXPLORATION ID B-002-0-19

MATERIAL DESCRIPTION AND NOTES	ELEV. 982.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
7.0" ASPHALT PAVEMENT 6" AGGREGATE BASE	981.4					BASE	-	81	11	5	2	1	NP	NP	NP	19	A-1-a (0)	-	
MEDIUM DENSE, BROWN & GRAY, **GRAVEL WITH SAND**, TRACE SILT/CLAY, MOIST (FILL)	980.0	1	16 7 4	17	100	SS-1	1.00	50	15	28	4	3	NP	NP	NP	20	A-1-b (0)	-	
STIFF, GRAY TO BROWN, **SANDY SILT**, TRACE GRAVEL, MOIST	978.5	2 3	3 5 4	14	100	SS-2	2.00	17	16	26	30	11	21	16	5	18	A-4a (1)	-	
MEDIUM DENSE, BROWN TO GRAY, **COARSE AND FINE SAND**, TRACE GRAVEL/SILT/CLAY, MOIST TO WET		4 5	9 9 9	27	94	SS-3	-	-	-	-	-	-	-	-	-	11	A-3a (V)	-	
		6 7	7 5 8	20	89	SS-4	-	-	-	-	-	-	-	-	-	21	A-3a (V)	-	
		W 974.0 8																	
	972.5	9 EOB 10	9 11 11	33	67	SS-5	-	-	-	-	-	-	-	-	-	15	A-3a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: CME 55 ATV	STATION / OFFSET: 22' LT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 57 CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 981.5 (MSL) EOB: 15.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 86.9	LAT / LONG: 41.010023, -81.753300

EXPLORATION ID B-003-0-19

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
12" TOPSOIL	981.5 980.5																		
STIFF, BROWN, **SANDY SILT**, TRACE GRAVEL, MOIST (FILL)	978.0		1 3 5	12	78	SS-1	2.50	4	15	43	23	15	20	13	7	16	A-4a (1)	100	
MEDIUM STIFF, BROWN AND GRAY, **CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST	975.5	W 975.5	2 2 2	6	78	SS-2	1.00	3	5	15	38	39	45	18	27	30	A-7-6 (16)	-	
MEDIUM DENSE, BROWN AND GRAY, **COARSE AND FINE SAND**, TRACE SILT/CLAY, WET	969.0		3 4 4	12	72	SS-3	-	23	23	40	10	4	NP	NP	NP	19	A-3a (0)	-	
			4 10 7	25	61	SS-4	-	-	-	-	-	-	-	-	-	18	A-3a (V)	-	
VERY STIFF, GRAY, **CLAY**, TRACE GRAVEL/SAND, MOIST	966.5	EOB	3 6 9	22	78	SS-5	2.00	-	-	-	-	-	-	-	-	25	A-7-6 (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: CME 55 ATV	STATION / OFFSET: 50' LT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 57 CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 980.5 (MSL) EOB: 15.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 86.9	LAT / LONG: 41.010481, -81.753591

EXPLORATION ID B-004-0-19

MATERIAL DESCRIPTION AND NOTES	ELEV. 980.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
13" TOPSOIL	979.4																		
LOOSE, BROWN AND GRAY, **COARSE AND FINE SAND**, LITTLE GRAVEL/SILT/CLAY, MOIST	977.0	W 978.5	2 1 2	4	78	SS-1	-	12	9	51	17	11	16	16	NP	19	A-3a (0)	100	
MEDIUM DENSE, BROWN AND GRAY, **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST	974.5	▼ 976.0	2 3 5	12	89	SS-2	-	33	13	33	13	8	24	17	7	19	A-2-4 (0)	-	
MEDIUM DENSE, BROWN AND GRAY, **FINE SAND**, LITTLE GRAVEL, TRACE SILT/CLAY, MOIST TO WET	968.0		3 4 4	12	72	SS-3	-	-	-	-	-	-	-	-	-	17	A-3 (V)	-	
			4 3 5	12	83	SS-4	-	16	26	48	8	2	NP	NP	NP	17	A-3 (0)	-	
STIFF, GRAY, **CLAY**, TRACE SAND, MOIST	965.5	EOB	3 4 5	13	83	SS-5	1.00	-	-	-	-	-	-	-	-	32	A-7-6 (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: DIEDRICH D50 TRUCK	STATION / OFFSET: 15' RT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: SR 57 CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 980.5 (MSL) EOB: 10.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	LAT / LONG: 41.011104, -81.753579

EXPLORATION ID B-005-0-19

MATERIAL DESCRIPTION AND NOTES	ELEV. 980.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
8.0" ASPHALT PAVEMENT 6" AGGREGATE BASE	979.3																		
DENSE, BROWN AND GRAY, **FINE SAND**, TRACE GRAVEL/SILT/CLAY, MOIST (FILL)		1	6 9 14	35	94	SS-1	-	2	22	69	4	3	NP	NP	NP	14	A-3 (0)	100	
		2																	
		3	9 12 6	27	100	SS-2	1.50	0	22	72	3	3	NP	NP	NP	18	A-3 (0)	-	
	976.5	4																	
MEDIUM DENSE, BROWN AND GRAY, **COARSE AND FINE SAND**, LITTLE GRAVEL/SILT/CLAY, MOIST TO WET		5	7 10 5	23	83	SS-3	-	-	-	-	-	-	-	-	-	9	A-3a (V)	-	
		6	2 1 3	6	89	SS-4	0.50	-	-	-	-	-	-	-	-	24	A-3a (V)	-	
		7																	
		8																	
		9	5 4 3	11	61	SS-5	-	-	-	-	-	-	-	-	-	14	A-3a (V)	-	
	970.5	EOB 10																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: DIEDRICH D50 TRUCK	STATION / OFFSET: 15' LT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: SR 57 CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 980.0 (MSL) EOB: 10.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	LAT / LONG: 41.011805, -81.753970

EXPLORATION ID B-006-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 980.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
7.75" ASPHALT PAVEMENT 6" AGGREGATE BASE	978.8					BASE	-	72	14	7	6	1	NP	NP	NP	22	A-1-a (0)	-	
MEDIUM DENSE, BROWN, **FINE SAND**, TRACE SILT/CLAY, MOIST (FILL)	976.0	1 2 3 4	10 11 12	35	89	SS-1	-	0	21	70	6	3	NP	NP	NP	12	A-3 (0)	-	
			8 8 7	23	100	SS-2	-	1	21	70	2	6	NP	NP	NP	13	A-3 (0)	-	
VERY STIFF, GRAY, **SANDY SILT**, TRACE GRAVEL, MOIST	971.5	5 6 7	9 6 9	23	100	SS-3	4.50	-	-	-	-	-	-	-	-	22	A-4a (V)	-	
			5 5 6	17	89	SS-4	4.50	-	-	-	-	-	-	-	-	21	A-4a (V)	-	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE GRAVEL/SILT/CLAY, MOIST TO WET	970.0	W 971.5 8 9 EOB 10	6 6 4	15	-	SS-5	-	-	-	-	-	-	-	-	-	16	A-3a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT
TYPE: ROADWAY
PID: 107578 SFN:
START: 5/10/19 END: 5/10/19

DRILLING FIRM / OPERATOR: PSI / T. SUCHAN
SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN
DRILLING METHOD: 3.25" HSA
SAMPLING METHOD: SPT

DRILL RIG: DIEDRICH D50 TRUCK
HAMMER: DIEDRICH AUTOMATIC
CALIBRATION DATE: 6/22/18
ENERGY RATIO (%): 90*

STATION / OFFSET: 5' LT.
ALIGNMENT: SEVILLE RD CL
ELEVATION: 978.5 (MSL) EOB: 10.0 ft.
LAT / LONG: 41.010248, -81.754734

EXPLORATION ID B-007-0-19

MATERIAL DESCRIPTION AND NOTES	ELEV. 978.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
8.0" ASPHALT PAVEMENT 10" AGGREGATE BASE	977.0																		
VERY STIFF, BLACK AND BROWN, **SANDY SILT**, SOME GRAVEL, TRACE SLAG FRAGMENTS, DAMP (FILL)	976.0		16 11 6	26	100	SS-1	1.50	22	10	22	30	16	22	17	5	16	A-4a (2)	420	
STIFF TO VERY STIFF, BROWN, **SANDY SILT**, TRACE GRAVEL, MOIST		1 2 3 4 5 6 7	2 3 3	9	100	SS-2	0.50	7	24	28	28	13	21	15	6	20	A-4a (1)	-	
			2 3 3	9	94	SS-3	1.00	-	-	-	-	-	-	-	-	19	A-4a (V)	-	
			5 7 6	20	89	SS-4	0.50	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
	970.0	W 970.0																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, SOME GRAVEL, WET	968.5	8 9	4 7 9	24	67	SS-5	-	-	-	-	-	-	-	-	-	23	A-3a (V)	-	
		EOB 10																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: CME 55 ATV	STATION / OFFSET: 15' RT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: CME AUTOMATIC	ALIGNMENT: SEVILLE RD CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 981.0 (MSL) EOB: 15.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 86.9	LAT / LONG: 41.010189, -81.753692

EXPLORATION ID B-008-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 981.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
11" GRAVEL WITH SAND, SOME TOPSOIL	980.1																		
MEDIUM DENSE, BROWN AND GRAY, **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST (FILL)	977.5		3 2 7	13	33	SS-1	-	31	14	27	21	7	19	15	4	12	A-2-4 (0)	-	
MEDIUM DENSE, BROWN AND GRAY, **COARSE AND FINE SAND**, SOME GRAVEL, LITTLE SILT, TRACE CLAY, MOIST	975.0	▼ 976.5	4 6 6	17	67	SS-2	-	27	16	40	11	6	NP	NP	NP	16	A-3a (0)	-	
MEDIUM DENSE, BROWN AND GRAY, **GRAVEL WITH SAND**, TRACE SILT/CLAY, MOIST	972.5	W 974.5	4 4 4	12	72	SS-3	-	48	23	20	6	3	NP	NP	NP	17	A-1-b (0)	-	
LOOSE TO MEDIUM DENSE, BROWN AND GRAY, **COARSE AND FINE SAND**, TRACE GRAVEL/SILT/CLAY, MOIST TO WET	966.0	EOB	1 2 3	7	100	SS-4	-	-	-	-	-	-	-	-	-	24	A-3a (V)	-	
			3 4 4	12	67	SS-5	-	-	-	-	-	-	-	-	-	22	A-3a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: CME 55 ATV	STATION / OFFSET: 20' LT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: CME AUTOMATIC	ALIGNMENT: SEVILLE RD CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 982.0 (MSL) EOB: 15.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 86.9	LAT / LONG: 41.010295, -81.753045

EXPLORATION ID B-009-0-19

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
12" TOPSOIL	982.0																		
	981.0																		
LOOSE, BROWN AND GRAY, **GRAVEL WITH SAND**, TRACE SILT/CLAY, MOIST (FILL)			2 3 3	9	50	SS-1	-	38	27	22	9	4	NP	NP	NP	8	A-1-b (0)	-	
	978.5																		
LOOSE TO MEDIUM DENSE, BROWN AND GRAY, **COARSE AND FINE SAND**, SOME GRAVEL, TRACE SILT/CLAY, MOIST		▼ 977.0	2 2 5	10	50	SS-2	-	24	23	42	6	5	NP	NP	NP	17	A-3a (0)	-	
		W 976.0																	
			7 9 5	20	83	SS-3	-	-	-	-	-	-	-	-	-	16	A-3a (V)	-	
	973.5																		
VERY STIFF, GRAY, **CLAY**, TRACE SAND, MOIST			4 7 7	20	89	SS-4	3.00	0	0	1	39	60	41	20	21	24	A-7-6 (13)	-	
	968.5																		
MEDIUM DENSE, GRAY, **COARSE AND FINE SAND**, TRACE GRAVEL/SILT/CLAY, WET			3 8 9	25	67	SS-5	1.50	-	-	-	-	-	-	-	-	27	A-3a (V)	-	
	967.0	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: SR-57 ROUNDABOUT	DRILLING FIRM / OPERATOR: PSI / T. SUCHAN	DRILL RIG: DIEDRICH D50 TRUCK	STATION / OFFSET: 5' RT.
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: PSI / J. CORRIGAN	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: SEVILLE RD CL
PID: 107578 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/22/18	ELEVATION: 983.5 (MSL) EOB: 10.0 ft.
START: 5/10/19 END: 5/10/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 90*	LAT / LONG: 41.010225, -81.752276

EXPLORATION ID B-010-0-19

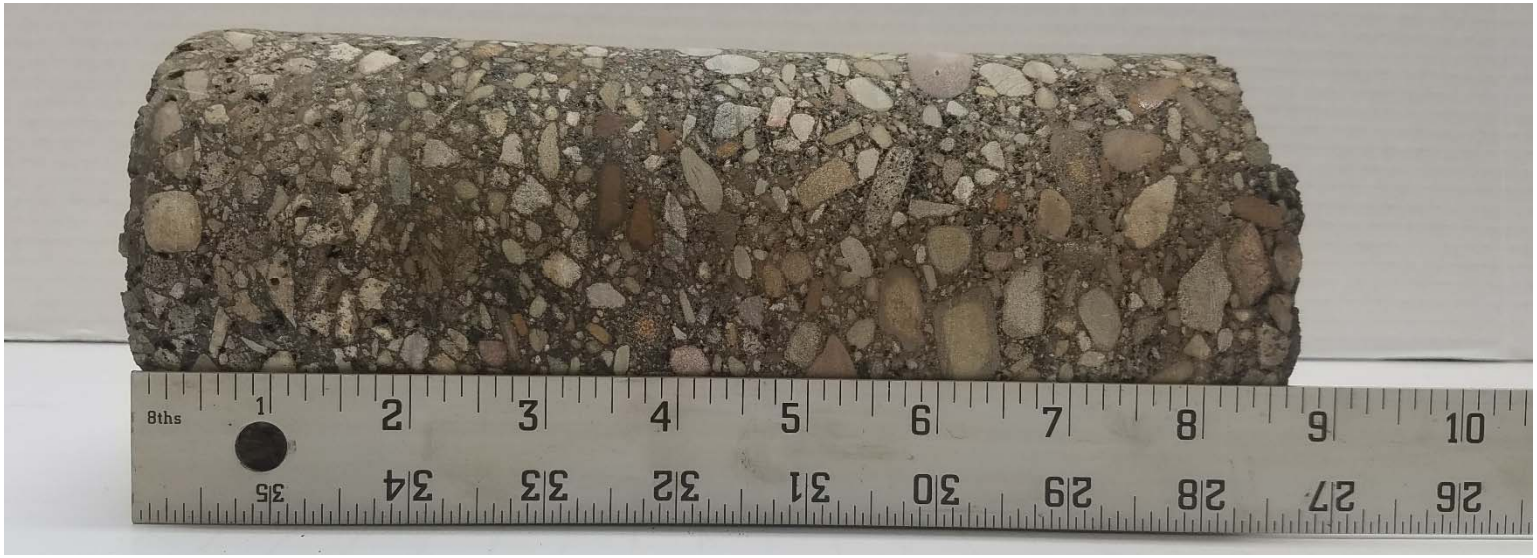
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 983.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
8.5" ASPHALT PAVEMENT 9.5" AGGREGATE BASE	982.0					BASE	-	88	9	2	-	1 -	NP	NP	NP	12	A-1-a (0)	-	
STIFF, BROWN, **SANDY SILT**, TRACE GRAVEL, MOIST (FILL)	979.5		17 9 5	21	100	SS-1	0.50	6	15	29	37	13	18	15	3	13	A-4a (3)	780	
			4 5 5	15	83	SS-2	2.00	7	11	24	36	22	22	16	6	18	A-4a (5)	-	
VERY STIFF TO HARD, BROWN, **SANDY SILT**, TRACE GRAVEL, MOIST		W 978.0	7 8 10	27	89	SS-3	1.50	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
			6 8 13	32	22	SS-4	-	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
	975.0																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE GRAVEL/SILT/CLAY, WET	973.5	EOB	8 8 9	26	78	SS-5	-	-	-	-	-	-	-	-	-	22	A-4a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

Core Photo: B-001



Pavement Photo

Core Info		
Location: SR-57, NB Lane Latitude & Longitude : 41.008685, -81.752786		
Composition Layers	**Core Thickness**	**Remarks**
Asphalt	8.5”	Good Condition
Total Thickness	8.5”	

intertek psi

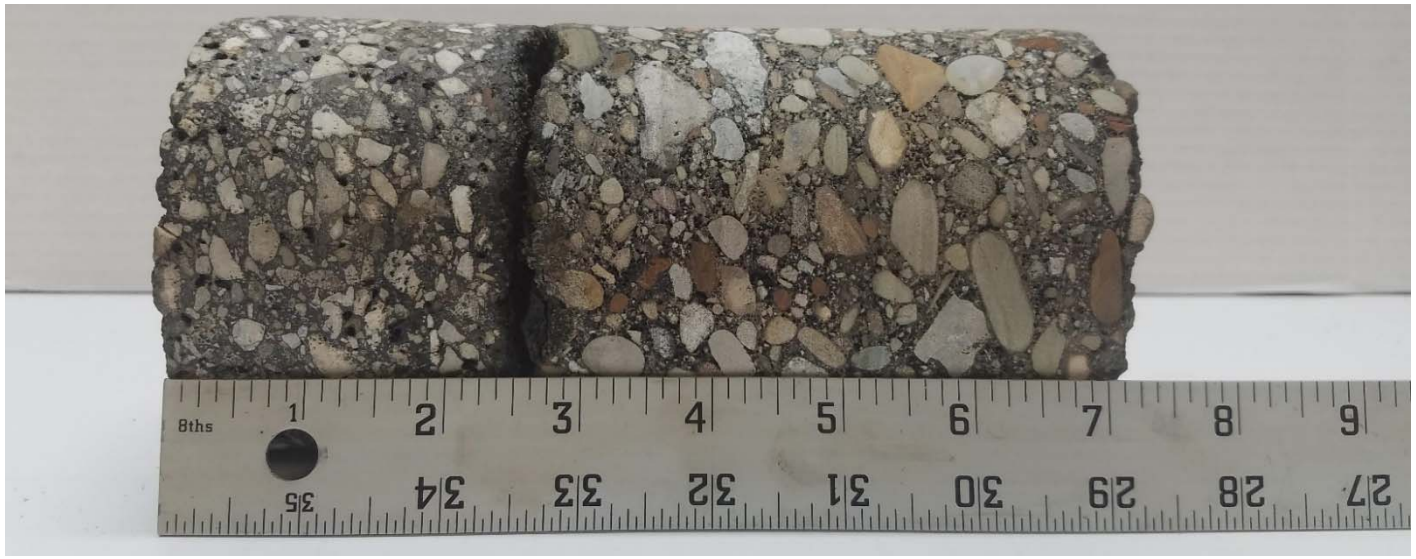
Proposed SR 57/Seville Road Roundabout Project
PID Number: 107578
SR 57 and Seville Road
Wadsworth, Medina County, Ohio

Date: 5/22/2019
Taken By: JC
Scale: NA

Pavement & Core Photo Log

PSI Project No.: 0142-1920

Core Photo: B-002



Pavement Photo

Core Info		
Location: SR 57, SB Shoulder Latitude & Longitude : 41.009379, -81.753083		
Composition Layers	**Core Thickness**	**Remarks**
Asphalt	7.0”	Good Condition (Broken)
Total Thickness	7.0”	

intertek psi

Proposed SR 57/Seville Road Roundabout Project
PID Number: 107578
SR 57 and Seville Road
Wadsworth, Medina County, Ohio

Date: 5/22/2019
Taken By: JC
Scale: NA

Pavement & Core Photo Log

PSI Project No.: 0142-1920

Core Photo: B-005

Pavement Photo

Core Info		
Location: SR-57, NB Shoulder Latitude & Longitude : 41.011104, -81.753579		
Composition Layers	**Core Thickness**	**Remarks**
Asphalt	8.0”	Fair Condition (Broken)
Total Thickness	8.0”	

intertek psi

Proposed SR 57/Seville Road Roundabout Project
PID Number: 107578
SR 57 and Seville Road
Wadsworth, Medina County, Ohio

Date: 5/22/2019

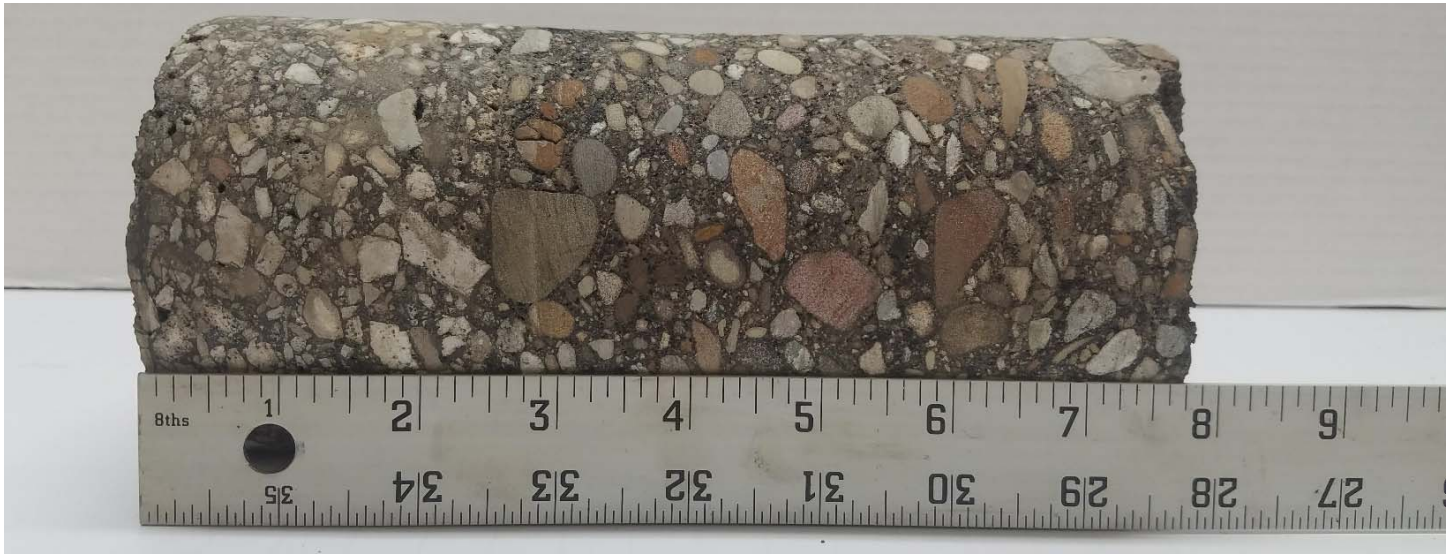
Taken By: JC

Scale: NA

Pavement & Core Photo Log

PSI Project No.: 0142-1920

Core Photo: B-006



Pavement Photo

Core Info		
Location: SR 57, SB Shoulder Latitude & Longitude : 41.011805, -81.753970		
Composition Layers	**Core Thickness**	**Remarks**
Asphalt	7.75”	Good Condition
Total Thickness	7.75”	

intertek psi

Proposed SR 57/Seville Road Roundabout Project
PID Number: 107578
SR 57 and Seville Road
Wadsworth, Medina County, Ohio

Date: 5/22/2019

Taken By: JC

Scale: NA

Pavement & Core Photo Log

PSI Project No.: 0142-1920

Core Photo: B-007

Core Info		
Location: Seville Rd, WB Lane Latitude & Longitude : 41.010248, -81.754734		
Composition Layers	**Core Thickness**	**Remarks**
Asphalt	8.0”	Good Condition
Total Thickness	8.0”	

Pavement Photo

intertek psi	Proposed SR 57/Seville Road Roundabout Project PID Number: 107578 SR 57 and Seville Road Wadsworth, Medina County, Ohio	Date: 5/22/2019 Taken By: JC Scale: NA	Pavement & Core Photo Log PSI Project No.: 0142-1920

Core Photo: B-010

Pavement Photo

Core Info		
Location: Seville Rd, EB Lane Latitude & Longitude : 41.010225, -81.752276		
Composition Layers	**Core Thickness**	**Remarks**
Asphalt	8.5”	Good Condition
Total Thickness	8.5”	

intertek psi

Proposed SR 57/Seville Road Roundabout Project
PID Number: 107578
SR 57 and Seville Road
Wadsworth, Medina County, Ohio

Date: 5/22/2019
Taken By: JC
Scale: NA

Pavement & Core Photo Log

PSI Project No.: 0142-1920

APPENDIX A.1 - ODOT Quick Reference for Visual Description of Soils

1) STRENGTH OF SOIL:

Non-Cohesive (granular) Soils - Compactness	
Description	**Blows Per Ft.**
Very Loose	≤ 4
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 – 50
Very Dense	> 50

2) COLOR :

If a color is a uniform color throughout, the term is single, modified by an adjective such as light or dark. If the predominate color is shaded by a secondary color, the secondary color procedes the primary color. If two major and distinct colors are swirled throughout the soil, the colors are modified by the term "mottled"

3) PRIMARY COMPONENT

Use **DESCRIPTION** from ODOT Soil Classification Chart on Back

Cohesive (fine grained) Soils - Consistency

Description	Qu (TSF)	Blows Per Ft.	Hand Manipulation
Very Soft	<0.25	<2	Easily penetrates 2" by fist
Soft	0.25-0.5	2 - 4	Easily penetrates 2" by thumb
Medium Stiff	0.5-1.0	5 - 8	Penetrates by thumb with moderate effort
Stiff	1.0-2.0	9 - 15	Readily indents by thumb, but not penetrate
Very Stiff	2.0-4.0	16 - 30	Readily indents by thumbnail
Hard	>4.0	>30	Indent with difficulty by thumbnail

4) COMPONENT MODIFIERS:

Description	Percentage By Weight
Trace	0% - 10%
Little	10% - 20%
Some	20% - 35%
"And"	35% -50%

5) Soil Organic Content

Description	% by Weight
Slightly Organic	2% - 4%
Moderately Organic	4% - 10%
Highly Organic	> 10%

6) Relative Visual Moisture

Description	Criteria	
	Cohesive Soil	**Non-cohesive Soils**
Dry	Powdery; Cannot be rolled; Water content well below the plastic limit	No moisture present
Damp	Leaves very little moisture when pressed between fingers; Crumbles at or before rolled to $^1/_8$"; Water content below plastic limit	Internal moisture, but no to little surface moisture
Moist	Leaves small amounts of moisture when pressed between fingers; Rolled to $^1/_8$" or smaller before crumbling; Water content above plastic limit to -3% of the liquid limit	Free water on surface, moist (shiny) appearance
Wet	Very mushy; Rolled multiple times to $^1/_8$" or smaller before crumbles; Near or above the liquid limit	Voids filled with free water, can be poured from split spoon.

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	Classifcation AASHTO	Classifcation OHIO	LL_O/LL x 100*	% Pass #40	% Pass #200	Liquid Limit (LL)	Plastic Index (PI)	Group Index Max.	REMARKS
	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	
F S	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

Pavement or Base

Uncontrolled Fill (Describe)

Bouldery Zone

P Peat

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

Figure 600-1. ODOT Soil Classification Chart