PUBLIC NOTICE
MEDINA COUNTY HIGHWAY ENGINEER
T.H. 145 WALL ROAD BRIDGE #3 REPLACEMENT - DESIGN
REQUEST FOR STATEMENT OF QUALIFICATIONS (RFQ)

Please note, the photos found in the asbestos report section of this link are in error and are not photos of T.H. 145 WALL ROAD BRIDGE #3.

PUBLIC NOTICE
MEDINA COUNTY HIGHWAY ENGINEER
T.H. 145 WALL ROAD BRIDGE #3 REPLACEMENT - DESIGN
REQUEST FOR STATEMENT OF QUALIFICATIONS (RFQ)

The Medina County Highway Engineer is soliciting statement of qualifications for design services for the preparation of bid and construction documents for the Wall Road Bridge Replacement Project (T.H. 145, Bridge No. 3). This project will be part of the Federal/State Exchange Program that will be administered by the County as an ODOT local-let LPA project. Only Engineers on ODOT's current pre-qualified list for the following Engineering Services will be considered;

- Roadway, Non-complex Design
- Right-of-Way Plan Development, Limited
- Bridge Design, Level 1

Estimated Construction Cost: $770,000

Scope of Services:
The project shall be designed in accordance with current ODOT Location and Design Manual. The design and plans for the bridge will be prepared in accordance with the current edition of the ODOT Bridge Design Manual.

The county has soil borings and a geotech report on file from the year 2022.

The proposed structure will be 28 feet wide (two 10 foot lanes and a 4 foot guardrail offset). Abutments will be replaced. The existing structure is a single span Steel Beam bridge with a steel pan deck with an asphalt wearing surface, 16.0 feet wide and 56 feet long. The existing structure is supported on bridge stone abutments, and spans the River Styx. The proposed bridge will be on a tangent alignment at the existing location. The vertical alignment will be the same as the existing. The County is considering only single span designs using either steel beams or concrete box beams, both with integral concrete decks, for the replacement of the structure.

The new roadway pavement will be 20 feet wide with 6 feet graded shoulders. The new roadway should be tapered to meet the existing pavement and roadway width at a 25 to 1 rate. The project is expected to include about 400 feet of work including the bridge.

Consultant must demonstrate past experience with dealing with bridge design that spans an active river.

Additional information on project scope, submittal requirements and scoring criteria for the Statement of Qualifications can be found on the County Engineers website at http://www.highwayengineer.co.medina.oh.us/.

Selection Procedures:
The County Engineer will rank consultants based on the Statement of Qualifications. The County Engineer may select a consultant based on the Statement of Qualifications, or select two to three firms to interview. The firm with the best qualifications will be invited to negotiate a contract.

All questions are to be submitted via email to ehollopeter@medinaco.org.

Firms interested in being considered for selection should respond by submitting 3 copies of the Statement of Qualifications to the following address by 4:30 PM on May 26, 2023.

Medina County Highway Engineer
791 W. Smith Road
Medina, OH 44258

Responses received after 4:30 PM on the response due date will not be considered.

Requirements for Statement of Qualifications, Programmatic Selection Process

A. Instructions for Preparing and Submitting a Statement of Qualifications

1. Provide the information requested in the Statement of Qualifications Content (Item B below), in the same order listed, in a letter signed by an officer of the firm. Do not send additional forms, resumes, brochures, or other material.

2. Statement of Qualifications shall be limited to twenty (20) 8½" x 11" single sided pages.

3. Please adhere to the following requirements in preparing and binding Statement of Qualifications:

    a. Please use a minimum font size of 12-point and maintain margins of 1" on all four sides.
    b. Page numbers must be centered at the bottom of each page.
    c. Use 8½" x 11" paper only.
    d. Bind Statement of Qualifications by stapling at the upper left hand corner only. Do not utilize any other binding system.
    e. Do not provide tabbed inserts or other features that may interfere with machine copying.

B. Statement of Qualifications Content

1. List all subconsultants, and the type of work to be performed by each subconsultant.

2. List the Project Manager and other key staff members, including key subconsultant staff. Include staff members that will be responsible for the work, and the project responsibility of each.

    Address the experience of the key staff members on similar projects, and the staff qualifications relative to the selection subfactors noted.

3. Describe the capacity of your staff and their ability to perform the work in a timely manner, relative to present workload, and the availability of the assigned staff.

4. Provide a description of your Project Approach, not to exceed two pages. Address your firm's: 1) Technical approach; 2) Understanding of the project; 3) Your firm's qualifications for the project; 4) Knowledge and experience concerning relevant ODOT and local standards, procedures and guidance documents; 5) Innovative ideas; 6) Your firm's project specific plan for ensuring increased quality, reduced project delivery time and reduced project costs.

Items 1 thru 3 must be included within the 20-page body of the RFQ. Remaining space within the twenty (20) pages may be utilized to provide personnel resumes or additional information concerning general qualifications.

Consultant Selection Rating Form
for
Programmatic Selections

Project: TH 145 Wall Rd. Bridge 3
PID:
Project Type: Bridge Rep.
District: 3

Selection Committee Members: _____

Firm Name: _____

Category	Total Value	Scoring Criteria	Score
Management & Team			
Project Manager	10	See Note 1, Exhibit 1	
Strength/Experience of Assigned Staff including Subconsultants	25	See Note 2, Exhibit 1	
Firm's Current Workload/ Availability of Personnel	10	See Note 4, Exhibit 1	
Consultant's Past Performance	30	See Note 3, Exhibit 1	
Project Approach	25		
Total	100		

Exhibit 1 - Consultant Selection Rating Form Notes

1. The proposed project manager for each consultant shall be ranked, with the highest ranked project manager receiving the greatest number of points, and lower ranked project managers receiving commensurately lower scores. The rankings and scores should be based on each project manager's experience on similar projects and past performance for the LPA and other agencies. The selection committee may contact ODOT and outside agencies if necessary. Any subfactors identified should be weighed heavily in the differential scoring.

   Differential scoring should consider the relative importance of the project manager's role in the success of a given project. The project manager's role in a simple project may be less important than for a complex project, and differential scoring should reflect this, with higher differentials assigned to projects that require a larger role for the project manager.

2. The experience and strength of the assigned staff, including subconsultant staff, should be ranked and scored as noted for Number 1 above, with higher differential scores assigned on more difficult projects. Any subfactors identified in the project notification should be weighed heavily in the differential scoring.

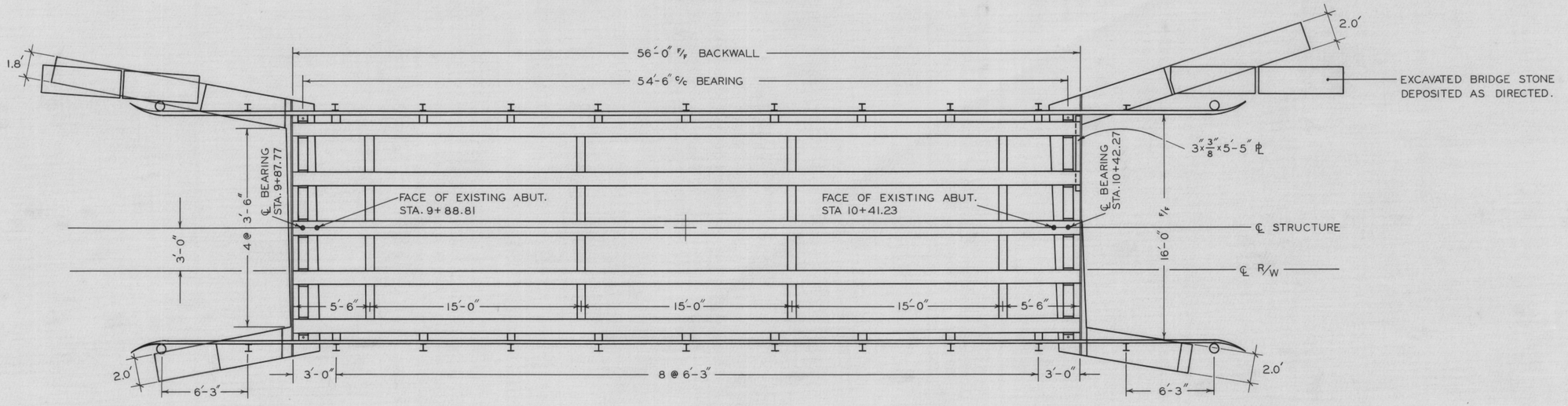
   As above, other agencies may be contacted.

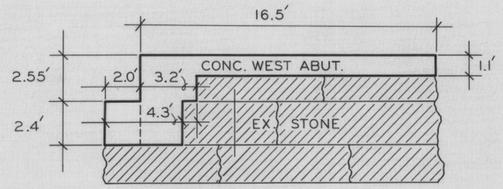
3. The consultants' past performance on similar projects shall be ranked and scored on a relative, differential scoring type basis, with the highest ranked consultant receiving a commensurately greater number of points. The selection team should consider ODOT CES performance ratings if available, and consult other agencies as appropriate.

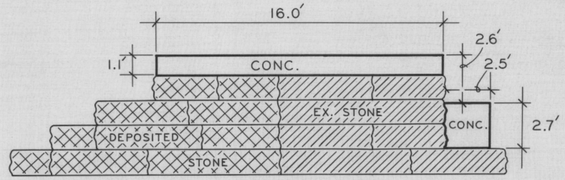
   The differential scoring should consider the complexity of the project and any subfactors identified in the project notification.

4. The consultant's workload and availability of qualified personnel, equipment and facilities shall be ranked and scored on a relative, differential scoring type basis. The selection team shall consider an equitable distribution of work to similarly qualified firms.

PINS FOR ℄ BEARING MOVED
3" AHEAD ON WEST ABUTMENT.

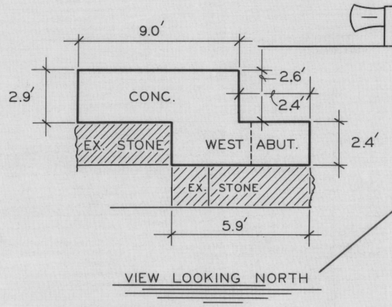




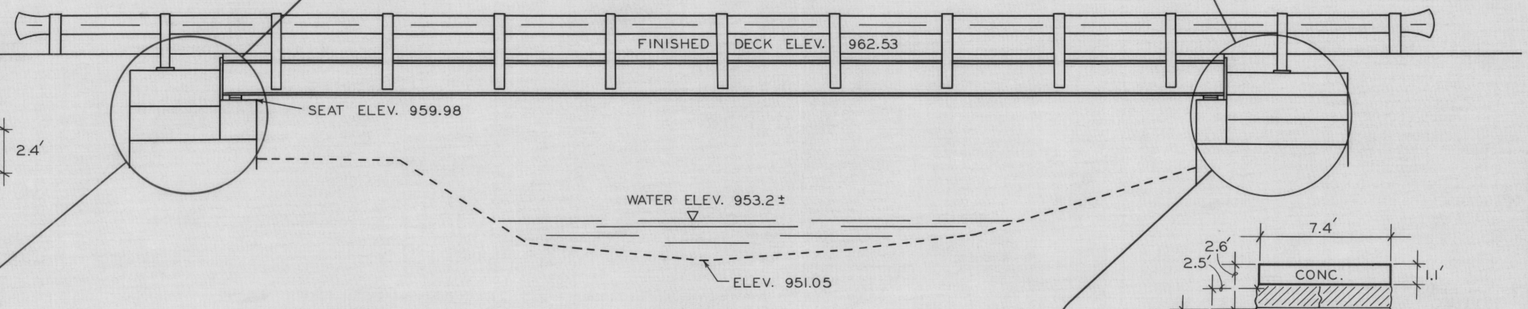


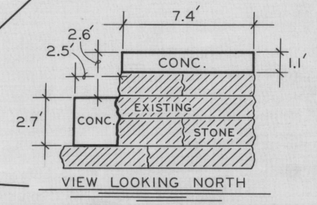
VIEW LOOKING SOUTH

VIEW LOOKING SOUTH



VIEW LOOKING NORTH





VIEW LOOKING NORTH

BRIDGE OVER RIVER STYX
WADSWORTH TWP.

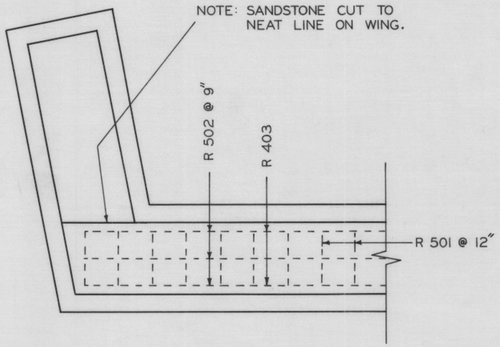
BRIDGE 3 ○ T.H. 145

990' EAST OF T.H. 18

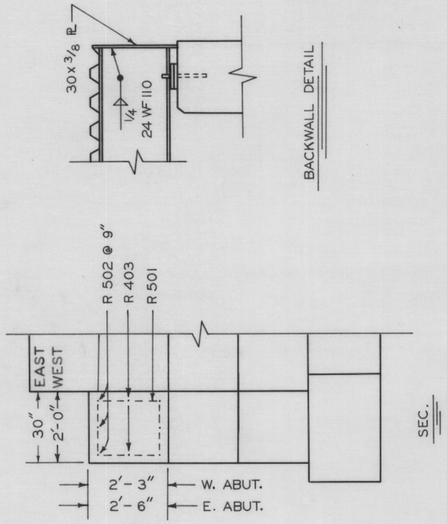
MEDINA COUNTY ENGINEER

1971 HS 20-44

BUILT — 1972



PLAN



SEC.

BACKWALL DETAIL

GENERAL NOTES

1. THE 1969 STANDARD SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION OF THE STATE OF OHIO, DEPT. OF HIGHWAYS SHALL GOVERN THIS PROJECT UNLESS OTHERWISE ORDERED BY THE MEDINA COUNTY ENGINEER.
2. ALL STRUCTURAL STEEL, INCLUDING THE CORRUGATED BRIDGE FLOORING, SHALL BE OF THE GRADE AND TYPE KNOWN AS A242 WEATHERING STEEL AND SHALL BE CAPABLE OF DEVELOPING A PERMANENT, DENSE, TIGHTLY ADHERENT, PROTECTIVE OXIDE COATING. GUARDRAIL POSTS SHALL BE A36 GALVANIZED.
3. ALL WELD MATERIAL MUST BE EQUIVALENT TO THE BASE MATERIAL IN STRENGTH, CORROSION RESISTENCE AND WEATHERED APPEARANCE.
4. IF BEARING PLATES ARE TO BE FIELD SPLICED, THEY SHALL BE OF SUCH LENGTH THAT THE SPLICE DOES NOT OCCUR UNDER A JOIST. THEY SHALL BE BUTT WELDED ALL AROUND AND THE BOTTOM WELD SHALL BE GROUND FLUSH.
5. THE COUNTY WILL FURNISH THE MATERIAL AND PERFORM THE WORK ON THE ITEMS INDICATED (*) IN THE GENERAL SUMMARY.

513 STRUCTURAL STEEL				
QUANT	MEMBER	LENGTH	DESCRIPTION	WT.(LBS.)
5	24 WF 110	56'-0"	JOIST	30,800
16	12 WF 31	3'-5½"	DIAPHRAGMS	1,712
18	12 WF 31	1'-2"	POST BRACKET	648
18	6½ x ¾ PL @ 16.6 #/ft	1'-0"	POST BRACKET	299
10	8 x ¾ PL @ 20.4 #/ft	1'-2"	BEARING PL	237
2	8 x ¾ PL @ 20.4 #/ft	16'-0"	BEARING PL	653
2	30 x ⅜ PL @ 38.3 #/ft	19'-0"	BACKWALL	1,456
4	1¼ ø @ 4.2 #/ft	1'-3"	ANCHOR DOWELS	21
			APPROX. TOTAL	35,826

NOTE: STRUCTURAL STEEL SHALL INCLUDE ALL NECESSARY DRILLING, WELDING, BOLTS, PLATES, AND ERECTION.

509 REINFORCING STEEL SCHEDULE								
LOCATION	MARK	DIA.	PCS.	LENGTH	WT/FT	TOT. LENGTH	TOT. WT.	REMARKS
EAST ABUT.	R 501	5/8	38	4'-10"	1.043	183'- 8"	192	BEND/DETAIL
" "	R 502	5/8	6	18'- 0"	1.043	108'- 0"	113	STRAIGHT
" "	R 403	1/2	2	18'- 0"	0.668	36'- 0"	24	STRAIGHT
WEST ABUT.	R 501	5/8	38	4'-10"	1.043	183'- 8"	192	BEND/DETAIL
" "	R 502	5/8	6	18'- 0"	1.043	108'- 0"	113	STRAIGHT
" "	R 403	1/2	2	18'- 0"	0.668	36'- 0"	24	STRAIGHT
						APPROX. TOTAL (LBS)	658	

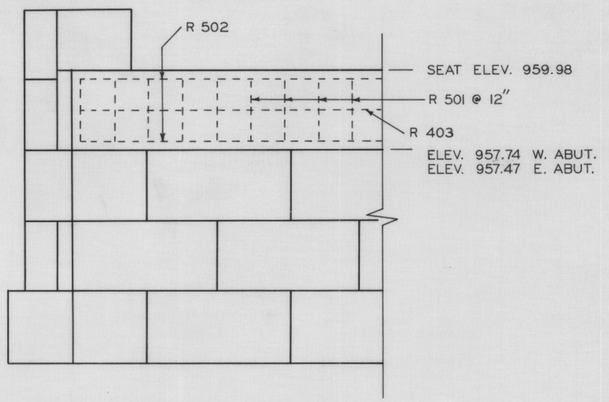
511 CLASS "C" CONC.	
LOCATION	APPROX. QUANT.
EAST ABUT.	3½ CU. YDS.
WEST ABUT.	8 CU. YDS.

EXCAVATION		
ITEM	DESCRIPTION	APPX. QUANT.
202	UNCLASSIFIED	16 CU. YDS.
202	STRUCTURE	LUMP

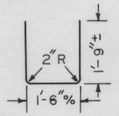
BACKFILL		
ITEM	LOCATION	APPX. QUANT.
203	ROADWAY	— CU. YDS.
203	EMBANKMENT	— CU. YDS.

GENERAL SUMMARY			
ITEM	APPX. QUANT.	UNIT	DESCRIPTION
* 202	——	LUMP	REMOVAL OF EXISTING STRUCTURE
* 202	16	CU. YDS.	UNCLASSIFIED EXCAVATION
* 203	——	CU. YDS.	ROADWAY
* 203	——	CU. YDS.	EMBANKMENT
* 405	13½	CU. YDS.	BITUMINOUS WEARING COURSE
* 407	140	GAL.	TACK COAT
* 509	658	LBS.	REINFORCING STEEL
* 511	6½	CU. YDS.	CLASS "C" CONCRETE
513	——	LUMP	BEAM BRIDGE AS PER PLAN INCL. 18 GALV. POST
* 606	150	LIN. FT.	GALVANIZED DEEP BEAM RAILING (TYPE IX)
* 606	4	EACH	TREATED WOOD POSTS
* 606	4	EACH	6" WF STEEL POSTS
* 614	——	LUMP	MAINTAINING TRAFFIC
	896	SQ. FT.	5/16 - 3x9 CORR. STR. STL. PL BRIDGE FLOORING
	——	LUMP	PREMIUM ON INDUSTRIAL INSURANCE

* SEE GENERAL NOTES

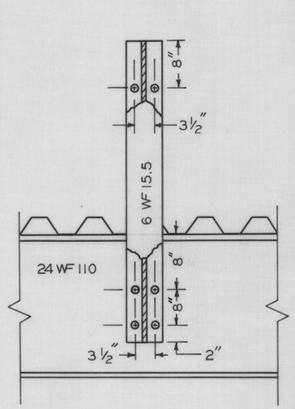


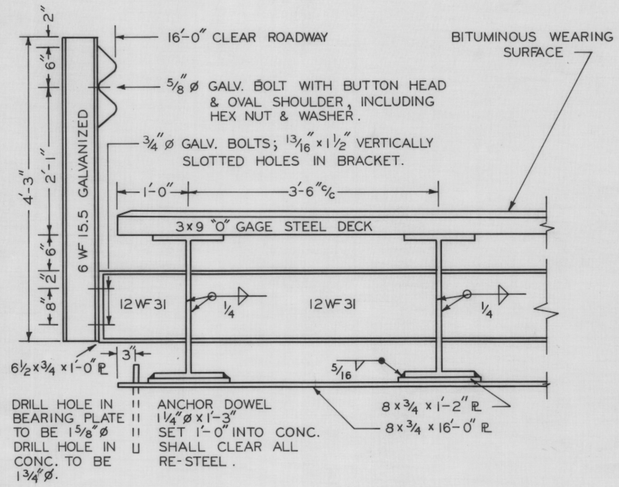
ELEVATION



R 501

NOTE: 3" CLEARANCE BETWEEN ALL BARS & SURFACE OF CONC.



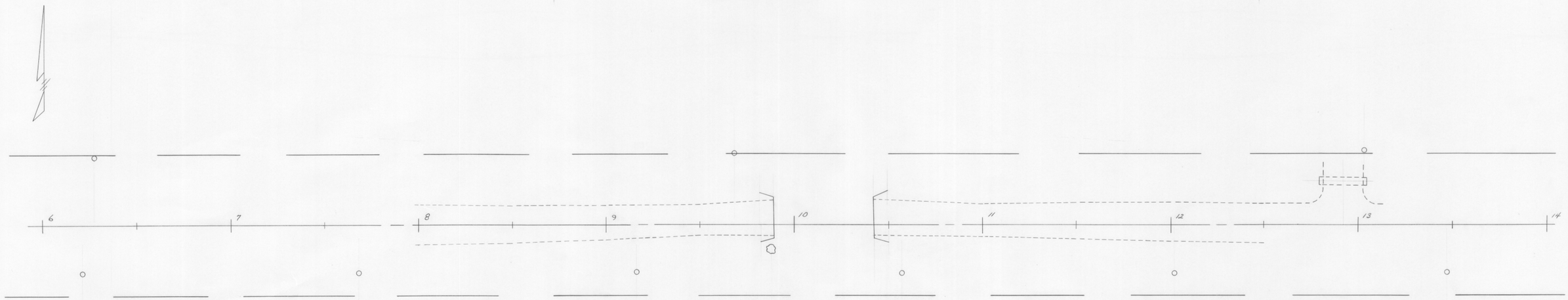


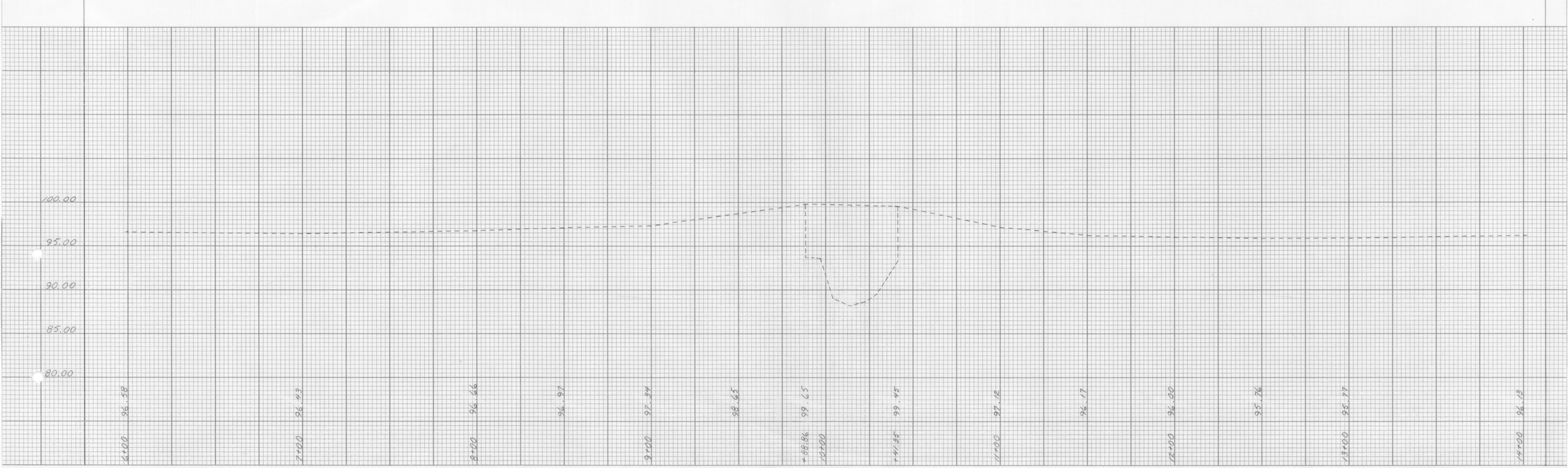
DRILL HOLE IN BEARING PLATE TO BE 1 5/8" ø
DRILL HOLE IN CONC. TO BE 1¾" ø.
ANCHOR DOWEL 1¼" ø x 1'-3" SET 1'-0" INTO CONC. SHALL CLEAR ALL RE-STEEL.

DIAPHRAGM & POST BRACKET DETAIL

BRIDGE 3 T.H. 145

ABUTMENT DETAIL





BRIDGE 3 T.H.145

BRIDGE 3 T.H. 145

12+50

12+00

11+50

11+00

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

BRIDGE 3 T.H. 145

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

GEOTECHNICAL ENGINEERING REPORT

PROPOSED BRIDGE STRUCTURE NO. 3
NEAR INTERSECTION OF WALL ROAD & NEWCOMER ROAD
WADSWORTH TOWNSHIP (MEDINA COUNTY), OHIO

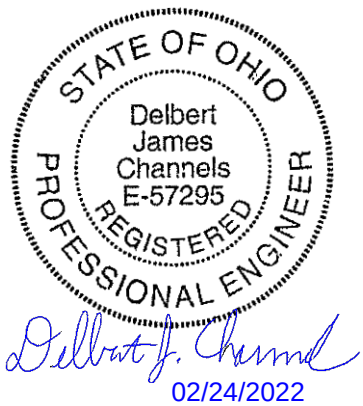
Prepared For:

Medina County, OH

Attention:

Emry Hollopeter, E.I.

GPD Project No. 2021821.71
February 24, 2022



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

Contents

SECTION 1

1.0 Introduction

GPD Group is pleased to submit this Geotechnical Report for the aforementioned project. The purpose of this study was to obtain information on the subsurface conditions at the proposed project site and, based on this information, to provide geotechnical recommendations regarding the design and construction of foundations, and site development for the proposed bridge structure. A total of two (2) borings extending to a depth of approximately 50 feet below the existing ground surface were drilled at the site. Individual boring logs and a Boring Location Plan are attached.

1.1 Project Description

The site for the proposed structure is located along Wall Road, approximately 1,000 east of the intersection of Newcomer and Wall Roads, in Wadsworth Township, Ohio. We understand that the existing bridge, spanning Styx River, will be replaced with a 55-ft x 28-ft single-span bridge with a concrete deck. GPD also understands the new single-span bridge and concrete bridge deck will be supported on concrete abutments per the provided standard details. Structural loading conditions were not available for this writing, however, we anticipate maximum foundation loads will be in accordance with ODOT HL-93 specifications for a "Simple Span Slab Bridge."

1.2 Purpose and Scope

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

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

SECTION 2

2.0 Site Conditions

In general, the proposed bridge will be located along Wall Road and span Styx River with ground surface elevations on the order of about 963 feet above sea level (Estimated from GoogleEarth Aerial Imagery). Styx River runs in a general north-to-southward direction with an estimated water surface elevation (WSEL) of approximately 953 feet above sea level.

2.1 Subsurface Exploration Program

The subsurface exploration consisted of drilling and sampling two (2) borings at the site to a depth of about 50 feet below existing grade. The boring locations were laid out by GPD personnel using a hand held GPS device. The locations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

The borings were drilled with a track-mounted Simco 2400 rotary drill rig using hollow-stem augers and a manual SPT hammer to advance the boreholes. Representative soil samples were obtained by the split-barrel sampling procedure in general accordance with the appropriate ASTM standards. In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (N-Value). This value is used to estimate the in-situ relative density of cohesion-less soils and the consistency of cohesive soils. The sampling depths and penetration distance, plus the standard penetration resistance values, are shown on the boring logs. The samples were sealed and returned to the laboratory for testing and classification.

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

2.2 Laboratory Testing

The samples were classified in the laboratory based on visual observation, texture and plasticity. The descriptions of the soils indicated on the boring logs are in accordance with the enclosed General Notes and the Unified Soil Classification System. A brief description of this classification system is attached to this report.

The laboratory testing program consisted of performing natural water content tests in general accordance with ASTM D-2216. Information from these tests was used in conjunction with field penetration test data to evaluate soil strength in-situ, volume change potential, and soil classification. Results of these tests are attached and provided on the boring logs.

2.3 Subsurface Conditions

Asphalt – Both borings were drilled in asphalt covered areas with an asphalt layer thickness on the order of about 17.0 inches.

Stratum I – The asphalt surface is generally underlain by brown and gray silty clay with varying amounts of sand and gravel extending to the termination depths of about 50 feet below existing grade. N-values, obtained in silty clay material, ranged from 5 to 24 blows per foot indicative of a medium stiff to very stiff consistency. The moisture content of the clayey soil was on the order of about 20% to 34% indicative of damp to moist fine-grained soil.

Stratum II – Consisted of a gray fine to coarse sand and was encountered in both borings at depths ranging from 12 to 22 feet in Boring B-1 and from 14 to 17 feet in Boring B-2. N-values, obtained in sand stratums ranged from 2 to 31 blows per foot indicative of a very loose to dense consistency. Refer to the attached boring logs for additional soil information.

2.3.1 Groundwater Conditions

Groundwater was not observed in the borings during or immediately after completion of drilling operations. At the time the borings were drilled, the groundwater table at the boring locations was apparently below the maximum drilling depth. However, fluctuations in the groundwater table can occur and perched water can develop over low permeability soil or rock strata following periods of heavy or prolonged precipitation. This possibility should be considered when developing design and construction plans and specifications for the project. Long term monitoring in cased holes or piezometers would be necessary to accurately evaluate the potential range of groundwater conditions on the site.

Fluctuations of the groundwater level can occur due to seasonal variations in the amount of rainfall, runoff, WSEL of Styx River and other factors not evident at the time the borings were performed. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

SECTION 3

3.0 Engineering Recommendations

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

3.1 Geotechnical Considerations

Based on the information obtained during the course of this study, the following geotechnical considerations should be taken into account during the planning, design and construction phases of the project. These geotechnical considerations are provided as a summary of the primary issues we believe are associated with this site. This report must be read in its entirety for a full description of our geotechnical recommendations:

- Consideration was given to the use of a conventional shallow foundation to support the bridge. However, based on the loose sand/silt encountered, along with the erosion and scour characteristics, we do not recommend the use of a shallow foundation system. Contingent upon proper site preparation and evaluation of the foundation excavations, it is our opinion that the proposed concrete bridge abutments can be supported on drilled cast-in-place concrete piers.

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

3.2 Site Preparation

As part of this project, the existing bridge will be removed, including the roadway pavement and foundations. It is anticipated that the removal of the existing structure will cause disturbance to the underlying moisture sensitive clay soils, especially if construction is conducted in the wetter seasons. It should be added that the subsurface conditions directly beneath the existing structure could not be explored during our field study. With this said, in order to minimize the risk of unexpected construction issues and future settlement associated with the new facility, it is recommended that the removal of the existing structure, undercutting of unsuitable materials, selection of engineered fill and backfilling and compaction operations should be closely monitored by GPD Group on a full-time basis to verify that the disturbed areas are adequately repaired.

In addition to the removal of the bridge and pavements as discussed above, any vegetation, topsoil, tree roots, organic-containing soils, and any soft or otherwise unsuitable materials should be removed from the proposed building limits. We recommend the actual removal depths required be determined by a representative of GPD Group during construction.

3.3 Fill Material

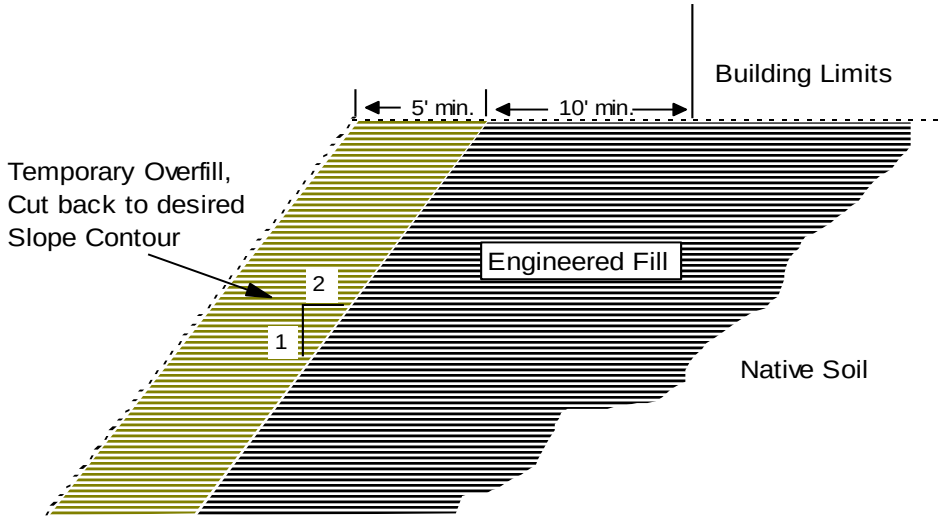
Any fill or backfill required within building limits should be select material, as approved by a qualified geotechnical engineer. For all filling operations, the following should be observed:

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

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

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

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



Proper benching of the structural fills will be critical for their long term stability. The depth and width of the benches can be determined by inspection during the excavation operations but should typically have a width of about 10 to 15 feet. The vertical cut of any bench should not exceed about 3 to 5 feet.

Compaction equipment and techniques will be dependent on the type of material being used as fill. A sheepsfoot roller should provide adequate compaction for cohesive (clayey) soils. A vibratory type compactor such as a drum roller will be required for non-cohesive (sandy) soils.

3.4 Drilled Concrete Pier Foundations

Based on the results of this study, it is our opinion that cast-in-place concrete piers would be appropriate for support of the proposed bridge abutments. The following net design parameters may be used to design the proposed foundation system. Factors of safety of 2 and 3 have been applied to the allowable skin friction and bearing pressure values provided below, respectively. The cohesion, internal angle of friction and unit weight parameters along with the vertical modulus of subgrade reaction, horizontal modulus of subgrade reaction, sliding friction coefficient, and strain values given in the following table are based on the results of the sample boring, lab testing, published values and our past experience with similar soil/rock types. These values should, therefore, be considered approximate.

Table 1: Drilled Pier – Allowable Design Parameters (B-1)

Depth (feet)	USCS	Unit Weight (pcf)	Horizontal Modulus of Subgrade Reaction (pci)	ε_{50}	Allowable Skin Friction[2] (psf)	Allowable Bearing Pressure (psf)	Internal Angle of Friction (Degrees)	Cohesion (psf)
0 – 3[1]	CL	120	Ignore[1]	-	Ignore[1]	Ignore	-	-
3 – 12	CL	120	60	0.01	200	Ignore	0	750
12 – 16	SP	105	20	-	800	Ignore	25	0
16 – 22	SP	115	150	-	1,000	4,000	34	0
22 – 28	CL	125	160	0.005	550	4,000	0	2,000
28 – 33	CL	120	120	0.007	400	3,000	0	1,500
33 – 50	CL	120	60	0.01	200	3,000	0	750

[1]The upper 3-ft should be ignored due to potential frost effects and construction disturbance considerations.
[2]Use 2/3 of allowable skin friction (psf) for uplift resistance

Table 2: Drilled Pier – Allowable Design Parameters (B-2)

Depth (feet)	USCS	Unit Weight (pcf)	Horizontal Modulus of Subgrade Reaction (pci)	ε_{50}	Allowable Skin Friction[2] (psf)	Allowable Bearing Pressure (psf)	Internal Angle of Friction (Degrees)	Cohesion (psf)
0 – 3[1]	CL	120	Ignore[1]	-	Ignore[1]	Ignore	-	-
3 – 14	CL	120	80	0.007	225	2,000	0	1,000
14 – 17	SP	105	20	-	850	1,000	25	0
17 – 26	CL	125	160	0.005	550	4,000	0	2,000
26 – 50	CL	120	80	0.007	225	3,000	0	1,000

[1]The upper 3-ft should be ignored due to potential frost effects and construction disturbance considerations.
[2]Use 2/3 of allowable skin friction (psf) for uplift resistance

The above parameters are provided for the design of cast-in-place concrete piers. In the event that a different foundation or tower type is chosen, these parameters are not considered valid and GPD Group should be notified immediately to provide appropriate design parameters, as warranted.

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

Drilled pier foundations should be designed with a minimum shaft diameter of 36 inches to facilitate clean out of the pier excavation. Temporary casing may be required during the pier excavation in order to support the sides of the excavation in weak soil zones. Casing should not extend below the rock surface. Care should be taken so that the sides and bottom of the excavations are not disturbed during construction. The bottom of the shaft should be free of loose soil or debris prior to reinforcing steel and concrete placement. It is essential that piers designed using the provided properties are cast against native soil/rock. Overexcavation and forming of piers is not permitted.

A concrete slump of at least 6 inches is recommended to facilitate temporary casing removal. It should be possible to remove the casing from a pier excavation during concrete placement provided that the concrete inside the casing is maintained at a sufficient level to resist any earth and hydrostatic pressures outside the casing during the entire casing removal procedure.

3.5 Lateral Earth Pressures – Wingwalls

Wingwall foundations comprised of conventional spread footings bearing on suitable native soils or on properly compacted fill extending to suitable native soil may be sized using a maximum net allowable bearing pressure of 1,500 psf. It should be noted that the foundations should be founded below the local frost depth and extend below the expected scour depth.

Wingwalls with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to those indicated in the Table 3. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall rotation. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.

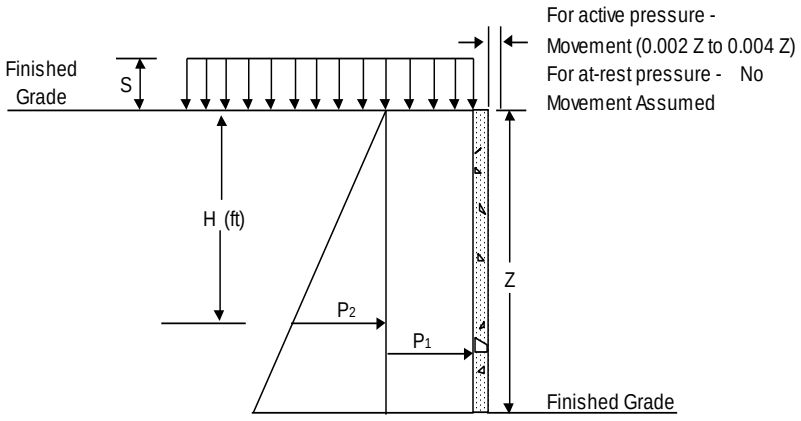


Figure 1: Lateral Earth Pressures

Table 3: Lateral Earth Pressure Coefficient

EARTH PRESSURE CONDITIONS	COEFFICIENT FOR BACKFILL TYPE	EQUIVALENT FLUID PRESSURE (pcf)	SURCHARGE PRESSURE, P_1 (psf)	EARTH PRESSURE, P_2 (psf)
Active (Ka)	Granular - 0.29 Lean Clay - 0.42	35 50	(0.29)S (0.42)S	(35)H (50)H
At-Rest (Ko)	Granular - 0.46 Lean Clay - 0.58	55 70	(0.46)S (0.58)S	(55)H (70)H
Passive (Kp)	Granular - 3.0 Lean Clay - 2.4	360 288	--- ---	--- ---

Conditions applicable to the above coefficients include:

- For active earth pressure, wall must rotate about base, with top lateral movements 0.002 Z to 0.004 Z, where Z is wall height
- For passive earth pressure, wall must move horizontally to mobilize resistance.
- Uniform surcharge, where S is surcharge pressure
- In-situ soil backfill weight a maximum of 125 pcf
- Horizontal backfill, compacted to at least 98% of standard Proctor maximum dry density
- Loading from heavy compaction equipment not included
- No groundwater acting on wall
- No safety factor included
- Ignore passive pressure in frost zone

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively. A geotextile (i.e. filter fabric) should be placed between the granular backfill and cohesive soils to preclude the infiltration of fines. To calculate the resistance to sliding, a value of 0.35 should be used as the coefficient of friction between the footing and the underlying soil.

To control the water level behind the wall, we recommend a perimeter drain be installed at the foundation level and described in the following notes.

- Granular backfill in this case consist of free draining No. 57 stone or equivalent.
- Perforated pipe should be rigid PVC wrapped with a separator fabric (sock) and sized to transport the expected water.
- Exterior ground surface should consist of a 12 inch clay cap sloped to drain and underlain by filter fabric.
- The clay cap can be replaced by a pavement section
- Weep holes can be considered for retaining walls if the water seepage will not impact adjacent structures or slopes

3.6 Dewatering Recommendations

We do not expect shallow groundwater seepage to be encountered in any excavations based on the two (2) borings performed at this site. However, the contractor should be prepared to dewater any excavation (discharge either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any body of water or other areas that could be negatively impacted. The Contractor shall submit an erosion and sediment control plan to the owner prior to construction in accordance with Federal, State and local codes.

The Contractor shall provide and maintain, at all times during construction, proper equipment necessary to promptly remove and dispose of all water entering excavations. Dewatering shall be performed by methods that will provide a dry excavation base and preserve the final lines and grades of the excavations. Dewatering methods may include the use of well points, sump pumps, or other means, all subject to the approval by GPD Group or Medina County. The cost of all dewatering activities shall be borne by the Contractor. GPD Group should be contacted immediately in the event excessive groundwater recharge rates are encountered which cannot be controlled using the conventional methods discussed above.

3.7 Excavations

All excavations shall be sloped or shored per the requirements of OSHA regulations. Based on the borings performed at this site, we recommend that the excavations be designed using an OSHA Type "C" soil classification. Where required, excavation bottoms shall be graded to provide a smooth, firm and stable foundation that is free from rocks and other obstructions. Although not anticipated, any excavations that extend greater than 20 feet shall be designed and approved by a professional engineer.

3.8 Cut and Fill Slopes

Based on our boring data and preliminary laboratory analysis, the following cut and fill design slope inclinations are recommended.

Table 4: Slope Inclinations

Slope Height	Recommended Slope Inclination
0 to 10 feet	2 (H) to 1 (V)
10 to 25 feet	2.5 (H) to 1 (V)
Greater than 25 feet	3 (H) to 1 (V)

It will be imperative that fill slopes be properly benched into the existing subgrade and be properly compacted, as outlined in the Section 3.3. A minimum bench of 3 feet vertical by 3 feet horizontal is recommended. Smaller benches may be required in smaller slopes. This benching will help provide a positive interaction between the fill and natural soils and reduce the possibility of failure along the fill/natural soil interface. Furthermore, we recommend that fill slopes be over filled and then cut back to develop an adequately compacted slope face.

Soil slopes should be covered for protection from rain, and surface runoff should be diverted away from the slopes. For erosion protection, a protective cover of grass or other vegetation should be established on permanent soil slopes as soon as possible. A minimum building setback from the top of slopes of 10 feet is recommended.

SECTION 4

4.0 Additional Design and Construction Considerations

4.1 Seismic Considerations

The International Building Code (IBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The scope of services for this project required that borings be drilled to a maximum depth of about 50 feet. The noted site classification considers that weathered bedrock exists below the maximum depth of subsurface exploration. Based on the available field and laboratory test results and our knowledge and experience with the local site geology, a Seismic Site Classification "D" should be used for design of the structures according to the "International Building Code and Related Codes, Section 1613.5.2 Site Class Definitions.

4.2 Subsurface Drainage

At the time of this investigation, groundwater was not encountered. Any water encountered during the construction of this project would be the result of water bearing pervious seams, and/or a perched water table condition. Conventional dewatering methods, such as pumping from sumps, should be adequate for temporary removal of any groundwater encountered during excavation at the site. If springs or other significant groundwater is exposed during the excavation process, it may be necessary to install permanent trench drains to remove this water away from future structures. Since groundwater was not discovered during our field investigation, the location and design of any trench drains should be determined at the time of construction.

4.3 General Comments

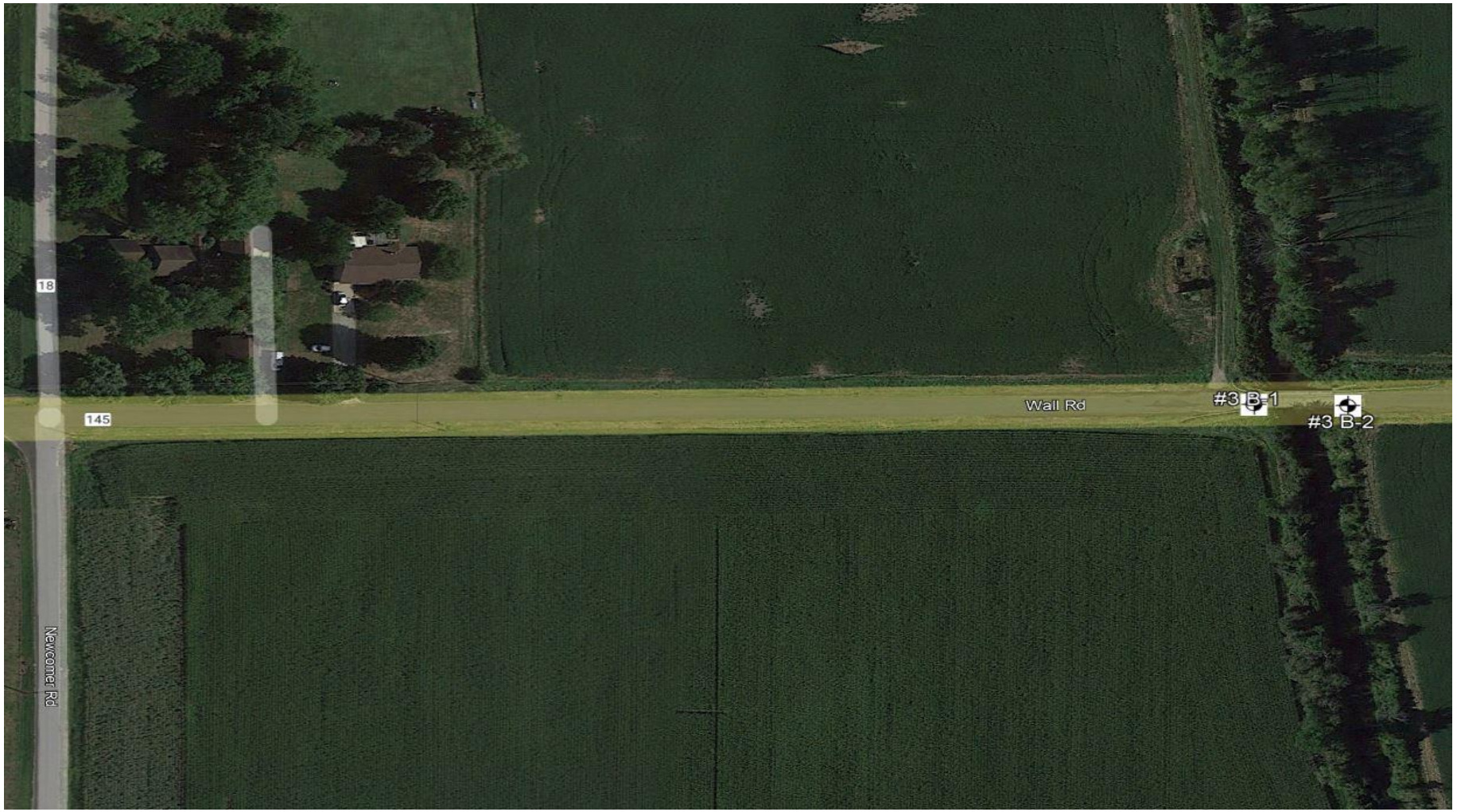
GPD Group should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Subsequent to the demolition of the existing structure, GPD should also be retained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

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

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

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

LOCATION PLAN



N

Legend

Soil Boring: ⊕

PROJECT: Median County – Wall Rd – Bridge #3

PROJECT NUMBER: 2021821.71 **DATE**: 2-24-2022

LOCATION: Wall Road, Wadsworth Township, Ohio

520 S Main St, Suite 2531 Akron, Ohio 44311

Boring Number: B-1

CLIENT Medina County Engineer's Office
PROJECT NAME Medina County Bridge #3 Wall Rd.
PROJECT NUMBER 2021821.71
PROJECT LOCATION Wall Rd, Wadsworth Twp., OH
DATE STARTED February 9, 2022 **COMPLETED** February 9, 2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GPD Geotechnical Services, INC.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger with Manual SPT Hammer
AT TIME OF DRILLING ---
LOGGED BY Joe Crouch **CHECKED BY** Mitch Davis
AT END OF DRILLING ---Hole closure at 22'
NOTES Simco, ATV

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	DYNAMIC CONE PENETROMETER (BLOWS/1.75")	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		17" Asphalt									
		Damp, stiff, brown & gray, silty CLAY, trace sand.	SS 1	61	5-7-8 (15)		20				
		Damp to moist, medium stiff, brown, silty CLAY.	SS 2	56	1-2-3 (5)						
		Damp to moist, stiff. brown & gray, silty CLAY.	SS 3	83	4-4-5 (9)		23				
10		Wet, very loose, gray, fine to coarse SAND.	SS 4	56	1-1-1 (2)						
		Wet, medium dense, gray, fine to coarse SAND.	SS 5	44	18-18-13 (31)						
20		Damp to moist, very stiff, gray CLAY.	SS 6	67	4-10-14 (24)		26				
		Moist, stiff, gray CLAY, trace silt.	SS 7	83	5-6-6 (12)						
30		Moist, medium stiff to stiff, gray CLAY.	SS 8	89	1-2-3 (5)						
			SS 9	100	1-2-5 (7)		33				
40			SS 10	100	1-3-3 (6)						
			SS 11	100	1-2-4 (6)		30				
50		Boring terminated at 50.0 feet									

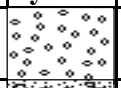
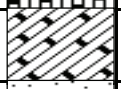
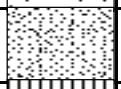
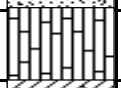
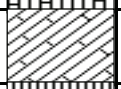
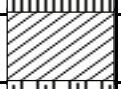
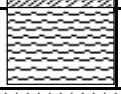
Boring Number: B-2

CLIENT Medina County Engineer's Office
PROJECT NAME Medina County Bridge #3 Wall Rd.
PROJECT NUMBER 2021821.71
PROJECT LOCATION Wall Rd, Wadsworth Twp., OH
DATE STARTED February 9, 2022 **COMPLETED** February 9, 2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GPD Geotechnical Services, INC.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger with Manual SPT Hammer
AT TIME OF DRILLING ---
LOGGED BY Joe Crouch **CHECKED BY** Mitch Davis
AT END OF DRILLING ---
NOTES Simco, ATV

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	DYNAMIC CONE PENETROMETER (BLOWS/1.75")	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		17" Asphalt									
		Damp, stiff, brown & gray CLAY, trace sand & silt.	SS 1	67	16-7-7 (14)		21				
		Damp, stiff, brown CLAY, little sand.	SS 2	61	3-3-4 (7)						
		Damp, stiff, brown & gray CLAY, little sand.									
10			SS 3	50	3-3-4 (7)						
		Moist, stiff, gray CLAY.									
		Moist to wet, very loose, gray SAND.	SS 4	61	3-2-1 (3)		27				
		Moist, medium stiff to stiff, gray CLAY.									
20			SS 5	72	6-8-12 (20)						
			SS 6	67	3-6-8 (14)		28				
30			SS 7	83	2-4-5 (9)						
			SS 8	83	4-5-7 (12)		28				
40			SS 9	83	2-3-4 (7)						
			SS 10	100	1-3-4 (7)		34				
50			SS 11	100	2-2-5 (7)						

Boring terminated at 50.0 feet

Unified Soil Classification System

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

Consistency Classification

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

MCS = Modified California Sampler SPT = Standard Penetration Test Sampler

GENERAL NOTES

SAMPLE IDENTIFICATION

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

DRILLING AND SAMPLING SYMBOLS

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

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

SOIL PROPERTY SYMBOLS

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

RELATIVE DENSITY OF COARSE-GRAINED SOILS

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

ANGULARITY OF COARSE-GRAINED PARTICLES

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

GRAIN-SIZE TERMINOLOGY

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

PARTICLE SHAPE

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

RELATIVE PROPORTIONS OF FINES

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

GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

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

MOISTURE CONDITION DESCRIPTION

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

RELATIVE PROPORTIONS OF SAND AND GRAVEL

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

STRUCTURE DESCRIPTION

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

SCALE OF RELATIVE ROCK HARDNESS

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

ROCK BEDDING THICKNESSES

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

ROCK VOIDS

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

GRAIN-SIZED TERMINOLOGY

(Typically Sedimentary Rock)

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

ROCK QUALITY DESCRIPTION

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

DEGREE OF WEATHERING

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

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

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

COMPREHENSIVE ASBESTOS SURVEY

TH 145 Bridge #3
Wadsworth Township, Medina County, Ohio

August 30, 2022

Prepared for:
Medina County Engineers
791 West Smith Road
P.O. Box 825
Medina, Ohio 44256

Prepared by:

HZW Environmental Consultants

6105 Heisley Road ♦ Mentor, Ohio 44060
440-357-1260 ♦ Fax 440-357-1510

H22302

HZW Environmental Consultants

August 30, 2022

Mr. Andy Conrad, P.E., P.S.
Medina County Engineer
791 W. Smith Road
P.O. Box 825
Medina, Ohio 44256

Subject: ***Report of Findings from an Asbestos Survey Conducted at the TH 145 Bridge #3, Wadsworth Township, Medina County, Ohio (Latitude, Longitude: 40.996, -81.763) (HZW Project No. H22302)***

Dear Mr. Conrad:

In accordance with our letter agreement dated July 5, 2022, HZW Environmental Consultants, LLC (HZW) is pleased to submit this letter report that presents the findings of an asbestos survey conducted at the TH 145 Bridge #3, Wadsworth Township, Medina County, Ohio (herein referred to as the "subject bridge") prior to the bridge being replaced. Discussions of the methods of investigation, the findings, and subsequent recommendations based on the findings are provided separately below.

METHODS OF INVESTIGATION

As part of the asbestos survey, HZW requested from the Medina County Engineer (the Client), a copy of the original construction plans for the subject bridge to assist in identifying suspect asbestos-containing materials (ACMs) or ACMs used during construction. Any construction plans provided to HZW by the Client were reviewed as part of the scope of work for the project.

On July 13, 2022, a representative of HZW, certified as an Asbestos Hazard Evaluation Specialist (AHES), performed an asbestos survey of the subject bridge. This certification is required to be maintained by the inspector in accordance with the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) and the Ohio Environmental Protection Agency (Ohio EPA) Asbestos regulation [Chapter 3745-22 of the Ohio Administrative Code (OAC)].

The asbestos survey was conducted in accordance with the United States Environmental Protection Agency (U.S. EPA) Asbestos National Emission Standards for Hazardous Air Pollutants (Asbestos NESHAP) survey protocol. The Asbestos NESHAP regulation requires no specific survey protocol be followed; however, the Asbestos Hazard Emergency Response Act (AHERA) protocol is recommended. Therefore, the asbestos survey at the subject bridge was conducted in accordance with AHERA protocol. Any bulk samples collected were submitted to CA Labs, LLC of Baton Rouge, Louisiana, for analysis of asbestos content by polarized light microscopy (PLM) using the Environmental Protection Agency (EPA) Method 600/R-93/116.

FINDINGS

Based on HZW's review of the construction plans provided by the Client for the subject bridge (Plans dated/signed 1971, Pages 1 through 5), no suspect materials were identified on the bridge structure. In addition, no building materials suspect for containing asbestos were visually identified during the physical inspection of the subject bridge.

A photographic log depicting the site conditions at the subject bridge at the time of the asbestos survey is included as **Attachment 1**. A site sketch of the subject bridge documenting the locations where photographs were taken is included as **Attachment 2**. A partially completed Ohio EPA "Notification of Demolition and Renovation/Abatement" form is included as **Attachment 3**.

RECOMMENDATIONS

Based on the findings of the asbestos survey conducted at the subject bridge, the following recommendations are being presented for consideration:

1. Submit the Ohio EPA "Notification of Demolition and Renovation/Abatement" form to the Ohio EPA 10 days prior to demolition activities being conducted at the subject bridge.

2. Ensure demolition of the bridge is performed in accordance with Ohio EPA regulations. Ohio EPA requires that during demolition activities that no visible dust emissions be present. Therefore, ensure that the demolition work is performed using wet methods.

HZW appreciates the opportunity you have given us to provide professional services to the Medina County Engineer. Should you have any questions regarding the information presented in this letter report, please do not hesitate to contact us.

Sincerely,

HzW ENVIRONMENTAL CONSULTANTS, LLC

Carmen Rocco

Carmen Rocco
Certified Asbestos Hazard Evaluation Specialist (OEPA License No. 33794)

Joan Sablar

Joan A. Sablar
Group Leader
Certified Asbestos Hazard Evaluation Specialist (OEPA License No. 31652)

JAS\jas\H22302
Attachments
I:\2022\H22302\05 TH 145 Bridge #3, Wadsworth Township, Medina County, Ohio\TH 145 Bridge #3 Asbestos Survey.doc

ATTACHMENT 1

PHOTOGRAPHIC LOG OF BRIDGE

Photograph 01

View Looking West at the Top of the TH 145 Bridge #3,
Wadsworth, Medina County, Ohio

Photograph 02

View Looking East at the Top of the TH 145 Bridge #3,
Wadsworth, Medina County, Ohio

Photograph 03

View Looking Southeast at the Underside of the TH 145 Bridge #3, Wadsworth, Medina County, Ohio

Photograph 04

View Looking Southwest at the Underside of the TH 145 Bridge #3, Wadsworth, Medina County, Ohio

ATTACHMENT 2

SITE SKETCH OF BRIDGE

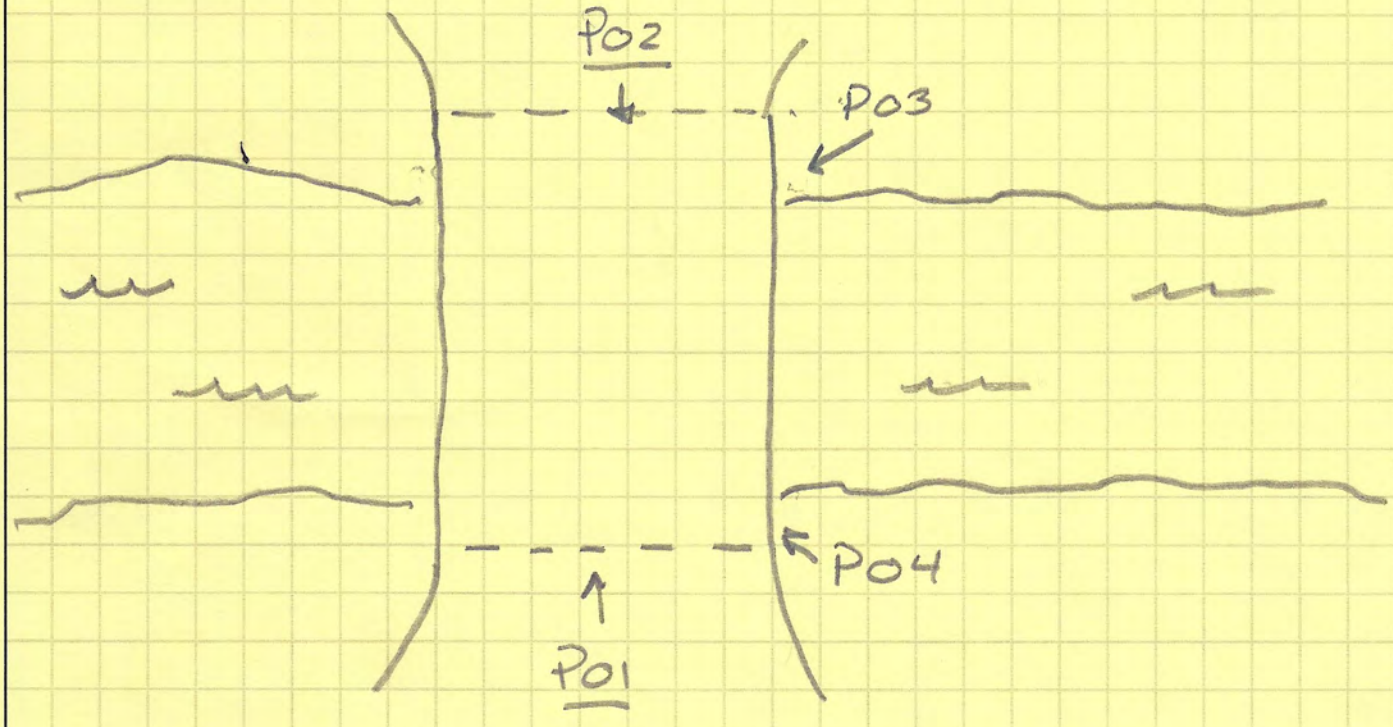
HZW ENVIRONMENTAL
CONSULTANTS, LLC

6105 Heisley Road • Mentor, Ohio 44060
Phone 440-357-1260 • 800-804-8484
Fax 440-357-1510
A Woman-Owned Business Enterprise

PROJECT Wall Road Bridge, TH-145
PROJECT NO. H22-302
PAGE NO. 2 OF 2
FIELD REPRESENTATIVE CA DATE 07/13/22
SCALE

INDICATE DIRECTION OF NORTH

N →



ATTACHMENT 3

PARTIALLY COMPLETED COPY OF OHIO EPA'S "NOTIFICATION OF DEMOLITION AND RENOVATION/ABATEMENT FORM" FOR THE BRIDGE

Notification of Demolition and Renovation/Abatement

Section 1: General Information

Division of Air Pollution Control

Work on projects cannot begin until 10 working days after a COMPLETE original notification form, **including payment**, is submitted to Ohio EPA. Instructions and a worksheet for fee calculation are available at ***epa.ohio.gov/asbestos***. This form can be completed, and payment made, at ***ebiz.epa.ohio.gov***. Questions? ***asbestos@epa.ohio.gov*** or (614) 466-0061.

Ohio EPA Use Only	Notification #:	Postmarked: / /	Received: / /	☐ Hand-Delivered

1) Notification Information (Check all that apply)

☒ Original	☐ Revision # (count):	☐ Installation	☐ Emergency	☐ Annual	☐ Cancellation	**Project County:** Medina
☐ NESHAP Residential Exemption						

2) Owner, Asbestos Abatement Contractor, Billing and Fire Department Information **Revised?** ☐

Owner		
Name: Medina County Engineer		Is this a company? ☐ Yes ☒ No
Address: 791 W. Smith Road, P.O. Box 825	Contact Person: Andy Conrad	
City: Medina	State: OH	Zip: 44256 -
Email: aconrad@medinaco.org	Phone: (330) 723 - 9559	Fax: (330) 723 - 9661
Asbestos Abatement Contractor (if applicable)		
Name:	License #: AC	Expiration Date: / /
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Billing Contact (Entity paying for original notification)		
Is this contact associated with the ☒ Owner, ☐ Asbestos Abatement Contractor, or ☐ Demolition Contractor (if not installation)?		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Fire Department (if applicable)		
Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

3) Ohio Asbestos Hazard Evaluation Specialist and Evaluation Procedure **Revised?** ☐

Evaluation Specialist: Carmen Rocco	Certification #: ES 33794	Expiration Date: 9 / 1 / 22

Procedure, including analytical methods, employed to detect the presence of and to estimate the quantity of regulated asbestos-containing material (RACM) and Category I and Category II non-friable asbestos-containing material: ☐ PLM ☐ Point Count ☐ TEM ☐ Other Method (Explain Below):

NESHAP Asbestos Survey

4) Procedures to be followed should unexpected RACM be discovered (check all that apply) **Revised?** ☐

☒ Stop work and keep wet	☒ Evacuate area	☒ Demarcate area	☒ Contact licensed abatement contractor
☐ Contact district office/local air authority			
☐ Other (Explain):			

5) Planned Demolition (check all that apply) **Revised?** ☐

Describe demolition work to be performed and method(s) to be employed, including demolition techniques to be used:
☐ Implosion ☐ Fire Training ☒ Wet Methods ☒ Manual Demolition ☒ Mechanical Demolition ☐ Other (Explain):

Description of affected facility components (include attachment if necessary):

Mail completed form and payment to:
Ohio EPA, DAPC – Asbestos
P.O. Box 1049, Columbus, OH 43216-1049

Notification of Demolition and Renovation/Abatement

Section 1: General Information

Continued

6) Asbestos Description and Engineering Controls (if asbestos is being abated) **Revised?** ☐

For the material listed in each project, describe the type(s) of ACM to be abated, engineering controls and work practices to be used to minimize emissions and ensure proper waste handling:					
Type of ACM to be abated:	☐ Surfacing	☐ Mechanical	☐ Other		
Engineering Controls:	☐ Wet Methods	☐ Glove Bag	☐ NPE	☐ AFD	☐ Other:
Work Practices:	☐ Intact Removal	☐ Manual	☐ Mechanical	☐ Other:	

7) Asbestos Waste Transporter (if applicable) **Revised?** ☐

Transporter #1 Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Transporter #2 Name (if applicable):		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

8) Asbestos Waste Disposal Site (if applicable) **Revised?** ☐

Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

9) Emergency Demolition (complete if you checked "Emergency" above and "Demolition" for any project) **Revised?** ☐

A copy of the issued order, including the following information, **must be attached** to this notification.	
Government Official Issuing Order:	Title:
Agency:	Authority of Order (Citation of Code):
Date of Order: / /	Demolition Date: / /

10) Emergency Renovation/Abatement (complete if you checked "Emergency" above and "Renovation/Abatement" for any project) **Revised?** ☐

Date of Emergency: / /	Time of Emergency: : ☐ a.m. ☐ p.m.
Description of Sudden, Unexpected Event:	
Explanation of how the event caused unsafe conditions or equipment damage:	

11) Attestation **Revised?** ☐

In accordance with Ohio Administrative Code rule 3745-20-03(A)(4)(p), I certify that at least one person trained as required by paragraph (B) of rule 3745-20-04 of the Administrative Code will supervise the stripping and removal described by this notification. I acknowledge that the submission of false or misleading statements is prohibited by law and I certify that facts contained in this notification are true, accurate, and complete.	
Signature:	Date: / /
Name:	Title:
Organization:	

Notification of Demolition and Renovation/Abatement

Section 2: Project Address Specific Information

Division of Air Pollution Control

Ohio Environmental Protection Agency

Please complete Section 2 for the address included with this notification. If the project is an "Installation" per OAC 3745-20, complete a separate Section 2 page for each address associated with this notification.

Ohio EPA Use Only	Project ID #:

A. Facility Description **Revised?** ☐

Building Name (if applicable): TH 145 Bridge #3	Site Location (specific): Over the Styx River	
Address: TH 145 Bridge #3		
City: Wadsworth Township	State: OH	Zip: -
Building Size (square feet):	No. of Floors:	Age: Unknown
Present Use: Bridge	Prior Use: Bridge	

B. Type of Operation (check all that apply) **Revised?** ☐

☒ Demolition	☐ Renovation/Abatement – Type: ☐ Removal ☐ Repair ☐ Encapsulation ☐ Enclosure

C. Asbestos Present (check one) **Revised?** ☐

☐ Yes	☒ No	☐ No, previously abated Year Abated:

D. Approximate Amount of Asbestos-Containing Materials (complete table below and Section 1 #6 if asbestos is present) **Revised?** ☐

	Material to be Removed			Material NOT to be Removed	
		Non-friable Asbestos-Containing Material		Non-friable Asbestos-Containing Material	
	RACM	Category I	Category II	Category I	Category II
Pipes (linear feet)					
Surface area on other facility components (ft^2)					
Volume if length or area cannot be measured (ft^3)					

E. Asbestos Abatement Schedule and Abatement Specialist (original notification is required 10 working days prior to the start of work) **Revised?** ☐

Setup Date: / /		Abatement Date: / /			Complete Date: / /		
(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:			Certification #: AS			Expiration Date: / /	
(Shift 2) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:			Certification #: AS			Expiration Date: / /	

F. Demolition Contractor (if applicable) **Revised?** ☐

Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

G. Demolition Schedule (original notification is required 10 working days prior to the start of work) **Revised?** ☐

Start Date: / /	Complete Date: / /

H. Project Hold **Revised?** ☐

Hold Begin Date: / /	Work Resume Date: / /