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FINAL REPORT
OF
ROADWAY EXPLORATION

WAR-75-11.56/MOT-75-0.00, PID 113579

Warren and Montgomery County, Ohio

Prepared For:

Carpenter Marty Transportation
6612 Singletree Drive
Columbus, Ohio 43229

Prepared By:

DLZ

DLZ OHIO, INC.

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EXECUTIVE SUMMARY

This report includes the findings of the subsurface exploration performed for the proposed roadway project on Interstate Route 75 (IR75) in Warren and Montgomery Counties. Phase 1 of the project includes replacement of the existing pavement and the addition of a 4th-lane, extending approximately 3.4 miles along the mainline of IR75. It also includes widening and full depth pavement replacement along approximate 1,100 linear feet of IR75 Ramp H and 700 linear feet of Ramp S as well as minor tie-in segments of Ramps J, M, P, and V. The purpose of this exploration was to 1) determine the subsurface conditions to the depths of the borings, 2) evaluate the engineering characteristics of the subsurface materials, and 3) provide recommendations for the proposed improvements and design using the results of this field exploration.

The subsurface conditions were determined by performing a total of fifty-three (53) borings designated as B-001-0-23 through B-053-0-23 (i.e. B-001 through B-053) and twenty-four (24) pavement cores designated as X-001-0-23 through X-024-0-23 (i.e. X-001 through X-024). Three (3) additional borings, designated B-017-1-25, B-017-2-25, and B-040-1-25, (i.e. B-017-1, B-017-2, and B-040-1) were performed on Ramps H and S. Lastly, three (3) test pits, designated TP-028-1-25, TP-029-2-25, and TP-033-1-25, were performed by ODOT in the IR75 median. In general, the borings encountered 17 to 23 inches of pavement materials (asphalt, concrete, and aggregate base). Borings located outside the pavement in the median encountered 3 to 10 inches of topsoil. Test pits performed in the median encountered 3 to 3.5 inches of topsoil. Pavement cores located outside the travel lanes in the paved shoulder generally encountered 10 to 16 inches, except for 19 inches at B-001, of pavement materials (asphalt over aggregate base). Steel reinforcing bars were encountered within the concrete in some of the cores (e.g., B-012, see photo in core report in Appendix I). Beneath the pavement materials and topsoil, the borings encountered existing fill/possible fill to depths ranging from 1.5 feet to the bottom of the borings. The fill/possible fill was predominantly stiff to hard cohesive materials (A-4a, A-4b, A-6a, and A-6b) with occasional medium dense to dense granular materials (A-2-4, A-2-6 and A-1-b). These granular materials may be undercut backfill. Severely weathered shale and limestone fragments were noted within the fill and portions of the fill in other borings were slightly to moderately organic. Underlying the surficial materials and/or fill/possible fill, the borings encountered predominantly stiff to hard natural cohesive soils (A-4a, A-4b, A-6a, and A-6b). Natural soil similar to severely weathered to decomposed bedrock was encountered in several borings. Slightly to moderately organic soils were encountered as noted on the boring logs. Auger chatter, difficult drilling, and/or possible cobbles/boulders were reported at various depths in the borings. Below the surficial material, test pits encountered predominantly very stiff to hard cohesive soils (A-6a, A-2-4), with slightly organic soil encountered near the surface in TP-028-1-25 and TP-033-1-25. Cobbles and boulders were encountered in TP-028-1-25 from a depth of 0.3 to 4.0 feet (i.e. to top of rock). Free groundwater was not observed in any of the borings or test pits during drilling or upon completion of drilling/prior to backfilling. See the individual boring logs in Appendix I for more details.

Bedrock was encountered in seventeen (17) borings and all three (3) test pits, with top of rock noted at depths ranging from 0.4 to 6.0 feet. The bedrock was predominantly described as interbedded shale and limestone and shale. Auger refusal was encountered in five borings within the bedrock at depths ranging from 3.1 to 4.6 feet and sampler refusal was encountered within the bedrock in those borings and several others.

Subgrade analysis was performed in accordance with the Ohio Department of Transportation (ODOT) Geotechnical Design Manual (GDM) Section 600 and resulted in an average design California Bearing Ratio (CBR) of 7 for the project. Unsuitable silt (A-4b) subgrade was identified in borings B-015, B-020, and B-022 (approximately MOT-75 Centerline Stations 26+00, 42+00, and 49+50) that will require Item 204 Excavation and Replacement or Item 206 Cement Stabilization. See the report for details. Unsuitable rock subgrade was identified in borings B-028, B-029, B-031, B-033, B-034, and B-035 (approximately MOT-75 Centerline Stations 67+00, 69+50, 73+00, 77+00, 79+00, and 83+50) that will require Item 204 Excavation and Replacement per CMS 204.05.

Global stabilization is required for the entire project since this is an interstate highway with project length more than 1-mile, as per ODOT GDM Section 605. Results of the subgrade analysis identified Item 320 Rubblize and Roll as a suitable alternative for subgrade stabilization of the existing pavement areas. Item 206 Cement Stabilization, 14" Depth is recommended for global subgrade stabilization for the pavement widening along mainline with the exception of areas recommended for Item 204 Excavation and Replacement of unsuitable rock subgrade and adjacent (transition) areas of shallow rock, as discussed in the report, where the top of rock, or where shallow rock fill can't be broken down adequately, is within 6 inches of the stabilized depth and could potentially damage the reclaimer as well as areas of unsuitable silt subgrade which require Item 204 Excavation and Replacement or Item 206 Cement Stabilization, 14" Depth as discussed in the report. As an alternative to the varying depth Item 204 undercuts in the area of shallow-rock roughly between Mainline Stations 65+50 and 86+00, for plan purposes consider a uniform undercut depth of 12-inch Item 204 excavation and replacement between the estimated station range of Sta 65+50 to 86+00 for unsuitable rock subgrade and unstable subgrade with bedrock too shallow for use of Item 206 Cement Stabilization, 12" Depth. Actual limits should be determined by the Engineer at the time of construction based on subgrade and undercut observations. Item 206 Cement Stabilization, 14" Depth is also recommended for global subgrade stabilization for the full depth pavement replacement and widening along Ramps H and S. The subgrade analysis spreadsheet is presented Appendix III. Note that greater depth (Item 206 Cement Stabilization, 14" Depth) is required in areas unsuitable silt subgrade if utilized in lieu of Item 204 Excavation and Replacement.

In addition, rock fill (described as severely weathered shale) was encountered within the proposed stabilization depth in boring B-020. Item 204 Excavation and Replacement method is recommended for treatment of the unsuitable silt subgrade in the vicinity of this boring for planning purposes as it may not be feasible to

chemically stabilize the rock fill unless it can be plowed, disced, scarified, and broken down to a soil-like state. See the report for details.

The proposed new embankment fill construction will include placement of new embankment fill on the existing embankment(s). Within the areas of planned new embankment fill the existing embankment(s) are typically 4H:1V or flatter, 20 feet or less in height, and appear to be stable. Where new fill will be placed on the existing slopes, the new fill should be benched in accordance with ODOT CMS 203.05. However, Special Benching per ODOT GDM Section 800 is recommended for fill placement on slopes steeper than 2H:1V as discussed below.

Sidehill silver fills are planned along southbound IR 75 as shown on cross sections between STA 85+00 to STA 93+50, where the existing embankment slopes are roughly 2H:1V. Special benching is recommended for these sidehill silver fills to “knit” the proposed and existing embankment together. The special benching should be shown on the cross-sections and pay quantities for both excavation and embankment for the benched area added to the plan General Quantities (separate from standard excavation and embankment).

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1.0 INTRODUCTION AND PROJECT DESCRIPTION

This report presents the findings and recommendations of the geotechnical exploration for the proposed roadway project on Interstate Route 75 (IR75) in Warren and Montgomery Counties. Phase 1 of the project includes replacement of the existing pavement and the addition of a 4th-lane, extending approximately 3.4 miles along the mainline of IR75. It also includes widening and full depth pavement replacement of approximately 1,100 linear feet along IR75 Ramp H and approximately 700 feet along Ramp S as well as minor tie-in segments of Ramps J, M, P, and V. The exploration has been performed essentially in accordance with DLZ Ohio, Inc.'s (DLZ's) proposal for the subsurface exploration dated May 30, 2023 and proposal for modification dated April 1, 2025 (for Ramp H and S exploration).

The purpose of this exploration was to 1) determine the subsurface conditions to the depths of the borings, 2) evaluate the engineering characteristics of the subsurface materials, and 3) provide recommendations for the proposed improvements and design using the results of this field exploration.

The geotechnical engineer has planned and supervised the performance of the geotechnical engineering services, considered the findings, and prepared this report in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are made as to the professional advice included in this report.

2.0 GEOLOGY AND OBSERVATIONS OF THE PROJECT

The project is located in the Southern Ohio Loamy Till Plain section of the Central Lowlands Physiographic Province. According to the Ohio Department of Natural Resources references, this area is characterized by loamy tills end and recessional moraines. The ground moraine deposits have been entrenched by local large streams and rivers. Frequently, these valleys contain a significant amount of sand and gravel outwash from the historical glaciation and deposits of recent granular alluvium. Repeated glacial regressions across the area can leave behind boulder belts in the subsurface and glacial erratics. In general, the bedrock surface is reportedly covered by roughly 20 feet or less of glacial till along the project area including little to no soil cover in areas roughly 0.6 miles north of Austin Boulevard (Blvd) and greater cover between the Warren County line and Austin Boulevard (Blvd). The upper bedrock in the vicinity of the project consists of predominantly Ordovician-aged shale, limestone, and dolomite with Silurian-aged shale and limestone in a small section roughly ½ mile north of Austin Blvd. For reference, see the enclosed ODNR Bedrock Geology Map in Appendix I created using the Ohio Geology Interactive Map web application by the Ohio Department of Natural Resources (ODNR) Division of Geological Survey. The project is located in areas identified as Karst Geology by ODNR; however, the nearest suspected karst feature is located approximately 2.8 miles away and the nearest field verified karst

feature is approximately 8.2 miles away. See the ODNR Karst Map in Appendix I for reference. No mines (underground or surface) were identified along the project alignment based on available ODNR mapping. Groundwater mapping by ODNR indicates that limestone and shale bedrock are the primary aquifer media beneath the site and depth to groundwater is typically on the order of 15 to 30 feet (assumed near the soil-bedrock interface) with shallower groundwater on the order of 5 to 15 feet deep along the project alignment north of Mainline Station 87+00 [roughly] in Montgomery County. It should be noted that these groundwater depths exclude isolated perched groundwater trapped within the soil overburden and/or fill.

Reportedly, the mainline pavement near MOT-75-0.75 Station 27+50 (MOT-75 SLM 00.55) subsided and the subsidence remediated via foam injection after trenchless installation of a 24-inch diameter watermain inside a 54-inch diameter "tunnel" crossing beneath the road circa 2010-2011 timeframe. Reference ODOT Project No. 130054-08.

DLZ personnel performed field reconnaissance along the mainline project alignment on August 8, 2023. Site conditions were sunny and dry during the reconnaissance. The reconnaissance included the roadway, the median, and the outside shoulders. The median and shoulders had been recently mowed, and the grass length was not excessive. Near-surface soils were exposed in a few locations where the grass was not thriving or beneath the overpasses. Visible near-surface soils appeared to be clayey and contained sand, gravel, and stone chips. The local terrain was gently rolling, and soils within the highway appear to have been modified from the surrounding terrain by cutting and filling related to highway construction. Due to vegetative cover, rock and soil were not visible in the cut areas. An excess amount of soil from construction appeared to be wasted in the median between the I-675 ramps and Austin Boulevard ramps (approximate mile markers 42.2 and 42. 5). Visual observations of the roadway and shoulders did not indicate noticeable earth movement or landslides including no noticeable subsidence in the vicinity of the previous repair near SLM 00.55.

DLZ personnel performed field reconnaissance along the Ramp H and Ramp S alignments on April 25, 2025. The pavement appeared in good condition with minor edge cracking and transverse cracking. The existing embankment slopes appeared stable with no signs of instability or sloughing.

DLZ reviewed the available historic boring information in the vicinity of the project provided by the District which included the following:

- 1948 exploration for MOT-25-(2.12-3.51)(4.53-4.74);
- 1956 exploration for WAR-MOT-25-(8.58)(0.00);
- 1957 exploration for WAR-MOT-25-(8.46)(0.00);
- 1957 exploration for MOT-25-0.49, also referenced as MOT-25-0.00; and

- 1972 exploration for MOT-675-0.00.

In general, the historic boring information (including soil profile sheets) was from explorations performed for (prior to) the interstate system including the associated earthwork and infrastructure improvements. The historic information appeared to be relatively consistent with the current exploration findings. Refusal on cobbles or boulders were noted at numerous exploration locations on the historic soil profile sheets. Based on the historic soil profile sheets, ten feet or more of cut (earthwork) was performed as part of the work along current IR-75 north of Austin Blvd in the area of shallow bedrock mentioned above and encountered in the current exploration. Relatively few modern boring logs were available and therefore the historic explorations were not incorporated into this subgrade exploration and analysis.

3.0 EXPLORATION

3.1 FIELD EXPLORATION

A total of fifty-six (53) borings, designated B-001-0-23 (B-001) through B-053-0-23 (B-053) were drilled between August 21 and August 31, 2023 for the Part 1 field exploration (2023 Exploration). Three (3) additional borings, designated B-017-1-25, B-017-2-25, and B-040-1-25 (i.e. B-017-1, B-017-2, and B-040-1) were performed on Ramps H and S on May 12, 2025 (2025 Ramps H and S Supplemental Exploration). Three (3) test pits, designated TP-028-1-25, TP-029-2-25, and TP-033-1-25, were performed by ODOT OGE in the IR75 median on November 24, 2025. Twenty-four (24) additional pavement cores, designated X-001-0-23 (X-001) through X-024-0-23 (X-024), were obtained at widely spaced locations along the inside and outside shoulders for use in maintenance of traffic design by others. Boring B-028 was offset in the field due to a reported large diameter sewer in the vicinity of the staked location. Boring B-051 and pavement core X-023 were drilled/cored approximately 700 feet north of the planned locations due to issues with the GPS coordinates used for field layout, resulting in relatively wide boring spacing between borings B-050 and B-052. Borings for the 2023 Exploration were drilled with a truck-mounted drill rig with an automatic hammer that was last calibrated on July 27, 2023 with a resulting hammer energy ratio of 72.5 percent. As-drilled boring and pavement core locations and ground surface elevations for the 2023 Exploration were obtained by DLZ personnel using sub-meter grade GPS and project stationing and offsets for the respective locations were provided to DLZ by Carpenter Marty Transportation (CM). Borings for the 2025 Ramps H and S Supplemental Exploration were drilled with an All Terrain Vehicle (ATV) Track-mounted drill rig with an automatic hammer that was last calibrated on March 24, 2025 with a resulting hammer energy ratio of 85.5 percent. Boring locations for the 2025 Exploration were obtained by DLZ personnel using handheld GPS and project stationing and offsets and ground surface elevations for the respective locations were estimated by DLZ from survey basemaps and stationing provided by Carpenter Marty Transportation (CM). Test pits were excavated using a Kobelco SK170 excavator. Test pit

locations and ground surface elevations were obtained by ODOT OGE personnel using survey grade instruments. The boring/test pit/pavement core locations and ground surface elevations are listed on the individual boring/test pit logs and pavement core reports in Appendix I and the approximate boring core locations are shown on the boring location plans included in Appendix I.

3.2 LABORATORY TESTING PROGRAM

The laboratory testing program consisted of performing visual classifications using the AASHTO classification system as modified by ODOT (ref. ODOT SGE section 600), general index (soil classification) tests, and sulfate content testing. The general index tests consisted of grain-size analyses, moisture content, and plasticity determinations. Laboratory testing was performed in accordance with ODOT SGE Section 600 and ODOT GDM Section 600 for pavement subgrade analysis.

4.0 FINDINGS

The following sections present the generalized subsurface conditions encountered by the borings and pavement cores. Conditions may vary between and beyond the individual explorations. In the field, the actual soil transitions might be different both vertically and laterally. For more detailed information, please refer to the individual boring logs and pavement cores reports as well as the exploration summaries and laboratory test reports included in Appendix I.

4.1 SOIL CONDITIONS

In general, the borings and cores encountered either pavement or topsoil at the ground surface. The pavement cores located within the existing travel lanes (i.e., boring locations except for B-001) encountered 17 to 23 inches of pavement materials (asphalt, concrete, and aggregate base) with an average of 20 inches (17 inches excluding aggregate base). Steel reinforcing bars were encountered within the concrete in some of the cores (e.g., B-012, see photo in core report in Appendix I). Note that the core report in Appendix I is for the mainline pavement cores only and does not include the Ramp H and S borings. The pavement cores located outside the travel lanes in the paved shoulder generally encountered 10 to 16 inches, except for 19 inches at B-001, of pavement materials (asphalt over aggregate base) with an average of 13 inches (11 inches excluding aggregate base). Borings located outside the pavement in the median encountered 3 to 10 inches of topsoil with an average of 5 inches.

Beneath the pavement materials or topsoil, the majority of borings encountered existing fill/possible fill. Where encountered, the fill/possible fill extended to depths ranging from 1.5 feet to the bottom of the borings. The fill/possible fill was predominantly stiff to hard cohesive materials (A-4a, A-4b, A-6a, and A-6b), although medium dense to dense granular materials (A-2-4, A-2-6, and A-1-b) were encountered in several borings.

These granular materials may be undercut backfill. Severely weathered shale and limestone fragments were noted within the fill, and portions of the fill in other borings were slightly to moderately organic. Borings B-016 and B-020 encountered fill that was severely weathered shale (rock fill/shale fill); however, the material is listed with soil description and ODOT soil classification on the boring log [of similar material if decomposed into soil] with added description of rock fill or shale fill. Auger chatter/difficult drilling were noted within the fill in borings B-020 and B-040 and auger refusal was encountered within the fill at a depth of 4.0 feet in Boring B-040. Table 1 presents a summary of suspected location of cobbles/boulders and shale fill/rock fill encountered by the borings.

Table 1: Locations of Suspected Cobbles/Boulders and Shale Fill/Rock Fill Encountered by the Borings

Boring ID	Alignment & Station	Observations
B-016	MOT-75 CL Station 27+00	Shale Fill
B-020	MOT-75 CL Station 42+00	Rock Fill, Auger Chatter, Difficult Drilling
B-040	MOT-75 CL Station 102+50	Auger Chatter/Difficult Drilling/Auger Refusal

Notes: Limestone, stone fragments, and/or shale were also noted in samples in borings B-008, B-024, B-025, B-026, B-027, B-030, B-039, B-040, B-042, and B-053. These materials can be an indication of cobbles.

Underlying the surficial materials and/or fill/possible fill, predominantly stiff to hard natural cohesive soils (A-4a, A-4b, A-6a, and A-6b) were encountered in a majority of the borings. Natural soil similar to severely weathered to decomposed bedrock was encountered in several borings, such as B-026 and B-027. Slightly to moderately organic natural soils were encountered as noted on the boring logs. Auger chatter/difficult drilling/possible cobbles were noted within the natural soils in borings B-024.

Note that gypsum crystals were not identified within the samples during laboratory visual classifications and test results for sulfate content did not exceed 3000 parts per million (ppm).

Test pits performed in the IR75 median encountered 3 to 3.5 inches of topsoil underlain by predominantly very stiff to hard cohesive soils (A-6a, A-2-4) to top of rock depth (ranging from 0.7 to 4.0 feet). However, test pit TP-028-1-25 encountered dense granular soils (A-2-6) immediately above bedrock, from a depth of 3.1 to 4.0 feet. Slightly organic soils were encountered in test pits TP-028-1-25 and TP-033-1-25 to depths of 1.1 and 0.7 feet, respectively. Test pit TP-028-1-25 encountered limestone cobbles and boulders from a depth of 0.3 to 4.0 feet (i.e. to top of bedrock).

4.2 BEDROCK CONDITIONS

Bedrock was encountered in seventeen (17) borings, with top of rock noted at depths ranging from 0.4 to 6.0 feet. Bedrock was encountered in all test pits at depths ranging from 0.7 to 4.0 feet. The bedrock was predominantly described as interbedded shale and limestone and shale. Auger refusal was encountered in five borings within the bedrock at depths ranging from 3.1 to 4.6 feet and sampler refusal was encountered within the bedrock in those borings and several others.

4.3 GROUNDWATER CONDITIONS

Free groundwater was not observed in any of the borings or test pits during drilling or upon completion of drilling/prior to backfilling.

Groundwater levels may fluctuate with seasonal variations and following periods of heavy or prolonged precipitation. Therefore, the readings indicated on the boring logs may not be representative of the long-term groundwater level. Long-term monitoring would be needed to obtain a more accurate estimate of the groundwater table elevation.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL INFORMATION

This report presents the findings and recommendations of the geotechnical exploration for the proposed roadway project on Interstate Route 75 (IR75) in Warren and Montgomery Counties. Phase 1 of the project includes replacement of the existing pavement and the addition of a 4th-lane, extending approximately 3.4 miles along the mainline of IR75. It also includes widening and full depth pavement replacement along approximate 1,100 linear feet of IR75 Ramp H and 700 linear feet of Ramp S as well as minor tie-in segments of Ramps J, M, P, and V.

Based upon the subsurface conditions encountered in this exploration, the subgrade soils are considered suitable for support of the proposed roadway widening provided the recommendations in this report are followed including subgrade stabilization and drainage improvements. This report, and the recommendations contained herein, has been written under consideration that the construction will be performed in accordance with the latest version of the ODOT Construction and Materials Specifications (CMS).

5.2 GENERAL SUBGRADE PREPARATION

Subgrade preparation should be performed in accordance with CMS Items 203 and 204. Prior to subgrade preparation, perform clearing and grubbing, including removal of stumps and roots, in accordance with CMS

Item 201; remove existing pavement and base materials, as well as other structures or obstructions, as necessary, in accordance with CMS Item 202. Then prepare the pavement subgrade by stripping any topsoil or other deleterious or unsuitable materials. Topsoil and pavement materials thickness encountered in the borings and pavement cores are listed in Appendix I of this report.

Material to be utilized as borrow should be restricted to conform to CMS Item 204.02 for subgrade. Subgrade materials specifications listed above allow the use of CMS Item 703.16, A. Natural Soil and CMS Item 703.16, B. Granular Embankment (note that the top 12 inches within the subgrade is required to have a minimum dry density of pounds per cubic foot, pcf). All borrow materials should be spread and compacted in accordance with CMS Items 204.07 and 204.03. Frozen materials should not be incorporated into any new fill nor should new fill, pavement materials, or structures be placed on top of frozen materials.

5.3 PAVEMENT SUBGRADE RECOMMENDATIONS

Pavement subgrade analysis was performed in accordance with ODOT Geotechnical Design Manual (GDM) Section 600. Following is a summary of the analysis and recommendations. For more specific details, see the subgrade analysis included in Appendix III. The proposed pavement section subgrade elevation and grades used for the analysis were based on plan and profile information and pavement sections provided by CM. Table 2A is a summary of the subgrade analysis results along the entire mainline project length (all mainline subgrade borings). Tables 2B and 2C summarize the subgrade analysis results along Ramps H and S, respectively.

Table 2A: Subgrade Analysis Results Summary – Average N_{60L}, PI, and Design CBR (Mainline)

Average N_{60L} (bpf)	Average PI	Average Design CBR
17	11	7

**Excluding borings located outside the mainline alignment (B-017-1-25, B-017-2-25, and B-040-1-25)*

Table 2B: Subgrade Analysis Results Summary – Average N_{60L}, PI, and Design CBR (Ramp H)

Average N_{60L} (bpf)	Average PI	Average Design CBR
16	13	6

Table 2C: Subgrade Analysis Results Summary – Average N_{60L}, PI, and Design CBR (Ramp S)

Average N_{60L} (bpf)	Average PI	Average Design CBR
23	9	9

UNSUITABLE SUBGRADE

Top of bedrock was encountered by a total of seventeen (17) borings and six (6) of those borings encountered it within 6 inches of the proposed pavement subgrade elevation. Therefore, Item 204 Excavation of shallow bedrock and replacement with Item 204 Granular Embankment will be necessary according to CMS 204.05 at the following locations:

- Excavation and Replacement for Unsuitable Rock Subgrade (i.e. 6" deep undercut below final subgrade elevation to extend laterally a width 1 foot beyond the shoulders and replace with Item 204 Granular Material Type B) – Refer to Table 3 for estimated station limits.

Table 3: Estimated Station Limits for Excavation and Replacement of Unsuitable Rock Subgrade

Boring(s)	Alignment	Estimated Station Limits*
B-028, B-029	Centerline MOT-75	66+00 to 70+50
B-031	Centerline MOT-75	72+00 to 74+00
B-033, B-034, B-035	Centerline MOT-75	76+00 to 85+00

**Limits within widening footprint and laterally 1 foot beyond shoulder towards median, assuming that Item 320 Rubblize and Roll is utilized within existing pavement areas.*

Unsuitable silt (A-4b) subgrade was encountered in three (3) borings within 3 feet of the proposed subgrade. Therefore, Item 204 Excavation of unsuitable silt subgrade and replacement with Item 204 Granular Material Type B with Item 204 Geotextile at the bottom will be necessary, unless this material is chemically stabilized to a depth of 14 inches, at the following locations:

- Excavation and Replacement for Unsuitable Silt (A-4b) Subgrade – (i.e. undercut to extend laterally a width 18 inches beyond the pavement) – Refer to Table 4 for estimated station limits and depths.

Table 4: Estimated Station Limits and Depth for Excavation and Replacement of Unsuitable Silt Subgrade

Boring(s)	Alignment	Estimated Station Limits*	Depth
B-015	Centerline MOT-75	25+00 to 26+50	36"
B-020	Centerline MOT-75	40+00 to 44+00	36"
B-022	Centerline MOT-75	48+00 to 51+50	18"

**Limits within widening footprint and laterally 1 foot beyond shoulder towards median, assuming that Item 320 Rubblize and Roll is utilized within existing pavement areas.*

UNSTABLE SUBGRADE – GLOBAL STABILIZATION

ODOT GDM Section 605 requires global stabilization for the entire project since this is an interstate highway with project length more than 1-mile. The pavement subgrade analysis indicates Item 320 Rubblize & Roll and Item 206 Cement Stabilization as potential alternatives. Item 320 Rubblize and Roll is limited to use in the existing pavement subgrade areas. Item 206 Cement Stabilization, 14" Depth is recommended for stabilization of the mainline pavement widening with the exception of areas recommended for Item 204 Excavation and

Replacement of unsuitable rock subgrade, as discussed in above sections, and adjacent (transition) areas of shallow rock as well as areas of unsuitable silt subgrade discussed above. Item 206 Cement Stabilization, 14" Depth is also recommended for global subgrade stabilization for the full depth pavement replacement and widening along Ramps H and S.

The transition areas adjacent to the Item 204 Excavation and Replacement for Unsuitable Rock Subgrade, where bedrock is too shallow to perform Item 206 Cement Stabilization without risk of damage to the reclaimer from striking bedrock, subgrade stabilization should be performed by Item 204 Excavation and Replacement with Granular Material Type B (with Item 204 Geotextile at the bottom) to a depth of 12 inches or the top of bedrock, whichever is shallower. See Table 5 for estimated station limits and depths of the Item 204 Excavation and Replacement for Unstable Subgrade due to bedrock too shallow for chemical stabilization. Actual limits should be determined by the Engineer at the time of construction based on subgrade observations.

Note that rock fill (described as severely weathered shale) was encountered in boring B-020 within the proposed depth of Item 206 Cement Stabilization for the widening. A portion of the rock fill material had classification test results of unsuitable silt A-4b that requires removal and replacement or chemical stabilization as noted above. Item 204 Excavation and Replacement method is recommended in the vicinity of this boring for planning purposes (see limits provided in Table 4) as it may not be feasible to chemically stabilize the rock fill unless it can be plowed, disced, scarified, and broken down to a soil-like state.

Table 5: Estimated Station Limits* and Depth for Excavation and Replacement of Unstable Subgrade (In Areas of Shallow Bedrock)

Boring(s)	Alignment	Estimated Station Limits	Depth
B-027	Centerline MOT-75	65+50 to 66+00	12"
B-030	Centerline MOT-75	70+50 to 72+00	12"
B-032	Centerline MOT-75	74+00 to 76+00	12"
B-036	Centerline MOT-75	85+00 to 86+00	12"

**Limits within widening footprint and laterally 1 foot beyond shoulder towards median, assuming that Item 320 Rubblize and Roll is utilized within existing pavement areas.*

As an alternative to the varying depth Item 204 undercuts in the area of shallow-rock roughly between Mainline Stations 65+50 and 86+00, for plan purposes consider a uniform undercut depth of 12-inch Item 204 excavation and replacement between the estimated station range of Sta 65+50 to 86+00 for unsuitable rock subgrade and unstable subgrade with bedrock too shallow for use of Item 206 Cement Stabilization, 12" Depth. The excavation should be backfilled with Item 204 Granular Material Type B with Item 204 Geotextile at the bottom. The geotextile can be excluded in areas where the base of the excavation is bedrock. Actual limits should be determined by the Engineer at the time of construction based on subgrade and undercut observations. Table 6 presents the estimated limits for this alternative consideration option.

Table 6: Estimated Station Limits* and Depth for Excavation and Replacement of Unsuitable Rock Subgrade and Adjacent Unstable Subgrade with Shallow Bedrock Assumed Too Shallow for Item 206 Cement Stabilization

Boring(s)	Alignment	Estimated Station Limits	Depth
B-027 through B-036	Centerline MOT-75	65+50 to 86+00	12”

**Limits within widening footprint and laterally 1 foot beyond shoulder towards median, assuming that Item 320 Rubblize and Roll is utilized within existing pavement areas.*

There is a small risk of cement stabilization being ineffective in areas with moderately organic soils. In which case, higher cement rate or Item 204 excavate and replace method, may be necessary for subgrade stabilization in these areas (where treatment is ineffective due to moderately organic soils).

Include plan notes G111 and G121 from ODOT L&D Volume 3.

Note that auger chatter, difficult drilling, auger refusal, rock fill, shale fill, and possible cobbles were encountered within the fill and/or natural overburden soils. Locations of suspected cobbles/boulders encountered by the borings are listed in Table 1. In addition, cobbles and boulders, including limestone “floaters”, are common in the soil overburden and fill derived from it in the region. Cobbles and boulders in the subgrade, pose a risk to the construction schedule and cost associated with chemical stabilization, due to potential wear/damage to the equipment (cutter-head of the reclaimer) and/or “excessive” time and/or materials required for sorting/replacing the cobbles and boulders. Also, consider rock fill/shale fill as similar risk to excessive cobbles and boulders that will require excavation and replacement prior to chemical stabilization. Consider including pay items and quantities for subgrade exploration and subgrade rock removal as a risk mitigation measure for cobbles and boulders and shale fill/rock fill in the subgrade.

5.4 EXCAVATIONS AND GROUNDWATER CONSIDERATIONS

All excavations should be constructed in accordance with applicable local, state and federal safety regulations including the current OSHA Excavation and Trench Safety Standards (29 CFR Part 1926). The above information is provided only for general guidance. Under no circumstances should the information provided be interpreted to mean that anyone other than the construction contractor assumes responsibility for construction site safety. 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.

Free groundwater was not observed in any of the borings during drilling or upon completion of drilling/prior to backfilling. It should be noted that groundwater conditions may fluctuate with seasonal variations and following periods of heavy or prolonged precipitation. Therefore, the readings indicated on the boring logs may not be representative of the long-term groundwater levels. Long-term monitoring would be needed to obtain a more accurate estimate of the groundwater table elevation. Groundwater trapped within existing

utility trench backfill may result in sudden heavy groundwater flows when excavating into saturated trench backfill or granular seams/lenses connected to the backfill. The contractor should be equipped to deal with groundwater and surface water that may accumulate in the open excavations during construction.

It should be noted that weak silt (A-4b) was encountered in borings B-017 and B-022. These soils are highly susceptible to erosion (i.e. surface and internal/"piping"). Additionally, the subgrade soils are prone to softening and swelling if left exposed to water, particularly with repeated loading such as construction equipment that serves to "knead" the moisture into the subgrade. Therefore, it is essential that all subgrade is properly graded to drain and that standing water is removed quickly. Subgrade softened by standing water should be removed before applying additional construction materials and/or fill.

5.5 EMBANKMENT CONSIDERATIONS

The proposed new embankment fill construction will include placement of new embankment fill on the existing embankment(s). Within the areas of planned new embankment fill the existing embankment(s) are typically 4H:1V or flatter, 20 feet or less in height, and appear to be stable. Where new fill will be placed on the existing slopes, the new fill should be benched in accordance with ODOT CMS 203.05. However, Special Benching per ODOT GDM Section 800 is recommended for fill placement on slopes steeper than 2H:1V as discussed below.

The existing slope and fill foundation should be prepared in general accordance with ODOT CMS Item 203 and any embankment construction performed in accordance with the same specification. Embankment foundations should be stripped of vegetation, root zone, topsoil and other deleterious material. The stripping should extend to at least five feet beyond the limits of the proposed fill area. Topsoil and organic soil may be stockpiled and used later for landscaping, with the exception of fill used for steeper slope which requires special benching as discussed below.

Sidehill sliver fills are planned along southbound IR 75 as shown on cross sections between STA 85+00 to STA 93+50, where the existing embankment slopes are roughly 2H:1V. Special Benching is recommended for these sidehill sliver fills to "knit" the proposed to existing embankment together. The Special Benching should be shown on the cross-sections and pay quantities for both excavation and embankment for the benched area added to the plan General Quantities (separate from standard excavation and embankment). Include plan note G109 from ODOT L&D Volume 3.

6.0 CLOSING REMARKS

We appreciate having the opportunity to be of service to you on this project. Please do not hesitate to call if you have any questions concerning this report.

Respectfully submitted,

DLZ

Jeff Chou, E.I.
Geotechnical Engineer

H. Jason Hughes, P.E.
Geotechnical Engineer

APPENDIX I

General Information: Drilling Procedures and Boring Logs
Legend: Boring Log Terminology
Vicinity Map
ODNR Bedrock Geology Map
ODNR Karst Map
Boring Location Plan
Boring Logs (53)
Test Pit Logs (3)
Pavement Core Summary
Pavement Core Reports
Exploration ID and Location Summary
Surface Material Thickness and Top of Rock Summary

APPENDIX II

Sulfate Reports
LOI Reports

APPENDIX III

Subgrade Analysis – Mainline
Subgrade Analysis – Ramp H
Subgrade Analysis – Ramp S

GENERAL INFORMATION
DRILLING PROCEDURES AND LOGS OF BORINGS

Drilling and sampling were conducted in accordance with the Ohio Department of Transportation (ODOT) Specifications for Geotechnical Exploration (SGE) dated January 2023. Borings were drilled with either a truck-mounted or ATV-mounted drill rig.

Drive split-barrel sampling was performed in 1.5-foot increments at intervals not exceeding 5 feet. In the event the sampler encountered resistance to penetration of 6 inches or less after 50 blows of the drop hammer, the sampling increment was discontinued. Standard penetration data were recorded, and one or more representative samples were preserved from each sampling increment.

In borings where rock was cored, NXM or NQ size diamond coring tools were used.

In the laboratory all samples were visually classified by a geotechnical engineer. Moisture contents of all soil samples were determined. A limited number of samples, based on SGE requirements, were selected for performance of grain-size analyses and plasticity characteristics tests. The results of these tests are shown on the boring logs.

The boring logs included in the Appendix have been prepared on the basis of the field record of drilling and sampling, and the results of the laboratory examination and testing of samples. Stratification lines on the boring logs indicating changes in soil stratigraphy represent depths of changes approximated by the driller, by sampling effort and recovery, and by laboratory test results. Actual depths to changes may differ somewhat from the estimated depths, or transitions may occur gradually and not be sharply defined. The boring logs presented in this report therefore contain both factual and interpretative information and are not an exact copy of the field log.

Although it is considered that the borings have disclosed information generally representative of site conditions, it should be expected that between borings conditions may occur which are not precisely represented by any one of the borings. Soil deposition processes and natural geologic forces are such that soil and rock types and conditions may change in short vertical intervals and horizontal distances.

Soil/rock samples will be stored at our laboratory for a period as dictated by the requirement of the SGE. After this period of time, they will be discarded, unless notified to the contrary by the client.

LEGEND – BORING LOG TERMINOLOGY

Explanation of each column, progressing from left to right

1. Depth (in feet) – refers to distance below the ground surface.

2. Elevation (in feet) – is referenced to mean sea level, unless otherwise noted.

3. Standard Penetration (N) – the number of blows required to drive a 2-inch O.D., 1-3/8 inch I.D., split-barrel sampler, using a 140-pound hammer with a 30-inch free fall. The blows are recorded in 6-inch drive increments. Standard penetration resistance is determined from the total number of blows required for one foot of penetration by summing the second and third 6-inch increments of an 18-inch drive.

   50/n – indicates number of blows (50) to drive a split-barrel sampler a certain number of inches (n) other than the normal 6-inch increment.

4. The length of the sampler drive is indicated graphically by horizontal lines across the "Standard Penetration" and "Recovery" columns.

5. Sample recovery from each drive is indicated numerically in the column headed "Recovery".

6. The drive sample location is designated by the heavy vertical bar in the "Sample No., Drive" column.

7. The length of hydraulically pressed "Undisturbed" samples is indicated graphically by horizontal lines across the "Press" column.

8. Sample numbers are designated consecutively, increasing in depth.

9. Soil Description

   a. The following terms are used to describe the relative compactness and consistency of soils:

   Granular Soils – Compactness

Term	Blows/Foot Standard Penetration
Very Loose	less than 5
Loose	5 – 10 11 –
Medium Dense	30 31 – 50
Dense	over 50
Very Dense	

   Cohesive Soils – Consistency

Term	Unconfined Compression tons/sq.ft. less	Blows/Foot Standard Penetration	Hand Manipulation
Very Soft	than 0.25 0.25	less than 2	Easily penetrated 2-in. by fist
Soft	– 0.50 0.50 –	2 – 4 5 – 8	Easily penetrated 2-in. by thumb
Medium Stiff	1.0 1.0 – 2.0	9 – 15	Penetrated by thumb with moderate effort
Stiff	2.0 – 4.0 over	16 – 30	Readily indented by thumb but not penetrated
Very Stiff	4.0	over 30	Readily indented by thumbnail
Hard			Indented with difficulty by thumbnail

   b. Color – If a soil is a uniform color throughout, the term is single, modified by such adjective as light and dark. If the predominant color is shaded by a secondary color, the secondary color precedes the primary color. If two major and distinct colors are swirled throughout the soil, the colors are modified by the term "mottled".

   c. Texture is based on the Ohio Department of Transportation Classification System. Soil particle size definitions are as follows:

Description	Size	Description		Size
Boulders	Larger than 12"	Sand	– Coarse	2.0 mm to 0.42 mm
Cobbles	12" to 3"		– Fine	0.42 mm to 0.074 mm
Gravel – Coarse –	3" to ¾"	Silt		0.074 mm to 0.005 mm
Fine	¾" to 2.0 mm	Clay		smaller than 0.005 mm

d. The main soil component is listed first. The minor components are listed in order of decreasing percentage of particle size.

e. Modifiers to main soil descriptions are indicated as a percentage by weight of particle sizes.

trace	0 to 10%
little	10 to 20%
some	20 to 35%
"and"	35 to 50%

f. Moisture content of **cohesionless soils** (sands and gravels) is described as follows:

Term	Relative Moisture or Appearance
Dry	Soil leaves no moisture when pressed between fingers
Damp	Soil leaves very little moisture when pressed between fingers.
Moist	Soil leaves small amount of moisture when pressed between fingers.
Wet	The pore space is filled with water and water can be poured from sample with ease.

g. The moisture content of **cohesive soils** (silts and clays) is expressed relative to plastic properties.

Term	Relative Moisture or Appearance
Dry	Brittle to powdery; Moisture content well below plastic limit
Damp	Moisture content below plastic limit
Moist	Moisture content above plastic limit to -3% liquid limit
Wet	Moisture content near or above liquid limit

10. Rock Hardness and Rock Quality Designation

a. The following terms are used to describe the relative strength of the **bedrock**.

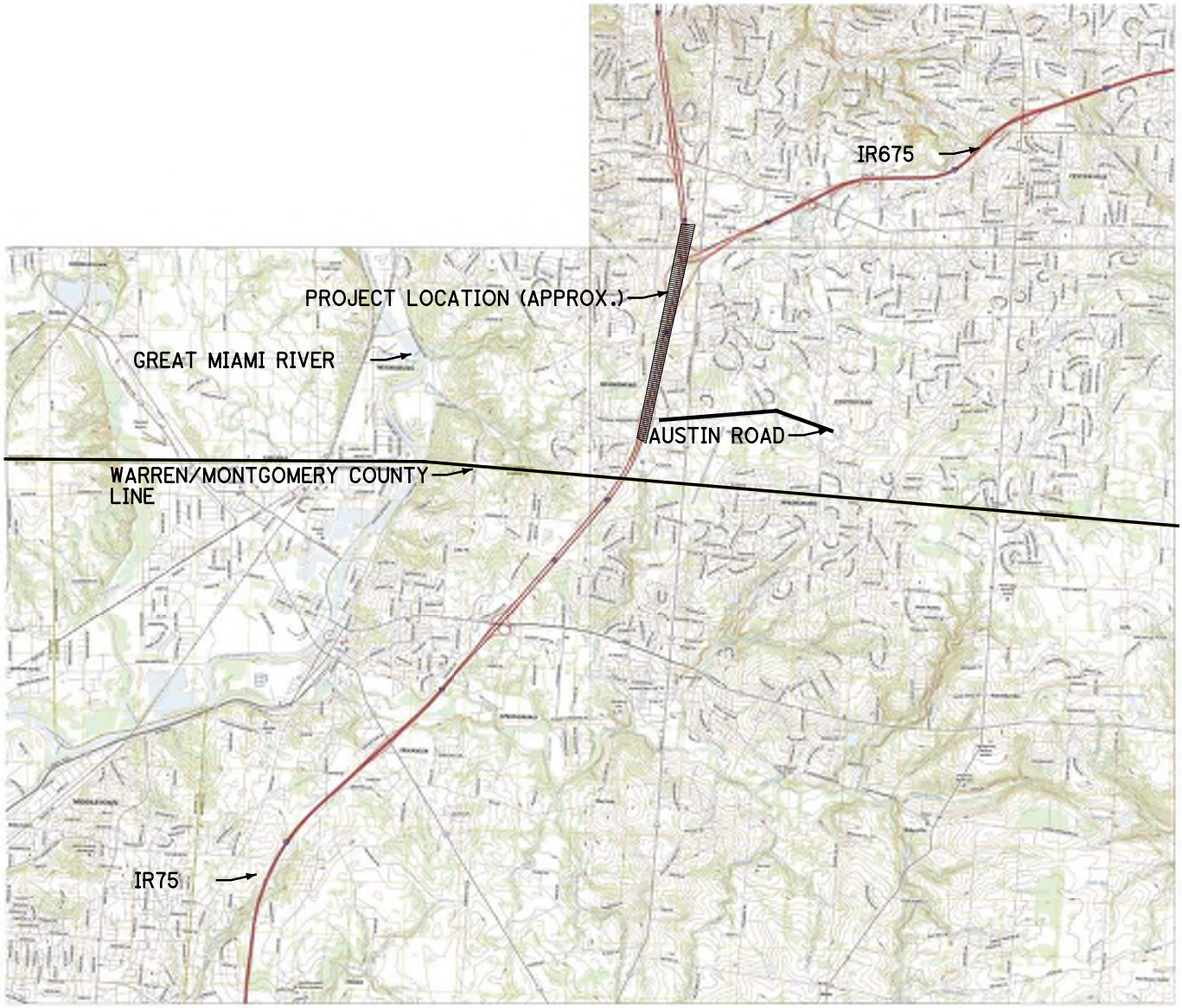
Term	Description
Very Weak	Core can be carved with a knife and scratched by fingernail. Can be excavated readily with a point of a pick. Pieces 1-inch or more in thickness can be broken by finger pressure.
Weak	Core can be grooved or gouged readily by a knife or pick. Can be excavated in small fragments by moderate blows of a pick point. Small, thin pieces can be broken by finger pressure.
Slightly Strong	Core can be grooved or gouged 0.05 inch deep by firm pressure of a knife or pick point. Can be excavated in small chips to pieces about 1-inch maximum size by hard blows of the point of a geologist's pick.
Moderately Strong	Core can be scratched with a knife or pick. Grooves or gouges to ¼" deep can be excavated by hand blows of a geologist's pick. Requires moderate hammer blows to detach hand specimen.
Strong	Core can be scratched with a knife or pick only with difficulty. Requires hard hammer blows to detach hand specimen. Sharp and resistant edges are present on hand specimen.
Very Strong	Core cannot be scratched by a knife or sharp pick. Breaking of hand specimens requires hard repeated blows of the geologist hammer.
Extremely Strong	Core cannot be scratched by a knife or sharp pick. Chipping of hand specimens requires hard repeated blows of the geologist hammer.

b. Rock Quality Designation, RQD – This value is expressed in percent and is an indirect measure of rock soundness. It is obtained by summing the total length of all core pieces which are at least four inches long, and then dividing this sum by the total length of the core run.

11. Gradation – when tests are performed, the percentage of each particle size is listed in the appropriate column (defined in Item 9c).

12. When a test is performed to determine the natural moisture content, liquid limit moisture content, or plastic limit moisture content, the moisture content is indicated in tabular form.

13. The corrected standard penetration (N_{60}) value in blows per foot is indicated in tabular form.



USGS TOPOGRAPHIC MAP:
7.5-MINUTE MAP FOR FRANKLIN, SPRINGBORO, MIAMISBURG, AND DAYTON SOUTH, OH 2023

SCALE (FEET)

0 5000 10000 20000

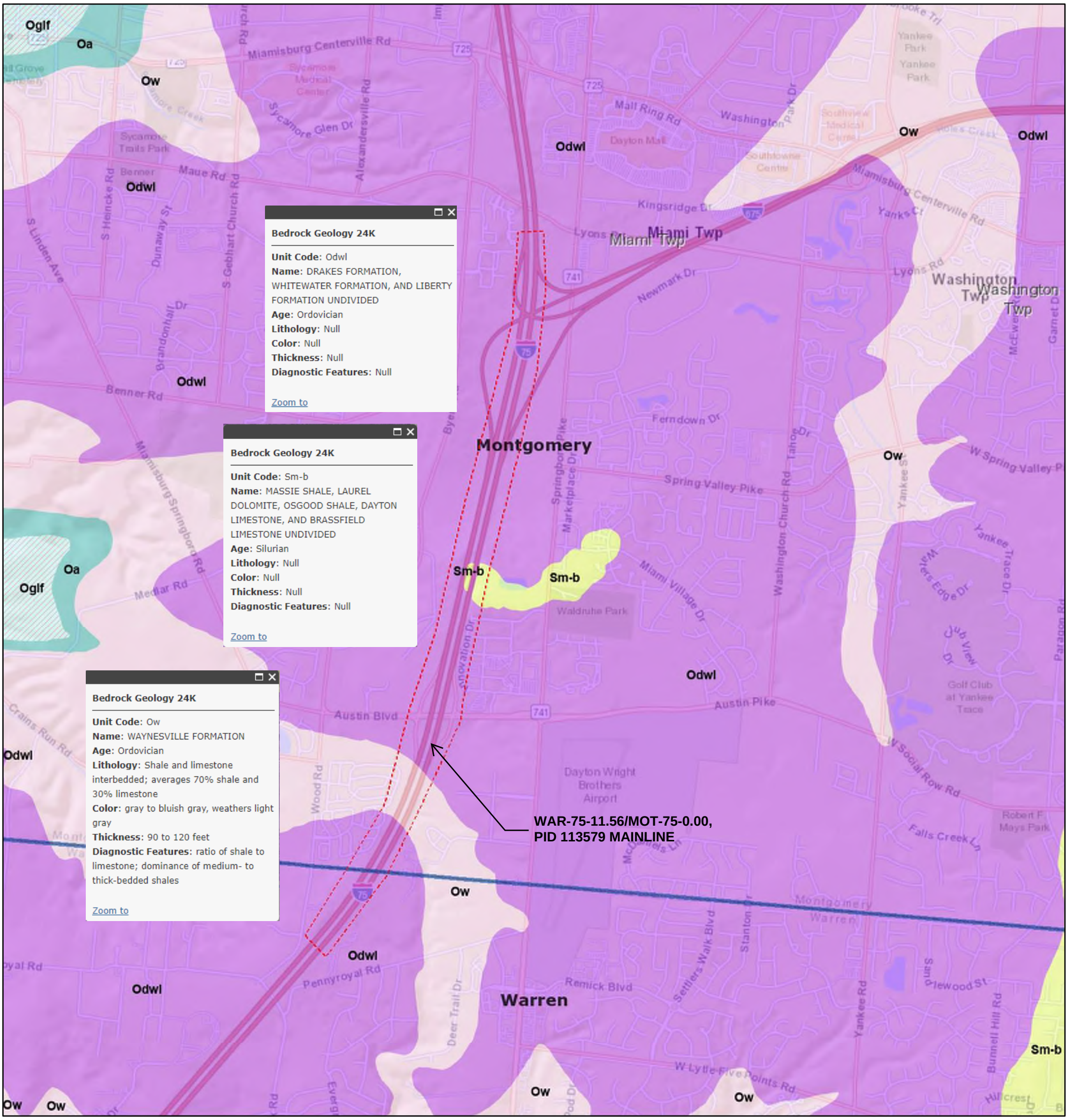
DLZ OHIO, INC.
6121 HUNTLEY RD
COLUMBUS, OH 43229
OFFICE: (614) 888-0040
WWW.DLZ.COM

VICINITY MAP

INTERSTATE ROUTE 75 (IR75)
WARREN AND MONTGOMERY COUNTY, OHIO

DLZ PROJECT NUMBER	2321-3034.00
DRAWN BY (DATE)	JC (11/02/2023)
CHECKED BY (DATE)	HJH (11/02/2023)
SCALE	GRAPHIC

ODNR Bedrock Geology Map



November 2, 2023

Counties

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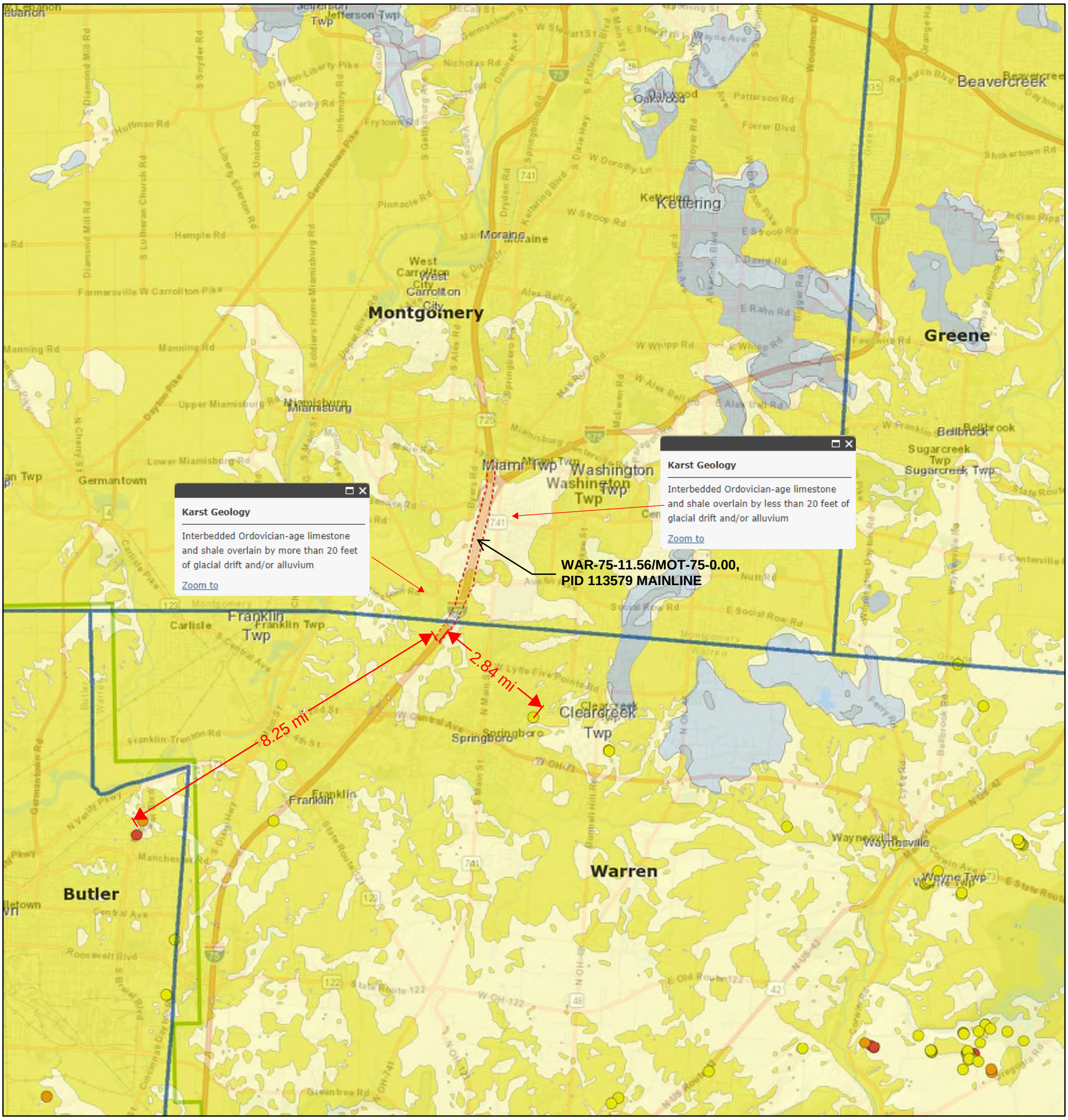
0 0.5 1 2 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS

ODNR - Div. of Geosurvey

ODNR Karst Map



November 2, 2023

Counties

- Karst
  - Karst-Data Points
    - Karst - Field Verified
    - Karst - Suspect - Field Visited
    - Karst - Suspect - Not Visited
    - Spring
- Karst geology of Ohio
  - Silurian- and Devonian-age carbonate bedrock overlain by less than 20 feet of glacial drift and/or alluvium
  - Silurian- and Devonian-age carbonate bedrock overlain by more than 20 feet of glacial drift and/or alluvium
  - Interbedded Ordovician-age limestone and shale overlain by less than 20 feet of glacial drift and/or alluvium
  - Interbedded Ordovician-age limestone and shale overlain by more than 20 feet of glacial drift and/or alluvium

1:144,448

0 1.5 3 6 mi

0 2.5 5 10 km

ODNR - Div. of Geosurvey

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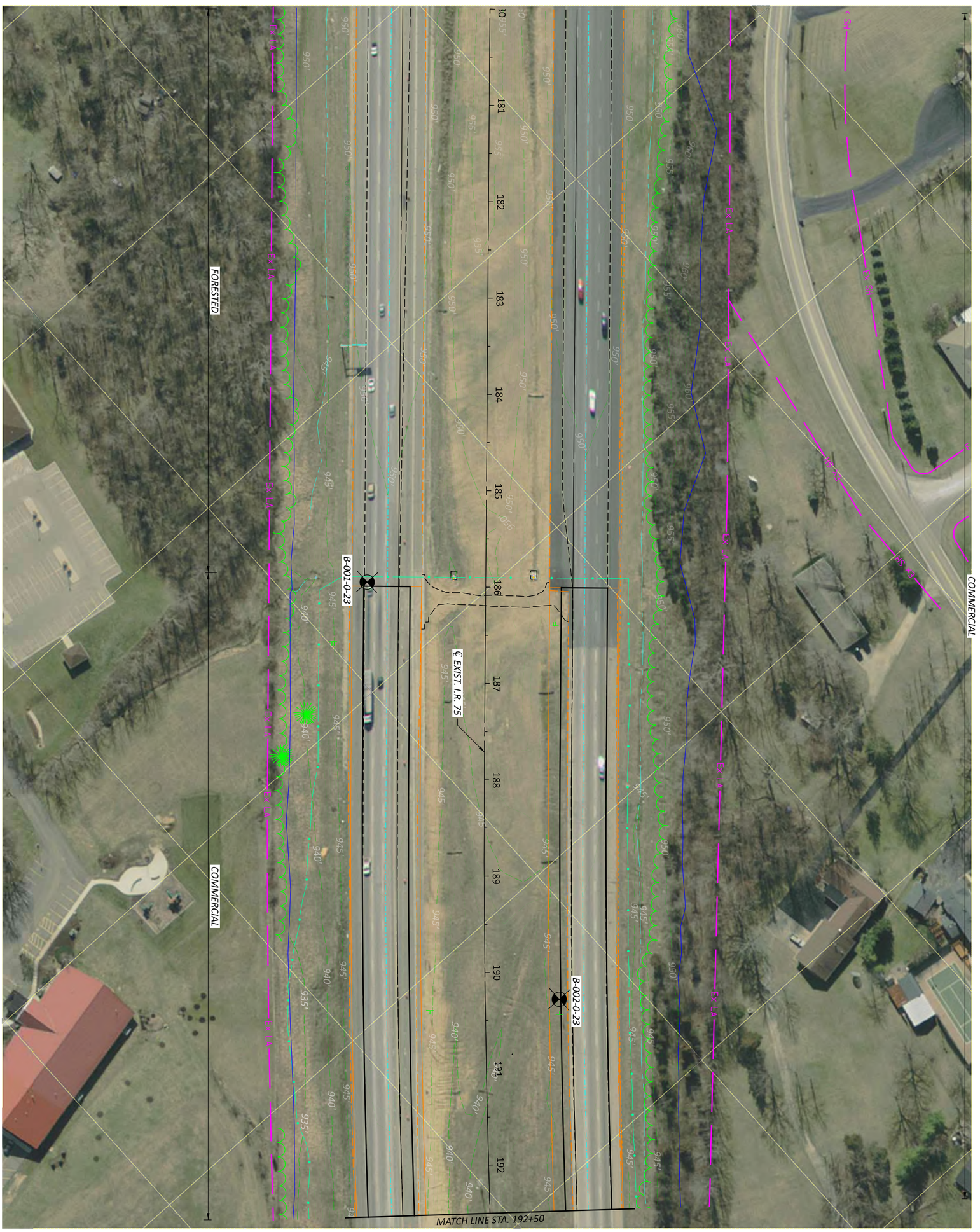

BORING LOCATION PLAN
STA. 180+00 TO STA. 192+50 I.R. 75

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25 100

DESIGN AGENCY: DLZ
DESIGNER: MWJ
REVIEWER: JH 06/17/25
PROJECT ID: 113579
SUBSET: 1 TOTAL: 15
SHEET: - TOTAL: -

HORIZONTAL SCALE IN FEET
0 25 50 100

BORING LOCATION PLAN
STA. 192+50 TO STA. 205+00 I.R. 75

DESIGN AGENCY
DLZ

DESIGNER	MWJ
REVIEWER	JH 06/17/25
PROJECT ID	113579
SUBSET / TOTAL	2 / 15
SHEET / TOTAL	- / -

WAR/MOT-75-11.56/0.00

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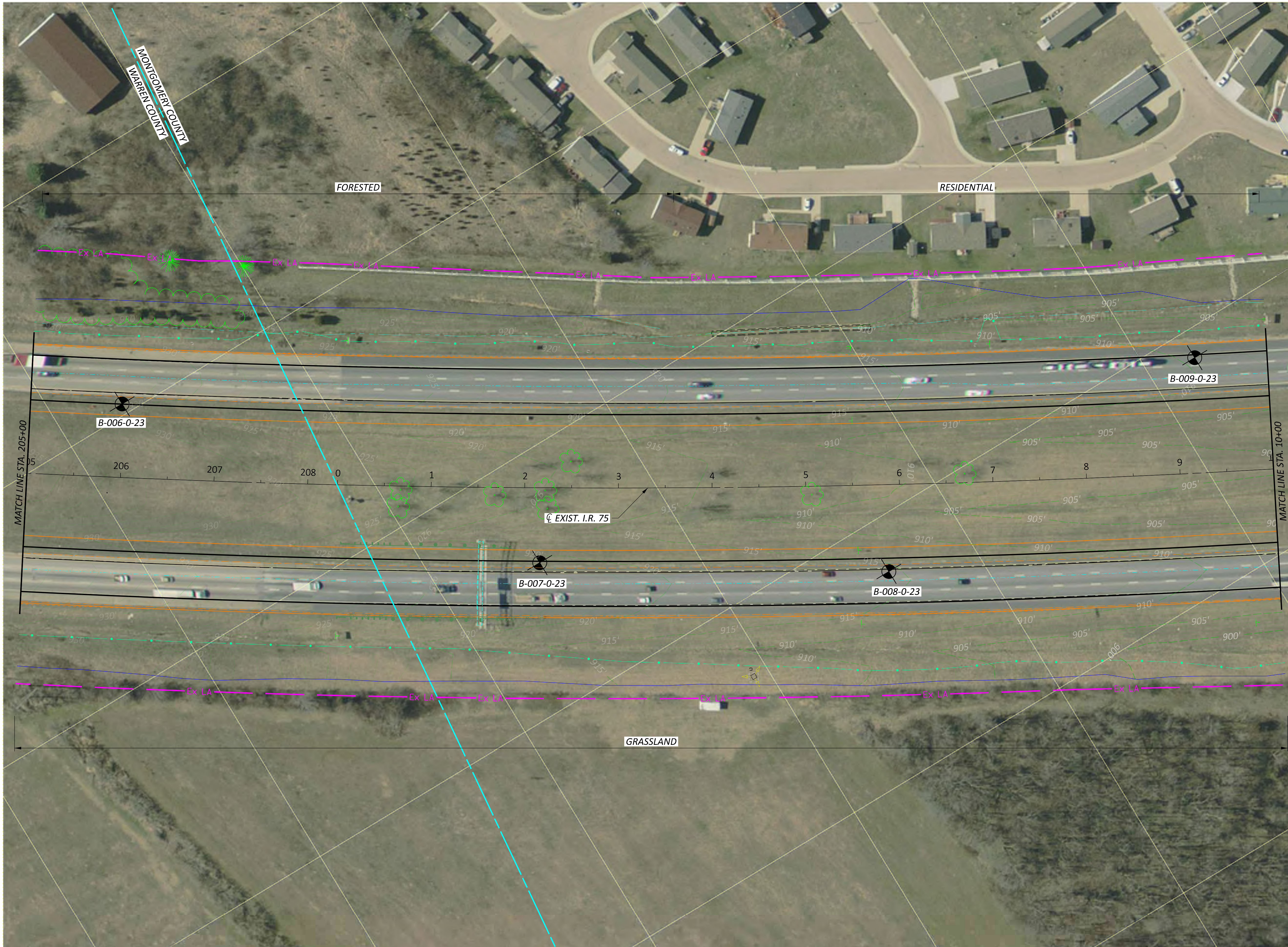

HORIZONTAL SCALE IN FEET
0 25 50 100

BORING LOCATION PLAN
STA. 205+00 TO STA. 10+00 I.R. 75

DESIGN AGENCY
DLZ

DESIGNER
MWJ
REVIEWER
JH 06/17/25
PROJECT ID
113579
SUBSET 3 TOTAL 15
SHEET - TOTAL -

WAR/MOT-75-11.56/0.00

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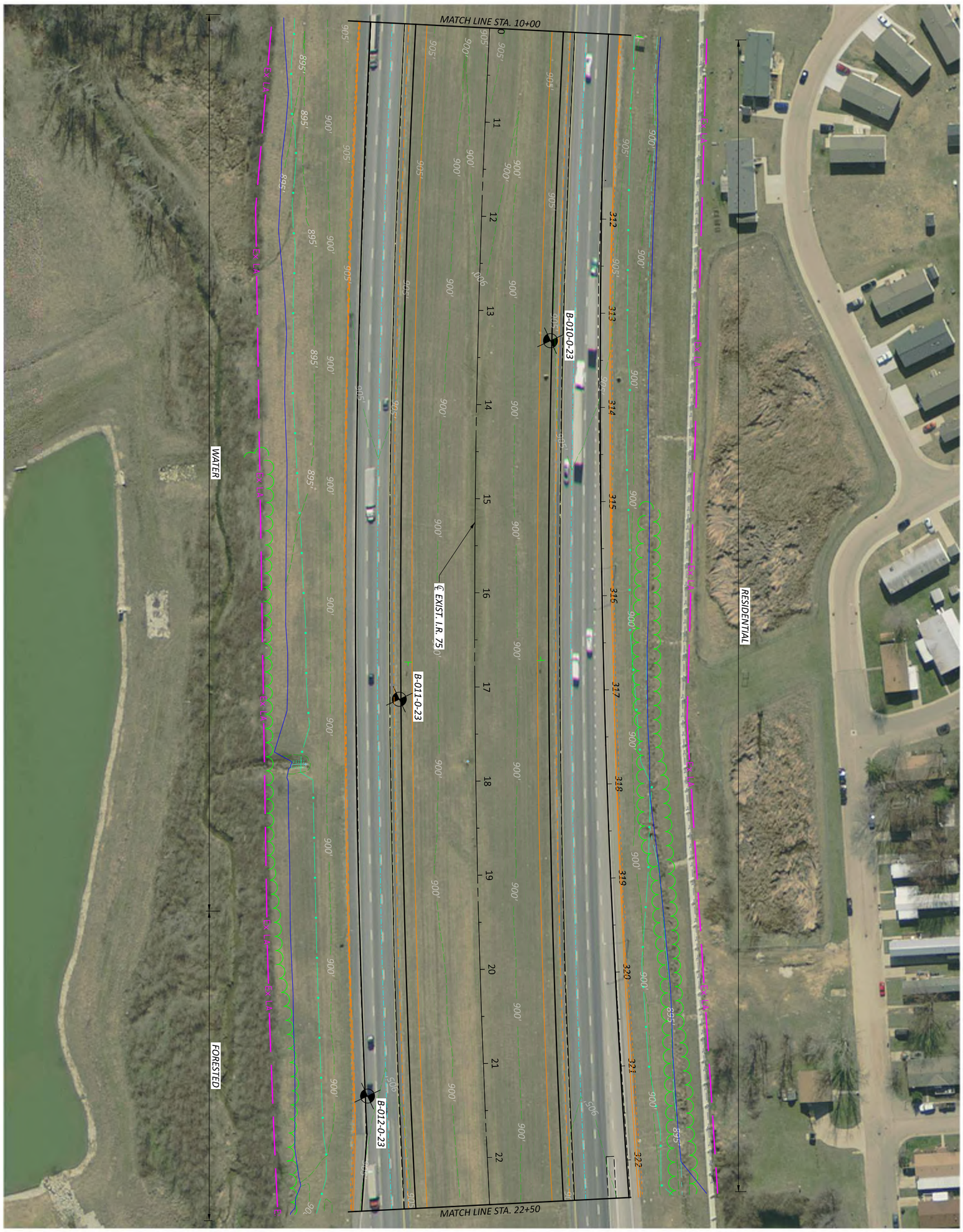

BORING LOCATION PLAN
STA. 10+00 TO STA. 22+50 I.R. 75

HORIZONTAL SCALE IN FEET
0 50
25 100

DESIGNER	DESIGN AGENCY	PROJECT ID	SUBSET	SHEET
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REVIEWER			TOTAL	TOTAL
JH 06/17/25			15	-

HORIZONTAL SCALE IN FEET
0 25 50 100

BORING LOCATION PLAN
STA. 22+50 TO STA. 35+00 I.R. 75

DESIGN AGENCY
DLZ

DESIGNER	MWJ
REVIEWER	JH 06/17/25
PROJECT ID	113579
SUBSET	5
TOTAL	15
SHEET	-
TOTAL	-

WAR/MOT-75-11.56/0.00

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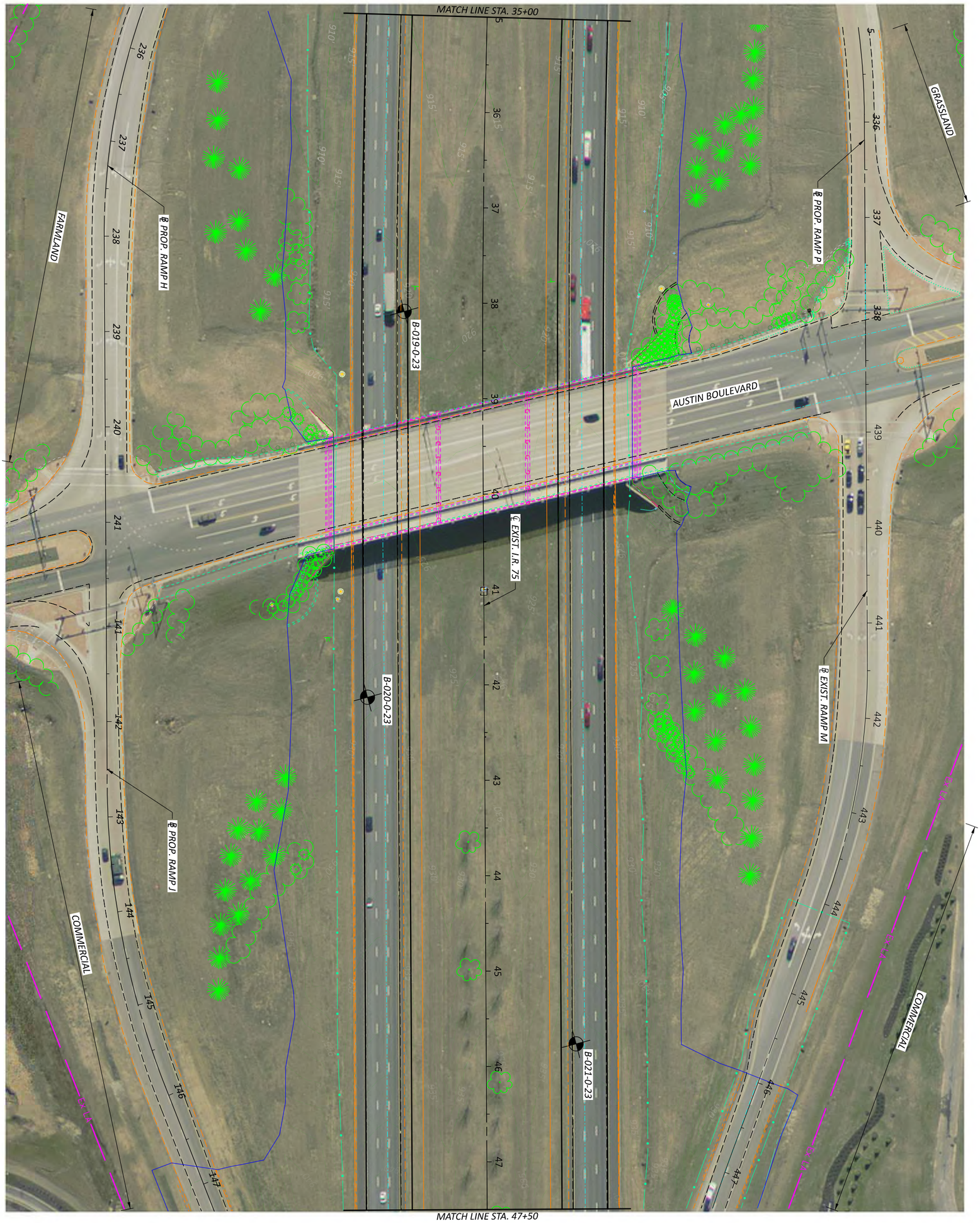

BORING LOCATION PLAN
STA. 35+00 TO STA. 47+50 I.R. 75

HORIZONTAL SCALE IN FEET
0 50
25 100

DESIGNER	DESIGN AGENCY	SHEET	TOTAL
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REVIEWER		SUBSET	TOTAL
JH 06/17/25		6	15
PROJECT ID			
113579			

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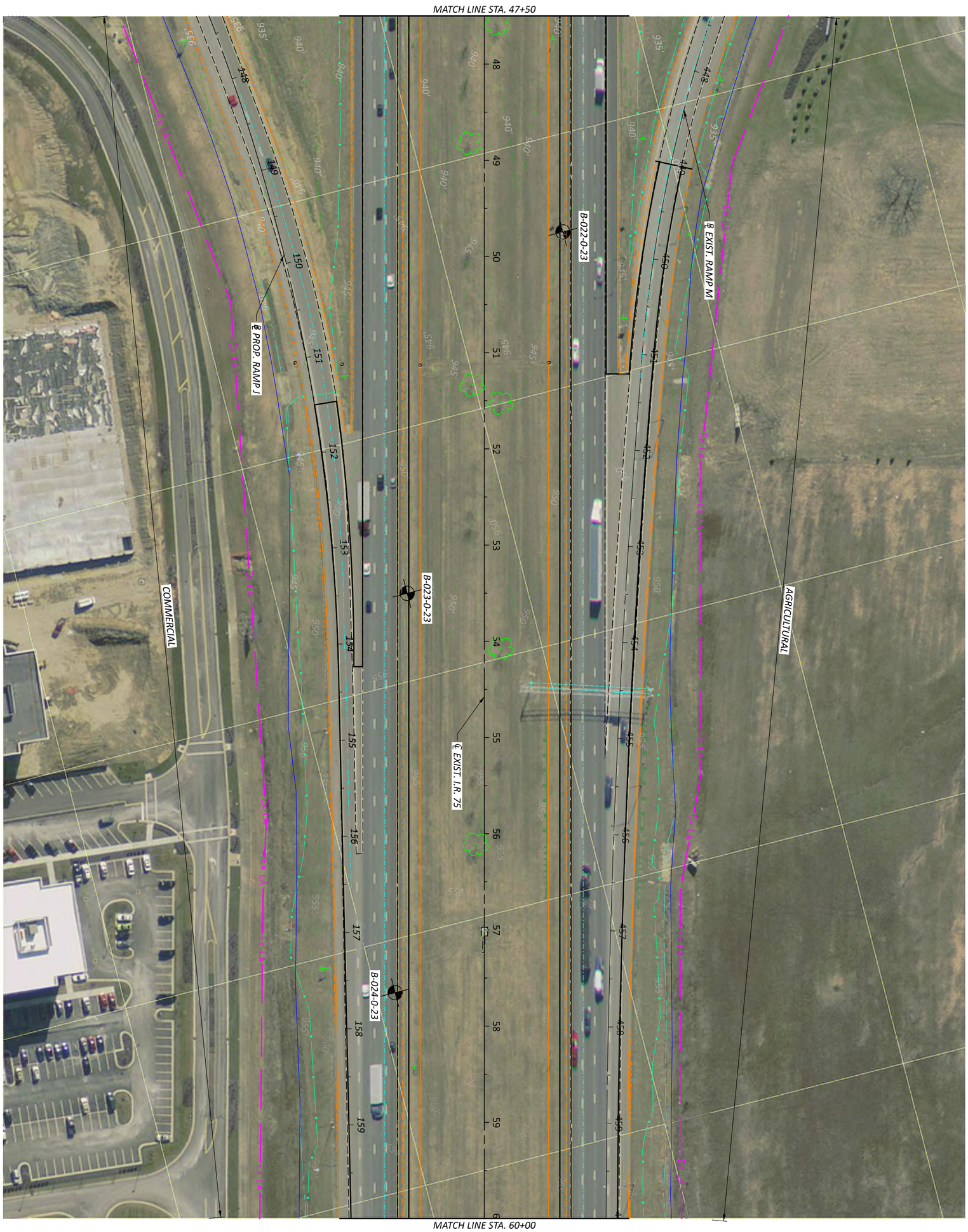

BORING LOCATION PLAN
STA. 47+50 TO STA. 60+00 I.R. 75

HORIZONTAL SCALE IN FEET
0 50
25 100

DESIGNER	DESIGN AGENCY
MWJ	DLZ

REVIEWER	PROJECT ID	SUBSET	SHEET
JH 06/17/25	113579	7 TOTAL 15	- TOTAL -

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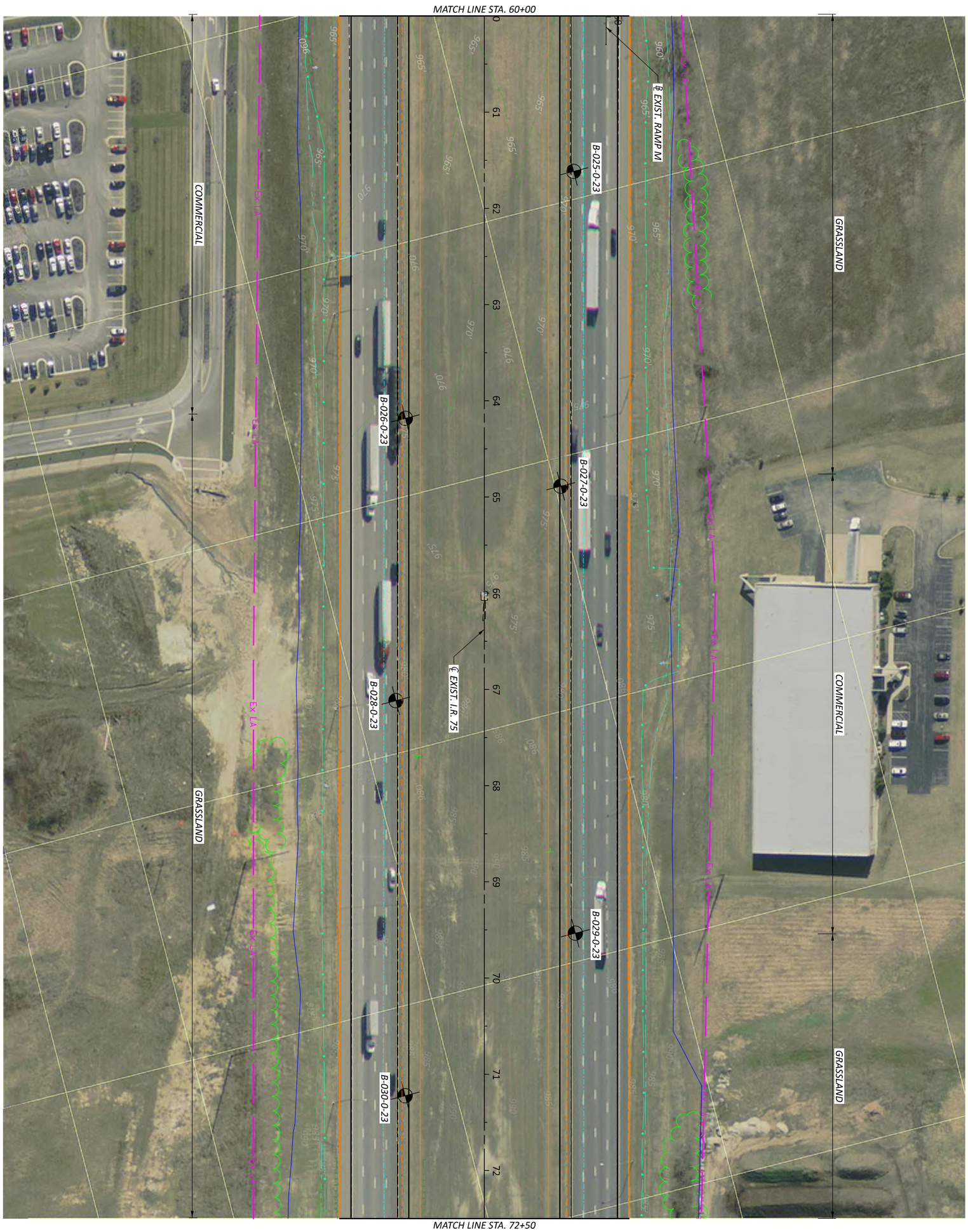

BORING LOCATION PLAN
STA. 60+00 TO STA. 72+50 I.R. 75

HORIZONTAL SCALE IN FEET
0 50
25 100

DESIGNER	REVIEWER	PROJECT ID	SUBSET	SHEET
MWJ	JH 06/17/25	113579	8 TOTAL 15	- TOTAL -

DESIGN AGENCY: DLZ

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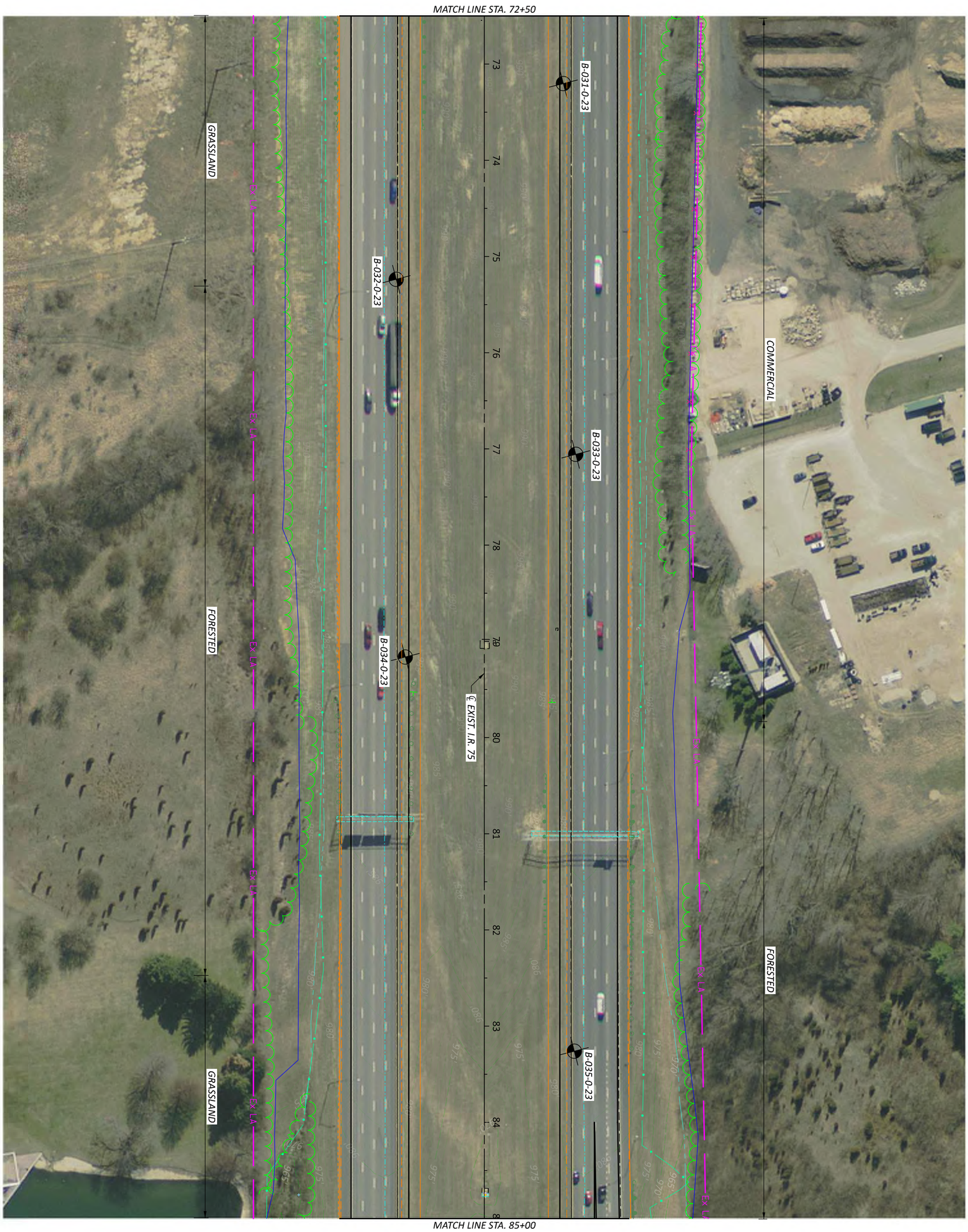

BORING LOCATION PLAN
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HORIZONTAL SCALE IN FEET
0 50
25 100

DESIGNER	DESIGN AGENCY	SHEET	TOTAL
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REVIEWER		SUBSET	TOTAL
JH 06/17/25		9	15
PROJECT ID			
113579			

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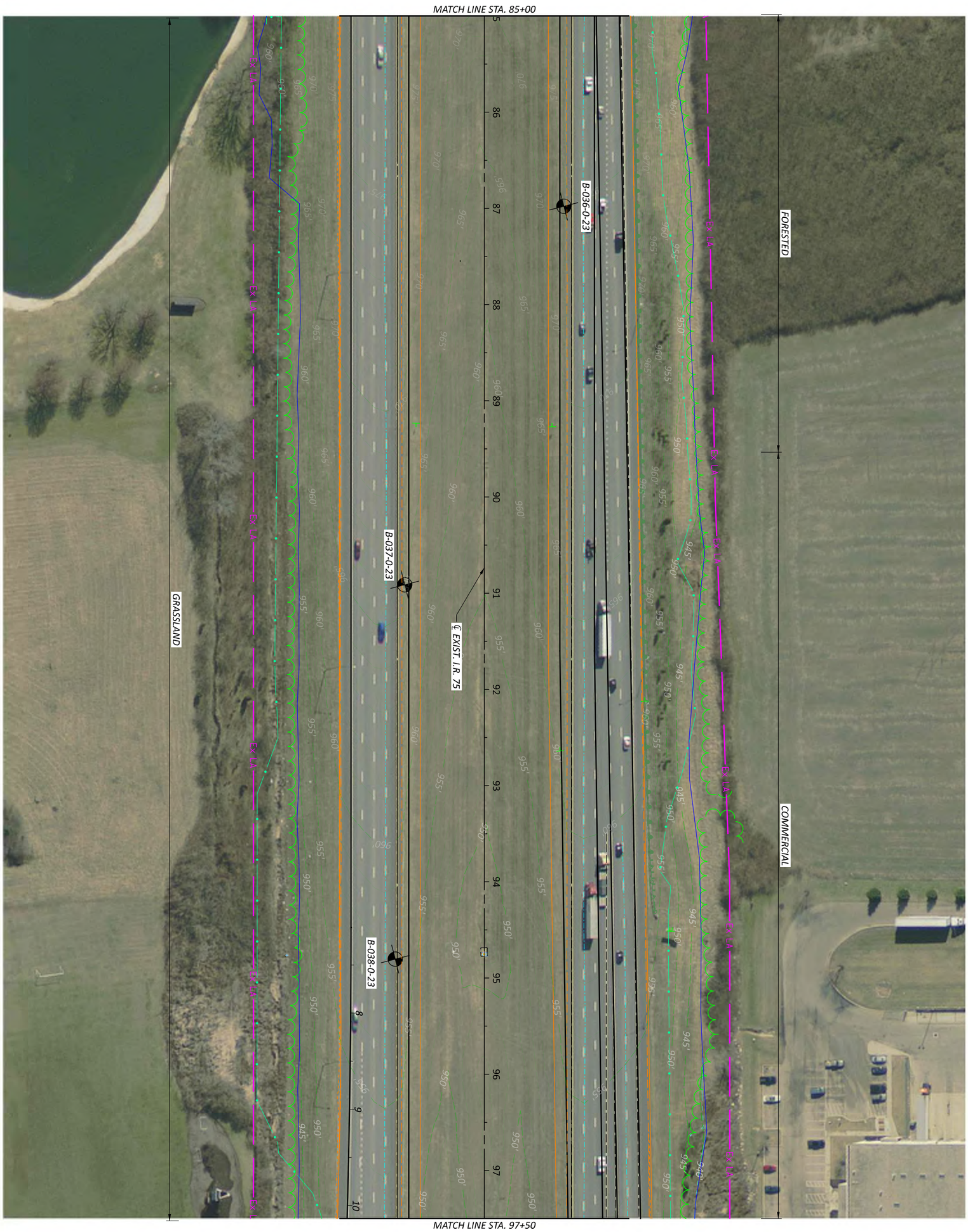

BORING LOCATION PLAN
STA. 85+00 TO STA. 97+50 I.R. 75

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REVIEWER	JH
	06/17/25
PROJECT ID	113579
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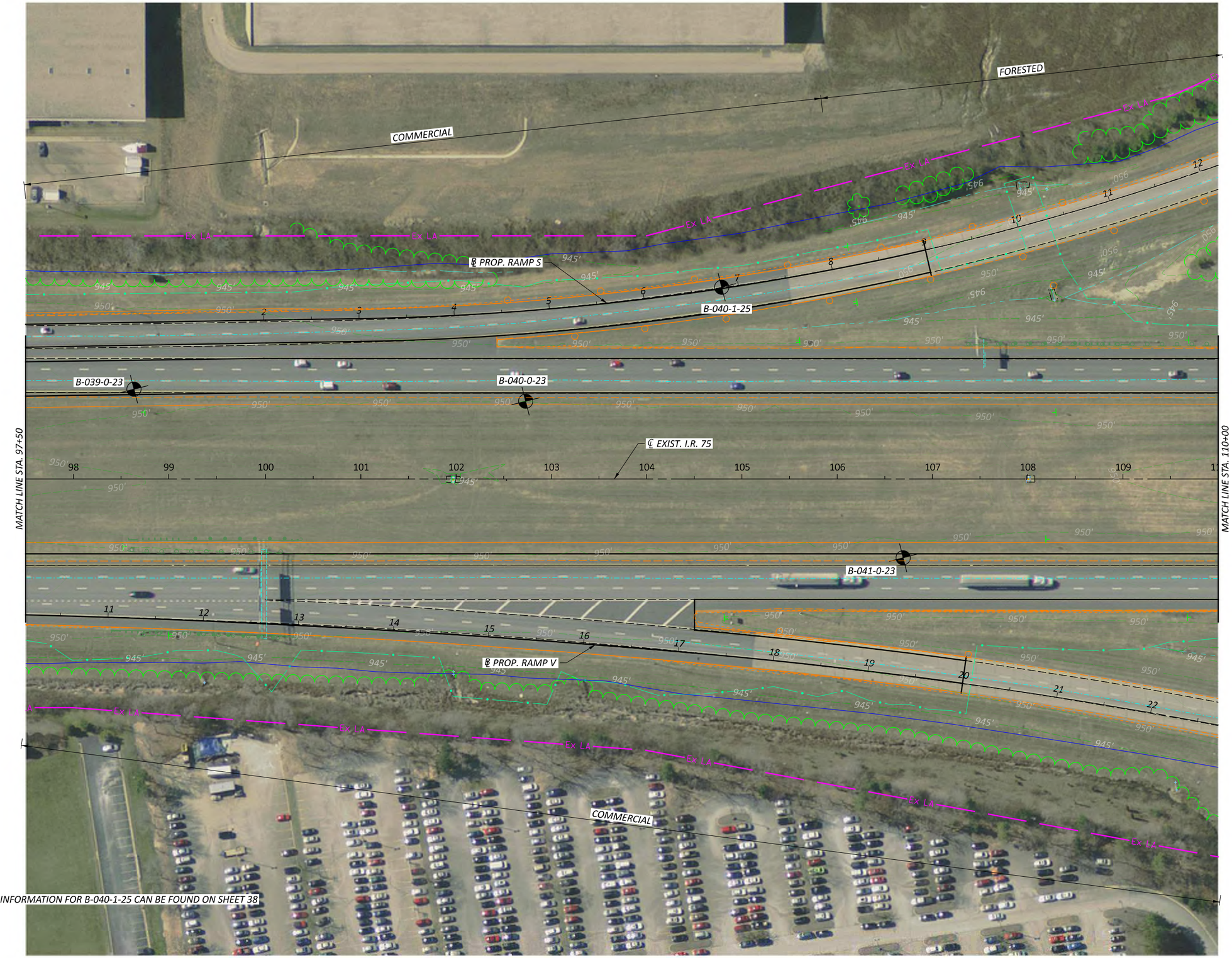
TOTAL	15
SHEET	-
TOTAL	-

DESIGN AGENCY: DLZ

HORIZONTAL SCALE IN FEET
0 50
25 100



NOTE: INFORMATION FOR B-040-1-25 CAN BE FOUND ON SHEET 38

HORIZONTAL SCALE IN FEET
0 25 50 100

BORING LOCATION PLAN
STA. 97+50 TO STA. 110+00 I.R. 75

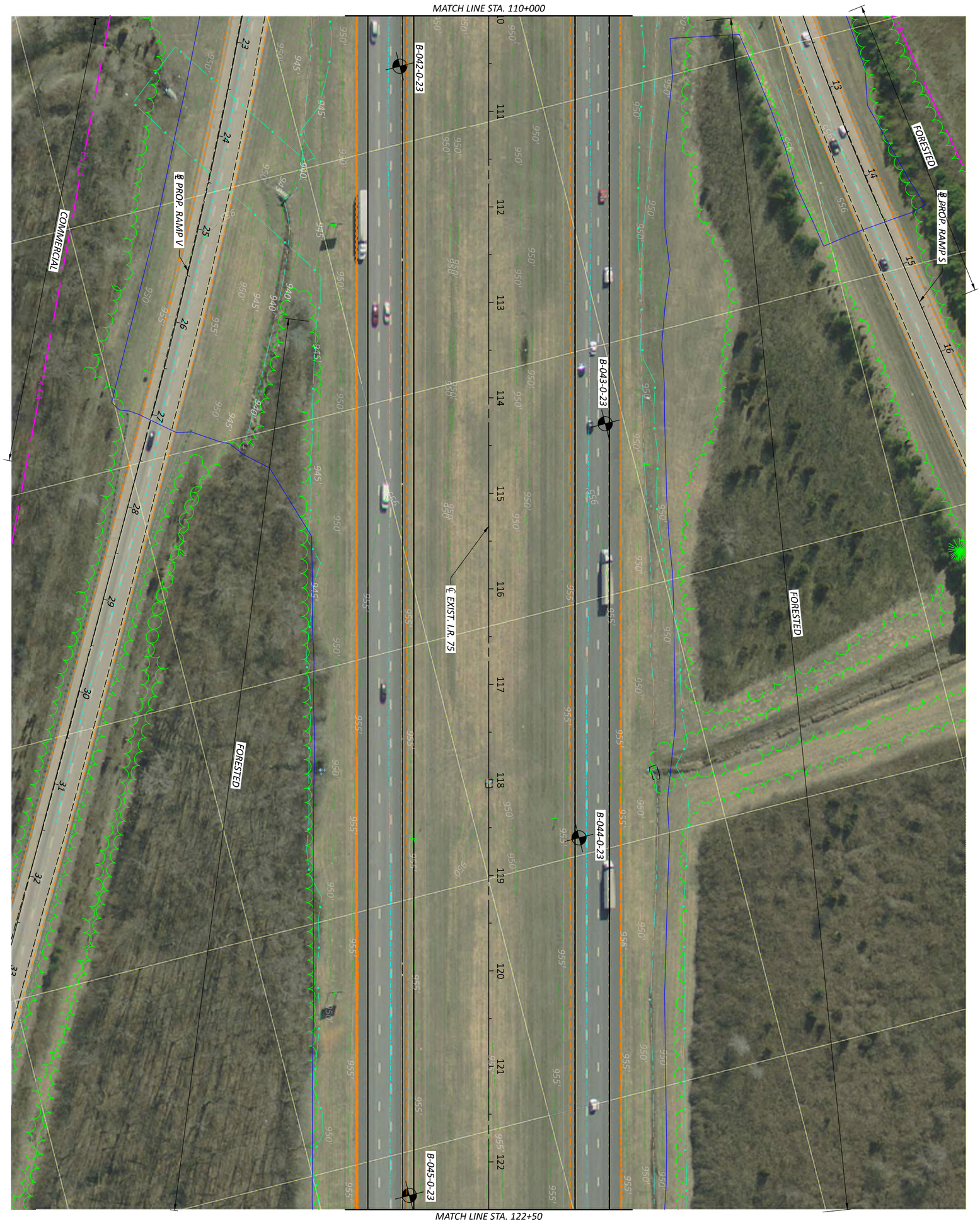
DESIGN AGENCY
DLZ

DESIGNER	MWJ
REVIEWER	JH 06/17/25
PROJECT ID	113579
SUBSET	11
TOTAL	15
SHEET	-
TOTAL	-

WAR/MOT-75-11.56/0.00

MODEL: CLX_I075 - Plan 11 PAPERSIZE: 17x11 (in.) DATE: 6/18/2025 TIME: 11:18:02 AM USER: mjasiewicz
\\dlzcorp.com\pan-files$\Files\Projects\2023\2321\303400 WAR-MOT-75\113579\400-Engineering\Roadway\Sheets\113579_GP011_BoringPlan.dgn

MODEL: CLX_I075 - Plan 12 PAPERSIZE: 17x11 (in.) DATE: 6/18/2025 TIME: 11:18:06 AM USER: mjasiewicz
\\dlzcorp.com\pan-files$\Files\Projects\2023\2321\303400 WAR-MOT-75\113579\400-Engineering\Roadway\Sheets\113579_GP012_BoringPlan.dgn

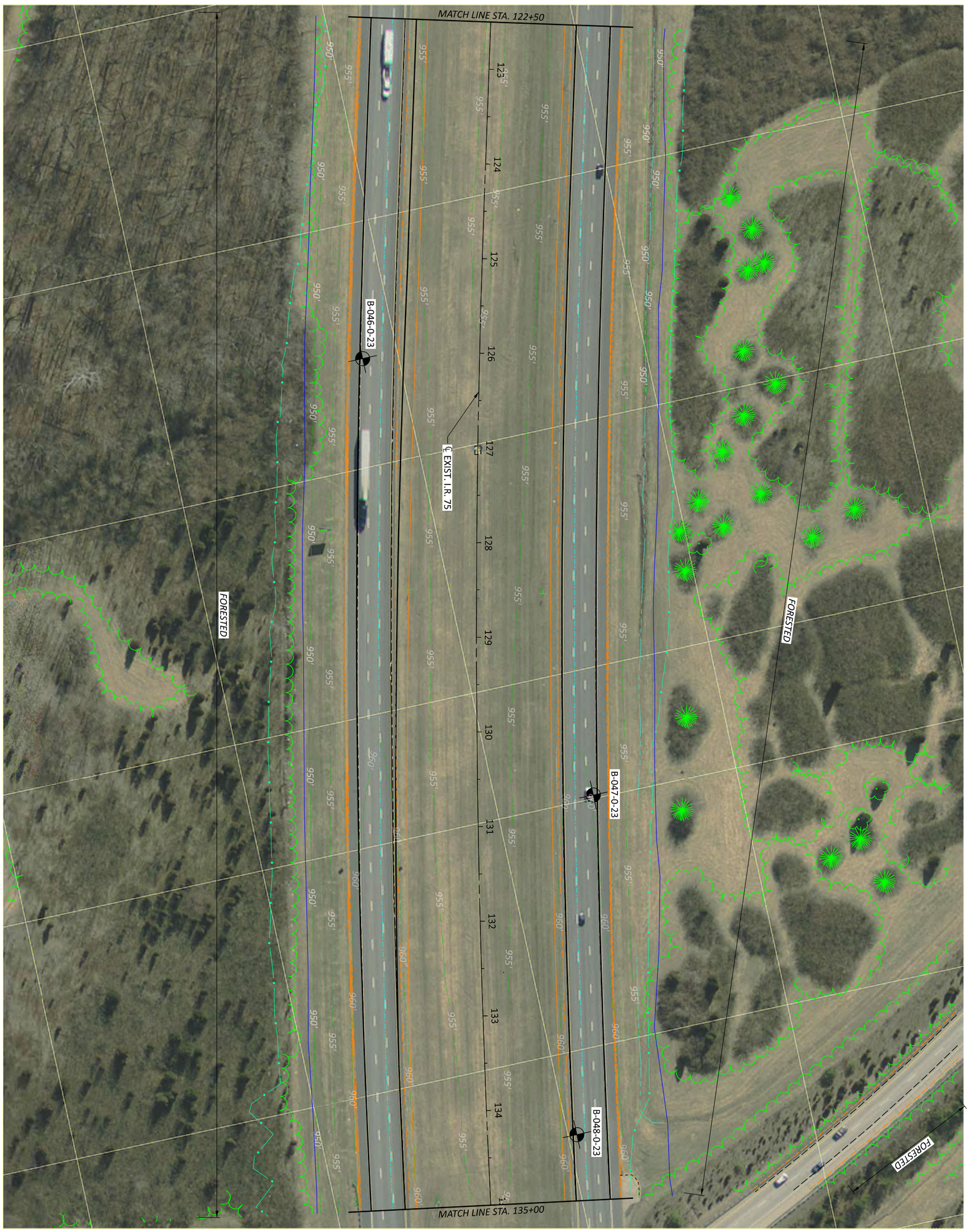


BORING LOCATION PLAN
STA. 110+00 TO STA. 122+50 I.R. 75

HORIZONTAL SCALE IN FEET
0 50
25 100

DESIGNER	DESIGN AGENCY	PROJECT ID	SUBSET	SHEET
MWJ	DLZ	113579	12	-
REVIEWER			TOTAL	TOTAL
JH 06/17/25			15	-

MODEL: CLX_I075 - Plan 13 PAPERSIZE: 17x11 (in.) DATE: 6/18/2025 TIME: 11:18:16 AM USER: mjasiewicz
\\dlzcorp.com\pan-files$\Files\Projects\2023\2321\303400 WAR-MOT-75\113579\400-Engineering\Roadway\Sheets\113579_GP013_BoringPlan.dgn



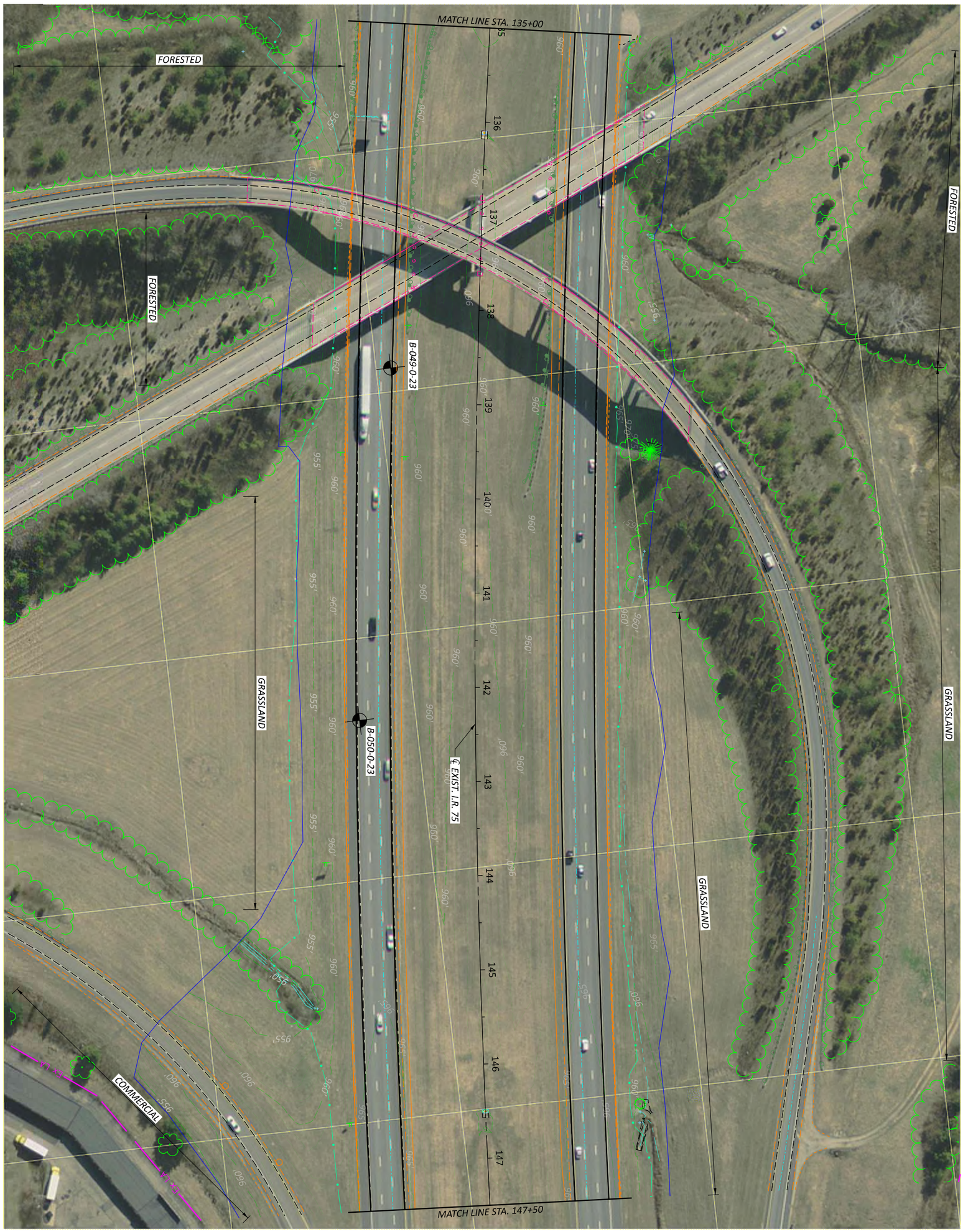
BORING LOCATION PLAN
STA. 122+50 TO STA. 135+00 I.R. 75

DESIGNER MWJ
REVIEWER JH
PROJECT ID 113579
SUBSET 13
TOTAL 15
SHEET -
TOTAL -

DESIGN AGENCY DLZ

HORIZONTAL SCALE IN FEET
0 50
25 100

MODEL: CLX_I075 - Plan 14 PAPERSIZE: 17x11 (in.) DATE: 6/18/2025 TIME: 11:18:29 AM USER: mjasiewicz
\\dlzcorp.com\pan-files$\Files\Projects\2023\2321\303400 WAR-MOT-75\113579\400-Engineering\Roadway\Sheets\113579_GP014_BoringPlan.dgn

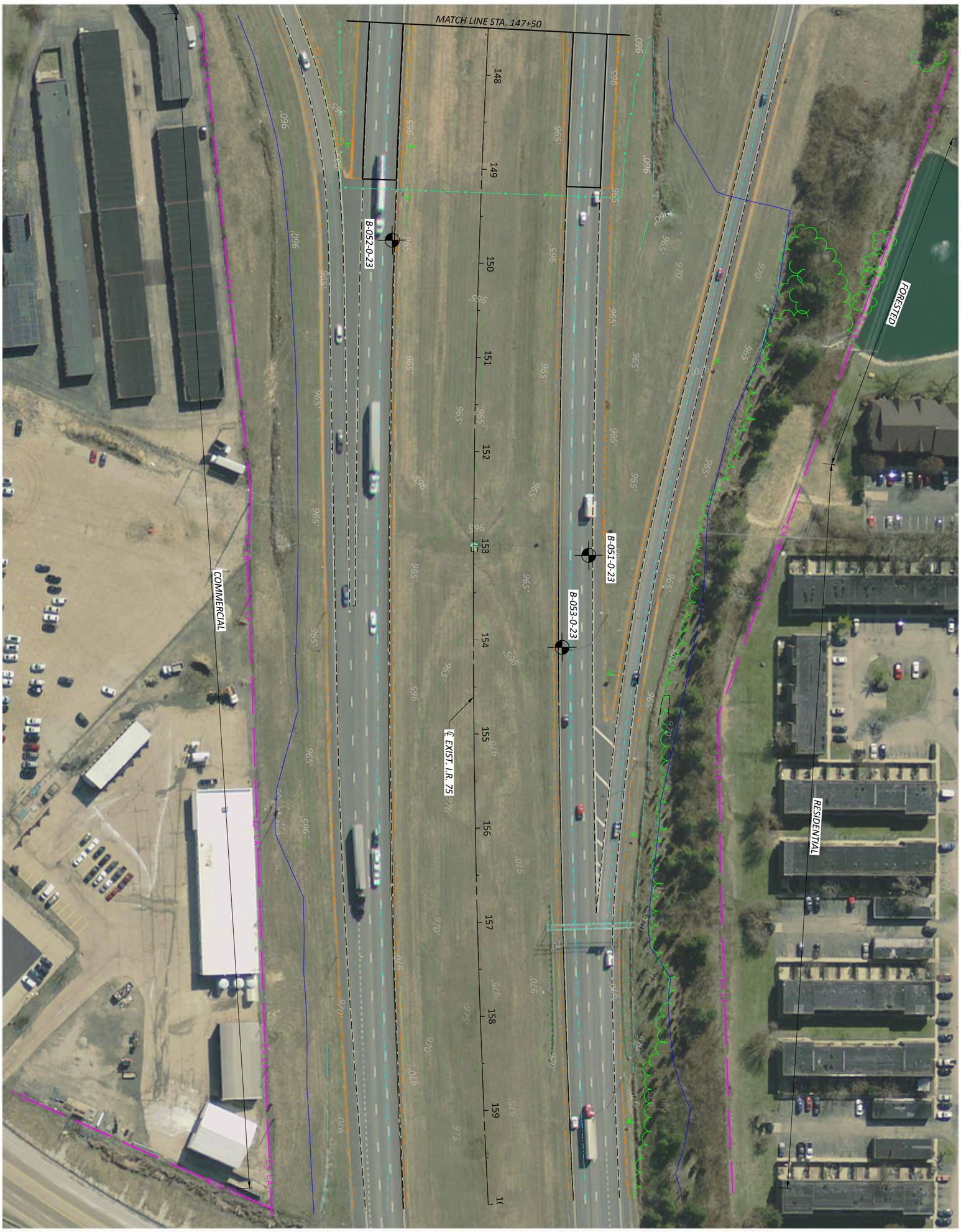


BORING LOCATION PLAN
STA. 135+00 TO STA. 147+50 I.R. 75

HORIZONTAL SCALE IN FEET
0 50
25 100

SHEET	TOTAL	SUBSET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
-	-	14	15	113579	JH 06/17/25	MWJ	DLZ

MODEL: CLX_I075 - Plan 15 PAPERSIZE: 17x11 (in.) DATE: 6/18/2025 TIME: 11:18:38 AM USER: mjasiewicz
\\dlzcorp.com\pan-files$\Files\Projects\2023\2321\303400 WAR-MOT-75\113579\400-Engineering\Roadway\Sheets\113579_GP015_BoringPlan.dgn



DESIGNER	REVIEWER	PROJECT ID	SUBSET	SHEET
MWJ	JH 06/17/25	113579	15 TOTAL 15	- TOTAL -

DESIGN AGENCY: DLZ

BORING LOCATION PLAN
STA. 147+50 TO STA. 160+00 I.R. 75

HORIZONTAL SCALE IN FEET
0 50
25 100

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/28/23 END: 8/28/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 185+96, 123' RT.
ALIGNMENT: WAR-75 CL
ELEVATION: 949.1 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.581607, -84.247670

EXPLORATION ID B-001-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 949.1	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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 14", Aggregate Base - 5"	947.5	1																	
MEDIUM DENSE, BROWN, **SANDY SILT**, ASPHALT ODOR, POSSIBLE ASPHALT INCLUSIONS TOP, DAMP	946.1	2	12 6 5	13	67	S-1	-	0	12	21	40	27	NP	NP	NP	12	A-4a (6)	170	
VERY STIFF TO HARD, BROWN, **SANDY SILT**, DAMP TO MOIST		3	12 16 10	31	100	S-2	4.5+	7	9	17	42	25	20	13	7	9	A-4a (6)	-	
@4.5' Gray and brown mottled		4																	
		5	7 9 9	22	100	S-3	3.50	-	-	-	-	-	-	-	-	18	A-4a (V)	-	
		6	6 6 8	17	100	S-4	3.25	10	8	17	36	29	23	13	10	14	A-4a (6)	-	
	941.6	7 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: ODOT / M. GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 153+12, 288' LT.	EXPLORATION ID B-001-0-25
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: ODOT / M. GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL	
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 981.0 (MSL) EOB: 24.4 ft.	PAGE 1 OF 1
START: 6/26/25 END: 6/26/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 85.5	LAT / LONG: 39.627222, -84.230917	

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
Topsoil - 4"	980.7																		
STIFF, BROWN, **SILT AND CLAY**, LITTLE GRAVEL, DAMP		1	2 5 7	17	67	SS-1	2.00	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
		2																	
		3																	
		4	1 3 5	11	56	SS-2	1.00	4	6	11	44	35	35	22	13	21	A-6a (V)	-	
		5																	
	975.0	6																	
LOOSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, DAMP		7	1 3 3	9	33	SS-3	-	31	19	24	19	7	14	14	NP	10	A-2-6 (V)	-	
	972.5	8																	
STIFF TO VERY STIFF, BROWN, **SANDY SILT**, MOIST		9	3 5 7	17	100	SS-4	1.50	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
		10																	
		11																	
		12	4 3 5	11	89	SS-5	-	12	13	21	36	18	19	11	8	12	A-4a (V)	-	
▽ 967.5		13																	
@13.5', wet.		14	2 6 8	20	100	SS-6	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		15																	
		16																	
		17	3 6 6	17	78	SS-7	-	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
		18																	
@18.5', hard; contains stone fragments.		19	7 14 22	51	33	SS-8	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		20																	
		21																	
		22	5 50/3"	-	100	SS-9	-	10	11	14	44	21	16	9	7	9	A-4a (6)	-	
		23																	
@24.0', contains broken rock fragments.	956.6	24 EOB	5 50/5"	-	45	SS-10	-	-	-	-	-	-	-	-	-	8	A-4a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/12/25 14:24 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3034.00 WAR-MOT-75.GPJ

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 190+29, 77' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 946.1 (MSL) EOB: 7.0 ft.
START: 8/25/23 END: 8/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.582865, -84.247204

EXPLORATION ID B-002-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 946.1	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	ABAN-DONED
TOPSOIL Topsoil - 3"	945.1																		
HARD, LIGHT GRAYISH BROWN, **SILTY CLAY**, LITTLE SAND, DAMP		1	8 10 12	27	56	S-1	4.5+	2	4	13	30	51	39	18	21	18	A-6b (12)	350	
		2																	
		3	14 10 12	27	100	S-2	4.5+	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
		4																	
		5	8 9 10	23	100	S-3	3.50	0	1	4	48	47	29	19	10	24	A-4a (8)	-	
		6																	
		EOB 7	10 12 20	39	100	S-4	4.5+	-	-	-	-	-	-	-	-	18	A-4a (V)	-	
	935.1																		
VERY STIFF TO HARD, LIGHT GRAYISH BROWN, **SANDY SILT**, DAMP TO MOIST	930.1																		
	925.1																		
@23.5'-25.0', no recovery.	919.1																		

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: ODOT / M. GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 155+45, 249' LT.	EXPLORATION ID B-002-0-25
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: ODOT / M. GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL	
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 980.5 (MSL) EOB: 26.3 ft.	PAGE 1 OF 1
START: 6/26/25 END: 6/26/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 85.5	LAT / LONG: 39.627861, -84.230778	

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
Topsoil - 3"	980.2																		
STIFF TO VERY STIFF, BROWN AND GRAY, **SANDY SILT**, DAMP		1	2 5 7	17	39	SS-1	-	-	-	-	-	-	-	-	-	19	A-4a (V)	-	
		2																	
		3																	
		4	2 4 4	11	72	SS-2	-	11	4	17	29	39	20	13	7	11	A-4a (V)	-	
		5																	
		6																	
		7	2 4 5	13	78	SS-3	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		8																	
		9	2 4 5	13	100	SS-4	-	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		10																	
		11	3 4 5	13	89	SS-5	-	16	12	20	33	19	18	11	7	11	A-4a (3)	-	
		12																	
		13																	
		14	3 5 7	17	89	SS-6	-	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
		15																	
		16																	
@16.0', moist.		17	4 4 7	16	78	SS-7	-	11	11	19	39	20	18	11	7	11	A-4a (5)	-	
		18																	
@18.5', wet. ▽ 962.0		19	7 7 9	23	78	SS-8	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		20																	
	959.5	21																	
HARD, GRAY, **SILT**, WET		22	7 9 17	37	67	SS-9	-	0	1	25	53	21	20	15	5	11	A-4b (8)	-	
		23																	
@23.5'-25.0', no recovery.		24	50/1"	-	0	SS-10	-	-	-	-	-	-	-	-	-	-	A-4b (V)	-	
@25.0', contains broken rock fragments.		25																	
	954.2	26 EOB	7 19 50/3"	-	40	SS-11	4.5+	-	-	-	-	-	-	-	-	5	A-4b (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/12/25 14:24 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3034.00 WAR-MOT-75.GPJ

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/29/23 END: 8/29/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 194+46, 67' RT.
ALIGNMENT: WAR-75 CL
ELEVATION: 944.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 39.583506, -84.245877

EXPLORATION ID B-003-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 944.5	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	ABAN-DONED
TOPSOIL -5"	944.1																		
HARD, LIGHT BROWNISH GRAY, **SILTY CLAY**, DAMP Fill	940.5	1 2 3	11 10 9	23	83	S-1	4.5+	12	8	13	44	23	31	13	18	10	A-6b (10)	2300	
			9 9 18	33	100	S-2	4.5+	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
HARD, BROWN, **SANDY SILT**, DAMP @ 5.5'- 7.0', sample contains larger gravel	937.5	4 5 6	18 18 32	60	100	S-3	4.5+	10	10	19	34	27	22	14	8	10	A-4a (5)	-	
			20 14 12	31	100	S-4	-	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: ODOT / M. GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 156+68, 251' LT.	EXPLORATION ID B-003-0-25
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: ODOT / M. GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL	
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 983.8 (MSL) EOB: 26.8 ft.	PAGE 1 OF 1
START: 6/26/25 END: 6/26/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 85.5	LAT / LONG: 39.628194, -84.230806	

MATERIAL DESCRIPTION AND NOTES	ELEV. 983.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
Topsoil - 3"	983.5																		
MEDIUM STIFF TO STIFF, BROWN, **SANDY SILT**, DAMP TO MOIST @1.0', contains organics.		1	2 4 6	14	33	SS-1	-	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		2																	
		3																	
		4	2 5 5	14	78	SS-2	-	12	17	22	34	15	20	13	7	11	A-4a (3)	-	
		5																	
		6	2 3 5	11	72	SS-3	-	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		7																	
		8																	
		9	1 2 3	7	100	SS-4	-	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		10																	
		11	1 1 2	4	89	SS-5	-	22	12	20	33	13	20	13	7	12	A-4a (2)	-	
		12																	
		13																	
		14	1 2 4	9	89	SS-6	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		15																	
		16																	
		17	WOH 1 2	4	67	SS-7	-	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
		18																	
	965.3	19																	
VERY DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, WET		20	5 25 17	60	67	SS-8	-	-	-	-	-	-	-	-	-	13	A-2-6 (V)	-	
	962.8	21																	
STIFF, BROWN, **SANDY SILT**, WET		22	5 4 4	11	78	SS-9	-	40	11	12	26	11	20	15	5	13	A-4a (0)	-	
		23																	
		24	4 3 3	9	67	SS-10	-	22	3	11	41	23	21	13	8	16	A-4a (6)	-	
		25																	
		26																	
@26.0', some gravel.	957.0	EOB	4 50/4"	-	100	SS-11	-	-	-	-	-	-	-	-	-	14	A-4a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/28/23 END: 8/28/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 198+35, 123' RT.
ALIGNMENT: WAR-75 CL
ELEVATION: 942.9 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.584272, -84.244880

EXPLORATION ID B-004-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 942.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	941.1																		
HARD, BLUISH GRAY, **SANDY SILT**, LITTLE GRAVEL, DAMP Fill	939.9	1	5 8 8	19	72	S-1	4.5+	20	12	11	21	36	24	14	10	9	A-4a (4)	180	
VERY STIFF, GRAYISH BROWN, **SILTY CLAY**, SOME SAND, MOIST	938.4	2 3 4	8 10 10	24	100	S-2	4.5+	6	7	16	42	29	26	9	17	12	A-6b (10)	-	
VERY STIFF, GRAYISH BROWN, **SILTY CLAY**, MOIST	935.4	5 6 7	8 8 10	22	100	S-3	3.75	-	-	-	-	-	-	-	-	22	A-6b (V)	-	
	EOB		5 7 9	19	100	S-4	3.75	-	-	-	-	-	-	-	-	19	A-6b (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: ODOT / M. GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 159+06, 249' LT.	EXPLORATION ID B-004-0-25
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: ODOT / M. GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL	
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 993.5 (MSL) EOB: 24.9 ft.	PAGE 1 OF 1
START: 6/26/25 END: 6/26/25	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 85.5	LAT / LONG: 39.628833, -84.230833	

MATERIAL DESCRIPTION AND NOTES	ELEV. 993.5	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
Topsoil - 4"	993.2																		
STIFF, BROWN, **CLAY**, DAMP	990.0		3 4 4	11	39	SS-1	1.75	2	12	23	39	24	55	22	33	23	A-7-6 (V)	-	
STIFF TO VERY STIFF, BROWN, **SANDY SILT**, DAMP			3 3 5	11	67	SS-2	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
			3 5 4	13	61	SS-3	-	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
@8.5', moist.			1 4 3	10	89	SS-4	-	15	12	21	37	15	19	13	6	13	A-4a (3)	-	
			3 5 7	17	72	SS-5	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
@13.5'-16.0', very dense.			12 12 18	43	89	SS-6	-	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
			6 8 11	27	44	SS-7	-	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
	975.0	▽ 975.5																	
HARD, BLACK, **SILT AND CLAY**, PETROLIFEROUS, WET	973.6		12 16 50/5"	-	94	SS-8	-	-	-	-	-	-	-	-	-	8	A-6a (V)	-	
LIMESTONE, GRAY, SLIGHTLY WEATHERED, STRONG, VERY FINE GRAINED, MEDIUM BEDDED, PETROLIFEROUS, HIGHLY FRACTURED; RQD 37%, REC 100%.	968.6	TR EOB	37		100	NQ-1											CORE		

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/22/23 END: 8/22/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 202+22, 94' LT.
ALIGNMENT: WAR-75 CL
ELEVATION: 938.2 (MSL) EOB: 6.5 ft.
LAT / LONG: 39.585485, -84.244714

EXPLORATION ID B-005-0-23

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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	938.2																		
VERY STIFF, LIGHT BROWN, **SILTY CLAY**, DAMP	936.4	1	4 5 5	12	83	S-1	3.00	7	5	9	44	35	39	16	23	16	A-6b (13)	160	
VERY STIFF, LIGHT BROWN, **SANDY SILT**, DAMP @ 3.0'-4.5', sample contains sandy laminations	935.2	2	4 27 40	81	89	S-2	3.00	23	15	22	9	31	22	13	9	11	A-4a (1)	-	
@ 4.5'- 5.3', sample contains coarse sand and gravel	932.2	3 4 5	33 44 50/4"	-	100	S-3	4.5+	-	-	-	-	-	-	-	-	19	A-4a (V)	-	
INTERBEDDED SHALE (50%) AND LIMESTONE (50%); **SHALE**, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG; **LIMESTONE**, GRAY, HIGHLY WEATHERED, WEAK, VERY FINE GRAINED.	931.7 TR EOB	6	50	-	100	S-4	-	-	-	-	-	-	-	-	-	12	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH SOIL CUTTINGS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: ODOT / M. GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 161+01, 244' LT.	EXPLORATION ID B-005-0-25
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: ODOT / M. GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL	
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 990.6 (MSL) EOB: 13.7 ft.	PAGE 1 OF 1
START: 6/26/25 END: 6/26/25	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 85.5	LAT / LONG: 39.629361, -84.230833	

MATERIAL DESCRIPTION AND NOTES	ELEV. 990.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
Topsoil - 3"	990.3																		
STIFF TO VERY STIFF, BROWN, **SANDY SILT**, DAMP @1.5', contains organics.		1	3 5 8	19	11	SS-1	-	-	-	-	-	-	-	-	-	38	A-4a (V)	-	
		2																	
		3																	
		4	3 4 5	13	89	SS-2	-	23	12	20	30	15	18	10	8	10	A-4a (2)	-	
		5																	
@6.0', contains broken rock fragments.		6	50/3"	-	133	SS-3	-	-	-	-	-	-	-	-	-	25	A-4a (V)	-	
	982.1	7																	
		8																	
LIMESTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED, MEDIUM BEDDED, HIGHLY FRACTURED; RQD 15%, REC 100%.	TR	9	50/2"	-	100	SS-4	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
		10																	
		11	15		100	NQ-1											CORE		
@12.6'-13.0', Qu = 4,348 psi	976.9	12																	
	EOB	13																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 205+98, 79' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 930.4 (MSL) EOB: 5.8 ft.
START: 8/24/23 END: 8/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.586317, -84.243938

EXPLORATION ID B-006-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 930.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	930.1																		
HARD, GRAY, **SANDY SILT**, LITTLE CLAY, SOME GRAVEL, DAMP	927.9	1 2 TR	23 30 17	57	83	S-1	-	33	16	11	20	20	20	14	6	7	A-4a (1)	240	
SHALE, LIGHT BLUISH GRAY, SEVERELY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED.		3	23 50 50/1"	-	-	S-2	-	-	-	-	-	-	-	-	-	9	Rock (V)	-	
		4	50	-	-	S-3	-	-	-	-	-	-	-	-	-	8	Rock (V)	-	
	924.6	5 EOB	50/4"	-	-	S-4	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: ODOT / M. GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 162+74, 248' LT.	EXPLORATION ID B-006-0-25
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: ODOT / M. GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: WAR-75 CL	
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 993.8 (MSL) EOB: 17.8 ft.	PAGE 1 OF 1
START: 6/26/25 END: 6/26/25	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 85.5	LAT / LONG: 39.629806, -84.230889	

MATERIAL DESCRIPTION AND NOTES	ELEV. 993.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
Topsoil - 3"	993.5																		
STIFF, BROWN, **SILT AND CLAY**, CONTAINS ORGANICS, DAMP		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	4 5 6	16	44	SS-1	-	13	11	19	34	23	28	18	10	14	A-4a (4)	-	
			3 4 4	11	89	SS-2	-	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
	987.8																		
VERY DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, DAMP			4 8 17	36	39	SS-3	-	49	6	13	21	11	26	14	12	8	A-2-6 (0)	-	
	985.3																		
MEDIUM DENSE TO DENSE, BROWN, **SANDY SILT**, DAMP			2 4 6	14	94	SS-4	-	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
			5 10 19	41	72	SS-5	-	11	13	22	37	17	18	13	5	10	A-4a (4)	-	
	980.0	TR	50/3"	-	100	SS-6	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
LIMESTONE, GRAY, SLIGHTLY WEATHERED, STRONG, VERY FINE GRAINED, MEDIUM TO THICK BEDDED, HIGHLY FRACTURED; RQD 33%, REC 100%. @15.4'-15.8', Qu = 5,684 psi	976.0	EOB	33		100	NQ-1											CORE		

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 2+16, 80' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 921.7 (MSL) EOB: 7.0 ft.
START: 8/29/23 END: 8/29/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.587142, -84.242622

EXPLORATION ID B-007-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 921.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	921.4																		
HARD, GRAYISH BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP Fill	917.7	1	9 10 15	30	67	S-1	4.5+	9	7	12	38	34	31	16	15	13	A-6a (9)	320	
		2																	
		3	9 10 12	27	78	S-2	-	-	-	-	-	-	-	-	-	7	A-6a (V)	-	
		4																	
VERY STIFF, BROWN, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST		5	5 7 8	18	100	S-3	3.75	11	8	13	37	31	27	12	15	15	A-6a (9)	-	
	914.7	6	7 8 7	18	100	S-4	3.75	-	-	-	-	-	-	-	-	20	A-6a (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/29/23 END: 8/29/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 5+87, 93' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 915.4 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.588014, -84.241929

EXPLORATION ID B-008-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 915.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	913.6	1																	
MEDIUM DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, DAMP Fill	912.4	2	5 5 5	12	17	S-1	-	46	20	23	7	4	NP	NP	NP	8	A-1-b (0)	270	
HARD, GRAYISH BROWN, **SILT AND CLAY**, SOME SAND, LITTLE GRAVEL, DAMP Possible fill	909.4	3 4 5	7 9 9	22	67	S-2	4.5+	16	8	14	35	27	28	16	12	12	A-6a (6)	-	
			6 7 7	17	28	S-3	4.5+	29	6	13	30	22	26	14	12	12	A-6a (4)	-	
VERY STIFF, GRAYISH BROWN, **SILT AND CLAY**, LITTLE SAND, GRAVEL IN SPOON TIP, MOIST	907.9	6 7 EOB	6 8 16	29	100	S-4	3.25	-	-	-	-	-	-	-	-	17	A-6a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/25/23 END: 8/25/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 9+22, 123' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 909.7 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.589104, -84.242048

EXPLORATION ID B-009-0-23

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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	909.7 907.9																		
VERY STIFF, BROWN, **SILT AND CLAY**, SOME SAND, DAMP	906.7	1 2 3	5 8 9	21	67	S-1	3.75	4	8	14	43	31	25	14	11	11	A-6a (8)	190	
VERY STIFF TO HARD, BROWN, **SILTY CLAY**, SOME SAND, DAMP		4 5	10 10 10	24	100	S-2	4.5+	1	5	17	33	44	38	19	19	19	A-6b (12)	-	
		6	6 8 12	24	100	S-3	4.5+	-	-	-	-	-	-	-	-	12	A-6b (V)	-	
	902.2	7 EOB	4 7 7	17	100	S-4	3.50	-	-	-	-	-	-	-	-	13	A-6b (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 13+30, 77' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 904.3 (MSL) EOB: 7.0 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.590045, -84.241265

EXPLORATION ID B-010-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 904.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	903.9																		
HARD, BROWN, **SILT AND CLAY**, SOME SAND, DAMP Fill		1	15 9 16	30	100	S-1	4.5+	6	9	24	31	30	30	15	15	13	A-6a (7)	490	
	900.3	2																	
		3	22 10 11	25	100	S-2	4.5+	-	-	-	-	-	-	-	-	8	A-6a (V)	-	
HARD, BROWN, **SILTY CLAY**, MOIST		4	10 15 14	35	100	S-3	4.50	2	3	7	51	37	38	17	21	19	A-6b (12)	-	
	897.3	5																	
		6	6 12 14	31	-	S-4	4.5+	-	-	-	-	-	-	-	-	15	A-6b (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/29/23 END: 8/29/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 17+12, 80' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 903.2 (MSL) EOB: 7.0 ft.
LAT / LONG: 39.590821, -84.240196

EXPLORATION ID B-011-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 903.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	902.8																		
HARD, BROWN, **SANDY SILT**, LITTLE GRAVEL, DAMP Fill	900.7	1	6 11 13	29	100	S-1	4.5+	14	12	18	33	23	20	13	7	8	A-4a (4)	290	
VERY STIFF, BROWN, **SANDY SILT**, SOME GRAVEL, TRACE ORGANICS, DAMP Possible fill	899.2	2 3 4	7 7 7	17	100	S-2	3.50	23	9	18	28	22	24	14	10	10	A-4a (3)	-	
VERY STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, MOIST	896.2	5	6 8 9	21	100	S-3	3.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
		6	6 7 8	18	100	S-4	3.00	-	-	-	-	-	-	-	-	17	A-6b (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/28/23 END: 8/28/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 21+29, 124' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 904.8 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.591841, -84.239480

EXPLORATION ID B-012-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 904.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	903.0																		
VERY STIFF TO HARD, BROWN TO DARK GRAY, **SANDY SILT**, DAMP Fill	900.3	1	5 4 5	11	61	S-1	4.5+	6	6	16	36	36	36	32	4	17	A-4a (7)	260	
		2																	
		3	4 8 8	19	100	S-2	3.00	16	6	13	35	30	26	19	7	15	A-4a (6)	-	
		4																	
VERY STIFF, BROWN, **SILTY CLAY**, MOIST Possible fill	897.3	5	8 5 6	13	100	S-3	3.25	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
		6																	
		7	3 8 7	18	100	S-4	3.00	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
		EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/22/23 END: 8/22/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 23+87, 80' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 905.3 (MSL) EOB: 7.0 ft.
LAT / LONG: 39.592704, -84.239828

EXPLORATION ID B-013-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 905.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	905.0																		
VERY STIFF TO HARD, BROWN, **SANDY SILT**, SOME TO LITTLE GRAVEL, DAMP Fill		1	8 6 6	15	67	S-1	3.00	27	6	11	30	26	25	15	10	10	A-4a (4)	340	
		2																	
		3	8 7 6	16	-	S-2	4.00	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
		4																	
		5	8 8 8	19	100	S-3	3.50	12	10	17	36	25	22	14	8	10	A-4a (5)	-	
		6																	
	898.3	EOB 7	5 9 6	18	100	S-4	3.50	-	-	-	-	-	-	-	-	10	A-4a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/30/23 END: 8/30/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 24+62, 95' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 906.7 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.592729, -84.239154

EXPLORATION ID B-014-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 906.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 4"	904.9																		
VERY STIFF TO HARD, BROWN TO DARK GRAY, **SANDY SILT**, SOME GRAVEL, DAMP Fill		1	8 8 9	21	50	S-1	4.5+	21	9	18	31	21	22	13	9	9	A-4a (3)	900	
		2																	
		3	10 8 10	22	83	S-2	4.5+	10	8	14	39	29	24	15	9	12	A-4a (7)	-	
@ 4.5'- 6.0', moist	900.7	4																	
		5	5 7 7	17	100	S-3	2.50	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
HARD, BROWN TO GRAY, **SANDY SILT**, LITTLE GRAVEL, DAMP	899.2	6	9 7 7	17	100	S-4	4.5+	-	-	-	-	-	-	-	-	20	A-4a (V)	-	
		7 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/22/23 END: 8/22/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 25+94, 93' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 907.3 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.593247, -84.239625

EXPLORATION ID B-015-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 907.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 9", Aggregate Base - 2"	905.8																		
VERY STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP Possible fill	904.3		5 5 8	16	100	S-1	3.00	3	3	9	55	30	34	16	18	19	A-6b (11)	200	
STIFF TO VERY STIFF, GRAYISH BROWN, **SILT**, LITTLE SAND, DAMP TO MOIST			5 5 6	13	89	S-2	2.50	-	-	-	-	-	-	-	-	10	A-4b (V)	-	
			4 2 2	5	78	S-3	1.25	3	4	10	56	27	24	15	9	18	A-4b (8)	-	
	899.8	EOB	3 6 7	16	83	S-4	1.50	-	-	-	-	-	-	-	-	17	A-4b (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 26+76, 78' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 906.7 (MSL) EOB: 7.0 ft.
START: 8/30/23 END: 8/30/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.593305, -84.238955

EXPLORATION ID B-016-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	906.4																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP Fill	904.2	1	3 4 8	15	67	S-1	4.5+	8	6	12	48	26	27	14	13	13	A-6a (9)	1100	
HARD, LIGHT BLUISH GRAY, **SILT AND CLAY**, SEVERELY WEATHERED SHALE FILL, MOIST	902.7	2 3	5 7 7	17	100	S-2	4.5+	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
VERY STIFF, LIGHT BROWN, **SANDY SILT**, LITTLE GRAVEL, DAMP	901.2	4 5	5 7 8	18	100	S-3	3.75	16	4	19	45	16	26	19	7	14	A-4a (5)	-	
SHALE, BROWN WITH BLACK STREAKS, DECOMPOSED TO SEVERELY WEATHERED, VERY WEAK, VERY FINE GRAINED. soil like consistancy	899.7	TR 6	10 23 40	76	100	S-4	-	-	-	-	-	-	-	-	-	18	Rock (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/25/23 END: 8/25/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 30+04, 122' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 909.4 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.594330, -84.239266

EXPLORATION ID B-017-0-23

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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	909.4																		
	907.6	1																	
VERY STIFF, GRAY AND BROWN, **SILT AND CLAY**, LITTLE SAND, LITTLE GRAVEL, DAMP Fill		2	6 9 7	19	44	S-1	2.75	12	0	11	33	44	28	16	12	13	A-6a (9)	160	
	904.9	3	6 6 5	13	28	S-2	-	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP		4	4 5 11	19	100	S-3	4.50	8	7	11	33	41	30	16	14	15	A-6a (9)	-	
	901.9	5	9 8 8	19	100	S-4	4.50	-	-	-	-	-	-	-	-	18	A-6a (V)	-	
		6																	
		7 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / M.GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 230+18, 14' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / M.GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: RAMP H
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 907.7 (MSL) EOB: 7.0 ft.
START: 5/12/25 END: 5/12/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 85.5	LAT / LONG: 39.594110, -84.238299

EXPLORATION ID B-017-1-25

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 907.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
11" Pavement, 8" Aggregate Base	906.1																		
VERY STIFF, GRAY AND BROWN, **SILT AND CLAY**, SOME GRAVEL, LITTLE SAND, DAMP Fill	905.2																		
VERY STIFF TO HARD, GRAY AND BROWN, **SILTY CLAY**, SOME SAND, DAMP Fill		1	4 4 6	14	44	SS-1	3.50	48	10	6	15	21	24	13	11	11	A-6a (0)	2000	
		2																	
		3	5 16 18	48	78	SS-2	4.5+	11	9	13	31	36	27	11	16	12	A-6b (9)	-	
		4																	
		5	8 8 9	24	78	SS-3	2.00	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
		6	12 10 17	38	94	SS-4	4.50	-	-	-	-	-	-	-	-	20	A-6b (V)	-	
	900.7	EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / M.GRANDINETTI	DRILL RIG: '25 CME 45-ATV-944	STATION / OFFSET: 233+22, 16' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / M.GRANDINETTI	HAMMER: CME AUTOMATIC	ALIGNMENT: RAMP H
PID: 113579 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/24/25	ELEVATION: 912.6 (MSL) EOB: 7.0 ft.
START: 5/12/25 END: 5/12/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 85.5	LAT / LONG: 39.594797, -84.237672

EXPLORATION ID B-017-2-25

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 912.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
11" Pavement, 8" Aggregate Base	911.0																		
STIFF, GRAY, **CLAY**, SOME GRAVEL, SOME SILT, DAMP Fill	908.6	1	7 8 8	23	67	SS-1	1.00	21	6	5	27	41	50	16	34	18	A-7-6 (16)	1100	
		2																	
		3	6 8 9	24	61	SS-2	2.00	-	-	-	-	-	-	-	-	20	A-7-6 (V)	-	
STIFF, GRAY, **SILT AND CLAY**, LITTLE SAND, DAMP Fill	905.6	4	8 9 16	36	78	SS-3	1.50	13	9	15	20	43	28	13	15	14	A-6a (8)	-	
		5																	
		6	9 9 10	27	89	SS-4	1.50	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
	EOB	7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 34+20, 80' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 913.2 (MSL) EOB: 7.0 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.595382, -84.238704

EXPLORATION ID B-018-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 913.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 10"	912.4																		
VERY STIFF, GRAY, **SANDY SILT**, LITTLE GRAVEL, SOME CLAY, DAMP Fill	910.7	1	5 4 7	13	78	S-1	3.50	18	10	12	35	25	26	16	10	13	A-4a (5)	290	
VERY STIFF, GRAYISH BROWN, **SANDY SILT**, TRACE GRAVEL, CONTAINS PLANT ROOTS, DAMP Fill	909.2	2	12 12 14	31	67	S-2	3.25	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, TRACE SAND, DAMP	906.2	3	11 12 13	30	100	S-3	4.00	0	1	8	40	51	31	18	13	17	A-6a (9)	-	
		4	13 15 15	36	28	S-4	2.50	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 38+09, 82' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 920.9 (MSL) EOB: 7.0 ft.
START: 8/30/23 END: 8/30/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.596302, -84.237799

EXPLORATION ID B-019-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	920.6																		
STIFF, DARK GRAY AND BROWN, **SILT AND CLAY**, DAMP Fill	918.4	1	7 13 14	33	39	S-1	1.75	17	7	10	49	17	32	19	13	15	A-6a (7)	170	
STIFF, DARK GRAY AND DARK BROWN, **SILT AND CLAY**, MODERATLY ORGANIC, DAMP Fill @ 2.5'-4.0', LOI =5.66%	916.9	2 3 4	22 23 20	52	44	S-2	1.50	24	9	10	31	26	31	19	12	14	A-6a (5)	-	
VERY STIFF, BROWNISH GRAY, **SILT AND CLAY**, MOIST	913.9	5 6	10 10 10	24	100	S-3	3.75	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
		EOB 7	6 6 7	16	100	S-4	3.25	-	-	-	-	-	-	-	-	24	A-6a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/28/23 END: 8/28/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 42+12, 122' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 929.6 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.597356, -84.237329

EXPLORATION ID B-020-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 929.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 4"	927.8	1																	
HARD, LIGHT BLUISH GRAY AND GRAY, **SANDY SILT**, LITTLE GRAVEL, ROCK FILL (SEVERELY WEATHERED SHALE), DAMP Fill @ 3.0', light auger chatter. (difficult drilling)	925.1	2	6 7 12	23	56	S-1	4.5+	13	9	8	32	38	26	16	10	11	A-4a (7)	220	
		3	10 13 15	34	100	S-2	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
VERY STIFF, LIGHT BLUISH GRAY AND LIGHT BROWN, **SILT**, SOME CLAY, ROCK FILL (SEVERELY WEATHERED SHALE), DAMP Possible fill	923.6	4																	
		5	9 7 7	17	100	S-3	3.00	2	3	12	51	32	24	18	6	12	A-4b (8)	-	
STIFF, BROWN, **SILT AND CLAY**, LITTLE SAND, MOIST	922.1	6																	
EOB		7	9 10 8	22	100	S-4	1.75	-	-	-	-	-	-	-	-	22	A-6a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/22/23 END: 8/22/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 45+77, 94' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 937.4 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.598467, -84.237781

EXPLORATION ID B-021-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 937.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 3"	935.7																		
VERY STIFF, GRAYISH BROWN, **SILT AND CLAY**, TRACE GRAVEL, DAMP Fill	934.4		9 9 10	23	100	S-1	3.75	8	2	4	53	33	29	17	12	14	A-6a (9)	180	
STIFF TO VERY STIFF, BROWN TO GRAY, **SILT AND CLAY**, SOME SAND, DAMP	931.4		5 8 10	22	100	S-2	2.50	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
			12 12 10	27	100	S-3	1.75	8	12	17	34	29	25	14	11	11	A-6a (6)	-	
VERY STIFF, BROWN AND GRAY, **SILTY CLAY**, DAMP	929.9	EOB	10 10 11	25	100	S-4	2.00	-	-	-	-	-	-	-	-	16	A-6b (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 49+74, 82' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 945.1 (MSL) EOB: 7.0 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.599521, -84.237414

EXPLORATION ID B-022-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 945.1	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	ABAN-DONED
TOPSOIL - 5"	944.7																		
HARD, BROWN, **SILT**, DAMP Fill	942.6	1	7 12 15	33	100	S-1	4.5+	1	2	3	63	31	29	19	10	14	A-4b (8)	360	
VERY STIFF, BROWN, **SILTY CLAY**, MOIST Fill	941.1	2 3 4	8 6 6	15	28	S-2	3.25	1	2	8	47	42	40	17	23	23	A-6b (13)	-	
VERY STIFF, LIGHT BROWN, **SILTY CLAY**, DAMP	938.1	5 6	7 7 7	17	100	S-3	3.50	-	-	-	-	-	-	-	-	11	A-6b (V)	-	
	EOB	7	8 11 16	33	-	S-4	3.50	-	-	-	-	-	-	-	-	12	A-6b (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 53+50, 80' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 952.4 (MSL) EOB: 7.0 ft.
START: 8/30/23 END: 8/30/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.600423, -84.236548

EXPLORATION ID B-023-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 952.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	952.1																		
HARD, BROWN, **SANDY SILT**, SOME CLAY, DAMP Possible fill	949.9	1	13 12 8	24	89	S-1	4.5+	3	8	14	45	30	26	16	10	12	A-4a (8)	350	
HARD, BROWN, **SILTY CLAY**, LITTLE SAND, MOIST		2																	
		3	9 16 17	40	100	S-2	4.5+	8	7	12	30	43	34	13	21	17	A-6b (12)	-	
		4	13 25 29	65	100	S-3	4.5+	-	-	-	-	-	-	-	-	11	A-6b (V)	-	
		5																	
		6	14 24 23	57	-	S-4	4.5+	-	-	-	-	-	-	-	-	10	A-6b (V)	-	
	945.4	EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 57+65, 93' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 961.6 (MSL) EOB: 7.5 ft.
START: 8/31/23 END: 8/31/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.601524, -84.236167

EXPLORATION ID B-024-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 961.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 5"	959.8																		
VERY STIFF TO HARD, LIGHT GRAY, **SANDY SILT**, SOME CLAY, "AND" GRAVEL, CONTAINS STONE FRAGMENTS, DAMP Fill	957.1	1	7 11 11	27	100	S-1	4.5+	41	8	7	18	26	23	14	9	6	A-4a (2)	170	
		2	8 9 11	24	100	S-2	3.50	-	-	-	-	-	-	-	-	18	A-4a (V)	-	
		3																	
VERY STIFF, DARK GRAY TO BLACK, **SILT AND CLAY**, SLIGHTLY ORGANIC, MOIST @ 4.5'-6.0', LOI =3.43%		4	5 8 9	21	100	S-3	2.75	4	3	6	50	37	29	18	11	20	A-6a (8)	-	
		5																	
@ 5.5', light auger chatter (difficult drilliing) possible cobbles	954.1	6	5 8 9	21	100	S-4	2.50	-	-	-	-	-	-	-	-	30	A-6a (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/23/23 END: 8/23/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 61+62, 93' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 969.6 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.602700, -84.236485

EXPLORATION ID B-025-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 969.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10"	968.1	1																	
DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, CONTAINS BROKEN GRAVELS (POSSIBLE BASE), DAMP Fill	966.6	2	10 10 17	33	17	S-1	-	37	21	19	14	9	30	17	13	9	A-2-6 (0)	150	
VERY STIFF TO HARD, DARK BROWN, **SILTY CLAY**, LITTLE SAND, MODERATLY ORGANIC, DAMP TO MOIST @ 4.5'-6.0', LOI =7.04%	963.6	3 4 5 6	25 23 11	41	100	S-2	4.5+	-	-	-	-	-	-	-	-	12	A-6b (V)	-	
			5 6 8	17	100	S-3	2.75	7	4	6	42	41	40	21	19	27	A-6b (12)	-	
VERY STIFF, YELLOWISH BROWN, **SILTY CLAY**, MOIST	962.1	7 EOB	5 6 8	17	100	S-4	3.00	-	-	-	-	-	-	-	-	12	A-6b (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 64+18, 82' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 974.5 (MSL) EOB: 7.0 ft.
START: 8/30/23 END: 8/30/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.603276, -84.235672

EXPLORATION ID B-026-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 974.5	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	ABAN-DONED
TOPSOIL - 4"	974.2																		
HARD, LIGHT GRAY, **SANDY SILT**, LITTLE GRAVEL, SOME CLAY, MOIST Possible fill	972.0	1	9 9 11	24	61	S-1	4.50	12	8	8	37	35	23	14	9	16	A-4a (7)	150	
VERY STIFF TO HARD, LIGHT BROWN, **SANDY SILT**, SOME GRAVEL AND STONE FRAGMENTS, LITTLE CLAY, SIMILAR TO DECOMPOSED TO SEVERLY WEATHERED ROCK, DAMP		2																	
		3	26 14 14	34	83	S-2	4.00	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
		4																	
		5	13 13 11	29	100	S-3	2.75	26	3	11	41	19	23	17	6	10	A-4a (5)	-	
		6																	
	967.5	EOB 7	11 15 14	35	-	S-4	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 64+89, 80' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 975.8 (MSL) EOB: 7.0 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.603566, -84.236172

EXPLORATION ID B-027-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 975.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	975.4																		
VERY DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, WET Fill	973.3	1	7 11 32	52	-	S-1	-	85	2	2	5	6	26	15	11	6	A-2-6 (0)	210	
VERY STIFF, YELLOWISH BROWN AND LIGHT GRAY, **SILT AND CLAY**, POSSIBLE DECOMPOSED ROCK, DAMP	971.8	2 3	16 12 9	25	-	S-2	3.00	23	7	18	28	24	34	23	11	12	A-6a (4)	-	
		TR 4	5 14 15	35	-	S-3	-	-	-	-	-	-	-	-	-	24	Rock (V)	-	
INTERBEDDED SHALE (55%) AND LIMESTONE (45%); **SHALE**, LIGHT YELLOWISH BROWN, SEVERELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED; **LIMESTONE**, LIGHT YELLOWISH BROWN, HIGHLY WEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED.	968.8	5 6 EOB 7	32 32 49	98	-	S-4	-	-	-	-	-	-	-	-	-	20	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 67+12, 92' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 981.0 (MSL) EOB: 4.3 ft.
START: 8/30/23 END: 8/30/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.604054, -84.235398

EXPLORATION ID B-028-0-23

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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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 6", Concrete - 11", Aggregate Base - 3"	979.3	TR																	
INTERBEDDED SHALE (50%) AND LIMESTONE (50%); **SHALE**, GRAY, SEVERELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED; **LIMESTONE**, GRAY, MODERATELY TO HIGHLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, VERY FINE GRAINED.	976.7	1 2 3 4 EOB	6 33 50/4" 39 50/2"	-	81	S-1	-	-	-	-	-	-	-	-	-	11	Rock (V)	-	
				-	100	S-2	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
@ 4.3', auger refusal.																			

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 69+53, 95' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 984.7 (MSL) EOB: 3.1 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.604817, -84.235846

EXPLORATION ID B-029-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 984.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 2"	983.0																		
INTERBEDDED SHALE (50%) AND LIMESTONE (50%); **SHALE**, GRAY, SEVERELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED; **LIMESTONE**, GRAY, SEVERELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED.	981.6	TR 1 2 3 EOB	8 11 50/0"	-	100	S-1	-	-	-	-	-	-	-	-	-	9	Rock (V)	-	
@ 3.1', auger refusal,			50/1"	-	100	S-2	-	-	-	-	-	-	-	-	-	4	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 71+22, 82' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 986.2 (MSL) EOB: 4.1 ft.
START: 8/30/23 END: 8/30/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.605157, -84.235097

EXPLORATION ID B-030-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 986.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	985.9																		
HARD, LIGHT GRAY, **SILTY CLAY**, CONTAINS STONE FRAGMENTS, MOIST Fill		1	8 9 11	24	78	S-1	4.50	15	7	9	32	37	31	14	17	10	A-6b (10)	120	
	983.7	TR 2	50/3"	-	-	S-2	-	-	-	-	-	-	-	-	-	10	Rock (V)	-	
INTERBEDDED LIMESTONE (75%) AND SHALE (25%): **LIMESTONE**, GRAY, SEVERELY TO MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED; **SHALE**, GRAY, SEVERELY TO MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED.	982.1	3 EOB 4	50/1"	-	-	S-3	-	-	-	-	-	-	-	-	-	3	Rock (V)	-	

@ 4.1', auger refusal.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 73+20, 82' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 987.5 (MSL) EOB: 4.5 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.605789, -84.235504

EXPLORATION ID B-031-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 987.5	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	ABAN-DONED
TOPSOIL - 5"	987.1	TR																	
INTERBEDDED SHALE (60%) AND LIMESTONE (40%); **SHALE**, GRAY TO LIGHT GRAY, SEVERELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED; **LIMESTONE**, GRAY TO LIGHT GRAY, HIGHLY TO MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED.		1	14 46 50/1"	-	92	S-1	-	-	-	-	-	-	-	-	-	7	Rock (V)	-	
		2																	
		3	50 50/3"	-	89	S-2	-	-	-	-	-	-	-	-	-	3	Rock (V)	-	
		4																	
	983.0	EOB	50/2"	-	100	S-3	-	-	-	-	-	-	-	-	-	3	Rock (V)	-	

@ 4.5', auger refusal.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 75+24, 92' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 988.8 (MSL) EOB: 4.6 ft.
START: 8/30/23 END: 8/30/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.606223, -84.234738

EXPLORATION ID B-032-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 988.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 3"	987.1	1																	
STIFF, BROWNISH GRAY, **SILT AND CLAY**, DAMP		2	6 8 12	24	6	S-1	-	-	-	-	-	-	-	-	-	-	A-6a (V)	-	
@1.5', Stone stuck in tip of split-spoon, S-1	985.3	3	43	-	100	S-2A	1.50	37	11	12	22	18	25	14	11	10	A-6a (1)	830	
INTERBEDDED SHALE (60%) AND LIMESTONE (40%);		TR	50/4"			S-2B	-	-	-	-	-	-	-	-	-	-	Rock (V)	-	
SHALE, GRAY TO LIGHT GRAY, SEVERELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED;	984.2	4																	
LIMESTONE, GRAY TO LIGHT GRAY, HIGHLY TO MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED.		EOB	50/1"	-	100	S-3	-	-	-	-	-	-	-	-	-	3	Rock (V)	-	
@ 4.6', auger refusal.																			

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 77+06, 95' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 988.5 (MSL) EOB: 3.1 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.606827, -84.235234

EXPLORATION ID B-033-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 988.5	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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 6", Concrete - 11", Aggregate Base - 3"	986.8																		
SHALE, LIGHT BLUISH GRAY, SEVERLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED.	985.4	TR 1 2 3 EOB	14 16 50/3"	-	80	S-1	-	-	-	-	-	-	-	-	-	9	Rock (V)	-	
@ 3.1' auger refusal.			50/1"	-	100	S-2	-	-	-	-	-	-	-	-	-	2	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 79+16, 82' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 986.9 (MSL) EOB: 6.7 ft.
START: 8/31/23 END: 8/31/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.607278, -84.234450

EXPLORATION ID B-034-0-23

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MATERIAL DESCRIPTION AND NOTES	ELEV. 986.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	986.5	TR																	
SHALE, GRAY, SEVERLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED.		1	9 17 26	52	61	S-1	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
		2																	
		3	17 31 43	89	100	S-2	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
		4																	
	981.4	5	29 49 41	109	100	S-3	-	-	-	-	-	-	-	-	-	7	Rock (V)	-	
SHALE, BROWNISH RED, SEVERLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED.	980.2	6	31 41 50/2"	-	100	S-4	-	-	-	-	-	-	-	-	-	8	Rock (V)	-	
@ 6.7', SPT refusal,		EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 83+26, 94' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 982.3 (MSL) EOB: 7.5 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.608484, -84.234723

EXPLORATION ID B-035-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 982.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 9", Aggregate Base - 4"	980.6																		
INTERBEDDED SHALE (80%) AND LIMESTONE (20%); **SHALE**, GRAY AND BROWN, SEVERLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED; **LIMESTONE**, GRAY, SEVERELY WEATHERED, WEAK, VERY FINE GRAINED. soil like consistency at various depths		TR 1 2 3 4 5 6 7	5 8 6	17	100	S-1	-	-	-	-	-	-	-	-	-	11	Rock (V)	-	
			5 6 7	16	100	S-2	-	-	-	-	-	-	-	-	-	15	Rock (V)	-	
			13 21 17	46	100	S-3	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
	974.8	EOB	26 31 22	64	100	S-4	-	-	-	-	-	-	-	-	-	9	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 86+98, 83' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 974.3 (MSL) EOB: 7.0 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.609470, -84.234383

EXPLORATION ID B-036-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 974.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	973.8																		
HARD, BROWN, **SANDY SILT**, LITTLE GRAVEL, LITTLE CLAY, DAMP Fill	971.8	1	8 12 13	30	100	S-1	4.50	17	12	22	29	20	19	14	5	8	A-4a (3)	220	
HARD, BROWN, **SANDY SILT**, LITTLE GRAVEL, SOME CLAY, DAMP Possible fill	970.3	2 3	11 7 8	18	100	S-2	4.5+	14	13	20	32	21	21	13	8	10	A-4a (4)	-	
SHALE, LIGHT BLUISH GRAY TO DARK BROWNISH RED, DECOMPOSED TO SEVERELY WEATHERED, VERY WEAK TO WEAK, FINE GRAINED.	968.0	TR 4 5	4 10 7	21	100	S-3	-	-	-	-	-	-	-	-	-	15	Rock (V)	-	
SHALE, BROWN, DECOMPOSED TO SEVERELY WEATHERED, VERY WEAK TO WEAK, FINE GRAINED.	967.3	6 EOB 7	4 4 8	15	67	S-4	-	-	-	-	-	-	-	-	-	14	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 90+91, 83' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 965.1 (MSL) EOB: 7.0 ft.
START: 8/31/23 END: 8/31/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.610417, -84.233491

EXPLORATION ID B-037-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 965.1	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	ABAN-DONED
TOPSOIL - 5"	964.7																		
HARD, BROWN AND GRAY, **SANDY SILT**, SOME GRAVEL, DAMP Fill	962.1	1	7 8 15	28	100	S-1	4.5+	30	17	15	20	18	22	14	8	8	A-4a (1)	160	
HARD, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP	961.1	2 3	15 10 10	24	100	S-2	4.5+	-	-	-	-	-	-	-	-	9	A-6b (V)	-	
HARD, LIGHT BLUISH GRAY, **SILTY CLAY**, LITTLE GRAVEL, MOIST	959.6	4 5	6 6 5	13	100	S-3	4.5+	11	8	20	31	30	29	13	16	15	A-6b (8)	-	
SHALE, LIGHT BROWN, SEVERELY WEATHERED, VERY WEAK, VERY FINE GRAINED. soil like consistency	958.1	TR 6	7 10 8	22	-	S-4	-	-	-	-	-	-	-	-	-	13	Rock (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/31/23 END: 8/31/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 94+80, 93' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 957.4 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.611451, -84.233139

EXPLORATION ID B-038-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 957.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 4"	955.6																		
HARD, BROWN, **SANDY SILT**, DAMP Fill @ 4.0', 1" sand seam	952.9	1 2 3 4	6 8 11 16 14 10	23 29	100 100	S-1 S-2	4.5+ 4.5+	9 -	11 -	21 -	36 -	23 -	19 -	12 -	7 -	9 9	A-4a (5) A-4a (V)	220 -	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, DAMP	949.9	5 6 7 EOB	9 9 9 8 10 12	22 27	100 100	S-3 S-4	3.50 4.5+	8 -	10 -	20 -	37 -	25 -	26 -	14 -	12 -	11 13	A-6a (6) A-6a (V)	- -	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 98+64, 94' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 952.2 (MSL) EOB: 7.5 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.612592, -84.233472

EXPLORATION ID B-039-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 952.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 9", Aggregate Base - 3"	950.5	1																	
DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, DAMP Fill	949.2	2	17 17 17	41	17	S-1	-	39	13	17	18	13	18	12	6	8	A-2-4 (0)	140	
HARD, BROWN, **SANDY SILT**, LITTLE GRAVEL, DAMP Fill	948.7	3	14 12 18	36	33	S-2A	-	11	4	8	41	36	24	14	10	7	A-4a (8)	-	
		TR				S-2B	-	-	-	-	-	-	-	-	-	-	Rock (V)	-	
SHALE, GRAY, SEVERLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED.		4																	
		5	19 20 16	44	6	S-3	-	-	-	-	-	-	-	-	-	7	Rock (V)	-	
		6	10 15 15	36	100	S-4	-	-	-	-	-	-	-	-	-	7	Rock (V)	-	
	944.7	7 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 102+73, 82' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 950.2 (MSL) EOB: 7.0 ft.
START: 8/22/23 END: 8/22/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.613683, -84.233094

EXPLORATION ID B-040-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	950.2 949.5																		
STIFF TO VERY STIFF, BROWN, **SANDY SILT**, LITTLE GRAVEL, CONTAINS PLANT ROOTS, LIMESTONE STUCK IN TIP OF SPOON, DAMP Fill	947.7	1 2	3 2 25	33	78	S-1	2.00	17	11	19	32	21	19	11	8	9	A-4a (4)	180	
@ 2.0'-4.0', light auger chatter (difficult drilliing)		3	20 16 50	80	100	S-2	4.00	-	-	-	-	-	-	-	-	7	A-4a (V)	-	
VERY STIFF TO HARD, BROWN, **SANDY SILT**, TRACE GRAVEL, DAMP Fill	946.2	4																	
HARD, BROWN, **SANDY SILT**, LITTLE GRAVEL, DAMP		5	12 19 23	51	100	S-3	4.5+	8	11	21	33	27	20	13	7	10	A-4a (5)	-	
		6	10 12 22	41	100	S-4	4.5+	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
	943.2	EOB 7																	

NOTES: AUGER REFUSAL @ 4.0', OFFSET APPROXIMATELY 15' SE, AUGERED TO 4.0' AND RESUMED SAMPLING FOR S-3 AND S-4

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 5/12/25 END: 5/12/25

DRILLING FIRM / OPERATOR: DLZ / M.GRANDINETTI
SAMPLING FIRM / LOGGER: DLZ / M.GRANDINETTI
DRILLING METHOD: 3.25" HSA
SAMPLING METHOD: SPT

DRILL RIG: '25 CME 45-ATV-944
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 3/24/25
ENERGY RATIO (%): 85.5

STATION / OFFSET: 6+82, 1' LT.
ALIGNMENT: RAMP S
ELEVATION: 947.9 (MSL) EOB: 7.0 ft.
LAT / LONG: 39.614308, -84.233339

EXPLORATION ID B-040-1-25

MATERIAL DESCRIPTION AND NOTES	ELEV. 947.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
14" Pavement, 6" Aggregate Base	946.2																		
LOOSE, GRAY, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT**, MOIST Fill	945.4	1	2 3 4	10	44	SS-1	-	-	-	-	-	-	-	-	-	18	A-2-4 (V)	180	
SOFT, BROWN, **SILT AND CLAY**, MOIST Fill	943.9	2 3 4	4 3 4	10	78	SS-2	0.25	1	2	4	57	36	33	20	13	26	A-6a (9)	-	
MEDIUM DENSE, BROWN, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT**, MOIST Fill	940.9	5 6	4 5 9	20	78	SS-3	-	29	17	29	19	6	NP	NP	NP	14	A-2-4 (0)	-	
EOB		7	9 10 10	29	100	SS-4	-	-	-	-	-	-	-	-	-	13	A-2-4 (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 106+69, 83' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 951.4 (MSL) EOB: 7.0 ft.
START: 8/24/23 END: 8/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.614638, -84.232203

EXPLORATION ID B-041-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 951.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	951.0																		
VERY STIFF, GRAYISH BROWN, **SANDY SILT**, MOIST Fill	948.9	1	8 10 12	27	61	S-1	3.00	29	14	17	18	22	22	13	9	8	A-4a (1)	190	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, SOME SAND, DAMP		2																	
		3	21 11 9	24	100	S-2	4.00	-	-	-	-	-	-	-	-	5	A-6a (V)	-	
		4	9 17 13	36	100	S-3	3.25	7	11	21	31	30	26	13	13	15	A-6a (6)	-	
		5																	
		6	10 15 15	36	100	S-4	4.50	-	-	-	-	-	-	-	-	9	A-6a (V)	-	
	944.4	EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/31/23 END: 8/31/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 110+53, 93' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 953.4 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.615656, -84.231855

EXPLORATION ID B-042-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 953.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 9", Concrete - 10", Aggregate Base - 4"	951.5																		
VERY STIFF, BROWN AND LIGHT BLUISH GRAY, **SANDY SILT**, LITTLE GRAVEL, CONTAINS SEVERELY WEATHERED SHALE AND STONE FRAGMENTS, DAMP Fill	950.4	1	7 8 11	23	50	S-1	3.50	14	11	14	30	31	21	13	8	9	A-4a (5)	200	
HARD, BROWN, **SILT AND CLAY**, MOIST	948.9	2	7 8 11	23	100	S-2	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
HARD, DARK GRAY TO DARK BROWN, **SILT AND CLAY**, DAMP @ 4.5'-6.0', LOI =3.68%, slightly organic	947.4	3 4 5 6	6 6 7	16	100	S-3	4.5+	9	10	16	38	27	31	16	15	16	A-6a (8)	-	
HARD, BROWN, **SILT AND CLAY**, DAMP	945.9	7 EOB	10 12 11	28	56	S-4	-	-	-	-	-	-	-	-	-	11	A-6a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/24/23 END: 8/24/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 114+27, 122' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 954.5 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.616792, -84.232293

EXPLORATION ID B-043-0-23

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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	954.5																		
	952.7																		
VERY STIFF, BROWN, **SILTY CLAY**, TRACE SAND, MOIST	951.5	1	4 3 3	7	56	S-1	2.75	-	-	-	-	-	-	-	-	10	A-6b (V)	120	
VERY STIFF, DARK GRAY, **SILTY CLAY**, SLIGHTLY ORGANIC, MOIST TO WET		2	4 8 8	19	100	S-2	3.25	0	2	7	39	52	39	19	20	21	A-6b (12)	-	
@ 4.5'-5.5', LOI =4.64%	948.5	3 4 5	8 9 9	22	100	S-3	3.25	1	0	2	47	50	36	17	19	27	A-6b (12)	-	
SHALE, DARK GRAY, DECOMPOSED TO SEVERELY WEATHERED, VERY WEAK, VERY FINE GRAINED. soil like consistancy	947.0	TR 6 7 EOB	3 5 5	12	56	S-4	-	-	-	-	-	-	-	-	-	18	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/22/23 END: 8/22/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 118+61, 95' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 956.1 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.617933, -84.231844

EXPLORATION ID B-044-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 956.1	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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10"	954.7	1																	
HARD, BROWN, **SILT AND CLAY**, SOME GRAVEL, DAMP Fill	953.1	2	5 11 6	21	89	S-1	4.5+	32	9	15	23	21	25	14	11	9	A-6a (2)	160	
VERY STIFF, BROWN, **SILT AND CLAY**, DAMP Possible Fill	951.6	3 4	7 8 8	19	17	S-2	3.75	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
VERY STIFF, GREENISH GRAY TO DARK GRAY, **SANDY SILT**, LITTLE GRAVEL, CONTAINS DARK GRAY ORGANIC LAYER, MOIST @ 4.5'-6.0', LOI =3.40%	950.1	5 TR 6	5 6 12	22	100	S-3	3.00	11	6	9	44	30	23	14	9	15	A-4a (8)	-	
SHALE, LIGHT BLUISH GRAY WITH BLACK STREAKS, DECOMPOSED TO SEVERELY WEATHERED, VERY WEAK, FINE GRAINED. soil like consistancy	948.6 EOB	7	7 11 12	28	100	S-4	-	-	-	-	-	-	-	-	-	18	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 122+35, 83' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 956.7 (MSL) EOB: 7.0 ft.
START: 8/31/23 END: 8/31/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.618821, -84.230925

EXPLORATION ID B-045-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 956.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	956.3																		
HARD, BROWN, **SANDY SILT**, DAMP Fill @ 2.5'-4.0', LOI =2.97%, slightly organic.	952.7	1 2 3	5 7 19	31	100	S-1	4.5+	10	12	19	33	26	19	13	6	7	A-4a (5)	180	
			13 16 19	42	56	S-2	4.5+	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
HARD, BROWN TO DARK BROWN, **SILT AND CLAY**, "AND" SAND, CONTAINS ORGANICS, DAMP @ 5.5-7.0 contains topsoil and organics	949.7	4 5	10 11 25	44	100	S-3	4.00	6	27	21	27	19	32	20	12	18	A-6a (3)	-	
		6	24 14 8	27	-	S-4	-	-	-	-	-	-	-	-	-	9	A-6a (V)	-	
		EOB 7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 126+09, 123' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 958.4 (MSL) EOB: 7.5 ft.
START: 8/29/23 END: 8/29/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.619799, -84.230484

EXPLORATION ID B-046-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 958.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 11", Aggregate Base - 2"	956.6																		
VERY STIFF, GRAYISH BROWN, **SILTY CLAY**, SOME SAND, MOIST Fill	953.9	1 2 3 4	5 6 8 12 12 9	17 25	78 100	S-1 S-2	3.50 3.50	6 -	7 -	15 -	36 -	36 -	32 -	14 -	18 -	19 22	A-6b (11) A-6b (V)	180 -	
VERY STIFF TO HARD, GRAY, **SANDY SILT**, LITTLE GRAVEL, SOME CLAY, CONTAINS ORGANIC ODOR, DAMP	950.9	5 6 7 EOB	10 13 11 6 12 10	29 27	100 100	S-3 S-4	3.00 4.5+	15 -	12 -	18 -	30 -	25 -	19 -	12 -	7 -	11 20	A-4a (4) A-4a (V)	- -	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/23/23 END: 8/23/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 130+68, 122' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 959.8 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.621170, -84.231016

EXPLORATION ID B-047-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 959.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 3"	958.0	1																	
HARD, BROWN, **SILT AND CLAY**, LITTLE GRAVEL, SOME SAND, DAMP Fill	956.8	2	8 8 7	18	89	S-1	4.5+	12	9	20	33	26	27	14	13	14	A-6a (6)	850	
VERY STIFF, BROWN, **SANDY SILT**, SOME GRAVEL, DAMP	953.8	3 4 5	10 17 11	34	100	S-2	3.00	21	10	19	31	19	21	12	9	9	A-4a (3)	-	
			9 7 7	17	100	S-3	3.25	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
VERY STIFF, DARK BROWN, **SILT AND CLAY**, TRACE GRAVEL, CONTAINS ORGANIC ODOR, DAMP	952.3	6 7 EOB	9 9 9	22	100	S-4	3.50	-	-	-	-	-	-	-	-	10	A-6a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 134+30, 94' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 961.4 (MSL) EOB: 7.5 ft.
START: 8/21/23 END: 8/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.622126, -84.230709

EXPLORATION ID B-048-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 961.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 3"	959.7	1																	
VERY STIFF, LIGHT BROWN, **SANDY SILT**, LITTLE GRAVEL, DAMP Fill	958.4	2	10 10 13	28	83	S-1	3.50	14	12	21	31	22	20	14	6	9	A-4a (4)	140	
VERY STIFF TO HARD, LIGHT BROWN, **SANDY SILT**, LITTLE GRAVEL, MOIST	955.4	3 4 5	21 18 13	37	100	S-2	4.00	15	10	20	30	25	23	13	10	11	A-4a (4)	-	
			13 15 15	36	100	S-3	3.50	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
VERY STIFF, BROWN, **SANDY SILT**, MOIST	953.9	6 7 EOB	9 9 10	23	100	S-4	3.00	-	-	-	-	-	-	-	-	20	A-4a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/31/23 END: 8/31/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 138+63, 92' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 962.5 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.623237, -84.229847

EXPLORATION ID B-049-0-23

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	ABAN-DONED
PAVEMENT AND BASE Asphalt - 6", Concrete - 10", Aggregate Base - 3"	962.5 960.9	1																	
HARD, GRAYISH BROWN, **SILT AND CLAY**, LITTLE GRAVEL, DAMP Fill	959.5	2	8 12 15	33	100	S-1	4.5+	10	11	19	35	25	27	14	13	9	A-6a (6)	220	
VERY STIFF, BROWN, **SANDY SILT**, DAMP Possible fill	958.0	3 4	10 10 10	24	100	S-2	4.00	8	10	18	33	31	25	20	5	16	A-4a (6)	-	
VERY STIFF, GRAYISH BROWN, **SANDY SILT**, DAMP TO MOIST @ 5.0', contains 3-inch sand seam.	955.0	5 6 7 EOB	5 15 20	42	100	S-3	3.75	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
			6 10 12	27	100	S-4	3.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/29/23 END: 8/29/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 142+34, 123' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 963.7 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.624251, -84.229606

EXPLORATION ID B-050-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 963.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 10", Aggregate Base - 2"	962.0																		
HARD, BROWNISH GRAY, **SILTY CLAY**, SOME SAND, DAMP Fill	959.2	1	3 3 7	12	61	S-1	4.5+	9	8	19	32	32	34	14	20	16	A-6b (10)	140	
		2	5 5 8	16	78	S-2	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
VERY STIFF, GRAYISH BROWN, **SILT AND CLAY**, LITTLE GRAVEL, SOME SAND, MOIST	956.2	3	5 10 12	27	100	S-3	2.75	16	8	18	31	27	29	14	15	16	A-6a (7)	-	
		4	5 8 11	23	100	S-4	3.75	-	-	-	-	-	-	-	-	9	A-6a (V)	-	
		5																	
		6																	
		7 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/23/23 END: 8/23/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 153+10, 122' LT.
ALIGNMENT: MOT-75 CL
ELEVATION: 967.3 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.627228, -84.230315

EXPLORATION ID B-051-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 967.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 2"	965.7	1																	
HARD, BROWN, **SANDY SILT**, LITTLE GRAVEL, DAMP Fill	964.3	2	14 12 9	25	100	S-1	4.50	17	11	19	29	24	20	10	10	11	A-4a (4)	120	
VERY STIFF, BROWN, **SANDY SILT**, LITTLE GRAVEL, DAMP	962.8	3 4	15 11 10	25	100	S-2	3.25	14	12	20	30	24	20	13	7	10	A-4a (4)	-	
VERY STIFF, GRAY, **SILT AND CLAY**, TRACE GRAVEL, DAMP		5	8 9 9	22	100	S-3	3.25	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
	959.8	6 7 EOB	8 8 9	21	100	S-4	3.00	-	-	-	-	-	-	-	-	9	A-6a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00
TYPE: SUBGRADE
PID: 113579 SFN:
START: 8/31/23 END: 8/31/23

DRILLING FIRM / OPERATOR: DLZ / K.CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.5" SSA
SAMPLING METHOD: SPT

DRILL RIG: CME-75 397777 (DLZ)
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 149+78, 92' RT.
ALIGNMENT: MOT-75 CL
ELEVATION: 966.2 (MSL) EOB: 7.5 ft.
LAT / LONG: 39.626314, -84.229566

EXPLORATION ID B-052-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 966.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 7", Concrete - 10", Aggregate Base - 3"	964.5	1																	
HARD, BROWN, **SILT AND CLAY**, LITTLE GRAVEL, DAMP Fill	963.2	2	4 8 9	21	100	S-1	4.5+	13	10	20	32	25	34	20	14	11	A-6a (6)	180	
VERY STIFF, BROWN, **SILT AND CLAY**, LITTLE GRAVEL, SOME SAND, DAMP Possible fill	961.7	3 4	9 11 11	27	100	S-2	4.00	17	14	20	27	22	28	17	11	13	A-6a (3)	-	
VERY STIFF, BROWN TO DARK GRAY, **SILT AND CLAY**, SLIGHTLY ORGANIC, MOIST	960.2	5	8 7 9	19	-	S-3	3.00	-	-	-	-	-	-	-	-	20	A-6a (V)	-	
VERY STIFF, BROWN, **SILT AND CLAY**, MOIST	958.7	6 7 EOB	5 6 5	13	-	S-4	2.50	-	-	-	-	-	-	-	-	19	A-6a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR-75-11.56/MOT-75-00.00	DRILLING FIRM / OPERATOR: DLZ / K.CONRAD	DRILL RIG: CME-75 397777 (DLZ)	STATION / OFFSET: 154+08, 94' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: MOT-75 CL
PID: 113579 SFN:	DRILLING METHOD: 3.5" SSA	CALIBRATION DATE: 7/27/23	ELEVATION: 967.8 (MSL) EOB: 7.5 ft.
START: 8/21/23 END: 8/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 39.627497, -84.230217

EXPLORATION ID B-053-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 967.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
PAVEMENT AND BASE Asphalt - 8", Concrete - 9", Aggregate Base - 4"	966.0	1																	
DENSE, BROWN, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT**, DAMP Fill	964.8	2	16 17 14	37	67	S-1	-	40	17	15	17	11	17	12	5	7	A-2-4 (0)	260	
VERY STIFF TO HARD, LIGHT BROWN TO LIGHT GRAYISH BROWN, **SANDY SILT**, DAMP		3	10 10 12	27	100	S-2	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
		4	17 10 11	25	-	S-3	4.50	10	10	20	35	25	25	16	9	11	A-4a (5)	-	
	960.3	5	10 12 8	24	-	S-4	3.00	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		6 EOB																	
		7																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: WAR/MOT-75-11.56/0.00
TYPE: ROADWAY
PID: 113579 SFN:
START: 11/24/25 END: 11/24/25

LOG OF TEST PIT

LOGGER: ODOT / PAINTER
EQUIPMENT: Kobelco SK170

STATION / OFFSET:
ALIGNMENT: CL IR75
ELEVATION: 989.1 (MSL)
LAT / LONG: 39.604332, -84.235685

TEST PIT ID TP-028-1-25

ELEV. FT msl	DEPTH FT	HP (tsf)	MATERIAL DESCRIPTION AND NOTES	SAMPLE ID	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)
988.8			TOPSOIL - 3.5-INCHES											
988.0	1	3.50	VERY STIFF, GRAYISH BROWN, **SILT AND CLAY**, LITTLE STONE FRAGMENTS, LITTLE SAND, CONTAINS LIMESTONE COBBLES AND BOULDERS (MAX 2.5"X3.5"X4.5"), SLIGHLTY ORGANIC WITH ROOTS, DAMP	BS-1	-	-	-	-	-	-	-	-	11	A-6a (V)
986.0	2 3	3.00	VERY STIFF, MOTTLED BROWN AND GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE STONE FRAGMENTS, CONTAINS LIMESTONE COBBLES AND BOULDERS (MAX 12.0"X8.0"X3.5"), DAMP	BS-2	-	-	-	-	-	-	-	-	14	A-6a (V)
985.1	4	-	DENSE, BROWN, **STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, CONTAINS LIMESTONE COBBLES AND BOULDERS, DAMP	BS-3	-	-	-	-	-	-	-	-	6	A-2-6 (V)
984.8			**LIMESTONE**, LIGHT GRAY, HIGHLY WEATHERED, STRONG, THIN BEDDED, CRYSTALLINE.											
981.5	5 6 7	-	**SHALE**, OLIVE GRAY, HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, LAMINATED TO VERY THIN BEDDED, POORLY FISSILE.	BS-4	-	-	-	-	-	-	-	-	8	Rock (V)
981.2			**INTERBEDDED LIMESTONE (60%) AND SHALE (40%)**; **LIMESTONE**, LIGHT GRAY, MODERATELY WEATHERED, STRONG, THIN BEDDED; **SHALE**, OLIVE GRAY, HIGHLY WEATHERED, WEAK, LAMINATED TO VERY THIN BEDDED.											

NOTES: DRY AT COMPLETION; LAT/LONG/ELEV FROM OGE SURVEY GRADE INSTRUMENTS.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: WAR/MOT-75-11.56/0.00
TYPE: ROADWAY
PID: 113579 SFN:
START: 11/24/25 END: 11/24/25

LOG OF TEST PIT

LOGGER: ODOT / PAINTER
EQUIPMENT: Kobelco SK170

STATION / OFFSET:
ALIGNMENT: CL IR75
ELEVATION: 993.0 (MSL)
LAT / LONG: 39.604841, -84.235515

TEST PIT ID TP-029-2-25

ELEV. FT msl	DEPTH FT	HP (tsf)	MATERIAL DESCRIPTION AND NOTES	SAMPLE ID	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)
992.7			TOPSOIL 3.5-INCHES											
	1	3.50	VERY STIFF, GRAY AND BROWN, **SILT AND CLAY**, SOME SAND, LITTLE TO SOME STONE FRAGMENTS, TRACE ROOTS, DAMP	BS-1	-	-	-	-	-	-	-	-	14	A-6a (V)
991.5	2	4.5+	HARD, GRAY AND BROWN, **SILT AND CLAY**, TRACE STONE FRAGMENTS, TRACE ROOTS, RESIDUAL SOIL, DAMP	BS-2	-	-	-	-	-	-	-	-	13	A-6a (V)
989.5	3													
	4		**SHALE**, GRAY AND BROWN, HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, LAMINATED TO VERY THIN BEDDED, CONTAINS VERY THIN LIMESTONE LAYERS.											
987.7	5													
	6	-	**SHALE**, GRAYISH BROWN, HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, LAMINATED.	BS-3	-	-	-	-	-	-	-	-	9	Rock (V)
	7													
	8	-		BS-4	-	-	-	-	-	-	-	-	3	Rock (V)
983.9	9													

NOTES: DRY AT COMPLETION; LAT/LONG/ELEV FROM OGE SURVEY GRADE INSTRUMENTS.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: WAR/MOT-75-11.56/0.00
TYPE: ROADWAY
PID: 113579 SFN:
START: 11/24/25 END: 11/24/25

LOG OF TEST PIT

LOGGER: ODOT / PAINTER
EQUIPMENT: Kobelco SK170

STATION / OFFSET:
ALIGNMENT: CL IR75
ELEVATION: 996.3 (MSL)
LAT / LONG: 39.606688, -84.234954

TEST PIT ID
TP-033-1-25

ELEV. FT msl	DEPTH FT	HP (tsf)	MATERIAL DESCRIPTION AND NOTES	SAMPLE ID	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)
996.1			TOPSOIL 3.0-INCHES											
995.6		2.00	STIFF TO VERY STIFF, BROWN, **STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, SLIGHLTY ORGANIC WITH ROOTS, DAMP	BS-1	-	-	-	-	-	-	-	-	11	A-2-4 (V)
	1	-	**SHALE**, GRAY AND BLUEISH GRAY, MODERATELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, LAMINATED.	BS-2	-	-	-	-	-	-	-	-	8	Rock (V)
	2													
	3													
	4													
	5													
990.7														
	6		**SHALE**, GRAYISH PURPLE, MODERATELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, LAMINATED TO VERY THIN BEDDED, POORLY FISSILE.												
	7													
	8													
987.6		-		BS-3	-	-	-	-	-	-	-	-	8	Rock (V)

NOTES: DRY AT COMPLETION; LAT/LONG/ELEV FROM OGE SURVEY GRADE INSTRUMENTS.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PAVEMENT CORE SUMARY* & PAVEMENT CORE REPORTS*

*Mainline cores only (excludes cores for Ramp H and Ramp S borings - see individual boring logs for information)

Subject: PAVEMENT CORE SUMMARY
Project: WAR/MOT-75-11.56/0.00 PID 11357
Client: Carpenter Marty Transportation
Project No. 2321-3034.00
Date: 10/03/2023

Pavement Core ID	Alignment	Station & Offset	Latitude (DD)	Longitude (DD)	Pavement Materials Thickness (in.)		
					Asphalt	Concrete	Aggregate Base
B-001-0-23	WAR-75 CL	185+96,123 RT	39.581607	-84.24767	14	NA	5
B-004-0-23	WAR-75 CL	198+35,123 RT	39.584272	-84.24488	8	10	3
B-005-0-23	WAR-75 CL	202+22,-94 RT	39.585485	-84.24471	8	10	3
B-008-0-23	MOT-75 CL	5+87,93 RT	39.588014	-84.24193	8	10	3
B-009-0-23	MOT-75 CL	9+22,-123 RT	39.589104	-84.24205	8	10	3
B-012-0-23	MOT-75 CL	21+29,124 RT	39.591841	-84.23948	8	10	3
B-014-0-23	MOT-75 CL	24+62,95 RT	39.592729	-84.23915	7	10	4
B-015-0-23	MOT-75 CL	25+94,-93 LT	39.593247	-84.23962	7	9	2
B-017-0-23	MOT-75 CL	30+04,-122 LT	39.594330	-84.23927	8	10	3
B-020-0-23	MOT-75 CL	42+12,122 RT	39.597356	-84.23733	7	10	4
B-021-0-23	MOT-75 CL	45+77,-94 LT	39.598467	-84.23778	7	10	3
B-024-0-23	MOT-75 CL	57+65,93 RT	39.601524	-84.23617	7	10	5
B-025-0-23	MOT-75 CL	61+62,-93 LT	39.602700	-84.23648	8	10	NA
B-028-0-23	MOT-75 CL	67+12,92 RT	39.604054	-84.23540	6	11	3
B-029-0-23	MOT-75 CL	69+53,-95 LT	39.604817	-84.23585	8	10	2
B-032-0-23	MOT-75 CL	75+24,92 RT	39.606223	-84.23474	7	10	3
B-033-0-23	MOT-75 CL	77+06,-95 LT	39.606827	-84.23523	6	11	3
B-035-0-23	MOT-75 CL	83+26,94 RT	39.608484	-84.23472	7	9	4
B-038-0-23	MOT-75 CL	94+80,93 RT	39.611451	-84.23314	8	10	4
B-039-0-23	MOT-75 CL	98+64,-94 LT	39.612592	-84.23347	8	9	3
B-042-0-23	MOT-75 CL	110+53,93 RT	39.615656	-84.23185	9	10	4
B-043-0-23	MOT-75 CL	114+27,-122 LT	39.616792	-84.23229	8	10	3
B-044-0-23	MOT-75 CL	118+61,-95 LT	39.617933	-84.23184	7	10	NA
B-046-0-23	MOT-75 CL	126+09,132 RT	39.619799	-84.23048	8	11	2
B-047-0-23	MOT-75 CL	130+68,-122 LT	39.621170	-84.23102	8	10	3
B-048-0-23	MOT-75 CL	134+30,-94 LT	39.622126	-84.23071	7	10	3
B-049-0-23	MOT-75 CL	138+63,92 RT	39.623237	-84.22985	6	10	3
B-050-0-23	MOT-75 CL	142+34,123 RT	39.624251	-84.22961	8	10	2
B-051-0-23	MOT-75 CL	153+10,-122 LT	39.627228	-84.23032	7	10	2
B-052-0-23	MOT-75 CL	149+78,92 RT	39.626314	-84.22957	7	10	3
B-053-0-23	MOT-75 CL	154+08,-94 LT	39.627497	-84.23022	8	9	4
PAVEMENT CORES ONLY (NO BORING) LOCATED IN SHOULDER FOR MOT							
X-001-0-23	WAR-75 CL	190+29,-131 LT	39.582961	-84.24735	8	NA	3
X-002-0-23	WAR-75 CL	198+35,132 RT	39.584258	-84.24485	11	NA	3
X-003-0-23	WAR-75 CL	205+99,-88 LT	39.586332	-84.24396	11	NA	NA
X-004-0-23	WAR-75 CL	5+87,86 RT	39.588023	-84.24195	11	NA	3
X-005-0-23	WAR-75 CL	9+22,-133 LT	39.589115	-84.24208	10	NA	3
X-006-0-23	WAR-75 CL	21+29,133 RT	39.591831	-84.23945	12	NA	3
X-007-0-23	WAR-75 CL	23+87,-88 LT	39.592710	-84.23986	12	NA	NA

Subject: PAVEMENT CORE SUMMARY
Project: WAR/MOT-75-11.56/0.00 PID 11357
Client: Carpenter Marty Transportation
Project No. 2321-3034.00
Date: 10/03/2023

Pavement Core ID	Alignment	Station & Offset	Latitude (DD)	Longitude (DD)	Pavement Materials Thickness (in.)		
					Asphalt	Concrete	Aggregate Base
X-008-0-23	WAR-75 CL	30+03,-131 LT	39.594335	-84.23930	10	NA	2
X-009-0-23	WAR-75 CL	38+08,87 RT	39.596296	-84.23778	9	NA	2
X-010-0-23	WAR-75 CL	45+78,-87 LT	39.598465	-84.23776	12	NA	3
X-011-0-23	WAR-75 CL	53+52,87 RT	39.600423	-84.23652	13	NA	3
X-012-0-23	WAR-75 CL	64+19,87 RT	39.603274	-84.23565	12	NA	2
X-013-0-23	WAR-75 CL	69+54,-88 LT	39.604814	-84.23582	12	NA	2
X-014-0-23	WAR-75 CL	75+23,87 RT	39.606224	-84.23475	10	NA	3
X-015-0-23	WAR-75 CL	83+26,-88 LT	39.608481	-84.23470	9	NA	2
X-016-0-23	WAR-75 CL	90+92,87 RT	39.610416	-84.23348	11	NA	3
X-017-0-23	WAR-75 CL	98+63,-88 LT	39.612587	-84.23345	9	NA	2
X-018-0-23	WAR-75 CL	106+69,87 RT	39.614634	-84.23219	12	NA	3
X-019-0-23	WAR-75 CL	114+27,-132 LT	39.616798	-84.23233	10	NA	NA
X-020-0-23	WAR-75 CL	126+09,132 RT	39.619794	-84.23045	12	NA	3
X-021-0-23	WAR-75 CL	130+69,-133 LT	39.621175	-84.23105	10	NA	2
X-022-0-23	WAR-75 CL	142+34,132 RT	39.624249	-84.22957	12	NA	3
X-023-0-23	WAR-75 CL	153+10,-133 LT	39.627229	-84.23035	10	NA	2
X-024-0-23	WAR-75 CL	154+07,-88 LT	39.627493	-84.23019	11	NA	3

Core ID beginning with "B-" located in existing travel lane, except for B-001-0-23 which was located in paved shoulder
Core ID beginning with "X-" located in existing paved shoulder

Borings located on Ramps H and S (B-017-1-25, B-017-2-25, B-040-1-25) are excluded from this list.

ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/28/2023
CORE IDENTIFICATION:	B-001-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	14"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 185+96,123' RT
	Cored 14" of Asphalt over 3"-5"Aggregate Base (not shown)

PICTURE NO. 1

Borings located on Ramps H and S (B-017-1-25, B-017-2-25, B-040-1-25) are excluded from this list.

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/28/2023
CORE IDENTIFICATION:	B-004-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"

LOCATION &DESCRIPTION: WAR-75 CL STA. 198+35,123' RT

Cored 8" of Asphalt over 10" of Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	B-005-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"

LOCATION &DESCRIPTION: WAR-75 CL STA. 202+22,-94' LT

Cored 8" of Asphalt over 10" Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/29/2023
CORE IDENTIFICATION:	B-008-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"

LOCATION &DESCRIPTION: MOT-75 CL STA. 5+87,93' RT

Cored 8" of Asphalt over 10" of Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/25/2023
CORE IDENTIFICATION:	B-009-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 9+22,-123’ RT
	Cored 8” of Asphalt over 10” Concrete, over 3” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/28/2023
CORE IDENTIFICATION:	B-012-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 21+29, 124' RT
	Cored 8" of Asphalt over 10" concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/29/2023
CORE IDENTIFICATION:	B-014-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"

LOCATION &DESCRIPTION: MOT-75 CL STA. 24+62,95' RT

Cored 7" of Asphalt over 10" concrete, over 4" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	B-015-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	16"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 25+94,-93' LT
	Cored 7" of Asphalt over 9" Concrete, over 2" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/25/2023
CORE IDENTIFICATION:	B-017-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"

LOCATION &DESCRIPTION: MOT-75 CL STA. 30+04,-122 ' LT

Cored 8" of Asphalt over 10" of Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/28/2023
CORE IDENTIFICATION:	B-020-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"

LOCATION &DESCRIPTION: MOT-75 CL STA. 42+12,122’ RT

Cored 7” of Asphalt over 10” Concrete, over 4” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/23/2023
CORE IDENTIFICATION:	B-021-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 45+77,-94' LT
	Cored 7" of Asphalt over 10" of Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/30/2023
CORE IDENTIFICATION:	B-024-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"

LOCATION &DESCRIPTION: MOT-75 CL STA. 57+65,93' RT

Cored 7" of Asphalt over 10" Concrete, over 5" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/23/2023
CORE IDENTIFICATION:	B-025-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 61+62,-93' LT
	Cored 8" of Asphalt over 10" of Concrete (No Aggregate Base)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/30/2023
CORE IDENTIFICATION:	B-028-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"

LOCATION &DESCRIPTION: MOT-75 CL STA. 67+12,92 ' RT

Cored 6" of Asphalt over 11" Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	B-029-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 69+53,-95' LT
	Cored 8" of Asphalt over 10" Concrete, over 2" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/30/2023
CORE IDENTIFICATION:	B-032-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 75+24,92' RT
	Cored 7" of Asphalt over 10" Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	B-033-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 77+06,-95' LT
	Cored 6" of Asphalt over 11" of Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	B-035-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	16.0"

LOCATION &DESCRIPTION: MOT-75 CL STA. 83+26,94' RT

Cored 7" of Asphalt over 9" of Concrete, over 4" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/31/2023
CORE IDENTIFICATION:	B-038-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 94+80,93' RT
	Cored 8" of Asphalt over 10" Concrete, over 4" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	B-039-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"

LOCATION &DESCRIPTION: MOT-75 CL STA. 98+64,-94' LT

Cored 8" of Asphalt over 9" of Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/31/2023
CORE IDENTIFICATION:	B-042-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	19"

LOCATION &DESCRIPTION: MOT-75 CL STA. 110+53,93' RT

Cored 9" of Asphalt over 10" Concrete, over about 4" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/24/2023
CORE IDENTIFICATION:	B-043-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"

LOCATION &DESCRIPTION: MOT-75 CL STA. 114+27,-122’ LT

Cored 8” of Asphalt over 10” of Concrete, over 3” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/21/2023
CORE IDENTIFICATION:	B-044-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17”
LOCATION &DESCRIPTION:	MOT-75 CL STA. 118+61,-95’ RT
	Cored 7” of Asphalt over 10” of Concrete, (No Aggregate Base)

PICTURE NO. 1

DLZ
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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/29/2023
CORE IDENTIFICATION:	B-046-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	19"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 126+09,132' RT
	Cored 8" of Asphalt over 11" Concrete, over 2" Aggregate Base (not shown)

PICTURE NO. 1

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/24/2023
CORE IDENTIFICATION:	B-047-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"

LOCATION &DESCRIPTION: MOT-75 CL STA. 130+68,-122’ RT

Cored 8” of Asphalt over 10” of Concrete, over 3” Aggregate Base (not shown)

PICTURE NO. 1

DLZ
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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/21/2023
CORE IDENTIFICATION:	B-048-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17.0"

LOCATION &DESCRIPTION: MOT-75 CL STA. 134+30,-94' RT

Cored 7" of Asphalt over 10" of Concrete, over 3" Aggregate Base (not shown)

PICTURE NO. 1

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/31/2023
CORE IDENTIFICATION:	B-049-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	16"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 138+63,92’ RT
	Cored 6” of Asphalt over 10” Concrete, over 3.0” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/29/2023
CORE IDENTIFICATION:	B-050-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	18"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 142+34,123' RT
	Cored 8" of Asphalt over 10" Concrete, over 2" Aggregate Base (not shown)

PICTURE NO. 1

ENGINEERS • ARCHITECTS • SCIENTISTS
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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/24/2023
CORE IDENTIFICATION:	B-051-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"

LOCATION &DESCRIPTION: MOT-75 CL STA. 153+10,-122’ RT

Cored 7” of Asphalt over 10” of Concrete, over 1”-2” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/31/2023
CORE IDENTIFICATION:	B-052-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"

LOCATION &DESCRIPTION: MOT-75 CL STA. 149+78,92' RT

Cored 7" of Asphalt over 10" Concrete, over 3.0" Aggregate Base (not shown)

PICTURE NO. 1

DLZ
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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/21/2023
CORE IDENTIFICATION:	B-053-0-23
CORE DIAMETER:	4.75"
CORED TOTAL DEPTH:	17"
LOCATION &DESCRIPTION:	MOT-75 CL STA. 154+08,-94' LT
	Cored 8" of Asphalt over 9" Concrete, over 4" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/25/2023
CORE IDENTIFICATION:	X-001-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	8"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 190+29,-131' LT
	Cored 8" of Asphalt over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/28/2023
CORE IDENTIFICATION:	X-002-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	11"

LOCATION &DESCRIPTION: WAR-75 CL STA. 198+35,132’ RT

Cored 11” of Asphalt over 3.0” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/23/2023
CORE IDENTIFICATION:	X-003-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	11"

LOCATION &DESCRIPTION: WAR-75 CL STA. 205+99,-88’ RT

Cored 11” of Asphalt (Aggregate Base not recorded). Half of core broke up while coring.

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/29/2023
CORE IDENTIFICATION:	X-004-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	11"

LOCATION &DESCRIPTION: WAR-75 CL STA. 5+87,86' RT

Cored 11" of Asphalt over 3" Aggregate Base (not shown) Core broke apart during coring.

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/25/2023
CORE IDENTIFICATION:	X-005-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	10"

LOCATION &DESCRIPTION: WAR-75 CL STA. 9+22,-133’ RT

Cored 10” of Asphalt over 3” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/28/2023
CORE IDENTIFICATION:	X-006-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"

LOCATION &DESCRIPTION: WAR-75 CL STA. 21+29,133’ RT

Cored 12” of Asphalt over 3” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/23/2023
CORE IDENTIFICATION:	X-007-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 23+87,-88’ RT
	Cored 12” of Asphalt (Aggregate Base not recorded)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/25/2023
CORE IDENTIFICATION:	X-008-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	10"

LOCATION &DESCRIPTION: WAR-75 CL STA. 30+03,-131’ RT

Cored 10” of Asphalt over 2” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/30/2023
CORE IDENTIFICATION:	X-009-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	9"

LOCATION &DESCRIPTION: WAR-75 CL STA. 38+08,87' RT

Cored 9" of Asphalt over 2" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	X-010-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"

LOCATION &DESCRIPTION: WAR-75 CL STA. 45+78,-87’ RT

Cored 12” of Asphalt over 3” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/30/2023
CORE IDENTIFICATION:	X-011-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	13"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 53+52,87' RT
	Cored 13" of Asphalt over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/30/2023
CORE IDENTIFICATION:	X-012-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"
LOCATION &DESCRIPTION:	WAR-75 STA. 64+19,87’ RT
	Cored 12” of Asphalt over 2” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	X-013-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"
LOCATION &DESCRIPTION:	WAR-75 STA. 69+54,-88’ RT
	Cored 12” of Asphalt over 2” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/30/2023
CORE IDENTIFICATION:	X-014-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	10"

LOCATION &DESCRIPTION: WAR-75 CL STA. 75+23,87' RT

Cored 10" of Asphalt over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/22/2023
CORE IDENTIFICATION:	X-015-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	9"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 83+26,-88' LT
	Cored 9" of Asphalt over 2" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/31/2023
CORE IDENTIFICATION:	X-016-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	11"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 90+92,87' RT
	Cored 11" of Asphalt over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/23/2023
CORE IDENTIFICATION:	X-017-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	9”
LOCATION &DESCRIPTION:	WAR-75 CL STA. 98+63,-88’ LT
	Cored 9” of Asphalt over 2” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/31/2023
CORE IDENTIFICATION:	X-018-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 106+69,87' RT
	Cored 12" of Asphalt over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/24/2023
CORE IDENTIFICATION:	X-019-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	10"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 114+27,-132’ LT
	Cored 10” of Asphalt (Aggregate Base not recorded)

PICTURE NO. 1

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PLANNERS • SURVEYORS

PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/29/2023
CORE IDENTIFICATION:	X-020-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"

LOCATION &DESCRIPTION: WAR-75 CL STA. 126+09,132’ RT

Cored 12” of Asphalt over 3” Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/23/2023
CORE IDENTIFICATION:	X-021-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	10"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 130+69,-133' LT
	Cored 10" of Asphalt over 1"-2" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/29/2023
CORE IDENTIFICATION:	X-022-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	12"

LOCATION &DESCRIPTION: WAR-75 CL STA. 142+34,132' RT

Cored 12" of Asphalt over 3" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/24/2023
CORE IDENTIFICATION:	X-023-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	10"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 153+10,-133' LT
	Cored 10" of Asphalt over 2" Aggregate Base (not shown)

PICTURE NO. 1

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PROJECT:	WAR/MOT-75-11.56/0.00 PID 113579
CLIENT:	Carpenter Marty Transportation Inc.
PROJECT NO.:	2321-3034.00

DATE CORED:	08/21/2023
CORE IDENTIFICATION:	X-024-0-23
CORE DIAMETER:	3.5"
CORED TOTAL DEPTH:	11"
LOCATION &DESCRIPTION:	WAR-75 CL STA. 154+07,-88' LT
	Cored 11" of Asphalt over 3" Aggregate Base (not shown)

PICTURE NO. 1

EXPLORATION ID & LOCATION SUMMARY

Boring/Core ID	Alignment	Station , Offset	Latitude (N)	Longitude (E)	Elevation
B-001-0-23	WAR-75 CL	185+96 , 123 RT	39.581607	-84.247670	949.1
B-002-0-23	WAR-75 CL	190+29 , 77 LT	39.582865	-84.247204	946.1
B-003-0-23	WAR-75 CL	194+46 , 67 RT	39.583506	-84.245877	944.5
B-004-0-23	WAR-75 CL	198+35 , 123 RT	39.584272	-84.244880	942.9
B-005-0-23	WAR-75 CL	202+22 , 94 LT	39.585485	-84.244714	938.2
B-006-0-23	WAR-75 CL	205+98 , 79 LT	39.586317	-84.243938	930.4
B-007-0-23	MOT-75 CL	2+16 , 80 RT	39.587142	-84.242622	921.7
B-008-0-23	MOT-75 CL	5+87 , 93 RT	39.588014	-84.241929	915.4
B-009-0-23	MOT-75 CL	9+22 , 123 LT	39.589104	-84.242048	909.7
B-010-0-23	MOT-75 CL	13+30 , 77 LT	39.590045	-84.241265	904.3
B-011-0-23	MOT-75 CL	17+12 , 80 RT	39.590821	-84.240196	903.2
B-012-0-23	MOT-75 CL	21+29 , 124 RT	39.591841	-84.239480	904.8
B-013-0-23	MOT-75 CL	23+87 , 80 LT	39.592704	-84.239828	905.3
B-014-0-23	MOT-75 CL	24+62 , 95 RT	39.592729	-84.239154	906.7
B-015-0-23	MOT-75 CL	25+94 , 93 LT	39.593247	-84.239625	907.3
B-016-0-23	MOT-75 CL	26+76 , 78 RT	39.593305	-84.238955	906.7
B-017-0-23	MOT-75 CL	30+04 , 122 LT	39.594330	-84.239266	909.4
B-018-0-23	MOT-75 CL	34+20 , 80 LT	39.595382	-84.238704	913.2
B-019-0-23	MOT-75 CL	38+09 , 82 RT	39.596302	-84.237799	920.9
B-020-0-23	MOT-75 CL	42+12 , 122 RT	39.597356	-84.237329	929.6
B-021-0-23	MOT-75 CL	45+77 , 94 LT	39.598467	-84.237781	937.4
B-022-0-23	MOT-75 CL	49+74 , 82 LT	39.599521	-84.237414	945.1
B-023-0-23	MOT-75 CL	53+50 , 80 RT	39.600423	-84.236548	952.4
B-024-0-23	MOT-75 CL	57+65 , 93 RT	39.601524	-84.236167	961.6
B-025-0-23	MOT-75 CL	61+62 , 93 LT	39.602700	-84.236485	969.6
B-026-0-23	MOT-75 CL	64+18 , 82 RT	39.603276	-84.235672	974.5
B-027-0-23	MOT-75 CL	64+89 , 80 LT	39.603566	-84.236172	975.8
B-028-0-23	MOT-75 CL	67+12 , 92 RT	39.604054	-84.235398	981.0
B-029-0-23	MOT-75 CL	69+53 , 95 LT	39.604817	-84.235846	984.7
B-030-0-23	MOT-75 CL	71+22 , 82 RT	39.605157	-84.235097	986.2
B-031-0-23	MOT-75 CL	73+20 , 82 LT	39.605789	-84.235504	987.5
B-032-0-23	MOT-75 CL	75+24 , 92 RT	39.606223	-84.234738	988.8
B-033-0-23	MOT-75 CL	77+06 , 95 LT	39.606827	-84.235234	988.5
B-034-0-23	MOT-75 CL	79+16 , 82 RT	39.607278	-84.234450	986.9
B-035-0-23	MOT-75 CL	83+26 , 94 LT	39.608484	-84.234723	982.3
B-036-0-23	MOT-75 CL	86+98 , 83 LT	39.609470	-84.234383	974.3
B-037-0-23	MOT-75 CL	90+91 , 83 RT	39.610417	-84.233491	965.1
B-038-0-23	MOT-75 CL	94+80 , 93 RT	39.611451	-84.233139	957.4
B-039-0-23	MOT-75 CL	98+64 , 94 LT	39.612592	-84.233472	952.2
B-040-0-23	MOT-75 CL	102+73 , 82 LT	39.613683	-84.233094	950.2
B-040-0-23 offset	MOT-75 CL	102+57 , 83 LT	39.613641	-84.233110	950.6
B-041-0-23	MOT-75 CL	106+69 , 83 RT	39.614638	-84.232203	951.4
B-042-0-23	MOT-75 CL	110+53 , 93 RT	39.615656	-84.231855	953.4

Boring/Core ID	Alignment	Station , Offset	Latitude (N)	Longitude (E)	Elevation
B-043-0-23	MOT-75 CL	114+27 , 122 LT	39.616792	-84.232293	954.5
B-044-0-23	MOT-75 CL	118+61 , 95 LT	39.617933	-84.231844	956.1
B-045-0-23	MOT-75 CL	122+35 , 83 RT	39.618821	-84.230925	956.7
B-046-0-23	MOT-75 CL	126+09 , 123 RT	39.619799	-84.230484	958.4
B-047-0-23	MOT-75 CL	130+68 , 122 LT	39.621170	-84.231016	959.8
B-048-0-23	MOT-75 CL	134+30 , 94 LT	39.622126	-84.230709	961.4
B-049-0-23	MOT-75 CL	138+63 , 92 RT	39.623237	-84.229847	962.5
B-050-0-23	MOT-75 CL	142+34 , 123 RT	39.624251	-84.229606	963.7
B-051-0-23	MOT-75 CL	153+10 , 122 LT	39.627228	-84.230315	967.3
B-052-0-23	MOT-75 CL	149+78 , 92 RT	39.626314	-84.229566	966.2
B-053-0-23	MOT-75 CL	154+08 , 94 LT	39.627497	-84.230217	967.8
B-017-1-25	Ramp H	230+18 , 14 LT	39.594110	-84.238299	907.7
B-017-2-25	Ramp H	233+22 , 16 LT	39.594797	-84.237672	912.6
B-040-1-25	Ramp S	6+82 , 1 LT	39.614308	-84.233339	947.9
X-001-0-23	WAR-75 CL	190+29 , 131 LT	39.582961	-84.247352	947.0
X-002-0-23	WAR-75 CL	198+35 , 132 RT	39.584258	-84.244854	942.7
X-003-0-23	WAR-75 CL	205+99 , 88 LT	39.586332	-84.243965	931.4
X-004-0-23	MOT-75 CL	5+87 , 86 RT	39.588023	-84.241948	915.2
X-005-0-23	MOT-75 CL	9+22 , 133 LT	39.589115	-84.242079	909.4
X-006-0-23	MOT-75 CL	21+29 , 133 RT	39.591831	-84.239452	904.5
X-007-0-23	MOT-75 CL	23+87 , 88 LT	39.592710	-84.239856	905.9
X-008-0-23	MOT-75 CL	30+03 , 131 LT	39.594335	-84.239296	909.1
X-009-0-23	MOT-75 CL	38+08 , 87 RT	39.596296	-84.237784	921.2
X-010-0-23	MOT-75 CL	45+78 , 87 LT	39.598465	-84.237756	937.2
X-011-0-23	MOT-75 CL	53+52 , 87 RT	39.600423	-84.236523	953.1
X-012-0-23	MOT-75 CL	64+19 , 87 RT	39.603274	-84.235655	975.0
X-013-0-23	MOT-75 CL	69+54 , 88 LT	39.604814	-84.235822	984.8
X-014-0-23	MOT-75 CL	75+23 , 87 RT	39.606224	-84.234755	988.6
X-015-0-23	MOT-75 CL	83+26 , 88 LT	39.608481	-84.234703	982.3
X-016-0-23	MOT-75 CL	90+92 , 87 RT	39.610416	-84.233477	965.8
X-017-0-23	MOT-75 CL	98+63 , 88 LT	39.612587	-84.233451	952.1
X-018-0-23	MOT-75 CL	106+69 , 87 RT	39.614634	-84.232188	951.9
X-019-0-23	MOT-75 CL	114+27 , 132 LT	39.616798	-84.232327	954.1
X-020-0-23	MOT-75 CL	126+09 , 132 RT	39.619794	-84.230454	958.1
X-021-0-23	MOT-75 CL	130+69 , 133 LT	39.621175	-84.231052	959.4
X-022-0-23	MOT-75 CL	142+34 , 132 RT	39.624249	-84.229574	963.5
X-023-0-23	MOT-75 CL	153+10 , 133 LT	39.627229	-84.230352	967.0
X-024-0-23	MOT-75 CL	154+07 , 88 LT	39.627493	-84.230195	967.7

SURFACE MATERIAL THICKNESS & TOP OF ROCK SUMMARY

Boring ID	Pavement Materials Thickness (in)			Topsoil Thickness (in)	Fill/Possible Depth @ Bottom (ft)	Top of Rock, Depth (ft)	Total Boring Depth (ft)
	Asphalt	Concrete	Agg. Base				
B-001-0-23	14	NA	5	NA	NA	NA	7.5
B-002-0-23	NA	NA	NA	4	7.0	NA	7.0
B-003-0-23	NA	NA	NA	5	4.0	NA	7.0
B-004-0-23	8	10	3	NA	3.0	NA	7.5
B-005-0-23	8	10	3	NA	NA	5.3	6.5
B-006-0-23	NA	NA	NA	4	NA	2.5	5.8
B-007-0-23	NA	NA	NA	4	4.0	NA	7.0
B-008-0-23	8	10	3	NA	6.0	NA	7.5
B-009-0-23	8	10	3	NA	NA	NA	7.5
B-010-0-23	NA	NA	NA	5	4.0	NA	7.0
B-011-0-23	NA	NA	NA	5	4.0	NA	7.0
B-012-0-23	8	10	3	NA	7.5	NA	7.5
B-013-0-23	NA	NA	NA	4	7.0	NA	7.0
B-014-0-23	7	10	4	NA	6.0	NA	7.5
B-015-0-23	7	9	2	NA	3.0	NA	7.5
B-016-0-23	NA	NA	NA	4	2.5	5.5	7.0
B-017-0-23	8	10	3	NA	4.5	NA	7.5
B-018-0-23	NA	NA	NA	10	4.0	NA	7.0
B-019-0-23	NA	NA	NA	4	4.0	NA	7.0
B-020-0-23	7	10	4	NA	6.0	NA	7.5
B-021-0-23	7	10	3	NA	3.0	NA	7.5
B-022-0-23	NA	NA	NA	5	4.0	NA	7.0
B-023-0-23	NA	NA	NA	4	2.5	NA	7.0
B-024-0-23	7	10	5	NA	4.5	NA	7.5
B-025-0-23	8	10	NA	NA	3.0	NA	7.5
B-026-0-23	NA	NA	NA	4	2.5	NA	7.0
B-027-0-23	NA	NA	NA	5	2.5	4.0	7.0
B-028-0-23	6	11	3	NA	NA	1.7	4.3
B-029-0-23	8	10	2	NA	NA	1.7	3.1
B-030-0-23	NA	NA	NA	3	2.5	2.5	4.1
B-031-0-23	NA	NA	NA	5	NA	0.4	4.5
B-032-0-23	7	10	3	NA	NA	3.5	4.6
B-033-0-23	6	11	3	NA	NA	1.7	3.1

Boring ID	Pavement Materials Thickness (in)			Topsoil Thickness (in)	Fill/Possible Depth @ Bottom (ft)	Top of Rock, Depth (ft)	Total Boring Depth (ft)
	Asphalt	Concrete	Agg. Base				
B-034-0-23	NA	NA	NA	5	1.5	0.4	6.7
B-035-0-23	7	9	4	NA	NA	1.7	7.5
B-036-0-23	NA	NA	NA	6	4.0	4.0	7.0
B-037-0-23	NA	NA	NA	5	2.5	5.5	7.0
B-038-0-23	8	10	4	NA	4.5	NA	7.5
B-039-0-23	8	9	3	NA	3.5	3.5	7.5
B-040-0-23	NA	NA	NA	8	4.0	NA	7.0
B-040-0-23 offset	NA	NA	NA	NA	NA	NA	7.0
B-041-0-23	NA	NA	NA	5	2.5	NA	7.0
B-042-0-23	9	10	4	NA	3.0	NA	7.5
B-043-0-23	8	10	3	NA	NA	6.0	7.5
B-044-0-23	7	10	NA	NA	4.5	6.0	7.5
B-045-0-23	NA	NA	NA	5	4.0	NA	7.0
B-046-0-23	8	11	2	NA	4.5	NA	7.5
B-047-0-23	8	10	3	NA	3.0	NA	7.5
B-048-0-23	7	10	3	NA	3.0	NA	7.5
B-049-0-23	6	10	3	NA	6.0	NA	7.5
B-050-0-23	8	10	2	NA	4.5	NA	7.5
B-051-0-23	7	10	2	NA	3.0	NA	7.5
B-052-0-23	7	10	3	NA	4.5	NA	7.5
B-053-0-23	8	9	4	NA	3.0	NA	7.5
B-017-1-25*	11	NA	8	NA	7.0	NA	7.0
B-017-2-25*	11	NA	8	NA	7.0	NA	7.0
B-040-1-25*	14	NA	6	NA	7.0	NA	7.0
X-001-0-23	8	NA	3	NA	NA	NA	NA
X-002-0-23	11	NA	3	NA	NA	NA	NA
X-003-0-23	11	NA	NA	NA	NA	NA	NA
X-004-0-23	11	NA	3	NA	NA	NA	NA
X-005-0-23	10	NA	3	NA	NA	NA	NA
X-006-0-23	12	NA	3	NA	NA	NA	NA
X-007-0-23	12	NA	NA	NA	NA	NA	NA
X-008-0-23	10	NA	2	NA	NA	NA	NA
X-009-0-23	9	NA	2	NA	NA	NA	NA

*located along Ramp H
** located along Ramp S

Boring ID	Pavement Materials Thickness (in)			Topsoil Thickness (in)	Fill/Possible Depth @ Bottom (ft)	Top of Rock, Depth (ft)	Total Boring Depth (ft)
	Asphalt	Concrete	Agg. Base				
X-010-0-23	12	NA	3	NA	NA	NA	NA
X-011-0-23	13	NA	3	NA	NA	NA	NA
X-012-0-23	12	NA	2	NA	NA	NA	NA
X-013-0-23	12	NA	2	NA	NA	NA	NA
X-014-0-23	10	NA	3	NA	NA	NA	NA
X-015-0-23	9	NA	2	NA	NA	NA	NA
X-016-0-23	11	NA	3	NA	NA	NA	NA
X-017-0-23	9	NA	2	NA	NA	NA	NA
X-018-0-23	12	NA	3	NA	NA	NA	NA
X-019-0-23	10	NA	NA	NA	NA	NA	NA
X-020-0-23	12	NA	3	NA	NA	NA	NA
X-021-0-23	10	NA	2	NA	NA	NA	NA
X-022-0-23	12	NA	3	NA	NA	NA	NA
X-023-0-23	10	NA	2	NA	NA	NA	NA
X-024-0-23	11	NA	3	NA	NA	NA	NA

APPENDIX II

Sulfate Reports
LOI Reports

DLZ

Sulfate Content Report

PROJECT NAME: WAR-MOT-75 | PROJECT NO.: 2321-3034.00 | SHEET: | OF:

CLIENT: Caroenter Marty | PROCEDURE: ODOT Supplement 1122 | COMP. BY: KK | DATE: 10/9/2023

Boring No.	Sample No.	Depth	Initial Can No.	Can No. / Weight	Can No. / Weight	Bottle No.	Beaker No.	Readings w/Dilution 1	2	3	Dilution Ratio (As Whole # Ex. 1:20 = 20)	Average (ppm)	Actual (ppm) (Avg x Ratio)
B-001-0-23	S-1	1.5-3	Pan	Bottle 16 / 20.01		16	1024	8	8	9	20	8	170
B-002-0-23	S-1	1-2.5	Pan	Bottle 5 / 20.02		5	1015A	17	18	18	20	18	350
B-003-0-23	S-1	1.0-4.0	Pan	Bottle 2 / 20.01		2	1004	59	58	59	40	59	2300
B-004-0-23	S-1	1.5-3	Pan	Bottle 14 / 20.03		14	1001	9	9	9	20	9	180
B-005-0-23	S-1	1.5-3	Pan	Bottle 16 / 20.03		16	A	8	8	8	20	8	160
B-006-0-23	S-1	1-2.5	Pan	Bottle 18 / 20.00		18	1011	12	12	12	20	12	240
B-007-0-23	S-1	1-2.5	Pan	Bottle 8 / 20.02		8	Z	16	16	16	20	16	320
B-008-0-23	S-1	1.5-3	Pan	Bottle 17 / 20.00		17	A	13	13	14	20	13	270
B-009-23-0	S-1	1-2.5	Pan	Bottle 22 / 20.01		22	1010	9	9	10	20	9	190
B-010-0-23	S-1	1-2.5	Pan	Bottle 10 / 20.00		10	1017	25	24	25	20	25	490

Remarks:

DLZ

Sulfate Content Report

PROJECT NAME: WAR-MOT-75 | PROJECT NO.: 2321-3034.00 | SHEET: | OF:

CLIENT: Caroenter Marty | PROCEDURE: ODOT Supplement 1122 | COMP. BY: KK | DATE: 10/9/2023

Boring No.	Sample No.	Depth	Initial Can No.	Can No. / Weight	Can No. / Weight	Bottle No.	Beaker No.	Readings w/Dilution 1	2	3	Dilution Ratio (As Whole # Ex. 1:20 = 20)	Average (ppm)	Actual (ppm) (Avg x Ratio)
B-011-0-23	S-1	1-2.5	Pan	Bottle 2 / 20.02		2	1003A	14	14	15	20	14	290
B-012-0-23	S-1	1.5-3	Pan	Bottle 6 / 20.03		6	1017	13	13	13	20	13	260
B-013-0-23	S-1	1-2.5	Pan	Bottle 1 / 20.02		1	1003B	17	17	17	20	17	340
B-014-0-23	S-1	1.5-3	Pan	Bottle 15 / 20.00		15	1023	45	45	45	20	45	900
B-015-0-23	S-1	3-4.5	Pan	Bottle 9 / 20.02		9	1006	10	10	10	20	10	200
B-016-0-23	S-1	1-2.5	Pan	Bottle 18 / 20.00		18	1021	56	56	56	20	56	1100
B-017-0-23	S-1	1.5-3	Pan	Bottle 5 / 20.03		5	1014	8	8	8	20	8	160
B-018-0-23	S-1	1-2.5	Pan	Bottle 7 / 20.02		7	1010	14	15	15	20	15	290
B-019-23-0	S-1	1-2.5	Pan	Bottle 16 / 20.02		16	1024	8	9	9	20	9	170
B-020-0-23	S-1	1.5-3	Pan	Bottle 17 / 20.02		17	1002	11	11	11	20	11	220

Remarks:

DLZ

Sulfate Content Report

PROJECT NAME: WAR-MOT-75 | PROJECT NO.: 2321-3034.00 | SHEET: | OF:

CLIENT: Caroenter Marty | PROCEDURE: ODOT Supplement 1122 | COMP. BY: KK | DATE: 10/9/2023

Boring No.	Sample No.	Depth	Initial Can No.	Can No. / Weight	Can No. / Weight	Bottle No.	Beaker No.	Readings w/Dilution 1	2	3	Dilution Ratio (As Whole # Ex. 1:20 = 20)	Average (ppm)	Actual (ppm) (Avg x Ratio)
B-021-0-23	S-1	1.5-3	Pan	Bottle 7 / 20.01		7	1005	9	9	9	20	9	180
B-022-0-23	S-1	1-2.5	Pan	Bottle 19 / 20.00		19	1001	18	18	18	20	18	360
B-023-0-23	S-1	1-2.5	Pan	Bottle 1 / 20.01		1	1014	18	17	18	20	18	350
B-024-0-23	S-1	1.5-3	Pan	Bottle 13 / 20.00		13	1003A	8	9	9	20	9	170
B-025-0-23	S-1	1.5-3	Pan	Bottle 19 / 20.05		19	10154	7	8	8	20	8	150
B-026-0-23	S-1	1-2.5	Pan	Bottle 12 / 20.00		12	1021	7	7	8	20	7	150
B-027-0-23	S-1	1-7	Pan	Bottle 21 / 20.02		21	1020	10	10	11	20	10	210
B-030-0-23	S-1	1-2.5	Pan	Bottle 20 / 20.01		20	1008	6	6	6	20	6	120
B-032-23-0	S-1	3-3.8	Pan	Bottle 20 / 20.02		20	1011	41	42	42	20	42	830
B-036-0-23	S-1	1-2.5	Pan	Bottle 14 / 20.01		14	1018	11	11	11	20	11	220

Remarks:

DLZ

Sulfate Content Report

PROJECT NAME: WAR-MOT-75 | PROJECT NO.: 2321-3034.00 | SHEET: | OF:

CLIENT: Caroenter Marty | PROCEDURE: ODOT Supplement 1122 | COMP. BY: KK | DATE: 10/9/2023

Boring No.	Sample No.	Depth	Initial Can No.	Can No. / Weight	Can No. / Weight	Bottle No.	Beaker No.	Readings w/Dilution 1	2	3	Dilution Ratio (As Whole # Ex. 1:20 = 20)	Average (ppm)	Actual (ppm) (Avg x Ratio)
B-037-0-23	S-1	1-2.5	Pan	Bottle 1		1	1020	8	8	8	20	8	160
				20.01									
B-038-0-23	S-1	1-3	Pan	Bottle 17		17	1021	11	11	11	20	11	220
				20.01									
B-039-0-23	S-1	1.5-3	Pan	Bottle 5		5	1008	7	7	7	20	7	140
				20.02									
B-040-0-23	S-1	1-2.5	Pan	Bottle 10		10	1018	9	9	9	20	9	180
				20.01									
B-041-0-23	S-1	1-2.5	Pan	Bottle 6		6	1007	9	9	10	20	9	190
				20.02									
B-042-0-23	S-1	1-3	Pan	Bottle 7		7	1006	10	10	10	20	10	200
				20.01									
B-043-0-23	S-1	1.5-3	Pan	Bottle 4		4	1023	6	6	6	20	6	120
				20.02									
B-044-0-23	S-1	1.5-3	Pan	Bottle 9		9	1003B	8	8	8	20	8	160
				20.02									
B-045-23-0	S-1	1-2.5	Pan	Bottle 9		9	1011	9	9	9	20	9	180
				20.02									
B-046-0-23	S-1	1.5-3	Pan	Bottle 6		6	1016	9	9	9	20	9	180
				20.02									

Remarks:

DLZ

Sulfate Content Report

PROJECT NAME: WAR-MOT-75 | PROJECT NO.: 2321-3034.00 | SHEET: ____ OF: ____

CLIENT: Caroenter Marty | PROCEDURE: ODOT Supplement 1122 | COMP. BY: KK | DATE: 10/9/2023

Boring No.	Sample No.	Depth	Initial Can No.	Can No. / Weight	Can No. / Weight	Bottle No.	Beaker No.	Readings w/Dilution 1	2	3	Dilution Ratio (As Whole # Ex. 1:20 = 20)	Average (ppm)	Actual (ppm) (Avg x Ratio)
B-047-0-23	S-1	1-3	Pan	Bottle 4 / 20.01		4	1008	42	43	43	20	43	850
B-048-0-23	S-1	1-3	Pan	Bottle 21 / 20.00		21	1020	7	7	7	20	7	140
B-049-0-23	S-1	1.5-3	Pan	Bottle 14 / 20.01		14	1007	11	11	11	20	11	220
B-050-0-23	S-1	1.5-3	Pan	Bottle 13 / 20.10		13	1013	7	7	7	20	7	140
B-051-0-23	S-1	1.5-3	Pan	Bottle 10 / 20.08		10	1012	6	6	6	20	6	120
B-052-0-23	S-1	1.5-3	Pan	Bottle 12 / 20.00		12	Z	9	9	9	20	9	180
B-053-0-23	S-1	1.5-3	Pan	Bottle 15 / 20.01		15	1013	13	13	13	20	13	260

Remarks: _____

DLZ

Sulfate Content Report

PROJECT NAME: WAR-MOT-75 | PROJECT NO.: 2321-3034.00 | SHEET 1 OF 1

CLIENT: Carpenter Marty Transportation | PROCEDURE: ODOT Supplement 1122 | COMP. BY: PF/MN | DATE: 5/30/2025

Boring No.	Sample No.	Depth	Initial Can No.	Can No. / Weight	Can No. / Weight	Bottle No.	Beaker No.	Readings w/Dilution 1	2	3	Dilution Ratio (As Whole # Ex. 1:20 = 20)	Average (ppm)	Actual (ppm) (Avg x Ratio)
B-017-1-25	S-1	1.0'-2.5'	522	110 / 20.00		9	1015	51	51	51	40	51	2000
B-017-2-25	S-1	1.0'-2.5'	310	46 / 20.06		18	1018	54	54	54	20	54	1100
B-040-1-25	S-1	1.0'-2.5'	517	168 / 20.00		8	1007	8	9	9	20	9	180

Remarks:

6121 Huntley Road
Columbus, Ohio 43229-1003
(614) 888-0040

DLZ-081
Created 03/13/2013
Rev.01 09/26/2013

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.: 2321-3034.00

Client: Carpenter Marty

Project Name: War-Mot-75

Date: 10/13/2023

Boring No. **B-019-0-23**

Sample No. **S-2**

Depth: **2.5'-4'**

Muffle Furnace Crucible ID:	L
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	73.99
Mass of crucible (B)	49.24
Mass of oven dry soil (C)	24.75
Mass of sample & crucible after ashed in muffle furnace (D)	72.59
Mass of crucible (B)	49.24
Mass of ashed soil sample (E)	23.35
Loss on Ignition = (C - E) / C * 100 =	**5.66**

Container Number:	228
Wet Wt. + Container	118.64
Dry Wt. + Container	109.74
Wt. of Container	59.55
Dry Wt. of Soil	50.19
Moisture Content (%)	17.7

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3034.00	Boring No.	**B-024-0-23**
Client:	Carpenter Marty	Sample No.	**S-3**
Project Name:	War-Mot-75	Depth:	**4.5'-6'**
Date:	10/13/2023		

Muffle Furnace Crucible ID:	E
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	87.99
Mass of crucible (B)	50.71
Mass of oven dry soil (C)	37.28
Mass of sample & crucible after ashed in muffle furnace (D)	86.71
Mass of crucible (B)	50.71
Mass of ashed soil sample (E)	36.00
Loss on Ignition = (C - E) / C * 100 =	**3.43**

Container Number:	201
Wet Wt. + Container	190.36
Dry Wt. + Container	167.78
Wt. of Container	61.60
Dry Wt. of Soil	106.18
Moisture Content (%)	21.3

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3034.00	Boring No.	**B-025-0-23**
Client:	Carpenter Marty	Sample No.	**S-3**
Project Name:	War-Mot-75	Depth:	**4.5'-6'**
Date:	10/13/2023		

Muffle Furnace Crucible ID:	J
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	90.04
Mass of crucible (B)	73.70
Mass of oven dry soil (C)	16.34
Mass of sample & crucible after ashed in muffle furnace (D)	88.89
Mass of crucible (B)	73.70
Mass of ashed soil sample (E)	15.19
Loss on Ignition = (C - E) / C * 100 =	**7.04**

Container Number:	497
Wet Wt. + Container	111.69
Dry Wt. + Container	99.33
Wt. of Container	62.60
Dry Wt. of Soil	36.73
Moisture Content (%)	33.7

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.: 2321-3034.00

Client: Carpenter Marty

Project Name: War-Mot-75

Date: 10/13/2023

Boring No. **B-042-0-23**

Sample No. **S-3A**

Depth: **4.5'-6'**

Muffle Furnace Crucible ID:	G
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	63.79
Mass of crucible (B)	50.48
Mass of oven dry soil (C)	13.31
Mass of sample & crucible after ashed in muffle furnace (D)	63.30
Mass of crucible (B)	50.48
Mass of ashed soil sample (E)	12.82
Loss on Ignition = (C - E) / C * 100 =	**3.68**

Container Number:	388
Wet Wt. + Container	134.06
Dry Wt. + Container	119.00
Wt. of Container	61.96
Dry Wt. of Soil	57.04
Moisture Content (%)	26.4

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3034.00	Boring No.	**B-043-0-23**
Client:	Carpenter Marty	Sample No.	**S-3**
Project Name:	War-Mot-75	Depth:	**4.5'-5.5'**
Date:	10/13/2023		

Muffle Furnace Crucible ID:	A
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	67.01
Mass of crucible (B)	50.86
Mass of oven dry soil (C)	16.15
Mass of sample & crucible after ashed in muffle furnace (D)	66.26
Mass of crucible (B)	50.86
Mass of ashed soil sample (E)	15.40
Loss on Ignition = (C - E) / C * 100 =	**4.64**

Container Number:	325
Wet Wt. + Container	111.82
Dry Wt. + Container	100.76
Wt. of Container	59.76
Dry Wt. of Soil	41.00
Moisture Content (%)	27.0

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3034.00	Boring No.	**B-044-0-23**
Client:	Carpenter Marty	Sample No.	**S-3**
Project Name:	War-Mot-75	Depth:	**4.5'-6'**
Date:	10/13/2023		

Muffle Furnace Crucible ID:	N
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	91.44
Mass of crucible (B)	71.72
Mass of oven dry soil (C)	19.72
Mass of sample & crucible after ashed in muffle furnace (D)	90.77
Mass of crucible (B)	71.72
Mass of ashed soil sample (E)	19.05
Loss on Ignition = (C - E) / C * 100 =	**3.40**

Container Number:	534
Wet Wt. + Container	142.22
Dry Wt. + Container	126.25
Wt. of Container	62.73
Dry Wt. of Soil	63.52
Moisture Content (%)	25.1

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3034.00	Boring No.	**B-045-0-23**
Client:	Carpenter Marty	Sample No.	**S-2**
Project Name:	War-Mot-75	Depth:	**2.5'-4'**
Date:	10/18/2023		

Muffle Furnace Crucible ID:	P
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	80.50
Mass of crucible (B)	52.60
Mass of oven dry soil (C)	27.90
Mass of sample & crucible after ashed in muffle furnace (D)	79.67
Mass of crucible (B)	52.60
Mass of ashed soil sample (E)	27.07
Loss on Ignition = (C - E) / C * 100 =	**2.97**

Container Number:	368
Wet Wt. + Container	188.56
Dry Wt. + Container	179.22
Wt. of Container	62.48
Dry Wt. of Soil	116.74
Moisture Content (%)	8.0

DLZ

APPENDIX III

Subgrade Analysis – Mainline
Subgrade Analysis – Ramp H
Subgrade Analysis – Ramp S

Fig. 600-1 – Subgrade Stabilization

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Design Manual Section 600

WAR/MOT-75-11.56/0.00
113579

PART 1 - 3.37 miles of pavement subgrade exploration for roadway widening into median and full depth pavement replacement

DLZ Ohio, Inc.

Prepared By: Jeff Chou
Date prepared: Tuesday, October 29, 2024

CHECKED BY HJH 10/30/2024

Jeff Chou
6121 Huntley Rd
Columbus, OH 43229

614-888-0040
jchou@dlz.com

NO. OF BORINGS: 53

NOTE: ANALYSIS CONSIDERS PROPOSED PAVEMENT SUBGRADE ELEVATION OF WIDENING (SAME SIDE AS BORING, I.E. NB OR SB) USING DESIGN PAVEMENT THICKNESS OF 22.25".

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-23	WAR-75 CL	185+96	123	Rt	cme-75 397777 (DLZ)	73	949.1	947.4	1.7 C
2	B-002-0-23	WAR-75 CL	190+29	77	Lt	cme-75 397777 (DLZ)	73	946.1	946.1	0.0 F
3	B-003-0-23	WAR-75 CL	194+46	67	Rt	cme-75 397777 (DLZ)	73	944.5	944.3	0.2 C
4	B-004-0-23	WAR-75 CL	198+35	123	Rt	cme-75 397777 (DLZ)	73	942.9	941.5	1.4 C
5	B-005-0-23	WAR-75 CL	202+22	94	Lt	cme-75 397777 (DLZ)	73	938.2	937.1	1.1 C
6	B-006-0-23	WAR-75 CL	205+98	79	Lt	cme-75 397777 (DLZ)	73	930.4	930.5	0.1 F
7	B-007-0-23	MOT-75 CL	2+16	80	Rt	cme-75 397777 (DLZ)	73	921.7	921.1	0.6 C
8	B-008-0-23	MOT-75 CL	5+87	93	Rt	cme-75 397777 (DLZ)	73	915.4	913.8	1.6 C
9	B-009-0-23	MOT-75 CL	9+22	123	Lt	cme-75 397777 (DLZ)	73	909.7	908.8	0.9 C
10	B-010-0-23	MOT-75 CL	13+30	77	Lt	cme-75 397777 (DLZ)	73	904.3	904.6	0.3 F
11	B-011-0-23	MOT-75 CL	17+12	80	Rt	cme-75 397777 (DLZ)	73	903.2	902.7	0.5 C
12	B-012-0-23	MOT-75 CL	21+29	124	Rt	cme-75 397777 (DLZ)	73	904.8	903.6	1.2 C
13	B-013-0-23	MOT-75 CL	23+87	80	Lt	cme-75 397777 (DLZ)	73	905.3	905.3	0.0 C
14	B-014-0-23	MOT-75 CL	24+62	95	Rt	cme-75 397777 (DLZ)	73	906.7	905.2	1.5 C
15	B-015-0-23	MOT-75 CL	25+94	93	Lt	cme-75 397777 (DLZ)	73	907.3	906.3	1.0 C
16	B-016-0-23	MOT-75 CL	26+76	78	Rt	cme-75 397777 (DLZ)	73	906.7	906.3	0.4 C
17	B-017-0-23	MOT-75 CL	30+04	122	Lt	cme-75 397777 (DLZ)	73	909.4	908.4	1.0 C
18	B-018-0-23	MOT-75 CL	34+20	80	Lt	cme-75 397777 (DLZ)	73	913.2	912.8	0.4 C
19	B-019-0-23	MOT-75 CL	38+09	82	Rt	cme-75 397777 (DLZ)	73	920.9	919.0	1.9 C
20	B-020-0-23	MOT-75 CL	42+12	122	Rt	cme-75 397777 (DLZ)	73	929.6	927.0	2.6 C
21	B-021-0-23	MOT-75 CL	45+77	94	Lt	cme-75 397777 (DLZ)	73	937.4	935.9	1.5 C
22	B-022-0-23	MOT-75 CL	49+74	82	Lt	cme-75 397777 (DLZ)	73	945.1	944.1	1.0 C
23	B-023-0-23	MOT-75 CL	53+50	80	Rt	cme-75 397777 (DLZ)	73	952.4	951.7	0.7 C
24	B-024-0-23	MOT-75 CL	57+65	93	Rt	cme-75 397777 (DLZ)	73	961.6	960.2	1.4 C
25	B-025-0-23	MOT-75 CL	61+62	93	Lt	cme-75 397777 (DLZ)	73	969.6	968.4	1.2 C
26	B-026-0-23	MOT-75 CL	64+18	82	Rt	cme-75 397777 (DLZ)	73	974.5	973.7	0.8 C
27	B-027-0-23	MOT-75 CL	64+89	80	Lt	cme-75 397777 (DLZ)	73	975.8	975.1	0.7 C
28	B-028-0-23	MOT-75 CL	67+12	92	Rt	cme-75 397777 (DLZ)	73	981.0	979.6	1.4 C
29	B-029-0-23	MOT-75 CL	69+53	95	Lt	cme-75 397777 (DLZ)	73	984.7	983.3	1.4 C
30	B-030-0-23	MOT-75 CL	71+22	82	Rt	cme-75 397777 (DLZ)	73	986.2	985.2	1.0 C
31	B-031-0-23	MOT-75 CL	73+20	82	Lt	cme-75 397777 (DLZ)	73	987.5	986.6	0.9 C
32	B-032-0-23	MOT-75 CL	75+24	92	Rt	cme-75 397777 (DLZ)	73	988.8	987.2	1.6 C
33	B-033-0-23	MOT-75 CL	77+06	95	Lt	cme-75 397777 (DLZ)	73	988.5	986.9	1.6 C
34	B-034-0-23	MOT-75 CL	79+16	82	Rt	cme-75 397777 (DLZ)	73	986.9	985.9	1.0 C
35	B-035-0-23	MOT-75 CL	83+26	94	Lt	cme-75 397777 (DLZ)	73	982.3	980.7	1.6 C
36	B-036-0-23	MOT-75 CL	86+98	83	Lt	cme-75 397777 (DLZ)	73	974.3	973.2	1.1 C
37	B-037-0-23	MOT-75 CL	90+91	83	Rt	cme-75 397777 (DLZ)	73	965.1	964.5	0.6 C
38	B-038-0-23	MOT-75 CL	94+80	93	Rt	cme-75 397777 (DLZ)	73	957.4	956.0	1.4 C
39	B-039-0-23	MOT-75 CL	98+64	94	Lt	cme-75 397777 (DLZ)	73	952.2	950.7	1.5 C
40	B-040-0-23	MOT-75 CL	102+73	82	Lt	cme-75 397777 (DLZ)	73	950.2	949.3	0.9 C
41	B-041-0-23	MOT-75 CL	106+69	83	Rt	cme-75 397777 (DLZ)	73	951.4	950.7	0.7 C
42	B-042-0-23	MOT-75 CL	110+53	93	Rt	cme-75 397777 (DLZ)	73	953.4	952.0	1.4 C
43	B-043-0-23	MOT-75 CL	114+27	122	Lt	cme-75 397777 (DLZ)	73	954.5	953.1	1.4 C
44	B-044-0-23	MOT-75 CL	118+61	95	Lt	cme-75 397777 (DLZ)	73	956.1	954.6	1.5 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
45	B-045-0-23	MOT-75 CL	122+35	83	Rt	cme-75 397777 (DLZ)	73	956.7	955.9	0.8 C
46	B-046-0-23	MOT-75 CL	126+09	123	Rt	cme-75 397777 (DLZ)	73	958.4	957.1	1.3 C
47	B-047-0-23	MOT-75 CL	130+68	122	Lt	cme-75 397777 (DLZ)	73	959.8	959.0	0.8 C
48	B-048-0-23	MOT-75 CL	134+30	94	Lt	cme-75 397777 (DLZ)	73	961.4	960.2	1.2 C
49	B-049-0-23	MOT-75 CL	138+63	92	Rt	cme-75 397777 (DLZ)	73	962.5	960.3	2.2 C
50	B-050-0-23	MOT-75 CL	142+34	123	Rt	cme-75 397777 (DLZ)	73	963.7	962.2	1.5 C
51	B-051-0-23	MOT-75 CL	153+10	122	Lt	cme-75 397777 (DLZ)	73	967.3	965.5	1.8 C
52	B-052-0-23	MOT-75 CL	149+78	92	Rt	cme-75 397777 (DLZ)	73	966.2	964.4	1.8 C
53	B-053-0-23	MOT-75 CL	154+08	94	Lt	cme-75 397777 (DLZ)	73	967.8	965.9	1.9 C

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	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	S-1	1.5	3.0	-0.2	1.3	13			NP	NP	NP	40	27	67	12	11	A-4a	6	170					
	001-0	S-2	3.0	4.5	1.3	2.8	31		4.5	20	13	7	42	25	67	9	10	A-4a	6						
	23	S-3	4.5	6.0	2.8	4.3	22		3.5							18	10	A-4a	8						
		S-4	6.0	7.5	4.3	5.8	17	13	3.25	23	13	10	36	29	65	14	10	A-4a	6						
2	B	S-1	1.0	2.5	1.0	2.5	27		4.5	39	18	21	30	51	81	18	16	A-6b	12	350					
	002-0	S-2	2.5	4.0	2.5	4.0	27		4.5							13	16	A-6b	16						
	23	S-3	4.0	5.5	4.0	5.5	23		3.5	29	19	10	48	47	95	24	14	A-4a	8						
		S-4	5.5	7.0	5.5	7.0	39	23	4.5							18	10	A-4a							
3	B	S-1	1.0	2.5	0.8	2.3	23		4.5	31	13	18	44	23	67	10	16	A-6b	10	2300					
	003-0	S-2	2.5	4.0	2.3	3.8	33		4.5							13	16	A-6b	16						
	23	S-3	4.0	5.5	3.8	5.3	60		4.5	22	14	8	34	27	61	10	10	A-4a	5						
		S-4	5.5	7.0	5.3	6.8	31	23								9	10	A-4a							
4	B	S-1	1.5	3.0	0.1	1.6	19		4.5	24	14	10	21	36	57	9	10	A-4a	4	180					
	004-0	S-2	3.0	4.5	1.6	3.1	24		4.5	26	9	17	42	29	71	12	16	A-6b	10						
	23	S-3	4.5	6.0	3.1	4.6	22		3.75							22	16	A-6b	16						
		S-4	6.0	7.5	4.6	6.1	19	19	3.75							19	16	A-6b	16						
5	B	S-1	1.5	3.0	0.4	1.9	12		3	39	16	23	44	35	79	16	16	A-6b	13	160					
	005-0	S-2	3.0	4.5	1.9	3.4	81		3	22	13	9	9	31	40	11	10	A-4a	1						
	23	S-3A	4.5	5.0	3.4	3.9	/44/50/4"		4.5							19	10	A-4a	8						
		S-3B	5.0	5.3	3.9	4.2		12									0	Rock	0						
6	B	S-1	1.0	2.5	1.1	2.6	57			20	14	6	20	20	40	7	10	A-4a	1	240					
	006-0	S-2	2.5	3.6	2.6	3.7	/50/50/1"									9	0	Rock	0						
	23	S-3	4.0	4.5	4.1	4.6	50/6"									8	0	Rock	0						
		S-4	5.5	5.8	5.6	5.9	50/4"	30								5	0	Rock							
7	B	S-1	1.0	2.5	0.4	1.9	30		4.5	31	16	15	38	34	72	13	14	A-6a	9	320					
	007-0	S-2	2.5	4.0	1.9	3.4	27									7	14	A-6a	10						
	23	S-3	4.0	5.5	3.4	4.9	18		3.75	27	12	15	37	31	68	15	14	A-6a	9						
		S-4	5.5	7.0	4.9	6.4	18	18	3.75							20	14	A-6a	10						
8	B	S-1	1.5	3.0	-0.1	1.4	12			NP	NP	NP	7	4	11	8	6	A-1-b	0	270					
	008-0	S-2	3.0	4.5	1.4	2.9	22		4.5	28	16	12	35	27	62	12	14	A-6a	6						
	23	S-3	4.5	6.0	2.9	4.4	17		4.5	26	14	12	30	22	52	12	14	A-6a	4						
		S-4	6.0	7.5	4.4	5.9	29	12	3.25							17	14	A-6a	10						
9	B	S-1	1.5	3.0	0.6	2.1	21		3.75	25	14	11	43	31	74	11	14	A-6a	8	190					
	009-0	S-2	3.0	4.5	2.1	3.6	24		4.5	38	19	19	33	44	77	19	16	A-6b	12						
	23	S-3	4.5	6.0	3.6	5.1	24		4.5							12	16	A-6b	16						
		S-4	6.0	7.5	5.1	6.6	17	17	3.5							13	16	A-6b							
10	B	S-1	1.0	2.5	1.3	2.8	30		4.5	30	15	15	31	30	61	13	14	A-6a	7	490					
	010-0	S-2	2.5	4.0	2.8	4.3	25		4.5							8	14	A-6a	10						
	23	S-3	4.0	5.5	4.3	5.8	35		4.5	38	17	21	51	37	88	19	16	A-6b	12						
		S-4	5.5	7.0	5.8	7.3	31	25	4.5							15	16	A-6b							
11	B	S-1	1.0	2.5	0.5	2.0	29		4.5	20	13	7	33	23	56	8	10	A-4a	4	290					
	011-0	S-2	2.5	4.0	2.0	3.5	17		3.5	24	14	10	28	22	50	10	10	A-4a	3						
	23	S-3	4.0	5.5	3.5	5.0	21		3.5							16	16	A-6b	16						
		S-4	5.5	7.0	5.0	6.5	18	17	3							17	16	A-6b	16						
12	B	S-1	1.5	3.0	0.3	1.8	11		4.5	36	32	4	36	36	72	17	27	A-4a	7	260		N_{60}		12"	12" 204 Geotextile
	012-0	S-2	3.0	4.5	1.8	3.3	19		3	26	19	7	35	30	65	15	14	A-4a	6						
	23	S-3	4.5	6.0	3.3	4.8	13		3.25							13	16	A-6b	16						
		S-4	6.0	7.5	4.8	6.3	18	11	3							13	16	A-6b	16						
13	B	S-1	1.0	2.5	1.0	2.5	15		3	25	15	10	30	26	56	10	10	A-4a	4	340					
	013-0	S-2	2.5	4.0	2.5	4.0	16		4							10	10	A-4a	8						
	23	S-3	4.0	5.5	4.0	5.5	19		3.5	22	14	8	36	25	61	10	10	A-4a	5						
		S-4	5.5	7.0	5.5	7.0	18	15	3.5							10	10	A-4a							
14	B	S-1	1.5	3.0	0.0	1.5	21		4.5	22	13	9	31	21	52	9	10	A-4a	3	900					
	014-0	S-2	3.0	4.5	1.5	3.0	22		4.5	24	15	9	39	29	68	12	10	A-4a	7						
	23	S-3	4.5	6.0	3.0	4.5	17		2.5							15	10	A-4a	8						
		S-4	6.0	7.5	4.5	6.0	17	17	4.5							20	10	A-4a	8						
15	B	S-1	1.5	3.0	0.5	2.0	16		3	34	16	18	55	30	85	19	16	A-6b	11	200		Mc			36" 204 Geotextile
	015-0	S-2	3.0	4.5	2.0	3.5	13		2.5							10	10	A-4b	8		A-4b				
	23	S-3	4.5	6.0	3.5	5.0	5		1.25	24	15	9	56	27	83	18	10	A-4b	8						
		S-4	6.0	7.5	5.0	6.5	16	5	1.5							17	10	A-4b	8						
16	B	S-1	1.0	2.5	0.6	2.1	15		4.5	27	14	13	48	26	74	13	14	A-6a	9	1100					
	016-0	S-2	2.5	4.0	2.1	3.6	17		4.5							12	14	A-6a	10		S-2 Rock [Shale] Fill				
	23	S-3	4.0	5.5	3.6	5.1	18		3.75	26	19	7	45	16	61	14	14	A-4a	5						
		S-4	5.5	7.0	5.1	6.6	76	15								18	0	Rock							
17	B	S-1	1.5	3.0	0.5	2.0	19		2.75	28	16	12	33	44	77	13	14	A-6a	9	160					
	017-0	S-2	3.0	4.5	2.0	3.5	13									10	14	A-6a	10						
	23	S-3	4.5	6.0	3.5	5.0	19		4.5	30	16	14	33	41	74	15	14	A-6a	9						
		S-4	6.0	7.5	5.0	6.5	19	13	4.5							18	14	A-6a							
18	B	S-1	1.0	2.5	0.6	2.2	13		3.5	26	16	10	35	25	60	13	11	A-4a	5	290					
	018-0	S-2	2.5	4.0	2.2	3.7	31		3.25							16	10	A-4a	8						
	23	S-3	4.0	5.5	3.7	5.2	30		4	31	18	13	40	51	91	17	14	A-6a	9						
		S-4	5.5	7.0	5.2	6.7	36	13	2.5							15	14	A-6a							
19	B	S-1	1.0	2.5	-0.9	0.6	33		1.75	32	19	13	49	17	66	15	14	A-6a	7	170					12" 204 Geotextile
	019-0	S-2	2.5	4.0	0.6	2.1	52		1.5	31	19	12	31	26	57	14	14	A-6a	5			HP		12"	

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth From	Sample Depth To	Subgrade Depth From	Subgrade Depth To	Standard Penetration N_{60}	Standard Penetration N_{60L}	HP (tsf)	Physical Characteristics LL	PL	PI	% Silt	% Clay	P200	Moisture M_C	Moisture M_{OPT}	Ohio DOT Class	Ohio DOT GI	Sulfate Content (ppm)	Problem Unsuitable	Problem Unstable	Excavate and Replace (Item 204) Unsuitable	Excavate and Replace (Item 204) Unstable	Recommendation (Enter depth in inches)
	23	S-3	4.0	5.5	2.1	3.6	24		3.75							19	14	A-6a	10							
		S-4	5.5	7.0	3.6	5.1	16	16	3.25							24	14	A-6a	10							
20	B	S-1	1.5	3.0	-1.1	0.4	23		4.5	26	16	10	32	38	70	11	11	A-4a	7	220						
	020-0	S-2	3.0	4.5	0.4	1.9	34		4.5							9	10	A-4a	8		S-1, S-2, S-3 Rock [Shale] Fill					
	23	S-3	4.5	6.0	1.9	3.4	17		3	24	18	6	51	32	83	12	13	A-4b	8		A-4b		41"			
		S-4	6.0	7.5	3.4	4.9	22	17	1.75							22	14	A-6a	10							
21	B	S-1	1.5	3.0	0.0	1.5	23		3.75	29	17	12	53	33	86	14	14	A-6a	9	180						
	021-0	S-2	3.0	4.5	1.5	3.0	22		2.5							11	14	A-6a	10							
	23	S-3	4.5	6.0	3.0	4.5	27		1.75	25	14	11	34	29	63	11	14	A-6a	6							
		S-4	6.0	7.5	4.5	6.0	25	22	2							16	16	A-6b	16							
22	B	S-1	1.0	2.5	0.0	1.5	33		4.5	29	19	10	63	31	94	14	14	A-4b	8	360	A-4b		18"		18"
	022-0	S-2	2.5	4.0	1.5	3.0	15		3.25	40	17	23	47	42	89	23	16	A-6b	13			Mc			204 Geotextile
	23	S-3	4.0	5.5	3.0	4.5	17		3.5							11	16	A-6b	16							
		S-4	5.5	7.0	4.5	6.0	33	15	3.5							12	16	A-6b	16							
23	B	S-1	1.0	2.5	0.3	1.8	24		4.5	26	16	10	45	30	75	12	11	A-4a	8	350						
	023-0	S-2	2.5	4.0	1.8	3.3	40		4.5	34	13	21	30	43	73	17	16	A-6b	12							
	23	S-3	4.0	5.5	3.3	4.8	65		4.5							11	16	A-6b	16							
		S-4	5.5	7.0	4.8	6.3	57	24	4.5							10	16	A-6b	16							
24	B	S-1	1.5	3.0	0.1	1.6	27		4.5	23	14	9	18	26	44	6	10	A-4a	2	170						
	024-0	S-2	3.0	4.5	1.6	3.1	24		3.5							18	10	A-4a	8			Mc				
	23	S-3	4.5	6.0	3.1	4.6	21		2.75	29	18	11	50	37	87	20	14	A-6a	8							
		S-4	6.0	7.5	4.6	6.1	21	21	2.5							30	14	A-6a	10							
25	B	S-1	1.5	3.0	0.3	1.8	33		3	30	17	13	14	9	23	9	10	A-2-6	0	150						
	025-0	S-2	3.0	4.5	1.8	3.3	41		4.5							12	16	A-6b	16							
	23	S-3	4.5	6.0	3.3	4.8	17		2.75	40	21	19	42	41	83	27	16	A-6b	12							
		S-4	6.0	7.5	4.8	6.3	17	17	3							12	16	A-6b	16							
26	B	S-1	1.0	2.5	0.2	1.7	24		4.5	23	14	9	37	35	72	16	10	A-4a	7	150		Mc				
	026-0	S-2	2.5	4.0	1.7	3.2	34		4							13	10	A-4a	8			Mc				
	23	S-3	4.0	5.5	3.2	4.7	29		2.75	23	17	6	41	19	60	10	12	A-4a	5							
		S-4	5.5	7.0	4.7	6.2	35	24	4.5							12	10	A-4a	8							
27	B	S-1	1.0	2.5	0.3	1.8	52			26	15	11	5	6	11	6	10	A-2-6	0	210						
	027-0	S-2	2.5	4.0	1.8	3.3	25		3	34	23	11	28	24	52	21	18	A-6a	4			Mc				
	23	S-3	4.0	5.5	3.3	4.8	35									24	0	Rock	0							
		S-4	5.5	7.0	4.8	6.3	98	25								20	0	Rock	0							
28	B	S-1	1.5	3.0	0.1	1.6	33/50/4"									11	0	Rock	0		Rock	Mc				6"
	028-0	S-2	3.0	3.7	1.6	2.3	9/50/2"									6	0	Rock	0		Rock	Mc	27"			204 Geotextile
	23																									
								0																		
29	B	S-1	1.5	3.0	0.1	1.6	11/50/0"									9	0	Rock	0		Rock	Mc				6"
	029-0	S-2	3.0	3.1	1.6	1.7	50/1"									4	0	Rock	0		Rock	Mc	20"			204 Geotextile
	23																									
								0																		
30	B	S-1	1.0	2.5	0.0	1.5	24		4.5	31	14	17	32	37	69	10	16	A-6b	10							
	030-0	S-2	2.5	2.8	1.5	1.8	50/3"									10	0	Rock	0		Rock	Mc				
	23	S-3	4.0	4.1	3.0	3.1	50/1"									3	0	Rock	0			Mc				
								24																		
31	B	S-1	1.0	2.5	0.1	1.6	/46/50/1"									7	0	Rock	0		Rock	Mc				6"
	031-0	S-2	2.5	4.0	1.6	3.1	0/50/3"									3	0	Rock	0		Rock	Mc	37"			204 Geotextile
	23	S-3	4.0	4.2	3.1	3.3	50/2"									3	0	Rock	0			Mc				
								0																		
32	B	S-1	1.5	3.0	-0.1	1.4	24										14	A-6a	10							
	032-0	S-2A	3.0	3.5	1.4	1.9	3/50/4"		1.5	25	14	11	22	18	40	10	14	A-6a	1	830		HP				
	23	S-2B	3.5	3.8	1.9	2.2	50/4"										0	Rock	0		Rock		27"			
		S-3	4.5	4.6	2.9	3.0	50/1"	24								3	0	Rock	0			Mc				
33	B	S-1	1.5	2.8	-0.1	1.2	/16/50/3"									9	0	Rock	0		Rock	Mc				6"
	033-0	S-2	3.0	3.1	1.4	1.5	50/1"									2	0	Rock	0		Rock		18"			204 Geotextile
	23																									
								0																		
34	B	S-1	1.0	2.5	0.0	1.5	52									6	0	Rock	0		Rock	Mc				6"
	034-0	S-2	2.5	4.0	1.5	3.0	89									6	0	Rock	0		Rock	Mc	35"			204 Geotextile
	23	S-3	4.0	5.5	3.0	4.5	109									7	0	Rock	0							
		S-4	5.5	6.7	4.5	5.7	/41/50/	30								8	0	Rock	0							
35	B	S-1	1.5	3.0	-0.1	1.4	17									11	0	Rock	0		Rock	Mc				6"
	035-0	S-2	3.0	4.5	1.4	2.9	16									15	0	Rock	0		Rock	Mc	35"			204 Geotextile
	23	S-3	4.5	6.0	2.9	4.4	46									6	0	Rock	0							
		S-4	6.0	7.5	4.4	5.9	64	16								9	0	Rock	0							
36	B	S-1	1.0	2.5	-0.1	1.4	30		4.5	19	14	5	29	20	49	8	10	A-4a	3	220						
	036-0	S-2	2.5	4.0	1.4	2.9	18		4.5	21	13	8	32	21	53	10	10	A-4a	4							
	23	S-3	4.0	5.5	2.9	4.4	21									15	0	Rock	0							
		S-4	5.5	7.0	4.4	5.9	15	15								14	0	Rock	0							
37	B	S-1	1.0	2.5	0.4	1.9	28		4.5	22	14	8	20	18	38	8	10	A-4a	1	160						
	037-0	S-2	2.5	4.0	1.9	3.4	24		4.5							9	16	A-6b	16							
	23	S-3	4.0	5.5	3.4	4.9	13		4.5	29	13	16	31	30	61	15	16	A-6b	8							
		S-4	5.5	7.0	4.9	6.4	22	13								13	0	Rock	0							

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	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	
38	B	S-1	1.5	3.0	0.1	1.6	23		4.5	19	12	7	36	23	59	9	10	A-4a	5	220					
	038-0	S-2	3.0	4.5	1.6	3.1	29		4.5							9	10	A-4a	8						
	23	S-3	4.5	6.0	3.1	4.6	22		3.5	26	14	12	37	25	62	11	14	A-6a	6						
		S-4	6.0	7.5	4.6	6.1	27	22	4.5							13	14	A-6a	10						
39	B	S-1	1.5	3.0	0.0	1.5	41			18	12	6	18	13	31	8	10	A-2-4	0	140					
	039-0	S-2A	3.0	3.5	1.5	2.0	36			24	14	10	41	36	77	7	10	A-4a	8						
	23	S-2B	3.5	4.5	2.0	3.0											0	Rock	0		Rock	N_{60}	36"		
		S-3	4.5	6.0	3.0	4.5	36	30								7	0	Rock	0						
40	B	S-1	1.0	2.5	0.1	1.6	33		2	19	11	8	32	21	53	9	10	A-4a	4	180					
	040-0	S-2	2.5	4.0	1.6	3.1	80		4							7	10	A-4a	8						
	23	S-3	4.0	5.5	3.1	4.6	51		4.5	20	13	7	33	27	60	10	10	A-4a	5						
		S-4	5.5	7.0	4.6	6.1	41	30	4.5							16	10	A-4a	8						
41	B	S-1	1.0	2.5	0.3	1.8	27		3	22	13	9	18	22	40	8	10	A-4a	1	190					
	041-0	S-2	2.5	4.0	1.8	3.3	24		4							5	14	A-6a	10						
	23	S-3	4.0	5.5	3.3	4.8	36		3.25	26	13	13	31	30	61	15	14	A-6a	6						
		S-4	5.5	7.0	4.8	6.3	36	24	4.5							9	14	A-6a	10						
42	B	S-1	1.5	3.0	0.1	1.6	23		3.5	21	13	8	30	31	61	9	10	A-4a	5	200					
	042-0	S-2	3.0	4.5	1.6	3.1	23		4.5							11	14	A-6a	10						
	23	S-3	4.5	6.0	3.1	4.6	16		4.5	31	16	15	38	27	65	16	14	A-6a	8						
		S-4	6.0	7.5	4.6	6.1	28	16								11	14	A-6a	10						
43	B	S-1	1.5	3.0	0.1	1.6	7		2.75							10	16	A-6b	16	120		N_{60}		15"	15"
	043-0	S-2	3.0	4.5	1.6	3.1	19		3.25	39	19	20	39	52	91	21	16	A-6b	12			Mc			204 Geotextile
	23	S-3	4.5	6.0	3.1	4.6	22		3.25	36	17	19	47	50	97	27	16	A-6b	12						
		S-4	6.0	7.5	4.6	6.1	12	7								18	0	Rock	0						
44	B	S-1	1.5	3.0	0.0	1.5	21		4.5	25	14	11	23	21	44	9	14	A-6a	2	160					
	044-0	S-2	3.0	4.5	1.5	3.0	19		3.75							10	14	A-6a	10						
	23	S-3	4.5	6.0	3.0	4.5	22		3	23	14	9	44	30	74	15	10	A-4a	8						
		S-4	6.0	7.5	4.5	6.0	28	19								18	0	Rock	0						
45	B	S-1	1.0	2.5	0.2	1.7	31		4.5	19	13	6	33	26	59	7	10	A-4a	5	180					
	045-0	S-2	2.5	4.0	1.7	3.2	42		4.5							14	10	A-4a	8			Mc			
	23	S-3	4.0	5.5	3.2	4.7	44		4	32	20	12	27	19	46	18	15	A-6a	3						
		S-4	5.5	7.0	4.7	6.2	27	27								9	14	A-6a	10						
46	B	S-1	1.5	3.0	0.2	1.7	17		3.5	32	14	18	36	36	72	19	16	A-6b	11	180		Mc			
	046-0	S-2	3.0	4.5	1.7	3.2	25		3.5							22	16	A-6b	16			Mc			
	23	S-3	4.5	6.0	3.2	4.7	29		3	19	12	7	30	25	55	11	10	A-4a	4						
		S-4	6.0	7.5	4.7	6.2	27	17	4.5							20	10	A-4a	8						
47	B	S-1	1.5	3.0	0.7	2.2	18		4.5	27	14	13	33	26	59	14	14	A-6a	6	850					
	047-0	S-2	3.0	4.5	2.2	3.7	34		3	21	12	9	31	19	50	9	10	A-4a	3						
	23	S-3	4.5	6.0	3.7	5.2	17		3.25							15	10	A-4a	8						
		S-4	6.0	7.5	5.2	6.7	22	17	3.5							10	14	A-6a							
48	B	S-1	1.5	3.0	0.3	1.8	28		3.5	20	14	6	31	22	53	9	10	A-4a	4	140					
	048-0	S-2	3.0	4.5	1.8	3.3	37		4	23	13	10	30	25	55	11	10	A-4a	4						
	23	S-3	4.5	6.0	3.3	4.8	36		3.5							15	10	A-4a	8						
		S-4	6.0	7.5	4.8	6.3	23	23	3							20	10	A-4a	8						
49	B	S-1	1.5	3.0	-0.7	0.8	33		4.5	27	14	13	35	25	60	9	14	A-6a	6	220					
	049-0	S-2	3.0	4.5	0.8	2.3	24		4	25	20	5	33	31	64	16	15	A-4a	6						
	23	S-3	4.5	6.0	2.3	3.8	42		3.75							10	10	A-4a	8						
		S-4	6.0	7.5	3.8	5.3	27	24	3.5							14	10	A-4a	8						
50	B	S-1	1.5	3.0	0.0	1.5	12		4.5	34	14	20	32	32	64	16	16	A-6b	10	140					
	050-0	S-2	3.0	4.5	1.5	3.0	16		4.5							16	16	A-6b	16						
	23	S-3	4.5	6.0	3.0	4.5	27		2.75	29	14	15	31	27	58	16	14	A-6a	7						
		S-4	6.0	7.5	4.5	6.0	23	12	3.75							9	14	A-6a	10						
51	B	S-1	1.5	3.0	-0.3	1.2	25		4.5	20	10	10	29	24	53	11	10	A-4a	4	120					
	051-0	S-2	3.0	4.5	1.2	2.7	25		3.25	20	13	7	30	24	54	10	10	A-4a	4						
	23	S-3	4.5	6.0	2.7	4.2	22		3.25							10	14	A-6a	10						
		S-4	6.0	7.5	4.2	5.7	21	21	3							9	14	A-6a	10						
52	B	S-1	1.5	3.0	-0.3	1.2	21		4.5	34	20	14	32	25	57	11	15	A-6a	6	180					
	052-0	S-2	3.0	4.5	1.2	2.7	27		4	28	17	11	27	22	49	13	14	A-6a	3						
	23	S-3	4.5	6.0	2.7	4.2	19		3							20	14	A-6a	10						
		S-4	6.0	7.5	4.2	5.7	13	13	2.5							19	14	A-6a	10						
53	B	S-1	1.5	3.0	-0.4	1.1	37		4.5	17	12	5	17	11	28	7	10	A-2-4	0	260					
	053-0	S-2	3.0	4.5	1.1	2.6	27		4.5							9	10	A-4a	8						
	23	S-3	4.5	6.0	2.6	4.1	25		4.5	25	16	9	35	25	60	11	11	A-4a	5						
		S-4	6.0	7.5	4.1	5.6	24	24	3							12	10	A-4a	8						

Fig. 600-1 – Subgrade Stabilization

PID: 113579

County-Route-Section: WAR/MOT-75-11.56/0.00
No. of Borings: 53

Geotechnical Consultant: DLZ Ohio, Inc.
Prepared By: Jeff Chou
Date prepared: 10/29/2024

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

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

Design CBR	7

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	1%	HP ≤ 0.5	0%
$N_{60} < 12$	2%	0.5 < HP ≤ 1	0%
$12 \leq N_{60} < 15$	5%	1 < HP ≤ 2	4%
$N_{60} \geq 20$	62%	HP > 2	73%
M+	12%		
Rock	14%		
Unsuitable	20%		

Excavate and Replace at Surface	
Average	3"
Maximum	36"
Minimum	0"

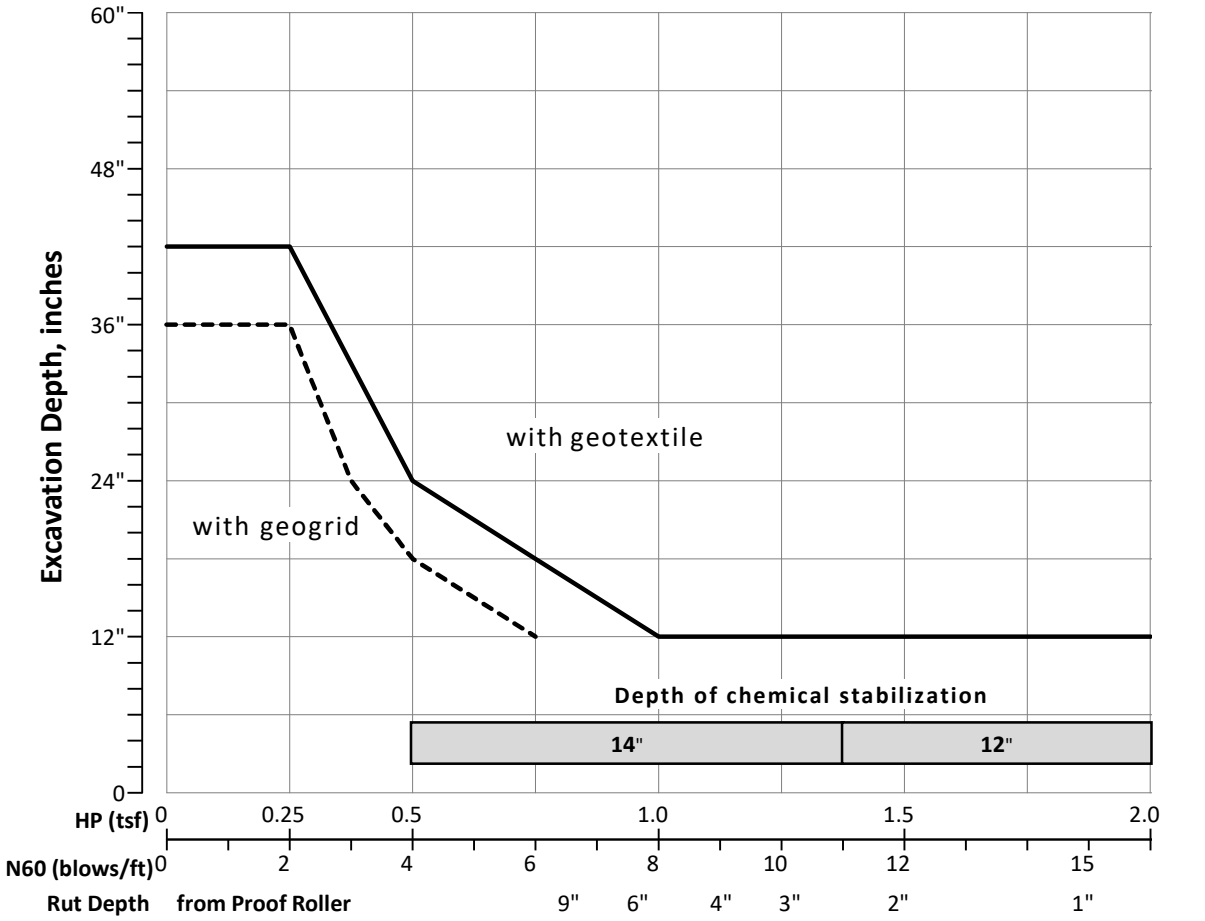
% Proposed Subgrade Surface	
Unstable & Unsuitable	42%
Unstable	27%
Unsuitable	16%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	28	17	3.71	27	15	11	34	28	62	13	11	7
Maximum	109	30	4.50	40	32	23	63	52	97	30	27	16
Minimum	5	0	1.25	17	9	4	5	4	11	2	0	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	35	0	1	2	0	2	0	0	0	67	5	0	54	38	0	0	0	0	204
Percent	17%	0%	0%	1%	0%	1%	0%	0%	0%	33%	2%	0%	26%	19%	0%	0%	0%	0%	100%
% Rock|Granular|Cohesive	17%	35%									48%								100%
Surface Class Count	16	0	1	2	0	2	0	0	0	43	3	0	27	19	0	0	0	0	113
Surface Class Percent	14%	0%	1%	2%	0%	2%	0%	0%	0%	38%	3%	0%	24%	17%	0%	0%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.71	0.50	☐ HP
17.49	6.00	☐ N60L

Average HP
Average N_{60L}

Fig. 600-1 – Subgrade Stabilization

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Design Manual Section 600

WAR/MOT-75-11.56/0.00
113579

full depth pavement replacement of IR75 Ramp S (approximately 700 feet)

DLZ Ohio, Inc.

Prepared By: Jeff Chou
Date prepared: Thursday, October 30, 2025

Jeff Chou
6121 Huntley Rd
Columbus, OH 43229

614-888-0040
jchou@dlz.com

NO. OF BORINGS: 3

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-039-0-23	MOT-75 CL	98+64	94	Lt	cme-75 397777 (DLZ)	73	952.2	950.5	1.7 C
2	B-040-0-23	MOT-75 CL	102+73	82	Lt	cme-75 397777 (DLZ)	73	950.2	951.3	1.1 F
3	B-040-1-25	Ramp S	6+82	1	Lt	CME-45 ATV 428944	86	947.9	946.2	1.7 C

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.8 2/11/2022

#	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	S-1	1.5	3.0	-0.2	1.3	41			18	12	6	18	13	31	8	10	A-2-4	0	140					
	039-0	S-2A	3.0	3.5	1.3	1.8	36			24	14	10	41	36	77	7	10	A-4a	8						
	23	S-2B	3.5	4.5	1.8	2.8											0	Rock	0		Rock	N_{60}	**34"**		
		S-3	4.5	6.0	2.8	4.3	36	30								7	0	Rock	0						
2	B	S-1	1.0	2.5	2.1	3.6	33		2	19	11	8	32	21	53	9	10	A-4a	4	180					
	040-0	S-2	2.5	4.0	3.6	5.1	80		4							7	10	A-4a	8						
	23	S-3	4.0	5.5	5.1	6.6	51		4.5	20	13	7	33	27	60	10	10	A-4a							
		S-4	5.5	7.0	6.6	8.1	41	30	4.5							16	10	A-4a							
3	B	S-1	1.0	2.5	-0.7	0.8	10									18	10	A-2-4	0	180		N_{60} & Mc		**12"**	**36"**
	040-1	S-2	2.5	4.0	0.8	2.3	10		0.25	33	20	13	57	36	93	26	15	A-6a	9			HP & Mc		**42"**	**861 Geogrid**
	25	S-3	4.0	5.5	2.3	3.8	20			NP	NP	NP	19	6	25	14	10	A-2-4	0						
		S-4	5.5	7.0	3.8	5.3	29	10								13	10	A-2-4	0						

Fig. 600-1 – Subgrade Stabilization

PID: 113579

County-Route-Section: WAR/MOT-75-11.56/0.00
No. of Borings: 3

Geotechnical Consultant: DLZ Ohio, Inc.
Prepared By: Jeff Chou
Date prepared: 10/30/2025

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

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

Design CBR	9

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	0%	HP ≤ 0.5	9%
$N_{60} < 12$	18%	0.5 < HP ≤ 1	0%
$12 \leq N_{60} < 15$	0%	1 < HP ≤ 2	9%
$N_{60} \geq 20$	73%	HP > 2	18%
M+	18%		
Rock	14%		
Unsuitable	17%		

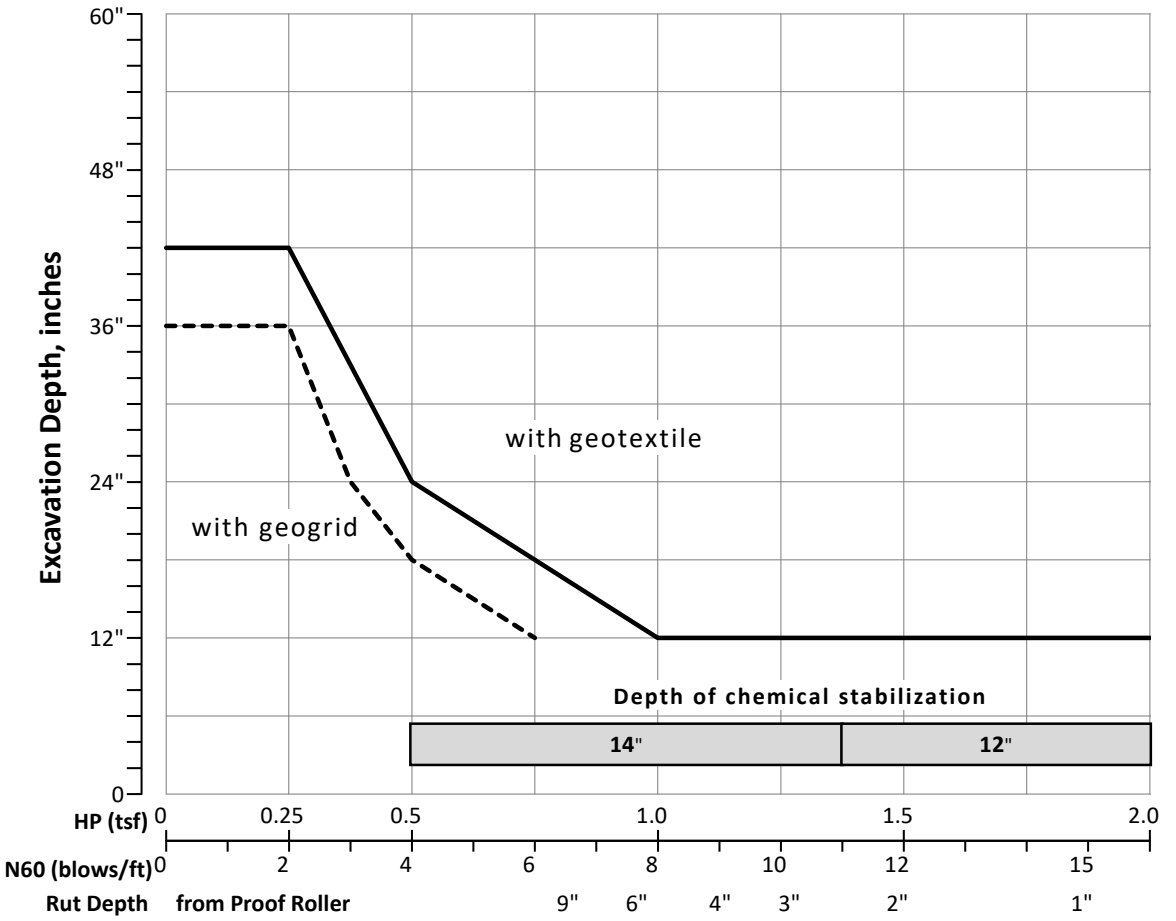
Excavate and Replace at Surface	
Average	12''
Maximum	36''
Minimum	0''

% Proposed Subgrade Surface	
Unstable & Unsuitable	57%
Unstable	43%
Unsuitable	14%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	35	23	3.05	23	14	9	33	23	57	12	9	3
Maximum	80	30	4.50	33	20	13	57	36	93	26	15	9
Minimum	10	10	0.25	18	11	6	18	6	25	7	0	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	2	0	0	4	0	0	0	0	0	5	0	0	1	0	0	0	0	0	12
Percent	17%	0%	0%	33%	0%	0%	0%	0%	0%	42%	0%	0%	8%	0%	0%	0%	0%	0%	100%
% Rock|Granular|Cohesive	17%	75%									8%								100%
Surface Class Count	1	0	0	3	0	0	0	0	0	2	0	0	1	0	0	0	0	0	7
Surface Class Percent	14%	0%	0%	43%	0%	0%	0%	0%	0%	29%	0%	0%	14%	0%	0%	0%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.05	0.50	☐ HP
23.33	6.00	☐ N60L

Average HP
Average N_{60L}

Fig. 600-1 – Subgrade Stabilization

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Design Manual Section 600

WAR/MOT-75-11.56/0.00
113579

full depth pavement replacement of IR75 Ramp H (approximately 1,100 linear feet)

DLZ Ohio, Inc.

Prepared By: Jeff Chou
Date prepared: Thursday, October 30, 2025

Jeff Chou
6121 Huntley Rd
Columbus, OH 43229

614-888-0040
jchou@dlz.com

NO. OF BORINGS: 5

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-017-1-25	Ramp H	230+18	14	Lt	CME-45 ATV 428944	86	907.7	906.1	1.6 C
2	B-017-2-25	Ramp H	223+22	16	Lt	CME-45 ATV 428944	86	912.6	911.0	1.6 C
3	B-012-0-23	MOT-75 CL	21+29	124	Rt	CME-75 397777 (DLZ)	73	904.3	903.6	0.7 C
4	B-014-0-23	MOT-75 CL	24+62	95	Rt	CME-75 397777 (DLZ)	73	906.7	905.2	1.5 C
5	B-016-0-23	MOT-75 CL	26+76	78	Rt	CME-75 397777 (DLZ)	73	906.7	906.3	0.4 C

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.8 2/11/2022

#	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	S-1	1.0	2.5	-0.6	0.9	14		3.5	24	13	11	15	21	36	11	14	A-6a	0	2000					
	017-1	S-2	2.5	4.0	0.9	2.4	48		4.5+	27	11	16	31	36	67	12	16	A-6b	9						
	25	S-3	4.0	5.5	2.4	3.9	24		2							16	16	A-6b	16						
		S-4	5.5	7.0	3.9	5.4	38	14	4.5+							20	16	A-6b	16						
2	B	S-1	1.0	2.5	-0.6	0.9	23		1	50	16	34	27	41	68	18	18	A-7-6	16	1100		HP		12"	12" 204 Geotextile
	017-2	S-2	2.5	4.0	0.9	2.4	24		2							20	18	A-7-6	16						
	25	S-3	4.0	5.5	2.4	3.9	36		1.5	28	13	15	20	43	63	14	14	A-6a	8						
		S-4	5.5	7.0	3.9	5.4	27	23	1.5							13	14	A-6a	10						
3	B	S-1	1.5	3.0	0.8	2.3	11		4.5	36	32	4	36	36	72	17	27	A-4a	7	260		N_{60}		12"	12" 204 Geotextile
	012-0	S-2	3.0	4.5	2.3	3.8	19		3	26	19	7	35	30	65	15	14	A-4a	6						
	23	S-3	4.5	6.0	3.8	5.3	13		3.25							13	16	A-6b	16						
		S-4	6.0	7.5	5.3	6.8	18	11	3							13	16	A-6b							
4	B	S-1	1.5	3.0	0.0	1.5	21		4.5	22	13	9	31	21	52	9	10	A-4a	3	900					
	014-0	S-2	3.0	4.5	1.5	3.0	22		4.5	24	15	9	39	29	68	12	10	A-4a	7						
	23	S-3	4.5	6.0	3.0	4.5	17		2.5							15	10	A-4a	8						
		S-4	6.0	7.5	4.5	6.0	17	17	4.5							20	10	A-4a	8						
5	B	S-1	1.5	3.0	1.1	2.6	15		4.5	27	14	13	48	26	74	13	14	A-6a	9	1100					
	016-0	S-2	3.0	4.5	2.6	4.1	17		4.5							12	14	A-6a	10						
	23	S-3	4.5	6.0	4.1	5.6	18		3.75	26	19	7	45	16	61	14	14	A-4a	5						
		S-4	6.0	7.5	5.6	7.1	76	15								18	0	Rock							

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

Fig. 600-1 – Subgrade Stabilization

PID: 113579

County-Route-Section: WAR/MOT-75-11.56/0.00
No. of Borings: 5

Geotechnical Consultant: DLZ Ohio, Inc.
Prepared By: Jeff Chou
Date prepared: 10/30/2025

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

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

Design CBR	6

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	0%	HP ≤ 0.5	0%
$N_{60} < 12$	5%	0.5 < HP ≤ 1	5%
$12 \leq N_{60} < 15$	10%	1 < HP ≤ 2	20%
$N_{60} \geq 20$	50%	HP > 2	60%
M+	0%		
Rock	0%		
Unsuitable	5%		

Excavate and Replace at Surface	
Average	3''
Maximum	12''
Minimum	0''

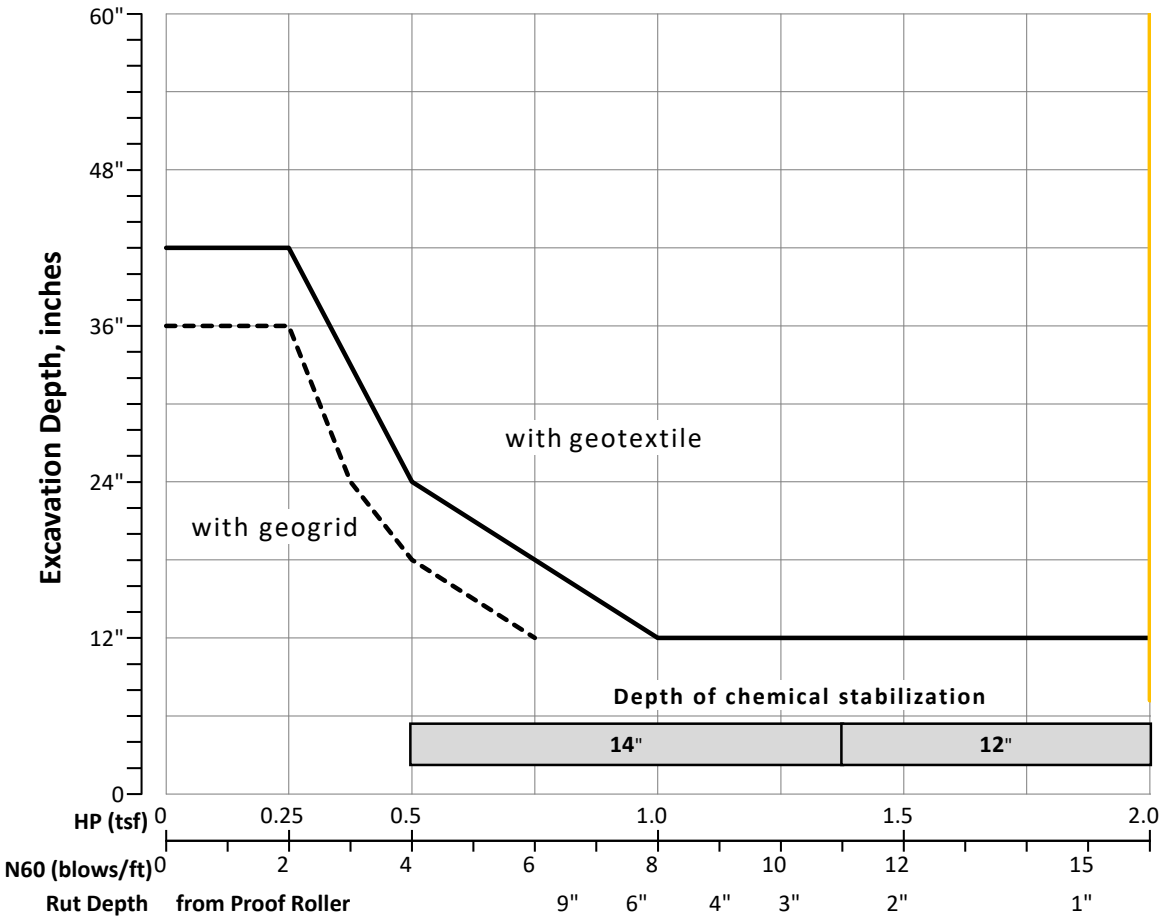
% Proposed Subgrade Surface	
Unstable & Unsuitable	17%
Unstable	17%
Unsuitable	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	25	16	3.18	29	17	13	33	30	63	15	14	9
Maximum	76	23	4.50	50	32	34	48	43	74	20	27	16
Minimum	11	11	1.00	22	11	4	15	16	36	9	0	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	1	0	0	0	0	0	0	0	0	7	0	0	5	5	0	2	0	0	20
Percent	5%	0%	0%	0%	0%	0%	0%	0%	0%	35%	0%	0%	25%	25%	0%	10%	0%	0%	100%
% Rock|Granular|Cohesive	5%	35%									60%								100%
Surface Class Count	0	0	0	0	0	0	0	0	0	4	0	0	4	2	0	2	0	0	12
Surface Class Percent	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	33%	17%	0%	17%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.18	0.50	☐ HP
16.00	6.00	☐ N60L

Average HP
Average N_{60L}