

Addendum 01

Project: CATA Renovation at 511 S Washington Ave, Lansing, MI 48933

Date: August 5, 2026

Project No: 75820023

To: Builders Exchange of Lansing & Central Michigan
CATA – Bid List (Procurement)
Dodge Plan Room
All Plan Holders

AD1-1 NOTICE

- A. This Addendum to the specifications and drawings for the above-captioned project adds to or supersedes all contrary or conflicting information in specifications and drawings which is amended in the following paragraphs. This Addendum is to become part of bidding documents as originally issued.
- B. Each trade shall review the entire Addendum, including work of other trades, for revisions or clarifications regarding their own work.
- C. This Addendum includes Specification Sections 00 2113, 00 3100, 03 0100, 03 3511, and 23 0993, reissued, new Geotechnical Evaluation Report, responses to requests for information, and the Pre-Bid Meeting Minutes and Pre-Bid Sign-In Sheet dated August 3, 2026.

AD1-2 DIVISIONS 00 AND 01 (GTR)

A. SPECIFICATION ITEMS

- 1. **Section 00 2113 Instructions to Bidders** (Reissued):
 - a. 7.03 Federal Certifications – add new forms noted in numbers 8 and 9 below in order placed in front of the Alternates Form and Unit Prices Form:
 - 8. Supplier Information Form
 - 9. Certificate Regarding Federal Tax Liability & Recent Felony Conviction
- 2. **Section 00 3100 Available Project Information** (Reissued):
 - a. 1.01, B Geotechnical Evaluation Report – replace Geotechnical Evaluation report dated July 23, 2026, with new report dated July 24, 2026.

AD1-3 ARCHITECTURAL WORK (JMC)

A. SPECIFICATION ITEMS

- 1. **Section 03 0100 Maintenance of Concrete** (New Issue): Add further clarification for cleaning of existing concrete surfaces and repair of exposed structural, shrinkage, and settlement cracks.
- 2. **Section 03 3511 Concrete Floor Finishes** (New Issue): Supersedes 03 3543 Polished Concrete Finishing to provide more accurate surface treatment.

AD1-4 MECHANICAL WORK (BG)

A. SPECIFICATION ITEMS

1. **Section 23 0993 Sequence of Operations for HVAC Controls** (Reissued):
 - a. 1.02 Related Requirements – delete paragraph B, Section 23 0923 – Direct-Digital Control System for HVAC.

AD1-5 REQUEST FOR INFORMATION

A. SPECIFICATION ITEMS

1. **Section 08 1416: Wood Doors**
 - a. Looking at the wood door spec 081416 I'm not seeing what veneer is required. Please advise.

RESPONSE: Match existing Birch Veneer, finish to match existing doors.
2. **Section 08 7100: Door Hardware**
 - a. The hardware spec 087100 seems to be a master spec. I'm assuming that CATA has building hardware standards that is required for their projects and your spec seems to allow most major manufactures and includes most product types. This doesn't help us narrow down what hardware is needed.

RESPONSE: Response will be issued in Addendum 02.
3. **Section 23 0993: Sequence of Operation for HVAC Controls (Reference to section 23 0923)**
 - a. The specification mentions section 23 0923 Direct-Digital Control System for HVAC. This section could not be found in the spec. Do you intend to release that or is the mechanical equipment intended to be controlled by each individual manufacturer provided sensor?

RESPONSE: Section 23 0923 is not applicable and will not be issued. HVAC equipment shall be controlled by the individual manufacturer's factory-furnished controls, sensors, thermostats, and accessories in accordance with the manufacturer's standard sequence of operation. No central BAS/BMS or project-specific DDC sequence is required.

B. DRAWING ITEM

1. **Drawing Sheet A601: Door Hardware**
 - a. Looking at the door schedule on page A601 it looks like there are hardware sets assigned to each opening. Will written detailed hardware sets be released?

RESPONSE: Response will be issued in Addendum 02.

SUMMARY

1.01 THE INSTRUCTIONS IN THIS DOCUMENT AMEND OR SUPPLEMENT THE INSTRUCTIONS TO BIDDERS AND OTHER PROVISIONS OF THE BIDDING AND CONTRACT DOCUMENTS.

1.02 DOCUMENT INCLUDES

- A. Bid Documents and Contract Documents
 - 1. Definitions
 - 2. Contract Documents Identification
 - 3. Availability
 - 4. Examination
 - 5. Inquiries/Addenda
- B. Bid Submission
- C. Bid Enclosures/Requirements
 - 1. Security Deposit
 - 2. Bid Form Requirements

INVITATION

2.01 BID SUBMISSION

- A. Bids signed and under seal, executed, and dated will be received at the office of the Owner at 4615 Tranter Street, Lansing, MI 48910 before 9:00 a.m. local standard time on 31st day of August, 2026.

2.02 INTENT

- A. The intent of this Bid request is to obtain an offer to perform work to complete project named CATA Renovation 511 S. Washington for a Stipulated Sum contract, in accordance with Contract Documents.

2.03 WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

- A. Work of this proposed Contract comprises site development and demolition, including general construction Work.

2.04 CONTRACT TIME

- A. Perform the Work in 182 calendar days.

BID DOCUMENTS AND CONTRACT DOCUMENTS

3.01 CONTRACT DOCUMENTS IDENTIFICATION

- A. Contract Documents are identified as Owner's Project Number 75820023, as prepared by Architect, and with contents as identified in the Project Manual.

3.02 AVAILABILITY

- A. Bid Documents may be obtained at the office of the Architect, electronically. Contact Gary Runions at grunions@weareprogressive.com and Pam Young at pyoung@weareprogressive.com.

3.03 INQUIRIES/ADDENDA

- A. Direct questions to Gary Runions at grunions@weareprogressive.com and Jeff Cangro at jcangro@weareprogressive.com. Provide project name and subject matter in email heading.
- B. Addenda may be issued during the bidding period. All Addenda become part of Contract Documents. Include resultant costs in the Bid Amount.
- C. Verbal answers are not binding on any party.
- D. Clarifications requested by bidders must be in writing not less than 18 days before date set for receipt of bids. The reply will be in the form of an Addendum, a copy of which will be forwarded to known recipients and plan holders.

3.04 PRODUCT/ASSEMBLY/SYSTEM SUBSTITUTIONS

- A. General Requirements for Substitution Requests:
- B. Substitution Request Time Restrictions:
 - 1. Where the Bid Documents stipulate a particular product, substitutions will be considered up to 18 days before receipt of bids.
- C. Substitution Request Form:

SECTION 00 2113 INSTRUCTIONS TO BIDDERS

1. Submit substitution requests by completing the form in Section 00 4325; see this section for additional information and instructions. Use only this form; other forms of submission are unacceptable.
- D. Review and Acceptance of Request:
 1. Architect may or may not approve the proposed substitution. If approved, the request will issue an Addendum to known bidders.
 2. For approved substitutions, include representation of changes in the bid, if any, required in the work and changes to Contract Time and Contract Sum to accommodate such substitutions. A later claim by the bidder for an addition to the Contract Time or Contract Sum because of changes in work necessitated by use of substitutions will not be considered.

SITE ASSESSMENT

4.01 SITE EXAMINATION

- A. Examine the project site before submitting a bid.
- B. A visit to the project site has been arranged for bidders as follows: Immediately following the Pre-bid Meeting

4.02 PREBID CONFERENCE

- A. A bidders conference has been scheduled for 10:30 a.m. on the 3rd day of August, 2026 at the location of 511 Washington Ave, Lansing, MI.
- B. All general contract bidders and suppliers are invited.
- C. Representatives of Architect will be in attendance.
- D. Summarized minutes of this meeting will be circulated to attendees. These minutes will not form part of Contract Documents.

QUALIFICATIONS

5.01 EVIDENCE OF QUALIFICATIONS

- A. To demonstrate qualification for performing the Work of this Contract, bidders may be requested to submit written evidence of financial position, license to perform work in the State of MI.

5.02 SUBCONTRACTORS/SUPPLIERS/OTHERS

- A. Owner reserves the right to reject a proposed subcontractor for reasonable cause.
- B. Refer to General Conditions.

BID SUBMISSION

6.01 SUBMISSION PROCEDURE

- A. Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.
- B. Submit one copy of the executed offer on the Bid Forms provided, signed and sealed with the required security in a closed opaque envelope, clearly identified with bidder's name, project name and Owner's name on the outside.

6.02 BID INELIGIBILITY

- A. Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may at the discretion of the Owner, be declared unacceptable.

BID ENCLOSURES/REQUIREMENTS

7.01 SECURITY DEPOSIT

- A. Bids shall be accompanied by a security deposit as follows:
 1. Bid Bond of a sum no less than 5 percent of the Bid Amount on AIA A310 Bid Bond Form.
- B. Endorse the Bid Bond in the name of the Owner as obligee, signed and sealed by the principal (Contractor) and surety.
- C. The security deposit will be returned after delivery to the Owner of the required Performance and Payment Bond(s) by the accepted bidder.
- D. Include the cost of bid security in the Bid Amount.
- E. After a bid has been accepted, all securities will be returned to the respective bidders and other requested enclosures.

SECTION 00 2113 INSTRUCTIONS TO BIDDERS

- F. If no contract is awarded, all security deposits will be returned.

7.02 PERFORMANCE ASSURANCE

- A. Include the cost of performance assurance bonds in the Bid Amount.

7.03 FEDERAL CERTIFICATIONS

- A. Bidders must submit the following with their bid if it is considered to be responsive:
 1. Certification of Primary Contractor Regarding Debarment, Suspension and Other Responsibility Matters
 2. Certification of Lower-Tier Participants (Sub-Contractors) Regarding Debarment, Suspension and Other Responsibility Matters
 3. Iran Economic Sanctions Act Certificate
 4. Terms and Conditions
 5. Certificate Regarding Lobbying
 6. Build America Buy America Certification
 7. Davis-Bacon Act Wage Rates
 8. Supplier Information Form
 9. Certificate Regarding Federal Tax Liability & Recent Felony Conviction
 10. Document 00 4322 - Unit Prices Form: Include a listing of unit prices specifically requested by Contract Documents.
 11. Document 00 4323 - Alternates Form: Include the cost variation to the Bid Amount applicable to the Work described in Section 01 2300.

7.04 SELECTION AND AWARD OF ALTERNATES

- A. Bids will be evaluated on the base bid price. After determination of a successful bidder, consideration will be given to Alternates and bid price adjustments.

OFFER ACCEPTANCE/REJECTION

8.01 DURATION OF OFFER

- A. Bids shall remain open to acceptance and shall be irrevocable for a period of 90 days after the bid closing date.

8.02 ACCEPTANCE OF OFFER

- A. Owner reserves the right to accept or reject any or all offers.
- B. After acceptance by Owner, Architect on behalf of Owner, will issue to the successful bidder, a written Bid Acceptance.

END OF SECTION

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SECTION 00 3100 AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITIONS

- A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of Contract Documents, as follows:
- B. Geotechnical Report: Entitled Geotechnical Evaluation Report, dated July 24, 2026 by SME.
 - 1. This report identifies properties of below grade conditions and offers recommendations for the design of foundations and pavement, prepared primarily for the use of Architect.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION



GEOTECHNICAL EVALUATION REPORT - REVISED

CATA BUILDING ADDITION AND RENOVATIONS
LANSING, MICHIGAN

SME Project Number: 098012.03
July 24, 2026





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Lansing, MI 48911-6310

T (517) 887-9181

www.sme-usa.com

July 24, 2026

Mr. Norm VanAlstine
Facilities Manager
Capital Area Transportation Authority
4615 Tranter Street
Lansing, Michigan 48910

Via E-Mail: NVanAlstine@cata.org

RE: Geotechnical Evaluation Report - Revised
CATA Building Addition and Renovations
511 South Washington Avenue
Lansing, Michigan 48933
SME Project 098012.03

Dear Mr. VanAlstine:

We have completed our geotechnical evaluation for the referenced project. This report presents the results of our observations and analyses, our geotechnical recommendations, and a discussion of potential construction considerations based on the information disclosed by the borings for the proposed entrance vestibule addition.

We appreciate this opportunity to be of service. If you have questions or require additional information, please contact me.

Sincerely,

SME

A handwritten signature in blue ink that reads "Alexandra R.C. Korinek".

Alexandra R.C. Korinek, PE
Project Manager

Enclosure: SME Geotechnical Evaluation Report; Dated July 24, 2026

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APPENDIX B

- FIELD TESTING PROCEDURES
- LABORATORY TESTING PROCEDURES
- LIMITATIONS PERTAINING TO SUBSURFACE CONDITIONS

APPENDIX C

- IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT
- GENERAL COMMENTS

1. INTRODUCTION

This report presents the results of the geotechnical evaluation performed by SME for the proposed entrance vestibule addition and preliminary pavement recommendations for the CATA Building Addition and Renovations project. This evaluation was conducted in general accordance with the scope of services outlined in SME Proposal P02124.26, dated May 22, 2026 and Change Order No. 1 dated June 26, 2026. Our services for this evaluation were authorized by Capital Area Transportation Authority (CATA).

SME is also preparing a preliminary geotechnical evaluation report for the proposed future building addition for the subject project. This report will be submitted under separate cover.

SME received the following information which was used in the evaluation and preparation of this report:

- “08 Meeting Minutes-Master Planning 2025-06-04-Future Addition,” consisting of four pages documenting the proposed building addition plans.
- “10-C101-EXISTING CONDITIONS PLAN-PLAN,” consisting of one page depicting existing utilities at the project site.
- “10-C201-SITE LAYOUT PLAN-PLAN,” consisting of one page depicting the proposed pavement design for the project site.
- “35-A101-BASEMENT AND FIRST FLOOR PLANS,” consisting of one page depicting the existing building floor plans.
- “35-A201-EXTERIOR ELEVATIONS,” consisting of one page depicting the building exterior elevations from three sides.

SME completed 15 borings (B1 through B3, B15 through B21, and P1 through P5) at the project site on June 11, July 15, and July 20, 2026. Additional project borings B4 through B14 will be included in the referenced additional reports that will be provided under separate cover. Refer to the boring logs included in Appendix A for the specific depth of each individual boring. The approximate boring locations are depicted on Image 1 and on the Boring Location Diagram located in Appendix A (Figure No. 1). Soil descriptions and the field and laboratory test results are presented on the boring logs. Exploration and laboratory testing procedures are presented in Section 4.

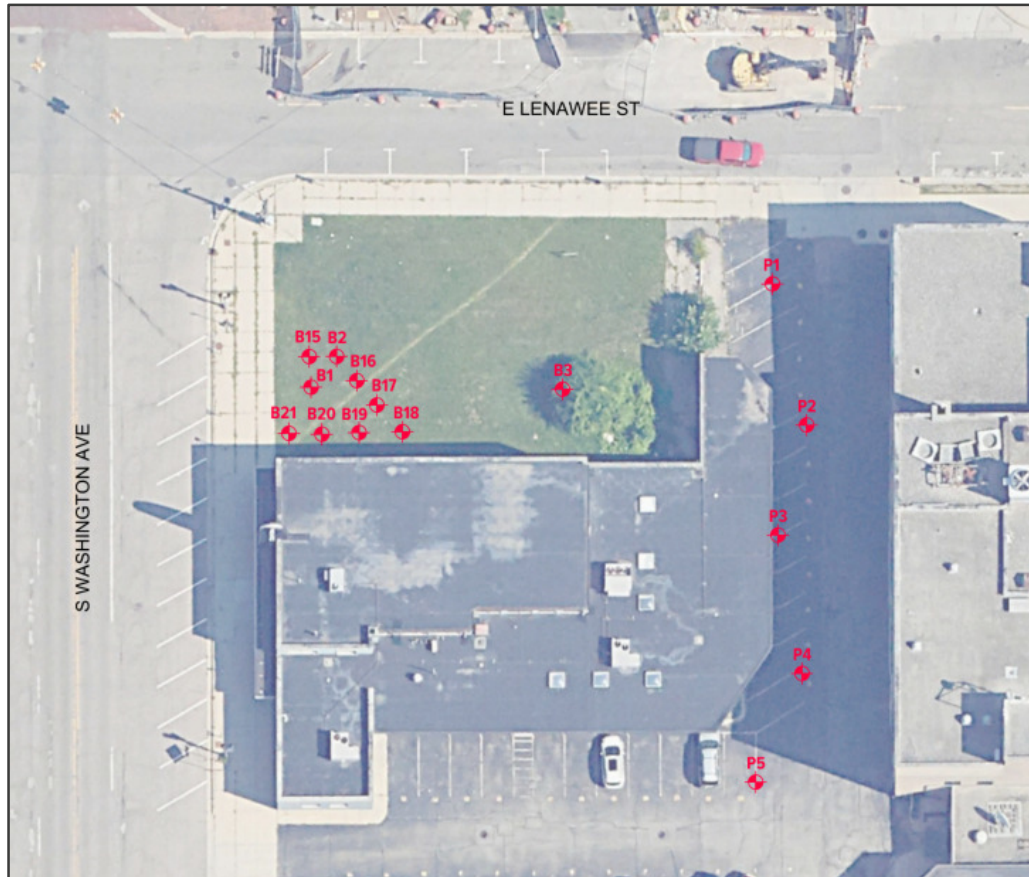


IMAGE 1: Excerpt from Figure No. 1 in Appendix A – Boring Location Diagram (north facing upward).

1.1 SITE CONDITIONS AND PROJECT DESCRIPTION

The project site is located at 511 South Washington Avenue in Lansing, Michigan. The site consists of an existing, two-story, slab-on-grade building, a grassy area north of the building, and a paved parking lot to the south and east of the site.

Based on the referenced documents, the site appears to be relatively flat with elevations ranging between 845 and 848 feet. Based on the provided information, the existing building footings in the area of the proposed entrance vestibule addition bear approximately 9.25 feet below the ground floor level of the existing building.

Based on historical aerial imagery, previous buildings were located on the north portion of the site. The buildings were demolished sometime in the 1980s and the site converted to green space since demolition. An aerial image of the historical building on the site from 1986 is shown in Image 2.



IMAGE 2: 1986 Aerial of the Project Site (north facing upward).

The project will consist of the design and construction of a proposed two-story entrance vestibule addition that will extend off the northwest corner of the existing building and include a stairwell, elevator, hallway, and electric and storage rooms. The addition will cover a footprint of about 21 feet by 29 feet. We assume The finish floor elevation of the proposed addition will match that of the current building addition at approximately 847 to 848 feet.

Foundation loads were not provided. Based on our experience with similar projects, we anticipate the addition will be supported on shallow spread foundations. We have assumed maximum wall loads for the addition will be less than about 6 kips per foot. Please contact SME if our assumptions are incorrect.

The recommendations of this report are based on the information provided above and the results of the field and laboratory evaluation. Contact SME if the final design information is different than discussed herein.

1.2 SUBSURFACE CONDITIONS

Refer to the boring log for the soil conditions at the specific borings located within/near the proposed addition. For the addition, SME refers to borings B1 and B2 along with borings B15 through B21.

At the existing ground surface of the borings, the drillers encountered about 3 to 5 inches of topsoil. Please note that the thickness measurements of surficial topsoil are estimates only. If more detailed information regarding topsoil thickness(es) are required, we would recommend performing hand auger borings, or shallow test pits.

Below the surficial topsoil, we encountered existing fill to about 5.5 to 13.5 feet below existing grade, corresponding to approximate elevations 835.5 to 844.5 feet. The fill soils consisted of sand with varying

amounts of silts as well as sandy lean clays. Debris pieces and/or fragments were encountered in portions of the existing fill. An obstruction was encountered within the fill at about 4 feet beneath the existing ground surface at boring B15, which was subsequently offset and redrilled. The existing sand fill was encountered in a loose to medium dense condition at borings B1 through B3 where penetration resistances were obtained. The existing clay fill exhibited soft to very stiff consistencies.

Below the existing fill, we encountered natural sands, silts, and clays that extended to the explored depths of the borings.

During drilling, groundwater was encountered at 13.5 to 24 feet below existing ground surface at borings B1 and B2, which corresponds to approximately 18 feet below the bottom of the elevator.

Refer to the Field Testing Procedures in Appendix B for additional information about groundwater level measurements. If more information regarding groundwater levels at this site is required, then we recommend performing additional subsurface assessment(s).

2. ANALYSIS AND RECOMMENDATIONS

2.1 SITE PREPARATION AND EARTHWORK

2.1.1 EXISTING FILL CONSIDERATIONS

The existing fill was likely associated with the previous development at the site. Based on the condition of the existing fill, some compaction effort was likely used when the fill was placed. However, we consider the existing fill to be undocumented because we are not aware of records that document fill placement and compaction operations, and uncontrolled because condition of portions of the existing fill.

Based on the information obtained regarding the fill, we recommend the existing fill be removed (undercut) from beneath the proposed building addition footings. However, if the adjacent existing building footings are supported on existing fill, the undercuts to remove existing fill must not extend below the existing footings. In that case, the existing fill adjacent to the existing building should be stabilized, as necessary. If it is not possible to suitably stabilize the existing fill, the existing building foundation will need to be underpinned to facilitate existing fill removal. At a suitable distance away from the existing building, the existing fill should be undercut from below proposed footings. We believe the existing fill can be considered for support of the building grade-slabs and pavements provided:

- The subgrade is properly evaluated and prepared as described in in this report;
- Unsuitable fill is removed within the existing building addition footprint and replaced with engineered fill; and
- The Owner accepts the associated increased risk associated with supporting the proposed building floor slab and pavements over the existing fill, which could include greater than typical total and/or differential settlement, resulting in differential movements. These risks can be reduced, but not eliminated, if SME evaluates the existing fill at the building addition subgrade.

Existing fill to remain in-place beneath the proposed building grade-slab and pavements should be of sufficient strength and free of deleterious materials, such as excessive debris and organics. Unsuitable existing fill that cannot be improved in-place should be removed (i.e., undercut) and replaced with engineered fill that is placed and compacted per the requirements outlined in this report.

The recommendations provided in the following report sections are based on the assumption that existing fill will be removed from beneath proposed addition footings, except adjacent to the existing building footings, and suitable existing fill will remain in-place and be used to support the proposed building addition grade-slab and pavements. If the Owner does not accept the stated risks, the existing fill should

be undercut from beneath the entire proposed building and pavements footprints. Excavations to remove existing fill must not extend beneath adjacent footings without first underpinning the existing building.

2.1.2 GENERAL SITE SUBGRADE PREPARATION

Reroute existing utilities that may be within the proposed building addition footprint to outside of the building area. Remove abandoned utilities and backfill the resulting excavations with granular engineered fill. If it is necessary for existing utilities to be abandoned in-place, the utilities must not conflict with the proposed construction, they must be fully grouted, and the suitability of the existing backfill must be verified for structural support. Do not abandon utilities in-place within the zone of influence of proposed foundations.

The proposed building and pavement areas, and areas to receive engineered fill, should be cleared of topsoil, unsuitable fill soils, pavements, roots, and other deleterious materials to expose the underlying inorganic subgrade soils. We recommend the clearing and stripping extend a minimum of 5 feet beyond the proposed building and pavement areas.

After stripping the site and removing existing fill and other deleterious materials, after cuts are made to design subgrade levels, but prior to filling, we recommend the exposed subgrade be subjected to a comprehensive proofrolling program in the presence of SME. The purpose of proofrolling is to locate areas of unsuitably soft, loose, or yielding subgrade. Proofrolling should be performed with a fully loaded, tandem-axle dump truck or other pneumatic-tire construction equipment. Areas of unsuitable (i.e., wet, soft, loose, or yielding) subgrade revealed during proofrolling should be mechanically improved by compaction-in-place or removed and replaced with engineered fill. In areas that are not accessible to proofrolling equipment, we recommend the exposed subgrade be evaluated by SME with hand-operated equipment such as dynamic cone penetrometers and hand augers.

The contractor needs to remove ponded surface water and prevent run-off from reaching foundation excavations and areas of prepared subgrade. The contractor needs to also establish positive surface drainage at the onset of construction to mitigate the potential for subgrade disturbance. To reduce the potential of subgrade disturbance across the site, restrict construction traffic to dedicated areas of the site that can be controlled and stabilized as needed.

After the exposed subgrade is evaluated (as described above) and improved as necessary, engineered fill may be placed on the exposed subgrade to establish final design subgrade levels. See Section 2.1.3 of this report for materials and compaction requirements for engineered fill.

2.1.3 ENGINEERED FILL REQUIREMENTS

Engineered fill needs to be free of frozen soil, significant organics and construction debris, potentially expansive and/or chemically active materials, particle sizes hindering compaction, cobbles, and boulders. If the proposed engineered fill soils contain more than four percent organics, or debris larger than 6 inches in nominal diameter, do not use soils for engineered fill. Also, if debris material is significantly variable in nature, suspect in origin, or greater than about five percent of the soil (by weight), do not use soils for engineered fill.

Spread fill in level layers with a loose thickness appropriate for the type of equipment used to obtain compaction, but not exceeding 9 inches thick. Thinner lifts will be required in confined spaces and where compaction is achieved with walk-behind rollers/compactors or plate compactors mounted on a backhoe or excavator (e.g., Ho-Pac®). Compact the fill to a minimum of 95 percent of the maximum dry density as determined in accordance with the Modified Proctor test. Compact sand fill with a smooth drum vibratory roller or vibratory plate compactors. Based on the small footprint of the proposed addition and considering drainage requirements behind the elevator below-grade walls, the use of clay for engineered fill for backfill is not recommended.

Sands containing more appreciable amounts of silt or clay will be difficult to compact with smaller compaction equipment in confined areas such as utility trenches or as foundation excavation backfill as is not suitable where drainage is required. In confined areas, in areas where drainage is required, and in areas where compaction is accomplished primarily by hand-operated equipment, use an approved granular material, such as MDOT Class II granular material as backfill. Based on the boring, we anticipate the on-site natural soils with USCS designation "SP-SM" should mostly meet MDOT Class II gradational requirements and be suitable for reuse in areas requiring drainage backfill. However, due to the variability of the site soils, the contractor must use care in segregation excavated soils. SME should verify the suitability of existing site sands proposed for reuse as drainage fill, by performing gradation analyses during construction.

For subgrade improvements, use an open-graded crushed material with a maximum particle size of 1½ inches in diameter and no more than seven percent passing the No. 200 sieve. MDOT 6AA meets this requirement. Spread the crushed material in layers not exceeding 12 inches and compact with a vibratory compactor until no further densification is observed. In cases where granular engineered fill will be placed over the crushed aggregate, choke the surface of the coarse crushed material with a layer of at least 6 inches of MDOT 21AA dense-graded aggregate and cover the surface with a suitable non-woven geotextile fabric to prevent migration of the granular engineered fill into the coarser crushed material.

2.1.4 SUBGRADE PREPARATION FOR FLOOR SLABS

Provided the Owner is willing to accept the risks associated with constructing floor slabs over existing fill, as described in Section 2.1, we anticipate the final subgrade for the building pad will consist of properly prepared suitable existing fill, and/or engineered fill placed over properly prepared suitable existing fill.

We recommend a subgrade modulus k_{30} of 150 psi per inch be used to design floor slabs supported on properly prepared subgrade as described above and below. The recommended subgrade modulus k_{30} is based on correlations with soil type developed from plate load tests conducted using a 30-inch diameter plate with 0.05 inches of deflection.

Prior to concrete placement for floor slabs, the building pad subgrade should again be observed and tested for suitability of floor slab support. The purpose of the re-evaluation is to identify any areas of subgrade that were disturbed during construction activities and verify subgrade conditions are suitable for floor slab support. The re-evaluation of the subgrade should consist of a thorough proofroll unless the area is not accessible with proper proofrolling equipment. Otherwise, the evaluation of the exposed subgrade should consist of density testing or the use of appropriate hand-operated equipment such as hand augers and cone penetrometers. Unsuitable subgrade indicated by SME should be recompacted or removed and replaced with engineered fill.

We recommend a slab subbase consisting of a minimum 6 inches of an approved granular material. The purpose of this is to provide a leveling surface for construction of the building floor slab and a moisture capillary break between the slabs and the underlying soils. We recommend MDOT Class II granular material be used for this purpose. Alternately, an approved aggregate such as MDOT 21AA dense-graded aggregate may be used in lieu of the granular material. The advantage of using an aggregate is it provides better protection of the subgrade than granular material and a more stable working platform for construction of the slab. However, a thicker layer of aggregate may be needed to provide a stable construction platform, depending on the condition of subgrade soils during construction and the type of construction equipment to traffic the prepared subgrade. The granular materials or aggregate should be compacted per section as discussed this report. We do not recommend relying on the leveling course to protect the underlying subgrade from disturbances. Therefore, place the concrete slab soon after the leveling course to minimize subgrade disturbance.

We recommend a vapor retarder below floor slabs that will receive an impermeable floor finish/seal, or a floor covering which would act as a vapor retarder. The location the vapor retarder (relative to the subbase) should be determined by the Architect/Engineer based on the intended floor usage, planned finishes, and in accordance with ACI recommendations.

The slab-on-grade subgrade soils should be protected from frost during winter construction. Any frozen soils should be thawed and compacted or removed and replaced prior to slab-on-grade construction.

Differential settlement could be manifested where grade slab of the building addition abuts the existing structure. Hard-finish flooring surfaces should not span across the interface between the existing building and the proposed building addition without control joints, as minor cracking and/or minor settlement at the interface between the two structures is likely to occur.

The slab-on-grade subgrade soils should be protected from frost action during winter construction. Frozen soils must be thawed and compacted or removed and replaced prior to slab-on-grade construction.

2.2 FOUNDATIONS

2.2.1 SUBGRADE VERIFICATION

Geotechnical foundation design recommendations are provided based on the boring covering only a small area of the site. On-site observations and testing of the foundation subgrades are necessary to verify the subgrade exposed at the foundation bearing surface is consistent with the boring and is suitable for the design soil bearing pressure. By preparing this geotechnical evaluation report, SME is best suited to observe and test foundation subgrades during construction and to verify the geotechnical recommendations of this report and the geotechnical related design requirements of this project are incorporated into the construction. The recommendations of this report are based on the assumption SME will further evaluate the bearing soils during construction.

2.2.2 SHALLOW FOUNDATIONS

Assuming construction over suitable natural soils or suitable prepared existing fill soils (adjacent to the existing building), we recommend a maximum net allowable soil bearing pressure of 2,000 psf. Stabilize existing fill adjacent to the existing building and undercut unsuitable existing fill from below proposed footings a suitable distance away from the existing building.

For bearing capacity and settlement considerations, we recommend continuous (wall) foundations have a minimum width of 24 inches and isolated (column) foundations have a minimum dimension of 36 inches. In cases where structural loading is light, the minimum recommended foundation size, and not the design bearing pressure, may govern the size of the foundation.

Foundations should be situated a minimum of 42 inches below final site grade in unheated areas to meet building code requirements and for protection against frost action during normal winters.

Where existing fills are encountered at the design bearing elevation, it will be necessary to undercut the fill to expose suitable natural soils below. However, undercuts to remove existing fill must not extend below the adjacent existing building footings, without first underpinning the existing footings. Adjacent to the existing footings, we recommend stabilizing the existing fill soils using crushed aggregate. Where undercutting is performed, foundations could be constructed at this lower undercut level where suitable soils are encountered. Alternatively, foundations could be constructed at the planned foundation subgrade elevation on engineered fill placed as backfill in the undercut excavation. Undercuts in foundation areas should be oversized laterally as shown on the following Typical Foundation Undercutting Diagram.

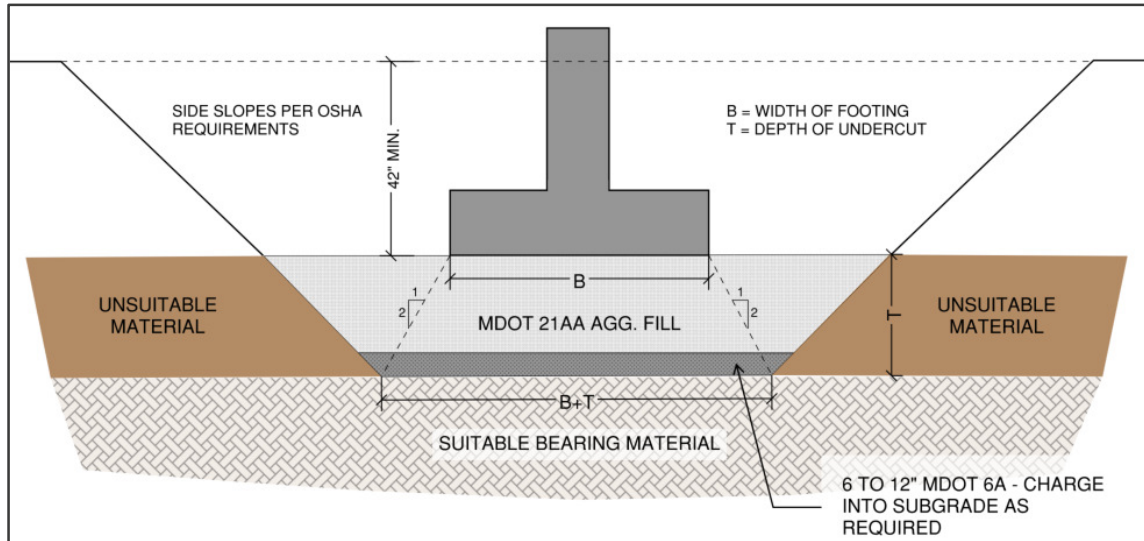


IMAGE 3: Typical Foundation Undercutting Diagram

Undercuts to remove unsuitable soils must not extend below the bearing elevation of the existing building foundation without first underpinning the building. If required, underpinning must be designed by licensed professional engineer. SME can design the underpinning system if requested.

To reduce the incidence and severity of subgrade disturbance, we recommend placing concrete as soon as possible (e.g., preferably the same day) after excavating for foundations. Disturbed soils must be removed from foundation excavations and replaced with engineered fill, crushed aggregates, or concrete.

New foundations situated adjacent to existing foundations should be constructed at the same bearing level as the existing foundations to reduce the potential of transmitting additional loads to the existing building foundations. If the new footings have to be extended deeper than the bearing level of the existing footings, the project structural engineer should evaluate the design and make appropriate modifications to the new footings. Bearing levels for new footings can be established at certain distances from the existing building, depending on the distance between the two bearing levels. As a guideline, the new footing level should be at a level either above or below the existing footing no higher than its horizontal distance from the existing footing, i.e., a 1 to 1 slope between the edges of the two footings. For reasons of constructability, we recommend limiting vertical “steps” to 1 foot for every 3 horizontal feet.

For frost heave considerations, vertical excavation sidewalls must be maintained during foundation concrete placement and the sidewalls must not be allowed to “mushroom out” near the top. If vertical earthen sidewalls cannot be maintained, it will be necessary to slope back the foundation excavations and form foundation sidewalls to maintain vertical faces for foundations and reduce the potentially adverse effects resulting from frost heave. Caved soils must be suitably removed from the foundation bearing surfaces before placing concrete.

We estimate total settlement for spread foundations using the recommended maximum net allowable bearing pressures and bearing on suitable soils as described above and as verified in the field at the time of construction by SME should be 1 inch or less. Differential settlements are estimated to be about one-half the total settlement. The design engineer should account for differential movements between the proposed building addition and the adjacent existing building, which could equal the total settlement of new foundations. The settlement estimates provided are based on the available boring information, recommended bearing pressure, the provided foundation loads, our experience with similar structures and soil conditions, and field verification of suitable bearing soils by SME.

2.2.3 BELOW-GRADE WALLS

We recommend the new elevator pit walls be backfilled with MDOT Class II granular material extending a minimum of 3 feet horizontally from the backside of the walls where there is no conflict/limitation with the existing structure(s). Retaining wall backfill that will support floor slabs and other improvements should be compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test. Care should be exercised during compaction of the wall backfill to avoid overstressing the walls. The retaining wall recommendations below are based on properly placed and compacted backfill that meets the gradational requirements of MDOT Class II granular material.

For rigid walls backfilled with a free-draining granular material and with permanent drainage to a suitable stormwater outlet, and a level finish surface behind the wall, we recommend an at-rest fluid pressure of 60 psf (per foot of wall height) for design.

The earth pressures presented above are for a drained backfill. If permanent drainage is not installed, the elevator pit would also need to be designed to resist hydrostatic forces (e.g., uplift and lateral pressures from groundwater) as groundwater could collect in the sand backfill that will be surrounded by relatively low permeability sands and clays. Without drainage, we recommend waterproofing the elevator pit foundation and walls and sizing the elevator pit walls and foundations to resist an at-rest fluid pressure of 100 psf (per foot of wall height), and an uplift pressure of the unit weight of water (62.4 pounds per cubic-foot, pcf, plus a reasonable factor of safety) from the bottom of footing elevation to the top of the existing ground surface around the elevator pit.

Additional lateral wall loads resulting from surcharge loading and stockpiled materials should also be added to the above earth pressures. We recommend using a horizontal coefficient of 0.5 for at-rest conditions to calculate loads on walls due to surcharges. Use of these values requires a well-draining granular wall backfill as previously recommended (MDOT Class II granular material). Surcharge loads should be modeled as a uniform pressure distribution applied to the entire wall height.

2.3 SEISMIC SITE CLASS

Based on the subsurface information obtained from the boring to a maximum depth of 30 feet, seismic site Class D applies to this site in accordance with the most current version of the Michigan Building Code (MBC) referencing Table 20.3-1 in ASCE Standard ASCE/SEI 7.

2.4 PRELIMINARY PAVEMENT DESIGN RECOMMENDATIONS

Limited information regarding proposed pavements is available at this time. Based on conversations with Gary Runions, AIA of Progressive Companies, new pavements are requested to replace current pavement at the CATA office building.

We understand there is no formal trash disposal area planned at this time, however, if trash disposal is added to the project later, we recommend a heavy-duty section be included for that area. SME can provide those recommendations if needed.

No preliminary traffic type or counts for the site were provided. Once additional information is available, SME will provide an updated pavement design recommendation. The cross sections provided below are preliminary and only for planning/budgeting purposes.

Based on site usage, we assume most (if not all) of the pavements will be designed for standard-duty applications. We assume the pavements will consist predominantly of standard-duty asphalt for the entire parking lot and drive lanes.

Summary tables below assuming a pavement design life of 20 years.

TABLE 1: DESIGN PARAMETERS – STANDARD DUTY ASPHALT

PARAMETER	VALUE
Design Period	20 years
Traffic	50,000 ESALs
Design Reliability	85%
Standard Deviation	0.45 (flexible pavements)
Subgrade Resilient Modulus	3,000 pounds per square inch (psi)
Drainage Coefficient (aggregate base)	0.9
Initial Serviceability Index	4.2
Terminal Serviceability Index	2.0

2.4.1 SUBGRADE PREPARATION

Subgrade preparation for the new pavement profiles consists of the complete removal of the existing pavements, concrete below the exposed asphalt, and other surficial materials with subgrade preparation (i.e., a field evaluation of the condition of the exposed subgrade with occasional undercutting to remove and replace low-strength subgrade), and placement of new pavement layers. Protect utilities, curbs, buildings, and other existing structures to remain. Field locate existing utilities prior to excavation and/or trafficking and take the necessary precautions to work safely around active utilities.

We recommend subgrade preparation and the new aggregate base layer extend out to at least 12 inches beyond the edge of pavement or back of curbs to provide support for the outer edges of the pavement. Where existing curbs are to remain (if any), prepare the subgrade to the edge of the curb and protect the curb from damage/distress.

Prior to the placement of the aggregate base course, we recommend fine-grading the subgrade to slope downward toward the stormwater drainage structures. Fine-grading of the underlying subgrade will be critical to minimize low spots below the aggregate base where water can pond, likely resulting in moisture changes and undesirable early pavement distress. Fine-grading the subgrade is important for drainage of perched groundwater, and to achieve a uniform thickness of base course to be placed throughout each of the pavement sections. Also, we recommend installing underdrains at/through low spots in the prepared subgrade to facilitate drainage of perched groundwater.

We recommend testing the exposed subgrade for stability. Such testing involves a proofroll with a large piece of construction equipment. We recommend using a fully loaded tandem axle truck (50,000 lbs. minimum) for the proofroll test. Any loose or soft areas identified from the proofrolling will need to be recompacted, undercut, and replaced with engineered fill, or stabilized by other means as dictated by the site conditions at the time of construction. We recommend the criteria for the proofroll be a maximum of 1/2 inch of deflection or rutting below the aggregate base layer (on the subgrade), and a maximum 1/4 inch of deflection or rutting on the aggregate base layer. A qualified geotechnical engineering firm must be on-site to observe the proofroll and make judgments regarding the suitability of the subgrade for pavement support.

Once the subgrade passes the final proofroll test, we recommend fine-grading the subgrade again and then placing the pavement layers soon thereafter to avoid further subgrade disturbance. If subgrade disturbance occurs, we recommend the subgrade be proofrolled again to evaluate the severity of disturbance and undercuts (where required) be performed to re-establish a suitably stable subgrade. It may be necessary to use crushed stone backfill, possibly in combination with a geogrid, to stabilize the

subgrade, particularly during poor weather conditions. A qualified geotechnical engineering firm will need to determine the type and quantity of stabilization required based on site conditions during construction.

If engineered fill is required beneath the proposed pavements (to raise site grades), consider using a relatively clean and dense graded aggregate base material (e.g., additional MDOT 21AA crushed limestone), or possibly MDOT Class II sand, to facilitate drainage, and reduce time and effort during construction associated with subgrade preparation of the onsite soils (e.g., discing, drying, and compaction of clay soils).

2.4.2 PAVEMENT SECTIONS

Utilizing the previously described design parameters and the American Association of State Highway Transportation Officials (AASHTO) “Guide for Design of Pavement Structures” 1993 edition, the following table presents the layer material and thickness recommendations for the proposed standard-duty flexible pavement section:

TABLE 2: STANDARD-DUTY HMA PAVEMENT

LAYER	MATERIAL	THICKNESS (inches)
Bituminous Wearing	MDOT 5EML or 13A	2.0
Bituminous Leveling	MDOT 4EML or 13A	2.5
Aggregate Base	MDOT 21AA Crushed Limestone	9.0

NOTE: Structural coefficients assumed for HMA and aggregate base material are 0.42 and 0.14, respectively.

We recommend the asphalt mixture be modified to provide a minimum 60 percent crushed content. We recommend the final grade of asphalt cement be PG58-28 in the production of the 13A asphalt mixtures or PG64-22 for the EML mixes. We recommend Reclaimed Asphalt Pavement (RAP) be limited to MDOT Tier 1 (0 to 17 percent RAP binder by weight) for wearing course mixtures and MDOT Tier 2 (18 to 27 percent RAP binder by weight) for leveling course mixtures. We recommend designing the asphalt concrete mixtures for a target air void of 3.0 percent (per MDOT Special Provision 03SP501(H)) and compaction of 94 to 97 percent of theoretical maximum density as determined per ASTM D2041 “Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures”. We also recommend applying a bond coat of SS-1h emulsion between asphalt concrete layers at a rate of 0.1 gallons/s.y. Please contact SME if considering alternate asphalt mixes (e.g., for cosmetic purposes) for reevaluation of our recommendations as needed.

Partial construction of the pavements and use of the leveling course as a construction platform will likely result in premature damage resulting in repairs required prior to placing the final lift. We recommend developing specific haul and delivery routes and preparing separate staging areas.

3. EXCAVATION AND GROUNDWATER MANAGEMENT

Significant groundwater seepage is not anticipated to be a significant factor in the proposed addition excavation. Seepage due to runoff or perched sources can likely be handled using standard sump pit and pumping procedures on a localized basis. A working surface of either crushed aggregate or crushed concrete may be required to protect the exposed subgrade where seepage is encountered.

We anticipate the addition foundation excavation can be excavated as an open excavation on the north and east sides of the excavation, i.e., the sides or banks of the excavations will be appropriately sloped back on a temporary basis in accordance with OSHA regulations for the soil conditions encountered. However, we anticipate a temporary earth retention system (TERS) will be required to facilitate the excavation along the west site boundary due to the depth of the excavation and the proximity to existing improvements. Where excavations cannot be safely sloped back on a temporary basis without encroaching into the road right-of-ways (ROW) or if temporary excavations threaten to undermine existing

improvements, a TERS is required. The design of TERS should include a review of the potential effect of installation on adjacent improvements, such as the effect of vibrations necessary to install the system, and the associated potential for damage to utilities or the existing sidewalks or roadways. SME can assist you in the design of, or preparation of performance specifications for, temporary earth retention systems, if desired.

Based on the site history and boring log, there is potential for areas of undocumented fill with variable depths within the proposed building area. We recommend the bid documents require prospective contractors to include unit prices for excavating disturbed soils and other unsuitable soils and replacing them with engineered fill. Also, establish a contingency in the construction budget for this work. Actual quantities can be verified during construction by measuring excavation volumes, counting truck loads, or a combination of the two methods. SME can assist with estimating quantities for establishing the contingency if desired.

Take care during demolition and earthwork operations to protect adjoining and adjacent utility structures. Do not undermine existing structures. Where necessary, install temporary shoring/bracing or underpinning to properly shore/brace existing building and protect them from distress.

The contractor must provide safely sloped excavations or adequately constructed and braced shoring systems in accordance with federal, state and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground. If material is stored or heavy equipment is operated near an excavation, use appropriate shoring to resist the extra pressure due to the superimposed loads.

Handle, transport and dispose excavated materials and groundwater in accordance with applicable environmental regulatory requirements. Refer to the project environmental consultant for additional information regarding handling and/or disposal of onsite soils and/or groundwater.

4. EVALUATION PROCEDURES

4.1 FIELD EXPLORATION

The proposed number, location, and depth of the boring was determined by SME. SME located the borings in field and obtained the existing ground surface elevation at the boring locations using our hand-held global positioning system (GPS).

Borings B1 through B3 were advanced using a rotary drill rig equipped with continuous flight augers. Those boring included soil sampling based on Split-Barrel Sampling procedures. Borings B15 through B21 and P1 through P5 were advanced using a Geoprobe® rig that obtains continuous samples using a hydraulically driven vibratory hammer. Samples from these borings were collected in acetate liners.

Groundwater level measurements were recorded during and immediately after completion of the borings. After completion of drilling and obtaining groundwater level measurements, the boreholes were backfilled with auger cuttings. Borings in existing pavement areas were topped with asphalt cold patch.

The Field Testing Procedures in Appendix B provides more detailed descriptions of field tests typically performed by SME and referenced in this report.

Soil samples recovered from the field exploration were taken to our laboratory for further observations and testing.

Upon completion of the laboratory testing, boring log was prepared and include the soil descriptions, penetration resistances, pertinent field observations, and the results of the laboratory testing. The log also includes the estimated existing ground surface elevation. Explanations of symbols and terms used on the boring log are provided on the Boring Log Terminology sheet included in Appendix A.

Soil samples are normally retained in our laboratory for 60 days and are then disposed, unless instructed otherwise.

4.2 LABORATORY TESTING

The laboratory testing program consisted of visually classifying the recovered samples in accordance with ASTM D-2488. Based on the laboratory testing, we prepared soil descriptions and assigned a group symbol for the various soil strata observed based on the Unified Soil Classification System (USCS). In addition, moisture content and hand penetrometer tests were performed on portions of cohesive samples obtained.

The Laboratory Testing Procedures in Appendix B provides descriptions of the laboratory tests. The results of the laboratory tests are presented on the boring log and included in Appendix A.

5. SIGNATURES

PREPARED BY:



Logan S. Ross, EIT
Senior Staff Engineer

REVIEWED BY:



Paul E. Anderson, PE
Senior Project Engineer

REVIEWED BY:



Christopher G. Naida, PE
Senior Consultant

APPENDIX A

BORING LOCATION DIAGRAM (FIGURE NO. 1)

BORING LOG TERMINOLOGY

BORING LOGS (B1 THROUGH B3, B15 THROUGH B21, AND P1 THROUGH P5)

CORE PHOTOLOG (P1 THROUGH P5)

USACE DCP DATA SHEETS (P1 THROUGH P5)



LOCATION MAP
NOT TO SCALE



1. AERIAL IMAGE TAKEN FROM GOOGLE EARTH PRO WITH AN IMAGE DATE OF 8-2-2023.

Sheet Name	
BORING LOCATION	
DIAGRAM	
No.	Revision Date
Date	07-21-2026
CADD	J. BLAKE
Designer	A. KORINEK
Project	098012.03
Figure No.	1

DRAWING NOTE: SCALE SHOWN IS MEANT FOR 11" X 17"
 A40 AND WILL SCALE PROPORTIONED ON ANY OTHER
 SIZE MEDIA.
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR
 CONSENT OF SME



BORING LOG TERMINOLOGY

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size.)		
Clean Gravel (Less than 5% fines)		
GRAVEL More than 50% of coarse fraction larger than No. 4 sieve size		GW Well-graded gravel; gravel-sand mixtures, little or no fines
		GP Poorly-graded gravel; gravel-sand mixtures, little or no fines
Gravel with fines (More than 12% fines)		
		GM Silty gravel; gravel-sand-silt mixtures
		GC Clayey gravel; gravel-sand-clay mixtures
Clean Sand (Less than 5% fines)		
SAND 50% or more of coarse fraction larger than No. 4 sieve size		SW Well-graded sand; sand-gravel mixtures, little or no fines
		SP Poorly-graded sand; sand-gravel mixtures, little or no fines
Sand with fines (More than 12% fines)		
		SM Silty sand; sand-silt-gravel mixtures
		SC Clayey sand; sand-clay-gravel mixtures
FINE-GRAINED SOIL (50% or more of material is smaller than No. 200 sieve size.)		
SILT AND CLAY Liquid limit less than 50%		ML Inorganic silt; sandy silt or gravelly silt with slight plasticity
		CL Inorganic clay of low plasticity; lean clay, sandy clay, gravelly clay
		OL Organic silt and organic clay of low plasticity
SILT AND CLAY Liquid limit 50% or greater		MH Inorganic silt of high plasticity; elastic silt
		CH Inorganic clay of high plasticity; fat clay
		OH Organic silt and organic clay of high plasticity
HIGHLY ORGANIC SOIL		PT Peat and other highly organic soil

Topsoil	Void	Sandstone
Asphalt Concrete	Glacial Till	Siltstone
Aggregate Base	Coal	Limestone
Portland Cement Concrete	Shale	Fill

LABORATORY CLASSIFICATION CRITERIA		
GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line or PI less than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for SW	
SM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line or PI less than 7	
Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:		
Less than 5 percent.....GW, GP, SW, SP		
More than 12 percent.....GM, GC, SM, SC		
5 to 12 percent.....Cases requiring dual symbols		
• SP-SM or SW-SM (SAND with Silt or SAND with Silt and Gravel) • SP-SC or SW-SC (SAND with Clay or SAND with Clay and Gravel) • GP-GM or GW-GM (GRAVEL with Silt or GRAVEL with Silt and Sand) • GP-GC or GW-GC (GRAVEL with Clay or GRAVEL with Clay and Sand)		
If the fines are CL-ML:		
• SC-SM (SILTY CLAYEY SAND or SILTY CLAYEY SAND with Gravel) • SM-SC (CLAYEY SILTY SAND or CLAYEY SILTY SAND with Gravel) • GC-GM (SILTY CLAYEY GRAVEL or SILTY CLAYEY GRAVEL with Sand)		
PARTICLE SIZES		
Boulders	-	Greater than 12 inches
Cobbles	-	3 inches to 12 inches
Gravel-	Coarse	3/4 inches to 3 inches
	Fine	No. 4 to 3/4 inches
Sand-	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40
Silt and Clay	-	Less than (0.074 mm)
PLASTICITY CHART		

VISUAL MANUAL PROCEDURE	
When laboratory tests are not performed to confirm the classification of soils exhibiting borderline classifications, the two possible classifications would be separated with a slash, as follows:	
For soils where it is difficult to distinguish if it is a coarse or fine-grained soil:	
• SC/CL (CLAYEY SAND to Sandy LEAN CLAY) • SM/ML (SILTY SAND to SANDY SILT) • GC/CL (CLAYEY GRAVEL to Gravelly LEAN CLAY) • GM/ML (SILTY GRAVEL to Gravelly SILT)	
For soils where it is difficult to distinguish if it is sand or gravel, poorly or well-graded sand or gravel; silt or clay; or plastic or non-plastic silt or clay:	
• SP/GP or SW/GW (SAND with Gravel to GRAVEL with Sand) • SC/GC (CLAYEY SAND with Gravel to CLAYEY GRAVEL with Sand) • SM-GM (SILTY SAND with GRAVEL to SILTY GRAVEL with Sand) • SW/SP (SAND or SAND with Gravel) • GP/GW (GRAVEL or GRAVEL with Sand) • SC/SM (CLAYEY to SILTY SAND) • GM/GC (SILTY to CLAYEY GRAVEL) • CL/ML (SILTY CLAY) • ML/CL (CLAYEY SILT) • CH/MH (FAT CLAY to ELASTIC SILT) • CL/CH (LEAN to FAT CLAY) • MH/ML (ELASTIC SILT to SILT)	
DRILLING AND SAMPLING ABBREVIATIONS	
2ST	- Shelby Tube - 2" O.D.
3ST	- Shelby Tube - 3" O.D.
AS	- Auger Sample
GS	- Grab Sample
LS	- Liner Sample
NR	- No Recovery
PM	- Pressuremeter
RC	- Rock Core diamond bit, NX size, except where noted
SB	- Split Barrel Sample 1-3/8" I.D., 2" O.D., except where noted
VS	- Vane Shear
WS	- Wash Sample
OTHER ABBREVIATIONS	
N.E.	- Not Encountered
WOH	- Weight of Hammer
WOR	- Weight of Rods
SP	- Soil Probe
PID	- Photo Ionization Device
FID	- Flame Ionization Device
DEPOSITIONAL FEATURES	
Parting	- as much as 1/16-inch thick
Seam	- 1/16-inch to 1/2-inch thick
Layer	- 1/2-inch to 12 inches thick
Stratum	- greater than 12 inches thick
Pocket	- deposit of limited lateral extent
Lens	- lenticular deposit
Hardpan/Till	- an unstratified, consolidated or cemented mixture of clay, silt, sand and/or gravel, the size/shape of the constituents vary widely
Lacustrine	- soil deposited by lake water
Mottled	- soil irregularly marked with spots of different colors that vary in number and size
Varved	- alternating partings or seams of silt and/or clay
Occasional	- one or less per foot of thickness
Frequent	- more than one per foot of thickness
Interbedded	- strata of soil or beds or rock lying between or alternating with other strata of a different nature
DESCRIPTION OF RELATIVE QUANTITIES	
The visual-manual procedure uses the following terms to describe the relative quantities of notable foreign materials, gravel, sand or fines:	
Trace	- particles are present but estimated to be less than 5%
Few	- 5 to 10%
Little	- 15 to 25%
Some	- 30 to 45%
Mostly	- 50 to 100%

CLASSIFICATION TERMINOLOGY AND CORRELATIONS			
Cohesionless Soils		Cohesive Soils	
Relative Density	N ₆₀ (N-Value) (Blows per foot)	Consistency	N ₆₀ (N-Value) (Blows per foot)
Very Loose	0 to 4	Very Soft	< 2
Loose	5 to 10	Soft	2 - 4
Medium Dense	11 to 30	Medium	5 - 8
Dense	31 to 50	Stiff	9 - 15
Very Dense	51 to 80	Very Stiff	16 - 30
Extremely Dense	Over 81	Hard	> 30
		Undrained Shear Strength (kips/ft ²)	
			< 0.25 or less
			> 0.25 to 0.50
			> 0.50 to 1.0
			> 1.0 to 2.0
			> 2.0 to 4.0
			> 4.0 or greater
Standard Penetration 'N-Value' = Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split barrel sampler, except where noted. N ₆₀ values as reported on boring logs represent raw N-values corrected for hammer efficiency only.			

PAGE 1 OF 1

BORING DEPTH: 30 feet

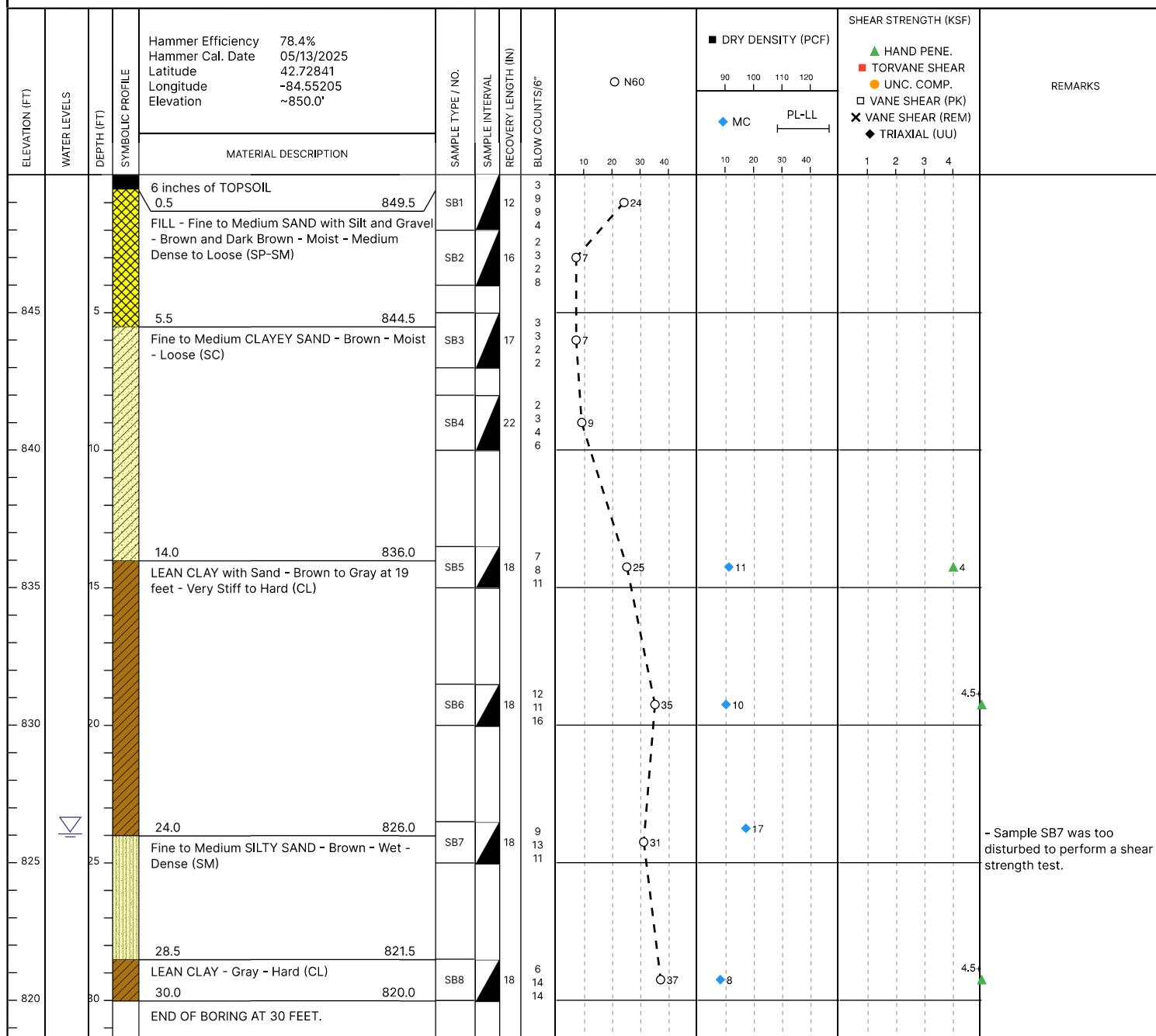
PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

BORING METHOD: Note 3

LOGGED BY: EJP

CHECKED BY: ARCK



		DEPTH (ft)	ELEV (ft)
	DURING BORING	24'	826.0'
	AT END OF BORING	N.E.	

CAVE IN DEPTH:	15'	835.0'
-----------------------	-----	--------

BACKFILL METHOD: Auger Cuttings capped with EPCO hole plug.

Notes: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
3. Solid-stem augers were used to advance the borehole to 5 feet below the ground surface. Hollow-stem augers were then used from 5 feet to the explored depth of the boring.
4. N.E. means "Not Encountered".

PAGE 1 OF 1

BORING DEPTH: 30 feet

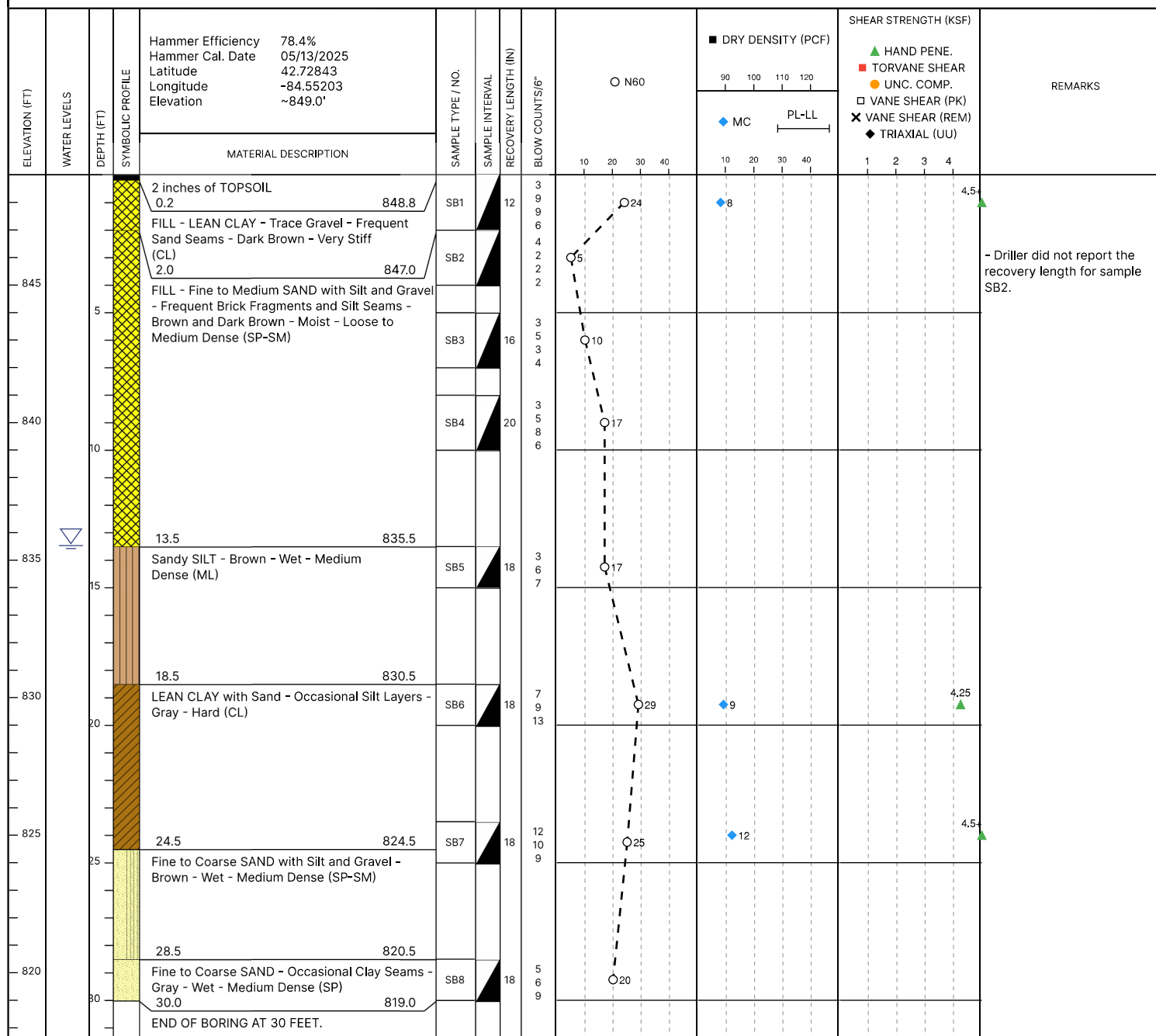
PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

BORING METHOD: Note 3

LOGGED BY: EJP

CHECKED BY: ARCK



		DEPTH (ft)	ELEV (ft)
	DURING BORING	13.5'	835.5'
	AT END OF BORING	See Notes	

CAVE IN DEPTH:	N/A	N/A
-----------------------	-----	-----

BACKFILL METHOD: Auger Cuttings capped with EPCO hole plug.

Notes: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.

2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

3. Solid-stem augers were used to advance the borehole to 5 feet below the ground surface. Hollow-stem augers were then used from 5 feet to the explored depth of the boring. Mud was added to annulus of augers 15 feet below the ground surface. Therefore, obtaining an accurate water level after completion of drilling was not possible.



BORING B3

PAGE 1 OF 1

BORING DEPTH: 30 feet

PROJECT NAME: CATA Building Addition and Renovations

PROJECT NUMBER: 098012.03

CLIENT: Capital Area Transportation Authority

PROJECT LOCATION: Lansing, Michigan

DATE STARTED: 06/11/2026 COMPLETED: 06/11/2026

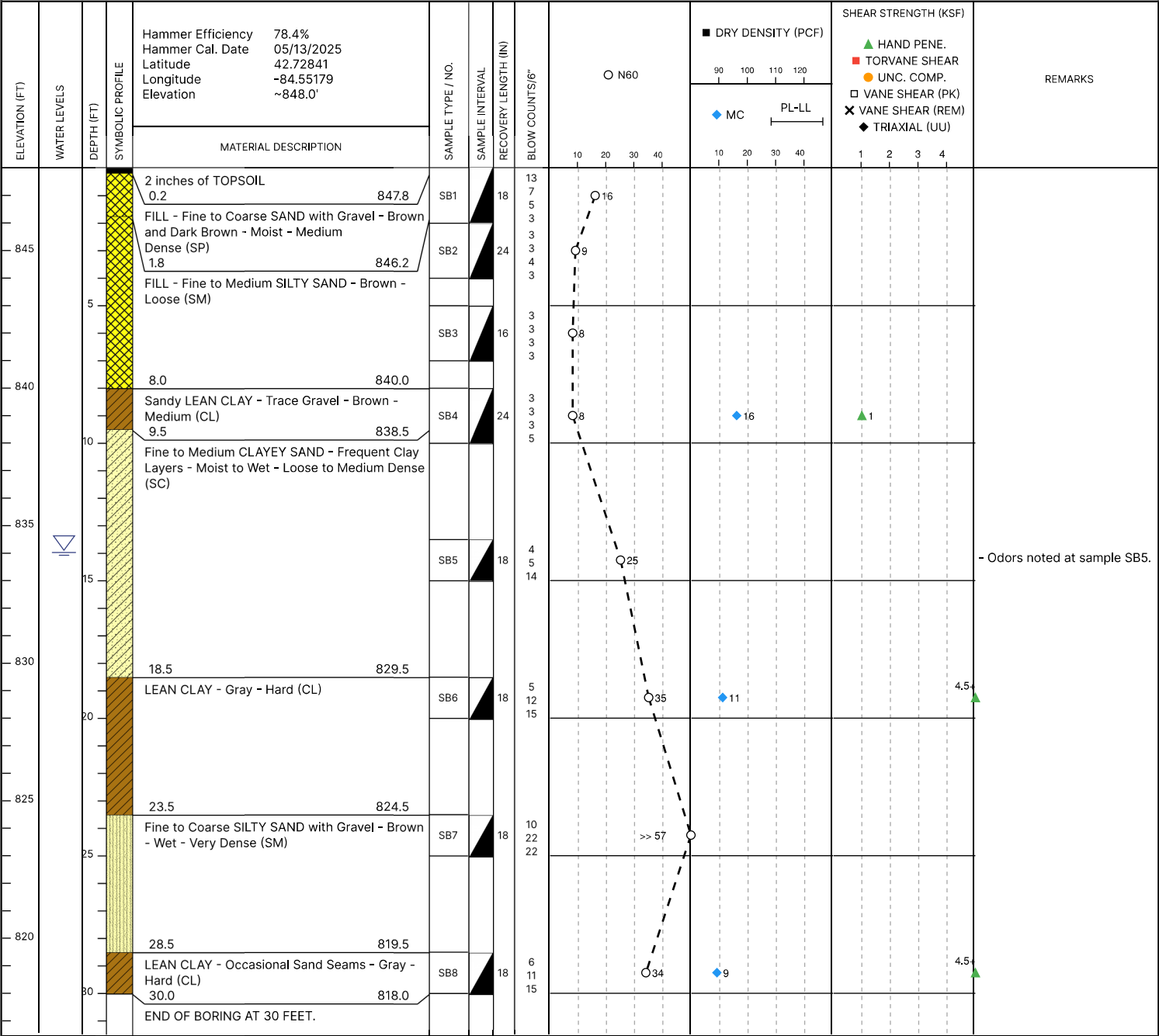
BORING METHOD: Note 3

DRILLER: WN/MB

RIG NO.: 552 CME-55

LOGGED BY: EJP

CHECKED BY: ARCK



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (ft)	ELEV (ft)
DURING BORING	14'	834.0'
AT END OF BORING	See Notes	
CAVE IN DEPTH:	N/A	N/A
BACKFILL METHOD:	Note 4	

- Notes:
- The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
 - The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
 - Solid-stem augers were used to advance the borehole to 5 feet below the ground surface. Hollow-stem augers were then used from 5 feet to the explored depth of the boring. Mud was added to annulus of augers 15 feet below the ground surface. Therefore, obtaining an accurate water level after completion of drilling was not possible.
 - Borehole backfilled with auger cuttings to 15 feet below the ground surface and bentonite chips above 15 feet to the ground surface.



SME

BORING B15

PAGE 1 OF 1

BORING DEPTH: 12 feet

PROJECT NAME: CATA Building Addition and Renovations

CLIENT: Capital Area Transportation Authority

DATE STARTED: 07/15/2026

OPERATOR: CT

PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

COMPLETED: 07/15/2026

RIG NO.: Geoprobe

BORING METHOD: Direct Push

LOGGED BY: SD

CHECKED BY: JL

ELEVATION (FT)	WATER LEVELS	DEPTH (FT)	SYMBOLIC PROFILE	Latitude Longitude Elevation	MATERIAL DESCRIPTION	SAMPLE TYPE / NO.	SAMPLE INTERVAL	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)	REMARKS
				42.72843 84.55204 ~848.0'				90 100 110 120 MC PL-LL	▲ HAND PENE. ■ TORVANE SHEAR ● UNC. COMP. □ VANE SHEAR (PK) ✕ VANE SHEAR (REM) ◆ TRIAXIAL (UU)	
								10 20 30 40	1 2 3 4	
					3 inches of TOPSOIL 0.3 847.7					
845					FILL - Fine to Coarse SAND with Silt - Frequent Roots - Brown - Moist - (SP-SM) 3.0 845.0	LS1		◆ 14	▲ 1.75	
		5			FILL - Fine to Medium SILTY SAND - Frequent Asphalt Pieces - Brown - Moist - (SM) 4.0 844.0					
					FILL - Fine to Medium CLAYEY SAND - Occasional Cinders - Dark Brown - Moist - (SC) 6.0 842.0	LS2		◆ 19	■ 0.5	
840					FILL - Sandy LEAN CLAY - Brown - Stiff to Soft (CL)					
		10			11.0 837.0	LS3				
					Fine to Medium CLAYEY SAND - Brown - Moist - (SC) 12.0 836.0					
835					END OF BORING AT 12 FEET.					
		15								
830										
		20								
825										
		25								
820										

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (ft)	ELEV (ft)
▽ DURING BORING	N.E.	
▽ AT END OF BORING	N.E.	
CAVE IN DEPTH:	N/A	N/A
BACKFILL METHOD:	Sand and Gravel	

Notes:

1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
3. N.E. means "Not Encountered".

- Refusal at 4 feet, offset and blind probe to 4 feet

Date Printed: July 23, 2026



BORING B16

PAGE 1 OF 1

BORING DEPTH: 12 feet

PROJECT NAME: CATA Building Addition and Renovations

CLIENT: Capital Area Transportation Authority

DATE STARTED: 07/15/2026

OPERATOR: CT

PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

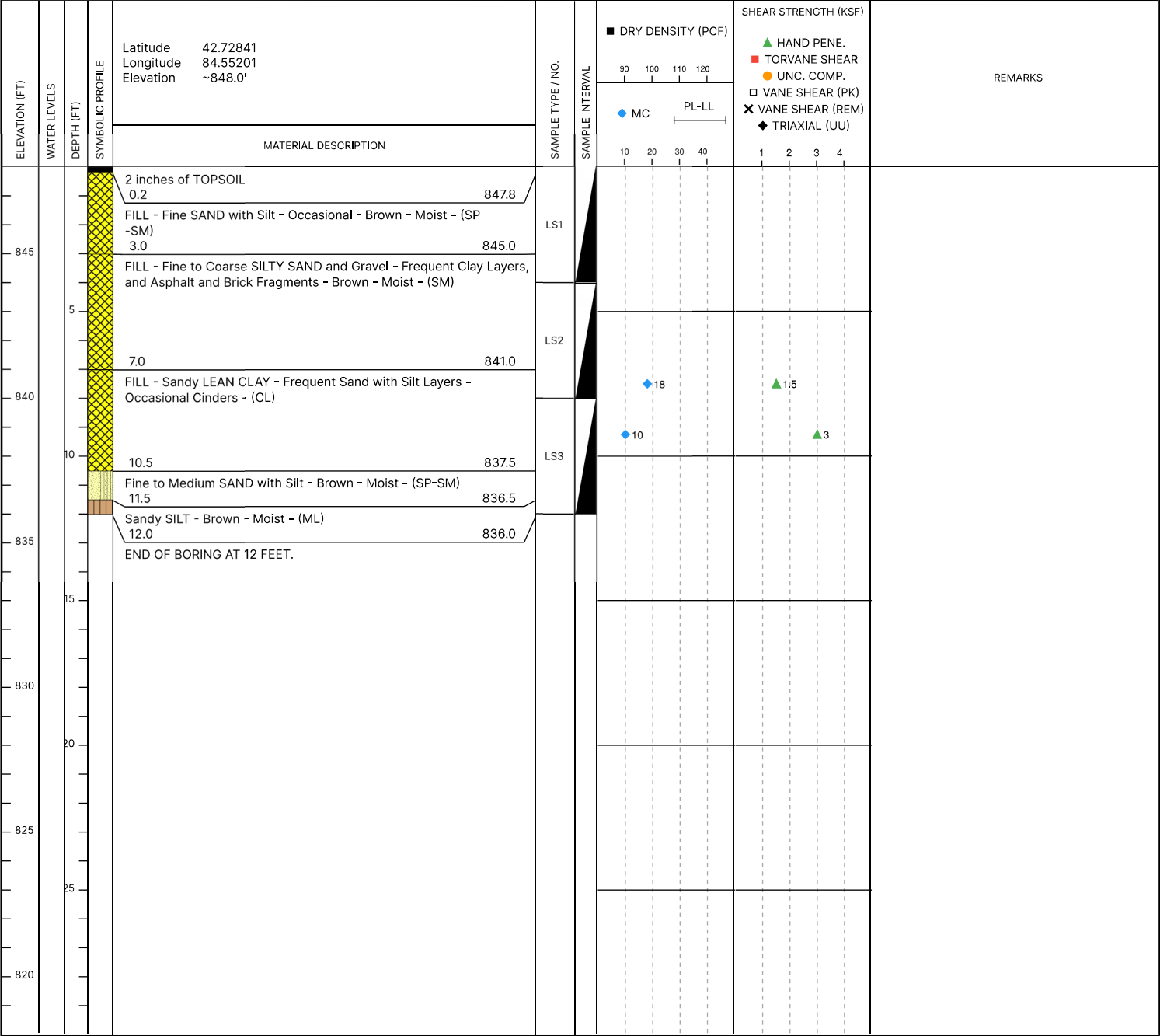
COMPLETED: 07/15/2026

RIG NO.: Geoprobe

BORING METHOD: Direct Push

LOGGED BY: SD

CHECKED BY: JL



GROUNDWATER & BACKFILL INFORMATION

DEPTH (ft) ELEV (ft)

DURING BORING

AT END OF BORING

N.E.

N.E.

CAVE IN DEPTH:

BACKFILL METHOD: Sand and Gravel

Notes:

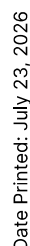
1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.

2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

3. N.E. means "Not Encountered".

BORING DEPTH: 12 feet

CHECKED BY: JL



BACKFILL METHOD: Sand and Gravel

Notes: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
3. N.E. means "Not Encountered".



BORING B18

PAGE 1 OF 1

BORING DEPTH: 12 feet

PROJECT NAME: CATA Building Addition and Renovations

CLIENT: Capital Area Transportation Authority

DATE STARTED: 07/15/2026

OPERATOR: CT

PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

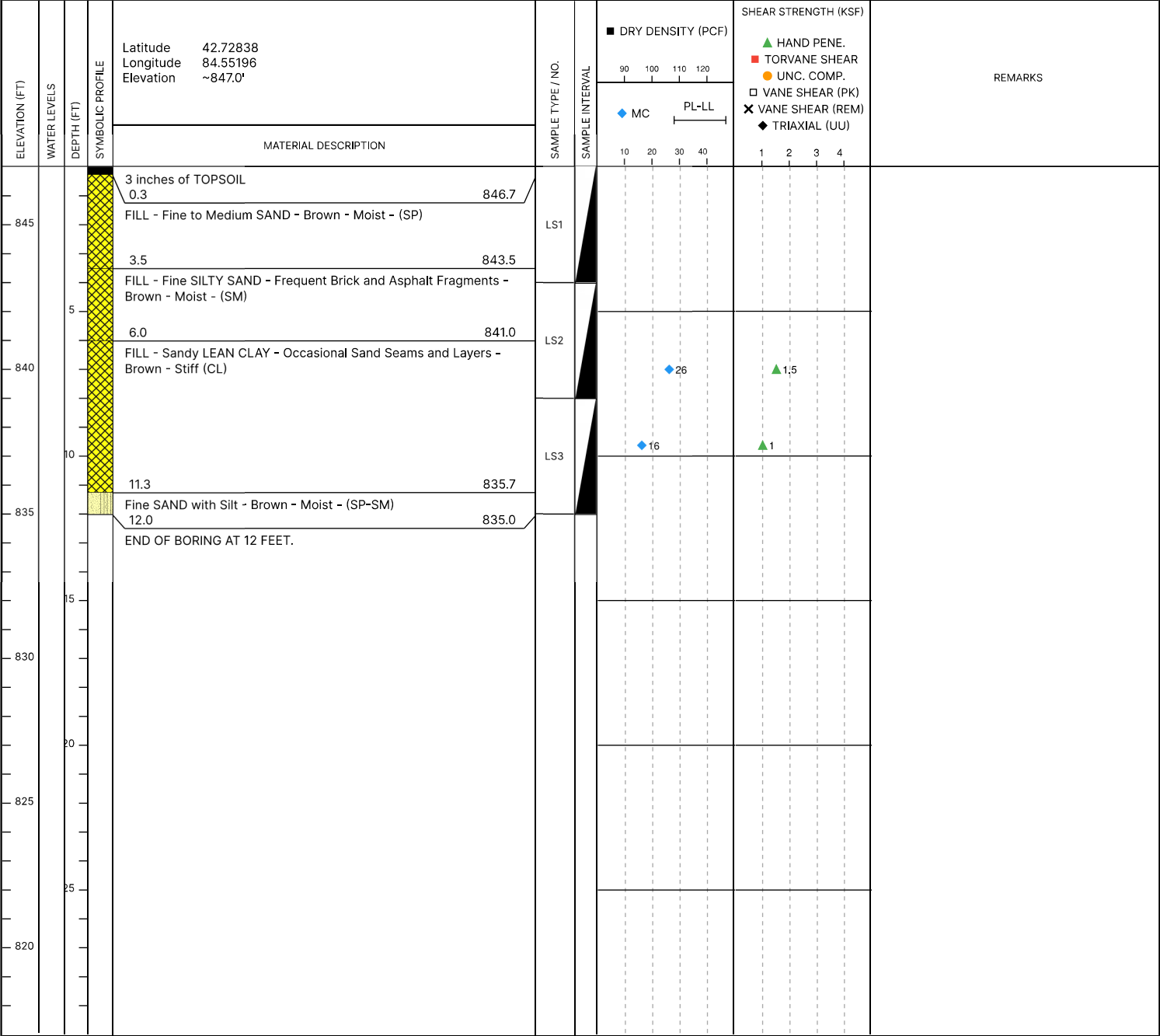
COMPLETED: 07/15/2026

RIG NO.: Geoprobe

BORING METHOD: Direct Push

LOGGED BY: SD

CHECKED BY: JL



GROUNDWATER & BACKFILL INFORMATION

DEPTH (ft)

ELEV (ft)

DURING BORING

AT END OF BORING

CAVE IN DEPTH:

BACKFILL METHOD: Sand and Gravel

Notes:

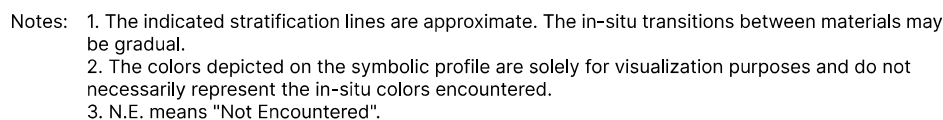
1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.

2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

3. N.E. means "Not Encountered".

BORING DEPTH: 12 feet

CHECKED BY: JL





BORING B20

PAGE 1 OF 1

BORING DEPTH: 12 feet

PROJECT NAME: CATA Building Addition and Renovations

CLIENT: Capital Area Transportation Authority

PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

DATE STARTED: 07/15/2026

COMPLETED: 07/15/2026

BORING METHOD: Direct Push

OPERATOR: CT

RIG NO.: Geoprobe

LOGGED BY: SD

CHECKED BY: JL

ELEVATION (FT)	WATER LEVELS	DEPTH (FT)	SYMBOLIC PROFILE	Latitude 42.72838 Longitude 84.55204 Elevation ~848.0'		MATERIAL DESCRIPTION	SAMPLE TYPE / NO.	SAMPLE INTERVAL		DRY DENSITY (PCF)		SHEAR STRENGTH (KSF)				REMARKS
								90 100 110 120		1 2 3 4						
845		5		5 inches of TOPSOIL 0.4		847.6	LS1									
				FILL - Fine SAND with Silt - Brown - Moist - (SP-SM) 1.1		846.9										
				FILL - Fine to Medium SILTY SAND - Occasional Brick Fragments and Cinders - (SM)			LS2									
				7.0		841.0										
				840		10		FILL - Sandy LEAN CLAY - Frequent Cinders - Dark Brown to Brown - Soft (CL)			LS3			20		0.5
			11.5		836.5											
835				Fine SAND - Brown - Moist - (SP) 12.0		836.0										
				END OF BORING AT 12 FEET.												
		15														
830																
		20														
825																
		25														
820																

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (ft)	ELEV (ft)
DURING BORING	N.E.	
AT END OF BORING	N.E.	

CAVE IN DEPTH: N/A N/A

BACKFILL METHOD: Sand and Gravel

Notes: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
3. N.E. means "Not Encountered".

BORING DEPTH: 12 feet

CHECKED BY: JL



Date Printed: July 23, 2026



BORING P1

PAGE 1 OF 1

BORING DEPTH: 3.7 feet

PROJECT NAME: CATA Building Addition and Renovations

PROJECT NUMBER: 098012.03

CLIENT: Capital Area Transportation Authority

PROJECT LOCATION: Lansing, Michigan

DATE STARTED: 07/20/2026 COMPLETED: 07/20/2026

BORING METHOD: Direct Push

OPERATOR: SMM

RIG NO.: Geoprobe

LOGGED BY: SMM

CHECKED BY: ARCK

ELEVATION (FT)	WATER LEVELS	DEPTH (FT)	SYMBOLIC PROFILE	Latitude Longitude Elevation		SAMPLE TYPE / NO.	SAMPLE INTERVAL	DRY DENSITY (PCF)	SHEAR STRENGTH (KSF)	REMARKS
				42.72848 84.55158 ~844.0'				90 100 110 120 MC PL-LL	▲ HAND PENE. ■ TORVANE SHEAR ● UNC. COMP. □ VANE SHEAR (PK) ✕ VANE SHEAR (REM) ◆ TRIAXIAL (UU)	
				MATERIAL DESCRIPTION						
				4 inches of ASPHALT 0.3 843.7						
				7 inches of AGGREGATE BASE - Fine to Coarse SILTY SAND with Gravel - Gray - Moist - (SM) 0.9 843.1						
				FILL - Fine to Medium CLAYEY SAND - Occasional Silt Seams - Few Gravel - Gray and Brown - Moist - (SC) 1.8 842.3						
				FILL - Fine to Medium SAND with Silt - Brown - Moist - (SP-SM) 2.2 841.8	LS1					
				FILL - Fine to Medium SILTY SAND - Few Gravel - Brown - Moist - (SM) 2.8 841.3						
				FILL - Fine to Medium SAND with Silt - Brown - Moist - (SP-SM) 3.3 840.7						
				FILL - Fine to Medium SILTY SAND - Few Gravel - Brown - Moist - (SM) 3.7 840.3						
				END OF BORING AT 3.7 FEET.						

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (ft)	ELEV (ft)
▽ DURING BORING	N.E.	
▽ AT END OF BORING	N.E.	
CAVE IN DEPTH:	N/A	N/A
BACKFILL METHOD:	Sand and Gravel	

Notes: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
3. N.E. means "Not Encountered".

BORING DEPTH: 3.3 feet

CHECKED BY: ARCK

GROUNDWATER & BACKFILL INFORMATION			Notes: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual. 2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered. 3. N.E. means "Not Encountered".
		DEPTH (ft) ELEV (ft)	
	DURING BORING	N.E.	
	AT END OF BORING	N.E.	
CAVE IN DEPTH:		N/A N/A	
BACKFILL METHOD: Sand and Gravel			



BORING P3

PAGE 1 OF 1

BORING DEPTH: 3.8 feet

PROJECT NAME: CATA Building Addition and Renovations

CLIENT: Capital Area Transportation Authority

DATE STARTED: 07/20/2026

OPERATOR: SMM

COMPLETED: 07/20/2026

RIG NO.: Geoprobe

PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

BORING METHOD: Direct Push

LOGGED BY: SMM

CHECKED BY: ARCK

ELEVATION (FT)

WATER LEVELS

DEPTH (FT)

SYMBOLIC PROFILE

Latitude 42.72829

Longitude 84.55157

Elevation ~846.0'

MATERIAL DESCRIPTION

4.25 inches of ASPHALT

0.3

845.7

7.25 inches of CONCRETE

1.0

845.0

FILL - Sandy LEAN CLAY - Gray - Stiff (CL)

1.2

844.8

FILL - Fine to Medium SAND with Silt - Brown - Moist - (SP-SM)

1.5

844.5

FILL - Sandy LEAN CLAY - Brown - Very Stiff (CL)

1.9

844.1

FILL - Fine to Medium SILTY SAND - Brown - Moist - (SM)

2.6

843.4

FILL - Fine to Medium SAND with Silt - Brown - Moist - (SP-SM)

3.5

842.5

FILL - Fine to Medium CLAYEY SAND - Brown - Moist - (SC)

3.8

842.2

END OF BORING AT 3.8 FEET.

SAMPLE TYPE / NO.

SAMPLE INTERVAL

LS1

■ DRY DENSITY (PCF)

90 100 110 120

◆ MC

PL-LL

10 20 30 40

SHEAR STRENGTH (KSF)

▲ HAND PENE.

■ TORVANE SHEAR

● UNC. COMP.

□ VANE SHEAR (PK)

✕ VANE SHEAR (REM)

◆ TRIAXIAL (UU)

1 2 3 4

1.5

3

REMARKS

GROUNDWATER & BACKFILL INFORMATION

DEPTH (ft)

ELEV (ft)

DURING BORING

N.E.

AT END OF BORING

N.E.

CAVE IN DEPTH:

N/A

N/A

BACKFILL METHOD:

Sand and Gravel

Notes:

1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.

2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

3. N.E. means "Not Encountered".

Date Printed: July 23, 2026



BORING P4

PAGE 1 OF 1

BORING DEPTH: 2.7 feet

PROJECT NAME: CATA Building Addition and Renovations

CLIENT: Capital Area Transportation Authority

PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

DATE STARTED: 07/20/2026 COMPLETED: 07/20/2026

BORING METHOD: Direct Push

OPERATOR: SMM

RIG NO.: Geoprobe

LOGGED BY: SMM

CHECKED BY: ARCK

ELEVATION (FT)	WATER LEVELS	DEPTH (FT)	SYMBOLIC PROFILE	Latitude Longitude Elevation	MATERIAL DESCRIPTION	SAMPLE TYPE / NO.	SAMPLE INTERVAL	DRY DENSITY (PCF)				SHEAR STRENGTH (KSF)				REMARKS
				42.72819 84.55155 ~846.0'				90 100 110 120	MC PL-LL			1 2 3 4	1 2 3 4			
845					2 inches of ASPHALT 0.2 845.8											
					7 inches of AGGREGATE BASE - Fine to Medium SILTY SAND - Brown and Gray - Moist - (SM) 0.8 845.3											
					FILL - Sandy LEAN CLAY - Occasional Black Silt Seams - Brown - Very Stiff (CL) 1.1 844.9	LS1										
					4 inches of AGGREGATE BASE - Fine to Coarse SILTY SAND with Gravel - Gray - Moist - (SM) 1.4 844.6											
					FILL - Sandy LEAN CLAY - Brown - Hard (CL) 2.3 843.8											
					FILL - Fine to Medium SAND with Silt - Brown - Moist - (SP-SM) 2.5 843.5											
					FILL - Fine to Medium CLAYEY SAND - Brown - Moist - (SC) 2.7 843.3											
					END OF BORING AT 2.7 FEET.											
840		5														

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (ft)	ELEV (ft)
DURING BORING	N.E.	
AT END OF BORING	N.E.	
CAVE IN DEPTH:	N/A	N/A
BACKFILL METHOD:	Sand and Gravel	

- Notes:
- The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
 - The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
 - N.E. means "Not Encountered".



PROJECT NAME: CATA Building Addition and Renovations

CLIENT: Capital Area Transportation Authority

DATE STARTED: 07/20/2026

OPERATOR: SMM

COMPLETED: 07/20/2026

RIG NO.: Geoprobe

PROJECT NUMBER: 098012.03

PROJECT LOCATION: Lansing, Michigan

BORING METHOD: Direct Push

LOGGED BY: SMM

CHECKED BY: ARCK

ELEVATION (FT)	WATER LEVELS	DEPTH (FT)	SYMBOLIC PROFILE	Latitude Longitude Elevation	MATERIAL DESCRIPTION	SAMPLE TYPE / NO.	SAMPLE INTERVAL	DRY DENSITY (PCF)				SHEAR STRENGTH (KSF)				REMARKS
				42.72811 84.55160 ~847.0'				90 100 110 120	PL-LL		1 2 3 4	1 2 3 4				
845				3 inches of ASPHALT 0.3	846.7	LS1	 16		 1.5							
			7 inches of CONCRETE 0.8	846.2												
			FILL - Sandy LEAN CLAY - Frequent Asphalt Millings and Coal Seams - Gray - Stiff (CL)													
			2.8	844.2												
			FILL - Fine to Medium CLAYEY SAND - Brown - Moist - (SC) 3.3	843.7												
			END OF BORING AT 3.3 FEET.													
840		5														

GROUNDWATER & BACKFILL INFORMATION			Notes:	1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual. 2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered. 3. N.E. means "Not Encountered".
DEPTH (ft)	ELEV (ft)			
DURING BORING	N.E.			
AT END OF BORING	N.E.			
CAVE IN DEPTH:	N/A	N/A		
BACKFILL METHOD:	Sand and Gravel			



PHOTO NO. 1: Boring P1 - 4 inches of Asphalt



PHOTO NO. 2: Boring P2 - 4 inches of Asphalt and 7 inches of Concrete



PHOTO NO. 3: Boring P3 - 4.25 inches of Asphalt and 7.25 inches of Concrete



PHOTO NO. 4: Boring P4 - 2 inches of Asphalt



PHOTO NO. 5: Boring P5 - 3 inches of Asphalt and 7 inches of Concrete

PROJECT NAME: CATA Building Addition and Renovations
PROJECT NO.: 098012.03
LOCATION: Lansing, Michigan
CLIENT: Capital Area Transportation Authority
DATE: 7/20/26
BY: SMM

PROBE/CORE: P1
STREET: _____
LANE: _____
STATION: _____
OFFSET: _____
GROUND EL: _____

Layer, in.			Description	Comment
From	To	Layer Thickness, in.		
0	4	4	ASPHALT PAVEMENT	Intact
4	11	7	AGGREGATE BASE	
			SEE NOTE 1	

Upon Completion: See Note 1

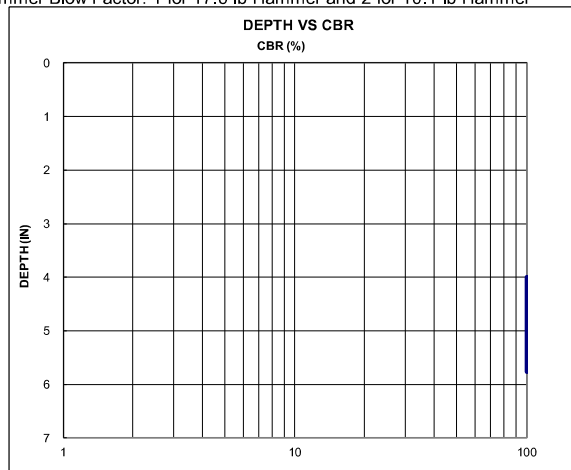
1) See Boring Logs for soil and groundwater description.

2) USACE DCP refusal at approximate depth of 6 inches.

Depth to start of test from ex. ground surface: 4 inches

[illegible]

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



Support Conditions	CBR Range for Aggregate Base Materials (%)	CBR Range for Subgrade Soils (%)
Good	>80	>10
Marginal	60 to 80	5 to 10
Poor	30 to 60	3 to 5
Very Poor	<30	<3



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PROJECT NAME: CATA Building Addition and Renovations
PROJECT NO.: 098012.03
LOCATION: Lansing, Michigan
CLIENT: Capital Area Transportation Authority
DATE: 7/20/26
BY: SMM

PROBE/CORE: P2
 STREET: _____
 LANE: _____
 STATION: _____
 OFFSET: _____
 GROUND EL: _____

Layer, in.		Layer Thickness, in.	Description	Comment
From	To			
0	4	4	ASPHALT PAVEMENT	Delaminated at 2.5"
4	11	7	PORTLAND CEMENT CONCRETE	Intact - No Resteel Observed
			SEE NOTE 1	

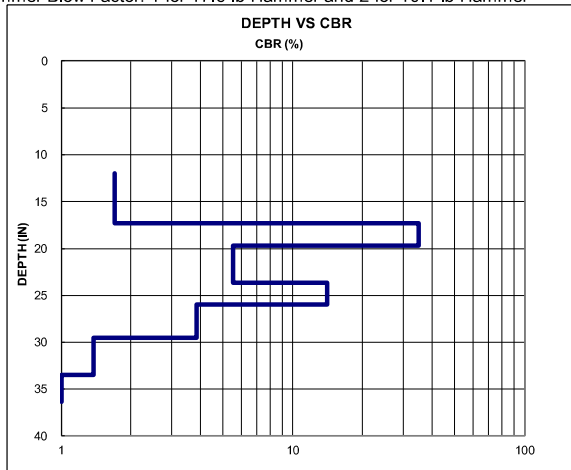
Upon Completion: See Note 1

1) See Boring Logs for soil and groundwater description.

Depth to start of test from ex. ground surface: 12 inches

[illegible]

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



Support Conditions	CBR Range for Aggregate Base Materials (%)	CBR Range for Subgrade Soils (%)
Good	>80	>10
Marginal	60 to 80	5 to 10
Poor	30 to 60	3 to 5
Very Poor	<30	<3



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PROJECT NAME: CATA Building Addition and Renovations
PROJECT NO.: 098012.03
LOCATION: Lansing, Michigan
CLIENT: Capital Area Transportation Authority
DATE: 7/20/26
BY: SMM

PROBE/CORE: P3
STREET: _____
LANE: _____
STATION: _____
OFFSET: _____
GROUND EL: _____

Layer, in.		Layer Thickness, in.	Description	Comment
From	To			
0	4.25	4.25	ASPHALT PAVEMENT	Deteriorated below 3"
4.25	11.5	7.25	PORTLAND CEMENT CONCRETE	Intact - No Resteel Observed
			SEE NOTE 1	

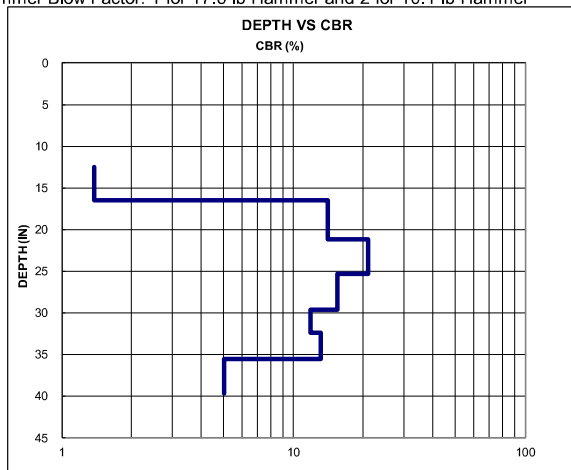
Upon Completion: See Note 1

1) See Boring Logs for soil and groundwater description.

Depth to start of test from ex. ground surface: 12.5 inches

[illegible]

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



Support Conditions	CBR Range for Aggregate Base Materials (%)	CBR Range for Subgrade Soils (%)
Good	>80	>10
Marginal	60 to 80	5 to 10
Poor	30 to 60	3 to 5
Very Poor	<30	<3



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PROJECT NAME: CATA Building Addition and Renovations
PROJECT NO.: 098012.03
LOCATION: Lansing, Michigan
CLIENT: Capital Area Transportation Authority
DATE: 7/20/26
BY: SMM

PROBE/CORE: P4
STREET: _____
LANE: _____
STATION: _____
OFFSET: _____
GROUND EL: _____

Layer, in.			Description	Comment
From	To	Layer Thickness, in.		
0	2	2	ASPHALT PAVEMENT	Intact
2	9	7	AGGREGATE BASE	
			SEE NOTE 1	

Upon Completion: See Note 1

1) See Boring Logs for soil and groundwater description.

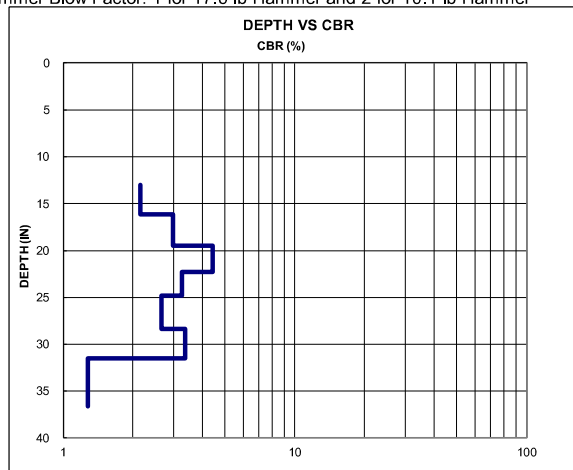
2) USACE DCP refusal at approximate depth of 5.5 inches. SME probed past obstruction and began USACE

DCP testing at depth of approximately 13 inches.

Depth to start of test from ex. ground surface: 13 inches

[illegible]

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



Support Conditions	CBR Range for Aggregate Base Materials (%)	CBR Range for Subgrade Soils (%)
Good	>80	>10
Marginal	60 to 80	5 to 10
Poor	30 to 60	3 to 5
Very Poor	<30	≤3



**Core picture shows approximate thickness

CORE LOG DCP 1 meter rod (standard).XLS ver. 2/7/14- Clay DCP



PAVEMENT CORE LOG AND USACE DCP DATA

PROJECT NAME: CATA Building Addition and Renovations
PROJECT NO.: 098012.03
LOCATION: Lansing, Michigan
CLIENT: Capital Area Transportation Authority
DATE: 7/20/26
BY: SMM

PROBE/CORE: P5
STREET: _____
LANE: _____
STATION: _____
OFFSET: _____
GROUND EL: _____

PAVEMENT AND SUBSURFACE CONDITIONS

Layer, in.		Layer Thickness, in.	Description	Comment
From	To			
0	3	3	ASPHALT PAVEMENT	Deteriorated below 2"
3	10	7	PORTLAND CEMENT CONCRETE	Intact - No Restell Observed
			SEE NOTE 1	

Depth to Groundwater From Ground Surface

Upon Completion: See Note 1

NOTES:

1) See Boring Logs for soil and groundwater description.

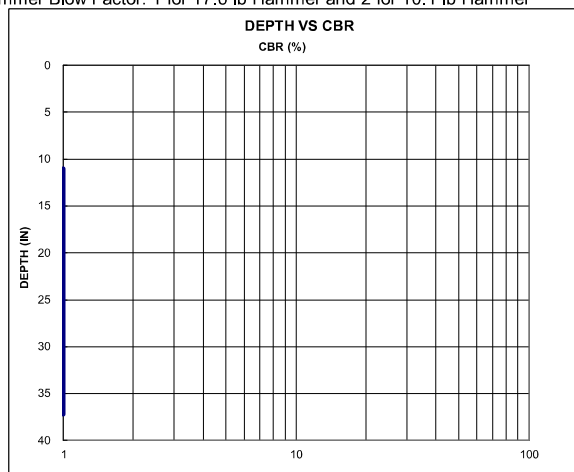
DCP TEST RESULTS

Depth to start of test from ex. ground surface: 11 inches

[illegible]

Hammer Blow Factor: 1 for 17.6 lb Hammer and 2 for 10.1 lb Hammer

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



Support Conditions	CBR Range for Aggregate Base Materials (%)	CBR Range for Subgrade Soils (%)
Good	>80	>10
Marginal	60 to 80	5 to 10
Poor	30 to 60	3 to 5
Very Poor	<30	<3



**Core picture shows approximate thickness

CORE LOG DCP 1 meter rod (standard).XLS ver. 2/7/14- Clay DCP

APPENDIX B
FIELD TESTING PROCEDURES
LABORATORY TESTING PROCEDURES
LIMITATIONS PERTAINING TO SUBSURFACE CONDITIONS

FIELD TESTING PROCEDURES

STANDARD PENETRATION TESTS

The Standard Penetration Tests (SPT) generally follow the American Standard Test Method (ASTM) D-1586 “Standard Test Method for SPT and Split-Barrel Sampling of Soils”. It is typically performed using a 2-inch O.D. split-spoon sampler, which is driven to obtain samples at selected intervals. The number of blows of a 140-pound hammer dropping 30 inches is recorded for each of three or four, 6-inch penetration intervals for an 18 or 24-inch drive at each sample location. The sum of blow counts for the second and third 6-inch penetration intervals equals the raw (uncorrected) N-value for a given sample interval (i.e. 5-4-2, N = 6). We periodically calibrate SME’s drill rig auto-hammers. The hammer efficiency determined from this calibration is used to calculate the corrected N-values (N_{60}), as reported on the logs. When sampling in rock or hard soil, where a penetration of 6 inches or less was obtained for 50 hammer blows, the actual blow count and depth of penetration in inches for that interval is recorded (i.e. 50/2”). When sampling in very loose or very soft soil, where a penetration of more than 6 inches is obtained for a single hammer blow, the actual depth of penetration for that hammer blow is recorded (i.e. 1-0-0). Where the sampling equipment advanced under its own weight, “WOH” (weight of hammer) and the corresponding penetration depth are shown on the boring logs.

INFILTRATION TESTS

In-situ infiltration tests generally follow the double-ring infiltrometer field test procedures outlined in Appendix E in the Low Impact Development (LID) Manual for Michigan (dated 2008) prepared by the Southeast Michigan Council of Governments (SEMCOG). This procedure is also referenced in the States of Indiana, Ohio, and Kentucky applicable local manuals. The double-ring infiltrometer field test set-up consists of performing a boring or test pit to the test depth, installing an outer 6-inch-diameter standpipe and an inner 4-inch-diameter standpipe, and then driving the standpipes a suitable distance, per the referenced manual, below the bottom of the test depth. Soil is pre-soaked with approximately 12 inches of water for approximately one hour. The water drop rate per the last 30 minutes of the soaking period determines the subsequent interval for infiltration readings (i.e., 10- or 30-minute intervals). After completing the soaking period, standpipes are filled with water to a height of approximately 12 inches above the test depth, and water level changes in the standpipes are measured with a water level measuring tape with markings every 0.01 feet and recorded after the time intervals. This procedure is repeated until a minimum of four consecutive height changes within 1/4-inch of one another are measured. The height drop that occurred during the final time interval or the average stabilized rate is used to calculate the infiltration rate. After completion of the double-ring infiltrometer field test, the standpipes are removed, and the test hole is backfilled.

DYNAMIC CONE PENETROMETER (DCP)

USACE TESTS

Dynamic Cone Penetrometer (DCP) testing designed by the U.S. Army Corps of Engineers (USACE) is conducted to estimate the California Bearing Ratio (CBR) of the subgrade materials and existing pavement sub-layers. The USACE DCP consists of a 5/8-inch-diameter steel rod with a steel cone attached to one end driven by a sliding dual mass hammer. The rate of penetration per blow is measured at selected penetration, or hammer drop, intervals. CBR is an index commonly used in pavement design that provides an indication of subgrade support characteristics. The Corps of Engineers developed relationships to estimate the CBR value from the results of the USACE DCP test.

SME DCP TESTS

SME Dynamic Cone Penetrometer (DCP) test consists of dropping a 10-pound slide hammer that falls 24 inches and drives a rod with a 1-1/8-inch conical tip into the subgrade. The number of hammer drops required to drive the cone penetrometer are recorded for each six-inch increment and are used to estimate the relative density of the granular soils. The DCP blow counts were used to estimate Standard Penetration Test resistances (N-values) commonly used in geotechnical evaluations, based on empirical correlations developed by SME.

PRESSUREMETER TESTING

Pressuremeter testing in the field models the static loading characteristics of the soil and the resulting analyses based on pressuremeter test results are considered to be a more accurate indicator of the ultimate foundation bearing pressure, and associated settlement, than analyses using empirical correlations based on dynamic test methods, such as the Standard Penetration Test (SPT) and/or dynamic cone penetrometer (DCP) tests. Results of the SPT and/or DCP were recorded, at the pressuremeter test locations and depths to provide additional information on the relative density of the in-place subgrade, and to correlate the pressuremeter test results with data obtained at other site locations. The pressuremeter test depths were selected to provide representative information corresponding to the bearing soils anticipated within the stress influence zone of the proposed footings at the design bearing levels.

In the pressuremeter test, a radial expandable cylindrical probe is inserted into a prepared borehole at the selected testing depth. After obtaining N-values from driving a standard 2-inch O.D. diameter split-spoon sampler, borehole preparation consisted of then driving a 3-inch O.D. split-spoon sampler (or using a roller bit with wash rotary methods) to develop the appropriately sized borehole diameter for the pressuremeter probe. The cylindrical probe was inserted into the borehole to the sampling depth and then expanded against the sides of the borehole by pressurizing fluid within the system using a hydraulic screw-jack console positioned at the ground surface.

Simultaneous measurements of pressure and volume change within the probe were observed at the pressuremeter console and recorded. The pressure was incrementally increased until the maximum probe volume was reached, or until significant creep deformation (soil failure) was observed.

MUCK PROBE

The muck probe consists of a smooth rod about 1/2-inch in diameter manually pushed into the subgrade until encountering significant resistance (determined “by feel”), presumably indicating the bottom of organic soil stratum.

VANE SHEAR TESTING

In-situ vane shear testing generally follows the American Standard Test Method (ASTM) D-2573 “Standard Test Method for Field Vane Shear Test in Cohesive Soil”. Per the ASTM, the field vane shear test consists of placing a four-bladed vane (sized based on the expected cohesive soil strength) in the undisturbed soil and rotating it from the surface at a constant rate to determine the torque required to shear a cylindrical surface with the vane. This torque, or moment, is then converted to the unit shearing resistance of the failure surface by limit equilibrium analysis. Friction of the vane rod and instrument is either minimized during readings by an open hole, casing, or accounted for and subtracted from the total torque to determine the torque applied to the vane. After initially shearing the soil to determine the peak “undisturbed” ultimate shear strength, the test can be repeated to determine the remolded “residual” ultimate shear strength. The ratio of the peak shear strength divided by the remolded shear strength equals the degree of sensitivity.

DEGREE OF SENSITIVITY

DEGREE OF SENSITIVITY	DESCRIPTION
2	Insensitive
4	Moderately Sensitive
8	Extra Sensitive

ELECTRICAL RESISTIVITY TESTING

Field or laboratory resistivity testing generally follows the American Standard Test Method (ASTM) G-57 “Standard Test Method for Measurement of Soil Resistivity Using the Four-Electrode Method”.

FIELD TESTING

Per the ASTM, the field Wenner four-electrode method requires four metal electrode probes placed with equal separation at various distances in a straight line. The probes are inserted in the surface of the soil to a depth not exceeding 5 percent of the minimum separation of the electrodes (or 12 inches maximum, whichever is less). The electrode separation is selected with consideration of the soil strata location and depth of interest. A voltage is impressed between the outer electrodes and the voltage drop between the inner electrodes is measured. The resulting resistivity measurement represents the average resistivity of a hemisphere of soil of a radius equal to the electrode separation.

LABORATORY TESTING

Soil is tamped into a soil box to resemble the compaction where the soil sample was taken until the soil is level with the top of the box. Two brass pins are inserted at the premanufactured distances into the soil sample with two endpins connected to the box. The four test leads are connected to the soil box. A voltage is impressed between the two endpins to measure the resistance, and soil resistivity is calculated based on the product-specified conversion.

CONE PENETRATION TESTING

Cone Penetration Tests (CPT) measures the soil resistance to the penetration of a standard 10 square centimeter (cm) projected area. The cone is hydraulically pushed into the soil at approximately a 2 cm per second rate. Soil resistance is recorded in kilograms per square cm at 20 cm depth intervals. Soil friction values are measured by a friction sleeve at each test interval.

LABORATORY TESTING PROCEDURES

VISUAL ENGINEERING CLASSIFICATION

Visual classification was performed on recovered samples. The appended General Notes and Unified Soil Classification System (USCS) sheets include a brief summary of the general method used visually classify the soil and assign an appropriate USCS group symbol. The estimated group symbol, according to the USCS, is shown in parentheses following the textural description of the various strata on the boring logs appended to this report. The soil descriptions developed from visual classifications are sometimes modified to reflect the results of laboratory testing.

MOISTURE CONTENT

Moisture content tests were performed by weighing samples from the field at their in-situ moisture condition. These samples were then dried at a constant temperature (approximately 110° C) overnight in an oven. After drying, the samples were weighed to determine the dry weight of the sample and the weight of the water that was expelled during drying. The moisture content of the specimen is expressed as a percent and is the weight of the water compared to the dry weight of the specimen.

HAND PENETROMETER TESTS

In the hand penetrometer test, the unconfined compressive strength of a cohesive soil sample is estimated by measuring the resistance of the sample to the penetration of a small calibrated, spring-loaded cylinder. The maximum capacity of the penetrometer is 4.5 tons per square-foot (tsf). Theoretically, the undrained shear strength of the cohesive sample is one-half the unconfined compressive strength. The undrained shear strength (based on the hand penetrometer test) presented on the boring logs is reported in units of kips per square-foot (ksf).

TORVANE SHEAR TESTS

In the Torvane test, the shear strength of a low strength, cohesive soil sample is estimated by measuring the resistance of the sample to a torque applied through vanes inserted into the sample. The undrained shear strength of the samples is measured from the maximum torque required to shear the sample and is reported in units of kips per square-foot (ksf).

LOSS-ON-IGNITION (ORGANIC CONTENT) TESTS

Loss-on-ignition (LOI) tests are conducted by first weighing the sample and then heating the sample to dry the moisture from the sample (in the same manner as determining the moisture content of the soil). The sample is then re-weighed to determine the dry weight and then heated for four hours in a muffle furnace at a high temperature (approximately 440° C). After cooling, the sample is re-weighed to calculate the amount of ash remaining, which in turn is used to determine the amount of organic matter burned from the original dry sample. The organic matter content of the specimen is expressed as a percent compared to the dry weight of the sample.

ATTERBERG LIMITS TESTS

Atterberg limits tests consist of two components. The plastic limit of a cohesive sample is determined by rolling the sample into a thread and the plastic limit is the moisture content where a 1/8-inch thread begins to crumble. The liquid limit is determined by placing a 1/2-inch-thick soil pat into the liquid limits cup and using a grooving tool to divide the soil pat in half. The cup is then tapped on the base of the liquid limits device using a crank handle. The number of drops of the cup to close the gap formed by the grooving tool 1/2 inch is recorded along with the corresponding moisture content of the sample. This procedure is repeated several times at different moisture contents and a graph of moisture content, and the corresponding number of blows is plotted. The liquid limit is defined as the moisture content at a nominal 25 drops of the cup. From this test, the plasticity index can be determined by subtracting the plastic limit from the liquid limit.

LIMITATIONS PERTAINING TO SUBSURFACE CONDITIONS

EXISTING FILL

It is sometimes difficult to distinguish between existing fill present at a site and natural soils based on samples and cuttings from small-diameter boreholes, especially if portions of the fill do not contain man-made materials, debris, topsoil, or organic layers, and when the fill appears similar in composition to the local natural soils. Therefore, consider the delineation of fill described on the logs, if encountered, to be approximate.

The composition of existing site fill, if encountered, may change abruptly over short distances and will vary from what is reported on the logs. The descriptions of debris within fill may not accurately indicate the quantity, composition, or size of the debris, and may not fully include the types of debris existing within the site fills. Perform test pits if existing fill is encountered to further evaluate the condition of the fill, particularly if the fill will be utilized for support of overlying structures and/or other improvements.

GROUNDWATER

Hydrostatic groundwater levels, and perched groundwater conditions, will fluctuate throughout the year, based on variations in precipitation, evaporation, run-off, and other factors. The groundwater information reported on the logs represent conditions at the time the readings were taken and may vary from the groundwater conditions encountered at other times.

SUBSURFACE PROFILE

The profile described in this report and included on the logs is a generalized description of the conditions observed. The stratification depths described in this report and shown on the logs indicate a zone of transition from one soil type to another. They are not meant to delineate exact depths of change between soil types. Soil conditions may vary between or away from the exploration locations. Refer to the logs for the soil descriptions, rock descriptions (when applicable), and results of the field and laboratory tests at the specific exploration locations.

If only borings with hollow-stem or solid-stem augers are performed, consider thickness measurements of surficial materials reported on the logs (e.g., gravel, asphalt, concrete, aggregate base) to be approximate since mixing of the surface materials with the underlying subgrade can occur while advancing the augers, and it is difficult to measure the thickness of surface materials in small-diameter boreholes. Perform additional evaluations for more accurate measurements of surface materials, such as test pits for topsoil and gravel thicknesses, coring for pavement thicknesses, and hand sampling for aggregate thickness.

RADON

The need for radon control systems for this project was not evaluated as part of our current scope of services. Contact the local building authority to verify whether radon control systems are necessary to meet the applicable local building codes or other requirements. If radon control methods are required, incorporate the recommendations regarding the below-slab leveling course materials and vapor retarders presented in this report with the specific materials and measures necessary to meet the applicable radon control methods. Contact SME for further recommendations.

APPENDIX C

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT GENERAL COMMENTS

Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



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GENERAL COMMENTS

BASIS OF GEOTECHNICAL REPORT

This report has been prepared in accordance with generally accepted geotechnical engineering practices to assist in the design and/or evaluation of this project. If the project plans, design criteria, and/or other project information referenced in this report and utilized by SME to prepare our recommendations are changed, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions and recommendations of this report are modified or approved in writing.

The discussions and recommendations contained in this report are based on the available project information, described in this report, and the geotechnical data obtained from the field exploration at the locations indicated in the report. Variations in soil and groundwater conditions commonly occur between or away from sampling locations. The nature and extent of the variations may not become evident until the time of construction. If significant variations are observed during construction, SME must be contacted to reevaluate the recommendations of this report.

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonable and accepted practice in the field of geotechnical engineering. Specifically, field logs are prepared during the field exploration that describe field occurrences, sampling locations, and other information. Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory and differences may exist between the field logs and the report logs.

The engineer preparing the report reviews the field logs, laboratory classifications, and test data and then prepares the report logs. Our recommendations are based on the contents of the report logs and the information contained therein.

REVIEW OF DESIGN DETAILS, PLANS, AND SPECIFICATIONS

Retain SME to review the design details, project plans, and specifications to verify those documents are consistent with the recommendations contained in this report.

REVIEW OF REPORT INFORMATION WITH PROJECT TEAM

Implementation of our recommendations may affect the design, construction, and performance of the proposed improvements, along with the potential inherent risks involved with the proposed construction. The client and key members of the design team, including SME, should discuss the issues covered in this report so the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk, and expectations for performance and maintenance.

FIELD VERIFICATION OF GEOTECHNICAL CONDITIONS

SME needs to be retained to continue our services through construction so we may observe and evaluate the actual subsurface conditions relative to the recommendations made in this report, and so we can verify the recommendations of this report are properly implemented during construction. This may avoid misinterpretation of our recommendations by other parties and will allow us to review and modify our recommendations if variations in the site subsurface conditions are encountered.

PROJECT INFORMATION FOR CONTRACTOR

This report and any future addenda or other reports regarding this site needs to be made available to prospective contractors prior to submitting their proposals for their information only and to supply them with facts relative to the subsurface evaluation and laboratory test results. If the selected contractor encounters subsurface conditions during construction, which differ from those presented in this report, the contractor needs to promptly describe the nature and extent of the differing conditions in writing and SME needs to be notified so we can verify those conditions. The construction contract needs to include provisions for dealing with differing conditions, and contingency funds for potential problems during earthwork and foundation construction. We would be pleased to assist with the development of contract provisions based on our experience.

The contractor needs to be prepared to handle environmental conditions encountered at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers. Any Environmental Assessment reports prepared for this site need to be made available for review by bidders and the successful contractor.

THIRD PARTY RELIANCE/REUSE OF THIS REPORT

This report has been prepared solely for the use of our Client for the project specifically described in this report. This report cannot be relied upon by other parties not involved in the project, unless specifically allowed by SME in writing. SME also is not responsible for the interpretation by other parties of the geotechnical data and the recommendations provided herein.



*Passionate People Building
and Revitalizing our World*



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SECTION 03 0100 MAINTENANCE OF CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cleaning of existing concrete surfaces.
- B. Repair of exposed structural, shrinkage, and settlement cracks.

1.02 RELATED REQUIREMENTS

- A. Section 03 3511 - Concrete Floor Finishes: Finishing of concrete surface using methods specified.

1.03 PRICE AND PAYMENT PROCEDURES

- A. See Section 01 2200 - Unit Prices, for additional unit price requirements.
- B. Repair Surface: By the square foot. Includes surface preparation, repair, finishing.

1.04 REFERENCE STANDARDS

- A. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

1.05 SUBMITTALS

- A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
- B. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.
- C. Manufacturer's instructions.
- D. Cleaner's qualification statement.
- E. Installer's qualification statement.

1.06 QUALITY ASSURANCE

- A. Cleaner Qualifications: Company specializing in, and with minimum of 3 years of experience in, the type of cleaning specified.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with minimum of 3 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturers' instructions for storage, shelf life limitations, and handling of products.
- B. Store materials in covered, well-ventilated area and according to manufacturer's written storage instructions. Store polymer resins and hardeners separate from construction materials that can absorb odors.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

- A. Degreaser:
 - 1. Manufacturers:
 - a. Euclid Chemical Company; Euco Clean and Strip: www.euclidchemical.com/#sle.
 - b. LATICRETE International, Inc; CITREX: www.laticrete.com/#sle.
 - c. Nox-Crete, Inc; Bio-Clean Plus: www.nox-crete.com/#sle.
 - d. SpecChem, LLC; Orange Peel-Citrus Cleaner: www.specchemllc.com/#sle.
 - e. United Gilsonite Laboratories; DRYLOK® Concrete Cleaner and Degreaser: www.ugl.com/#sle.
 - f. W. R. Meadows, Inc. : www.wrmeadows.com/#sle.
- B. Detergent: Non-ionic detergent.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

- A. Prepare concrete surfaces to be repaired according to ICRI 310.2R, _____.

SECTION 03 0100 MAINTENANCE OF CONCRETE

3.03 CLEANING EXISTING CONCRETE

- A. Clean concrete surfaces of dirt or other contamination using the gentlest method that is effective.
 - 1. Try the gentlest method first, then, if not clean enough, use a less gentle method taking care to watch for impending damage.
- B. The following are acceptable cleaning methods, in order from gentlest to less gentle:
 - 1. Water washing using low-pressure, maximum of 100 psi, and, if necessary, brushes with natural or synthetic bristles.
 - 2. Increasing the water washing pressure to maximum of 400 psi.
 - 3. Adding detergent to washing water; with final water rinse to remove residual detergent.
 - 4. Steam-generated low-pressure hot-water washing.

END OF SECTION

SECTION 03 3511 CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface treatments.

1.02 RELATED REQUIREMENTS

- A. Section 03 0100 - Maintenance of Concrete: preparation of existing concrete surfaces for finishing.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with concrete surface preparation work of Section 03 0100.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.
- B. Shop Drawings:
 - 1. Typical layout including dimensions and floor grinding schedule.
 - 2. Plan view of floor and joint pattern layout.
 - 3. Areas to receive colored surface treatment.
 - 4. Hardener, sealer, densifier identified in notes.
- C. Quality Assurance Submittals:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties as cited in Performance Requirements.
 - 2. Certificates:
 - a. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - b. Current contractor's certificate signed by manufacturer declaring Contractor as an approved installer of polishing system.
 - 3. Manufacturer's Instructions: Indicate manufacturer's installation instructions for preparation of substrate, application of finishing products, and requirements for polishing and protection of finished surface.
 - 4. Manufacturer's qualification statement.
 - 5. Installer's qualification statement.
- D. Maintenance Data: Provide data on maintenance and renewal of applied finishes.
- E. Specimen warranty.
- F. Executed warranty.

1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain components from single manufacturer.
- B. Do not proceed with concrete polishing unless manufacturer's representative and specialized equipment is present for every day of placement.
- C. Manufacturer Qualifications:
 - 1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least {CH#105528} of {CH#44068} experience.
 - 2. Company capable of providing field service representation during construction and approving application method.
- D. Installer Qualifications:
 - 1. Company specializing in performing work of type specified and with at least 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Deliver materials in manufacturer's sealed packaging, including application instructions.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

SECTION 03 3511 CONCRETE FLOOR FINISHES

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 SURFACE TREATMENTS

- A. Hardener, Densifier and Curing Agent: transparent, chemically reactive, water-based proprietary formula chemically reacting with concrete surface to form crystalline growth filling voids and pores.
 - 1. Product:
 - a. Basis of Design: Curecrete Distribution, Inc.; Ashford Formula: www.ashfordformula.com/#sle.
 - b. Substitutions: See Section 01 2500 - Substitution Procedures.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Prepare existing concrete surfaces for the work of this Section in accordance with Section 03 0100 - Maintenance of Concrete.
- B. Verify that concrete surface is sound, sufficiently cured and acceptable to receive the work of this section.

3.02 PREPARATION

- A. Prepare existing concrete surfaces for the work of this Section in accordance with Section 03 0100 - Maintenance of Concrete.

3.03 GENERAL

- A. Apply materials in accordance with manufacturer's written instructions.

3.04 FINAL CLEANING

- A. Remove surplus and excess materials, rubbish, tools and equipment.

3.05 PROTECTION

- A. Protect installed coatings from subsequent construction operations.
- B. Do not permit traffic over unprotected floor surface.
- C. Do not permit pipe cutting using pipe cutting machinery on unprotected floor surface .
- D. Do not permit temporary placement and storage of steel members on unprotected floor surface .

END OF SECTION

SECTION 23 0993 SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section defines the manner and method by which controls function. Requirements for each type of control system operation are specified. Equipment, devices, and system components required for control systems are specified in other sections.

1.02 RELATED REQUIREMENTS

- A. Section 23 0913 - Instrumentation and Control Devices for HVAC.
- B. Section 23 0923 - Direct-Digital Control System for HVAC.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Sequence of Operation Documentation: Submit written sequence of operation for entire HVAC system and each piece of equipment.
 - 1. Preface: 1 or 2 paragraph overview narrative of the system describing its purpose, components and function.
 - 2. State each sequence in small segments and give each segment a unique number for referencing in Functional Test procedures; provide a complete description regardless of the completeness and clarity of the sequences specified in Contract Documents.
 - 3. Include at least the following sequences:
 - a. Start-up.
 - b. Warm-up mode.
 - c. Normal operating mode.
 - d. Unoccupied mode.
 - e. Shutdown.
 - f. Capacity control sequences and equipment staging.
 - g. Temperature and pressure control, such as setbacks, setups, resets, etc.
 - h. Detailed sequences for all control strategies, such as economizer control, optimum start/stop, staging, optimization, demand limiting, etc.
 - i. Effects of power or equipment failure with all standby component functions.
 - j. Sequences for all alarms and emergency shut downs.
 - k. Seasonal operational differences and recommendations.
 - l. Interactions and interlocks with other systems.
 - 4. Include initial and recommended values for all adjustable settings, setpoints and parameters that are typically set or adjusted by operating staff; and any other control settings or fixed values, delays, etc. that will be useful during testing and operating the equipment.
 - 5. For packaged controlled equipment, include manufacturer's furnished sequence of operation amplified as required to describe the relationship between the packaged controls and the control system, indicating which points are adjustable control points and which points are only monitored.
 - 6. Include schedules, if known.
- C. Control System Diagrams: Submit graphic schematic of the control system showing each control component and each component controlled, monitored, or enabled.
 - 1. Label with settings, adjustable range of control and limits.
 - 2. Include flow diagrams for each control system, graphically depicting control logic.
 - 3. Include the system and component layout of all equipment that the control system monitors, enables or controls, even if the equipment is primarily controlled by packaged or integral controls.
 - 4. Include draft copies of graphic displays indicating mechanical system components, control system components, and controlled function status and value.
 - 5. Include all monitoring, control and virtual points specified in elsewhere.
 - 6. Include a key to all abbreviations.
- D. Points List: Submit list of all control points indicating at least the following for each point.
 - 1. Name of controlled system.
 - 2. Point abbreviation.
 - 3. Point description; such as dry bulb temperature, airflow, etc.

SECTION 23 0993 SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

4. Display unit.
5. Control point or setpoint (Yes / No); i.e. a point that controls equipment and can have its setpoint changed.
6. Monitoring point (Yes / No); i.e. a point that does not control or contribute to the control of equipment but is used for operation, maintenance, or performance verification.
7. Intermediate point (Yes / No); i.e. a point whose value is used to make a calculation which then controls equipment, such as space temperatures that are averaged to a virtual point to control reset.
8. Calculated point (Yes / No); i.e. a "virtual" point generated from calculations of other point values.

E. Designer's Qualification Statement.

F. Project Record Documents: Record actual locations of components and setpoints of controls, including changes to sequences made after submission of shop drawings.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - REFER TO DRAWINGS

END OF SECTION

Minutes of Meeting

Project: Capital Area Transportation Authority (CATA)
511 S. Washington Avenue, Lansing, MI 48933

Date: August 3, 2026, 10:30 am at project site.

Project No: 75820023

Attendees: See attached Sign-in Sheet

Copy: Those in Attendance
Progressive Companies – Gary Runions, Pam Young

ITEMS DISCUSSED

Pre-Bid Meeting – Review work scope and answer questions.

1. Welcome and Introductions:

- a. Nicole Wilson introduced herself as the Purchasing & Contracts Manager for CATA. She then introduced Norm VanAlstine, Facilities Manager / Project Manager for CATA and Jeffrey Cangro, Project Architect with Progressive Companies.

2. Bid Proposal Deadline:

- a. Nicole reviewed the submission process, noting that proposals are due August 31, 2026, at 9:00 AM, as outlined in the project specifications.
 - i. The last day to send in questions is August 13, 2026 and the last Addenda will be issued August 24, 2026.
 - ii. The public bid opening will be at CATA's Administrative Building, located at 4615 Tranter Street in Lansing. Visitors may park along Tranter Street or at the north end of the building in the employee lot. The gate will be open for visitor parking.
 - iii. Provided an overview of the project and highlighted all required documents and certifications for submission, as identified in the specifications.
 - iv. Emphasized the importance of the Build America, Buy America Certification, noting to read through the entire document and sign only once where required to comply or not comply with the requirement.
 - v. Highlighted Davis-Bacon wage rate requirements, stating that compliance will be reviewed and verified.
 - vi. The bid award would be to the lowest responsive and responsible bidder.
 - vii. The post Bid Interview will be held on September 1, 2026.

3. Required Bid Documents

- a. Nicole showed and explained the following required bid documents:
 - i. Bid Bond (amount equal to not less than 5% of the proposal).
 - ii. Iran Economic Sanctions Act Certificate.
 - iii. Certification of Primary Contractor Debarment and Suspension.
 - iv. Certification of Lower-Tier Participants Debarment and Suspension.
 - v. Terms and Conditions.
 - vi. Certificate Regarding Lobbying.
 - vii. Build America / Buy America Certification.
 - viii. Davis-Bacon Act Wage Rate.

- ix. Supplier Information Form*
 - x. Certificate Regarding Federal Tax Liability & Recent Felony Conviction*
 - xi. Alternates Form
 - xii. Unit Prices Form
 - b. Nicole explained that the last two documents are not currently included in the project manual but will be provided as part of Addendum 01.
 - c. Jeff Cangro added to the discussion of required Bid documents a discussion around the bid proposal form, Alternates Form, and Unit Prices Form required in the Alternates, Unit Prices, and Allowances section below.
4. Project Introduction
- a. Jeff gave a brief project scope introduction explaining that the project is an interior and exterior renovation including site work like paving, striping, and sidewalks. The project will create a new boardroom and resource center for the facility. A new roof and mechanical units will be provided as part of the project. There is also an alternate for a new elevator and stair tower that will allow for accessible access to the second floor.
 - b. Jeff mentioned that the facility will be partially occupied by the Owner during construction and that shutdowns, loud work, or other impacts will need to be coordinated with the Owner and factored into the bids and schedule.
5. Bid Evaluation and Process
- a. Jeff explained the following milestones:
 - i. Bid Evaluation: 2 weeks anticipated.
 - ii. Board Approval Period: 3 weeks anticipated.
 - iii. Contract Period: 4 weeks anticipated.
 - iv. Anticipated Construction Start Date: October 26, 2026
6. Construction Duration
- a. Jeff explained that the Construction duration is anticipated to be 182 consecutive calendar days from notice to proceed.
7. Bid document requests, request for information, and substitutions
- a. Jeff explained the process for receiving digital copies for the bid documents and bid questions.
8. Alternates, Unit Prices, and Allowances
- Jeff listed the following:
- a. Alternates:
 - Alternate No. 1: Stair and Elevator Addition.
 - Alternate No. 2: Remove existing asphalt pavement. Provide new compacted aggregate sub-base and asphalt paving.
 - b. Unit Prices: Specification Section 01 2100.
 - Unit Price No 1: Repoint brick veneer masonry walls.
 - Unit Price No 2: Replacement of damage brick veneer masonry units with like kind.
 - Unit Price No 3: Replacement of damaged cast stone wall caps with like kind and size.
 - Unit Price No 4: Removal of unsuitable soils from site to off-site location.
 - Unit Price No 5: Import and placement of suitable structural fill from off-site location.

c. Allowances:

Allowance 1: \$30,000 allowance for repointing and replacement of brick masonry units.

9. Work Phasing and Sequence

- a. Jeff reiterated that the building will be partially occupied by the Owner at times.

10. Special project considerations

- a. Jeff explained that an updated Geotechnical Report will be issued as part of Addendum 01.

11. Walking Tour

- a. Jeff asked the group if they would like a guided tour or to break off in groups to see the items they need on their own. The consensus was to split up and do self-guided tours with the CATA and Progressive Companies teams available as needed. Jeff reiterated to the group that conversations or questions discussed during the tour would not be binding and asked that all questions be sent in through the process outlined so that responses can be distributed to everyone.

The above constitutes my understanding of items discussed and/or decisions reached. If there are any additions and/or corrections, please contact me within 7 days.

Jeffrey M. Cangro, AIA
Senior Project Architect

GTR/JMC/pny
P:\75820023\01 ADMIN\A3 MEETING\P:\75820023\05 CA\E1 BIDDING NEGOTIATION\General Correspondence\2026 08 03
Prebid Meeting Minutes\2026 08 03 CATA PreBid Meeting Minutes.docx"

Pre-Bid Meeting Sign-In Sheet

Project: Capital Area Transportation Authority
CATA Renovation
511 S Washington Ave,
Lansing, MI 48933

Date: August 3, 2026

Project No: 75820023

Subject: PRE-BID MEETING SIGN-IN SHEET

Attendees:

☒	Nicole Wilson: CATA – Purchasing & Contracts Manager	☐	
☒	Norm VanAlstine: CATA – Project Manager	☐	
☒	Jeff Cangro: Progressive Companies – Project Architect	☐	

Please print information

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