



Engineering
& Design

Report of Preliminary Geotechnical Exploration and Feasibility Study

August 9, 2024

Airy Street Prison Site Redevelopment

35 East Airy Street

Norristown, Montgomery County, Pennsylvania

Prepared for:

Ms. Pattie Guttenplan
Montgomery County
P.O. Box 311
Norristown, PA 19404-0311

Prepared by:

Michael J. Kwiatkowski, PE
PA Professional Engineer
License No. PE076477

Philip E. Gauffreau, PE
PA Professional Engineer
License No. PE039841

Colliers Engineering & Design
410 Eagleview Blvd, Suite 104
Exton, PA 19341
Main: 610.254.9140
Colliersengineering.com

Project No. 24004833A

Table of contents

| | |
|---|-----------|
| 1.0 Introduction | 2 |
| 2.0 Site Description | 2 |
| Airy Street Prison Grounds..... | 2 |
| Parking Lot Area (East Side of Maris Street)..... | 2 |
| 3.0 Proposed Development | 3 |
| 4.0 Field Exploration and Laboratory Testing..... | 3 |
| Other Available Geotechnical Information..... | 4 |
| 5.0 Subsurface Conditions | 4 |
| 5.1 Subsurface Description | 4 |
| 5.2 Groundwater Conditions..... | 5 |
| 6.0 Preliminary Development Considerations | 6 |
| 6.1 Earthwork Considerations | 6 |
| 6.2 Potential for Historic / Buried Features | 6 |
| 6.3 Protection of Neighboring Site Features | 7 |
| 6.4 Foundations Alternatives (New Building Features) | 7 |
| 6.5 Reuse of Existing Building Foundations..... | 8 |
| 6.6 Existing Stone Wall..... | 8 |
| 6.7 Floor Slabs-on-Grade | 8 |
| 6.8 Seismic Considerations | 8 |
| 6.9 Preliminary Stormwater Infiltration Testing..... | 9 |
| 7.0 Supplemental / Final Geotechnical Exploration..... | 9 |
| 8.0 Limitations..... | 10 |
| Figures..... | 11 |
| Appendices | 12 |

1.0 Introduction

Colliers Engineering & Design (CED) is pleased to present this report regarding the preliminary geotechnical exploration and feasibility study in support of CED's overall evaluation related to the potential reuse and/or redevelopment of the Airy Street Prison facility (and neighboring on-grade parking lot; collectively "the site") located in Norristown, Montgomery County, Pennsylvania. This exploration was conducted in accordance with our proposal (Airy Street Prison Conditions Assessment and Report; dated May 10, 2024).

Our scope of services included the completion of two test borings; two infiltration tests; laboratory testing of representative soil samples; engineering analyses of the subsurface data obtained from this field exploration program; and the preparation of this report. The intent of this report is to assess the feasibility of redeveloping the site from a geotechnical perspective and provide preliminary / conceptual geotechnical design and construction guidance. A supplemental final geotechnical exploration will be required to develop final design and construction recommendations.

2.0 Site Description

The overall site is located on the north side of E Airy Street (bisected by Maris Street) in Norristown, Pennsylvania. The Airy Street Prison building is located in the northwestern quadrant of the intersection. The northeastern quadrant comprises an on-grade, asphalt-paved parking lot. Refer to the attached the Site Location Map (Figure 1) for additional information.

Airy Street Prison Grounds

The Airy Street Prison grounds is composed of "the castle," three additions containing cell blocks, the former recreation yard, and a 20-foot-tall stone wall that surrounds the site. The buildings are in various states of disrepair. Refer to CED's structural assessment report for additional information. The remainder of the Airy Street Prison lot (i.e. to the north of the prison building) consists of an inactive, asphalt-paved parking lot, which is also in poor condition. The buildings appear to be supported on spread footing foundations (presumed stacked stone) based on a review of available historical plans and sections of the buildings.

According to the plan titled Existing Conditions (drawing C101, by Gannett Fleming, dated May 23, 2023), the Airy Street Prison site (i.e. within the 20-foot-tall stone wall bordering the site) is relatively flat with site grades ranging from about elevation (EL) ± 144 to ± 146 . The elevations immediately surrounding the site (i.e. street and sidewalk grades; outside the walls) generally slope down from northwest (EL ± 143) to southeast (EL ± 136). Grades along the west side of the prison grounds (i.e. along the Church lot) range from about EL 154 to EL 143. The stone wall surrounding the prison site retains upwards of about 8 feet of soil, but varies around the perimeter of the site.

Parking Lot Area (East Side of Maris Street)

The existing asphalt-paved parking lot to the east side of Maris Street appears active. Based on a review of aerial images, the pavement appears to be in fair condition, with grades sloping downward from northwest (EL 141) to southeast (EL 133).

Utility mark-outs, including water, storm sewer, electric, and communications, were observed within and around the perimeter of the site. Other un-marked below-grade utilities may also exist at the site.

3.0 Proposed Development

The project is in the feasibility and conditions assessment phase. As a result, no conceptual development plans have been prepared, and the type, size, and extents of the planned development are unknown. Depending on the outcome of the various other assessments (e.g. environmental, structural, historical, etc.), we understand that portions of the existing buildings may be preserved and integrated into the new development. Alternatively, a complete or partial tear down of the existing buildings and new construction may be required. The existing parking lot on the east side of Maris Street may or may not be incorporated into the overall redevelopment.

4.0 Field Exploration and Laboratory Testing

Subsurface conditions for this preliminary geotechnical exploration were explored through the completion of two test borings, identified as TB-101 and TB-102. The test borings were performed by Soil Borings Inc. of Haddonfield, New Jersey, at the locations shown on the Exploration Location Plan, Figure 2. CED performed component infiltration testing (IT-101 and IT-102) at offset locations adjacent to the test borings.

The test locations were field located by a representative of Colliers Engineering & Design, Inc. (CED) and subsequently cleared for below-grade utilities by Level A Underground Solutions. The drilling was performed under the full-time technical supervision of CED. Elevations of the test locations were estimated using the plan titled Existing Conditions (drawing C101, by Gannett Fleming, dated May 23, 2023). Please refer to the Logs of Test Borings included in Appendix A of this report.

The test borings were advanced using hollow-stem drilling techniques. Soil samples for strata identification and analyses were obtained from each of the test borings by means of a 2-inch OD split barrel sampler. This spoon is typically driven 18 inches or 24 inches by blows from a 140-pound hammer which free falls 30 inches (the Standard Penetration Test, ASTM D 1586). The boring logs are presented in the Appendix with descriptions of the soil horizons encountered and depth to encountered groundwater. The penetration resistance of the drive sampler has been recorded on the test boring log adjacent to the sample locations as the number of hammer blows required for each 6 inches of sampler penetration or fraction thereof. The Standard Penetration Test values (N) are determined by totaling the blow counts required for the middle 12 inches of sampler penetration, and are expressed as blows per foot. Upon completion, the test borings were backfilled with the cuttings and patched in kind.

The test borings were performed under the full-time technical observation of CED. Representative soil samples were collected and visually identified in accordance with the Burmister Soil

Classification System. Details pertaining to the subsurface conditions encountered are presented on the test boring logs in Appendix B.

Laboratory testing was performed on representative samples to evaluate the physical properties of the subsoils, as well as augment the field exploration. Laboratory testing was performed at our accredited facility located in Mays Landing, New Jersey. The stratigraphic continuity and physical characteristics of the subsoils were tested for determination of water content and grain size distribution by weight (GS). The test results are presented on the laboratory test reports included in Appendix B.

Soil samples obtained during this exploration will be retained by CED for 60 days from issuance of this report. At the end of this time, they will be discarded unless we receive other instructions from a Montgomery County representative.

Other Available Geotechnical Information

CED was provided with the Supplemental Geotechnical Report for the Montgomery County Justice Center by GZA dated September 2019, the site for which is located two blocks (approximately 600 feet) to the south of the subject site. The information contained in this report was reviewed for informational purposes only and used to supplement our preliminary understanding of the expected subsurface conditions at the subject site.

5.0 Subsurface Conditions

The site for the proposed redevelopment is located within the Gettysburg-Newark Lowland section of the Piedmont physiographic province. Locally, the site is underlain by existing fill material, followed by the decomposed and weathered remains of the underlying bedrock of the Stockton Formation. These materials were encountered in the test borings, as described in the following paragraphs.

5.1 Subsurface Description

Based on the results of the test borings, the generalized subsurface conditions at the site are described below, in order of depth.

- **Surface Cover:** Asphalt pavement was encountered in test borings TB-101 and TB-102, measuring 3 inches thick at each location. The asphalt pavement is underlain by aggregate base materials measuring about 5 inches in thickness.
- **Existing Fill Material:** Existing fill material was encountered beneath the asphalt pavement layer in test borings TB-101 and TB-102, extending to depths of 2.5 feet and 2 feet, respectively. The existing fill layer generally consists of sand with little to some silt and trace amounts of gravel. Trace amounts of brick fragments were observed in TB-102.

We note that no test borings were performed within the footprint of the existing parking lot to the east of Maris Street. Based on the historical development at that site, there is an increased potential for remnant buried features such as foundations, slabs, below-grade walls, etc.

The Standard Penetration Test (SPT) 'N'-values for the existing fill layer were 5 blows per foot (bpf) and 6 bpf, respectively, in test boring TB-101 and TB-102. The generally loose consistency suggests it may not have been placed in a controlled, compacted manner for support of the existing pavement.

- **Stratum A – Decomposed Rock:** Decomposed was encountered beneath the Existing Fill soils in each of the test borings extending to depths of 6 feet and 7.5 feet in test borings TB-101 and TB-102, respectively. For purposes of this report, decomposed rock is defined as the relatively dense, weathered remains of the underlying bedrock, but retains some of the relic rock structure. The decomposed rock encountered in the test borings consists of very dense sand with moderate amounts of silt and gravel (rock fragments).

The SPT "N" values for Stratum A range from 59 bpf to greater than 50 blows over 1 inch. Low to moderate auger resistance was encountered while penetrating through the Stratum B – Decomposed Rock layer.

- **Stratum B – Altered Rock:** Altered rock was encountered beneath the Stratum A soils in each of the test borings extending to the completion depths (auger refusal) at depths of 7.9 feet and 9.2 feet, respectively. Altered rock is similar to decomposed rock; however, it is more resistant to sampling (consistently resulting in split spoon refusal) and is more difficult to penetrate with the augers. The altered rock at this site consists of very dense sand with moderate amounts of gravel (rock fragments) and lesser amounts of silt.

The SPT "N" values for Stratum B are typically in excess of 100 blows for less than 1 foot of penetration.

- **Auger Refusal / Suspected Intact Rock:** No rock coring was performed to confirm the presence or quality of the underlying intact rock. However, auger refusal, suggesting the presence of intact rock, was encountered at depths of 7.9 feet (EL 135.6) and 9.2 feet (EL 135.3), respectively, in test borings TB-101 and TB-102. Some variability in the depth to rock should be expected.

5.2 Groundwater Conditions

Groundwater was not encountered in either of the test borings prior to the refusal depths (about 9 feet and 8 feet in test borings TB-101 and TB-102, respectfully). However, groundwater levels at the site are expected to fluctuate based on seasonal and man-made influences.

CED also reviewed geotechnical information from a neighboring site located about 600 feet to the south (and down-gradient) of the subject site. Similar to the conditions encountered at the prison site, groundwater was not encountered in the test borings completed as part of their exploration. However, the existing parking garage facility (which is partially below-grade) reportedly contained a sub-slab drainage system (sump and pump) that "runs year-round," suggesting the presence of groundwater or some other consistent foreign water source. As a result, there is some limited risk for unforeseen groundwater conditions in unexplored areas of the subject site, groundwater at greater depths (i.e. within the rock layer), and/or seasonal high groundwater conditions during prolonged wet periods.

We recommend that temporary groundwater observation wells be incorporated into future supplemental explorations to further evaluate the risk for encountering groundwater during construction.

6.0 Preliminary Development Considerations

The following sections highlight preliminary geotechnical design and construction considerations related to the redevelopment of the site.

6.1 Earthwork Considerations

In general, we expect that excavations at the site may be completed using standard construction equipment. Larger excavation equipment outfitted with rock ripping teeth will be more productive excavating through the denser Stratum A – Decomposed Rock materials. Deeper excavations extending into the Stratum B – Altered Rock layer will likely be more difficult and may require the use of hydraulic rock pecking equipment. Intact rock should be expected around 8 feet below existing grades (EL ±136 on the north side of the existing prison). Therefore, deeper excavations (i.e. for deeper below-grade utilities and/or deeper basement levels) may encounter rock.

The site soils are considered suitable for reuse as load-bearing fill. While not encountered in the test borings for this exploration, it is possible that organics and/or unsuitable debris may be present in the Existing Fill soils elsewhere, particularly in the existing parking lot to the east of Maris Street, where historic buildings were previously razed. Where encountered, these materials shall be screened/sorted from the existing fill soils and removed from the site.

Based on our preliminary observations and the lack of evidence of groundwater in the test borings, the risk for groundwater impacting the planned development seems low, particularly for new shallow utilities or for new structures built relatively close to on-grade. Therefore, it appears unlikely that waterproofing and/or below-grade drainage systems would be necessary. The risk increases for proposed new structures with deeper basements or below-grade features extending into the rock layer. The risk shall be further assessed as part of the final geotechnical exploration program, including the need for groundwater control during construction; permanent subsurface drainage systems; waterproofing; etc.

6.2 Potential for Historic / Buried Features

No evidence of remnant historic buried features associated with prior site development were encountered in the two test borings; however, the test borings were limited to the north end of the prison lot. Based on our review of historic aerial images, the existing public parking lot on the east side of Maris Street has a history of development (see Appendix C – Historic Aerial Overlays). In our experience, sites with a history of development commonly contain buried debris and/or remnant building features (e.g. foundations, slabs, and or walls).

To the extent these features are identified in future explorations and/or otherwise encountered during construction, they will have to be demolished and removed where they interfere with the planned development features. Nested zones of inert debris (e.g. brick, concrete, etc.) should be over-excavated and replaced with load-bearing fill. Deleterious materials (e.g. wood, metal, plastic, cinders, etc.) should be similarly “chased out” and removed.

6.3 Protection of Neighboring Site Features

Care shall be taken not to disturb or otherwise jeopardize the stability of the neighboring properties during demolition of existing site features and/or construction of new development features. At a minimum, we recommend performing pre- and post- construction condition surveys of the church (St. John's Church) located to the west of the site. Depending on the planned demolition / construction activities, we also recommend developing and implementing a vibration and movement monitoring program.

6.4 Foundations Alternatives (New Building Features)

The subsurface conditions generally appear well suited for supporting new building features using spread footing foundations, particularly assuming the building loads are consistent with typical low- to mid-rise buildings. High-rise development, should that become part of the future redevelopment plans, may require alternative support such as deep foundations.

For preliminary planning purposes, we expect that newly constructed spread footing foundations bearing within Stratum A or B soils can likely be proportioned assuming a net allowable bearing capacity on the order of about 4,000 pounds per square foot (psf) to 8,000 psf. This range accounts for possible variations in the column/wall loads, as well as some limited variability in the subsurface soil conditions (e.g. thicker overburden soils and/or medium dense soils). Foundations bearing on the intact rock (if applicable) can support higher applied pressures, likely on the order of 5 to 10 tons per square foot (tsf).

If new buildings are proposed within the footprint of the existing prison building, and if those buildings are constructed at or near the existing ground surface elevations (such that the foundations are bearing on newly placed fill material associated with the backfilling of the basement), allowable bearing capacities on the order of about 3,000 psf to 4,000 psf are considered appropriate. Proper backfill placement and compaction will be critical to provide a stable foundation subgrade and minimize settlement potential. Considerations for differential settlement at transitions between dissimilar bearing materials (i.e. between newly placed fill and the dense decomposed rock) shall also be considered.

Due to the history of development in the existing public parking lot area to the east of Maris Street, there is some limited risk that more specialized subgrade preparation procedures and/or alternative approaches to the foundations may be required due to the possible presence of Existing Fill, particularly if the former development features had basement levels that were not backfilled in a controlled manner.

Our final recommendations relative to new foundations and corresponding allowable soil bearing capacities for newly constructed features are subject to confirmation or refinement depending on the final development scheme, the corresponding column and wall loads, anticipated bearing elevations, and the results of supplemental subsurface explorations (refer to Section 7.0 for additional information).

6.5 Reuse of Existing Building Foundations

We acknowledge that the planned redevelopment may include reuse / repurposing of the existing building features (or portions thereof). If the anticipated loads on the existing building foundations are expected to increase (i.e. due to a vertical expansion or overbuild), the existing foundations will have to be further evaluated to determine if they have sufficient excess capacity to support the increased loads. Additional details with respect to any supplemental explorations or evaluations would be provided at the appropriate time, if this becomes necessary.

6.6 Existing Stone Wall

The existing stone wall that extends around the perimeter of the site is retaining several feet of soil in some locations. It is unknown at this time if the wall will be maintained and incorporated into the future redevelopment plans, or if it will be removed and replaced.

The stone masonry wall generally appears stable. The masonry joints (where visible) are deteriorated, consistent with the age of the structure. Evidence of parging and/or repointing was observed in some areas. Overall, we did not observe obvious visual indicators of severe distress (e.g. collapsed segments; tilting; etc.) or wall failures.

CED observed soldier piles at consistent intervals along a portion of the exterior perimeter west wall (between the church property / graveyard and the prison). The piles appeared to be fastened to the top of the wall, presumably for purposes of bracing / buttressing the wall. In addition, cables were observed at the two northern interior corners, spanning between the north wall and west/east walls. It is unknown if the soldier piles or the cables were original design features or if they are associated with more recent stabilization or reinforcement efforts. Further geotechnical and structural evaluations will be necessary to confirm the integrity of the wall, should the walls be salvaged and incorporated into the future development plans.

If the walls are to be demolished and removed, their removal shall consider the impacts on the neighboring site features. In particular, the wall bordering the west side of the site is retaining several feet of soil, with the site grades surrounding St. John's Church and the associated graveyard elevated relative to the existing prison site grades. The wall in this area may have to be replaced with a new earth retention feature.

6.7 Floor Slabs-on-Grade

Assuming the proposed building subgrade is prepared under the observation of a Geotechnical Engineer, the floor slabs may be supported on-grade. For preliminary planning purposes, we anticipate that the subgrade soils can achieve a Modulus of Subgrade Reaction on the order of about 125 pounds per cubic inch (pci). Additional design and construction recommendations will be provided as part of the final geotechnical exploration.

6.8 Seismic Considerations

In accordance with the provisions of the 2018 International Building Code, the site has a Site Class Definition of "C" for the existing subsurface soil and groundwater conditions. This classification was determined by utilizing the Standard Penetration Test (SPT) blow count data through the upper

approximately 10 feet of the subsurface profile, and a maximum assumed 100 bpf for the underlying rock to a depth of 100 feet.

6.9 Preliminary Stormwater Infiltration Testing

CED performed infiltration testing at offset locations adjacent to the test borings. Infiltration test IT-1 was performed adjacent to TB-101. Infiltration test IT-2 was performed adjacent to TB-102. The purposes of the infiltration tests were to obtain preliminary infiltration test data to help determine the feasibility of incorporating stormwater infiltration features at the site, as well as to have preliminary infiltration rate information for use in sizing these features. Supplemental infiltration testing will be required as part of the final geotechnical exploration, targeting the footprint(s) and planned bottom elevation of the proposed infiltration features.

The infiltration testing was performed using the cased borehole technique. Testing was performed within the very dense Stratum A – Decomposed Rock materials, maintaining a minimum of 2 feet above the intact rock layer (i.e. suspected limiting zone). The results of the infiltration testing are summarized below. No factor of safety has been applied to the field infiltration rates. The local ordinance should be referenced for appropriate factors of safety to apply for design purposes.

| Table 1 Preliminary Stormwater Infiltration Test Results Airy Street Prison Redevelopment Norristown, PA | | | |
|---|-------------------|------------------|---|
| Location | Depth (ft) | Elevation | Rate (Inches/Hour; Unfactored) |
| IT-1 | 4.3 | 139.2 | 0.75 |
| IT-2 | 6.1 | 138.4 | 1.5 |

7.0 Supplemental / Final Geotechnical Exploration

The recommendations provided in this report are based on limited subsurface explorations and are considered preliminary. Once a more formal development scheme is identified, CED would be pleased to provide a scope for a supplemental geotechnical exploration and final design and construction recommendations. Furthermore, it may be appropriate to identify the location and extents (including bearing elevation) of the neighboring church foundations to assist in determining appropriate protection measures.

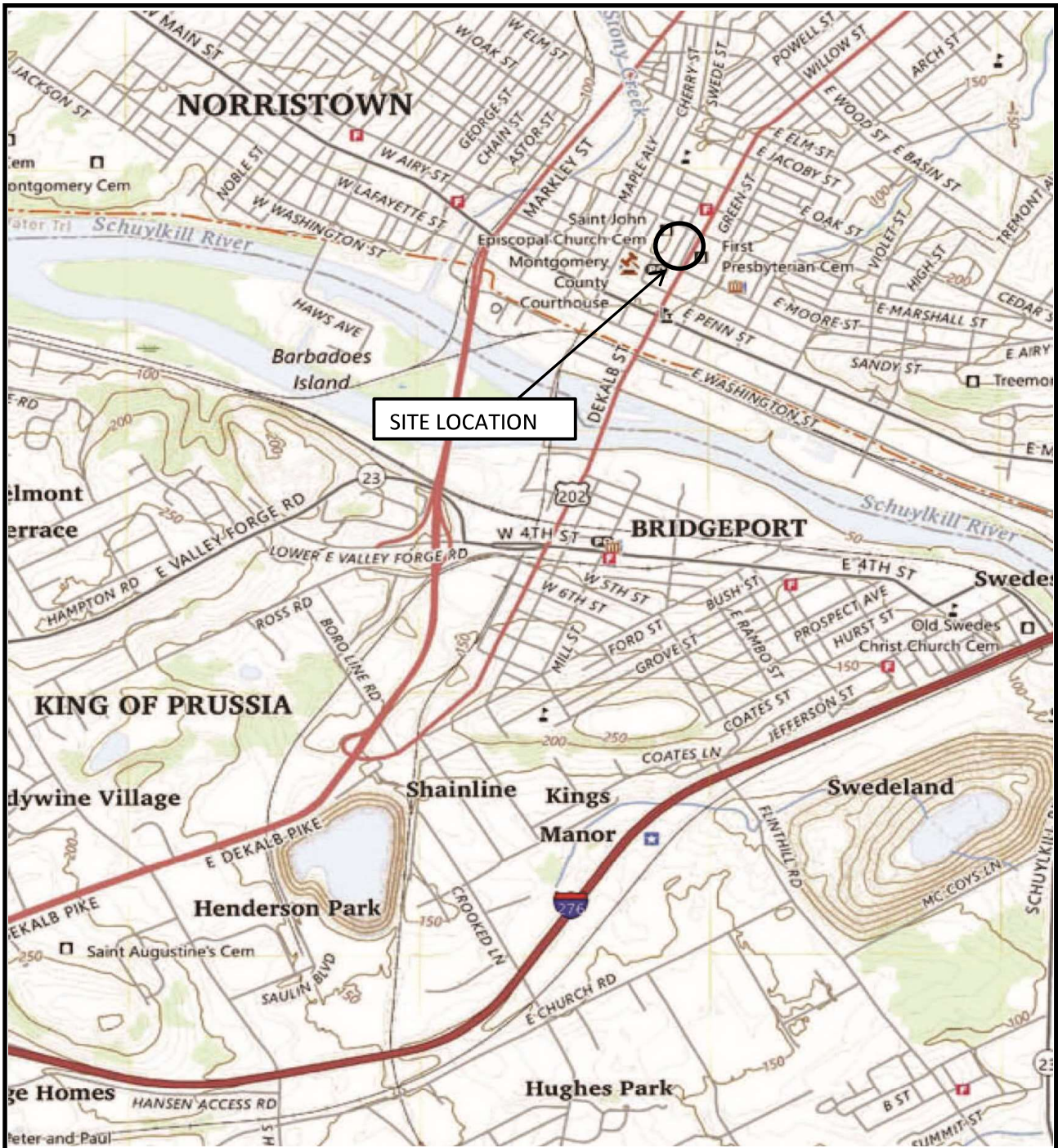
8.0 Limitations

This preliminary report has been prepared in accordance with generally accepted geotechnical design practice for the exclusive use of the Owner and their agents for specific application to this project. This report has not been prepared to serve as the plans and specifications for actual construction.

The preliminary conclusions and recommendations contained in this report are based upon the limited subsurface data obtained during this investigation and on details stated in this report. The validity of the projections and preliminary recommendations contained in this report is necessarily limited by the scope of field investigation and by the number of borings that were made. It is understood that a supplemental exploration will be necessary to develop final recommendations.

The scope of this preliminary evaluation was limited to the evaluation of the load-carrying capabilities and load stability of the soils. Oil, hazardous waste, radioactivity, irritants, pollutants, radon or other dangerous substances and conditions were not the subject of this exploration. Refer to CED's environmental assessment report for this information.

Figures



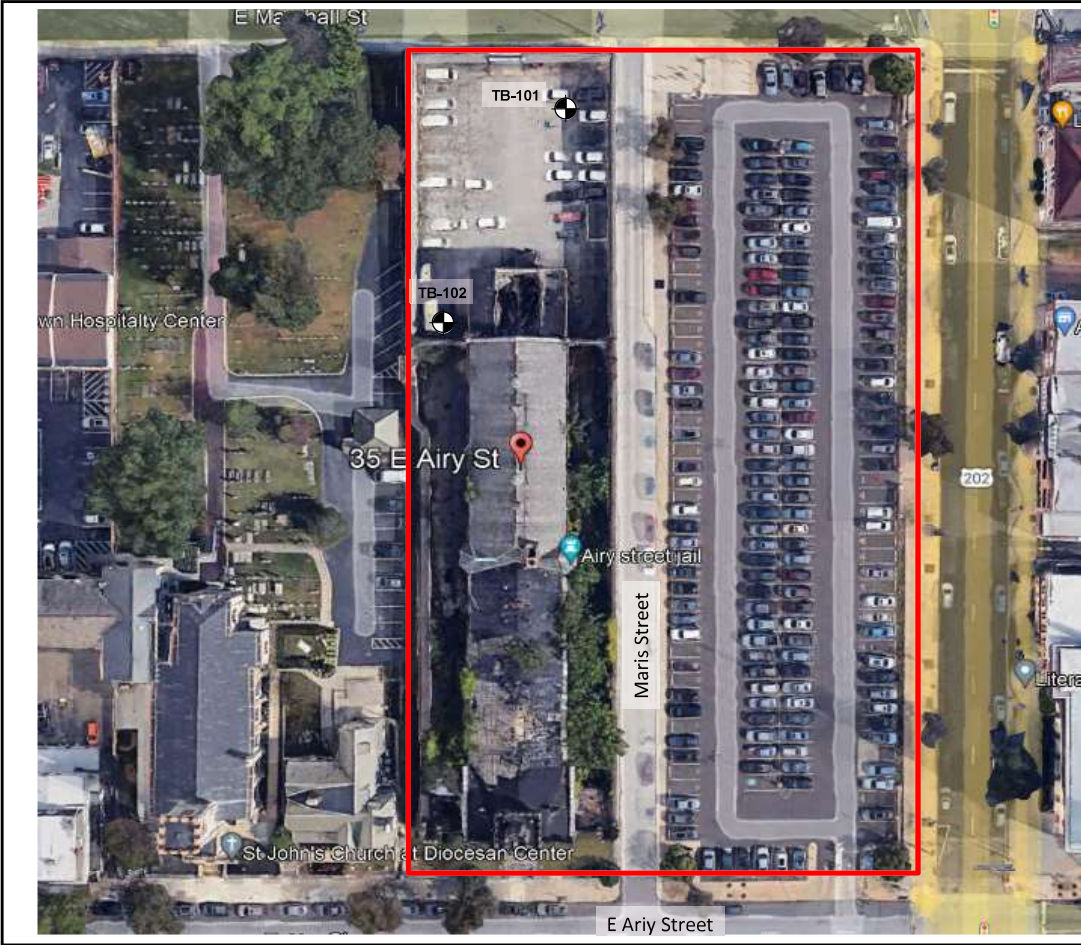
NOTES:

- 1.) *SITE MAP OBTAINED FROM USGS TOPOGRAPHIC MAP, NORRISTOWN, PA QUADRANGLE, DATED 2023.



Engineering & Design

| | | | |
|--|--------|--|----------|
| Title: | | SITE LOCATION MAP | |
| Project: | | Airy Street Prison Conditions Assessment and Report 35 East Airy Street | |
| Norristown, Montgomery County, PA | | | |
| Drawn By: | * | Checked By: | MJK |
| Scale: | N.T.S. | Date: | 8/6/2024 |
| Project No.: | | 2404833A | |
| Figure No.: | | 1 | |



LEGEND:

TB-101 TEST BORING LOCATIONS
(APPROXIMATE)



[Red Outline] APPROXIMATE LIMITS OF PROPOSED
DEVELOPMENT

NOTES:

- 1.) BASE PLAN OBTAINED FROM A GOOGLE EARTH AERIAL IMAGE.
- 2.) THIS DRAWING IS PART OF THE COLLIERS ENGINEERING & DESIGN, INC. GEOTECHNICAL REPORT (PROJECT NO. 24004833A) DATED AUGUST 2024.



**Engineering
& Design**

TITLE: EXPLORATION
LOCATION PLAN

**Proposed Airy Street Prison Conditions
Assessment and Report**

35 East Airy Street
Norristown, Montgomery County, PA

| | | |
|---------------|-----------------|-----------------------|
| DRAWN BY: | CHECKED BY: MJK | PROJECT NO. 24004833A |
| SCALE: N.T.S. | DATE: 8/7/2024 | FIGURE NO. 1 |

Appendices

Appendix A

Test Boring Logs



Engineering & Design

410 Eagleview Boulevard, Suite 104, Exton, PA 19341

PROJECT: Montco - Airy Street Prison SWM
 LOCATION: 35 East Airy Street Norristown, PA
 PROJECT NO. 24004833A

TEST BORING: TB-101
 PAGE 1 OF 1

GROUND ELEVATION (ft): 143.5
 ELEV. FROM: Interpolated

CONTRACTOR: Soil Borings, Inc.
 DRILLER: Chris Blemmings
 DRILLING EQUIPMENT: Mobile B-29 Truck Rig
 METHOD: HSA Mud Rotary Other
 HAMMER: CH Safety Automatic
 RODS: AW NW Other

GROUNDWATER: DEPTH (ft) DATE
 FIRST ENCOUNTERED NE 7/30/2024
 END OF DRILLING (0 hrs.) NE 7/30/2024

DATE STARTED 7/30/2024
 DATE FINISHED 7/30/2024
 FIELD OBSERVER: T. Hill
 CHECKED BY: M. Kwiatkowski

ASTM D-1586

| DEPTH BELOW SURFACE (ft.) | SAMPLE NUMBER | BLOWS PER 6 INCHES | | | | RECOVERY (in) | POCKET PENETROM. (psi) | MOISTURE (%) | WATER SYMBOL | PROFILE | | IDENTIFICATION OF SOILS / REMARKS |
|---------------------------|---------------|--------------------|-------|-------|--------|---------------|------------------------|--------------|--------------|---------|-------|--|
| | | DEPTH (ft.) | 0-6" | 6-12" | 12-18" | | | | | 18-24" | DEPTH | |
| 5 | S-1 | - | 3 | 2 | 8 | 13 | | | | | | S-1: Asphalt +/- 3 inches; Base +/- 5 inches Orange-Brown, cmf SAND, little (+) Silt, trace mf Gravel, (Fill) (Moist) Existing Fill S-2: (Top 6") Same as S-1, (Fill) (Moist) (Bottom 14") Light Brown, Tan, cmf SAND, little (+) mf Gravel, little (-) Silt, (Moist) Stratum A S-3: Tan, Light Brown cmf SAND, some mf Gravel, some Silt,(Moist) S-4: Orange-Brown, Tan, Light Brown, cmf SAND, some (-) Silt, trace (-) f Gravel, (Moist) Stratum B S-5: Tan, Light Brown, Gray, cmf SAND, little cf Gravel (RF), trace silt, (Moist) END OF TEST BORING AT 7.9 FEET |
| | 0.0'-2.0' | | | | | | | | 2.5 | 141.0 | | |
| | S-2 | 18 | 38 | 35 | 33 | 20 | | | | | | |
| | 2.0'-4.0' | | | | | | | | | | | |
| | S-3 | 10 | 21 | 38 | 36 | 21 | | | | | | |
| 10 | 4.0'-6.0' | | | | | | | | 6.0 | 137.5 | | |
| | S-4 | 17 | 50/3" | - | - | 9 | | | | | | |
| | 6.0'-6.8' | | | | | | | | 7.9 | 135.6 | | |
| 15 | S-5 | | | | | | | | | | | |
| | 7.5'-7.9' | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| | | | | | | | | | | | | |

NOTES: Hard Drilling from 6 feet to 7.5 feet BGS. Spoon and auger refusal at 7.9 feet BGS.
 Boring backfilled upon completion for safety considerations.

TEST BORING: TB-101
 PAGE 1 OF 1



Engineering & Design

410 Eagleview Boulevard, Suite 104, Exton, PA 19341

PROJECT: Montco - Airy Street Prison SWM
 LOCATION: 35 East Airy Street Norristown, PA
 PROJECT NO. 24004833A

TEST BORING: TB-102
 PAGE 1 OF 1

GROUND ELEVATION (ft): 144.5
 ELEV. FROM: Interpolated

CONTRACTOR: Soil Borings, Inc.
 DRILLER: Chris Blemmings
 DRILLING EQUIPMENT: Mobile B-29 Truck Rig
 METHOD: HSA Mud Rotary Other
 HAMMER: CH Safety Automatic
 RODS: AW NW Other

GROUNDWATER: DEPTH (ft) DATE
 FIRST ENCOUNTERED NE 7/30/2024
 END OF DRILLING (0 hrs.) NE 7/30/2024

DATE STARTED 7/30/2024
 DATE FINISHED 7/30/2024
 FIELD OBSERVER: T. Hill
 CHECKED BY: M. Kwiatkowski

ASTM D-1586

| DEPTH BELOW SURFACE (ft.) | SAMPLE NUMBER | BLOWS PER 6 INCHES | | | | RECOVERY (in) | POCKET PENETROM. (psi) | MOISTURE (%) | WATER SYMBOL | PROFILE | | IDENTIFICATION OF SOILS / REMARKS |
|---------------------------|---------------|--------------------|-------|-------|--------|---------------|------------------------|--------------|--------------|---------|---------------|--|
| | | DEPTH (ft.) | 0-6" | 6-12" | 12-18" | | | | | 18-24" | DEPTH | |
| 5 | S-1 | - | 2 | 4 | 16 | 13 | | | | 2.0 | Existing Fill | S-1: Asphalt +/- 3 inches; Base +/- 5 inches Orange-Brown, Gray, Brown, cmf SAND, some(-) Silt, trace f Gravel, trace (-) brick fragments, (Fill) (Moist) |
| | 0.0'-2.0' | | | | | | | | | 142.5 | | S-2: Orange-Brown, Gray, cmf SAND, some Silt, little mf Gravel (RF), (Moist) |
| | S-2 | 29 | 54 | 50/5" | - | 15 | | | | | | |
| | 2.0'-3.4' | | | | | | | | | | | |
| | S-3 | 40 | 50/1" | - | - | 5 | | | | | | Stratum A |
| 10 | 4.0'-4.6' | | | | | | | | | 7.5 | | S-4: Orange-Brown, Tan, Gray, cmf SAND, some (-) Silt, some (-) mf Gravel (RF), (Moist) |
| | S-4 | 20 | 25 | 50/3" | - | 15 | | | | 137.0 | | |
| | 6.0'-7.3' | | | | | | | | | | | |
| | S-5 | 50/5" | - | - | - | 4 | | | | 9.2 | Stratum B | S-5: Orange-Brown, Gray, cmf SAND, little (+) mf Gravel (RF), trace (+) Silt, (Moist) |
| | 8.0'-8.4' | | | | | | | | | 135.3 | | END OF TEST BORING AT 9.2 FEET |
| 15 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

NOTES: Hard Drilling and grinding from 4.5 feet to 6 feet BGS. Very Hard Drilling and Grinding 7.5 feet to 9.2 feet BGS.
 Auger Refusal at 9.2 feet BGS
 Boring backfilled upon completion for safety considerations.

TEST BORING: TB-102
 PAGE 1 OF 1

Appendix B
Infiltration Test Logs

Infiltration Testing Log

Project Name: Montco - Airy Street Prison SWM **Date:** 7/30/2024
Project Address: 35 East Airy Street Norristown, PA 19401 **Weather:** _____
Testing Company: Colliers Engineering & Design **Tester's Name:** T. Hill / K. Tilger
Phone Number: 267-318-0664 **Email Address:** tim.hill@collierseng.com
Test Number: IT-1 **Test Pit/Boring Hole Number:** TB-101 **Test Method:** Cased Borhole Method
Test Depth (feet): 4.3 **Surface Elevation (feet):** 143.5 **Instrument Diameter (inches):** 4"

Soil Characterization

| Depth (feet): | Soil Texture: | Limiting Layers Type and Depth (feet): |
|---------------|--|--|
| 0 to 0.7 | 3 inches asphalt; 5 inches base aggregate | |
| 0.7 to 2.5 | Loamy Sand, 5% to 10 % mf Gravel (Fill) | |
| 2.5 to 6.0 | Loamy Sand to Sand, 10% to 15% mf Gravel (RF) | |
| 6.0 to 7.9 | Sand to Loamy Sand, 15% to 20% cmf Gravel (RF) | * Very dense altered rock at 6.5 feet. |
| | | |
| | | |
| | | |

Presoak

| Time: | Time Interval: | Measurement (TOC), (inches): | Drop in water level, (inches): | |
|-------|----------------|------------------------------|--------------------------------|--|
| 10:45 | --- | 47 | 0 | |
| 11:15 | 30 min | 49.125 | 2.125 | * Water filled to 47 inches for the second presoak period. |
| 11:45 | 30 min | 47.5 | 0.5 | |

Infiltration Testing

| Time: | Time Interval (Minute/Hour): | Measurement (TOC), (inches): | Drop in water level, (inches): | Infiltration rate (inches per hour): | Remarks: |
|--|------------------------------|------------------------------|--------------------------------|--------------------------------------|-------------------------|
| 12:15 | --- | 48 | 0 | | |
| 12:45 | 30 min | 48.5 | 0.5 | 1 | Refilled to 47.5 inches |
| 13:15 | 30 min | 47.875 | 0.375 | 0.75 | |
| 13:45 | 30 min | 48.25 | 0.375 | 0.75 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Stabilized Infiltration Testing Rate (inches per hour): | | | | 0.75 | |

Appendix C
Laboratory Test Results



5439 Harding Highway
 Mays Landing, New Jersey 08330
 Main: 877 627 3772
 colliersengineering.com



US Army Corps of Engineers
 VALIDATED LABORATORY

GEOTECHNICAL LABORATORY TESTING RESULTS

CLIENT: Montgomery County Planning Commission
 P.O. Box 311
 Norristown, PA 19404-0311

PROJECT: Montco - Airy Street Prison

Project # 24004833A DATE: August 8, 2024
 PAGE: 1 of 1

ATTN: Mr. Ken Shellenberger

CHECKED BY: Jason Veach
 TITLE: Assistant Laboratory Manager

SAMPLES RECEIVED: August 5, 2024

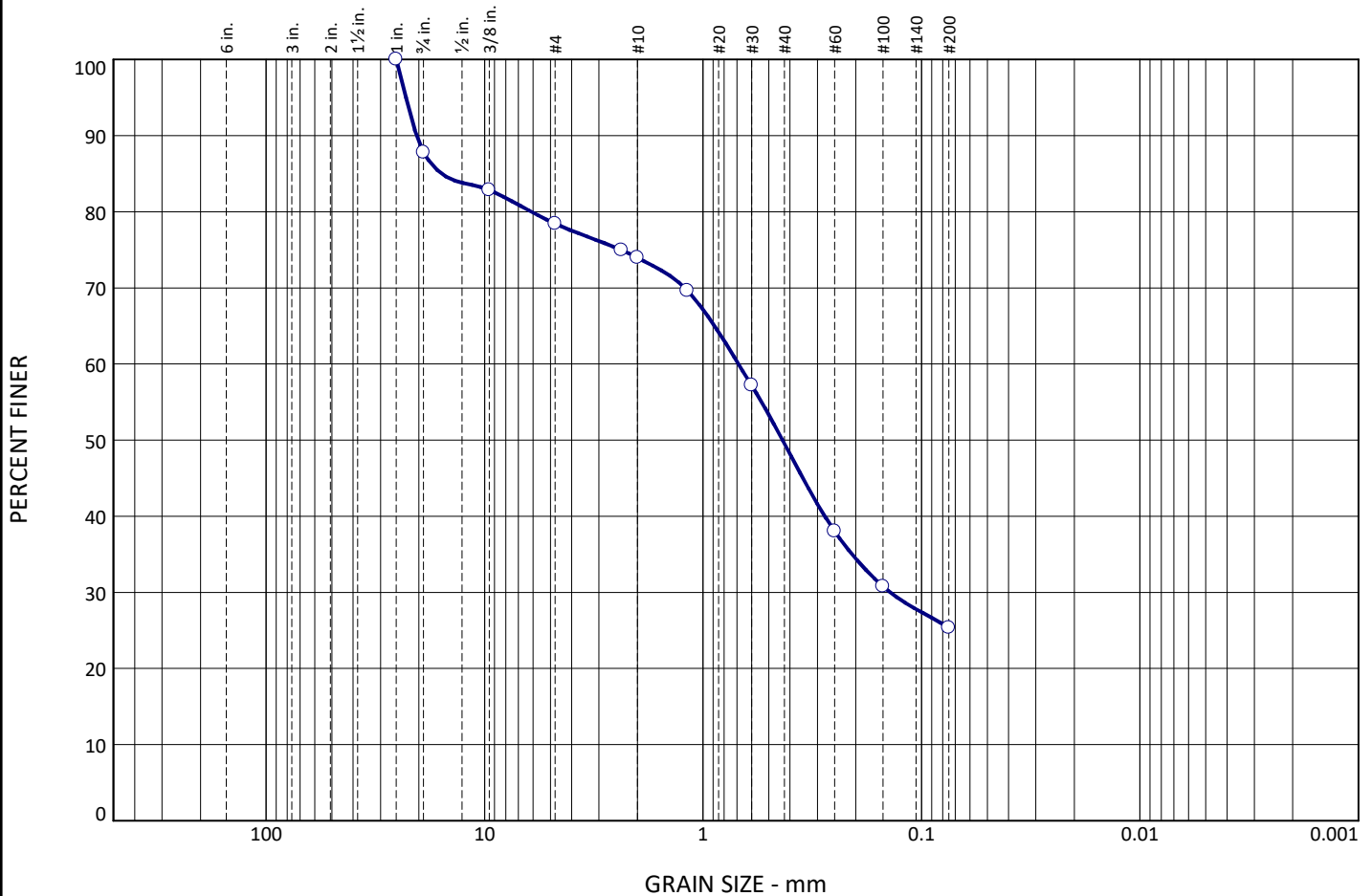
SAMPLES TESTED: 8/5/24 - 8/8/24

LAB TECHNICIAN(S): K. Perry

| Test Boring No. | Sample No. | Depth (ft) | Water Content (%) (ASTM D2216) | Atterberg Limits (ASTM D4318) | | | Particle Size Analysis (Sieve Only)* (ASTM D6913) | | | | | | | | | | | | | | |
|-----------------|------------|------------|-----------------------------------|----------------------------------|--------------------|-----------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | Liquid Limit (LL) | Plastic Limit (PL) | Plasticity Index (PI) | | | | | | | | | | | | | | | |
| TB-101 | S-3 | 4-6 | 7.4 | | | | PSA-1 | | | | | | | | | | | | | | |
| | S-4 | 6-6.8 | 7.1 | | | | PSA-2 | | | | | | | | | | | | | | |
| TB-102 | S-1 | 0.5-2 | 11.1 | | | | PSA-3 | | | | | | | | | | | | | | |
| | S-4 | 6-7.3 | 8.9 | | | | PSA-4 | | | | | | | | | | | | | | |
| Testing Total: | | | 4 | | | | 4 | | | | | | | | | | | | | | |

Comments/Remarks: * See attached Plate(s)

Particle Size Distribution Report



| % Cobbles | % Gravel | | | % Sand | | | % Fines |
|-----------|----------|--------|------|--------|--------|------|---------|
| | Coarse | Medium | Fine | Coarse | Medium | Fine | |
| 0.0 | 0.0 | 17.2 | 8.8 | 16.8 | 19.2 | 12.6 | 25.4 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 87.8 | | |
| .375 | 82.8 | | |
| #4 | 78.4 | | |
| #8 | 75.0 | | |
| #10 | 74.0 | | |
| #16 | 69.6 | | |
| #30 | 57.2 | | |
| #60 | 38.0 | | |
| #100 | 30.8 | | |
| #200 | 25.4 | | |

Material Description

Brown coarse to fine Sand, some medium to fine Gravel, some [Fines: (Silt/Clay)]

Atterberg Limits
 LL= PL= PI=

Coefficients
 D₈₅= 15.7240 D₆₀= 0.6885 D₅₀= 0.4332
 D₃₀= 0.1390 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= SM\SC

Remarks
 Water Content (WC): 7.4%

* (no specification provided)

Source of Sample: TB-101
Sample Number: S-3

Depth: 4'-6'

Date: 8/8/24

5439 Harding Highway
 Mays Landing New Jersey 08330
 Main: 877 627 3772

Geotechnical Laboratory



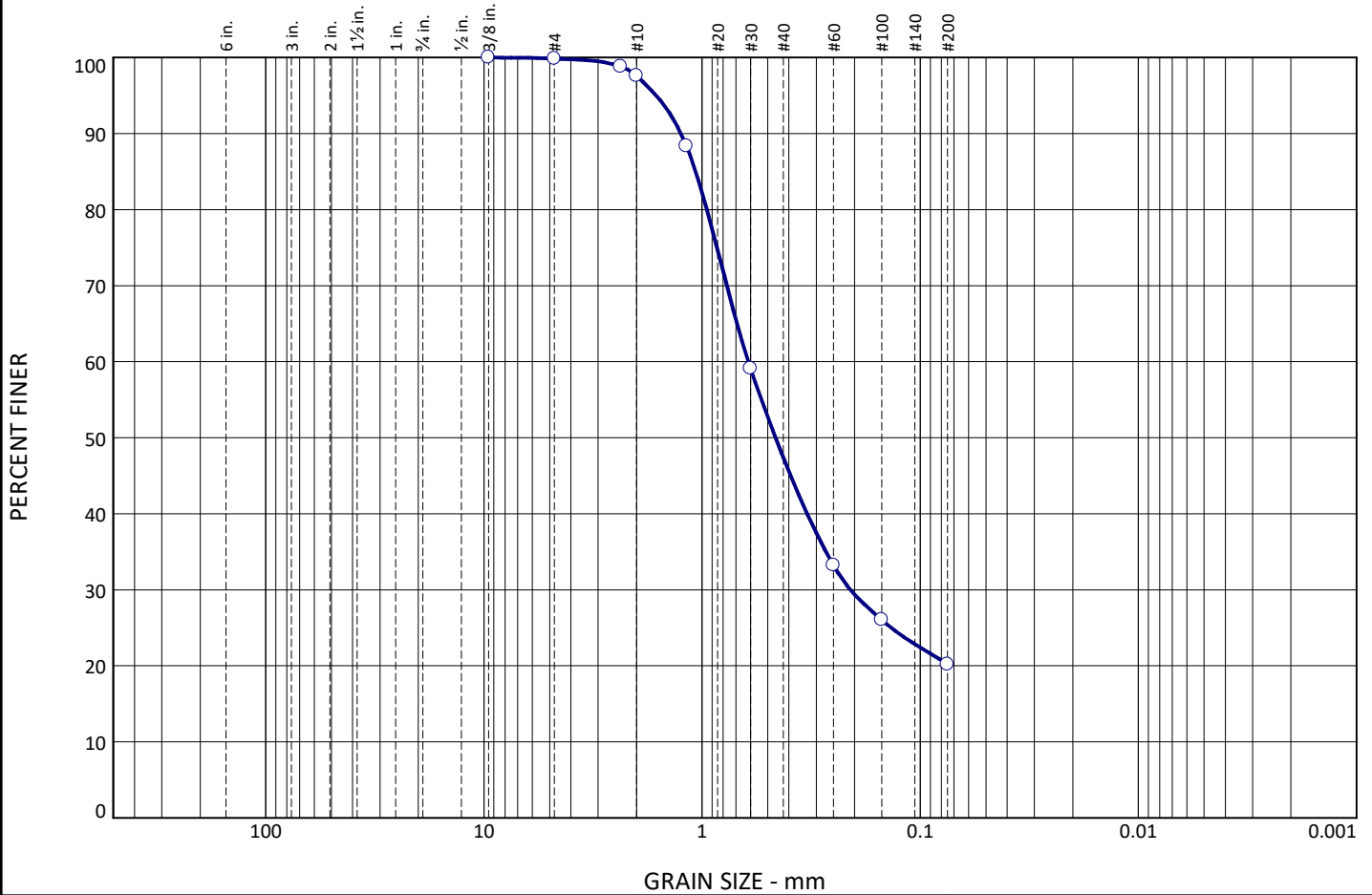
Client: Montgomery County Planning Commission

Project: Montco - Airy Street Prison

Project No: 24004833A

Plate PSA-1

Particle Size Distribution Report



| % Cobbles | % Gravel | | | % Sand | | | % Fines |
|-----------|----------|--------|------|--------|--------|------|---------|
| | Coarse | Medium | Fine | Coarse | Medium | Fine | |
| 0.0 | 0.0 | 0.0 | 2.4 | 38.5 | 25.9 | 13.0 | 20.2 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #8 | 98.8 | | |
| #10 | 97.6 | | |
| #16 | 88.4 | | |
| #30 | 59.1 | | |
| #60 | 33.2 | | |
| #100 | 26.0 | | |
| #200 | 20.2 | | |

Material Description

Tan pink coarse to fine SAND, some [Fines: (Silt/Clay)], trace fine Gravel

Atterberg Limits
 LL= PL= PI=

Coefficients
 D₈₅= 1.0708 D₆₀= 0.6144 D₅₀= 0.4609
 D₃₀= 0.2090 D₁₅= D₁₀=
 C_u= C_c=

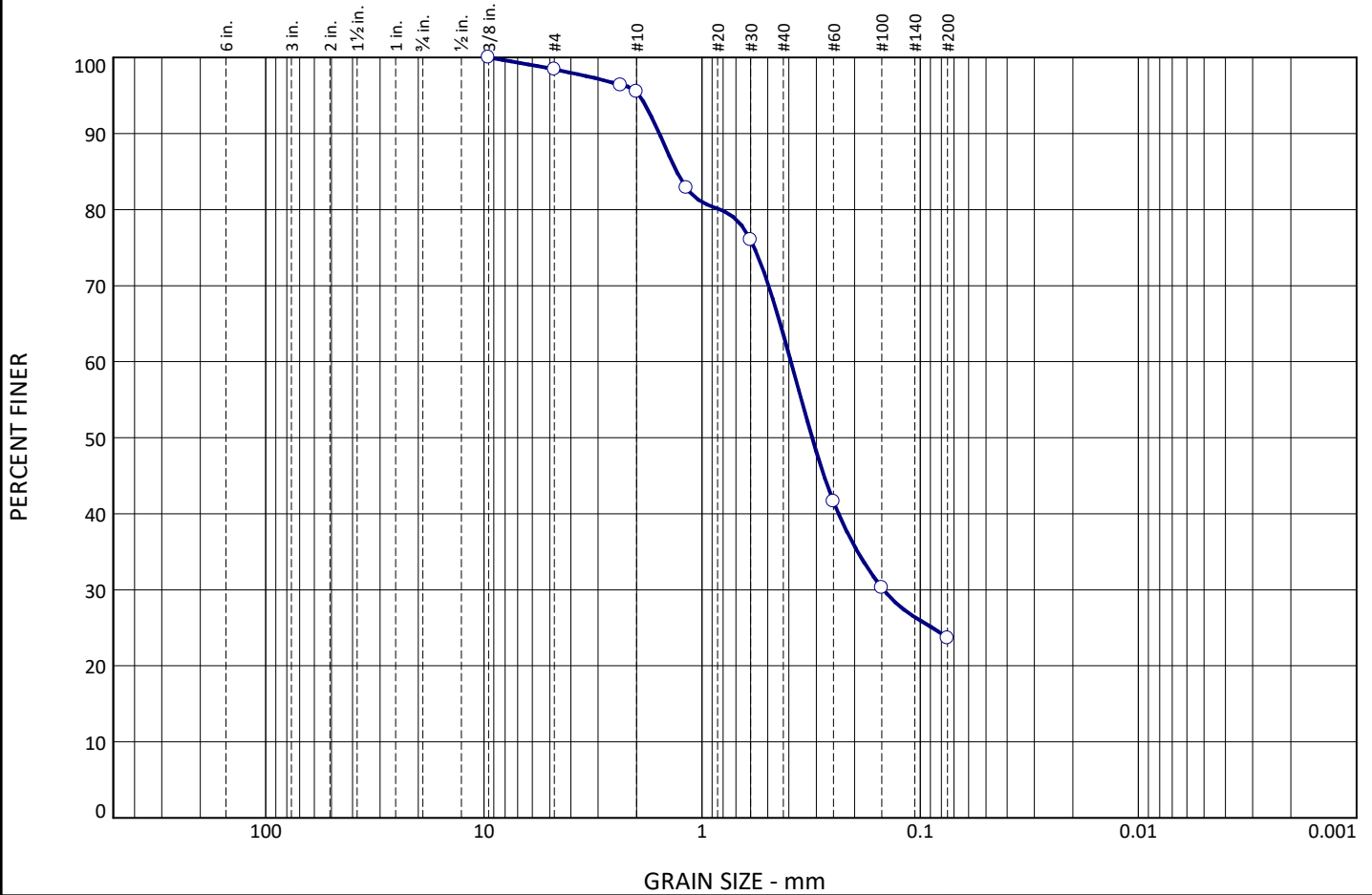
Classification
 USCS= SM\SC

Remarks
 WC: 7.1%

* (no specification provided)

Source of Sample: TB-101 **Depth:** 6'-6.8' **Date:** 8/8/24
Sample Number: S-4

Particle Size Distribution Report



| % Cobbles | % Gravel | | | % Sand | | | % Fines |
|-----------|----------|--------|------|--------|--------|------|---------|
| | Coarse | Medium | Fine | Coarse | Medium | Fine | |
| 0.0 | 0.0 | 0.0 | 4.5 | 19.5 | 34.4 | 18.0 | 23.6 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 98.4 | | |
| #8 | 96.4 | | |
| #10 | 95.5 | | |
| #16 | 82.9 | | |
| #30 | 76.0 | | |
| #60 | 41.6 | | |
| #100 | 30.3 | | |
| #200 | 23.6 | | |

Material Description

Tan coarse to fine SAND, some [Fines: (Silt/Clay)], trace fine Gravel

Atterberg Limits
 LL= PL= PI=

Coefficients
 D₈₅= 1.3073 D₆₀= 0.3917 D₅₀= 0.3129
 D₃₀= 0.1474 D₁₅= D₁₀=
 C_u= C_c=

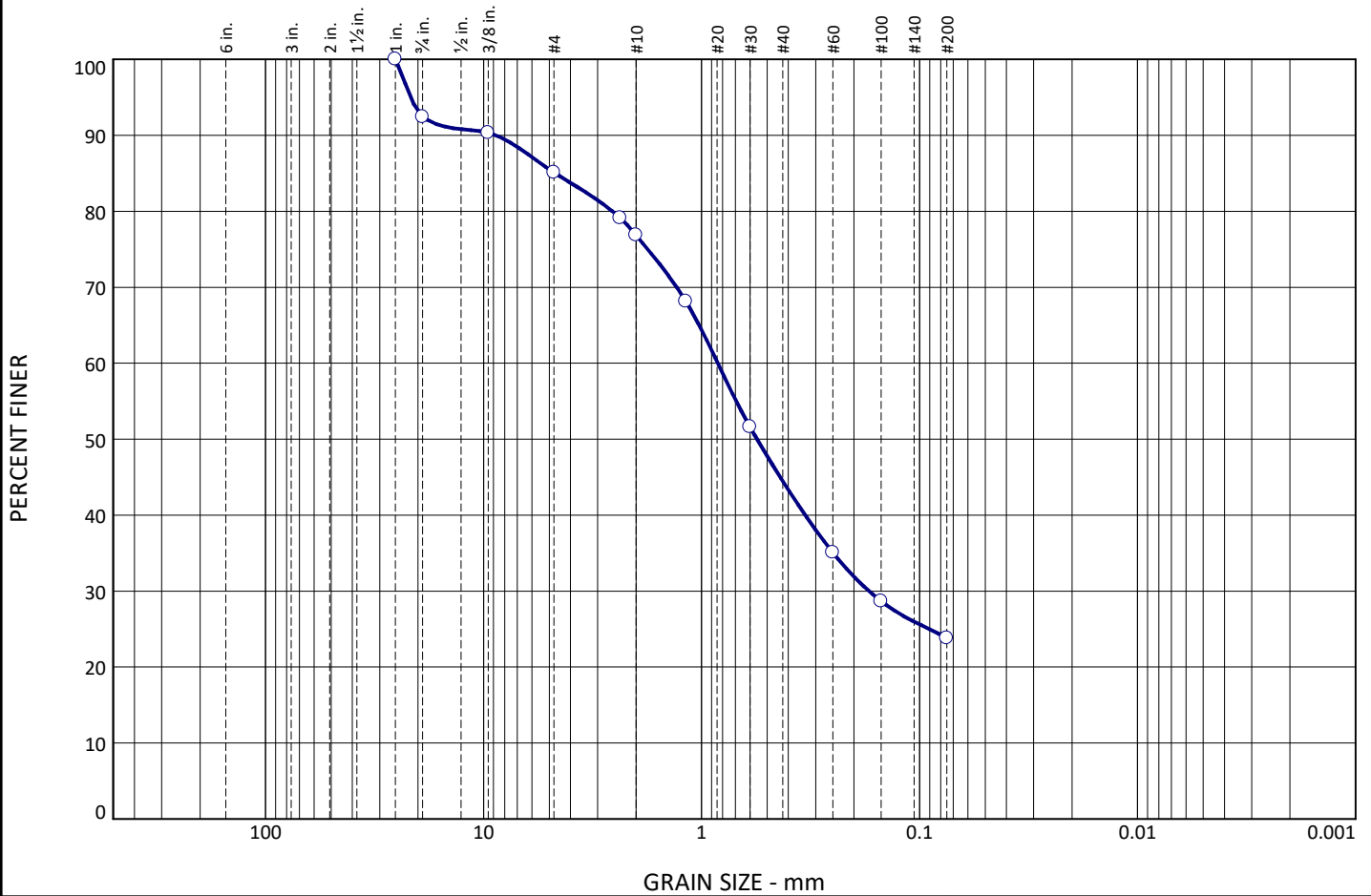
Classification
 USCS= SM\SC

Remarks
 WC: 11.1%

* (no specification provided)

Source of Sample: TB-102 Depth: 0.5'-2' Date: 8/8/24
 Sample Number: S-1

Particle Size Distribution Report



| % Cobbles | % Gravel | | | % Sand | | | % Fines |
|-----------|----------|--------|------|--------|--------|------|---------|
| | Coarse | Medium | Fine | Coarse | Medium | Fine | |
| 0.0 | 0.0 | 9.7 | 13.4 | 25.3 | 16.5 | 11.3 | 23.8 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 92.4 | | |
| .375 | 90.3 | | |
| #4 | 85.1 | | |
| #8 | 79.1 | | |
| #10 | 76.9 | | |
| #16 | 68.1 | | |
| #30 | 51.6 | | |
| #60 | 35.1 | | |
| #100 | 28.7 | | |
| #200 | 23.8 | | |

Material Description

Brown coarse to fine SAND, some [Fines: (Silt/Clay)], some medium to fine Gravel

Atterberg Limits
 LL= PL= PI=

Coefficients
 D₈₅= 4.6939 D₆₀= 0.8426 D₅₀= 0.5565
 D₃₀= 0.1705 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= SM\SC

Remarks
 WC: 8.9%

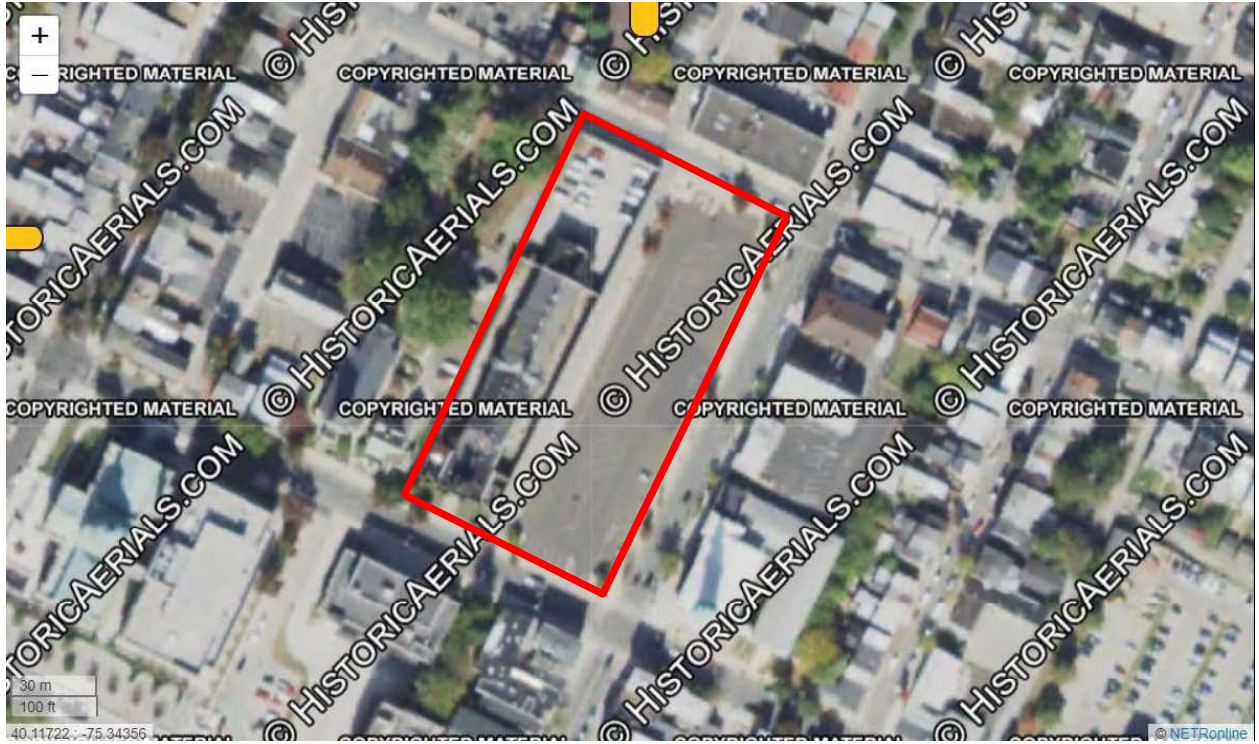
* (no specification provided)

Source of Sample: TB-102 **Depth:** 6'-7.3'
Sample Number: S-4

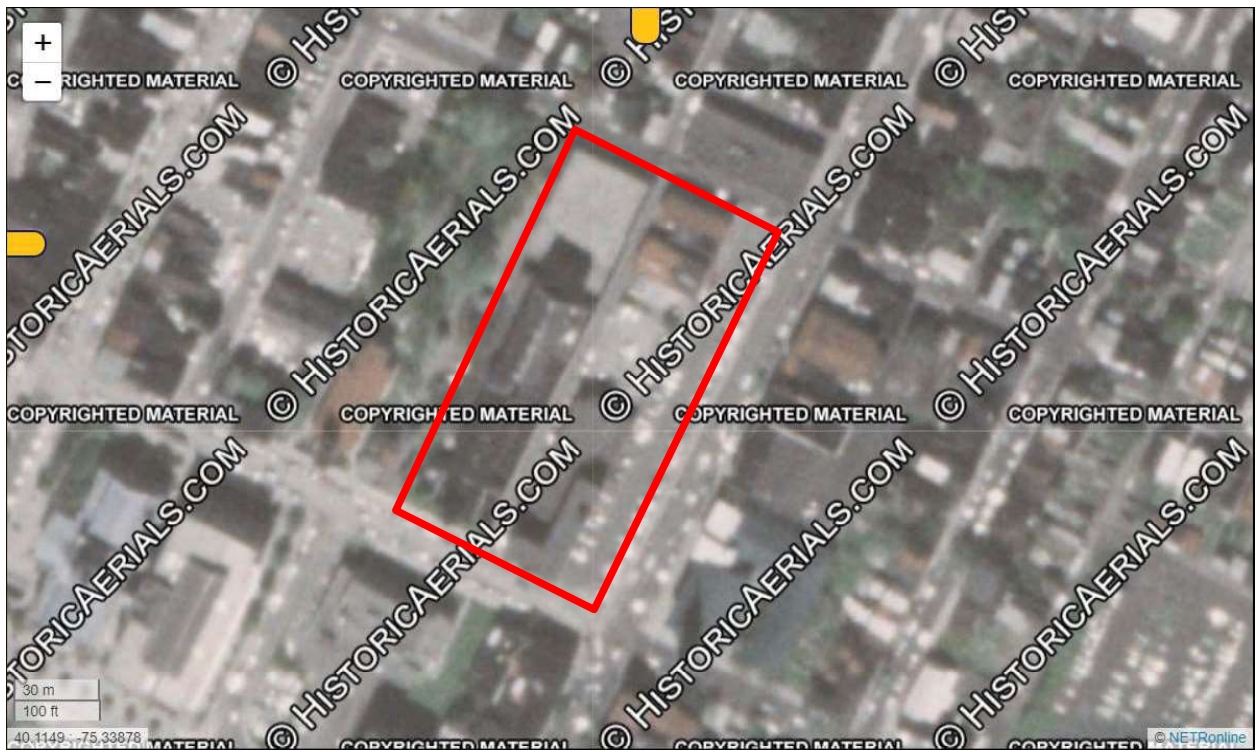
Date: 8/8/24

Appendix D
Historical Aerial Images

Appendix C – Historic Aerial Images



2019



1981

Appendix C – Historic Aerial Images



1973



1948



Engineering & Design

Colliers Engineering & Design is a trusted provider of multi-discipline engineering, design and consulting services providing customized solutions for public and private clients through a network of offices nationwide.

For a full listing of our office locations, please visit colliersengineering.com

1 877 627 3772



*Civil/Site • Traffic/Transportation • Governmental • Survey/Geospatial
Infrastructure • Geotechnical/Environmental • Telecommunications • Utilities/Energy*