GEOTECHNICAL ENGINEERING REPORT

Elk Cannabis Cultivation Facility
Township of Elk, New Jersey

Submitted To:

Country Roads Realty LLC: in care of
ATH-NJ LLC
219 N. Vineyard Boulevard,
Collingswood, NJ 08108

Murat Arkan, PE
Geotechnical Senior Engineer

Nicholas P. Fisher
Geotechnical Graduate Engineer

PAUPL23001
November 1, 2024

Pennoni

November 1, 2024

PAULP23001

Mr. Paul Ploskonka
Country Roads Realty LLC: in care of
ATH-NJ LLC
219 N. Vineyard Boulevard
Collingswood, NJ 08108

RE: Geotechnical Engineering Services
Elk Cannabis Cultivation Facility
730 Buck Road
Township of Elk, New Jersey

Dear Mr. Ploskonka:

We are pleased to submit our geotechnical engineering report for the proposed Elk Cannabis Cultivation Facility located at 730 Buck Road, Monroeville, New Jersey. Work was initiated in general accordance with the scope of the work presented in our revised proposal dated August 27, 2024 and your notice to proceed dated September 6, 2024.

We trust that the information presented in this report is what you require at this time, and we thank you for the opportunity to assist you with this project. If you have any questions, or if you need any further assistance with this project, please contact this office at your earliest convenience.

Respectfully,

PENNONI ASSOCIATES INC.

Nicholas P. Fisher
Geotechnical Graduate Engineer

Murat Arkan, PE
Geotechnical Senior Engineer

CONTENTS

APPENDICES

TABLES

1.0 Executive Summary

The results of our geotechnical study are summarized below. The executive summary should be used in conjunction with the body of the report as it details our recommendations.

PROPOSED CONSTRUCTION AND SITE CONDITIONS		*SECTION(S)*
Proposed Construction	Roll form steel frame with double truss members 1-story greenhouse structures approximately 14 ft high. We have assumed that column and wall loads will not exceed 200 kips and 8 kips/ft, respectively. The floor slab loads are expected to be 100 psf.	2.2
Surface Materials	Generally, 3 to 6 in. thick topsoil in existing farm field.	4.2
Subsoils	1 – Brown to tan fine to medium SAND; some Gravel; trace Silt; medium dense to dense 2 –Orange to tan fine to medium to coarse SAND, trace to little Silt; generally medium dense	4.2
Field Work	8 SPT borings advanced to depths ranging between 25 and 30 ft below the ground surface.	3.1
Cuts/Fills	Minor fills and cuts on the order up to 3 ft are anticipated.	5.1

RECOMMENDATIONS		*SECTION(S)*
Seismic Site Class	D – a stiff soil profile in accordance with 2021 International Building Code (IBC).	5.5
Lift Thickness and Compaction Requirements	New imported fill or onsite fill – 10 to 12 in. thick layers loose measure. Foundations and floor slab 98% and 95% (modified Proctor), respectively.	5.1
Foundations	Shallow spread footings founded on densified on-site soils and/or newly compacted load bearing fill. Footings can be sized using a net allowable soil bearing capacity of up to 3,000 psf	5.2
Settlement	Total and differential settlements are expected to be less than 1.0 and 0.5 in., respectively.	5.4
Frost Depth	36 in. below finished exterior grades	5.2
Groundwater (GW)	Groundwater was encountered in the borings between 6.0 and 13.0 ft depths (between Elevs. 114.5 and 119.6).	4.3, 5.8
Floor Slabs	On-grade on a newly compacted granular structural load bearing fill and/or densified on-site soils	5.3

2.0 Introduction

2.1 Location and Surface Features

The project site is located at 730 Buck Road, in the Township of Elk, New Jersey. Specifically, the proposed facility is located in the central portion of an existing farm field. The site is bounded by existing wetlands to the east and southwest, existing pond to the south and neighboring farm fields to the north.

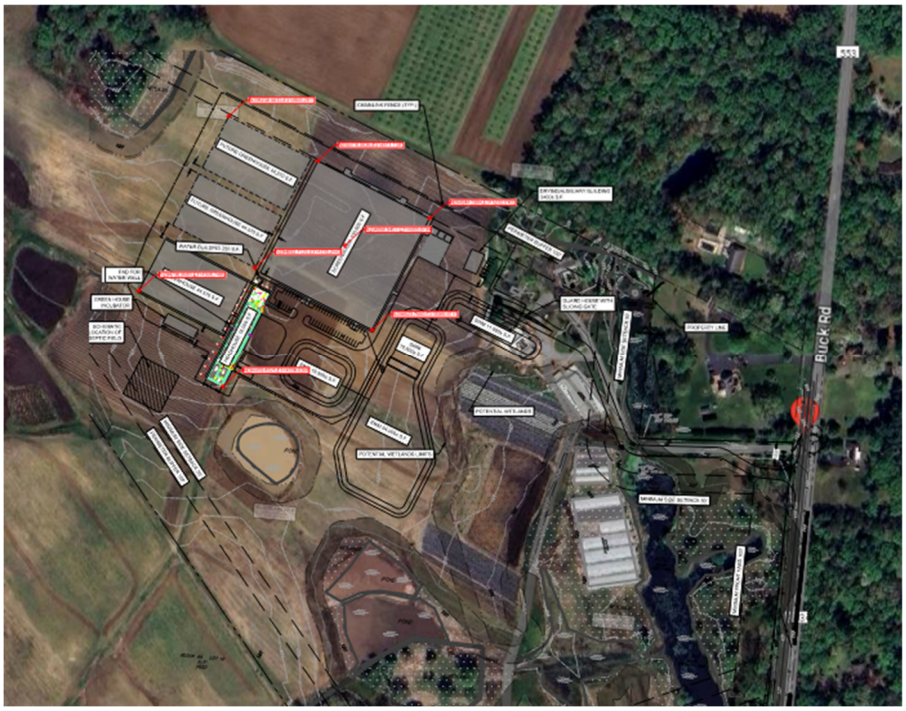


Figure 1: Site Location

The site is currently a cultivated farmland occupied by various small structures, partially paved access drives, grass areas with scattered trees, a pond and wetlands around the property. The topography is relatively flat, with a gentle slope trending downward towards the southeast. Existing grades range from approximately Elev. 127.0 to Elev. 123.0.

2.2 Proposed Construction

The proposed development will consist of five buildings ranging between 31,200 and 130,500 ft^2 in plan, to be located at 730 Buck Road, in the Township of Elk, New Jersey. In addition, smaller screenhouse, water systems and drying buildings will be provided in the eastern portion of the site. The new construction will also include administrative offices, associated drives, parking areas, and stormwater management basins.

The greenhouse structures will have roll form frames with spliced truss members. While structural loading data was not available at the time of this report, it has been assumed that the maximum column loads will not exceed 200 kips and wall loads will not surpass 8 kips/ft. The anticipated floor slab live load is expected to be 100 psf. The finished floor elevation is projected to be at Elev. 128.5.

2.3 Objectives

The objectives of this geotechnical study were to determine subsurface conditions at the project site, evaluate these conditions with respect to the proposed construction, and present our conclusions and recommendations. Our geotechnical engineering report includes recommendations for the following:

- foundation design, including discussion of alternate solutions if applicable, allowable bearing capacity and anticipated total and differential settlement amounts;
- design frost depth;
- modulus of subgrade reaction;
- feasibility of slab-on-grade;
- discussion of potential for consolidation and/or differential settlements of substrata encountered;
- seismic soil Site Classification in accordance with the applicable version of the International Building Code;
- evaluation and determination of the earthwork requirements for use in preparation of the building areas, including material selection and placement operations;
- suitability of on-site material for re-use as fill as part of the site work for the project;
- groundwater conditions;
- recommended pavement section for the proposed parking areas;
- removal or treatment of objectionable material;
- permeability characteristics of the subsoils for use in the design of the proposed infiltration basins; and
- quality assurance, field-testing and observation during construction.

3.0 Field and Laboratory Work

3.1 Field Work

The field investigation was carried out on October 1 and 2, 2024. Eight Standard Penetration Test (SPT) borings were drilled at the approximate locations presented on the Test Boring Location Plan, TL-1. The test borings were performed by FM&W Drilling using a truck mounted drill rig with 3¼ inch hollow stem augers. The boring locations were selected and established in the field by Pennoni personnel. The test borings were performed in general accordance with ASTM D1586 methods to depths ranging between 25 and 30 ft below the existing ground surface. Continuous soil sampling was performed in the upper 10 ft, with sampling at 5 ft intervals thereafter until the termination depth. The borings were backfilled with a mixture of grout (cement) and soil cuttings upon completion and in accordance with NJDEP requirements and patched in-kind. Appendix A includes the boring logs and the location plan.

Our M. Arkan, PE directed the field work; our N. Fisher provided full-time observations of the field operations.

3.2 Laboratory Work

The soil samples collected during our field study were delivered to our laboratory for testing. Table 1 below summarizes the geotechnical laboratory program.

Table 1: Geotechnical Laboratory Program

TEST	ASTM NO.	NUMBER OF TESTS
Moisture Content	D 2216	4
Sieve Analysis	D 422	4

Appendix B includes the laboratory testing results and a list of testing procedures.

4.0 Subsurface Characteristics

4.1 Geology

The project site is located within the Inner Coastal Plain Physiographic Province of New Jersey, which is characterized by relatively loose sedimentary materials, relatively flat terrain, underlain by sands and gravels of Cretaceous origin (about 100,000,000 years old) with meandering rivers which drain to Raritan or the Delaware River. The Inner Coastal Plain has been eroded down to older sediments richer and finer, such as clay and silts. The topography of this area can be characterized by rolling lowlands. Available geological data indicate that the site is underlain by the Merchantville Formation, consisting of very clayey and silty, massive to thick-bedded sand and glauconite with locally high quartz content.

4.2 Subsoils

The borings revealed a surface layer consisting of topsoil that varies in thickness from 3 to 6 inches. The underlying subsoils have been grouped into two principal strata based on their engineering properties and our interpretation of their origin. Brief strata descriptions are presented in Table 2 below.

Table 2: Strata Descriptions

STRATUM	THICKNESS (FT)	DESCRIPTION
1	1.7-5.7	Brown to tan fine to medium SAND; some Gravel; trace Silt; medium dense to dense
2	-	Orange to tan fine to medium to coarse SAND, trace to little Silt; generally medium dense

4.3 Groundwater

Observations for groundwater were made in each boring during sampling and shortly after completion of drilling. Evidence of groundwater was observed in the borings at depths varying from 6.0 to 13.0 ft below the existing grades, corresponding to elevations ranging from Elev. 114.5 to Elev. 119.6.

Groundwater observations are for the times and locations noted and may not be indicative of seasonal and daily fluctuations in groundwater levels. Seasonal variations on the order of several feet should be anticipated.

5.0 Analysis and Recommendations

5.1 Earthwork

A comparison of the existing grades to the proposed finish floor elevation of Elev. 128.5 (NAVD88) indicates that minor fills and cuts on the order of 1 to 3 ft will be required to attain the finish floor slab subgrade levels.

Prior to construction of the building foundations and floor slabs, existing pavements and topsoil/vegetation should be removed from the areas of the proposed construction. Any live underground utilities that are impacted by the new structures should be rerouted outside the areas of proposed new building footprints. Utility pipes to be abandoned may be left in place provided that they are completely filled with concrete or grout, and do not conflict with the new foundations.

After the above operations, exposed subgrades should be thoroughly proof-rolled in the presence of a representative from Pennoni using a loaded dump truck or a minimum 10-ton vibratory roller. Where space is limited subgrade soils should be manually probed in an attempt to disclose unstable surface areas. Any unstable surface areas (soft, yielding, etc.) found should be stabilized by excavating and replacing those soils with suitable soil that is adequately compacted. This can be accomplished by properly adjusting the moisture content of the subgrade soils and compacting them, or by other methods (placing a geotextile and stone layer, etc. or soil exchange).

Visual observations and laboratory testing indicate that the near surface soils of Stratum 1 consist predominantly of sands with varying amounts of silt. Laboratory test results also indicate that the present moisture content (6.6 to 8.8%) of the near surface soils is near or below the optimum moisture content normally associated with these soils to achieve the desired degree of compaction. Adjusting the moisture contents of these on-site soils before use in any compacted fills and/or subgrade preparation should be expected. The existing near surface soils of Stratum 1 can be considered for re-use as compacted structural load bearing fill. Proper compaction equipment and placing soil in thinner layers should be considered when preparing earthwork schedules. Provisions for importing structural fill should be included in the contract documents.

If necessary, imported structural fill should be selected from suitable borrow sources and be approved by the Geotechnical Engineer well in advance of fill construction. Granular fill ideally should consist of well-graded material with not more than 20 percent passing the No. 200 sieve and have a plasticity index not greater than 8 percent; NJDOT I-5 or recycled concrete with a gradation similar to that described above with a maximum particle size of 3 in. can be considered. In addition, crushed aggregate such as AASHTO #57 stone should be considered for fill placement below the groundwater levels. Other gradations can be considered based on laboratory testing and at the discretion of the Geotechnical Engineer.

Fine grained and granular fills should be placed in layers not exceeding 8 to 10 in. and 10 to 12 in. loose thickness, respectively. This criterion might be adjusted by the geotechnical engineer in the field depending on the conditions present at the time of construction, on the compaction equipment used, and on the fill materials selected. Fills should extend a minimum of 5 ft beyond the exterior edge of a loaded area and have side slopes not steeper than 2 horizontal to 1 vertical. Table 3 below presents the compaction requirements.

Table 3: Compaction Requirements

FILLS SUPPORTING	MODIFIED PROCTOR (ASTM D1557)
Foundations	98%
Slab-on-Grade	95%
Pavements	93%

Specifications for the frequency of compaction testing should meet the following criteria:

1- Paved and Building Slab Areas: Each compacted fill and backfill layer, at least one test for every 2,500 ft^2., but in no case fewer than three tests per lift.

2- Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 ft or less of wall length, but no fewer than two tests.

3- Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 100 ft or less of trench length, but no fewer than two tests.

Specifications should indicate that the percentage of maximum dry density attained in the field is not the only criteria to be used for assessing fill compaction. Observation of the behavior of the fill under the loads of construction equipment should also be used. If the test results indicate that the percentage of compaction is being achieved, but the soil mass is moving under the equipment, placement of additional fill should not be continued until the movement is stabilized. Otherwise, settlement of the fill may occur.

We recommend that all site preparation and earthwork operations be carried out in the full-time presence of a qualified representative of the Geotechnical Engineer.

5.2 Foundations

Based on the results of our field program, our engineering analyses, and our experience with similar projects we conclude that the proposed structures can be supported on shallow spread footings founded on densified soils of Stratum 1 or on compacted structural fill and designed using a net allowable bearing capacity of 3,000 psf.

The subgrades of all exterior footings and any other foundation exposed to freezing temperatures during construction and/or the life of the structure should be established at least 3 ft below the adjacent exposed grades or otherwise protected against frost action. The interior footings may be founded immediately below the floor slabs provided that they are structurally separated from them. All continuous footings should be designed to project at least 6 in. on each side of the walls. Continuous and isolated footings should be at least 2 ft wide and 3 ft square, respectively, to prevent localized shear failure in soil.

Because no groundwater was encountered to at least 6 ft below grade, problems with groundwater seepage into the footing excavations are not anticipated. However, any infiltration of surface run-off water into the footing excavations should be immediately removed by pumping.

Foundation subgrades should be examined by a representative of the Geotechnical Engineer to confirm conditions suitable for support of the design bearing pressure. Where an area is questionable, it should be further explored and/or remedied by removal and replacement of unsuitable material.

5.3 Floor Slab

The proposed new floor slabs can be constructed on-grade on newly compacted granular structural load bearing fill and/or densified on-site soils. Prior to construction of the slab on grade, subgrades must be proofrolled and densified according to the recommendations presented in the “Earthwork” section of this report.

The proposed concrete slab on grade can be designed using a modulus of vertical subgrade reaction (k_v) of 150 pci. At least 6 in. should be maintained between the bottom of the floor slab and the tops of the foundations to minimize the potential for floor slab cracking at the foundation edges or the slab should be designed accordingly to minimize cracking. A 4 to 6 in. thick free-draining granular base course should be

placed beneath the slab to provide a uniform bearing surface and to aid in the proper curing of the concrete. The concrete slab on grade should be isolated from other structural elements to allow for independent movements or the slab should otherwise be designed accordingly.

5.4 Settlement

Settlement of a soil mass is a function of the characteristics of the supporting soils (type of soil, void ratio, pre-consolidation, etc.), the thickness of the layer(s), and the stresses imposed on the soils by an applied load (fill, shallow foundations, floor slab, etc.). The stresses affecting subsoils generally decrease with increasing depth and are variable based on the magnitude and area of applied loading.

Total and differential settlements are expected to be less than 1.0 and 0.5 in., respectively. These settlements are expected to occur relatively rapidly upon load application, i.e. concurrently with construction. Provided that the recommendations presented in the "Earthwork" section of this report are followed, total and differential settlements are anticipated to be tolerable.

5.5 Seismic Site Classification

The borings disclosed subsurface conditions generally described according to the Table 20.3-1, Site Classification of ASCE 7 and referenced in Section 1613.2.2 of the 2021 International Building Code (IBC) as having a soil-profile corresponding to Site Class D– stiff soil profile. Site Class Determination is based on the properties in the upper 100 feet of the ground surface. The borings performed herein were advanced to a maximum depth of 30 feet. Values beyond 30 feet were estimated based on our local experience in this area.

5.6 Pavements

Proposed new parking lot and drives can consist of flexible bituminous concrete pavements. In the design of the pavements, a California Bearing Ratio (CBR) value of 10 can be used as representative of the densified on-site soils, or of compacted new fill.

Pavement design requires an input of anticipated traffic volume, and none has been specified for this project as of this writing. We have, therefore, assumed the following traffic volumes for typical commercial parking facilities with automobile and heavy truck traffic.

- Light duty pavement (Automobile Parking) – 500 cars per day; and
- Heavy duty pavement (Drives, Loading Areas, Fire Lane) – 500 cars plus 10 heavy trucks per day.

Based on our analysis, the following pavement cross sections are recommended:

Table 4: Thickness of Bituminous Pavement Courses (inches)

Parking Lots and Drives	LIGHT DUTY PAVEMENT	HEAVY DUTY PAVEMENT
Bituminous Wearing Course Pavement (Hot Mix Asphalt 9.5M64)	1.5	1.5
Bituminous Binder Course (Hot Mix Asphalt 19M64)	2.0	3.5
Dense Graded Aggregate Base Course	6	6
Total Pavement Thickness (in.):	9.5	11.0

The preparation of the pavement subgrades and placement of any required fill should be done as recommended under the "Earthwork" section of this report. The soils should be compacted to at least 93% of the maximum modified dry density, ASTM D-1557, prior to placement of dense graded aggregate base course. If the Binder Course is placed prior to completion of construction, any damaged areas must be repaired prior to placing the Wearing Course.

5.7 Groundwater and Surface Water Management

The groundwater observations made in the borings indicate that free-standing water should not be encountered in shallow excavations anticipated for foundation construction. However, depending on the weather conditions during construction, wet conditions and/or seepage may be present. In the event that wet conditions and/or seepage are encountered due to perched water, sumps and pumps should be adequate to maintain stable conditions during foundation construction.

Foundations should be concreted the same day the excavation is made. Excavations for utilities should be backfilled as rapidly as possible after excavation. The foundation excavations should not be used as a detention basin or sump. During construction surface runoff should be prevented from entering the excavations by creating soil berms or diversion swales along the perimeter if the excavation is expected to be open for a long period of time. Where ponding does occur, the water should be pumped immediately, and grades should then be established to prevent further ponding.

5.8 Existing and Proposed Utilities

Any existing utilities located within the proposed construction areas should be abandoned and relocated outside the proposed building footprint. Any existing utility line abandoned in-place should be grouted or the line should be removed from the trench and appropriately backfilled.

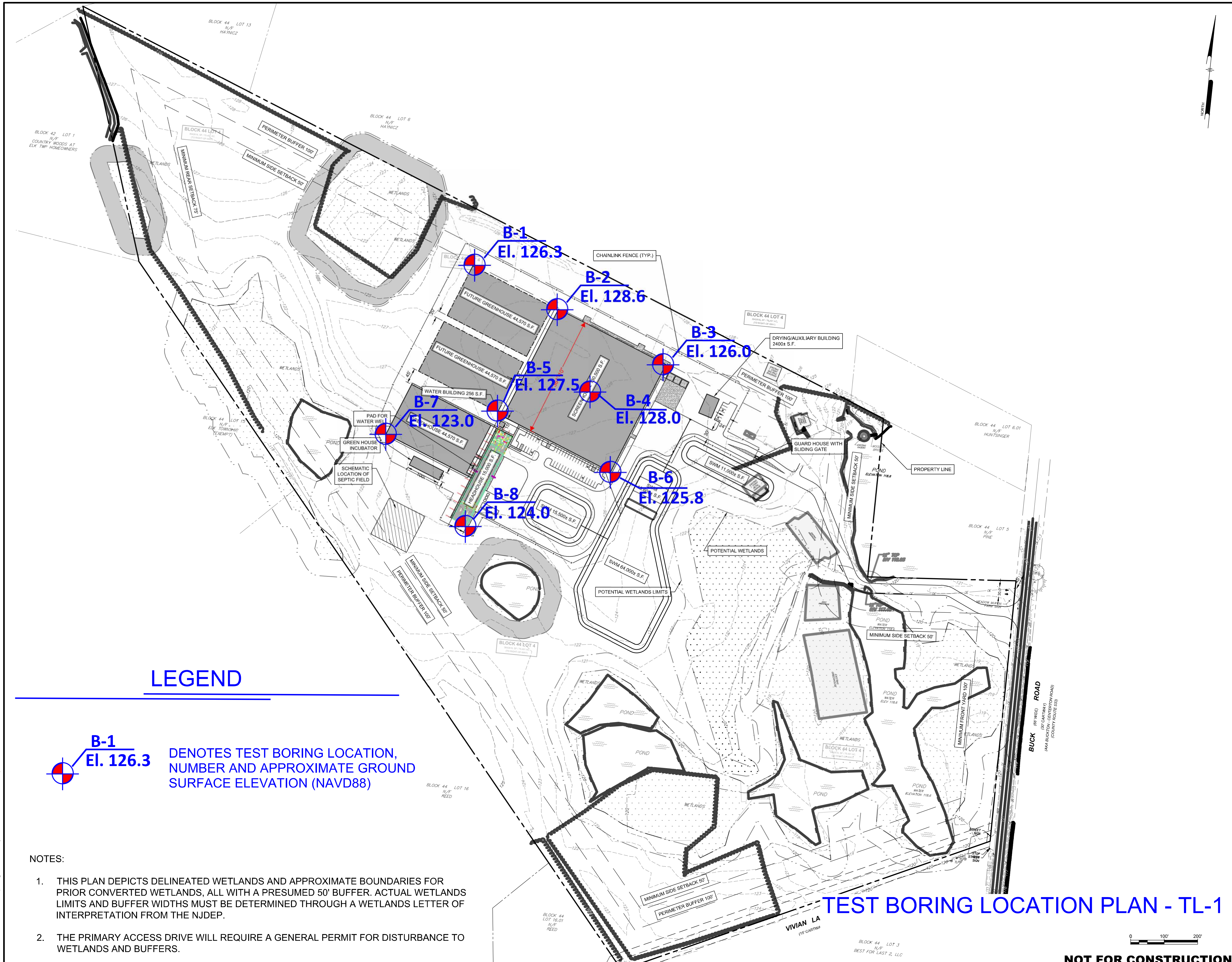
6.0 Recommendations for Further Geotechnical Services

Our experience on numerous construction projects is that the interests of the project team are best served by retaining the Geotechnical Engineer to provide construction observations during earthwork and foundation construction operations. To determine if soils, other materials, and ground water conditions encountered during construction are similar to those encountered in the borings, and that they have comparable engineering properties or influences on the design of the structure, we recommend that Pennoni should provide field observation services during excavation; preparation of foundation subgrades; and installation/construction of foundations. Pennoni's Geotechnical Technology should review specifications for earthwork and foundation design/construction when they are prepared.

7.0 Limitations

This work has been done in accordance with our authorized scope of work and in accordance with generally accepted professional practice in the fields of geotechnical and foundation engineering. This warranty is in lieu of all other warranties either expressed or implied. Our conclusions and recommendations are based on the data revealed by this exploration. We are not responsible for any conclusions or opinions drawn from the data included herein, other than those specifically stated, nor are the recommendations presented in this report intended for direct use as construction specifications. This report is intended for use with regard to the specific project described herein; any changes in loads, structures, or locations should be brought to our attention so that we may determine how they may affect our conclusions. An attempt has been made to provide for normal contingencies, but the possibility remains that unexpected conditions may be encountered during construction. If this should occur, or if additional or contradictory data are revealed in the future, we should be notified so that modifications to this report can be made, if necessary. If we do not review relevant construction documents and witness the relevant construction operations, then we cannot be responsible for any problems that may result from misinterpretation or misunderstanding of this report or failure to comply with our recommendations. our virtual executive summary should be used for informational purposes only and should not be used for construction related purposes.

Appendix A:
Field Data



LEGEND

B-1 El. 126.3 — DENOTES TEST BORING LOCATION, NUMBER AND APPROXIMATE GROUND SURFACE ELEVATION (NAVD88)

NOTES:

1. THIS PLAN DEPICTS DELINEATED WETLANDS AND APPROXIMATE BOUNDARIES FOR PRIOR CONVERTED WETLANDS, ALL WITH A PRESUMED 50' BUFFER. ACTUAL WETLANDS LIMITS AND BUFFER WIDTHS MUST BE DETERMINED THROUGH A WETLANDS LETTER OF INTERPRETATION FROM THE NJDEP.
2. THE PRIMARY ACCESS DRIVE WILL REQUIRE A GENERAL PERMIT FOR DISTURBANCE TO WETLANDS AND BUFFERS.

TEST BORING LOCATION PLAN - TL-1

NOT FOR CONSTRUCTION

Pennoni
PENNONI ASSOCIATES INC.
515 Grove Street, Suite 1B
Haddon Heights, NJ 08035
T 856.547.0505 F 856.547.9174
NJ COA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

ELK CANNABIS FACILITY
BUCK ROAD AND VIVIAN LANE
ELK TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY

CONCEPT PLAN

PROJECT	PAUPL22001
DATE	2022-06-08
DRAWING SCALE	1"= 100'
DRAWN BY	NC
APPROVED BY	CG

CS0401 - SK7

SHEET 1 OF 1

TEST BORING LOG

TEST BORING B-1

PAGE 1 OF 1

NORTHING 295238.5813

EASTING 314655.2911

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/1/24 **COMPLETED** 10/1/24

GROUND ELEVATION 126.3' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 8.5' / Elev 117.8'

DRILLER / HELPER Nick / John

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	18	6-9-15-22		T	0.3 / 125.9 — 4" TOPSOIL	
					1	Brown to tan F/M SAND, some F/C Gravel, trace Silt	Dry
	S-2	18	29-23-19-18			2.0 — Brown F/M/C SAND, trace Silt	
						4.0 / 122.3	
5	S-3	24	7-19-16-18			Orange M/F/C SAND, little Silt. trace F Gravel	Moist
	S-4	18	15-13-13-10			6.0 — Orange F/M/C SAND, little Silt	
10	S-5	18	7-8-7-7				Wet
						13.0 — Orange M/F/C SAND, trace Silt, trace F Gravel	
15	S-6	24	4-5-4-3				Saturated
					2		
						18.0 — Orange F/M/C SAND, trace Silt	
20	S-7	16	7-4-6-6				Water added to clean out borehole.
						23.0 — Orange F/M SAND, trace Silt	
25	S-8	24	5-6-8-6				
						28.0 — Orange to tan F/M SAND, trace Silt	
30	S-9	24	14-18-18-16			30.0 / 96.3 — Borehole terminated at 30.0 feet.	

NOTES:

TEST BORING LOG

TEST BORING B-2

PAGE 1 OF 1

NORTHING 295110.0036

EASTING 314911.1391

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/1/24 **COMPLETED** 10/1/24

GROUND ELEVATION 128.6' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 9.0' / Elev 119.6'

DRILLER / HELPER Nick / John

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	18	6-12-14-13		T	0.5 — 6" TOPSOIL — 128.1	
					1	Brown to tan F/M SAND, little F/C Gravel, little Silt	Dry
	S-2	14	16-27-30-31			2.0 — White to tan F/M/C SAND, some F/C Gravel, little Clay	
						4.0 — 124.6	
5	S-3	16	18-13-11-9			Orange F/M/C SAND, trace Silt	
						6.0	
	S-4	24	7-10-11-13			Orange F/M/C SAND, little Silt	Moist
						8.0	
10 ▽	S-5	24	8-6-5-5			Orange F/M/C SAND, some Silt	Wet
						13.0	
15	S-6	16	9-12-11-12		2	Orange F/M SAND, little Silt	Water added to clean out borehole
20	S-7	16	3-5-7-7				
						23.0	
25	S-8	16	4-6-11-12			Orange F/M SAND, little Silt	
						25.0 — 103.6	
						Borehole terminated at 25.0 feet.	

NOTES:

TEST BORING LOG

TEST BORING B-3

PAGE 1 OF 1

NORTHING 294944.5864

EASTING 315232.01

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/1/24 **COMPLETED** 10/1/24

GROUND ELEVATION 126.0' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 8.0' / Elev 118.0'

DRILLER / HELPER Nick / John

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0					T	Depth 0.3 — 4" TOPSOIL — Elev. 125.7	
	S-1	14	6-10-14-10		1	Tan F/M SAND, trace Silt — 2.0 — 124.0	Dry
	S-2	18	15-12-11-11			Orange F/M/C SAND, trace Silt	
	C					4.0	
5	S-3	16	7-8-9-6			White to red F/M SAND, little Silt, trace F/M Gravel	Moist
	S-4	24	8-8-8-8			6.0 Orange F/M SAND, little Silt	Wet
	▽					8.0	
10	S-5	18	11-10-10-8			Orange F/M SAND, little Silt	
						13.0	
15	S-6	20	5-5-8-10		2	Orange F/M SAND, little Silt	Water added to clean out borehole
						18.0	
20	S-7	24	15-22-22-13			Orange to tan F/M SAND, trace Silt	
25	S-8	24	7-9-10-11			25.0 — Elev. 101.0	

Borehole terminated at 25.0 feet.

NOTES:

TEST BORING LOG

TEST BORING B-4

PAGE 1 OF 1

NORTHING 294866.8457

EASTING 314988.8704

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/1/24 **COMPLETED** 10/1/24

GROUND ELEVATION 128.0' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 10.0' / Elev 118.0'

DRILLER / HELPER Nick / John

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1		3-8-13-17		T 1	0.3 3" TOPSOIL (127.8) Tan F/M SAND, some F/C Gravel, trace Silt 2.0 (126.0)	Dry
	S-2		12-16-13-17			Orange F/M/C SAND, little F/C Gravel, little Clay 4.0	
5	S-3		13-9-7-9			Orange F/M/C SAND, trace Silt 6.0	Moist
	S-4		8-9-9-13			Orange to tan F/M SAND, trace Silt 8.0	
10 ▽	S-5		18-21-23-22			Orange F/M SAND, little Silt	Wet
						13.0	
15	S-6		9-13-13-7		2	Orange F/M/C SAND, trace Silt	Water added to clean out borehole
						18.0	
20	S-7		4-3-5-6			Orange F/M SAND, trace Silt	
						23.0	
25	S-8		6-9-15-18			Orange to tan F/M SAND, trace Silt 25.0 (103.0)	

Borehole terminated at 25.0 feet.

NOTES:

TEST BORING LOG

TEST BORING B-5

NORTHING 294802.7126

EASTING 314730.2443

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/2/24 **COMPLETED** 10/2/24

GROUND ELEVATION 127.5' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 13.0' / Elev 114.5'

DRILLER / HELPER Nick / Zach

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	18	6-12-11-18		T 1	0.3 / 127.3 — 3" TOPSOIL Brown to tan F/M SAND and F/C GRAVEL 2.0 / 125.5	Dry
	S-2	20	23-21-12-12		3	Brown CLAY and F/M/C SAND, little F/C Gravel 4.0 / 123.5	
5	S-3	16	20-24-21-15		1	Brown to white F/M/C SAND and F/C GRAVEL, trace Silt 6.0 / 121.5	
	S-4	20	11-8-5-5			Tan F/M/C SAND, trace Silt 8.0	
10	S-5	24	4-1-1-1			Tan to orange F/M/C SAND, trace Silt	Moistt
▽ 15	S-6	24	5-5-7-7		2		Saturated
						18.0	
20	S-7	18	5-7-11-10			Tan to orange F/M/C SAND, trace Silt	Water added to clean out borehole
						23.0	
25	S-8	24	4-9-16-18			Gray to orange F/M/C SAND, trace Silt 25.0 / 102.5	

Borehole terminated at 25.0 feet.

NOTES:

TEST BORING LOG

TEST BORING B-6

PAGE 1 OF 1

NORTHING 294623.706

EASTING 315066.6111

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/2/24 **COMPLETED** 10/2/24

GROUND ELEVATION 125.8' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 8.0' / Elev 117.8'

DRILLER / HELPER Nick / Zach

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0					T	Depth 0.3 — 3" TOPSOIL — Elev. 125.6	
	S-1	14	5-13-23-15			Gray to brown F/M SAND, some Clay, some F/C Gravel	Dry
	S-2	0	16-19-22-19		1	4.0	Coarse gravel stuck in spoon tip
5	S-3	18	14-12-12-9			Brown F/M/C SAND, litttle Clay, trace F Gravel — 6.0 — Elev. 119.8	
	S-4	20	11-10-10-8			Tan to orange F/M SAND, trace Silt	Moist
▽						8.0	
10	S-5	22	6-4-4-4			Orange to tan F/M SAND, trace Silt	Saturated
15	S-6	18	5-5-8-8		2		Water added to clean out borehole
						18.0	
20	S-7	24	4-5-5-5			Orange F/M SAND, trace Silt	
						23.0	
25	S-8	24	4-13-30-22			Orange to tan F/M SAND, trace Silt — 25.0 — Elev. 100.8	

Borehole terminated at 25.0 feet.

NOTES:

TEST BORING LOG

TEST BORING B-7

PAGE 1 OF 1

NORTHING 294736.9983

EASTING 314396.7485

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/2/24 **COMPLETED** 10/2/24

GROUND ELEVATION 123.0' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 6.0' / Elev 117.0'

DRILLER / HELPER Nick / Zach

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1		7-12-11-14		T 1	0.3 3" TOPSOIL (122.8) Tan F/M SAND, little F Gravel, trace Silt 2.0 (121.0)	Dry
	S-2 ©		11-15-23-19			Orange F/M/C SAND, some Clay, little F/C Gravel 4.0	
5	S-3		13-10-9-7			Orange F/M/C SAND, little Clay	Moist
▽	S-4		7-8-7-9			6.0 Orange F/M/C SAND, little Silt, trace F Gravel	Wet
10	S-5		6-4-4-6				
	S-6		6-6-9-9		2	13.0 Orange F/M/C SAND, little Silt	Water added to clean out borehole
15							
	S-7		5-8-9-10			18.0 Orange to tan F/M SAND, trace Silt	
20							
	S-8		10-11-13-12				
25						25.0 (98.0)	

Borehole terminated at 25.0 feet.

NOTES:

TEST BORING LOG

TEST BORING B-8

PAGE 1 OF 1

NORTHING 294459.8325

EASTING 314638.0208

CLIENT Country Roads Realty LLC: in care of ATH-NJ LLC

PROJECT NAME Elk Cannabis Cultivation Facility

PROJECT NUMBER PAUPL23001

PROJECT LOCATION 730 Buck Road, Elk Township, NJ

DATE STARTED 10/2/24 **COMPLETED** 10/2/24

GROUND ELEVATION 124.0' NAVD88 +/-

DRILLING CONTRACTOR F.M. & W. Drilling Inc.

WATER ENCOUNTERED:

DRILLING METHOD Hollow Stem Auger/CME 55

▽ **DURING DRILLING** 7.0' / Elev 117.0'

DRILLER / HELPER Nick / Zach

AT END OF DRILLING Not encountered

LOGGED BY N. Fisher **CHECKED BY** M. Arkan

AFTER DRILLING Not measured

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	18	6-7-11-10		T 1	0.3 — 4" TOPSOIL (123.7) Brown F/M SAND, some F/C Gravel, little Silt 2.0 (122.0)	Dry
	S-2	16	8-8-5-5			Orange F/M SAND, little F/C Gravel, little Silt 4.0	
5	S-3	10	5-4-3-2			Orange F/M SAND, little F/C Gravel, trace Silt 6.0	Moist
	S-4	20	4-1-1-5			Orange to tan F/M/C SAND, trace F Gravel, trace Silt 8.0	Saturated
10	S-5	24	4-5-6-6			Orange to tan F/M/C SAND, little Silt	Water added to clean out borehole
						13.0	
15	S-6	24	6-7-9-10			Tan F/M SAND, trace Silt	
					2		
20	S-7	24	7-12-16-12				
						23.0	
25	S-8	24	6-6-8-8			Tan F/M SAND, little Silt	
30	S-9	24	5-6-9-11			30.0 (94.0) Borehole terminated at 30.0 feet.	

NOTES:

Test Boring – Test Pit – Auger Probe Log Key Sheet

LEGNED

COLUMN	*DESCRIPTION*
Depth	Depth in feet below ground surface.
Description	Description of sample including color, texture, and classification of subsurface material as applicable. Estimated depths to bottom of Strata as interpolated from the boring are also shown.
Stratum	Strata numbers as assigned by the geotechnical engineer.
Sample No.	Split barrel sample and sample number (S-x) Undisturbed Tube sample and sample number (U-x) Rock core run and core number (R-x) NR indicates "No Recovery."
Blow Counts	Soils (ASTM D 1586): Indicates number of blows obtained for each 6 inches of penetration of the standard split-barrel sampler. Rock (ASTM D 2113): indicates percent recovery (REC) per length of run and rock quality designation (RQD). RQD is the sum of rock pieces that are 4 inches or longer in length in one run divided by the total core run.
Recovery	For soil samples indicates the length of recovery in the sample spoon.
Remarks	Special conditions or test data noted during drilling.
Ground Water	Free water level as shown ( )*; *Free water level as noted may not be indicative of daily, seasonal, or long term fluctuations.

DESCRIPTIVE TERMS

RELATIVE PROPORTIONS

Descriptive Term	Symbol	Estimated Percentages
Trace	tr	1 to 10
Little	l	10 to 20
Some	sm	20 to 35
And	and	35 to 50

GRADATION OF COARSE GRAINED COMPONENTS

Soil Component	Size Range	Particle Size Maximum	Particle Size Minimum
Boulders		-	12"
Cobbles		12"	3"
Gravel	Coarse	3"	¾"
	Fine	¾"	#4 Sieve
Sand	Coarse	#4 Sieve	#10 Sieve
	Medium	#10 Sieve	#40 Sieve
	Fine	#40 Sieve	#200 Sieve
Silt		#200 Sieve	.005 mm
Clay		.005 mm	-

COMPOSITION OF COARSE-GRAINED COMPONENTS

Gradation Designation	Symbol	Defining Proportions
Coarse to Fine	CF	All fractions greater than 10% of the component
Coarse to Medium	CM	Less than 10% Fine
Medium to Fine	MF	Less than 10% Coarse
Coarse	C	Less than 10% Fine and Medium
Medium	M	Less than 10% Coarse and Fine
Fine	F	Less than 10% Coarse and Medium

Appendix B:
Laboratory Data

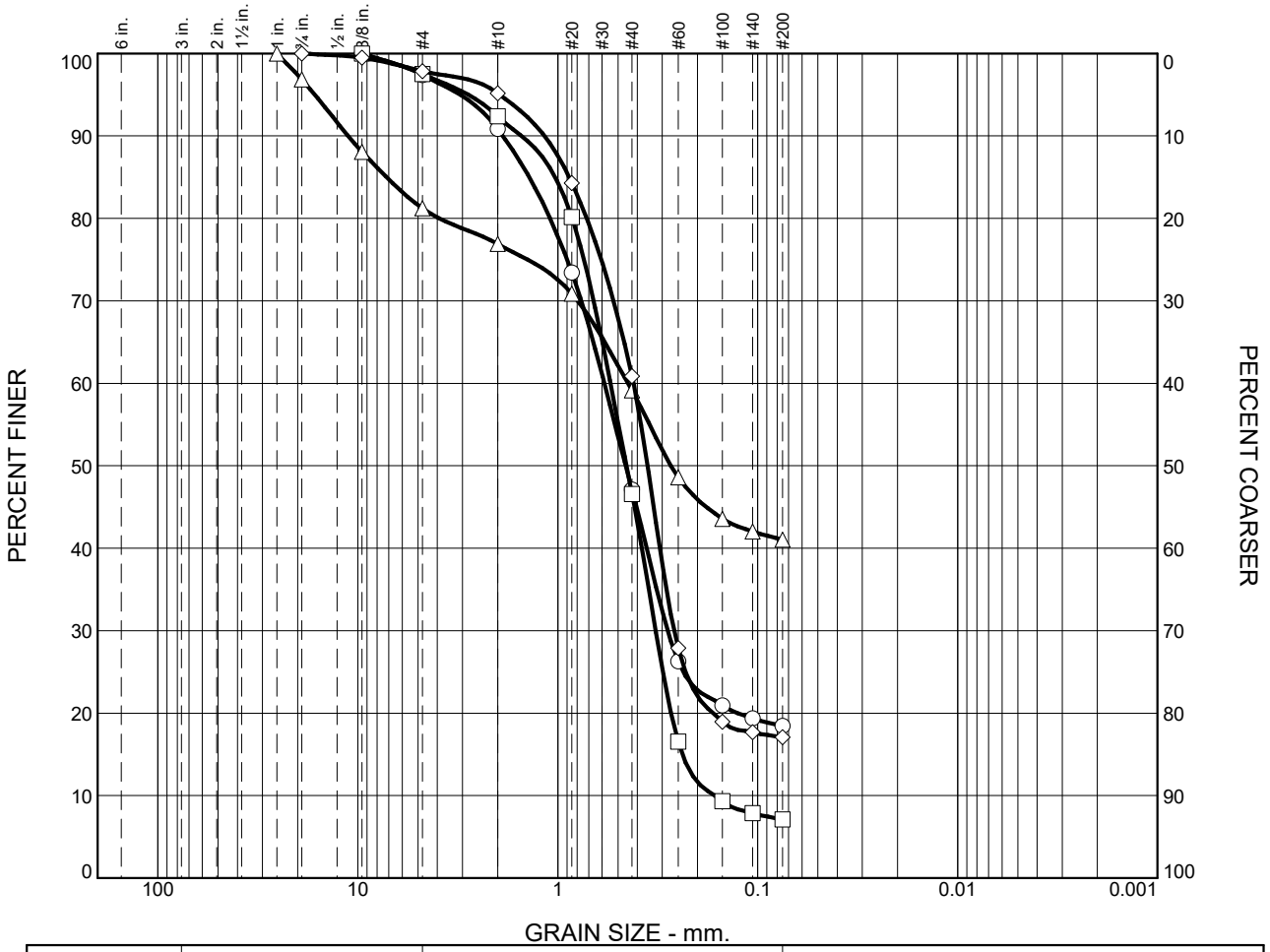
SUMMARY OF LABORATORY DATA

BORING NUMBER	SAMPLE NUMBER	DEPTH (ft)	SOIL GROUP SYMBOL	GRAIN SIZE DISTRIBUTION				PLASTICITY				MOISTURE CONTENT w %	VOLUMETRIC				COMPACTION DATA			Organic Content (%)			SHEAR STRENGTH		
				GRAVEL %	SAND %	SILT %	CLAY %	LIQUID LIMIT w_l	PLASTIC LIMIT wp	PLASTICITY INDEX I_P	LIQUIDITY INDEX I_L		SPECIFIC GRAVITY (G)	DRY UNIT WEIGHT (pcf)	VOID RATIO (e)	DEGREE OF SATURATION %	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT %	STANDARD/MODIFIED				UNCONFINED COMPRESSIVE STRENGTH (tsf)	COHESION (tsf)	AXIAL STRAIN (%)
B-1	S-3	4-6		3	79	18						8.8													
	S-6	13-15		2	91	7						23.1													
B-5	S-2	2-4		19	40	41						6.6													
B-7	S-4	6-8		2	81	17						17.3													

PENNONI ASSOCIATES INC.	DRAWN BY: MB CHECKED BY: JTR	DATE: 10/25/2024 DATE: 10/25/2024	PROJECT: **Elk Cannabis Facility** LOCATION: **Elk Township, NJ**

JOB No.: **PAUPL23001**
TABLE No.: **L-1**

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	3	6	44	29	18	
□	0	0	2	6	45	40	7	
△	0	3	16	4	18	18	41	
◇	0	0	2	3	34	44	17	

SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	B-1	S-3	4-6	M/F/C Sand, Little Silt/Clay, Trace Fine Gravel	
□	B-1	S-6	13-15	M/F/C Sand, Trace Silt/Clay, Trace Fine Gravel	
△	B-5	S-2	2-4	Silt/Clay, And F/M/C Sand, Little F/C Gravel	
◇	B-7	S-4	6-8	F/M/C Sand, Little Silt/Clay, Trace Fine Gravel	

PENNONI ASSOCIATES INC.

Client: Paul Ploskonka
Project: Elk Cannabis Facility
Project No.: PAUPL-23001.01 **Figure** S-1

Tested By: MB **Checked By:** JTR

LABORATORY TESTING PROCEDURES

All testing is either done in accordance with the indicated ASTM Designation-latest edition, or with other standard or generally accepted engineering practice as described:

1. **Consolidation Test of Soils**
   Preparation of samples and testing procedures generally follow the methods described in Lambe, op. Cit. In addition, the time of loading may be selected on the basis of:
   a. Controlled rate of percent of consolidation
   b. Controlled pore pressure gradient
   c. Controlled strain

   The method of test is selected to suit the soil type in question and the test is conducted in accordance with generally accepted engineering practice.

2. **Atterberg Limits – Plasticity Indices**
   a. Liquid limit of soils, ASTM D 4318
   b. Plastic limit and plasticity index of soils, ASTM D 4318
   c. Shrinkage factors of soils, ASTM D 427

   (Moisture content is also determined with the Atterberg Limit test, and liquidity index is also computed)

3. **Moisture Content of Soil**
   ASTM D 2216

4. **Particle Size Analysis of Soils**
   ASTM D 421, Dry preparation of soil samples; ASTM D 422, Sieve and/or hydrometer analysis.

5. **Triaxial Compression Test of Soils**
   Sample preparation, apparatus, and testing generally follow the procedures outlined in Soil Testing for Engineers, T.W. Lambe, John Wiley & Sons, Inc., New York, 1951 and in The Measurement of Soil Properties in the Triaxial Test, Alan W. Bishop & D.J. Henkel, 2nd Edition, St. Martin's Press, New York, 1962

6. **Unconfined Compression Strength of Cohesive Soil**
   ASTM D 2166

7. **Specific Gravity of Soils**
   ASTM D 854

8. **Unit Weight Determination of Soils**
   See ASTM D 2166 for preparation of specimen except that sample size may differ. For moisture content see ASTM D 2216.

9. **Visual Identification of Soil Samples**
   All soil samples are visually identified and/or classified. The classification system used is shown in Table L-1.

10. **Identification of Rock**
    Rock core samples are identified by the character and appearance of newly fractured surfaces of unweathered pieces, by core conditions and characteristics, and by the determination of simple physical and chemical properties.

11. **Unconfined Compression Strength of Intact Rock Core Specimens**
    ASTM D 2938.

12. **Compaction Test of Soils**
    a. Moisture-density relations of soils using 5.5 lb. hammer and 12 in. drop, ASTM D 698
    b. Moisture-density relations of soils using 10 lb. hammer and 18 in. drop, ASTM D 1557

13. **Maximum and Minimum Densities of Granular Soils**
    Testing procedures follow D.M. Burmeister, "Suggested Method of Test for Maximum and Minimum Densities of Granular Soils" cited in Proceedings for Testing Soils, Fourth Edition, ASTM, Philadelphia. 1964, pp 175-177.

14. **Bearing Ratio of Laboratory Compacted Soils**
    ASTM D 1883 (Sometimes called California Bearing Ratio or CBR)

15. **Organic Content**
    A modified dichromate oxidation method using ferrous ammonium sulfate is employed in determining the percent of organic matter in soil.

Appendix C:
Standard Symbols

Standard Symbols

B	Width of footing
c	cohesion
c_v	coefficient of consolidation
C_c	compression index
C	coefficient of secondary compression
C_3	swelling index
C_u	uniformity coefficient (D_{60}/D_{10})
CBR	California Bearing Ratio
D	Pile Diameter
D_f	depth of foundation
D_p	diameter of grain corresponding to percentage p on grain size curve
D_{10}	effective grain size
E	modulus of linear deformation
E_s	Young's Modulus
e	void ratio
F_s	factor of safety
G	specific gravity
h	hydraulic head
H	stratum thickness
i	hydraulic gradient
I_L	liquidity index
I_P	plasticity index
k	coefficient of permeability
k_h	coefficient of horizontal subgrade reaction
k_v	coefficient of vertical subgrade reaction
L	length of footing
n	porosity
P	deviator stress
P_c	estimated probable preconsolidation pressure
P_o	existing overburden pressure
q_a	allowable soil bearing pressure
Q	triaxial compression test unconsolidated and undrained
Q_c	triaxial compression test consolidated and undrained
S	triaxial compression test consolidated and drained
S_r	degree of saturation
υ	pore-water pressure
U	degree of consolidation
U_c	unconfined compression test
w_f	moisture content at end of test
w_l	liquid limit
w_n	natural moisture content
w_p	plastic limit
γ	unit weight
γ_d	dry unit weight
γ_b	submerged unit weight
ε	unit linear strain
ε_f	unit linear strain at failure
σ	normal stress
σ_1	major principal stress
σ_3	minor principal stress
τ	shear stress
ϕ	angle of internal friction
k_a	coefficient of active pressure
k_p	coefficient of passive pressure
δ	friction angle
tan δ	friction factor