FRENCH & PARRELLO ASSOCIATES

ENGINEERING AND CONSULTING **SINCE 1974**

Report of Subsurface Exploration & Geotechnical Engineering Assessment

North Brunswick QuickChek

Township of North Brunswick, Middlesex County, New Jersey



Mr. Daniel Hutt
American Properties Realty, Inc.
517 Route One South, Suite 2100
Iselin, New Jersey 08830-3011

April 24, 2025 | FPA No. 23431.001R1
1800 Route 34, Suite 101, Wall Township, NJ 07719

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April 24, 2025

Mr. Daniel Hutt
American Properties Realty, Inc.
517 Route One South, Suite 2100
Iselin, New Jersey 08830-3011

Re: Report of Subsurface Exploration &
Geotechnical Engineering Assessment
North Brunswick QuickChek
Township of North Brunswick, Middlesex County, New Jersey
FPA No. 23431.001R1

Dear Mr. Hutt:

INTRODUCTION

This report presents the results of our Subsurface Exploration and Geotechnical Engineering Assessment performed in connection with the proposed QuickChek convenience store to be located at 1661-1689 Route 130 in the Township of North Brunswick, Middlesex County, New Jersey. The property is currently wooded and is designated as Block 230, Lot 15 on the Township of North Brunswick Tax Map. The regional location of the project site is presented on Drawing No. 1, "Regional Location Plan."

It is our understanding that the proposed improvements will include the construction of a QuickCheck convenience store occupying a plan area of approximately 5,670 square feet, fuel sales, paved driveways and parking areas as well as associated site utilities. As a result of the increase in impervious coverage, stormwater management will need to be incorporated into the site design which will consist of porous pavement and constructed wetlands.

The existing site grades are relatively level and vary from approximately elevation +109 feet along Route 130 and gently slope up to +111 feet to the north. The proposed site grades vary from approximately elevation +109 feet to +114 feet with a building finished floor elevation of +114.40 feet. Therefore, we anticipate fills up to 4 feet may be required to accommodate the proposed improvements.

It is our understanding that GZA performed a Hydrologic Soil Group Evaluation dated May 23, 2023 and reclassified the soils at the project site to "D" soils. However, per the NJDEP BMP Manual each BMP that does not infiltrate needs a minimum of 2 test pits to identify the seasonal high water table (SHWT). Therefore, the purpose for our involvement on the project at this was to perform additional explorations to meet the minimum NJDEP BMP Manual testing requirements and identify the subsurface conditions to facilitate the planning, design and construction of the proposed stormwater management systems. Our scope of work included the technical observation of 6 test pits, engineering evaluation of the subsurface information and the preparation of this summary report.

SUBSURFACE EXPLORATION

French and Parrello Associates (FPA) provided technical oversight of 6 test pits performed on March 10, 2025 at locations identified by Bohler. The field work was performed by an excavating subcontractor while under the full-time technical observation by a representative of FPA. The test pit locations were located by a representative of FPA utilizing handheld GPS equipment as well as based on correlation with existing site features presented on the Concept Grading & Drainage Plan. The approximate test pit locations are presented on Drawing No. 2, "Test Pit Location Plan."

The test pits, designated as FPA-1 through FPA-6, were excavated to determine soil and groundwater conditions as well as seasonal high water elevations. The test pits were advanced to depths ranging from approximately 8 feet to 10 feet below the existing ground surface. The exposed soil profiles were classified in accordance with the Burmister Soil Classification System. Indications of seasonal high groundwater (e.g., soil mottling) were also evaluated within the test pits and noted on the logs where observed. The depth to groundwater was measured upon the completion of the test pits. Soil classifications, soil mottling observations and recorded groundwater depths are presented on the test pit logs in Appendix A.

SITE CONDITIONS

Regional Geology

Based on our review of the published geologic literature, the native soils at the project site are comprised of stratified material of marine and continental origin, represented as the Magothy formation on the Geologic Map of New Jersey. The marine soils typically consist of silt, clayey silt and silty clay interbedded with sand layers. Small amounts of gravel may be encountered in some areas. The encountered material consists predominately of strongly laminated, lignitic clay, in places slightly glauconitic. Bedrock is encountered at depths greater than 10 feet in the immediate project vicinity.

Subsurface Conditions

The soils encountered within the test pits were consistent with those reported in published geologic literature and typically consisted of stratified marine deposits of the Magothy formation. The marine soils were comprised predominately of silt and clay intermixed with minor to moderate amounts of coarse to fine sand and varying amounts of coarse to fine gravel. The cohesive deposits were interbedded with predominantly granular soils within test pits FPA-1, FPA-3 and FPA-6 at depths ranging from approximately 4 feet to 10 feet below the existing ground surface. The granular soils typically consisted of coarse to fine sands with minor to moderate amounts of silt, minor amounts of medium to fine grave. Few pieces of cemented sands as well as few cobbles were encountered within the interbedded sand layers.

Based upon the observed excavation effort during the advancement of the test pits, the consistency of the cohesive marine deposits may be described as stiff. The relative density of granular soils was medium-dense to very dense. Excavator refusal was encountered within test pit FPA-2 at a depth of approximately 8 feet below the existing ground surface.

Groundwater was encountered within test pit FPA-6 at a depth of approximately 10 feet below the existing grade at the time the explorations were performed, corresponding to approximate elevation +99.5 feet. Perched groundwater seepage was encountered within the surficial soils within test pit FPA-5 at a depth of approximately 2 feet below the existing grade. The seepage is most likely result of standing water adjacent to the test pit. Soil

mottling, an indication of seasonal high water level, was observed within all of the the test pits at depths ranging from 2 feet to 6 feet below the existing the ground surface, corresponding to approximate elevations +103.5 feet to +107.3 feet. Seasonal and storm-related fluctuations in the groundwater level, as well as the potential presence of perched groundwater should be anticipated. For a more detailed description of the subsurface soil and groundwater conditions encountered, please refer to the test pit logs presented in Appendix A.

DISCUSSION

It is our understanding that GZA reclassified the soils at the project site to "D" soils, which we are in agreement with. Per the NJDEP BMP Manual each BMP that does not infiltrate needs a minimum of 2 test pits to identify the seasonal high water table (SHWT). The soils encountered within the test pits advanced during our subsurface explorations were consistent with those reported by GZA and in published geologic literature. The soils typically consisted of stratified marine deposits of the Magothy formation comprised predominately of silt and clay intermixed with minor to moderate amounts of coarse to fine sand and varying amounts of coarse to fine gravel. Soil mottling, an indication of seasonal high water level, was observed within all of the test pits at depths ranging from 2 feet to 6 feet below the existing the ground surface, corresponding to approximate elevations +103.5 feet to +107.3 feet.

CLOSING & LIMITATIONS

The recommendations contained herein are contingent upon subsurface conditions remaining consistent with those encountered during our subsurface exploration. They are also contingent upon the basis that all stormwater management structure related aspects of construction, including stripping, excavation and removal of unsuitable soil, be observed by a representative of FPA. This is to observe compliance with the design concepts and specifications and to allow design changes in the event that subsurface conditions differ from those anticipated prior to construction.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands, chemically hazardous, or biologically toxic materials in the soil, surface water, groundwater or air, on or below or around the site.

Services performed by FPA during this project have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended in the services provided.

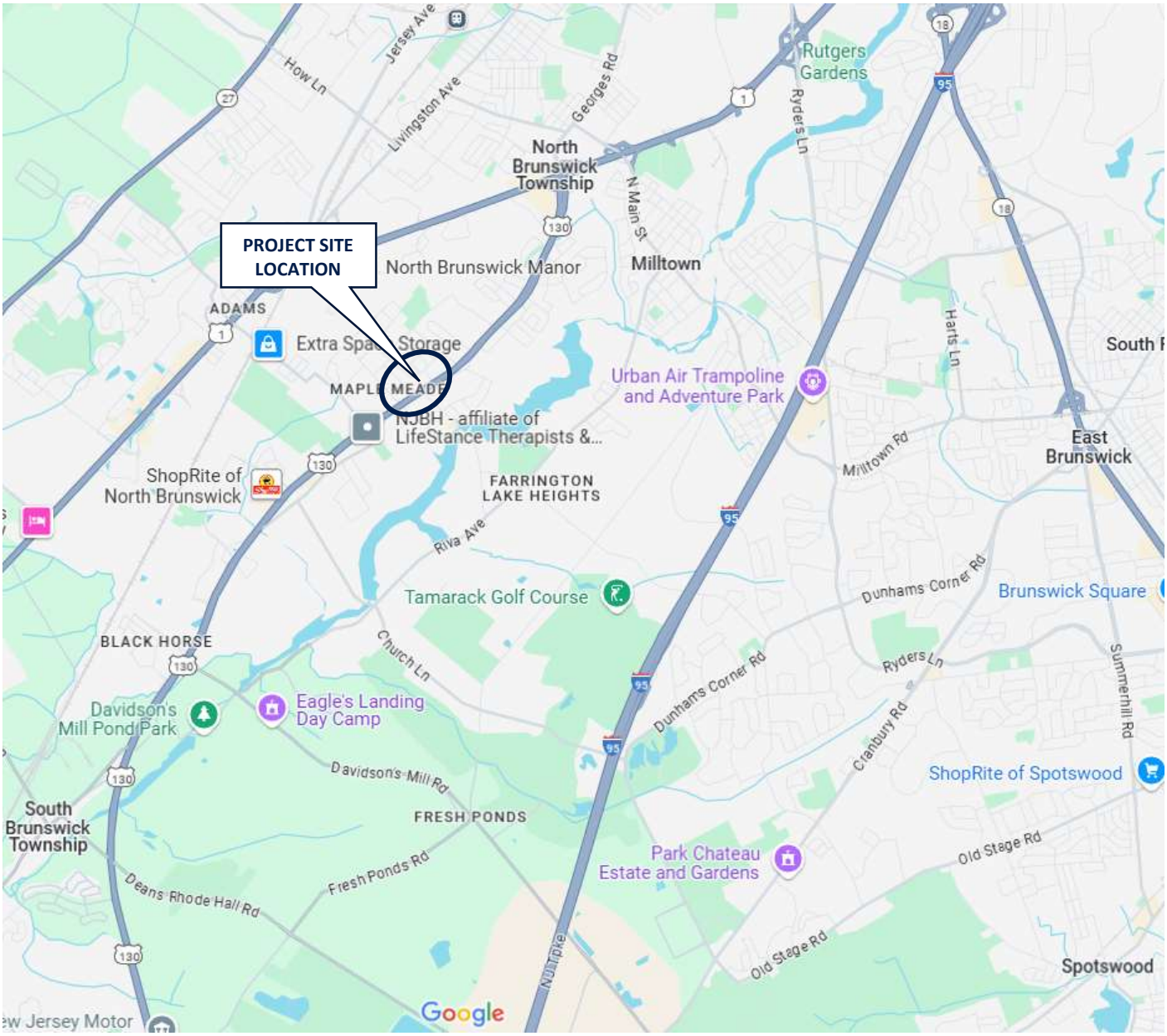
Should you have any questions or if we can be of service to you in the future, please feel free to contact us.

Sincerely,

FRENCH & PARRELLO ASSOCIATES

David M. Rohmeyer, PE
Project Manager

Joseph M. Tierney, PE
Project Consultant, Manager of Geotechnical Services

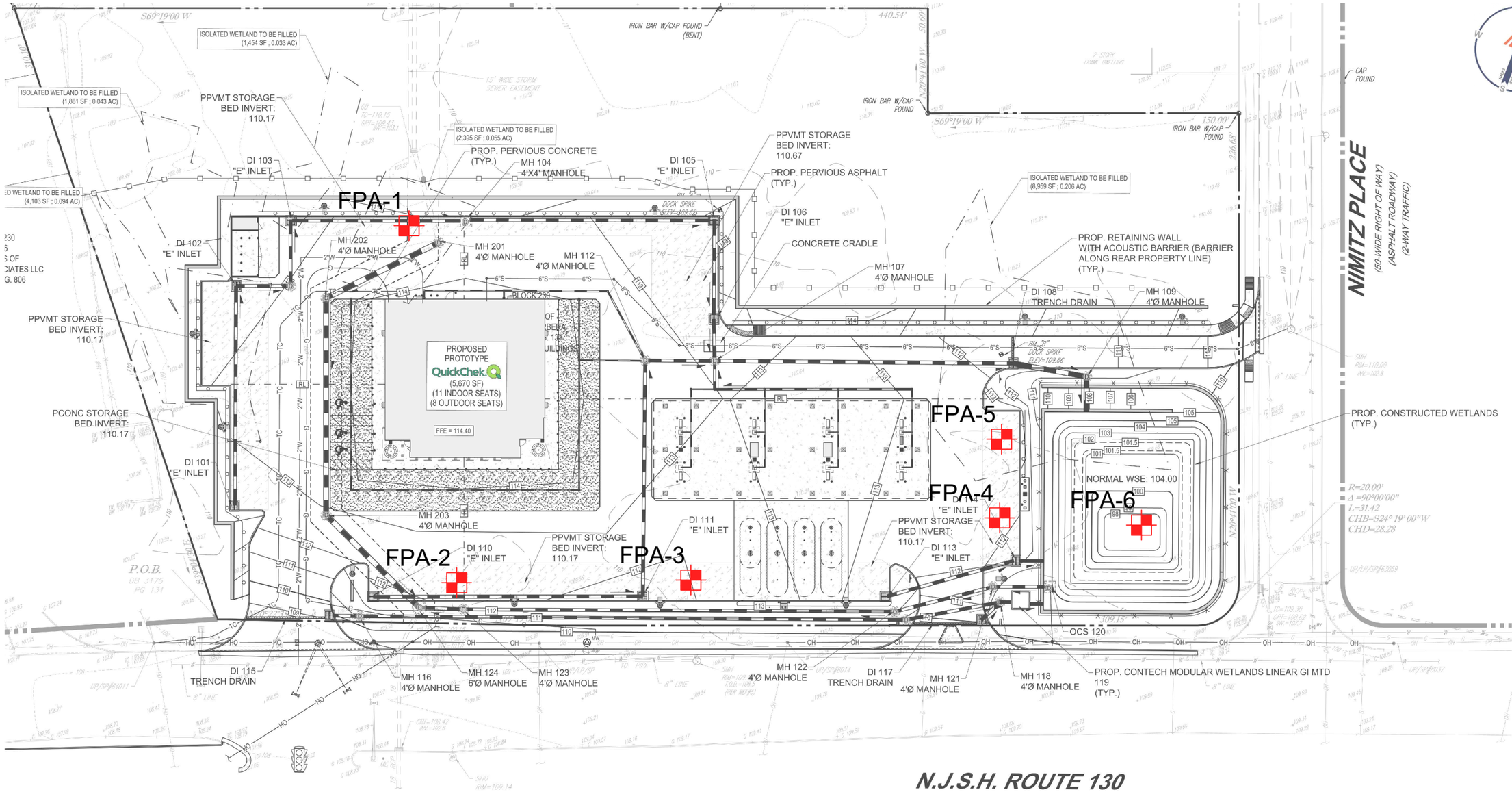


REGIONAL LOCATION PLAN

NORTH BRUNSWICK QUICKCHEK

NORTH BRUNSWICK TOWNSHIP, MIDDLESEX COUNTY, NEW JERSEY

SCALE:	DATE:	JOB NO.:	DRAWING NO.:
NTS	MARCH 2025	23431.001	1



LEGEND:

TEST PIT LOCATION

FRENCH & PARRELLO ASSOCIATES

Corporate Office:
1800 Rt 34, Suite 101
Wall, New Jersey 07719
732.312.8000

FPAengineers.com

New Jersey ▲ New York ▲ Pennsylvania ▲ Georgia

TEST PIT LOCATION PLAN

FOR

NORTH BRUNSWICK QUICKCHEK

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY, NEW JERSEY

DATE:	SCALE:	DRAWING #
MARCH 2025	APPROX. 1"=50'	2
DRAWN BY: DMR	PROJECT NUMBER: 23431.001	

Appendix A
Test Pit Logs

BURMISTER SOIL CLASSIFICATION SYSTEM

A. Cohesionless Soils: Particle Size Definitions

Soil	Fraction	U.S. Standard Sieve	Actual Sizes
Gravel	coarse	3 in. to 1 in.	76 mm to 25 mm
	medium	1 in. to 3/8 in.	25 mm to 9.5 mm
	fine	3/8 in. to No. 10	9.5 mm to 2.0 mm
Sand	coarse	No. 10 to No. 30	2.0 mm to 0.6 mm
	medium	No. 30 to No. 60	0.6 mm to 0.25 mm
	fine	No. 60 to No. 200	0.25 mm to 0.075 mm
Silt		< No. 200	< 0.075 mm

B. Terms Describing Gradation of Cohesionless Soils

Written Description	Symbol/Designation	Defining Proportions
coarse, medium to fine	cmf	all fractions > 10%
coarse to medium	cm	< 10% fine
medium to fine	mf	< 10% coarse
coarse	c	< 10% medium and fine
medium	m	< 10% coarse and fine
fine	f	< 10% coarse and medium

Note: Use (+) for upper limit and (-) for lower limit.

C. Cohesive Soils: Terms Describing Plasticity

Soil	Plasticity Index	Workability	Plasticity Description
Clayey SILT	1 to 5	1/4 in. thread	Slightly Plastic
SILT & CLAY	5 to 10	1/8 in. thread	Low Plasticity
CLAY & SILT	10 to 20	1/16 in. thread	Medium Plasticity
Silty CLAY	20 to 40	1/32 in. thread	High Plasticity
CLAY	>40	1/64 in. thread	Very High Plasticity

D. Terms Describing Overall Composition of Soil

Written Proportion	Proportion Symbol	Proportion Percent by Weight
and	a	35 to 50
some	s	20 to 35
little	l	10 to 20
trace	t	1 to 10

Note: Use (+) for upper limit and (-) for lower limit.

TEST PIT LOG

NORTH BRUNSWICK QUICKCHEK
NORTH BRUNSWICK, MIDDLESEX COUNTY, NEW JERSEY (FPA JOB NO. 23431.001)

TEST PIT NO.: FPA-1
DATE: 3/10/2025

GROUND ELEV.: +109'±
DEPTH OF WATER: Dry
GROUNDWATER ELEV.: Dry
DEPTH TO EST. SEASONAL HIGH WATER: 24"±

DEPTH	DESCRIPTION
0 - 24"	Brown **SILT**, trace f Sand, trace f Gravel. *(Sample S-1)*
24 - 70"	Grey & Orange-Brown **Clayey SILT**, little mf Gravel, trace mf Sand, w/ mottling & few cobbles. (*Sample S-2)*
70 - 120"	Light Grey mf cemented **SAND**, little Silt, trace mf Gravel, w/ few cobbles. *(Sample S-3)*

End of Test Pit @ 10'

NOTES: Mottling most likely representative of perched water conditions.

SOILS ENGINEER: J. Tierney, PE	**CONTRACTOR:** Renova
TEST PIT OBSERVER: E. Harm	**EXCAVATOR:** CASE CX37C

The information shown hereon indicates the subsurface conditions encountered at the specified test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

TEST PIT LOG

NORTH BRUNSWICK QUICKCHEK
NORTH BRUNSWICK, MIDDLESEX COUNTY, NEW JERSEY (FPA JOB NO. 23431.001)

TEST PIT NO.: FPA-2
DATE: 3/10/2025

GROUND ELEV.: +110'±
DEPTH OF WATER: Dry
GROUNDWATER ELEV.: Dry
DEPTH TO EST. SEASONAL HIGH WATER: 36"±

DEPTH	DESCRIPTION
0 - 36"	Dark Tan & Brown **SILT**, trace f Gravel, trace cmf Sand. *(Sample S-1)*
36 - 96"	Grey & Orange-Brown **Clayey SILT**, little cmf Gravel, trace mf Sand, w/ mottling & many cobbles. *(Sample S-2)*

End of Test Pit @ 8' (due to bucket refusal)

NOTES: Mottling most likely representative of perched water conditions.

SOILS ENGINEER: J. Tierney, PE	**CONTRACTOR:** Renova
TEST PIT OBSERVER: E. Harm	**EXCAVATOR:** CASE CX37C

The information shown hereon indicates the subsurface conditions encountered at the specified test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

TEST PIT LOG

NORTH BRUNSWICK QUICKCHEK
NORTH BRUNSWICK, MIDDLESEX COUNTY, NEW JERSEY (FPA JOB NO. 23431.001)

TEST PIT NO.: FPA-3
DATE: 3/10/2025

GROUND ELEV.: +110'±
DEPTH OF WATER: Dry
GROUNDWATER ELEV.: Dry
DEPTH TO EST. SEASONAL HIGH WATER: 32"±

DEPTH	DESCRIPTION
0 - 32"	Yellow-Grey **SILT**, some^{-} mf Sand, trace mf Gravel. *(Sample S-1)*
32 - 84"	Orange-Brown & Grey **SILT**, little mf Sand, some mf Gravel, w/ mottling & few cobbles. *(Sample S-2)*
84 - 110"	Orange-Brown & Red-Brown cmf **SAND**, some^{+} Silt, little mf Gravel, w/ few cobbles. *(Sample S-3)*
110 - 120"	Yellow/Tan c^{+}mf **SAND**, little Silt. *(Sample S-4)*

End of Test Pit @ 10'

NOTES: Mottling most likely representative of perched water conditions.

SOILS ENGINEER: J. Tierney, PE	**CONTRACTOR:** Renova
TEST PIT OBSERVER: E. Harm	**EXCAVATOR:** CASE CX37C

The information shown hereon indicates the subsurface conditions encountered at the specified test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

TEST PIT LOG

NORTH BRUNSWICK QUICKCHEK
NORTH BRUNSWICK, MIDDLESEX COUNTY, NEW JERSEY (FPA JOB NO. 23431.001)

TEST PIT NO.: FPA-4
DATE: 3/10/2025

GROUND ELEV.: +110'±
DEPTH OF WATER: Dry
GROUNDWATER ELEV.: Dry
DEPTH TO EST. SEASONAL HIGH WATER: 32"±

DEPTH	DESCRIPTION
0 - 32"	Dark Tan **SILT & CLAY**, little mf Gravel, trace cmf Sand. *(Sample S-1)*
32 - 90"	Orange-Brown & Grey **SILT & CLAY**, some- cmf Gravel, trace cmf Sand, w/ mottling & few cobbles. *(Sample S-2)*
90 - 120"	Grey & Red-Brown **Clayey SILT**, some- mf Gravel, little- mf Sand, w/ mottling & few cobbles. *(Sample S-3)*

End of Test Pit @ 10'

NOTES: Mottling most likely representative of perched water conditions.

SOILS ENGINEER: J. Tierney, PE	**CONTRACTOR:** Renova
TEST PIT OBSERVER: E. Harm	**EXCAVATOR:** CASE CX37C

The information shown hereon indicates the subsurface conditions encountered at the specified test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

TEST PIT LOG

NORTH BRUNSWICK QUICKCHEK
NORTH BRUNSWICK, MIDDLESEX COUNTY, NEW JERSEY (FPA JOB NO. 23431.001)

TEST PIT NO.: FPA-5
DATE: 3/10/2025

GROUND ELEV.: +110'±
DEPTH OF WATER: 2'±*
GROUNDWATER ELEV.: 108'±
DEPTH TO EST. SEASONAL HIGH WATER: 36"±

DEPTH	DESCRIPTION
0 - 36"	Light Brown **SILT & CLAY**, little mf Gravel, little mf Sand. *(Sample S-1)*
36 - 96"	Orange-Brown & Grey **Clayey SILT**, some cmf Gravel, trace cmf Sand, w/ mottling & few cobbles. *(Sample S-2)*
96 - 120"	Orange-Brown and Red-Brown **Clayey SILT**, some mf Gravel, little cmf Sand. *(Sample S-3)*

End of Test Pit @ 10'

NOTES: Mottling most likely representative of perched water conditions. Seepage entering test pit at 2 feet most likely result of standing water adjacent to the test pit.

SOILS ENGINEER: J. Tierney, PE	**CONTRACTOR:** Renova
TEST PIT OBSERVER: E. Harm	**EXCAVATOR:** CASE CX37C

The information shown hereon indicates the subsurface conditions encountered at the specified test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

TEST PIT LOG

NORTH BRUNSWICK QUICKCHEK
NORTH BRUNSWICK, MIDDLESEX COUNTY, NEW JERSEY (FPA JOB NO. 23431.001)

TEST PIT NO.: FPA-6
DATE: 3/10/2025

GROUND ELEV.: +109.5'±
DEPTH OF WATER: 10'±
GROUNDWATER ELEV.: +99.5'±
DEPTH TO EST. SEASONAL HIGH WATER: 72"±

DEPTH	DESCRIPTION
0 - 48"	Brown **Clayey SILT**, some mf Gravel, little cmf Sand. *(Sample S-1)*
48 - 120"	Tan cmf **SAND**, trace Silt, w/ mottling at 72". (*Sample S-2)*

End of Test Pit @ 10'

NOTES:

SOILS ENGINEER: J. Tierney, PE	**CONTRACTOR:** Renova
TEST PIT OBSERVER: E. Harm	**EXCAVATOR:** CASE CX37C

The information shown hereon indicates the subsurface conditions encountered at the specified test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.