

NORTHERN STATE CORRECTIONAL FACILITY

SITE INVESTIGATION REPORT

**2559 Glenn Road
Newport City, Vermont
(SMS #2024-5419)**

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1.0 EXECUTIVE SUMMARY

John Turner Consulting, Inc. (JTC) completed a Site Investigation (SI) to investigate for the presence of arsenic in groundwater at the site.

On September 30, 2025, under JTC direction, the field services division of Eurofins/Eastern Analytical, Inc. advanced four soil borings (B-1 through B-4) using a direct push Geoprobe rig. Borings were advanced to depths of 10 to 18 feet below ground surface (bgs) until geoprobe refusal. Soil samples were collected at approximately 5-foot intervals for soil characterization. Soils generally consisted of silt and/or fine sand with some dense clay material observed at depth. Groundwater was not encountered in any of the borings, and soil samples were not submitted for laboratory analysis.

Borings B-1, B-3, and B-4 were completed as 2-inch monitoring wells (MW-1, MW-2, and MW-3, respectively) to allow for future groundwater monitoring under non-drought conditions. Due to drought conditions at the time of installation, the wells were not developed or sampled.

Based on the limited spatial extent of arsenic in shallow soils and the absence of observed groundwater at anticipated depths of about 2 feet bgs, the potential for arsenic migration to groundwater or impacts to downgradient receptors is considered low. JTC recommends completion of groundwater sampling in spring 2026 when groundwater levels are expected to be higher.

2.0 INTRODUCTION AND BACKGROUND

JTC, formerly Harper Environmental Associates (HEA), has prepared the following SI Report at the request of the Vermont Department of Environmental Conservation (VTDEC) Sites Management Section (SMS). The Work Plan for this SI was approved by the SMS via e-mail on August 7, 2025. The purpose of the SI activities described herein was to investigate for the presence of arsenic in groundwater at the site.

2.1 Site Ownership

TABLE. SITE INFORMATION			
Name	Relationship	Address	Contact
State of Vermont	Property Owner / Responsible Party	2559 Glenn Road Newport, VT 05855	Steve Hubbs (802) 272-6456 Steven.Hubbs@vermont.gov

2.2 General Site Description

The Northern State Correctional Facility (site) is located on the northeast side of Glenn Road in the City of Newport, Vermont (**Figure 1**). The GPS coordinates of the prison complex are 44.906890195842315, -72.19120587660399. The site is identified in the Vermont Center for Geographic Information database as parcel 151004. The site is presently occupied by the Northern State Correctional Facility, a prison facility operated by the Vermont Department of Corrections.

Satellite imagery and site reconnaissance indicate that the 44.5-acre site contains a complex of eight buildings and several outbuildings. The Vermont Agency of Natural Resources (ANR) Natural Resource Atlas indicates that the site buildings are supplied by a private water supply well (WRN #23) and serviced by the municipal sewer system. The site buildings are heated with fuel oil stored in a 15,000-gallon underground storage tank (UST) and

with wood-fired boilers.

The site is surrounded by a mix of residential properties and undeveloped land, including wetlands to the southwest along the banks of the Barton River, which flows approximately 300 feet southwest of the site. There are several private wells in the area.

3.0 SITE BACKGROUND

Slight exceedances of the Vermont Soil Standard (VSS) for arsenic were detected in shallow soils at the site during preliminary soil characterization activities. On July 12, 2023, JTC advanced six (6) soil borings at the site. Four (4) were completed in the upper roadway in the area of the woodshed (designated S-1 through S-4) and two (2) were completed in the lower lot roadway (designated LLS-1 and LLS-2). Drilling was completed using a motorized hand auger.

A total of eight (8) soil samples were collected for laboratory analysis. One sample was collected from each boring at an approximate depth of 2 feet bgs. In addition, one sample each was collected from S-2 at an approximate depth of 5 feet bgs and from S-4 at an approximate depth of 5 feet bgs. Concentrations of arsenic exceeding the statewide Vermont Soil Standard (VSS) of 16 mg/kg were measured in the shallow soil samples from S-1 (S-1 2') and S-4 (S-4 2'). All other results were below applicable standards. Groundwater was encountered in borings S-3 and S-4 at a depth of approximately 2 feet bgs.

No exceedances of the applicable Urban Background Concentrations or resident VSS were measured for polycyclic aromatic hydrocarbons (PAHs; utilizing the benzo[a]pyrene toxic equivalence quotient [TEQ; 0.58 mg/kg] based on the relative potency factors listed on page 101 of the I-Rule) and lead (400 mg/kg) in any sample. No field evidence of volatile organic compound (VOC) contamination was encountered during sampling.

A Soil Management Plan (SMP) was prepared for the management of arsenic-contaminated soils encountered during a construction project at the NSCF, which included replacement of pavement and a grease trap, loading dock, and fuel tank. The SMP was performed concurrent with excavation activities in June-September 2024. A total of 3,068 tons of soil over approximately 15,300 square feet were excavated from the site to a depth of 2 feet bgs in the area of pavement and subbase replacement, to depths of 4-6 feet bgs in the areas of the new loading dock, underground grease trap, and dumpster pad, and to a depth of 11 feet bgs for replacement of the 15,000-gallon No. 2 fuel oil UST. Soil observed beneath the roadbed during excavation was typically imported, poorly sorted gray and brown silty fine sand and gravel fill. Native fill, or reworked native material, containing brick, rebar, roof shingles, and other debris was also observed beneath the former roadbed. Pea stone backfill was observed around utility lines and below sand and gravel fill.

A total of 53 post-excavation shallow soil samples was collected in September 2024 for laboratory analysis for the presence of total arsenic by EPA Method 6020A. Results of the shallow soil sampling revealed the presence of arsenic concentrations exceeding the VSS for Resident Soil of 16 mg/kg in nine samples (median, 11 mg/kg; range, 4.9-36 mg/kg). All samples with exceedances were collected from 2 feet bgs in the area east of the woodshed, northeast of Building VCI-1, and west of Building A2. None of six samples collected from depths greater than 2 feet bgs (i.e., 3 or 4 feet bgs) contained arsenic concentrations above the applicable VSS. No evidence of petroleum-contaminated soils was observed during UST closure activities.

4.0 SOIL BORING AND MONITORING WELL INSTALLATION

On September 30, 2025, four soil borings (B-1, B-2, B-3, and B-4) were advanced by the drilling services division of Eurofins/Eastern Analytical (EAI) of Concord, New Hampshire using a direct push Geoprobe rig under the

supervision of JTC. Soil samples were collected generally at 5-foot intervals in acetate sleeves. Prior to initiating subsurface investigation activities, the site was pre-marked on September 18, 2025, by JTC as required by DigSafe Systems, Inc. (Ticket # 20253813018).

Borings were advanced to depths of approximately 10 to 18 feet below ground surface (bgs) until geoprobe refusal. Soils generally consisted of silt and/or fine sand with some dense clay material observed after 10 feet bgs in boring B-1 and after 5 feet bgs in boring B-2. Gray sandy fill was observed in the top two feet of boring B-4.

No evidence of groundwater was observed in any of the borings. Following discussion with the SMS project manager, it was determined that soil samples would not be collected for laboratory analysis from the proposed intervals immediately above the anticipated groundwater interface (around 2 feet bgs), as groundwater was not encountered at the expected depth. It was also determined that the two remaining planned borings would not be advanced.

Borings B-1, B-3, and B-4 were completed as 2-inch monitoring wells MW-1, MW-2, and MW-3, respectively, to enable groundwater monitoring in the event that higher groundwater levels occur under non-drought conditions. Each well was constructed of 2-inch diameter polyvinyl chloride (PVC) pipe with flush-threaded connections, an appropriate length (6, 8, or 10 feet) of machine cut 0.01-inch slotted screen and completed to grade with a solid PVC riser casing and a water-tight, flush-mounted roadbox. The monitoring well construction details for this investigation are included in the borings logs in the **Appendix**. The locations of monitoring wells and other pertinent site features are shown on **Figure 2**.

Due to drought conditions at the time of monitoring well installation, the wells were not developed or sampled. The wells should be sampled in spring 2026 when the water table is expected to be higher.

5.0 UPDATED CONCEPTUAL SITE MODEL

Shallow soils at the site exhibit slight VSS exceedances for arsenic. Post-excavation sampling following SMP implementation indicated that arsenic concentrations above the 16 mg/kg resident standard are limited to localized areas east of the woodshed, northeast of Building VCI 1, and west of Building A2 and are not present at depths greater than 2 feet bgs. No petroleum-contaminated soils were observed, and deeper soils generally met applicable standards. Soils consist of silty fine sand with variable fill and reworked native material, with localized clay layers at depth. Beneath the former roadbed, native fill containing brick, rebar, roof shingles, and other debris was observed, along with pea stone backfill around utility lines.

Groundwater was not observed in any of the September 2025 borings (B-1 through B-4). Based on the observed separation between shallow arsenic-impacted soils and groundwater, the potential for migration to groundwater is considered low. Borings B-1, B-3, and B-4 were completed as 2-inch monitoring wells (MW-1, MW-2, and MW-3, respectively) to allow future groundwater monitoring under non-drought conditions. Site groundwater has not yet been sampled.

The on-site water supply well is located upgradient of the areas with shallow arsenic exceedances. Surface water features, including wetlands along the Barton River, are located approximately 300 feet downgradient. Based on the limited extent of shallow arsenic in soils and the absence of observed groundwater or petroleum contamination, the arsenic contamination is considered stable and largely confined to previously excavated areas.

6.0 POTENTIAL IMPACT TO SENSITIVE RECEPTORS

Sensitive receptors in proximity to the site were identified. A relative degree of risk posed by contamination at the

site was assigned to each potential receptor. Potential receptors at or adjacent to the subject site include soil, groundwater, surface water and wetlands, indoor air, subsurface utilities, and drinking water wells.

6.1 Soil

Shallow soils (0-2 feet bgs) may contain localized arsenic concentrations exceeding the VSS for resident soils. Elevated arsenic concentrations identified at the site are believed to derive from imported fill used in the original construction of the roadbed. Excavation during SMP implementation is expected to have removed the majority of known impacted soil and all remaining soils in the excavation area lie beneath an engineered asphalt cap. Direct exposure to humans is considered minimal, with the primary potential risk being to workers performing future excavation or construction in these areas. No petroleum contamination has been encountered in soil.

6.2 Groundwater

Groundwater was not observed during SI activities and is estimated to be deeper than 10 feet bgs. Groundwater is estimated to flow to the southwest along the topographical gradient towards the Barton River. The separation between arsenic-impacted shallow soils and groundwater reduces the likelihood of arsenic migration. Monitoring wells MW-1, MW-2, and MW-3 were installed to allow for future groundwater assessment under non-drought conditions.

6.3 Surface Water and Wetlands

Wetlands and surface water features, including the Barton River approximately 300 feet downgradient, are not expected to be impacted due to the shallow and localized nature of arsenic in soils.

6.4 Indoor Air

No indoor air impacts are anticipated. Arsenic in shallow soils does not volatilize at ambient conditions, and no evidence of petroleum contamination has been encountered onsite.

6.5 Subsurface Utilities

The site is connected to the municipal sewer system. Several utility lines pass through or near areas of previous soil excavation, including electrical, storm drain, oil, and sewer lines. No evidence of arsenic migration along these pathways has been observed.

6.6 Drinking Water Wells

The on-site private water supply well (WRN #23) is located upgradient of impacted soil areas. Given the shallow and localized nature of arsenic in soils and the absence of observed groundwater impacts, the well is not expected to be affected.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The purpose of the September 2025 SI was to investigate for the presence of arsenic in groundwater at the site. Groundwater was not encountered in any of the four soil borings advanced and soil samples. Monitoring wells MW-1, MW-2, and MW-3 were installed but not developed or sampled due to drought conditions. Based on the limited extent of impacted soils and the observed separation from groundwater, the potential for arsenic migration or impacts to downgradient receptors is considered low. JTC recommends completion of groundwater sampling in spring 2026 when groundwater levels are expected to be higher.

8.0 CERTIFICATION

This report has been prepared and reviewed by the following personnel. We certify under penalty of perjury that we are environmental professionals and that all content contained within this report is to the best of our knowledge true and accurate.

If you have any questions regarding the field procedures, methods, analytical results, conclusions and recommendations presented in this report, please contact the undersigned.



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FIGURES

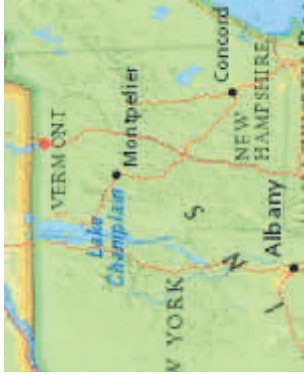


VERMONT

Figure 1 Site Vicinity Map

Northern State Correctional Facility, 2559 Glenn Road, Newport

vermont.gov

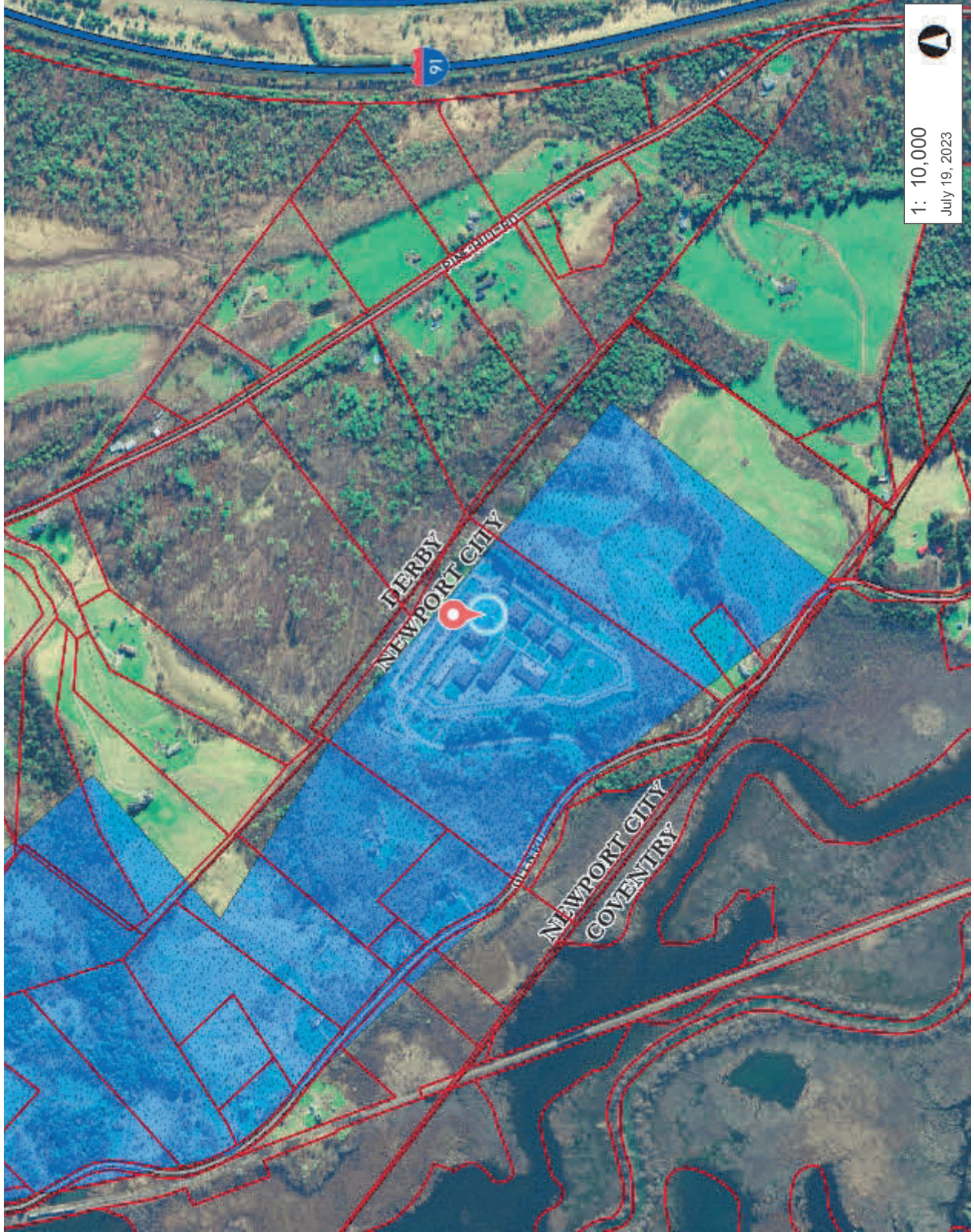


LEGEND

- Urban Soil Background Areas
- Parcels (standardized)
- Roads
 - Interstate
 - US Highway: 1
 - State Highway
 - Town Highway (Class 1)
 - Town Highway (Class 2,3)
 - Town Highway (Class 4)
 - State Forest Trail
 - National Forest Trail
 - Legal Trail
 - Private Road/Driveway
 - Proposed Roads
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas



1: 10,000
July 19, 2023

508.0 0 254.00 508.00 Meters

1" = 833 Ft. 1cm = 100 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
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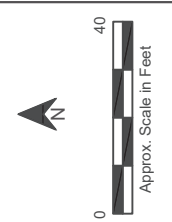
Figure **2**

SCALE: 1" = 40'
 DRAWN BY: HA
 CHECKED BY: CS
 DATE: OCT. 2, 2025
 VTDEC: 2024-5419

LEGEND

- New Pavement and Subbase
- New Concrete Pad
- Historical SRS Exceedance for Arsenic
- Sep 2025 Soil Boring/MW Location

SOIL BORING AND MONITORING WELL LOCATION MAP
 Northern State Correctional Facility
 2559 Glenn Road, Newport, Vermont



APPENDIX

Boring/Monitoring Well Logs



Drilling Log

Boring/Well #: B/MW-1	Date / Time: 9/30/25 8:55-9:25
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Site: Northern State Correctional Facility Location: Newport, VT	Method of Investigation: GeoProbe direct push drilling from surface to 20 feet below ground surface or refusal. Samples collected continuously to classify soil, confirm groundwater.
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Project No: 25-11-121 Proj. Mgr: Craig Sterritt Field Tech: Hannah Allen	Drilling Co: Eastern Analytical Drillers: Brian and Eli Drill Rig: Track-mounted rig	Weather: 65 °F Sunny
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Depth (ft)	Sample				Sample Description / Lithology	Well Construction	Comments
	No.	Blows	Recovery (in)	PID Readings (ppm)			
0					0.0-0.6': Topsoil		roadbox expansion plug 2" dia. PVC riser bentonite sand pack 2" dia. PVC well screen
1					0.6-1.9': Brown fine-coarse SAND and gravel. Dry.		
2	1	n/a	34/60	n/a			
3							
4							
5							
6					1.9-9.5': Brown SILT, some fine sand. Dry/moist.		
7	2	n/a	10/60	n/a			
8							
9							
10							
11					10-12.2': Brown clayey-SILT. Dry/moist.		
12	3	n/a	44/60	n/a	12.2-12.4': Dark brown fine SAND. Dry.		
13					12.4-15.0': Brown clayey-SILT. Dry/moist.		
14							
15							
16	4	n/a	22/36	n/a	15-18': Brown SILT and fine sand. Moist.		
17					Refusal at 18'. Groundwater not encountered.		

REFUSAL - END OF BORING (18')

No soil analytical.

MW-1 completed at 17.5' bgs with 7.5 feet of solid PVC riser (0-7.5') over 10 feet of 2" slotted PVC screen (7.5-17.5'). Sand pack from 6.5-7.5 feet bgs; 1 foot of bentonite from 5.5-6.5 feet bgs; completed with a flush-mounted roadbox



Drilling Log

Boring/Well #:

B-2

Date / Time:

9/30/25
9:35-9:50

Site: Northern State Correctional Facility
Location: Newport, VT

Method of Investigation: GeoProbe direct push drilling from surface to 20 feet below ground surface or refusal. Samples collected continuously to classify soil, confirm groundwater.

Project No: 25-11-121
Proj. Mgr: Craig Sterritt
Geologist: Hannah Allen

Drilling Co: Eastern Analytical
Drillers: Brian and Eli
Drill Rig: Track-mounted rig

Weather: 65 °F
Sunny

Depth (ft)	Sample				Sample Description / Lithology	Well Construction	Comments
	No.	Blows	Recovery (in)	PID Readings (ppm)			
0					0.0-0.4': Asphalt.	n/a	
1					0.4-2': Crushed stone.		
2	1	n/a	35/60	n/a	2-5': Brown SILT. Dense. Dry. No odor.		
3							
4							
5							
6	2	n/a	37/60	n/a	5-7.2': Brown CLAY. Slightly moist/slimy at 5.5'.		
7							
8							
9							
10	3	n/a	30/30	n/a	7.2-12.5': Brown SILT, little fine sand. Dense. Dry. No odor. Becoming very dense 10-12.5'.		
11							
12							

REFUSAL / END OF BORING (12.5')

No soil analytical



Drilling Log

Boring/Well #: B-3/MW-2
Date / Time: 9/30/25
 10:00-10:20

Site: Northern State Correctional Facility
Location: Newport, VT

Method of Investigation: GeoProbe direct push drilling from surface to 20 feet below ground surface or refusal. Samples collected continuously to classify soil, confirm groundwater.

Project No: 25-11-121
Proj. Mgr: Craig Sterritt
Field Tech: Hannah Allen

Drilling Co: Eastern Analytical
Drillers: Brian and Eli
Drill Rig: Track-mounted rig

Weather: 65 °F
 Sunny

Depth (ft)	Sample				Sample Description / Lithology	Well Construction	Comments
	No.	Blows	Recovery (in)	PID Readings (ppm)			
0					0.0-0.5': Topsoil		roadbox expansion plug 2" dia. PVC riser bentonite sand pack 2" dia. PVC well screen
1					0.5-2.9': Brown fine SAND and silt.		
2	1	n/a	43/60	n/a	2.9-3.1': Crushed rock.		
3							
4							
5					3.1-10': Brown SILT and fine sand. Dense. Dry.		
6					Moist 5.5-10'.		
7	2	n/a	55/60	n/a			
8							
9							

REFUSAL - END OF BORING (10')

No soil analytical.

MW-2 completed at 8.5' bgs with 2.5 feet of solid PVC riser (0-2.5') over 6 feet of 2" slotted PVC screen (2.5-8.5'). Sand pack from 2-8.5 feet bgs; 6 inches of bentonite from 1.5-2 feet bgs; completed with a flush-mounted roadbox



Drilling Log

Boring/Well #: B-4/MW-3	Date / Time: 9/30/25 10:25-10:50
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Site: Northern State Correctional Facility Location: Newport, VT	Method of Investigation: GeoProbe direct push drilling from surface to 20 feet below ground surface or refusal. Samples collected continuously to classify soil, confirm groundwater.
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Project No: 25-11-121 Proj. Mgr: Craig Sterritt Field Tech: Hannah Allen	Drilling Co: Eastern Analytical Drillers: Brian and Eli Drill Rig: Track-mounted rig	Weather: 65 °F Sunny
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Depth (ft)	Sample				Sample Description / Lithology	Well Construction	Comments
	No.	Blows	Recovery (in)	PID Readings (ppm)			
0					0.0-0.8': Asphalt		roadbox
1					0.8-2.1': Gray sandy fill.		expansion plug
2	1	n/a	34/60	n/a	2.1-5': Brown fine SAND, trace silt. Dry. No odor.		2" dia. PVC riser
3							
4							
5					5-15.5': Brown fine SAND and silt. Dry. Slightly moist 10-15.5'.		caved-in native materials
6							
7	2	n/a	10/60	n/a			
8							
9							
10					5-15.5': Brown fine SAND and silt. Dry. Slightly moist 10-15.5'.		2" dia. PVC well screen
11							
12	3	n/a	44/60	n/a			
13							
14							
15	4	n/a	6/6	n/a			

REFUSAL - END OF BORING (18')

No soil analytical.

MW-3 completed at 11.5 feet bgs with 3 feet of solid PVC riser (0-3') over 8 feet of 2" slotted PVC screen (3-11.5'). Well sealed with caved-in native materials and completed with a flush-mounted roadbox