GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-11
Page: 1 of 2
File No.: 22721.5
Check: TAD

Contractor: New Hampshire Boring
Foreman: Bob Thompson
Logged by: S. Currier
Date Start/Finish: 3-20-02 / 3-20-02
Boring Location: 34+19.6, 63.1 ft. RT
GS Elev.: 488.4 ft Datum: NGVD 1929

Auger/Casing Type: HSA I.D.: 4-1/4"
Sampler Type: SS I.D.: 1-3/8"
Hammer Wt.: 140#
Hammer Fall: 30"
Rig Type: CME 550 ATV

GROUNDWATER READINGS

| Date | Time | Depth | Casing | Stab |
|---|---|---|---|---|
| | | | | |

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-1 | 24/11 | 0.0-2.0 | 1-1 1-1 | 2 | Very loose, dark brown, fine SAND, little Silt. (A-3) | TOPSOIL 0.5 ft | | No Equipment Installed |
| 5 | S-2 | 24/12 | 5.0-7.0 | 2-2 2-2 | 4 | Loose, brown, fine to medium SAND, trace Silt. (A-1-b) | SAND | 1 | |
| 10 | S-3 | 24/15 | 10.0-12.0 | 2-2 2-3 | 4 | Loose, brown, fine to medium SAND, trace Silt. (A-1-b) | | 2 | |
| 15 | S-4 | 24/19 | 15.0-17.0 | 3-3 5-6 | 8 | Stiff, gray, SILT, seams of Clayey Silt, trace fine Sand. (A-4) | 15.0 ft | | |
| 20 | S-5 | 24/18 | 20.0-22.0 | 4-4 6-6 | 10 | Stiff, gray, SILT, seams of Clayey Silt, trace fine Sand. (A-4) | SILT AND CLAY | | |
| 25 | S-6 | 24/21 | 25.0-27.0 | 4-5 4-5 | 9 | Stiff, gray, SILT & CLAY. (A-4) | | | |

REMARKS
1. Laboratory corrosivity testing performed on S-2.
2. Laboratory sieve analysis performed on S-3.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-11

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

---

GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-11
Page: 2 of 2
File No.: 22721.5
Check: TAD

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-7 | 24/20 | 30.0-32.0 | 3-4 4-6 | 8 | Stiff, gray, SILT & CLAY. (A-4) | | | |
| 35 | S-8 | 24/21 | 35.0-37.0 | 2-5 4-5 | 9 | Stiff, gray, SILT, trace Clay, trace fine Sand. (A-4) | | | |
| 40 | S-9 | 24/21 | 40.0-42.0 | 3-5 6-7 | 11 | Stiff, gray, Clayey SILT, trace fine Sand. (A-4) | | | |
| 45 | S-10 | 24/24 | 45.0-47.0 | 4-6 7-8 | 13 | Stiff, gray, CLAY & SILT, trace fine Sand. (A-4) | SILT AND CLAY | | |
| 50 | S-11 | 24/24 | 50.0-52.0 | 6-7 9-9 | 16 | Very stiff, gray, CLAY & SILT. (A-4) | | | |
| 55 | S-12 | 24/24 | 55.0-57.0 | 8-9 11-13 | 20 | Very stiff, gray, CLAY & SILT. (A-4) | | | |
| 60 | | | | | | Bottom of boring at 57 feet below ground surface. No refusal. | 57.0 ft | | |

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-11

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

---

GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-12 (OW)
Page: 1 of 2
File No.: 22721.5
Check: TAD

Contractor: New Hampshire Boring
Foreman: Bob Thompson
Logged by: S. Currier
Date Start/Finish: 3-19-02 / 3-20-02
Boring Location: 34+28.5, 89.9 ft. RT
GS Elev.: 489.2 ft Datum: NGVD 1929

Auger/Casing Type: HSA I.D.: 4-1/4"/4"
Sampler Type: SS I.D.: 1-3/8"
Hammer Wt.: -/300# 140#
Hammer Fall: -/24" 30"
Rig Type: CME 550 ATV

GROUNDWATER READINGS

| Date | Time | Depth | Casing | Stab |
|---|---|---|---|---|
| 4/10/02 | 08:45 | 54.7 ft | PVC | 21 days |

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-1 | 24/12 | 0.0-2.0 | 1-1 2-2 | 3 | Very loose, dark brown, fine to medium SAND, little Silt, trace organics and roots. (A-2-4) | TOPSOIL 0.4 ft | | PROTECTIVE CASING; CONCRETE SEAL 2' |
| 5 | S-2 | 24/22 | 5.0-7.0 | 6-6 6-6 | 12 | Medium dense, gray, Clayey SILT. (A-4) | SAND 5.0 ft | | AUGER CUTTINGS |
| 10 | S-3 | 24/10 | 10.0-12.0 | 4-5 6-6 | 11 | Stiff, gray, Clayey SILT. (A-4) | | | |
| 15 | S-4 | 24/18 | 15.0-17.0 | 5-4 7-7 | 11 | Stiff, gray, Clayey SILT. (A-4) | SILT AND CLAY | | 2" ID Solid Sch 40 PVC Well Riser |
| 20 | U-1 | 24/17 | 20.0-22.0 | PUSH | | Gray, Clayey SILT. (A-4) | | 1 | |
| 25 | S-5 | 24/19 | 25.0-27.0 | 4-4 4-4 | 8 | Stiff, gray, Clayey SILT. (A-4) | | | 24'; BENTONITE SEAL |

REMARKS
1. Obtained an undisturbed shelby tube sample. Performed sieve analysis, hydrometer testing, Atterberg limit testing, and undrained shear strength testing.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-12 (OW)

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

---

GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-12 (OW)
Page: 2 of 2
File No.: 22721.5
Check: TAD

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-6 | 24/20 | 30.0-32.0 | 3-4 4-5 | 8 | Stiff, gray, SILT & CLAY. (A-4) | | | BENTONITE SEAL |
| 35 | S-7 | 24/18 | 35.0-37.0 | 3-5 6-8 | 11 | Stiff, gray, SILT & CLAY. (A-4) | | | |
| 40 | S-8 | 24/14 | 40.0-42.0 | 6-10 12-13 | 22 | Very stiff, gray, SILT. (A-4) | SILT AND CLAY | | 42.5' |
| 45 | S-9A-B | 24/18 | 45.0-47.0 | 9-8 8-10 | 16 | S-10A: 45'-45.5': Very stiff, gray, SILT. (A-4) S-10B: 45.5'-47': Very stiff, gray, Clayey SILT, trace fine Sand. (A-4) | | | 45'; FILTER SAND |
| 50 | S-10 | 24/13 | 50.0-52.0 | 13-15 17-22 | 32 | Dense, brown, fine to coarse SAND, little Silt, trace Gravel. (A-2-4) | 50.0 ft SAND | | 2" ID Slotted Sch 40 PVC Well Screen (0.01" Slot) |
| 55 | S-11 | 24/11 | 55.0-57.0 | 22-28 27-20 | 55 | Very dense, brown, fine to coarse SAND, little Silt, trace Gravel. (A-2-4) | | | 55' |
| 60 | | | | | | Bottom of boring at 57 feet below ground surface. No refusal. | 57.0 ft | | |

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-12 (OW)

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

---

GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-13 (OW)
Page: 1 of 2
File No.: 22721.5
Check: TAD

Contractor: New Hampshire Boring
Foreman: Bob Thompson
Logged by: S. Currier
Date Start/Finish: 3-19-02 / 3-19-02
Boring Location: 35+10.8, 60.9 ft. RT
GS Elev.: 486.2 ft Datum: NGVD 1929

Auger/Casing Type: HSA I.D.: 2-1/4"
Sampler Type: SS I.D.: 1-3/8"
Hammer Wt.: 140#
Hammer Fall: 30"
Rig Type: CME 550 ATV

GROUNDWATER READINGS

| Date | Time | Depth | Casing | Stab |
|---|---|---|---|---|
| NOT ENCOUNTERED | | | | |

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-1 | 24/12 | 0.0-2.0 | 2-1 1-1 | 2 | Very loose, dark brown, fine SAND, some Silt, trace organics and roots. (A-3) | TOPSOIL 2.0 ft | | PROTECTIVE CASING; CONCRETE SEAL 1' |
| 5 | S-2 | 24/14 | 5.0-7.0 | 1-1 1-2 | 2 | Very loose, brown, fine to medium SAND, trace Gravel, trace Silt. (A-1-b) | | | AUGER CUTTINGS |
| 10 | S-3 | 24/15 | 10.0-12.0 | 2-3 2-4 | 5 | Loose, brown, fine SAND, trace Silt. (A-2-4) | | 1 | |
| 15 | S-4 | 24/17 | 15.0-17.0 | 2-2 3-3 | 5 | Loose, gray, fine SAND, trace Silt. (A-3) | SAND | | 2" ID Solid Sch 40 PVC Well Riser |
| 20 | S-5 | 24/18 | 20.0-22.0 | 4-4 5-5 | 9 | Loose, gray, fine to medium SAND, trace Gravel, trace Silt. (A-1-b) | | | 21'; BENTONITE SEAL 23' |
| 25 | S-6 | 24/20 | 25.0-27.0 | 4-3 4-5 | 7 | Loose, brown, fine SAND with seams of Silt. (A-3) | | | FILTER SAND 27'; 2" ID Solid Sch 40 PVC Well Riser |

REMARKS
1. Laboratory sieve analysis performed on S-3.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-13 (OW)

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

---

GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-13 (OW)
Page: 2 of 2
File No.: 22721.5
Check: TAD

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-7 | 24/16 | 30.0-32.0 | 5-5 6-6 | 11 | Medium dense, brown, fine to medium SAND, trace Gravel, trace Silt. (A-1-b) | SAND | | FILTER SAND |
| 35 | S-8 | 24/17 | 35.0-37.0 | 4-5 8-9 | 13 | Medium dense, brown, fine to medium SAND, trace Gravel, trace Silt. (A-1-b) | | | 2" ID Solid Sch 40 PVC Well Riser 37' |
| 40 | | | | | | Bottom of boring at 37 feet below ground surface. No refusal. | 37.0 ft | | |

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-13 (OW)

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

---

GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-14
Page: 1 of 2
File No.: 22721.5
Check: TAD

Contractor: New Hampshire Boring
Foreman: Bob Thompson
Logged by: J. Hedkinson
Date Start/Finish: 3-18-02 / 3-18-02
Boring Location: 35+08.7, 80.2 ft. RT
GS Elev.: 487.2 ft Datum: NGVD 1929

Auger/Casing Type: HSA I.D.: 2-1/4"
Sampler Type: SS I.D.: 1-3/8"
Hammer Wt.: 140#
Hammer Fall: 30"
Rig Type: CME 550 ATV

GROUNDWATER READINGS

| Date | Time | Depth | Casing | Stab |
|---|---|---|---|---|
| | | | | |

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-1 | 24/3 | 0.0-2.0 | 3-5 6-4 | 11 | Medium dense, light brown, fine SAND, some Silt with organics and roots. Stone in tip of spoon. (A-3) | TOPSOIL 0.5 ft | | No Equipment Installed |
| 5 | S-2 | 24/18 | 5.0-7.0 | 2-2 2-2 | 4 | Very loose, brown, fine to medium SAND, trace Gravel, trace Silt. (A-1-b) | | | |
| 10 | S-3 | 24/13 | 10.0-12.0 | 2-2 2-2 | 4 | Very loose, brown, fine SAND, trace Silt. (A-3) | SAND | | |
| 15 | S-4 | 24/13 | 15.0-17.0 | 2-3 4-4 | 7 | Loose, brown, fine SAND and Silt with alternating layers of CLAY & SILT. (A-3) | | | |
| 20 | S-5 | 24/18 | 20.0-22.0 | 1-3 5-4 | 8 | Medium stiff, brown, CLAY & SILT with fine Sand and Silt seams. (A-4) | 20.0 ft | | |
| 25 | S-6 | 24/13 | 25.0-27.0 | 1-2 3-3 | 5 | Medium stiff, gray, Clayey SILT. (A-4) | SILT AND CLAY | | |

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-14

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

---

GZA GeoEnvironmental, Inc. Engineers and Scientists

Harford RS 0113(40)
Hartford, Vermont

Boring No.: B-14
Page: 2 of 2
File No.: 22721.5
Check: TAD

| Depth (ft) | No. | Pen./Rec. (in) | Depth (ft) | Blows (/6") | N Value | Sample Description & Classification | Stratum Desc. | Remarks | Equipment Installed |
|---|---|---|---|---|---|---|---|---|---|
| | S-7 | 24/24 | 30.0-32.0 | 2-3 4-5 | 7 | Medium stiff, gray, Clayey SILT with fine Sand seams. (A-4) | SILT AND CLAY | | |
| 35 | S-8 | 24/24 | 35.0-37.0 | 1-4 6-6 | 10 | Stiff, gray, Clayey SILT with fine Sand seams. (A-4) | | | |
| 40 | | | | | | Bottom of boring at 37 feet below ground surface. No refusal. | 37.0 ft | | |

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-14

SOIL BL WELL LOGS.GPJ GZA_NA.GDT 1/10/08

# BORING LOG SHEET 4

PROJECT NAME: HARTFORD
PROJECT NUMBER: RS 0113(40)

FILE NAME: z86c027borlog.DGN
PROJECT LEADER: KEN UPMAL
DESIGNED BY: K.ISHIKURA/E.ATKINS

PLOT DATE: 1/6/2007
DRAWN BY: P. MILEWSKI
CHECKED BY: K. ISHIKURA
SHEET 154 OF 239