

APPENDIX G – UNDER SEPARATE COVER

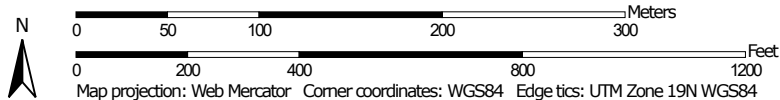
Soil Investigations

Soil Map—Essex County, Massachusetts, Northern Part



Soil Map may not be valid at this scale.

Map Scale: 1:4,130 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84




**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

9/4/2019
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 12, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	1.2	3.1%
6A	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	4.9	13.2%
240A	Elmwood fine sandy loam, 0 to 3 percent slopes	0.8	2.1%
240B	Elmwood fine sandy loam, 3 to 8 percent slopes	2.5	6.6%
405C	Charlton fine sandy loam, 8 to 15 percent slopes	0.0	0.1%
411B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	0.1	0.1%
420B	Canton fine sandy loam, 3 to 8 percent slopes	0.0	0.0%
420C	Canton fine sandy loam, 8 to 15 percent slopes	0.1	0.2%
421C	Canton fine sandy loam, 8 to 15 percent slopes, very stony	0.0	0.0%
421D	Canton fine sandy loam, 15 to 25 percent slopes, very stony	0.0	0.1%
602	Urban land	8.0	21.5%
651	Udorthents, smoothed	19.8	52.9%
Totals for Area of Interest		37.3	100.0%

Essex County, Massachusetts, Northern Part

240A—Elmwood fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: vj7m

Elevation: 10 to 900 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Lakebeds (relict), lakebeds (relict)

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Friable coarse-loamy glaciofluvial deposits over hard clayey glaciolacustrine deposits derived from schist

Typical profile

O - 0 to 2 inches: muck

H2 - 2 to 7 inches: fine sandy loam

H3 - 7 to 37 inches: fine sandy loam

H4 - 37 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 12 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Melrose

Percent of map unit: 10 percent

Hydric soil rating: No

Swanton

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018

Essex County, Massachusetts, Northern Part

240B—Elmwood fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: vj7q

Elevation: 10 to 900 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Lakebeds (relict), lakebeds (relict)

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Friable coarse-loamy glaciofluvial deposits over hard clayey glaciolacustrine deposits derived from schist

Typical profile

O - 0 to 2 inches: muck

H2 - 2 to 7 inches: fine sandy loam

H3 - 7 to 37 inches: fine sandy loam

H4 - 37 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent

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Available water storage in profile: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Melrose

Percent of map unit: 10 percent

Hydric soil rating: No

Swanton

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018

Essex County, Massachusetts, Northern Part

405C—Charlton fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2wh0q

Elevation: 0 to 1,440 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Charlton and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Ridges, hills, ground moraines

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam

Bw - 7 to 22 inches: gravelly fine sandy loam

C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Sutton, fine sandy loam

Percent of map unit: 5 percent

Landform: Ground moraines, hills, ridges

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Paxton

Percent of map unit: 5 percent

Landform: Ground moraines, drumlins, hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Chatfield

Percent of map unit: 3 percent

Landform: Hills, ridges

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope, nose slope

Down-slope shape: Convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Canton

Percent of map unit: 2 percent

Landform: Ground moraines, ridges, hills

Landform position (two-dimensional): Shoulder, backslope, summit

Landform position (three-dimensional): Side slope, nose slope, crest

Down-slope shape: Linear, convex

Across-slope shape: Convex

Hydric soil rating: No

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018

Essex County, Massachusetts, Northern Part

411B—Sutton fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2xfff

Elevation: 0 to 1,410 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Sutton, very stony, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sutton, Very Stony

Setting

Landform: Hills, ground moraines

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material

A - 2 to 7 inches: fine sandy loam

Bw1 - 7 to 19 inches: fine sandy loam

Bw2 - 19 to 27 inches: sandy loam

C1 - 27 to 41 inches: gravelly sandy loam

C2 - 41 to 62 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent

Percent of area covered with surface fragments: 1.6 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: About 12 to 27 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: B/D

Hydric soil rating: No

Minor Components

Charlton, very stony

Percent of map unit: 7 percent

Landform: Ridges, hills, ground moraines

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Hydric soil rating: No

Canton, very stony

Percent of map unit: 4 percent

Landform: Hills, moraines, ridges

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear, convex

Across-slope shape: Convex

Hydric soil rating: No

Leicester, very stony

Percent of map unit: 3 percent

Landform: Hills, drainageways, ground moraines, depressions

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

Hydric soil rating: Yes

Whitman, very stony

Percent of map unit: 1 percent

Landform: Hills, ground moraines, drumlins, depressions,
drainageways

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018

Essex County, Massachusetts, Northern Part

420B—Canton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81b

Elevation: 0 to 1,180 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Canton and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Ridges, moraines, hills

Landform position (two-dimensional): Backslope, summit, shoulder

Landform position (three-dimensional): Side slope, crest, nose slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam

Bw1 - 7 to 15 inches: fine sandy loam

Bw2 - 15 to 26 inches: gravelly fine sandy loam

2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification

Natural drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Scituate

Percent of map unit: 10 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Montauk

Percent of map unit: 5 percent
Landform: Drumlins, hills, ground moraines, moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Charlton

Percent of map unit: 4 percent
Landform: Ridges, hills, ground moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Swansea

Percent of map unit: 1 percent
Landform: Bogs, depressions, marshes, kettles, swamps
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part
Survey Area Data: Version 14, Sep 7, 2018

Essex County, Massachusetts, Northern Part

421C—Canton fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w814

Elevation: 0 to 1,160 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Canton, very stony, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Very Stony

Setting

Landform: Ridges, moraines, hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material

A - 2 to 5 inches: fine sandy loam

Bw1 - 5 to 16 inches: fine sandy loam

Bw2 - 16 to 22 inches: gravelly fine sandy loam

2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent

Percent of area covered with surface fragments: 1.6 percent

Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification

Natural drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Montauk, very stony

Percent of map unit: 6 percent

Landform: Ground moraines, recessional moraines, drumlins, hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Hydric soil rating: No

Scituate, very stony

Percent of map unit: 5 percent

Landform: Ground moraines, drumlins, hills

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Hydric soil rating: No

Chatfield, very stony

Percent of map unit: 3 percent

Landform: Ridges, hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Swansea

Percent of map unit: 1 percent

Landform: Swamps, bogs, depressions, marshes, kettles

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018

Essex County, Massachusetts, Northern Part

602—Urban land

Map Unit Setting

National map unit symbol: vjx3

Frost-free period: 125 to 165 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Udorthents

Percent of map unit: 10 percent

Hydric soil rating: No

Charlton

Percent of map unit: 2 percent

Hydric soil rating: No

Hinckley

Percent of map unit: 2 percent

Hydric soil rating: No

Merrimac

Percent of map unit: 2 percent

Hydric soil rating: No

Paxton

Percent of map unit: 2 percent

Hydric soil rating: No

Windsor

Percent of map unit: 2 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018

Essex County, Massachusetts, Northern Part

651—Udorthents, smoothed

Map Unit Setting

National map unit symbol: vjwk

Elevation: 0 to 3,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Parent material: Excavated and filled land loamy and/or excavated and filled land sandy and gravelly

Typical profile

H1 - 0 to 6 inches: variable

H2 - 6 to 60 inches: variable

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to very high (0.06 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Hydric soil rating: Unranked

Minor Components

Urban land

Percent of map unit: 10 percent

Hydric soil rating: Unranked

Beaches

Percent of map unit: 8 percent

Hydric soil rating: Unranked

Dumps

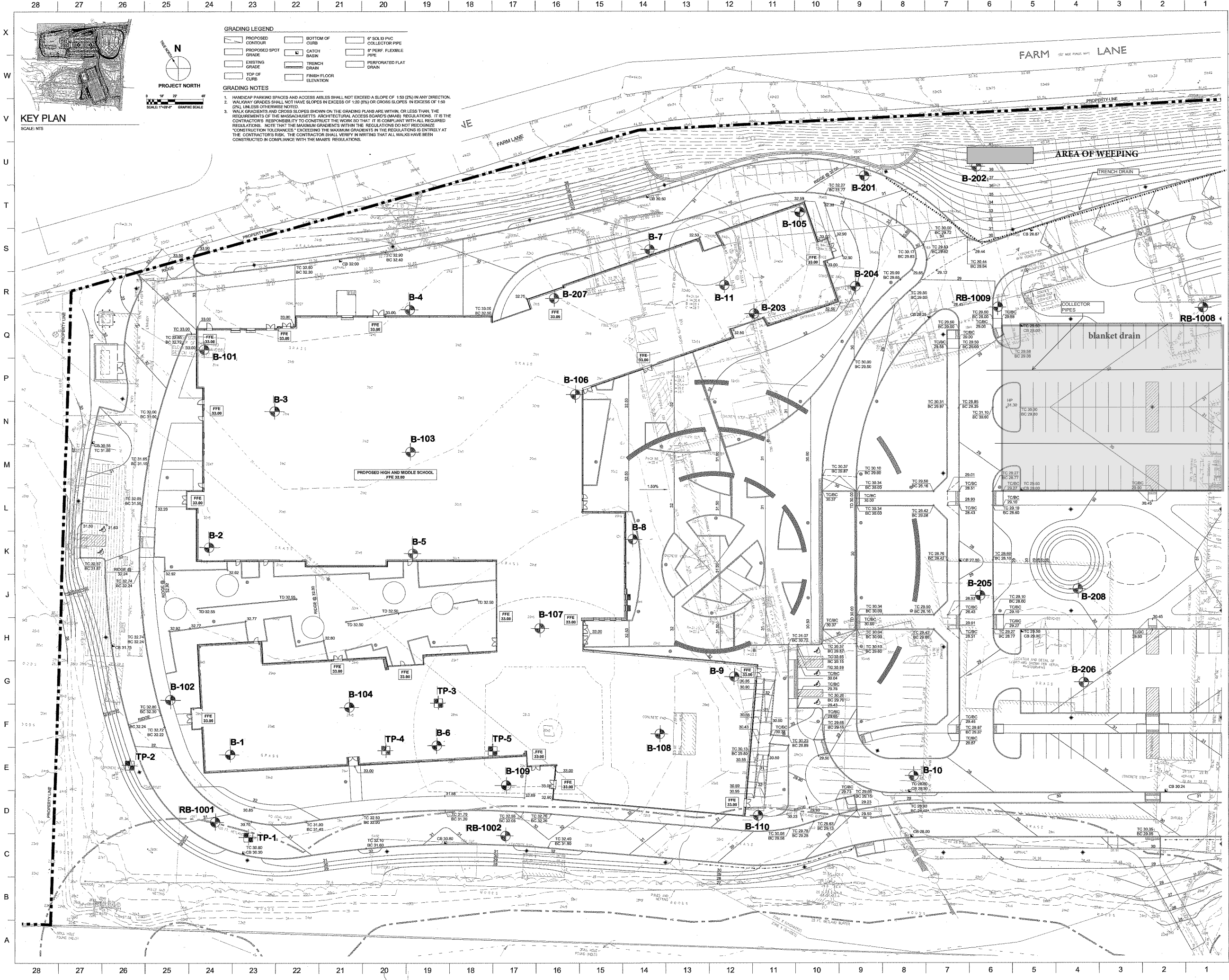
Percent of map unit: 2 percent

Hydric soil rating: Unranked

Data Source Information

Soil Survey Area: Essex County, Massachusetts, Northern Part

Survey Area Data: Version 14, Sep 7, 2018



KEY PLAN
SCALE: NTS

- GRADING LEGEND**
- PROPOSED CONTOUR
 - PROPOSED SPOT GRADE
 - EXISTING GRADE
 - TOP OF CURB
 - BOTTOM OF CURB
 - CATCH BASIN
 - TRENCH DRAIN
 - FINISH FLOOR ELEVATION
 - 8" SOLID PVC COLLECTOR PIPE
 - 6" PERF. FLEXIBLE PIPE
 - PERFORATED FLAT DRAIN
- GRADING NOTES**
- HANDICAP PARKING SPACES AND ACCESSIBLE AREAS SHALL NOT EXCEED A SLOPE OF 1:50 (2%) IN ANY DIRECTION.
 - WALKWAY GRADES SHALL NOT HAVE SLOPES IN EXCESS OF 1:20 (5%) OR CROSS SLOPES IN EXCESS OF 1:50 (2%), UNLESS OTHERWISE NOTED.
 - WALK GRADIENTS AND CROSS SLOPES SHOWN ON THE GRADING PLANS ARE WITHIN, OR LESS THAN, THE REQUIREMENTS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD'S (MAAB) REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONSTRUCT THE WORK SO THAT IT IS COMPLIANT WITH ALL REQUIRED REGULATIONS. NOTE THAT THE MAXIMUM GRADIENTS WITHIN THE REGULATIONS DO NOT RECOGNIZE "CONSTRUCTION TOLERANCES" EXCEEDING THE MAXIMUM GRADIENTS IN THE REGULATIONS IS ENTIRELY AT THE CONTRACTOR'S RISK. THE CONTRACTOR SHALL VERIFY IN WRITING THAT ALL WALKS HAVE BEEN CONSTRUCTED IN COMPLIANCE WITH THE MAAB'S REGULATIONS.

PENTUCKET REGIONAL SCHOOL DISTRICT BUILDING PROJECT

24 MAIN STREET
WEST NEWBURY, MA 01985

SD PAVING SET

REVISION	DATE

DATE: 01/14/2018 SCALE: 1" = 20'-0"

FIGURE 3A
BORING & TEST
PIT LOCATIONS



HML ASSOCIATES

Boring Log No. B-1

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29.5

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 50

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 7 Mottles

Sampled by: New England Boring

Driller: Geologic

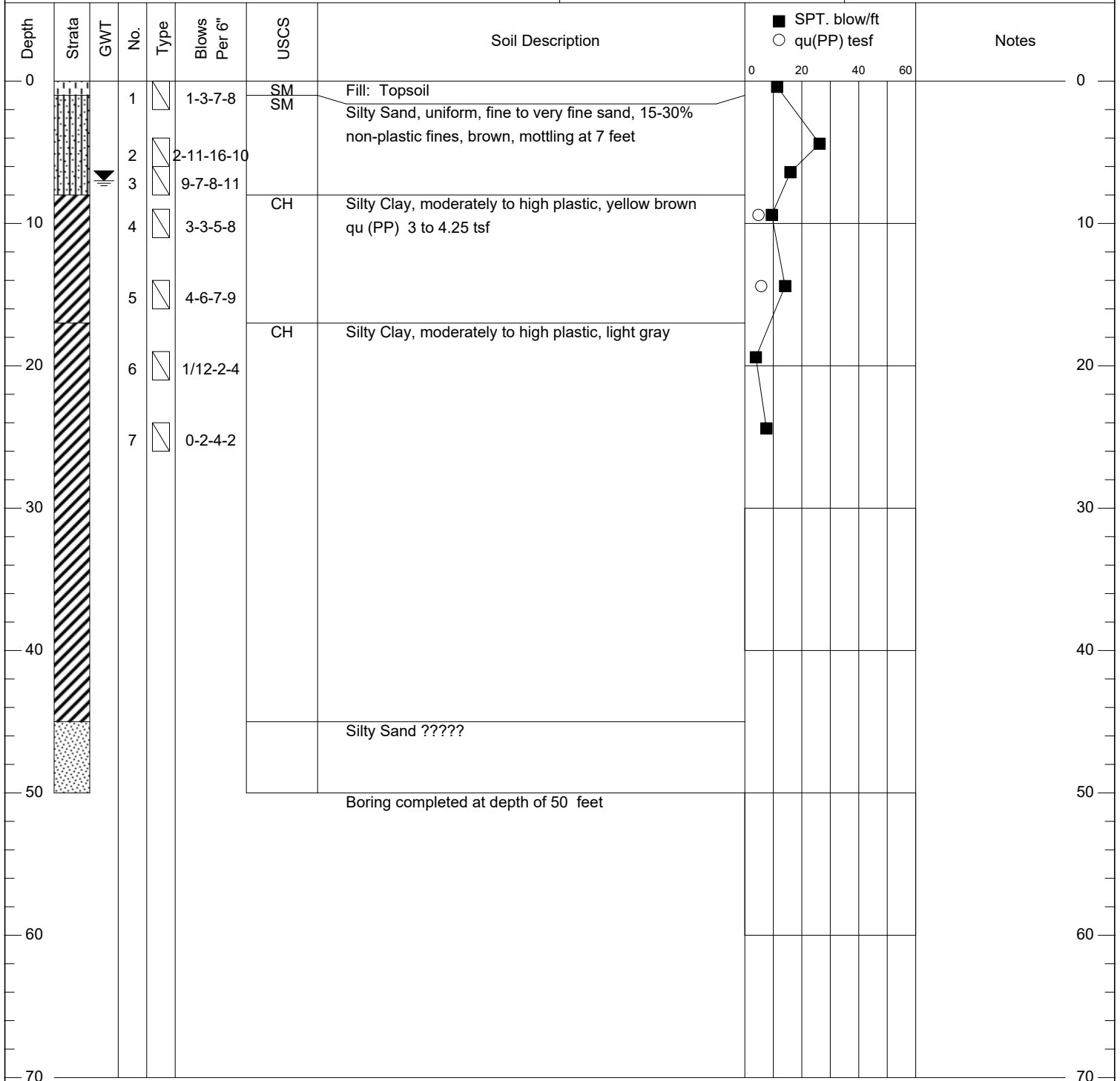
Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018

File: C:\Users\HML_Associates\Documents\HML\Projects 2018\PES Pentucket\SD\PENTUCKET.log

SuperLog CivilTech Software, USA www.civiltech.com



Remarks:

Drilled ahead to 50 feet with no sampling. Change at 45 feet to stiffer soil, but not glacial till.

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-101

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 31.5

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 19.5

Sampler: Split Spoon

Drop (in): 30

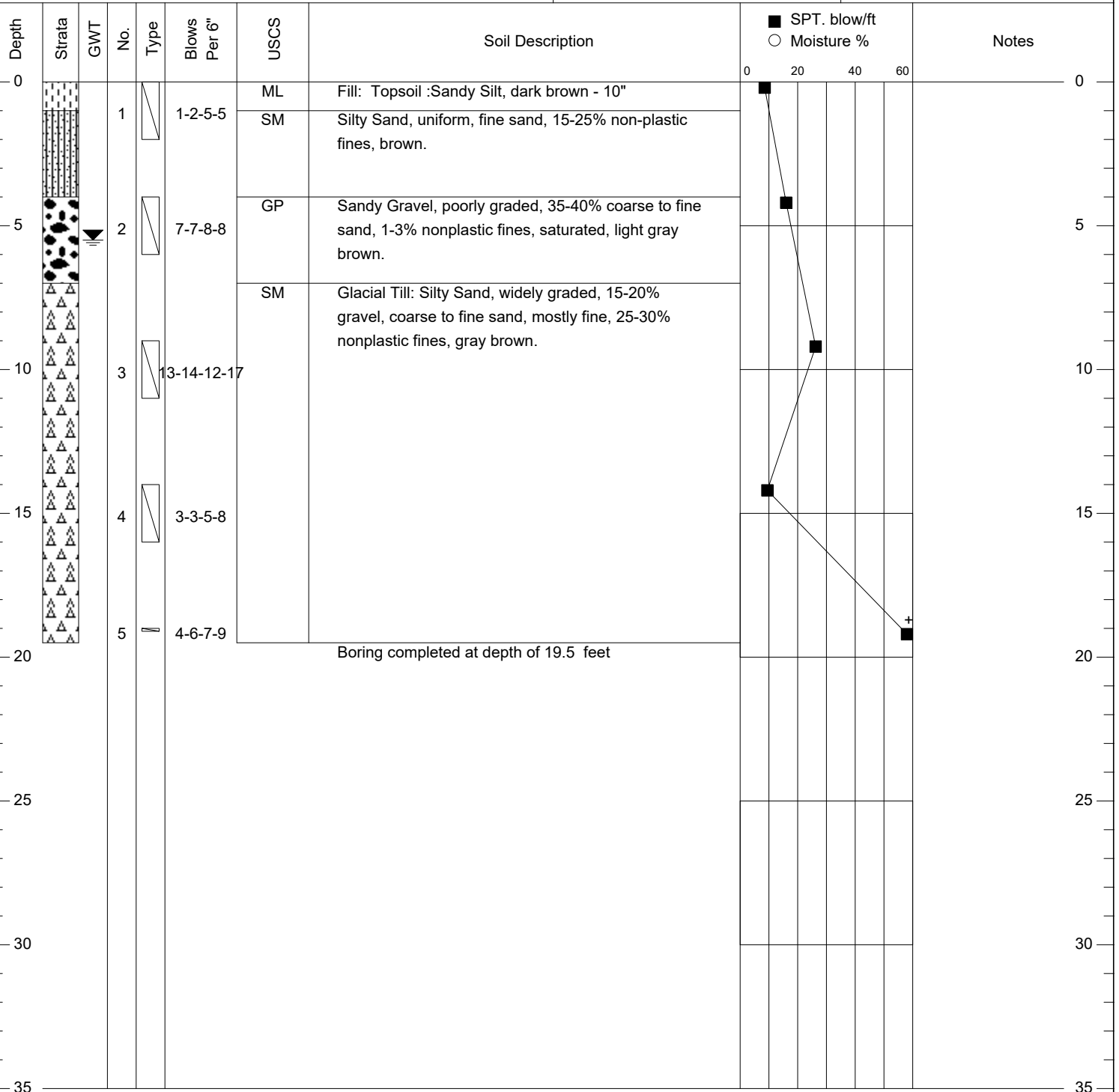
G.W.T. @ Drilling (ft): 5.5

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 3, 2018

Equipment: ATV Rotary



Remarks:

Spoon refusal at 19 ft. Roller bit refusal at 19.5 ft



PES ASSOCIATES

Boring Log No. B-102

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 30

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 49.2

Sampler: Split Spoon

Drop (in): 30

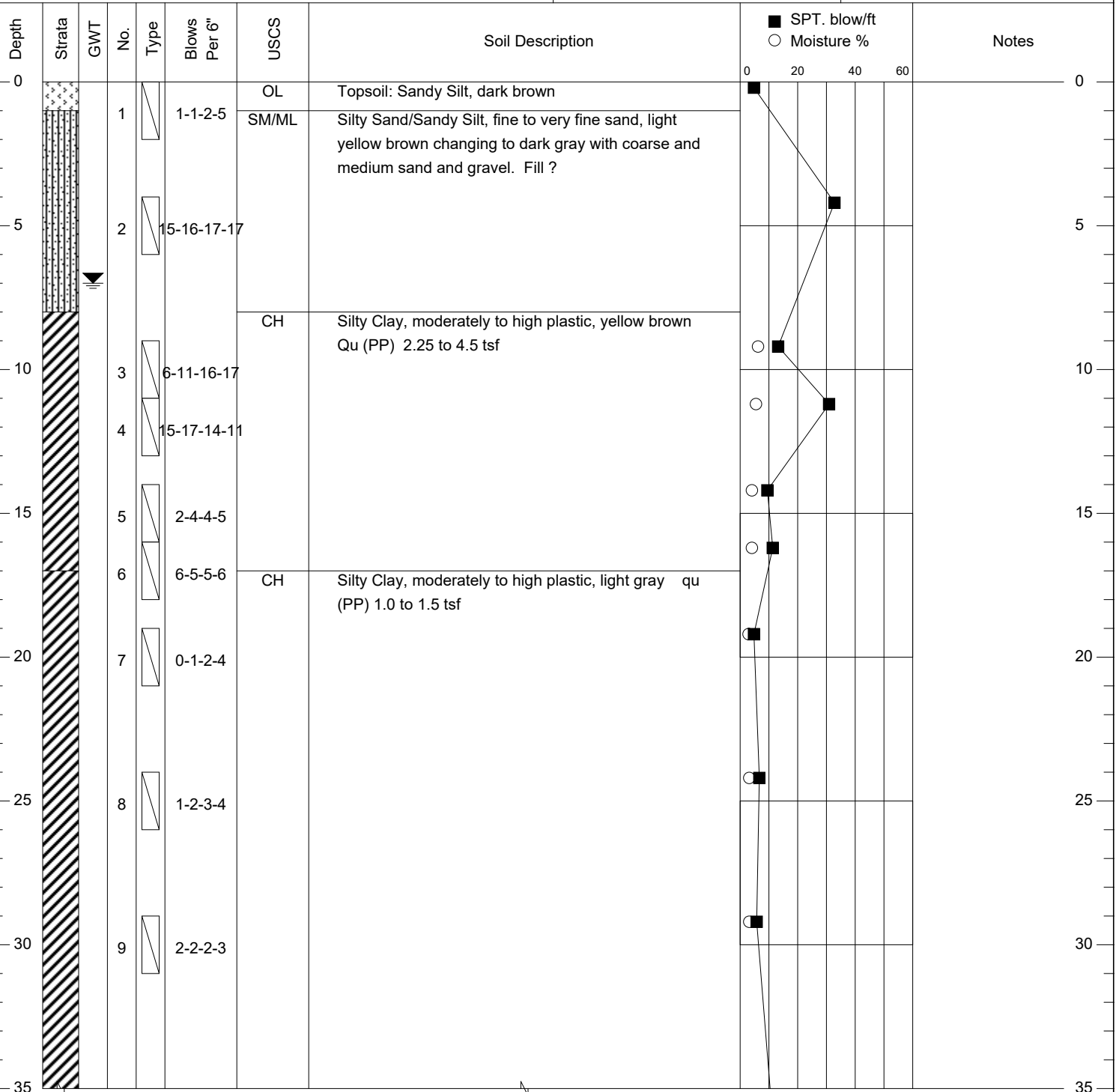
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: November 30, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-102

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 30

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 49.2

Sampler: Split Spoon

Drop (in): 30

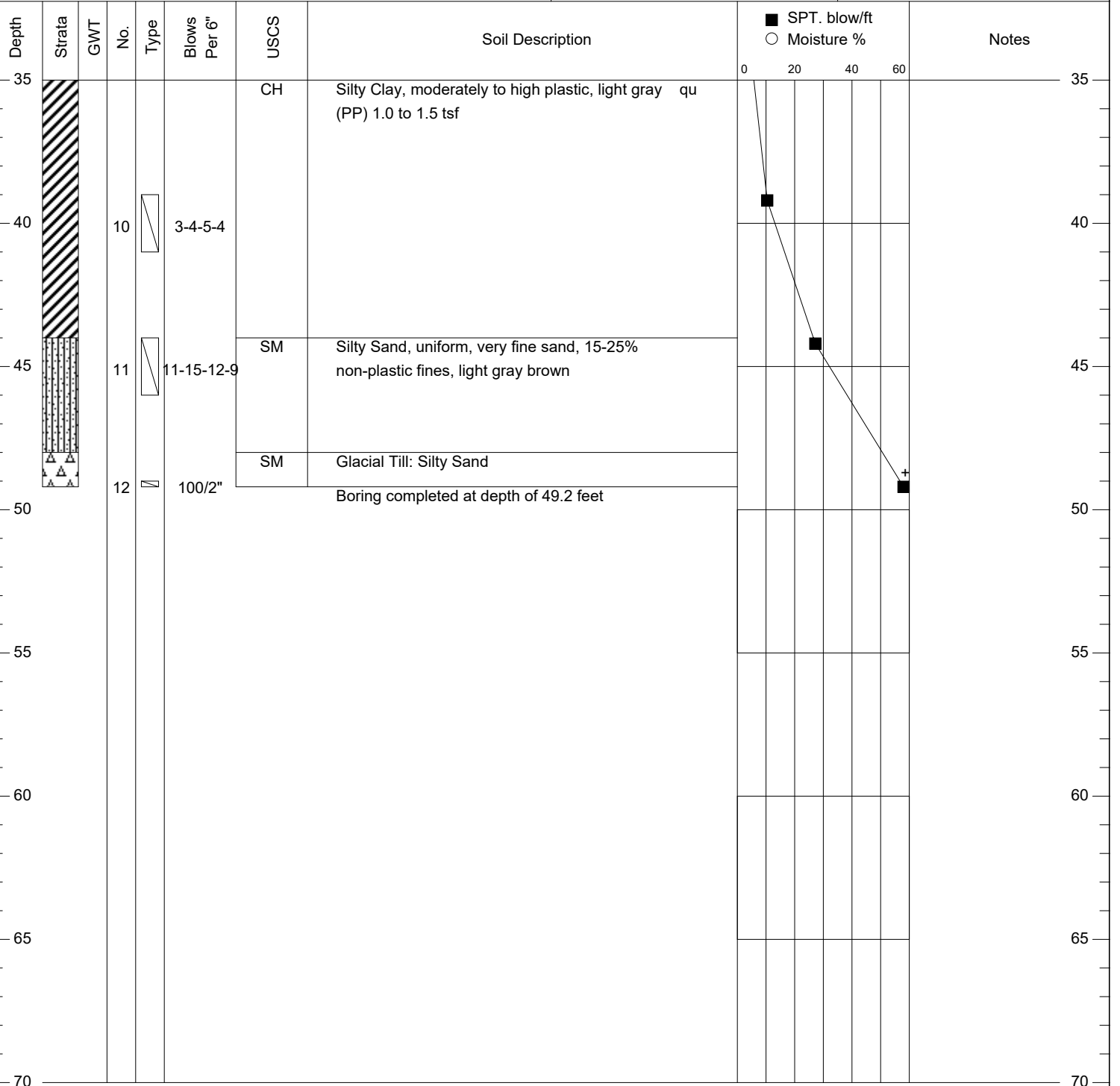
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: November 30, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-103

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 31

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 26.0

Sampler: Split Spoon

Drop (in): 30

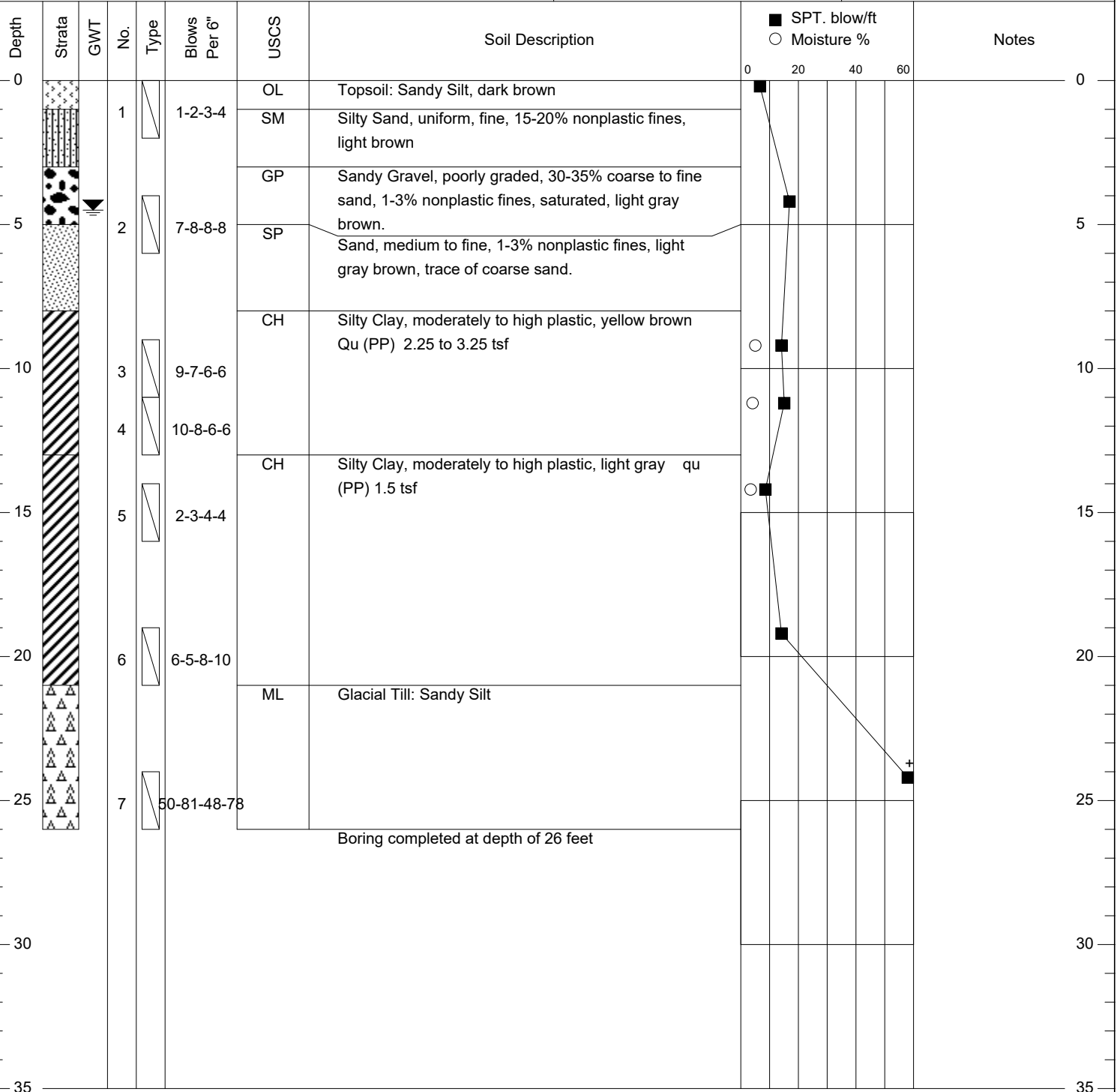
G.W.T. @ Drilling (ft): 4.5

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 5, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-104

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 30

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 63.5

Sampler: Split Spoon

Drop (in): 30

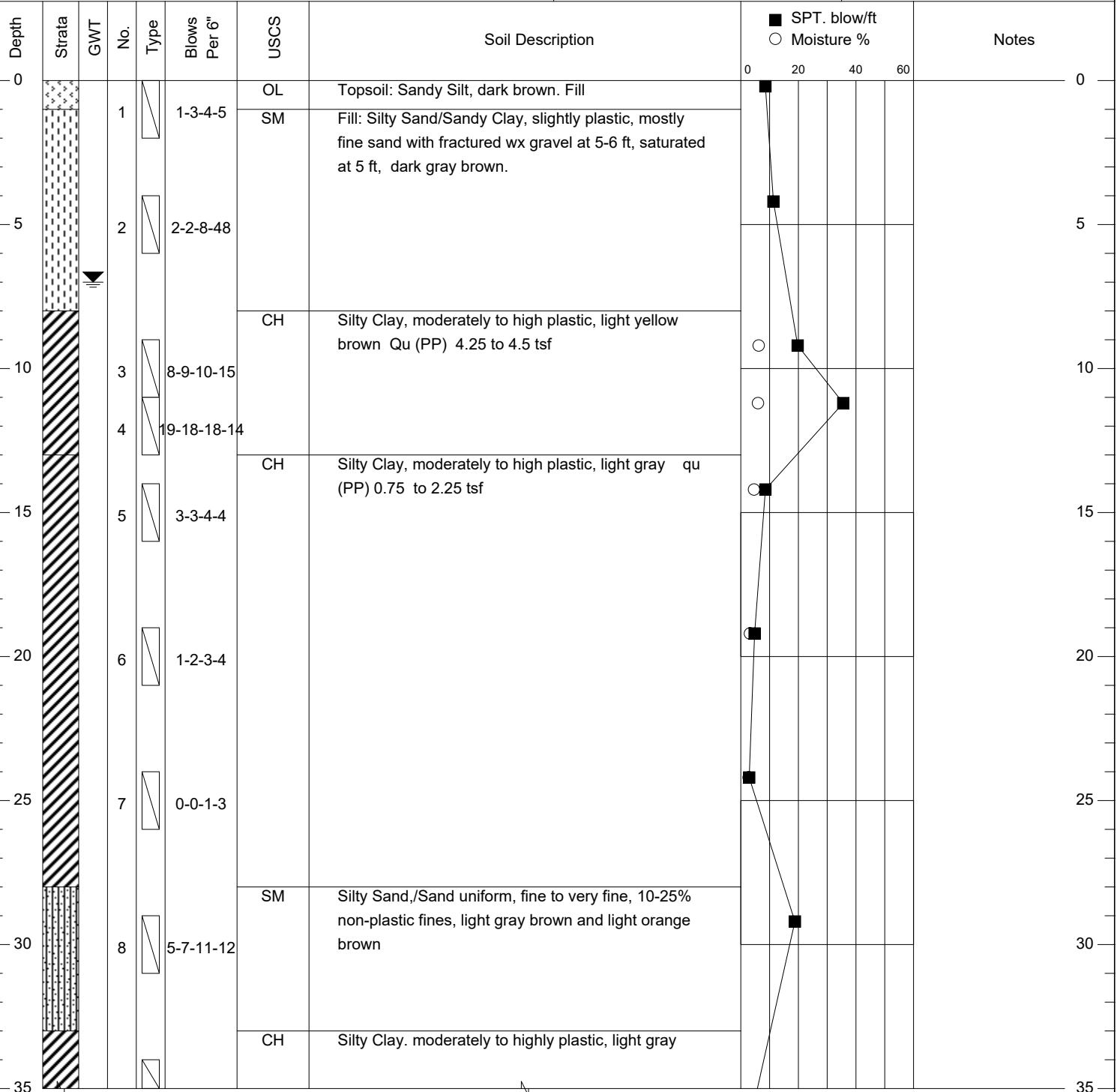
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 3, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-104

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 30

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 63.5

Sampler: Split Spoon

Drop (in): 30

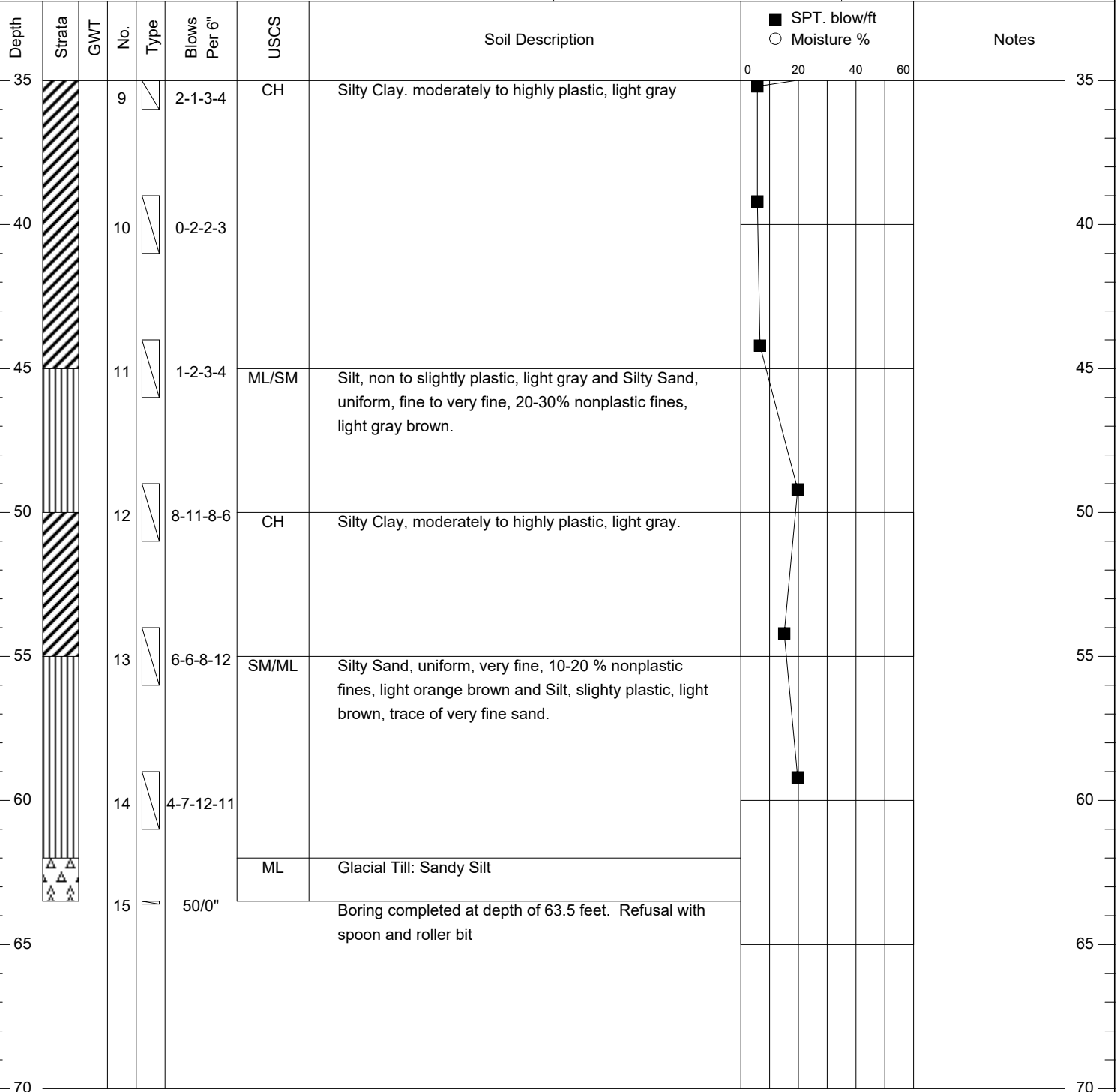
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 3, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-105

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 35.5

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

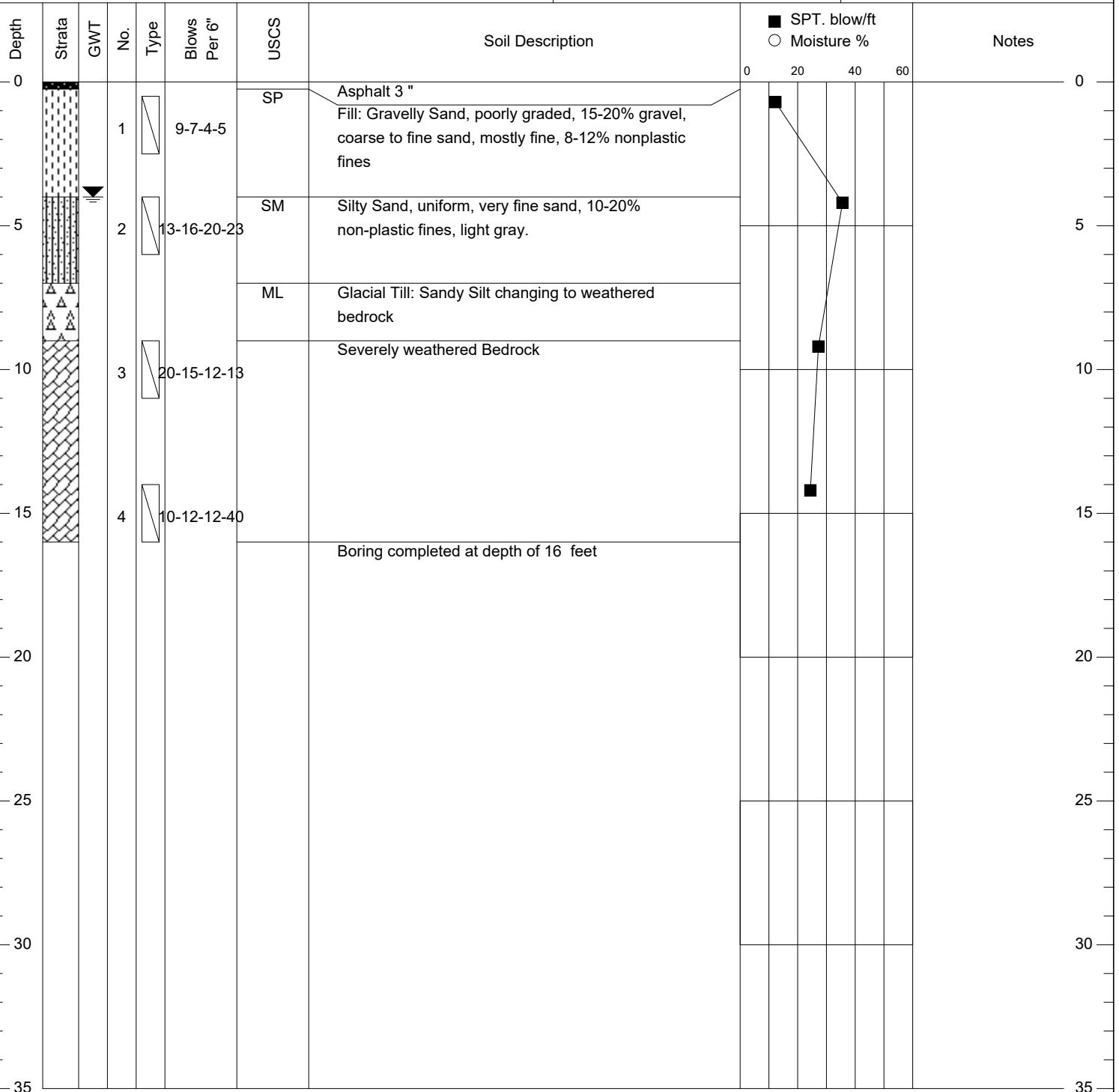
G.W.T. @ Drilling (ft): 4

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 5, 2018

Equipment: ATV Rotary



Remarks:

Spoon refusal at 19 ft. Roller bit refusal at 19.5 ft



PES ASSOCIATES

Boring Log No. B-106

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 31

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 31.5

Sampler: Split Spoon

Drop (in): 30

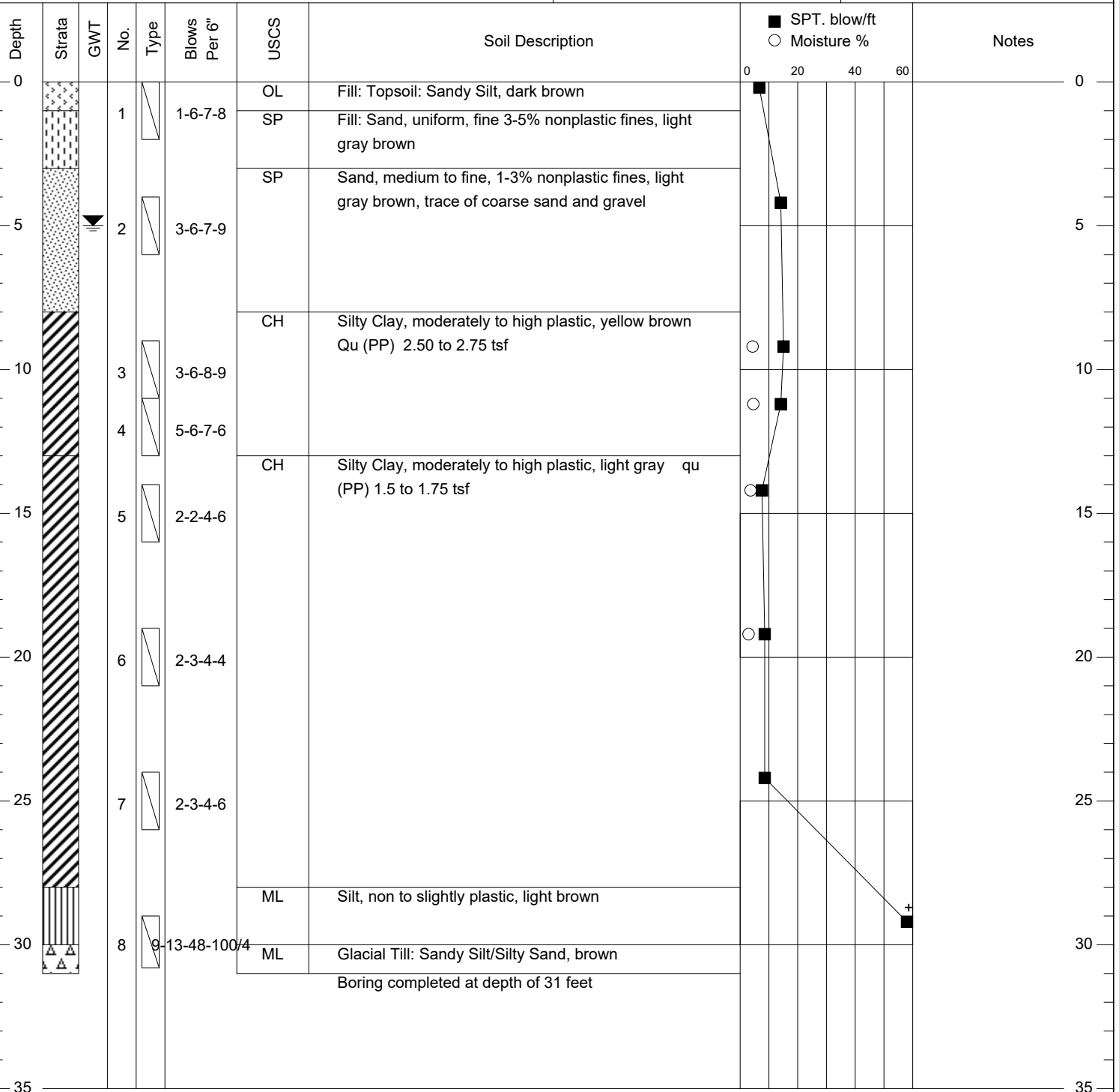
G.W.T. @ Drilling (ft): 5

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 4, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-107

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29.5

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 47.5

Sampler: Split Spoon

Drop (in): 30

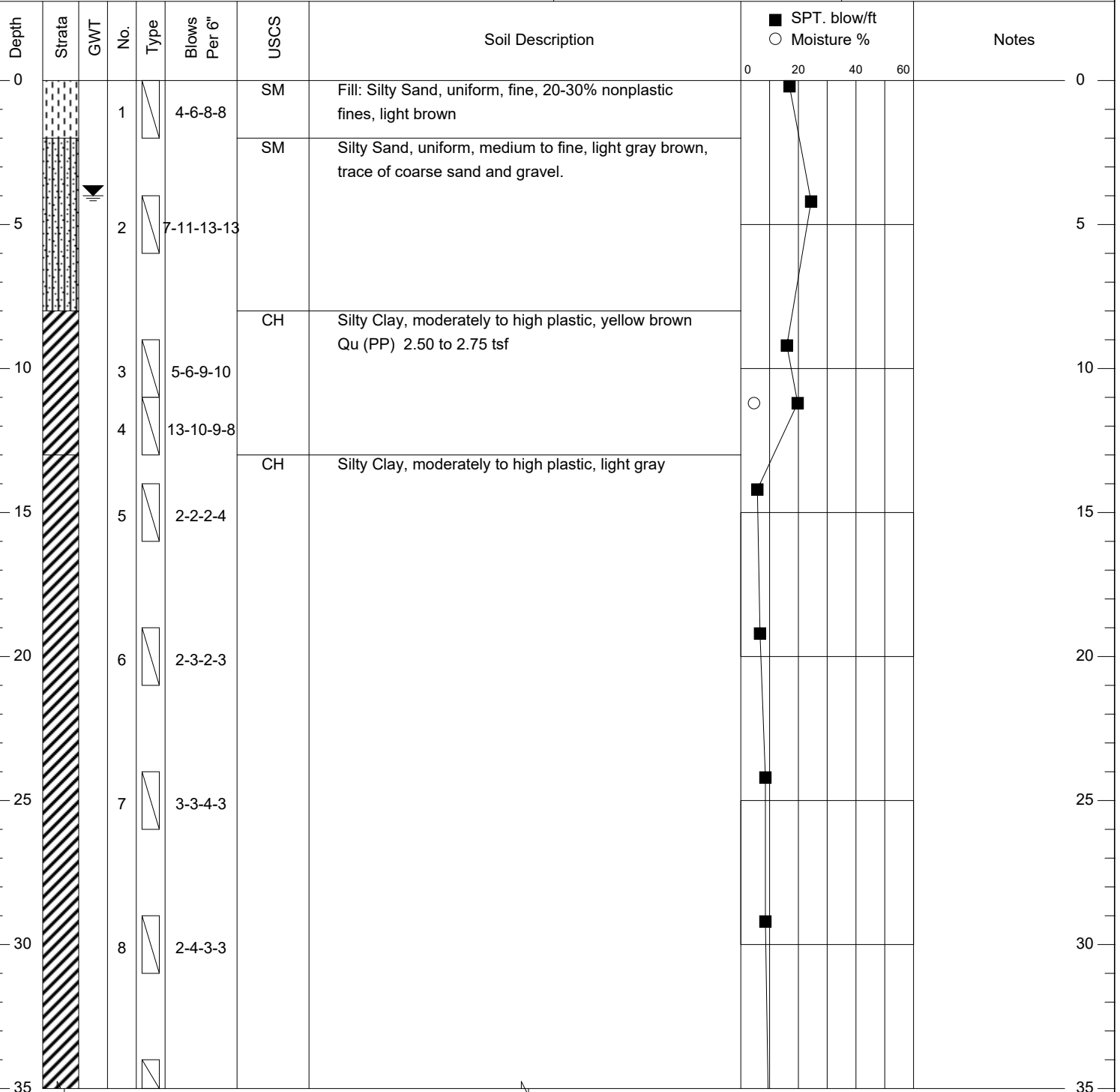
G.W.T. @ Drilling (ft): 4

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 5, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-107

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29.5

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 47.5

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 4

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 5, 2018

Equipment: ATV Rotary

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	<div> <div>■ SPT. blow/ft</div> <div>○ Moisture %</div> </div>	Notes
35			9	2-3-5-4	CH	Silty Clay, moderately to high plastic, light gray			
40			10	6-3-10-12	SM	Silt, non to slightly plastic, light brown, trace of very fine sand.			
45			11	4-4-6-21	ML	Glacial Till: Sandy Silt			
Boring completed at depth of 47.5 feet									
50									
55									
60									
65									
70									

Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-108

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29.5 '

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 46.0

Sampler: Split Spoon

Drop (in): 30

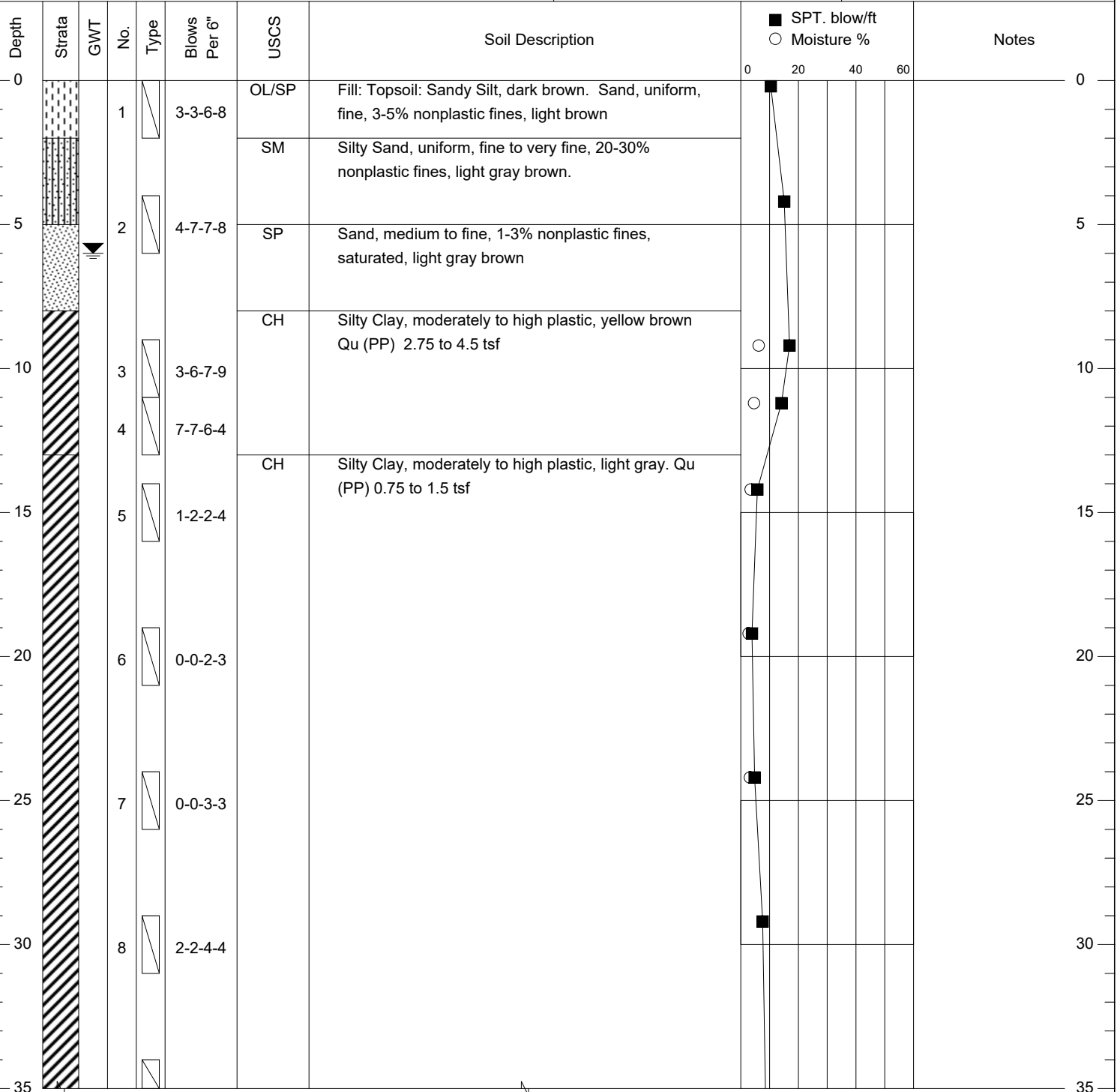
G.W.T. @ Drilling (ft): 6

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 4, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-108 Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29.5 '

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 46.0

Sampler: Split Spoon

Drop (in): 30

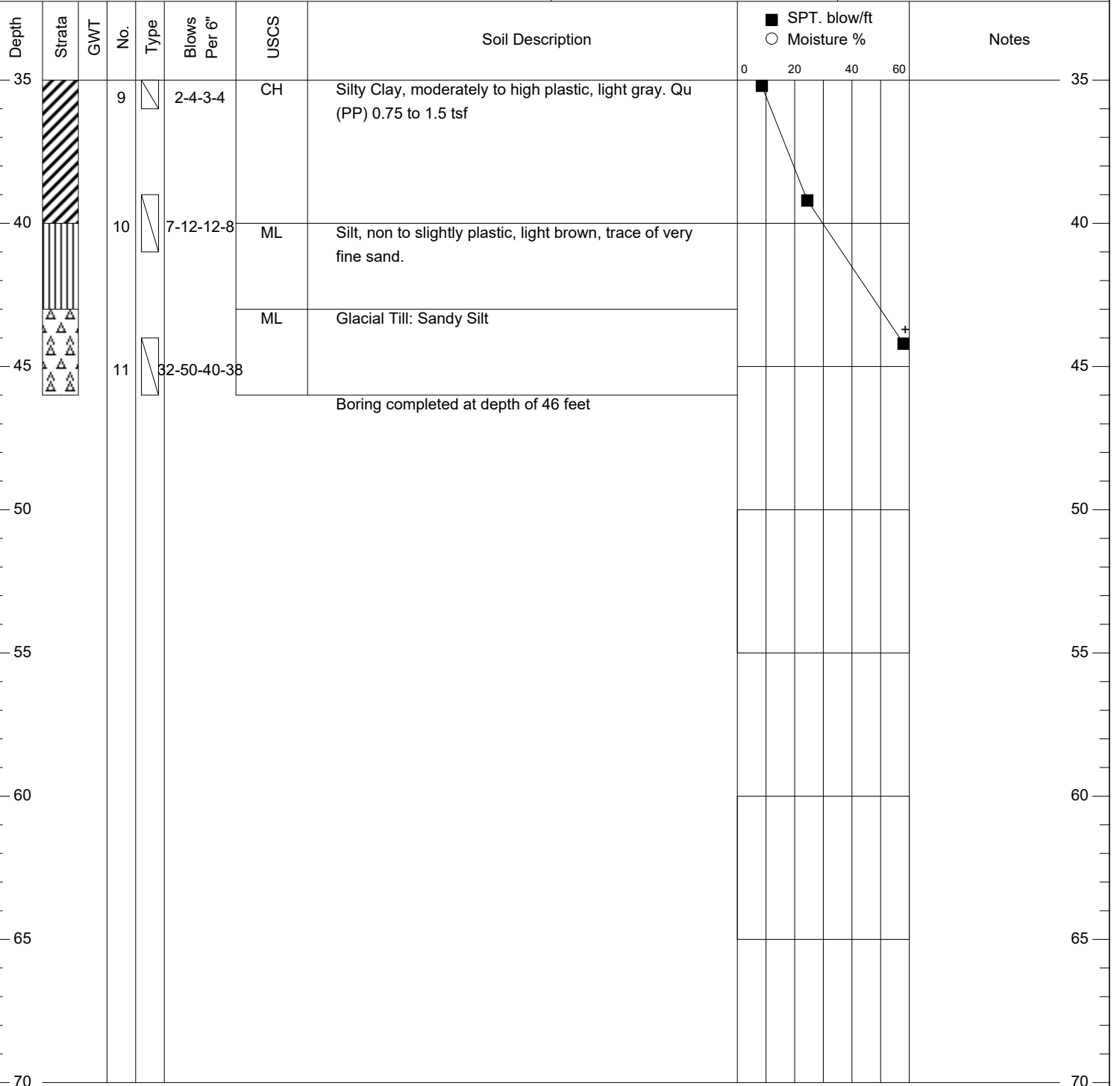
G.W.T. @ Drilling (ft): 6

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 4, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-109

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 30 '

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 54.5

Sampler: Split Spoon

Drop (in): 30

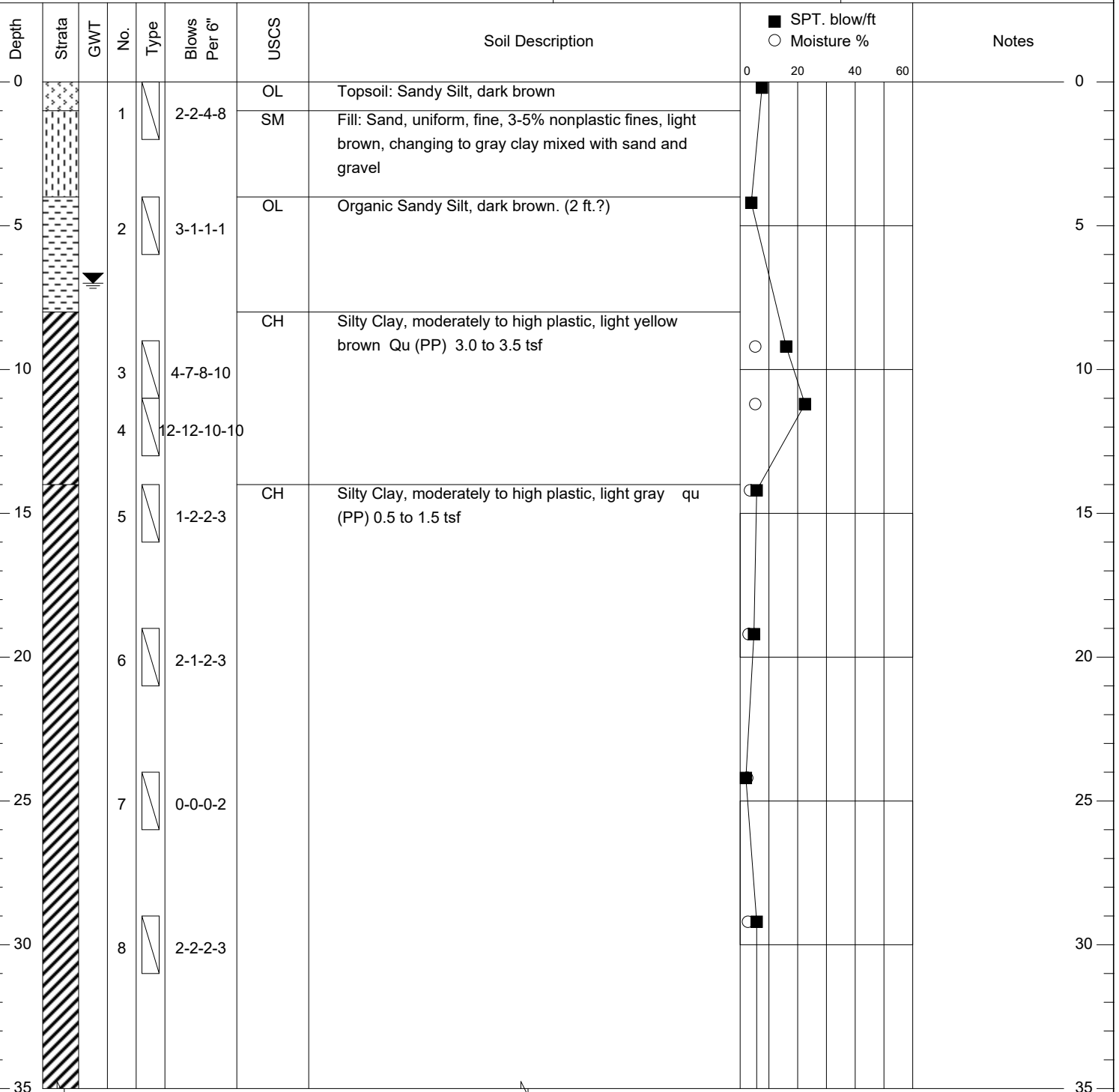
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: November 30, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-109

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 30 '

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 54.5

Sampler: Split Spoon

Drop (in): 30

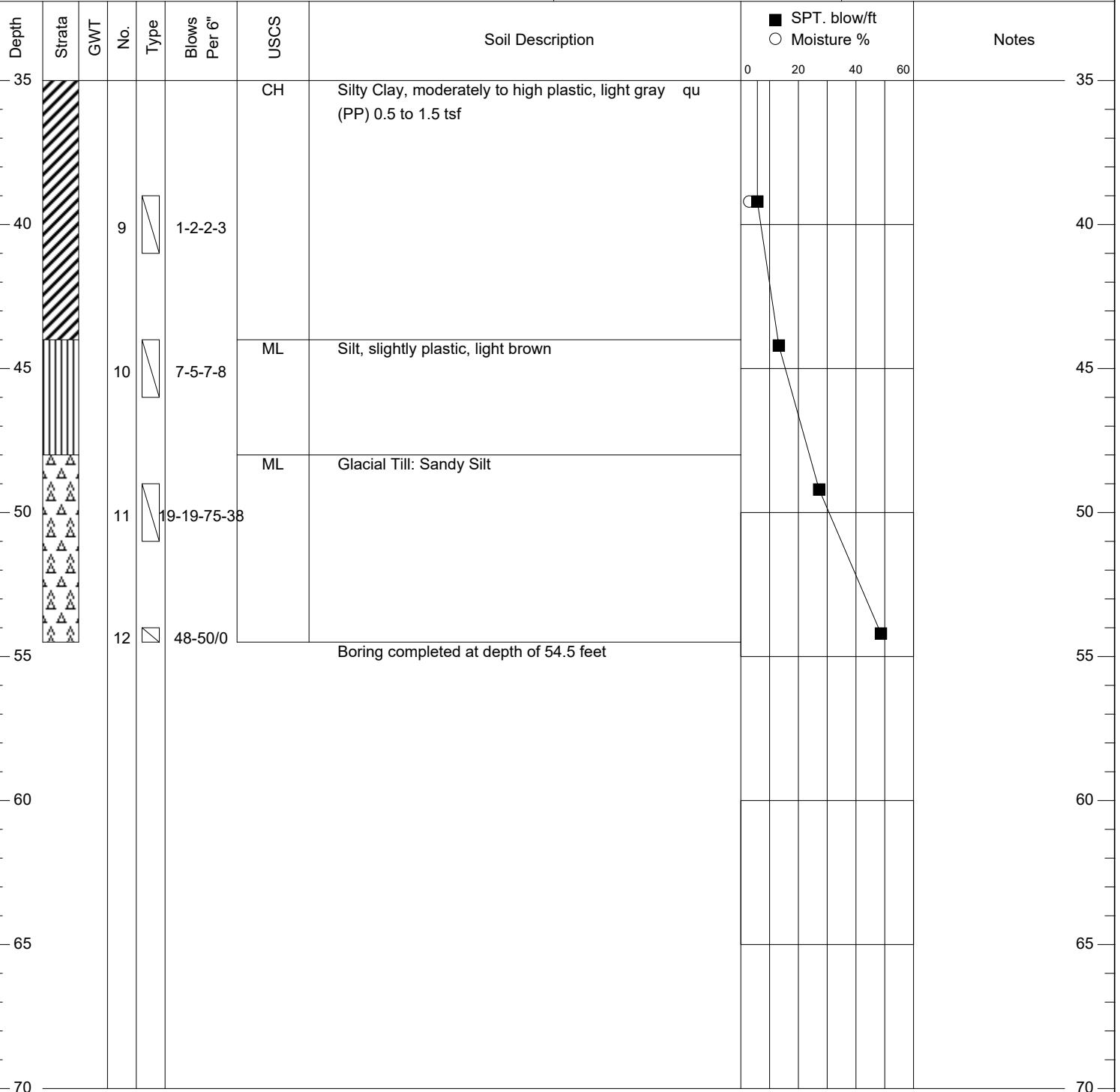
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: November 30, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-110

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 28.5 '

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 36.0

Sampler: Split Spoon

Drop (in): 30

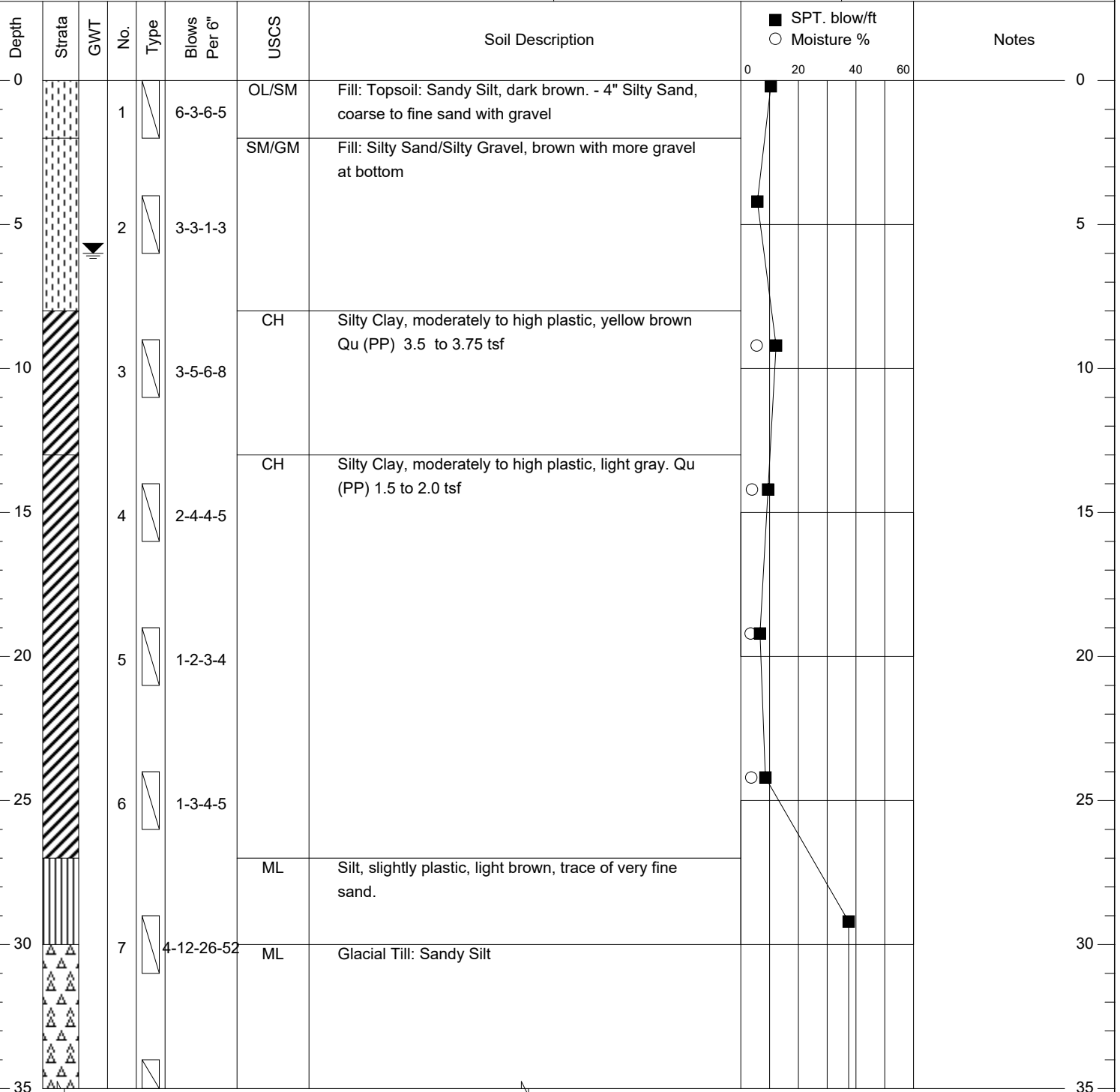
G.W.T. @ Drilling (ft): 6

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 4, 2018

Equipment: ATV Rotary



Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. B-110
Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 28.5 '

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 36.0

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 6

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 4, 2018

Equipment: ATV Rotary

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	0	20	40	60	Notes
35	△ △		8	18-16-22-30	ML	Glacial Till: Sandy Silt						35
						Boring completed at depth of 46 feet						
40												40
45												45
50												50
55												55
60												60
65												65
70												70

Remarks:

qu is confined compressive strength measured by pocket penetrometer



PES ASSOCIATES

Boring Log No. MS-101

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 40' +

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 14

Sampler: Split Spoon

Drop (in): 30

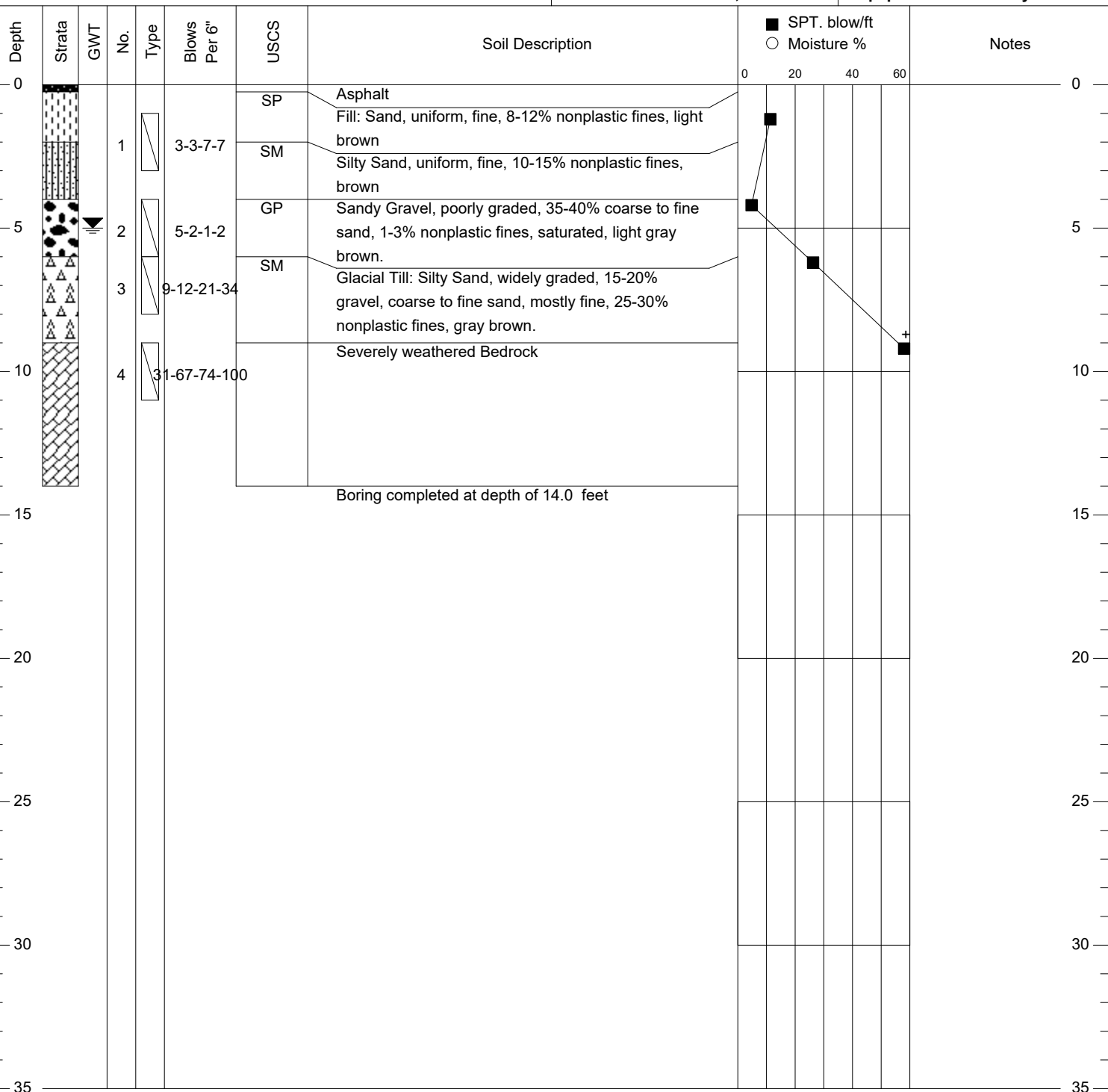
G.W.T. @ Drilling (ft): 5

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 6, 2018

Equipment: ATV Rotary



Remarks:

Roller bit refusal at 14.0 ft



PES ASSOCIATES

Boring Log No. MS-102

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 40' +

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 15

Sampler: Split Spoon

Drop (in): 30

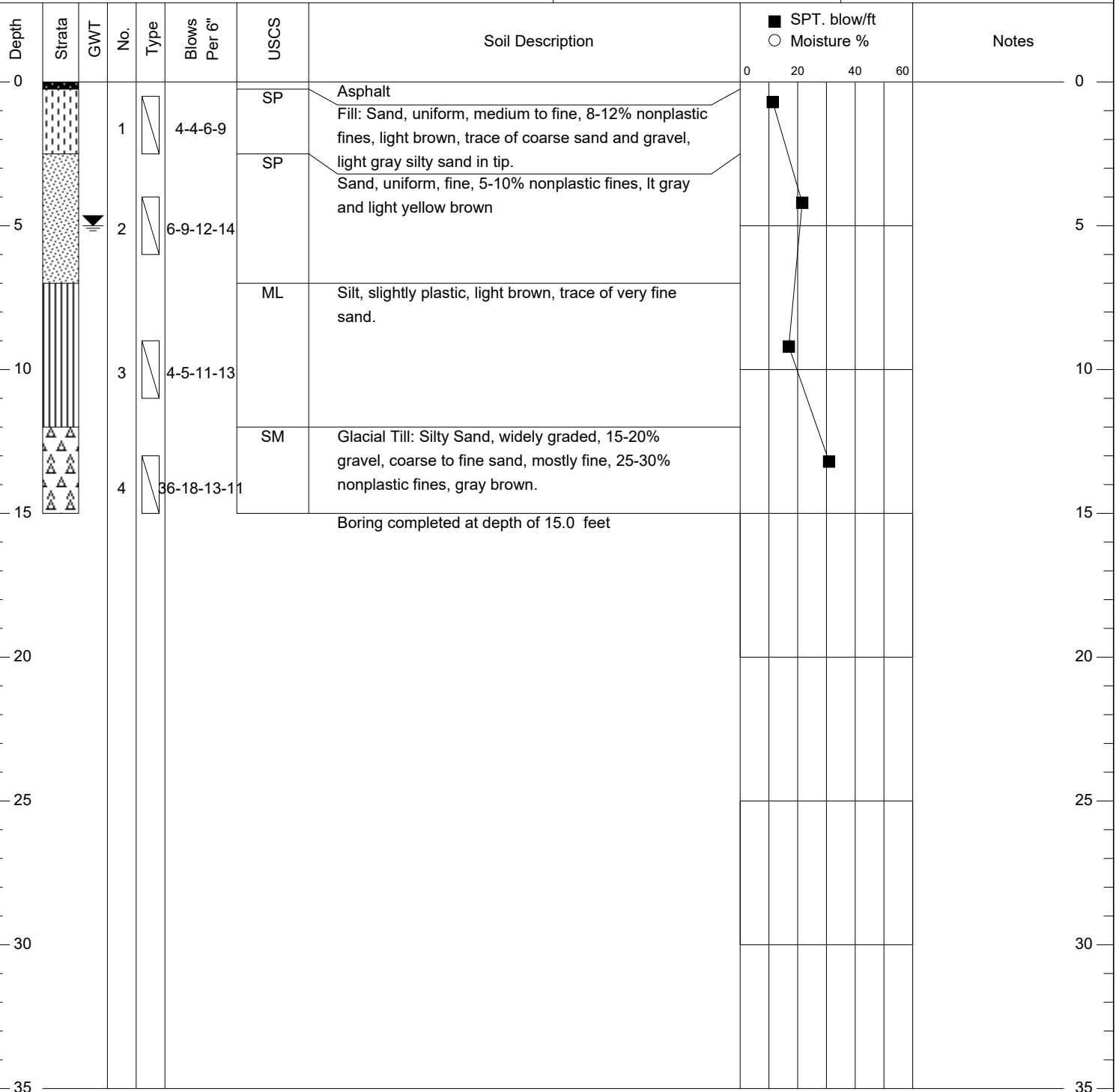
G.W.T. @ Drilling (ft): 5

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 6, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1001

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29'

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

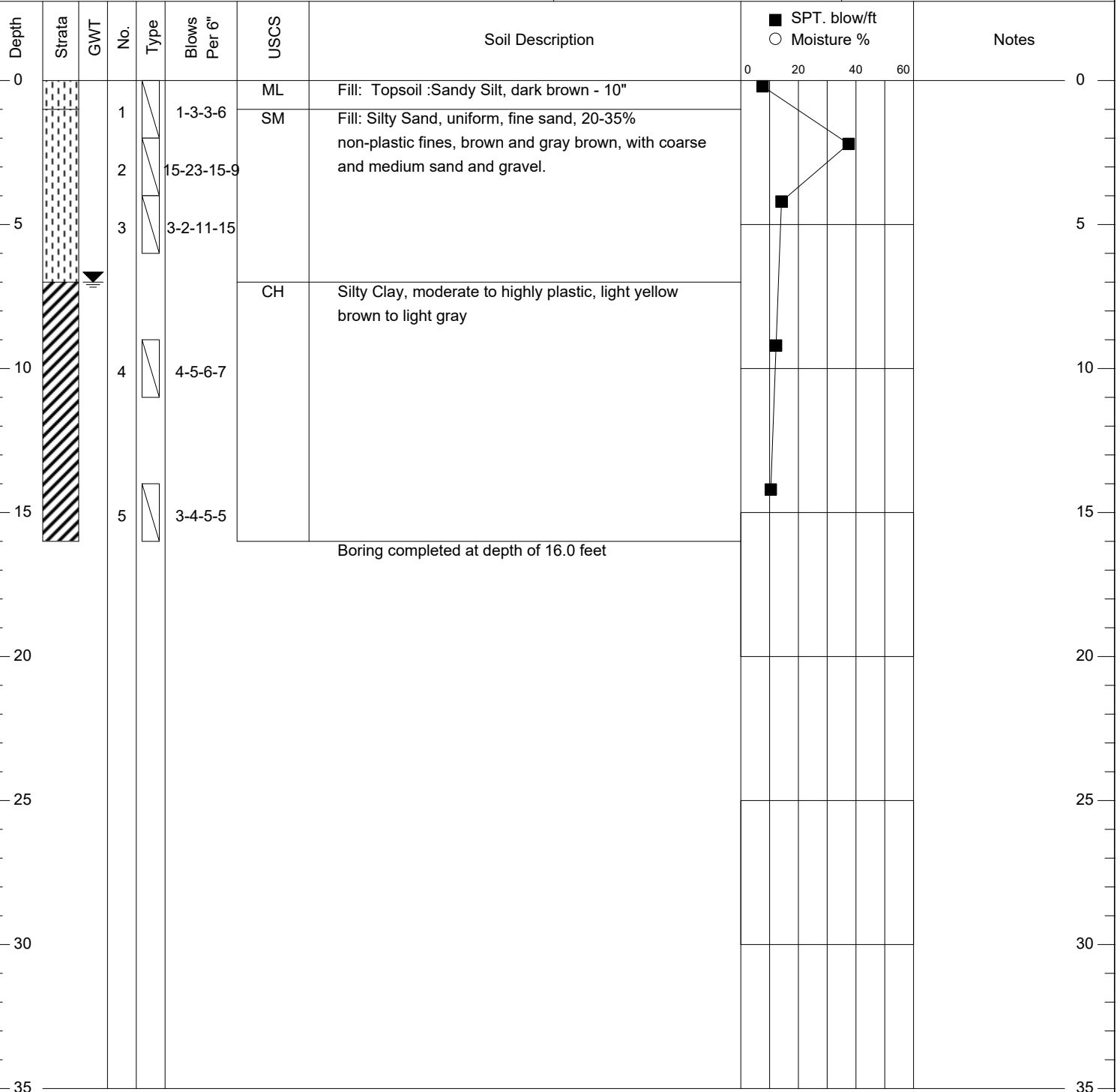
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 6, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1002

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29'

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

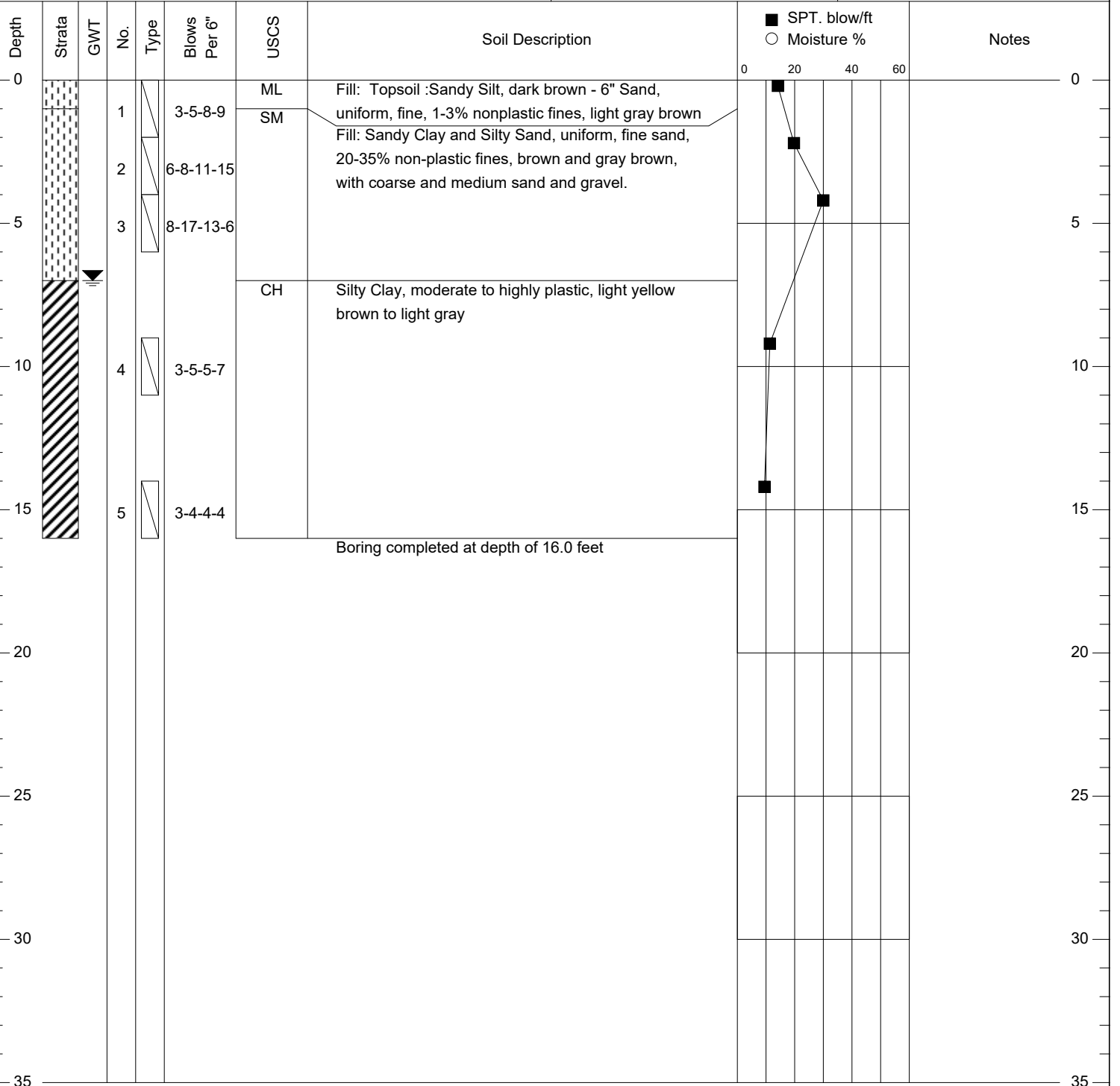
G.W.T. @ Drilling (ft): 7

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 6, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1003 Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 23.5'

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 11

Sampler: Split Spoon

Drop (in): 30

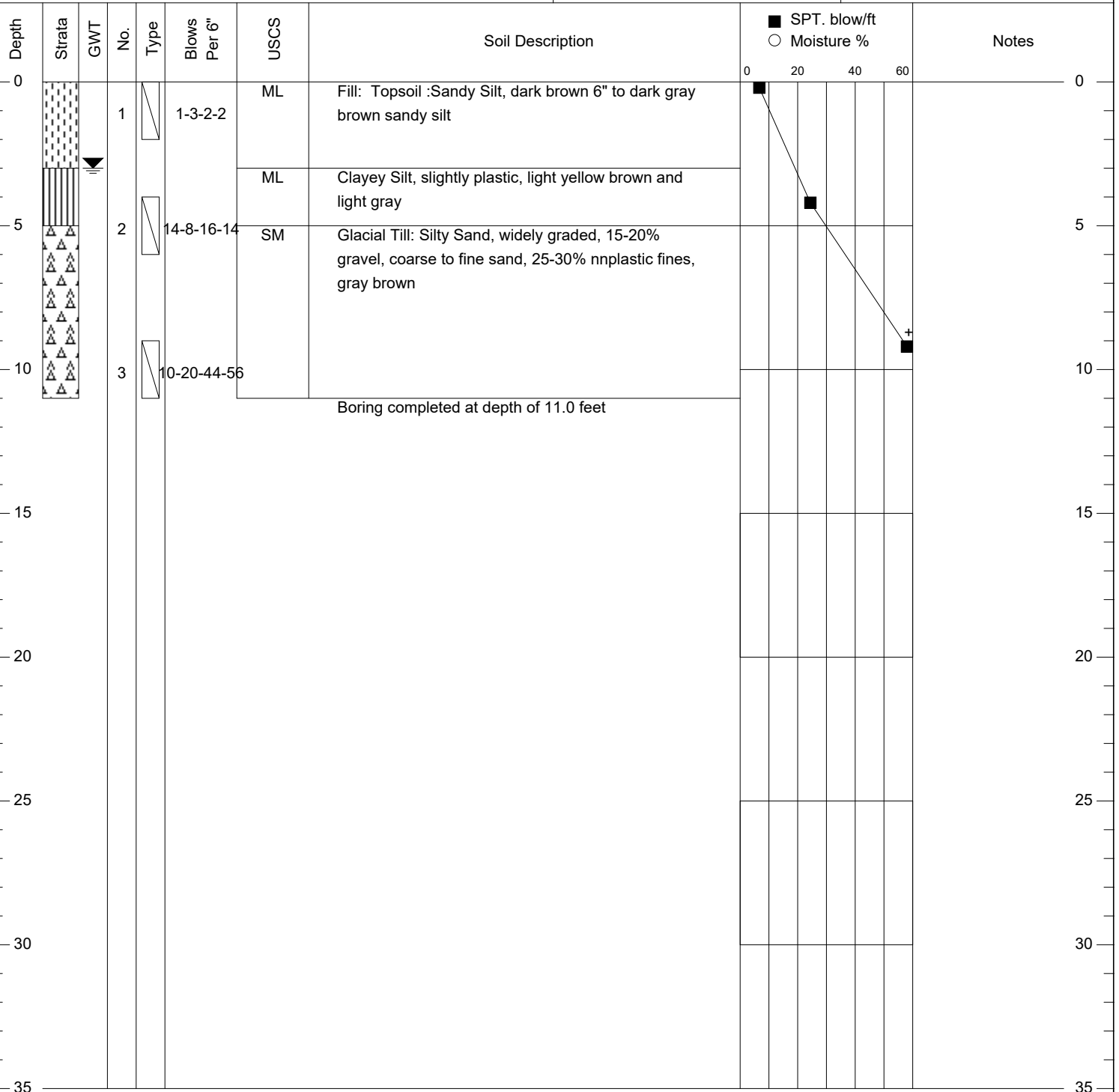
G.W.T. @ Drilling (ft): 3

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 7, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1006

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 23.5'

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 11

Sampler: Split Spoon

Drop (in): 30

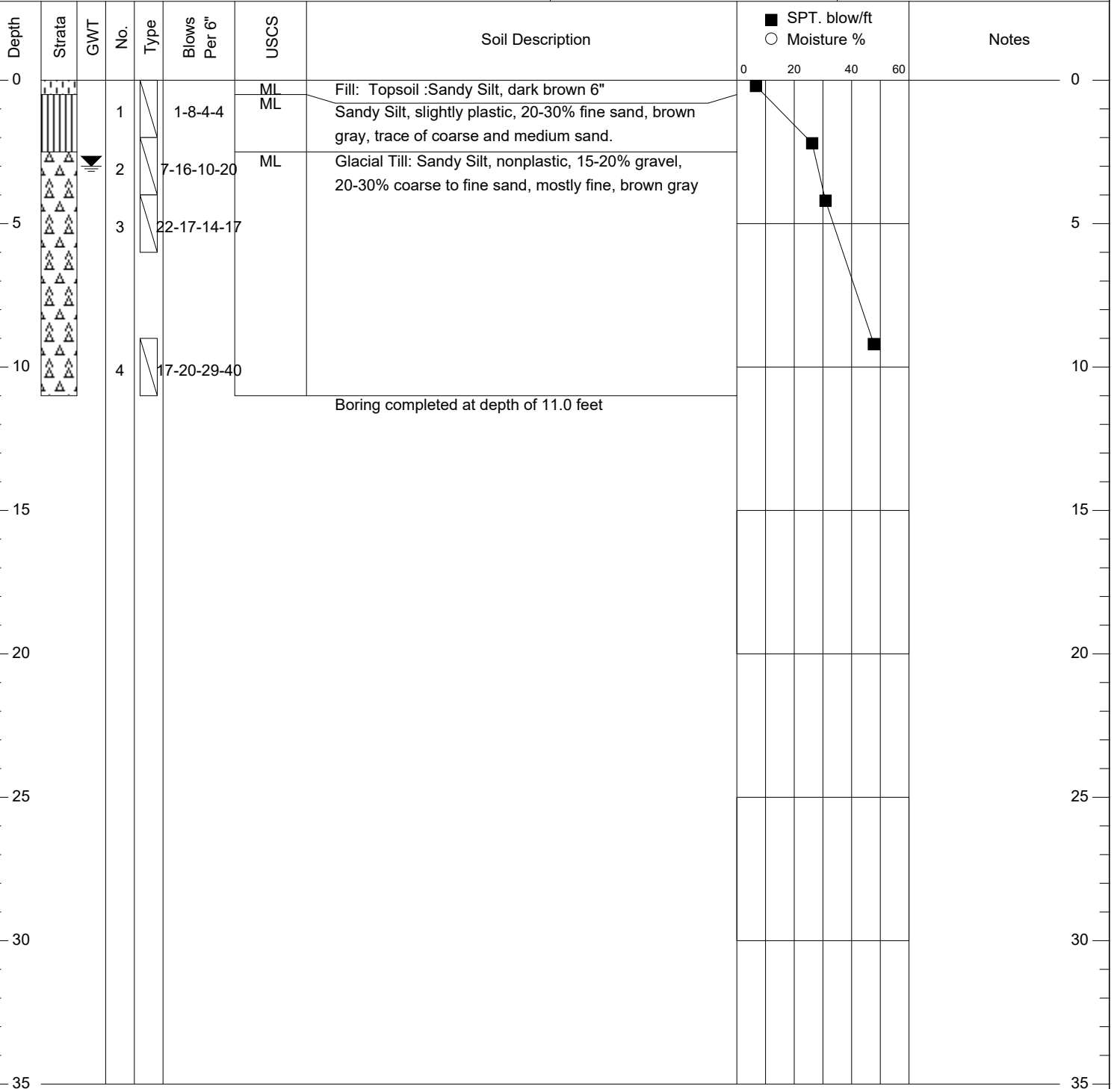
G.W.T. @ Drilling (ft): 3

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 10, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1004

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 23.5'

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 11

Sampler: Split Spoon

Drop (in): 30

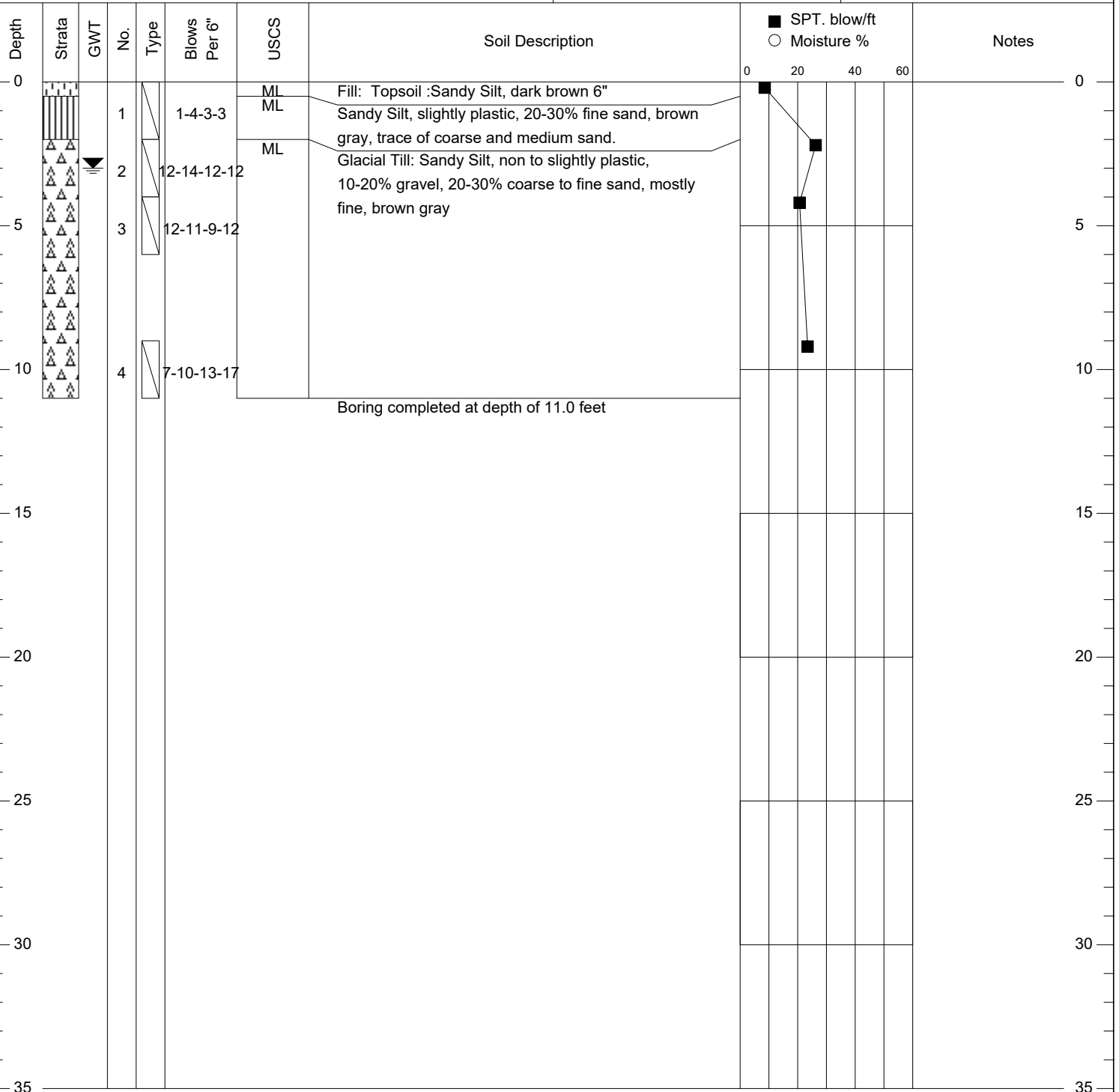
G.W.T. @ Drilling (ft): 3

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 10, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1007

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 37'

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

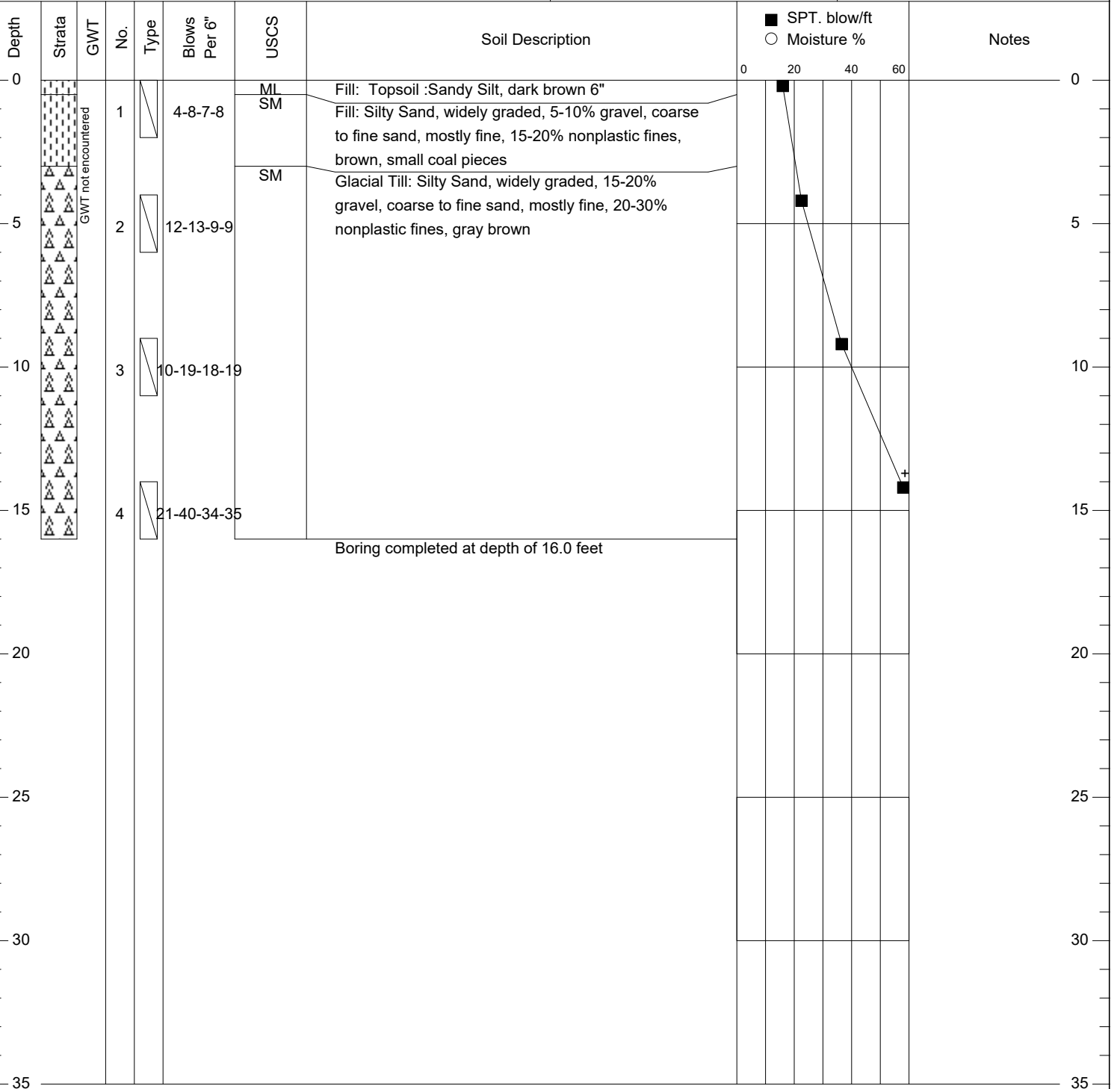
G.W.T. @ Drilling (ft): NA

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 10, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1005 Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 23.5'

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 11

Sampler: Split Spoon

Drop (in): 30

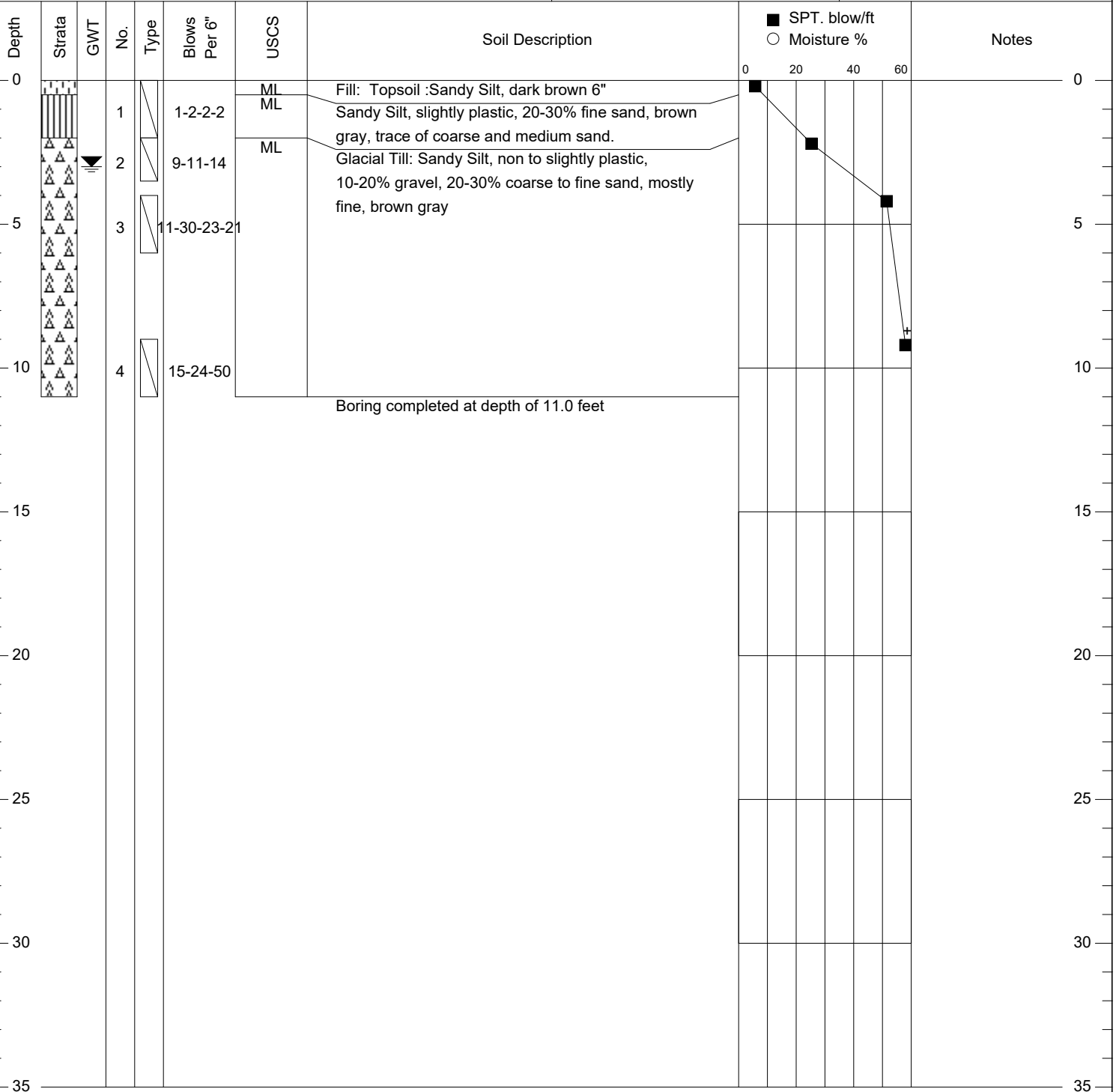
G.W.T. @ Drilling (ft): 3

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 7, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1008

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 41

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 14.2

Sampler: Split Spoon

Drop (in): 30

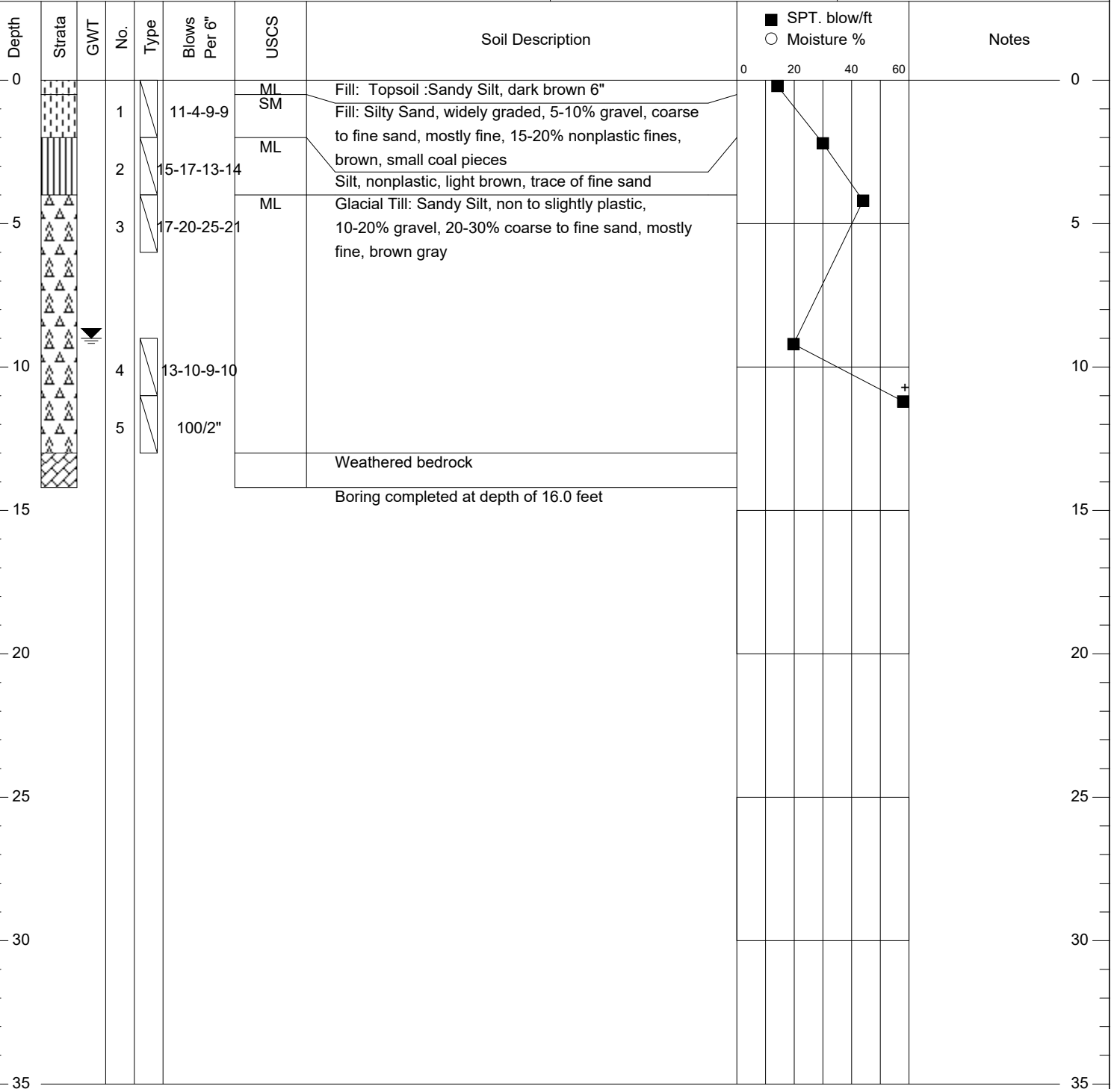
G.W.T. @ Drilling (ft): 9

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 10, 2018

Equipment: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. RB-1009

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 39

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 10.2

Sampler: Split Spoon

Drop (in): 30

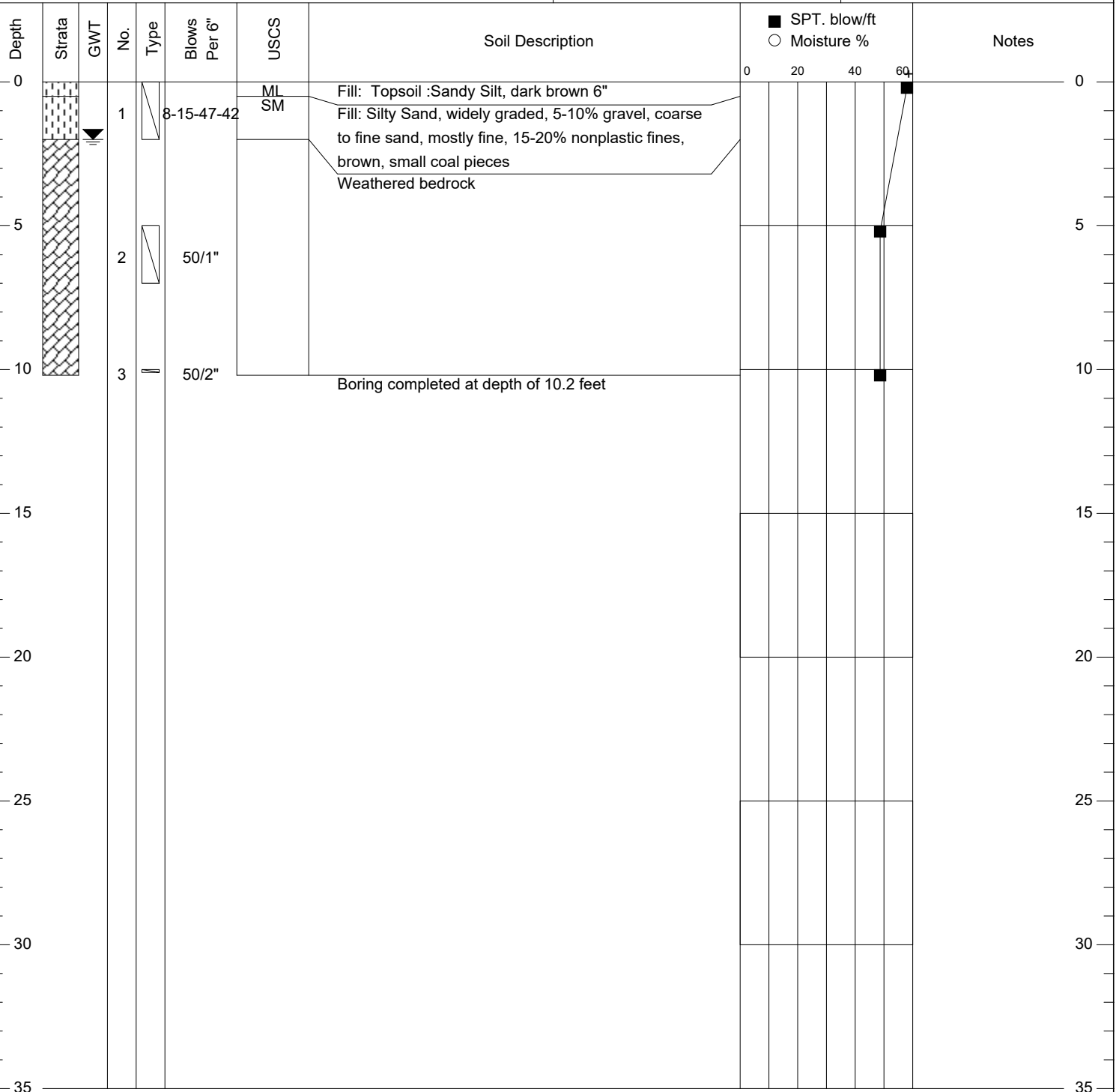
G.W.T. @ Drilling (ft): 2

Logged by: S. Reynolds

Driller: Matt

Drill Date: December 10, 2018

Equipment: ATV Rotary



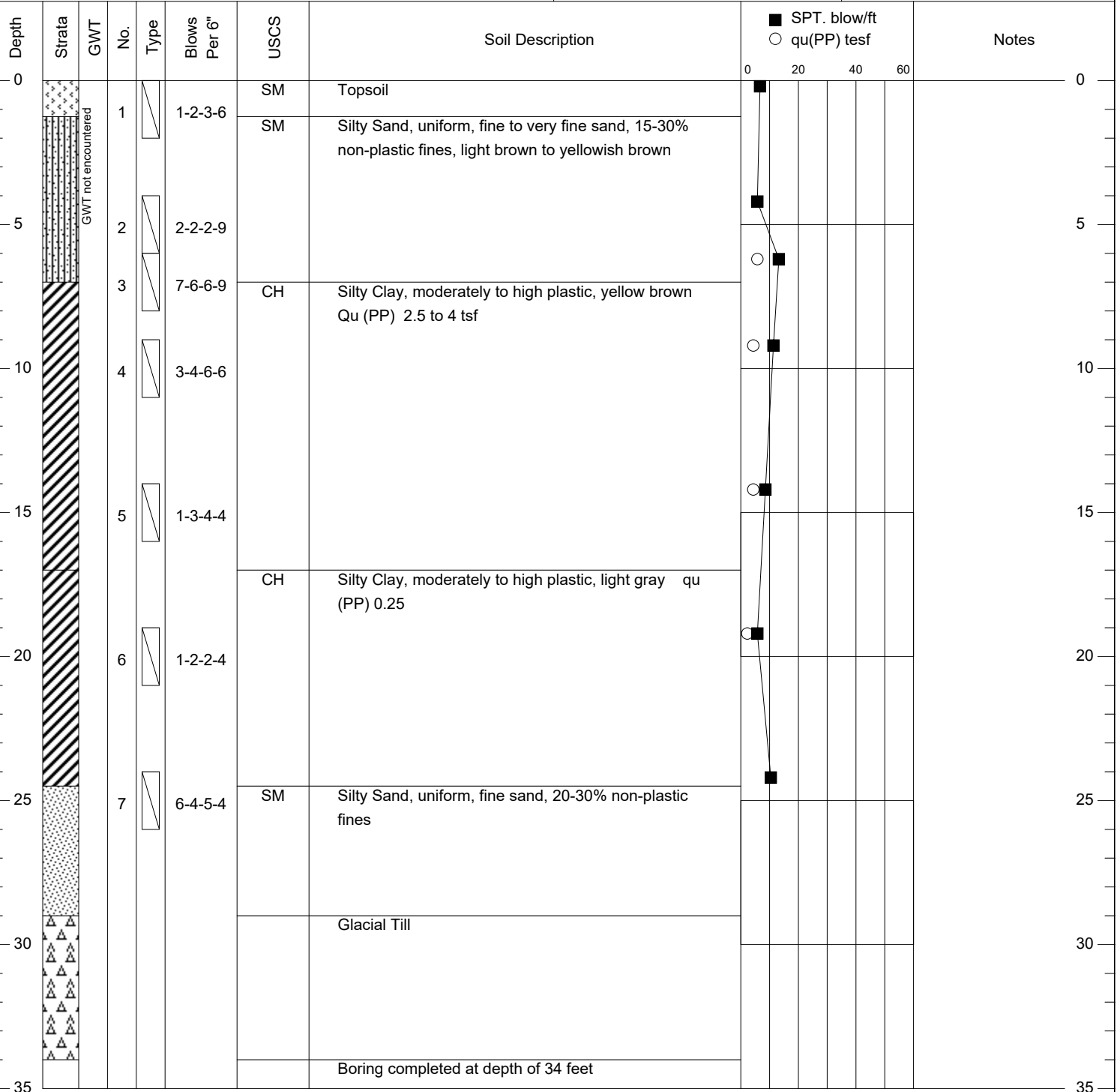
Remarks:

Casing refusal at 2 ft. Moved location 3 times with 5 ft of original location - refusal at approximately same depth.

**HML ASSOCIATES**

Boring Log No. B-2

Pentucket Regional High/Middle School

Location: West Newbury, MA**Client Dore & Whittier, Architects****Method: Wash and Drive****Ground EL:****Hammer:****Hammer weight (lb): 140****Hole depth (ft): 34****Sampler: Split Spoon****Drop (in): 30****G.W.T. @ Drilling (ft): none****Sampled by: New England Boring****Driller: Geologic****Drill Date: April 16 to 20, 2018****Logged by: S.Reynolds****Remarks:**

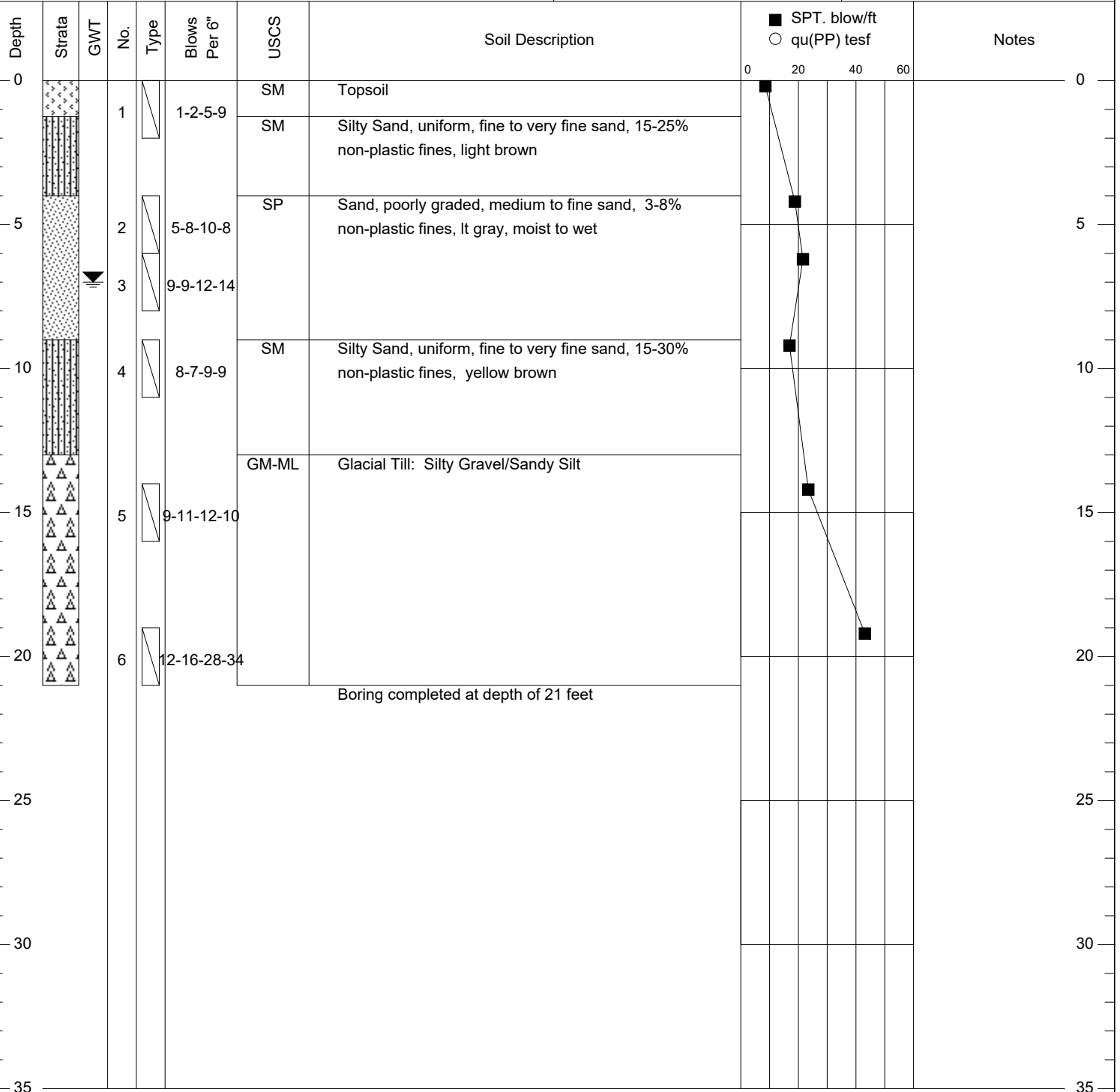
Drilled ahead to 34 feet with no sampling. Change at 29 feet glacial till.

qu is confined compressive strength measured by pocket penetrometer

**HML ASSOCIATES**

Boring Log No. B-3

Pentucket Regional High/Middle School

Location: West Newbury, MA**Client Dore & Whittier, Architects****Method: Wash and Drive****Ground EL: 31.5****Hammer:****Hammer weight (lb): 140****Hole depth (ft): 21****Sampler: Split Spoon****Drop (in): 30****G.W.T. @ Drilling (ft): 7****Sampled by: New England Boring****Driller: Geologic****Drill Date: April 16 to 20, 2018****Logged by: S.Reynolds****Remarks:**



HML ASSOCIATES

Boring Log No. B-4

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 32

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 19.5

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 5

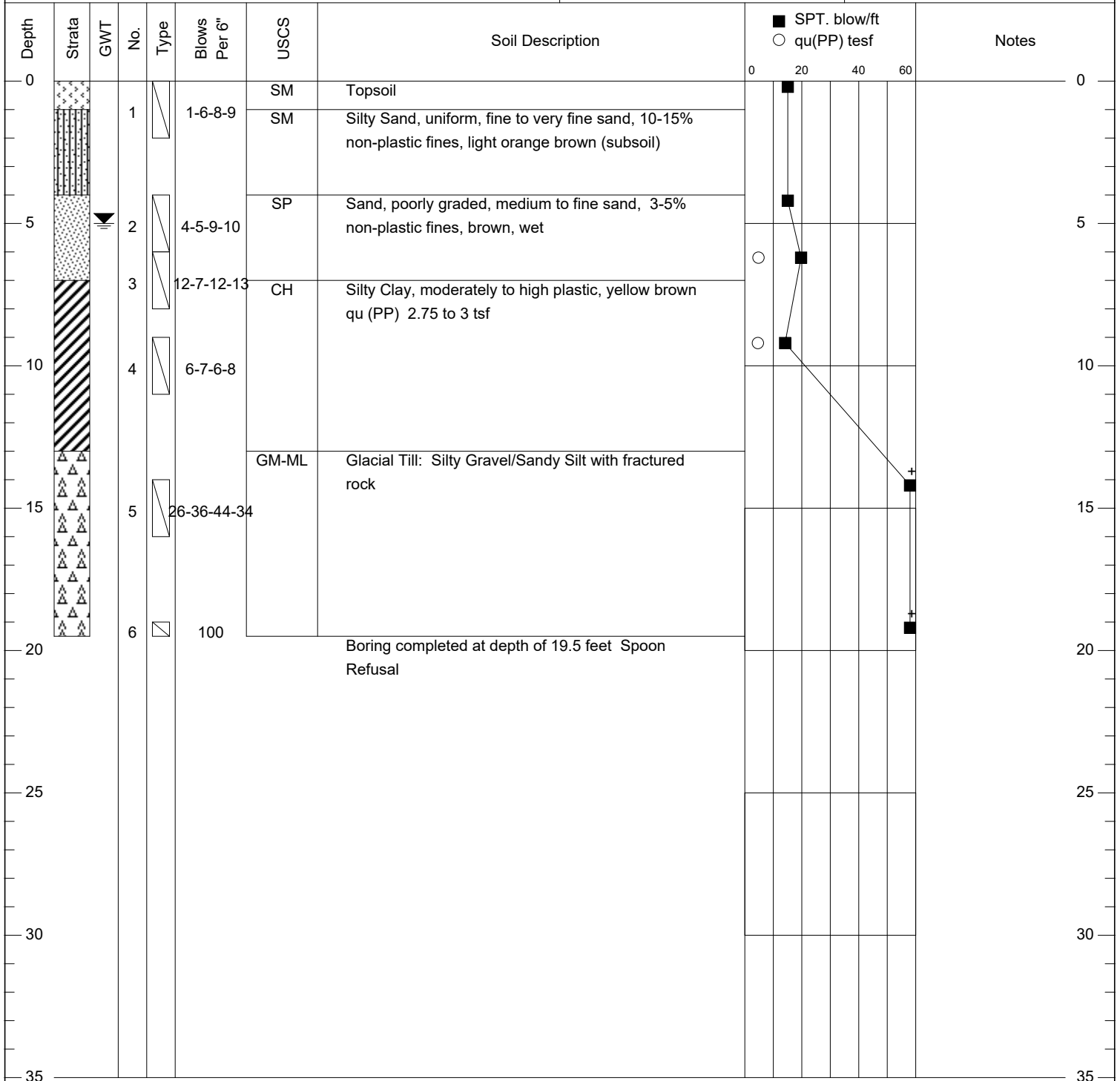
Sampled by: New England Boring

Driller: Geologic

Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018

File: C:\Users\HML Associates\Documents-HML\Projects 2018\PES Pentucket\SD\PENTUCKET.log
SuperLog CivilTech Software, USA www.civiltech.com

Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-5

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 30.5

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 41

Sampler: Split Spoon

Drop (in): 30

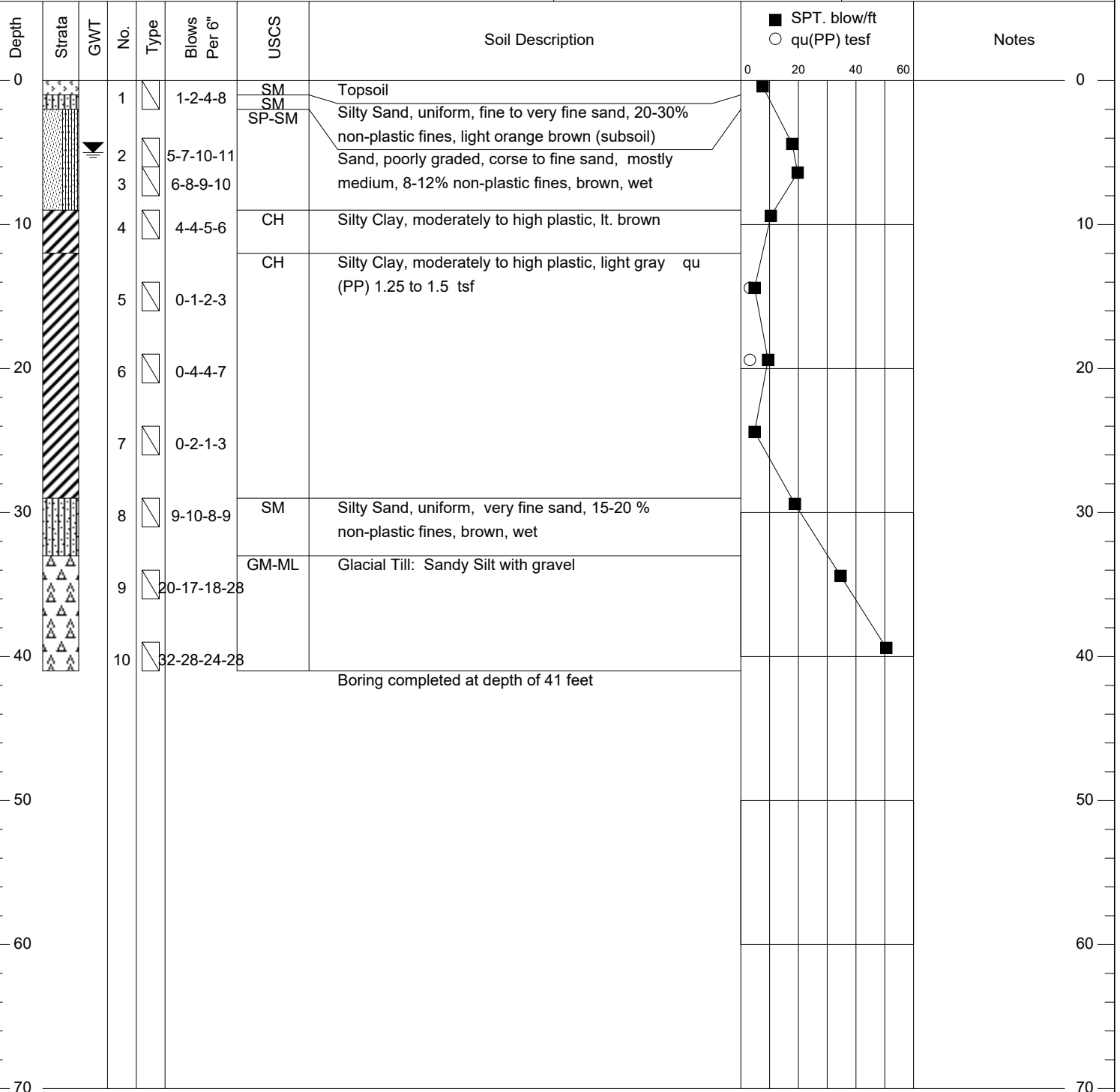
G.W.T. @ Drilling (ft): 5

Sampled by: New England Boring

Driller: Geologic

Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds



Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-6

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 29.2

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 41

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 6

Sampled by: New England Boring

Driller: Geologic

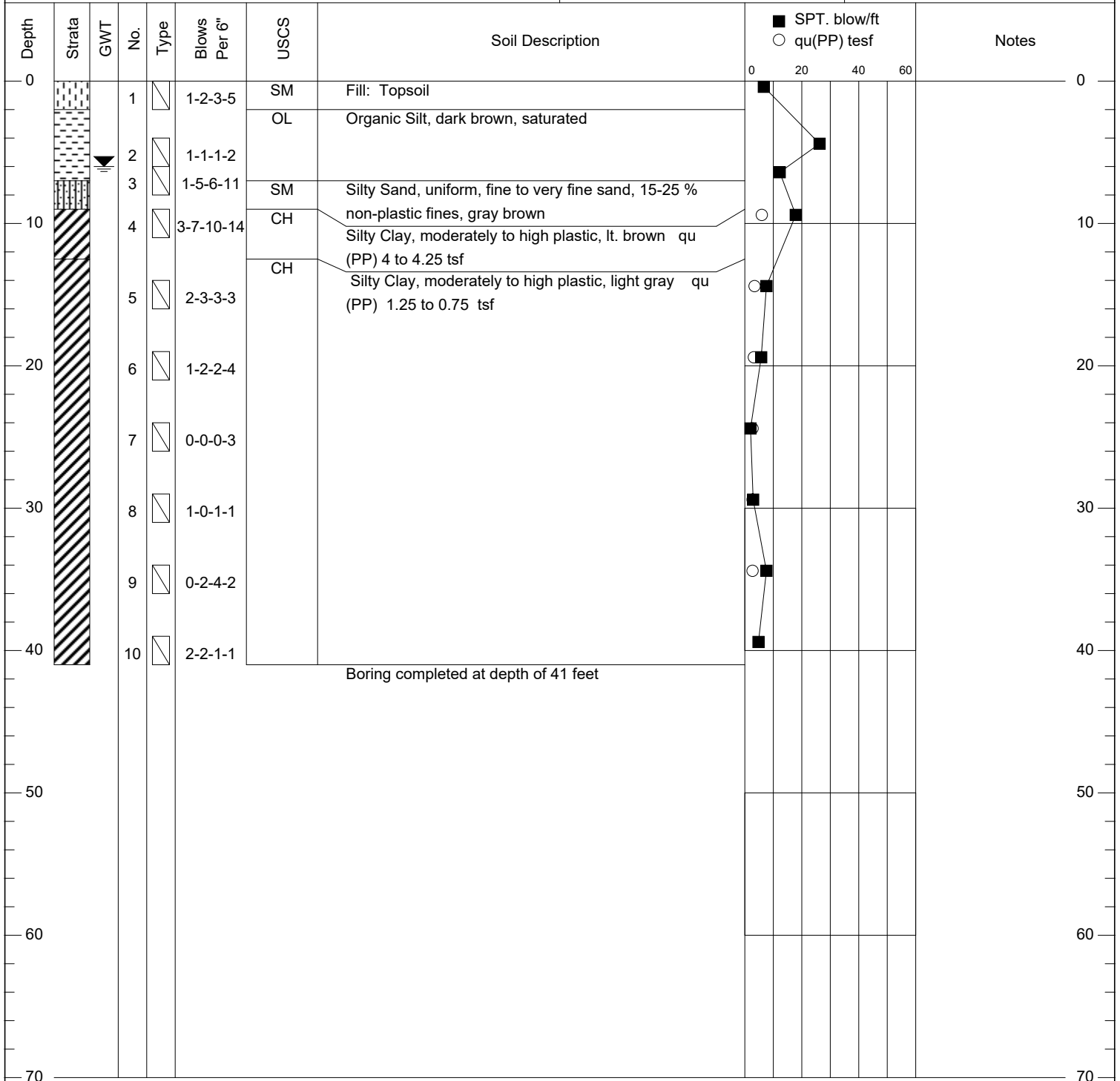
Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018

File: C:\Users\HML_Associates\Documents\HML\Projects 2018\PES Pentucket\SPD\PENTUCKET.log

SuperLog CivilTech Software, USA www.civiltech.com



Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-7

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Augers

Ground EL: 33

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 22

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 3

Sampled by: New England Boring

Driller: Geologic

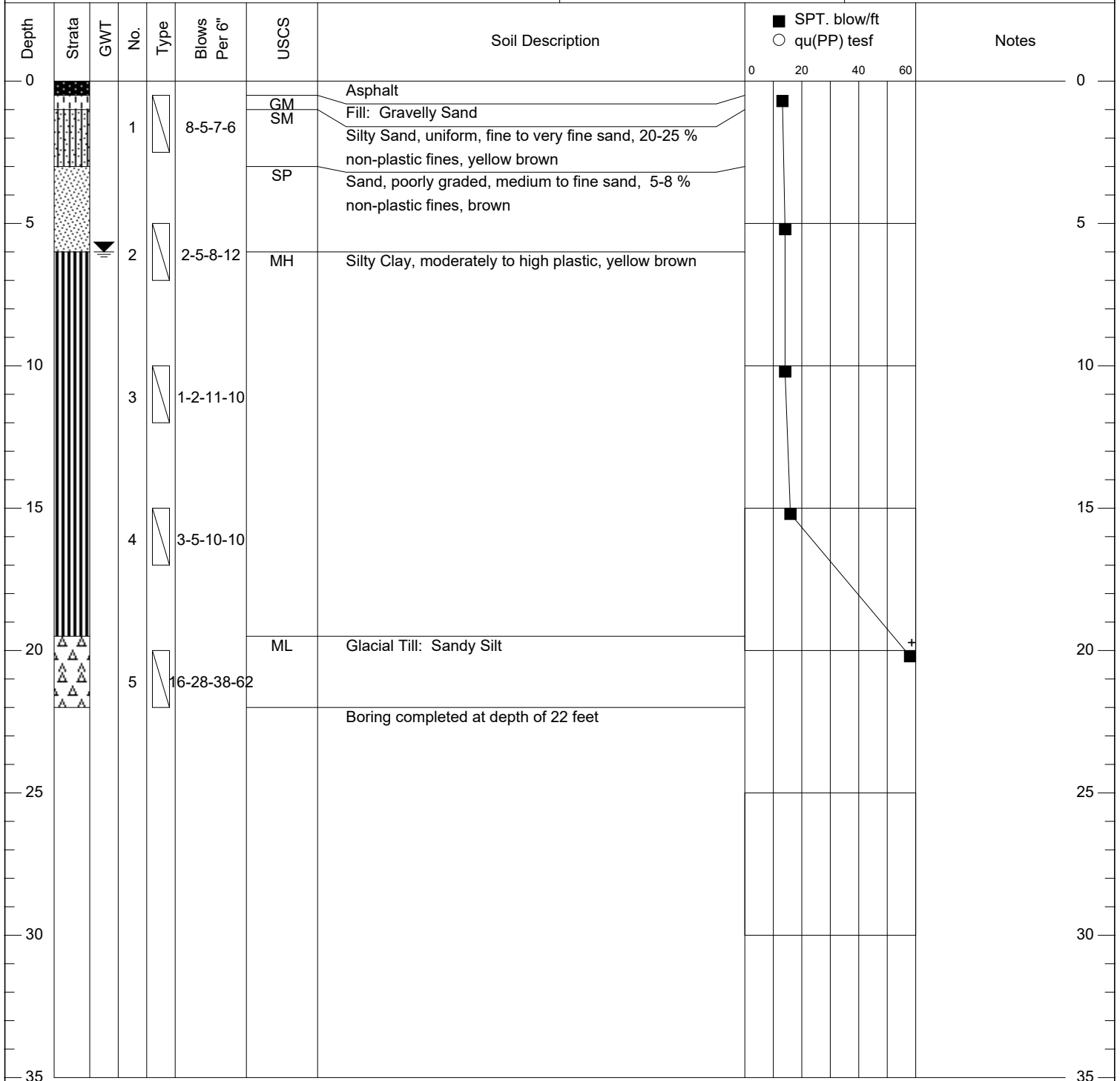
Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018

File: C:\Users\HML_Associates\Documents\HML\Projects 2018\PES Pentucket\SPENTUCKET.log

SuperLog CivilTech Software, USA www.civiltech.com



Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-8 Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Augers

Ground EL: 29.5

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 44.5

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 4

Sampled by: New England Boring

Driller: Geologic

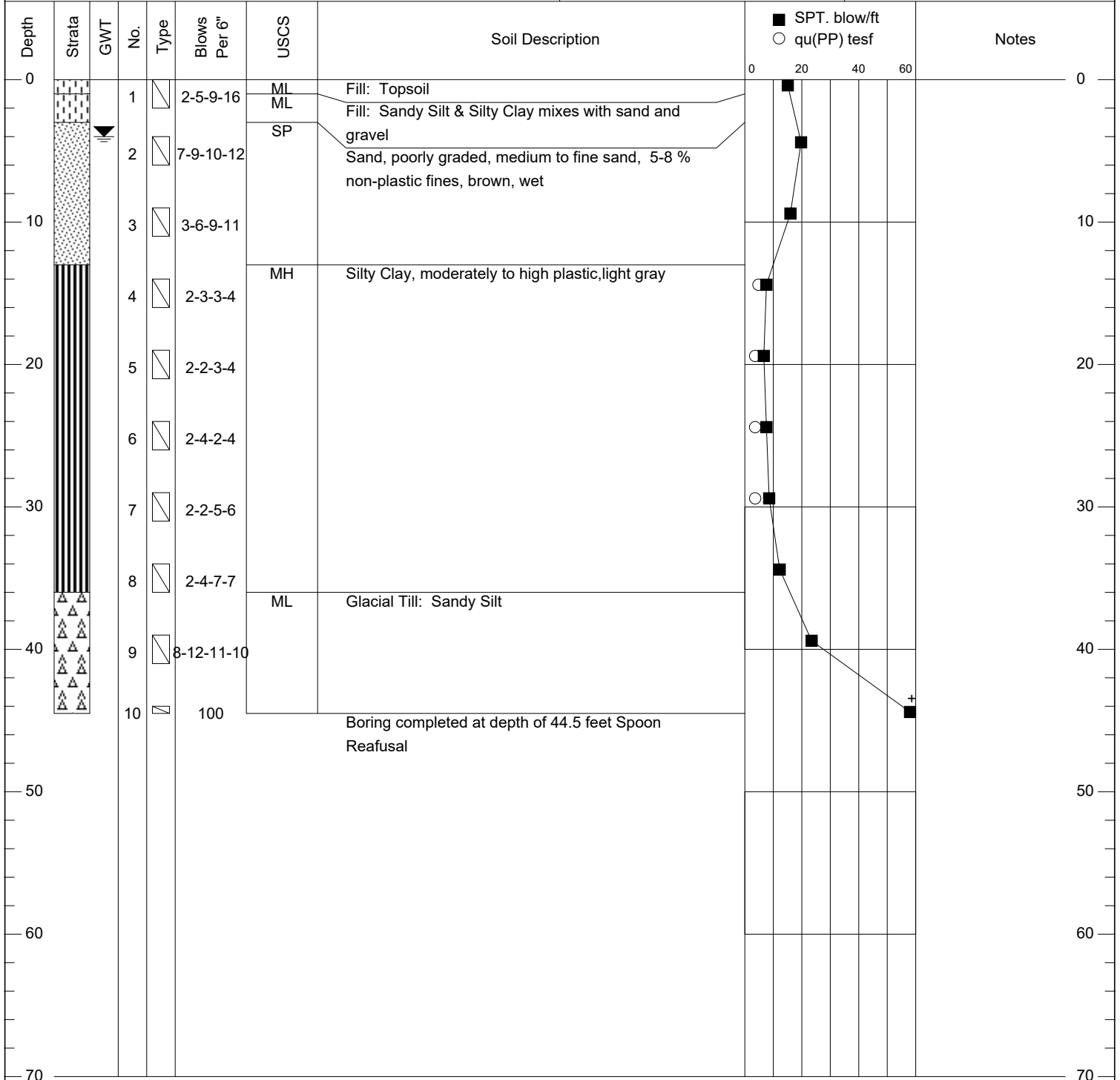
Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018

File: C:\Users\HML_Associates\Documents\HML\Projects 2018\PES Pentucket\SPDIPENTUCKET.log

SuperLog CivilTech Software, USA www.civiltech.com



Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-9 Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Augers

Ground EL: 29

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 40

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 6

Sampled by: New England Boring

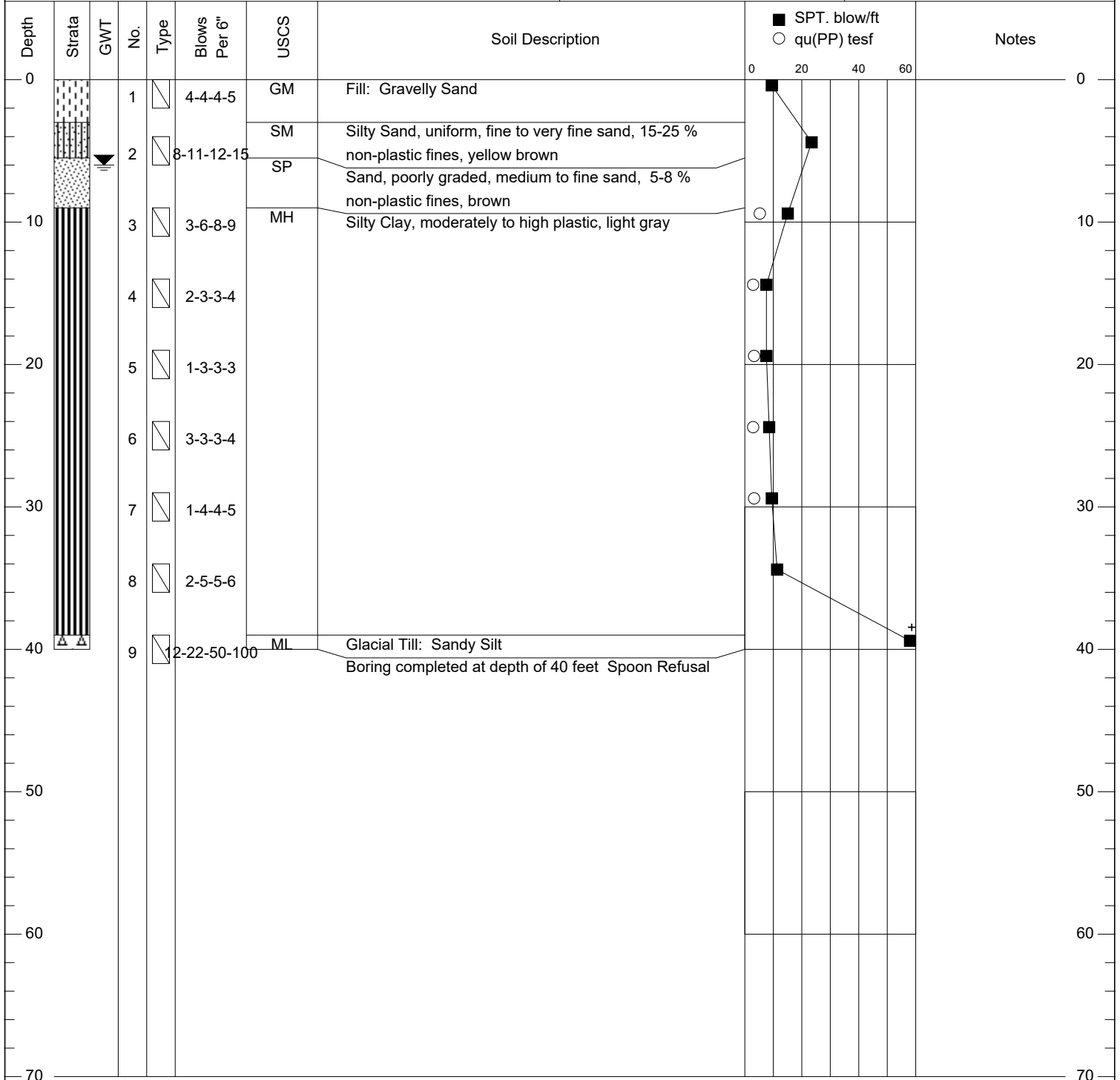
Driller: Geologic

Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018

File: C:\Users\HML Associates\Documents\HML\Projects 2018\PES Pentucket\SPD\PENTUCKET.log
SuperLog CivilTech Software, USA www.civiltech.com



Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-10

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Augers

Ground EL: 29.5

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 23

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 6

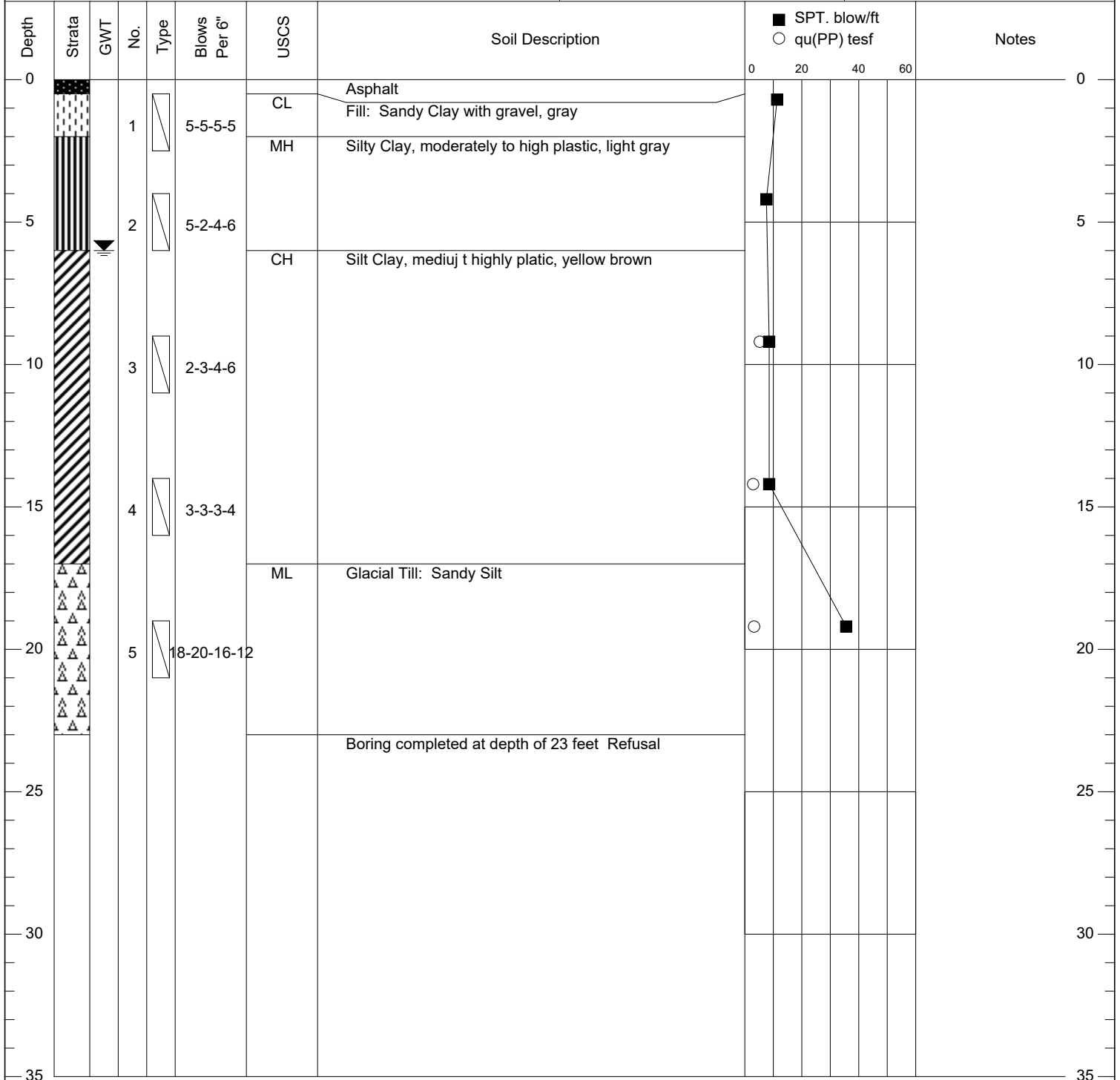
Sampled by: New England Boring

Driller: Geologic

Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018
File: C:\Users\HML_Associates\Documents\HML\Projects 2018\PES Pentucket\SD\PENTUCKET.log
SuperLog CivilTech Software, USA www.civiltech.com



Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-11 Pentucket Regional High/Middle School

Location: West Newbury, MA

Client Dore & Whittier, Architects

Method: Augers

Ground EL: 29.5

Hammer:

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 3

Sampled by: New England Boring

Driller: Geologic

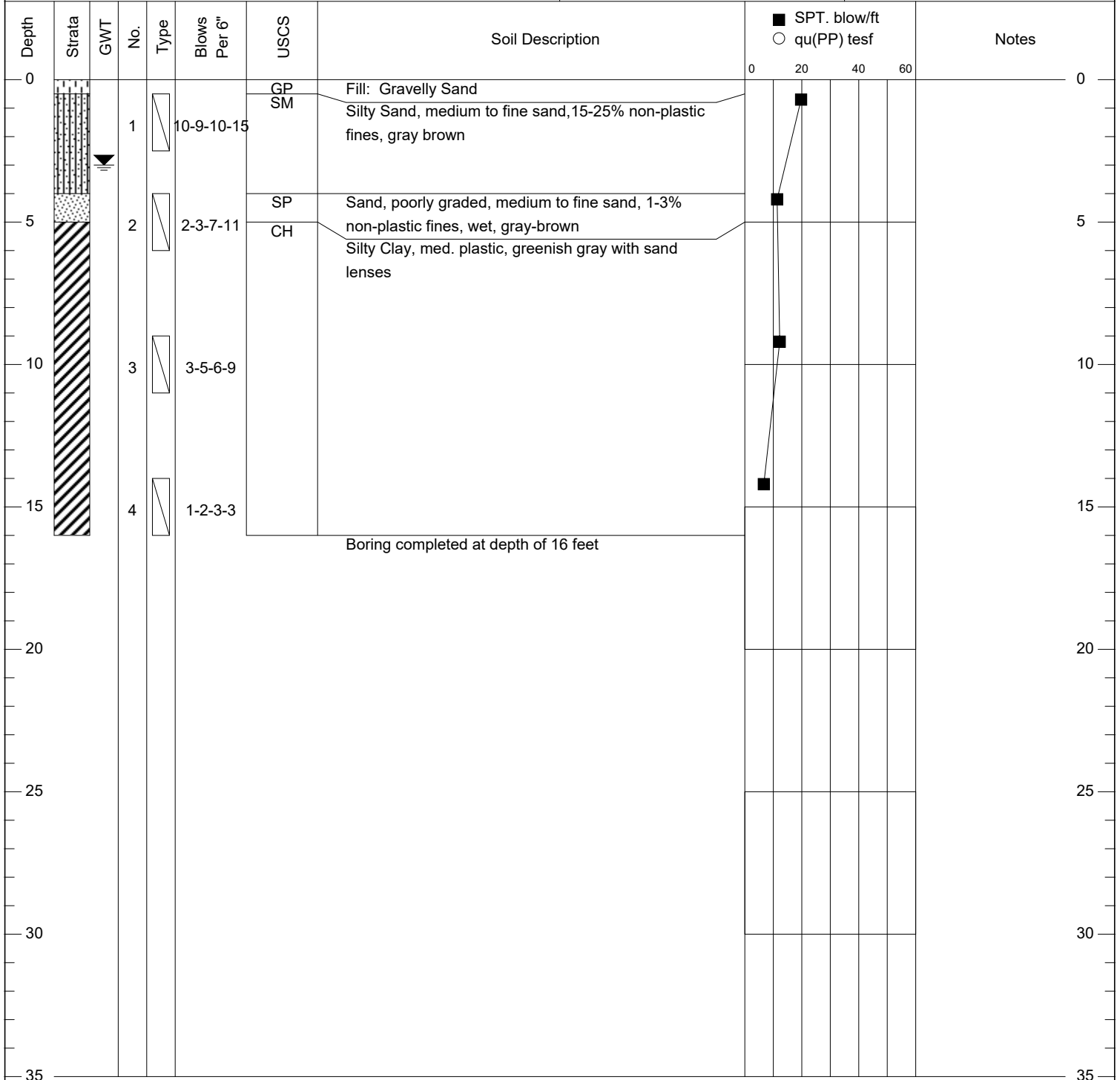
Drill Date: April 16 to 20, 2018

Logged by: S.Reynolds

Date: 12/27/2018

File: C:\Users\HML_Associates\Documents\HML\Projects 2018\PES Pentucket\SD\PENTUCKET.log

SuperLog CivilTech Software, USA www.civiltech.com



Remarks:

qu is confined compressive strength measured by pocket penetrometer



HML ASSOCIATES

Boring Log No. B-201 Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 38

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 8.5

Sampler: Split Spoon

Drop (in): 30

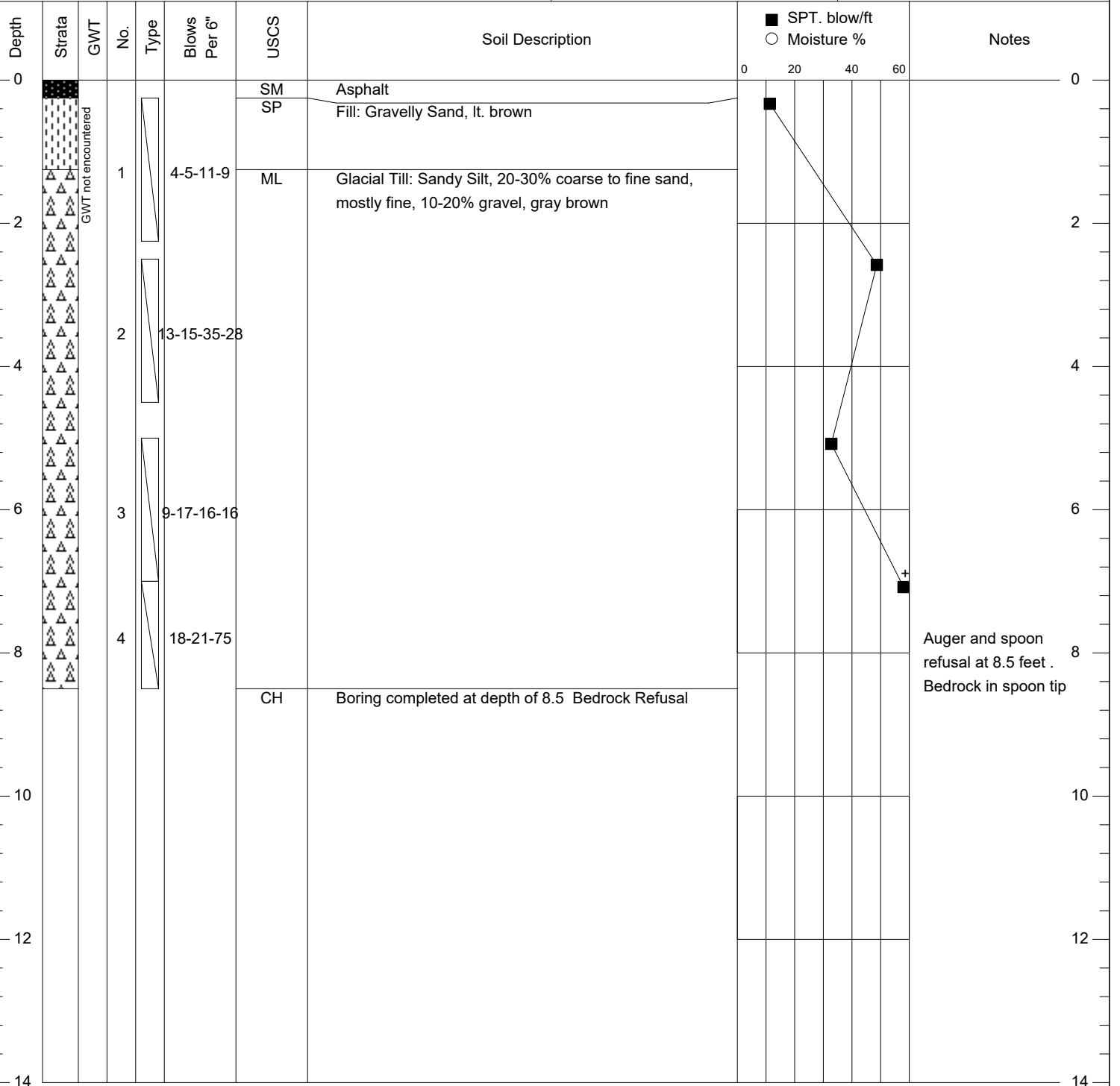
G.W.T. @ Drilling (ft): none

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 9, 2019

Logged by: S.Reynolds



Remarks:



PES ASSOCIATES

Boring Log No. MS-101

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 40' +

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 14

Sampler: Split Spoon

Drop (in): 30

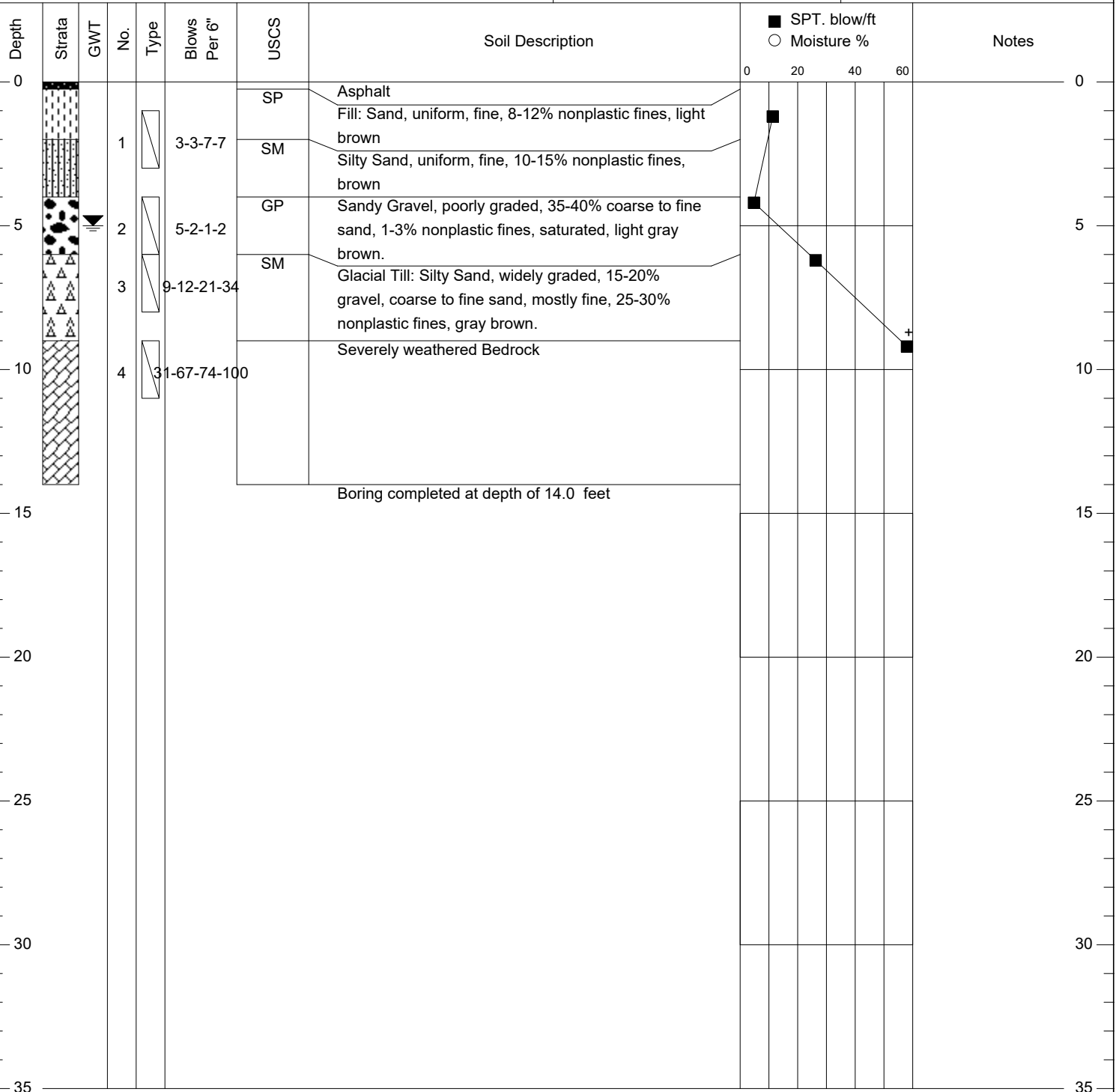
G.W.T. @ Drilling (ft): 5

Sampled by: S. Reynolds

Driller: Matt

Drill Date: December 6, 2018

Logged by: ATV Rotary



Remarks:

Roller bit refusal at 14.0 ft



PES ASSOCIATES

Boring Log No. MS-102

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL: 40' +

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 15

Sampler: Split Spoon

Drop (in): 30

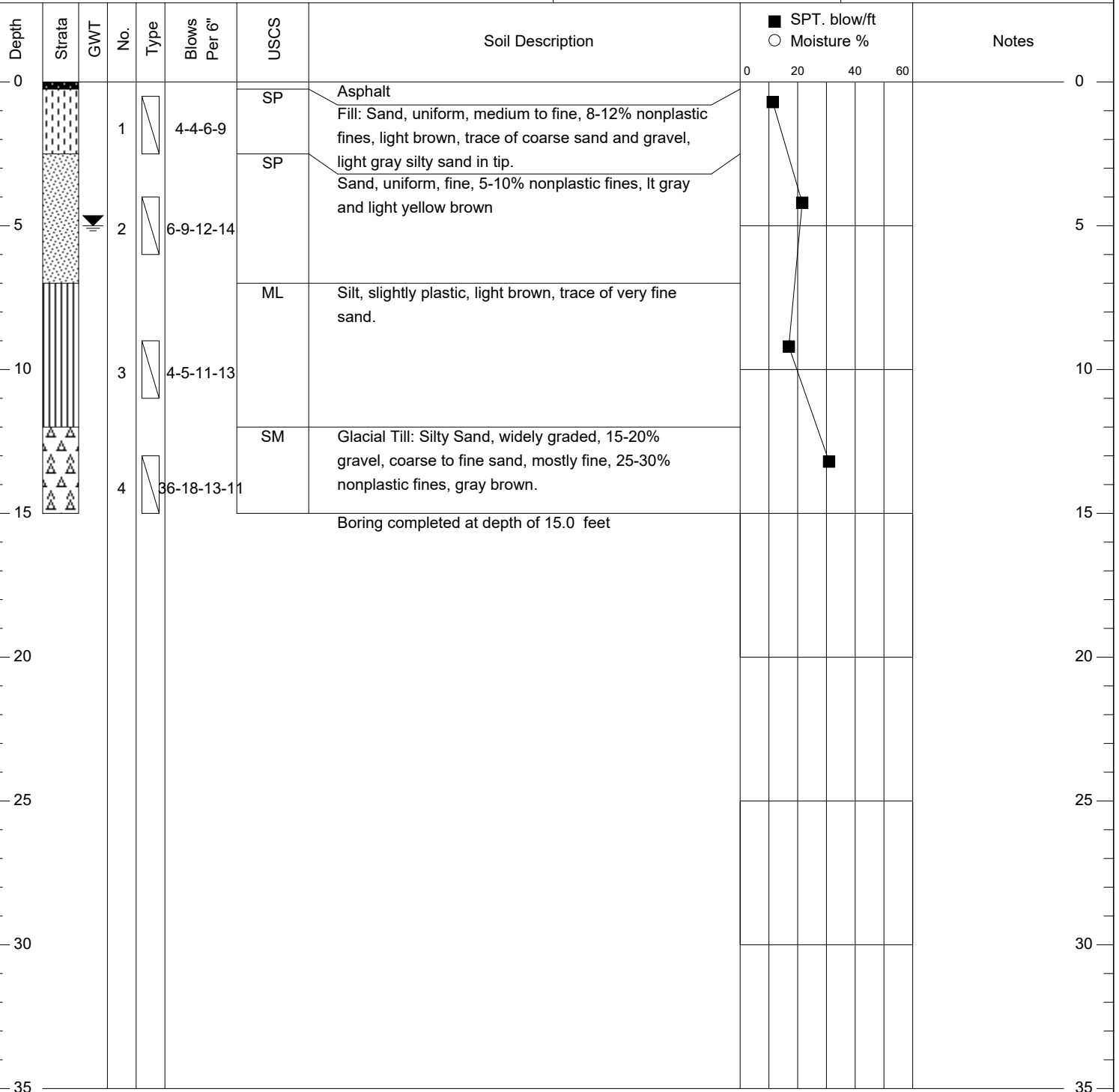
G.W.T. @ Drilling (ft): 5

Sampled by: S. Reynolds

Driller: Matt

Drill Date: December 6, 2018

Logged by: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. MS-103

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL:

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

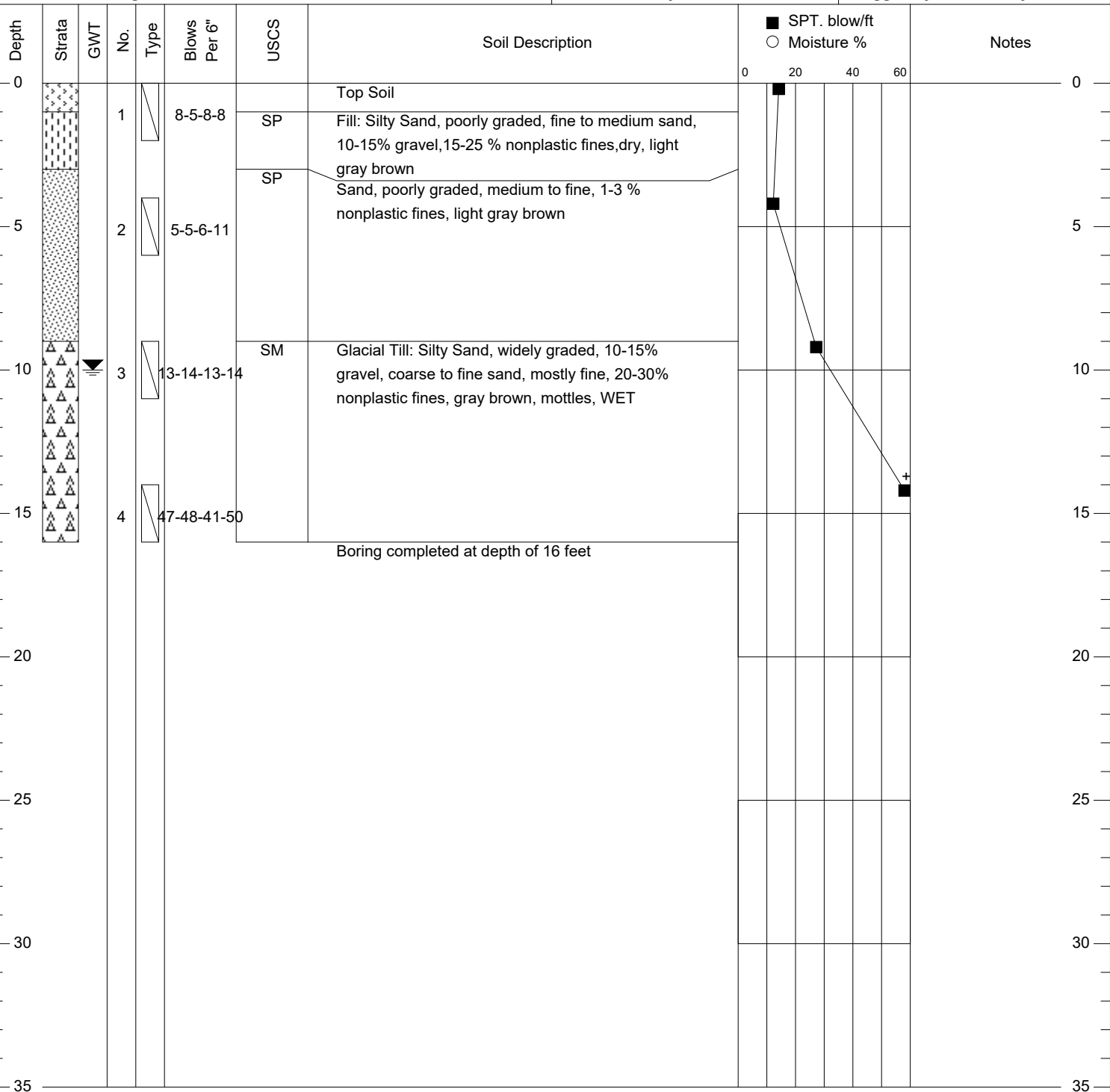
G.W.T. @ Drilling (ft): 10

Sampled by: S. Reynolds

Driller: NE Boring Contractors

Drill Date: July 9, 2019

Logged by: ATV Rotary



Remarks:



PES ASSOCIATES

Boring Log No. MS-104

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Wash and Drive

Ground EL:

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 17

Sampler: Split Spoon

Drop (in): 30

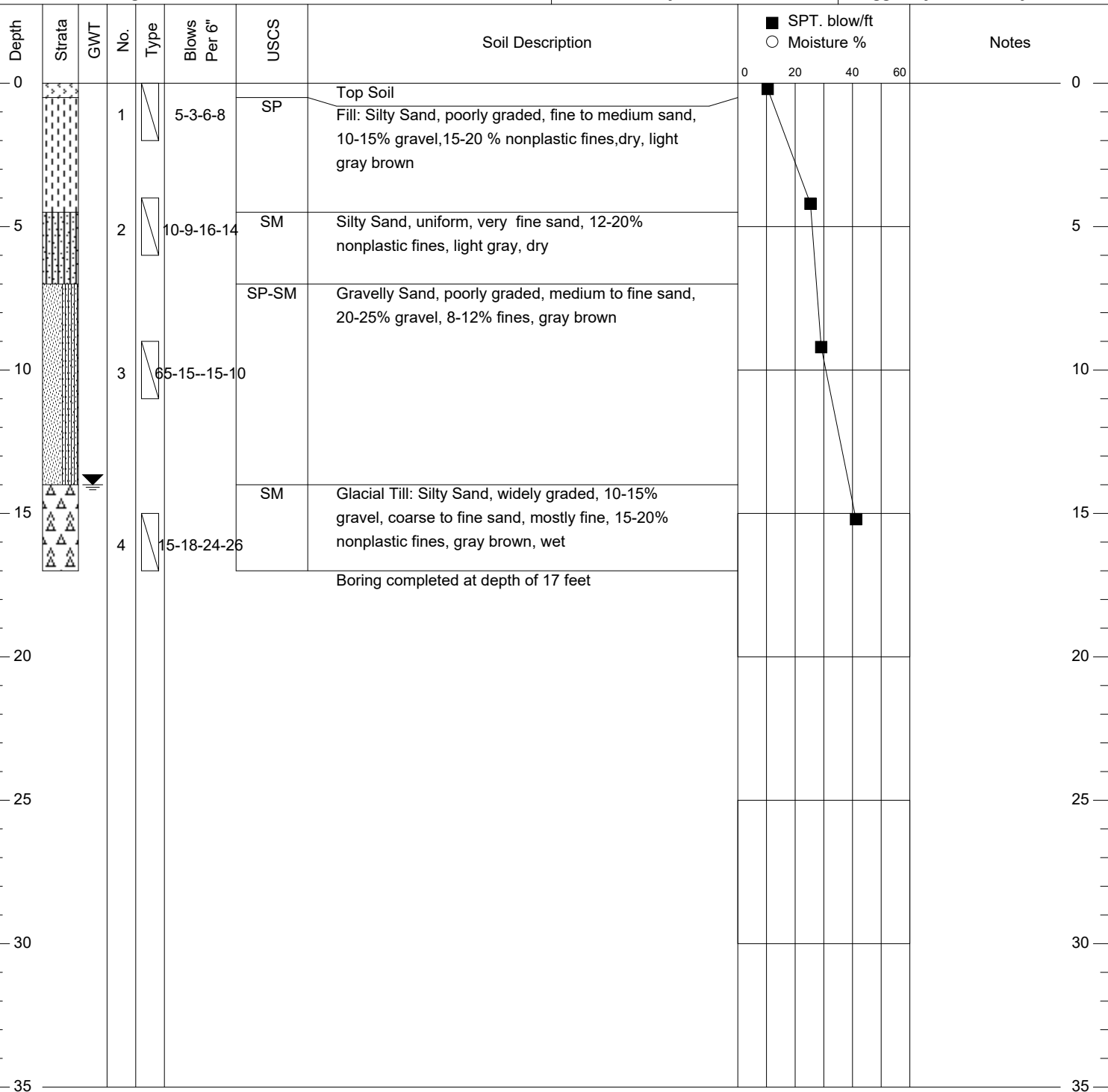
G.W.T. @ Drilling (ft): 14

Sampled by: S. Reynolds

Driller: NE Boring Contractors

Drill Date: July 9, 2019

Logged by: ATV Rotary



Remarks:



HML ASSOCIATES

Boring Log No. B-202

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 39

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 15

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft):

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 9, 2019

Logged by: S.Reynolds

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	SPT. blow/ft Moisture %	Notes
0			1		1-3-7-8	SM ML	Asphalt Fill: Gravelly Sand, lt. brown Glacial Till: Sandy Silt, 20-30% coarse to fine sand, mostly fine, 10-20% gravel, gray brown	0 20 40 60	0
5		GWT not encountered		C1			Metamorphic Sandstone/Shale, dark gray, hard, unweathered		5
10				C2					10
15				C3					15
20									20
25									25
30									30
35									35

Boring completed at depth of 15 feet

Remarks:



HML ASSOCIATES

Boring Log No. B-203

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 34

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 14.25

Sampler: Split Spoon

Drop (in): 30

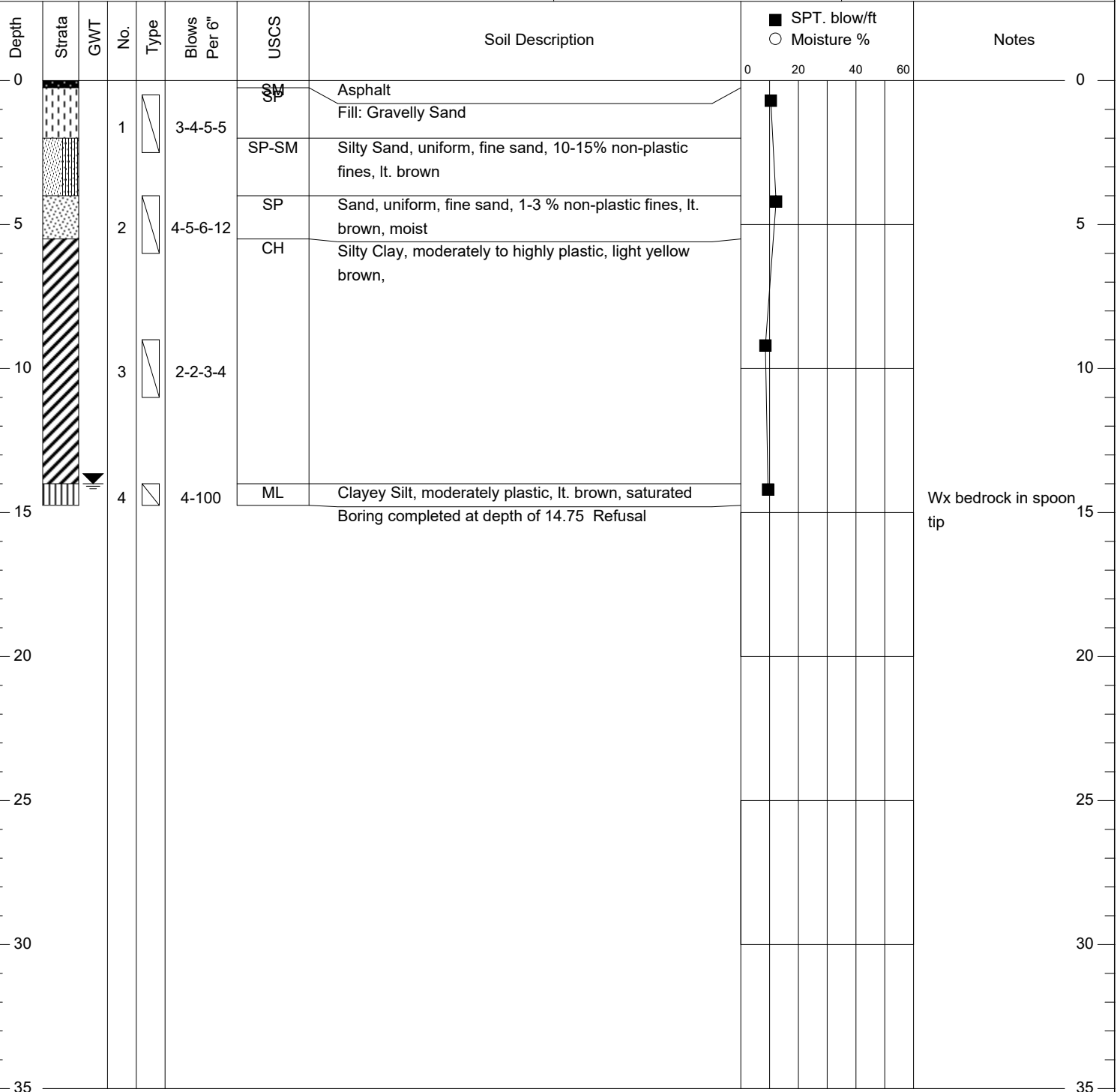
G.W.T. @ Drilling (ft): 14

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 9, 2019

Logged by: S.Reynolds





HML ASSOCIATES

Boring Log No. B-204

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 36.5

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 10

Sampler: Split Spoon

Drop (in): 30

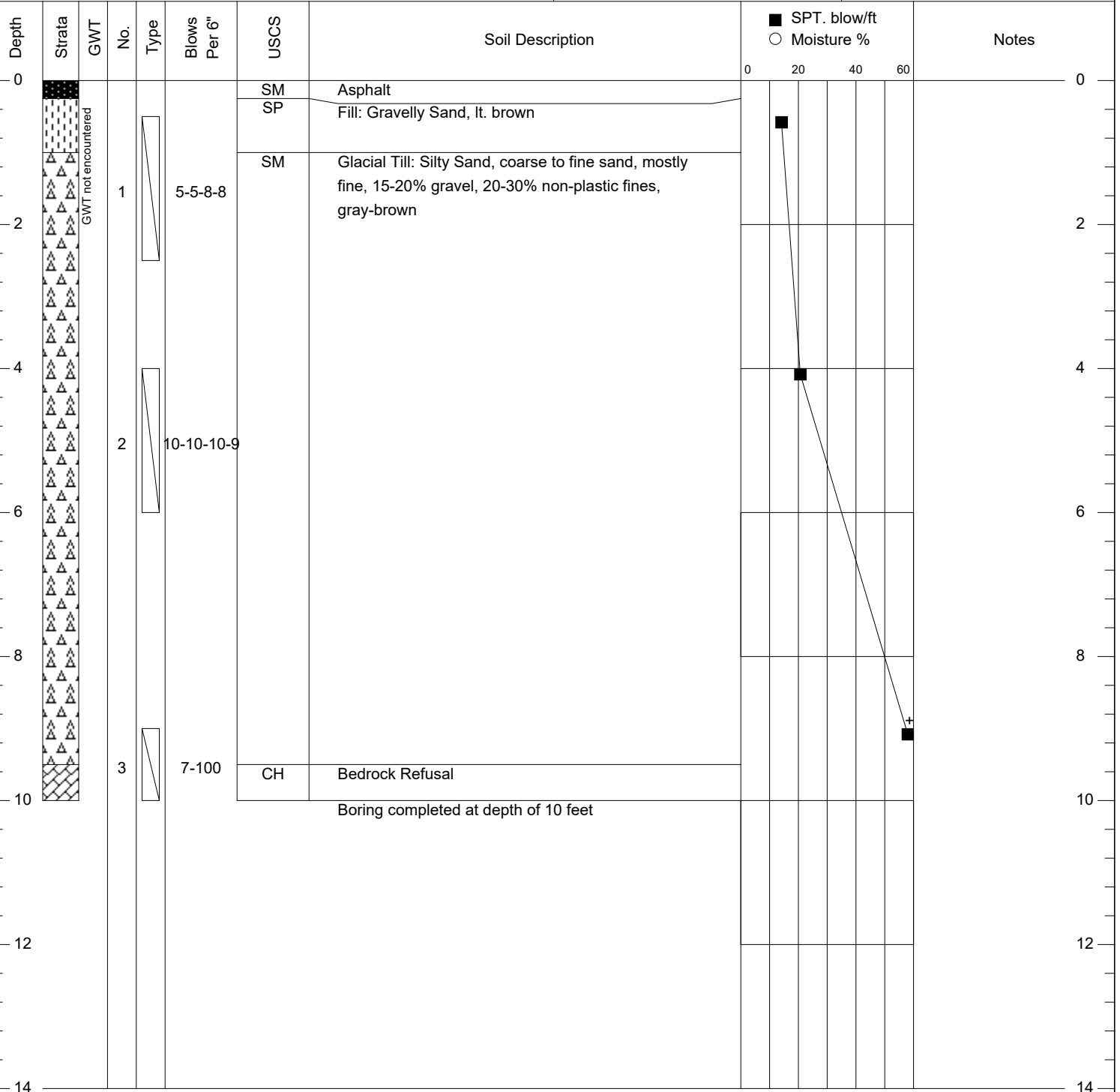
G.W.T. @ Drilling (ft): none

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 9, 2019

Logged by: S.Reynolds





HML ASSOCIATES

Boring Log No. B-205

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 31

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 4.5

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): none

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 10, 2019

Logged by: S.Reynolds

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	0	20	40	60	Notes
0			1		2-8-40	SM SP	Top Soil Fill: Gravelly Sand, lt. brown					0
2						ML	Glacial Till: Sandy Silt, 20-30% coarse to fine sand, mostly fine, 10-20% gravel, gray brown					2
4												4
6												6
8												8
10												10
12												12
14												14

■ SPT. blow/ft

○ Moisture %

Boring completed at depth of 4.5 feet Auger Refusal

Remarks:



HML ASSOCIATES

Boring Log No. B-206

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 30

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 11.5

Sampler: Split Spoon

Drop (in): 30

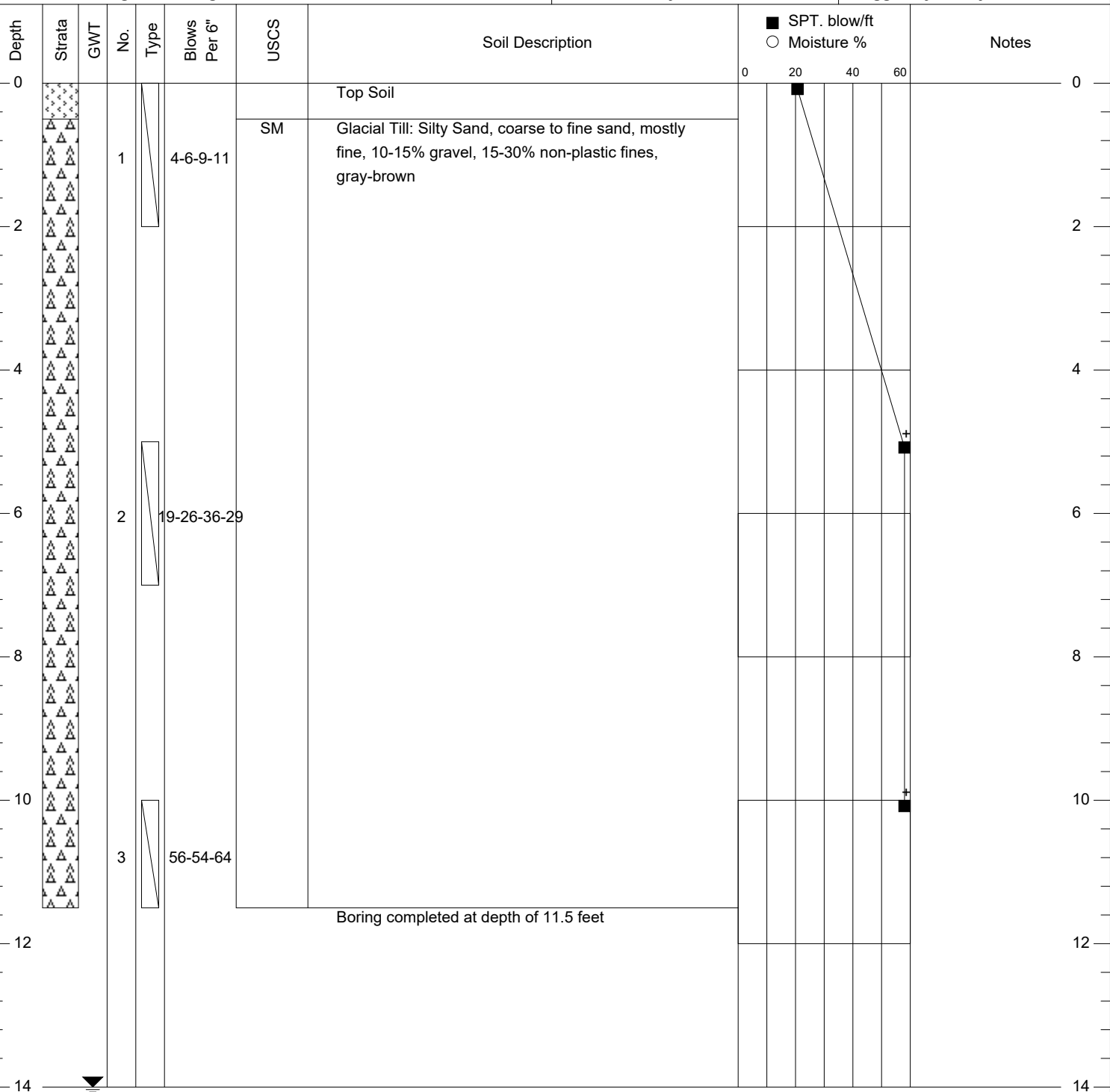
G.W.T. @ Drilling (ft): none

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 10, 2019

Logged by: S.Reynolds



Remarks:



HML ASSOCIATES

Boring Log No. B-207

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 32

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

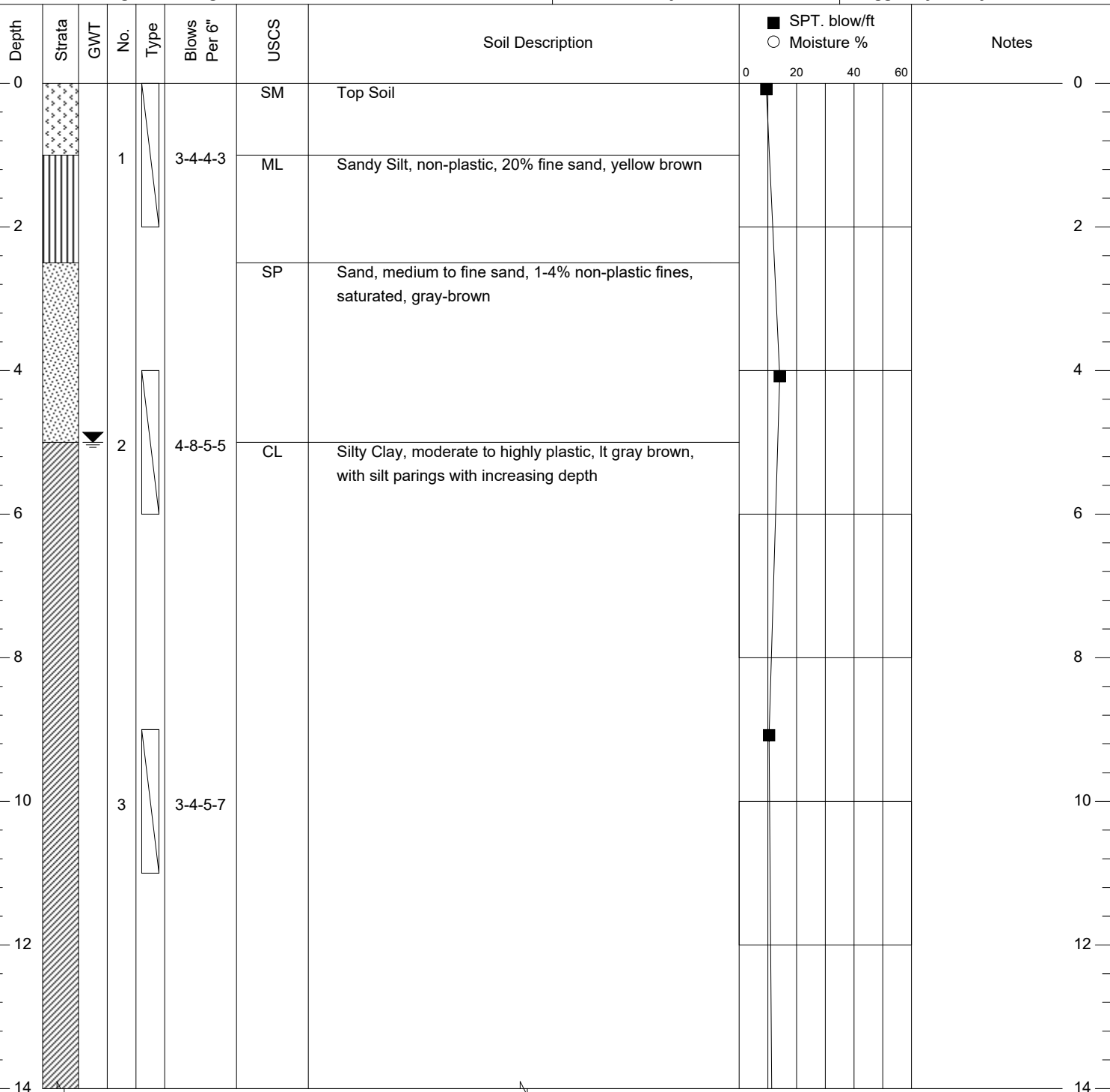
G.W.T. @ Drilling (ft): 5

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 9, 2019

Logged by: S.Reynolds



Remarks:



HML ASSOCIATES

Boring Log No. B-207
Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 32

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 16

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 5

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 9, 2019

Logged by: S.Reynolds

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	0	20	40	60	Notes
14			4	2-5-5-4		CL	Silty Clay, moderate to highly plastic, lt gray brown, with silt parings with increasing depth	■				14
16							Boring completed at depth of 16 feet					16
18												18
20												20
22												22
24												24
26												26
28												28

Remarks:



HML ASSOCIATES

Boring Log No. B-208

Pentucket Regional High/Middle School

Location: West Newbury, MA

Client: Dore & Whittier, Architects

Method: Hollow Stem Augers

Ground EL: 32

Hammer: Safety

Hammer weight (lb): 140

Hole depth (ft): 4

Sampler: Split Spoon

Drop (in): 30

G.W.T. @ Drilling (ft): 4 mottles

Sampled by: New England Boring

Driller: New England Boring Contractors

Drill Date: July 10 2019

Logged by: S.Reynolds

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	<div> <div>■ SPT. blow/ft</div> <div>○ Moisture %</div> </div>	Notes
0						ML	Glacial Till: Silty Sand, coarse to fine sand, mostly fine, 15-20% gravel, 20-30% non-plastic fines, gray-brown	0 20 40 60	0
2			1		8-16-23-29				wx bedrock is spoon tip
4							Boring completed at depth of 4 feet refusal		4
6									6
8									8
10									10
12									12
14									14

Remarks:

Deep Hole Number TP-1 Date 6/27/19 Time am Weather clear 70's

Location (identify on site plan)

Land Use	school	Slope (%)	2-10 %	Surface Stones	no
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Vegetation	trees, shrubs, grass	Landform
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Position on landscape (sketch on back)

Open Water Body 400' + feet

Drainage Way NA feet

Possible Wet Area 400' + feet

Property Line 20' + feet

Drinking Water Well	NA	feet
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Other _____ feet

DEEP OBSERVATION HOLE LOG*					
Depth from Surface	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % gravel)
0 – 16"	Fill	Loam	10YR-3/2		
16 – 39"	Fill	Sandy Loam	10YR-6/8		
39 - 72"	Fill	Sandy Clay	2.5Y-6/2		
72 – 96"	C ₁	Loamy Sand	2.5Y-7/6	72"	Medium to fine
96 - 120	C ₂	Clay	2.5Y-6/1		

Parent Material (geologic) Glacial outwash/lacustrine Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water: 72"

Percolation Test*		
Date:	Time:	
Observation Hole #		
Depth of Perc		
Start Pre-soak		
End Pre-soak		
Time at 12"		
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

Site passed: ☐

Site failed: ☐

Performed By: _____

Witnessed By: Steve Reynolds SE 2029

Deep Hole Number TP-1M Date 6/27/19 Time pm Weather clear 70's

Location (identify on site plan)

Land Use	school	Slope (%)	2-10 %	Surface Stones	no
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Vegetation	trees, shrubs, grass	Landform
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Position on landscape (sketch on back)

Distances from:

Open Water Body 400' + feet

Drainage Way NA feet

Possible Wet Area 400' + feet

Property Line 20' + feet

Drinking Water Well	NA	feet
---------------------	----	------

Other _____ feet

DEEP OBSERVATION HOLE LOG*					
Depth from Surface	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % gravel)
0 – 12"	Fill	Loam	10YR-3/2		
12 – 24"	Fill	Sand/Loamy Sand	2.5Y-6/3		
24 - 72"	C ₁	Clay	2.5Y-5/3	72"	Cobbles gravel
72 – 96"	C ₂	Clay	2.5Y-6/1		

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial lacustrine Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water: 72"

Percolation Test*		
Date:	Time:	
Observation Hole #		
Depth of Perc		
Start Pre-soak		
End Pre-soak		
Time at 12"		
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

*Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site passed: ☐

Site failed: ☐

Performed By: Steve Reynolds SE2029

Witnessed By: _____

Deep Hole Number TP-2 Date 6/27/19 Time am Weather clear 70's

Land Use	school	Slope (%)	2-10 %	Surface Stones	no
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Position on landscape (sketch on back)

Open Water Body	400' +	feet
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Drainage Way	NA	feet
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Possible Wet Area 400' + feet

Property Line 20' + feet

Drinking Water Well	NA	feet
---------------------	----	------

Other _____ feet

Depth from Surface	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % gravel)
0 – 6"	Fill	Loam	10YR-3/2		
16 – 48"	Fill	Loamy Sand	10YR-6/8		
48 – 66"	C ₁	Sand	2.5Y-6/3		
66 – 90"	C ₂	Silt	2.5Y-6/6	72"	
90 – 120"	C ₃	Clay	2.5Y-5/3		

Parent Material (geologic) Glacial lacustrine Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: 96" Weeping from Pit Face: 90"

Estimated Seasonal High Ground Water: 72"

Percolation Test		
Date:	Time:	
Observation Hole #		
Depth of Perc		
Start Pre-soak		
End Pre-soak		
Time at 12"		
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

Site passed: ☐ Site failed: ☐

Performed By: Steve Reynolds SE2029

Witnessed By: _____

Deep Hole Number TP-3 Date 6/27/19 Time am Weather clear 70's

Location (identify on site plan)	_____	_____	_____	_____
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Land Use	school	Slope (%)	2-10 %	Surface Stones	no
----------	--------	-----------	--------	----------------	----

Vegetation	trees, shrubs, grass	Landform
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Position on landscape (sketch on back)

Open Water Body 400' + feet Drainage Way NA feet

Possible Wet Area 400' + feet Property Line 20' + feet

Drinking Water Well	NA	feet	Other	feet

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial outwash Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water: 72"

*Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site passed: ☐ Site failed: ☐

Performed By: Steve Reynolds SE2029

Witnessed By: _____

Deep Hole Number TP-4 Date 6/27/19 Time am Weather clear 70's

Land Use	school	Slope (%)	2-10 %	Surface Stones	no
----------	--------	-----------	--------	----------------	----

Position on landscape (sketch on back)

Open Water Body 400' + feet

Drainage Way NA feet

Possible Wet Area 400' + feet

Property Line 20' + feet

Drinking Water Well	NA	feet
---------------------	----	------

Other _____ feet

Depth from Surface	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % gravel)
0 – 12"	Fill	Loam	10YR-3/2		
12 – 24"	Fill	Sandy Clay	2.5Y-6/2		
24 – 84"	C ₁	Silt Loam	10YR-2/2		organic
84 - 108"	C ₂	Sandy Loam	2.5Y-7/1	84"	

Parent Material (geologic) Glacial outwash Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water: 84"

Percolation Test		
Date:	Time:	
Observation Hole #		
Depth of Perc		
Start Pre-soak		
End Pre-soak		
Time at 12"		
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

Site passed: ☐ Site failed: ☐

Performed By: Steve Reynolds SE2029

Witnessed By: _____

Deep Hole Number TP-5 Date 6/27/19 Time pm Weather clear 70's

Land Use	school	Slope (%)	2-10 %	Surface Stones	no
----------	--------	-----------	--------	----------------	----

Position on landscape (sketch on back)

Open Water Body 400' + feet

Drainage Way NA feet

Possible Wet Area 400' + feet

Property Line 20' + feet

Drinking Water Well	NA	feet
---------------------	----	------

Other _____ feet

DEEP OBSERVATION HOLE LOG*					
Depth from Surface	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % gravel)
0 – 8"	Fill	Loam	10YR-3/2		
8 – 18"	Fill	Loamy Sand	2.5Y-6/3		
18 - 72"	Fill	Sandy Clay	2.5Y-6/2		Cobbles gravel
72 – 96"	C ₁	Sandy Loam	2.5Y-7/1	84"	

Parent Material (geologic) Glacial outwash Depth to Bedrock: NA

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water: 84"

Percolation Test*		
Date:	Time:	
Observation Hole #		
Depth of Perc		
Start Pre-soak		
End Pre-soak		
Time at 12"		
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

Site passed: ☐ Site failed: ☐

Performed By: Steve Reynolds SE2029

Witnessed By: _____

Deep Hole Number TP-6 Date 6/27/19 Time pm Weather clear 70's

Land Use	school	Slope (%)	2-10 %	Surface Stones	no
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Position on landscape (sketch on back)

Open Water Body	400' +	feet
-----------------	--------	------

Drainage Way	NA	feet
--------------	----	------

Possible Wet Area 400' + feet

Property Line 20' + feet

Drinking Water Well	NA	feet
---------------------	----	------

Other _____ feet

DEEP OBSERVATION HOLE LOG*					
Depth from Surface	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % gravel)
0 – 6"	Fill	Loam	10YR-3/2		
6 – 12"	Fill	Sand	2.5Y-6/3		gravel
12 - 66"	Fill	Clay	2.5Y-5/3	66"	disturbed
					Hit clay drain pipe

Parent Material (geologic) _____ Depth to Bedrock: _____ NA

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water: 66"

Percolation Test*		
Date:	Time:	
Observation Hole #		
Depth of Perc		
Start Pre-soak		
End Pre-soak		
Time at 12"		
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

Site passed: ☐

Site failed: ☐

Performed By: Steve Reynolds SE2029

Witnessed By: _____

Deep Hole Number TP-7 Date 6/27/19 Time pm Weather clear 70's

Location (identify on site plan)

Land Use	school	Slope (%)	2-10 %	Surface Stones	no
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Vegetation	trees, shrubs, grass	Landform
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Position on landscape (sketch on back)

Open Water Body 400' + feet Drainage Way NA feet

Possible Wet Area 400' + feet Property Line 20' + feet

Drinking Water Well	NA	feet	Other	feet

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial till Depth to Bedrock: 96 "

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water: 78"

*Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site passed: ☐ Site failed: ☐

Performed By: Steve Reynolds SE2029

Witnessed By: _____

Deep Hole Number **TP-8** Date 6/27/19 Time pm Weather clear 70's

Location (identify on site plan) _____

Land Use school Slope (%) 2-10 % Surface Stones no

Vegetation trees, shrubs, grass Landform _____

Position on landscape (sketch on back) _____

Distances from:

Open Water Body	<u>400' +</u>	<u>feet</u>	Drainage Way	<u>NA</u>	<u>feet</u>
Possible Wet Area	<u>400' +</u>	<u>feet</u>	Property Line	<u>20' +</u>	<u>feet</u>
Drinking Water Well	<u>NA</u>	<u>feet</u>	Other	_____	<u>feet</u>

DEEP OBSERVATION HOLE LOG*					
Depth from Surface	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % gravel)
0 – 12"	Fill	Loam	10YR-3/2		
12 – 48"	Fill	Sandy Loam	2.5Y-5/4		Cobbles, stumps
48 - 84"	C ₁	Silt	2.5Y-7/1	48"	Very fine sand
84 – 96	C ₂	Sandy Loam	2.5Y-6/4		
					Refusal boulders

Parent Material (geologic) Glacial outwash Depth to Bedrock: NA
 Depth to Groundwater: Standing Water in the Hole: 96" Weeping from Pit Face: 84"
 Estimated Seasonal High Ground Water: 48"

Percolation Test*		
Date:	Time:	
Observation Hole #		
Depth of Perc		
Start Pre-soak		
End Pre-soak		
Time at 12"		
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

Site passed: ☐ Site failed: ☐

Performed By: Steve Reynolds SE2029
 Witnessed By: _____