GEOTECHNICAL ENGINEERING SUMMARY

For the proposed

NYSTA West Henrietta Section Maintenance Facility
Vehicle Storage Building

located in the

Buffalo Division
Batavia, New York
MP 362.60

NYSTA Contract Number
D213678

Prepared for:
New York State Thruway Authority

Prepared by

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www.fisherassoc.com

December 17, 2010

Table of Contents

1.0 Introduction

1.1 General

Fisher Associates, P.E., L.S., P.C. (Fisher Associates) was retained by the New York State Thruway Authority (NYSTA), to provide geotechnical engineering services for the proposed vehicle maintenance facility in Henrietta, New York. Fisher Associates' work was performed in accordance with our April 1, 2010 proposal for services.

Fisher Associates conducted this geotechnical investigation to evaluate subsurface conditions and to provide geotechnical engineering design and construction comments to the NYSTA. This report presents the results of our evaluations and was prepared for the exclusive use of NYSTA and their design consultants for specific application to the proposed Vehicle Maintenance Building in Henrietta, New York. The report has been prepared in accordance with generally accepted soil and foundation engineering practice, and no other warranty, expressed or implied, is made.

The proposed Vehicle Maintenance Building will be located at the existing NYSTA Henrietta Maintenance Facility, located west of Interstate 390, east of NYS Route 15 and north of the NYS Thruway (I90), in the Town of Henrietta, Monroe County, New York. The approximate location is shown on Figure No. 1 – Site Location Map.

1.2 Proposed Building

It is Fisher Associates' understanding that the new Vehicle Maintenance Facility will be approximately 50 ft. x 160 ft. in plan. The building will be constructed as a pole barn, with a typical pole constructed of three 2" x 6" ply laminated wood members, fastened together to form a nominal 6" x 6" cross-sectional area.

The column poles will be supported by isolated spread foundations, continuous strip foundations or augered circular foundations, depending on subsurface conditions encountered. All foundations will be placed below the maximum depth of potential frost, as measured from the lowest exterior finished grade surrounding each foundation.

A reinforced concrete floor will be designed by the structural engineer to support the loading of the heavy trucks and other equipment that be stored inside the maintenance building.

2.0 Subsurface Conditions

2.1 Subsurface Explorations

The subsurface exploration program consisted of two (2) subsurface soil borings advanced at the site on July 15, 2010. The explorations were performed by Atlantic Testing Laboratories (ATL) of Canton, New York and were performed using a Truck-mounted, rotary drill rig.

The test boring depths for boring FHX-1 and FHX-2 were 25.6 feet and 10.0 feet below the ground surface (bgs) elevations.

The test boring locations and ground surface elevations were established in the field by Fisher Associates' personnel and utility clearances were provided by ATL. The approximate as-advanced exploration locations are shown on Figure No. 2 - Subsurface Exploration Location Plan. ATL prepared subsurface test boring logs based on visual descriptions of recovered soil samples and the test boring logs are contained in Appendix A - Test Boring Logs.

2.2 Laboratory Testing of Soil Samples

ATL conducted laboratory testing on representative soil samples recovered from the test borings. The testing included natural moisture contents and mechanical grain size analyses on selected samples. ATL performed the testing to assist with determination of soil index properties, soil classification, and provide information regarding the soil strength and consolidation characteristics. The testing was conducted in accordance with ASTM standards. The prepared laboratory test results are contained in Appendix B - Laboratory Testing of Soil Samples.

2.3 Subsurface Conditions

Beneath approximately 2 inches of asphalt pavement, boring FHX-1 encountered a medium compact, brown, silty sand with trace gravel, to a depth of 2 feet bgs. From 2 feet to about 12.0 feet bgs, hard, brown sandy silt and/or very compact silty sand with trace to little gravel is present. Cobbles were encountered between 10 and 12 feet bgs, requiring use of a roller bit to advance the borehole. Below 12.0 feet bgs, to a depth of about 22 feet bgs, very compact brown sand and silt, with clay and trace of gravel (Till) exists to a depth of approximately 22 feet bgs. Very compact brown gravelly sand with little silt sand is present from a depth of about 22 feet to the termination of boring FHX-1 at a depth of 25.6 feet bgs.

The boundaries between soil strata are approximate and the data suggests that actual soil transitions and conditions will vary between the subsurface exploration locations. In boring FHX-2, beneath 8 inches of topsoil and organic material, loose sand with trace silt, trace gravel, is found to a depth to about 4 feet bgs. A trace of root hairs is present at a depth of about 2 feet bgs. From approximately 4 feet to termination of boring FHX-2 at 10 feet bgs, compact to very compact, silty sand, with little gravel and little clay exists.

ATL observed groundwater levels during the test boring drilling and recorded them on the test boring logs. After removal of the casing, boring FHX-1 caved at a depth of 9.0 feet bgs and groundwater was encountered at a depth of 5.0 feet bgs. We anticipate that the groundwater levels may be affected by regional and local site considerations and groundwater levels at the site may fluctuate over time. The fluctuations may be due to seasonal variations in precipitation and variations in soil conditions between exploration holes.

3.0 Geotechnical Engineering Considerations

3.1 Site Preparation

The site should be properly stripped to remove all topsoil, large roots and any deleterious material prior to excavations and proofing operations. Details for the site preparation are included in section 3.3 Earthwork Construction Considerations.

3.2 Structure Foundation Considerations

3.2.1 Foundation Type and Bearing

It is our opinion that the proposed vehicle storage building can be supported on an augered foundation, shallow spread foundations or continuous strip foundations. We recommend that foundation elements bear on a minimum of 6 inches of compacted granular fill, meeting New York State DOT specifications for 304-2 Type 2 or Type 4 materials, placed over the natural silty sand and silty gravel subgrade. The augered foundations can be supported on a precast concrete base or a minimum of 6 inches of properly compacted granular fill. Natural subgrade shall be inspected and accepted as suitable prior to placement of fill. Existing topsoil or miscellaneous fills are not suitable for support of foundation elements. These soils should be removed during initial earth work operations at the site.

Spread footing foundations should be sized to bear on the layer of compacted granular fill that overlies the naturally occurring sandy silt and silty sand with gravel soils. A net allowable bearing pressure of 4,000 pounds per square foot (psf) can be used for foundation design. Individual spread footings should be at least 3 ft. in least lateral dimension, and continuous strip footings should be at least 2 ft. wide. The circular augered foundations can be designed using an allowable bearing pressure of 4,000 psf and an allowable sidewall friction of 400 psf from a depth below grade of 1.5 feet and lower. All footings should bear at least 4 ft. below exterior grades exposed to freezing temperatures. Interior footings in permanently heated areas should bear at least 2.5 ft. below exterior building grades.

The floor slabs may be designed as slab-on-grade. Topsoil and miscellaneous fills, if encountered, are not suitable for support of the floor slab, and these soils should be removed during initial earth work operations at the site.

The slab-on-grade floor slabs should be isolated from the building walls and designed to bear on a 6 inch minimum layer of compacted granular fill or crushed stone. Information about the requirements for compacted granular fill is presented in Section 3.3 – Earthwork Construction Considerations.

3.2.2 Foundation Backfill

We recommend that foundation elements be backfilled with compacted granular fill, meeting

New York State DOT specification for 304-2 Type 2 or Type 4 material, to provide support for the overlying floor slabs, pavements and sidewalks, and other adjacent structures. Along the interior walls, and in areas of overlying or adjacent structures or facilities, the granular fill should be placed in lifts and compacted to 95% of maximum dry density as determined by modified proctor (ASTM D-1557). In exterior areas where there are no overlying structures or facilities and uplift is not a concern, the backfill should consist of the excavated clean natural soils or granular fill. The soils should be placed in lifts and compacted to 92% of maximum dry density as determined by ASTM D1557.

3.2.3 Foundation Drainage

We anticipate that the subsurface water levels will generally be below the proposed foundation bearing elevations. It is possible that a seasonal high groundwater level may require under-drains for the building foundations consisting of isolated spread foundations and continuous strip footings. The drains should be installed at the proposed foundation bearing elevations and the collection system should discharge to site storm-water management features. In addition, the site grading should be established such that the ground surface is sloped away from the building. Augered cast-in-place foundations will not require under-drains.

3.2.4 Anticipated Settlement

We anticipate that settlement of shallow foundations constructed to bear on undisturbed naturally occurring sandy silt with gravel, silty sand with gravel or compacted granular fill, at the allowable bearing capacities noted above, will be within generally accepted tolerances. If constructed as recommended, differential settlements between foundation elements should be within generally accepted tolerances.

3.2.5 Seismic Site Classification

- The seismic design classification, in accordance with the Building Code of New York State, was developed based on the test boring information. We recommend that seismic site class “D” be used for design.

3.3 Earthwork Construction Considerations

Based on the soils encountered in the subsurface explorations, we anticipate that exposed shallow foundation subgrade materials will generally consist of sand and gravel with silt. However, if any cohesive soil exists, it will be sensitive to disturbance and strength degradation in the presence of excess moisture, and will be frost susceptible if left open to inclement weather conditions during construction.

Site preparation for the building area should include excavation and removal of all surface topsoil and any miscellaneous materials that may be exposed. The prepared surface should be inspected, and all deleterious materials, including fill/debris and organic matter, should also be excavated and removed. The subgrade surface should be proof-rolled with at least three (3) sets of overlapping passes of a

sheep's-foot and/or smooth-wheel vibratory compaction equipment weighing at least 7 tons. Areas that are wet or weave excessively during proof-rolling should be excavated and replaced with compacted granular fill or crushed stone.

Site preparation for the footings should include excavation and removal of all surface topsoil and fill such that natural soils are revealed. The subgrade surface should be proof-rolled with at least three (3) coverages of suitable, hand-operated, vibratory compaction equipment weighing no less than 200 pounds. Areas that are wet or weave excessively during proof-rolling should be excavated and replaced with compacted granular fill or crushed stone. If crushed stone is used to backfill areas of over excavation, a layer of non-woven geotextile fabric should be placed over the prepared subgrade prior to stone placement.

Traffic over exposed subgrades should be minimized to the extent practical during construction. In addition, construction should be performed in a manner that protects the proposed bearing surfaces. It may be necessary to place a gravel working mat to protect the prepared bearing surfaces for the shallow foundation elements. Additional undercutting or over excavation may be required if the prepared bearing surfaces are disturbed by other construction activities. Areas of over excavation should be backfilled with compacted granular materials.

The on-site soils are suitable as backfill against foundation walls, or as backfill beneath paved areas. Excavated soils may be used for general site grading in areas where overlying structures or other facilities are not proposed. However, they may be frost susceptible and sensitive to moisture and, therefore, may be difficult to place and compact.

We recommend that the granular fill, required for support of the proposed building foundation elements and beneath floor slabs, consist of Crusher Run Stone or Crushed Gravel and Sand mixture that is free of Clays, Organics, Snow, Ice and friable or deleterious particles. The granular fill should meet the material requirements of NYSDOT Standard Specifications, Subbase Item 304-Type 4 or Type 2 material.

Granular fill (NYSDOT Item 304) should be placed in nearly horizontal, uniform lifts not exceeding 9-inches in loose thickness and compacted with at least three (3) passes of suitable compaction equipment. All fill should be compacted to the minimum maximum dry density noted above. Granular fill should be placed and compacted at to within ±2% of optimum moisture content, and the equipment used to compact the granular materials must be compatible with the material type and lift thickness. The lift thickness should be reduced to 6-in. in excavations where hand operated compaction equipment will be utilized.

Based on the observed subsurface conditions and proposed bearing elevations, it appears that excavation below observed groundwater levels will not occur. However, inflows from perched water or surface water sources may occur. Therefore, dewatering sumps or wells may be required to control water inflow into the foundation excavations. Dewatering sumps and wells should be designed to prevent the loss of fines from the soils. In addition, the selected dewatering system should be designed such that the resulting well drawdown does not adversely impact the adjacent utilities and structure foundations. Discharges from the dewatering system should be in accordance with permitted site storm-water management practices.

4.0 Construction Observation

We recommend that a soils engineer, and/or an engineering technician that is qualified by training and experience, working under the direction of the geotechnical engineer, be retained during construction. The Engineer and/or his representative will make observations of the prepared subgrade and bearing surfaces to review that unsuitable materials have been removed. The Engineer or his representative will also observe the subsurface conditions exposed during construction for comparison the exploration data. This will allow for adjustments that may be necessary to accommodate actual soil conditions revealed at the building location.

We prepared this report to provide information about potential building foundation design and considerations for the proposed Vehicle Storage Building at the NYSTA Henrietta, New York facility. Test borings were made at the site, and we utilized these exploration logs during this evaluation to prepare our design and construction recommendations. The recommendations provided herein are based on this information.

FIGURES

Figure No. 1

Site Location Map

Send To Printer Back To MSR Maps Change to 11x17 Print Size Show Grid Lines Change to Portrait

USGS **13 km S of Rochester, New York, United States** 01 Jul 1995

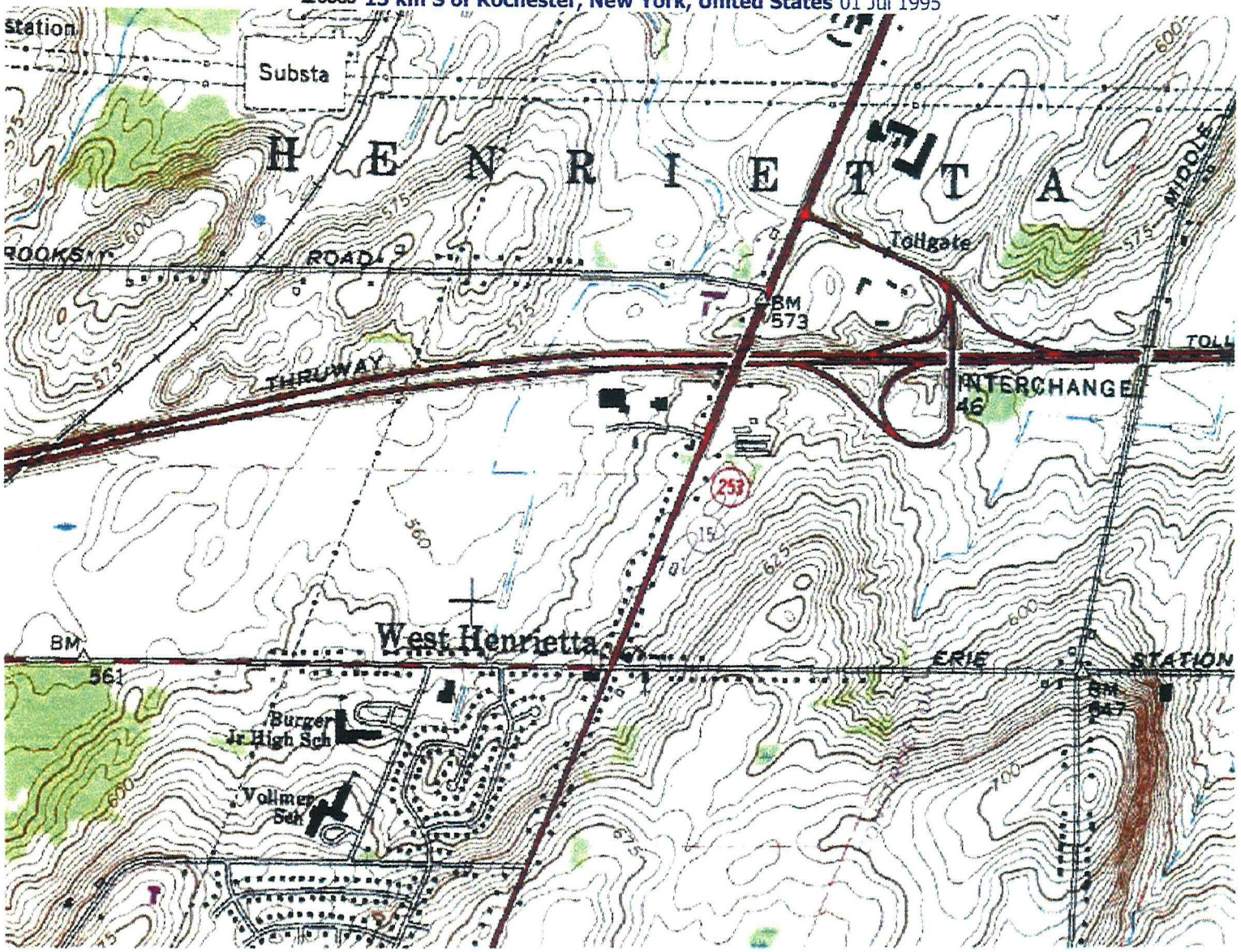


Image courtesy of the U.S. Geological Survey

WEST HENRIETTA

WEST HENRIETTA

Figure No. 2

Subsurface Exploration Plan

Notes:

1. Plan based on survey mapping compiled by Fisher Associates.
2. Test boring locations established in the field by Fisher Associates' personnel.
3. Test borings drilled by Atlantic Testing Laboratories, Limited on July 20, 2010.
4. Test boring logs prepared by Atlantic Testing Laboratories are contained in Appendix A of the attached report text.
5. See accompanying report for additional information.

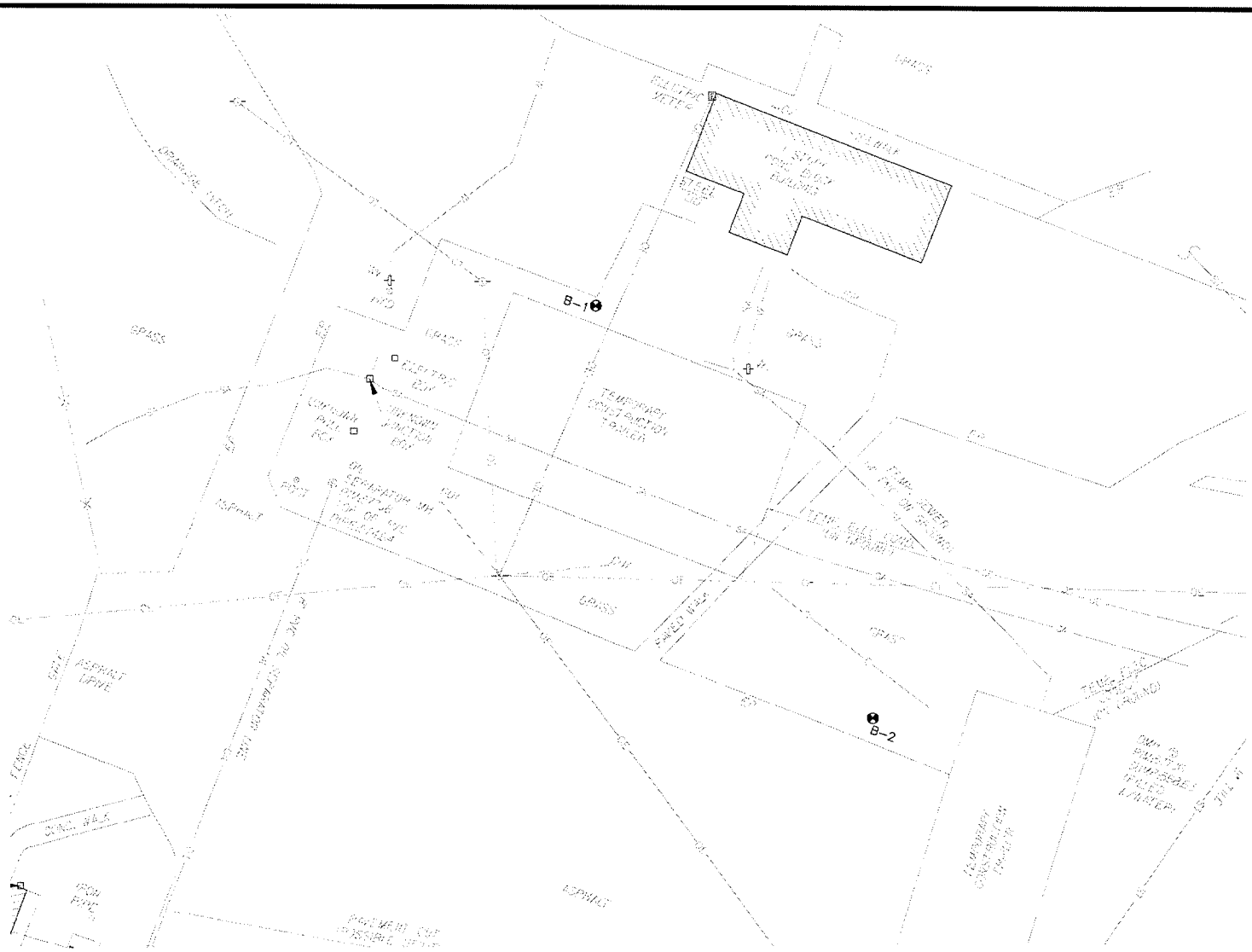
Legend:

▲ *B-1* Number and approximate location of test boring.

Proposed VSB

North

Not to Scale

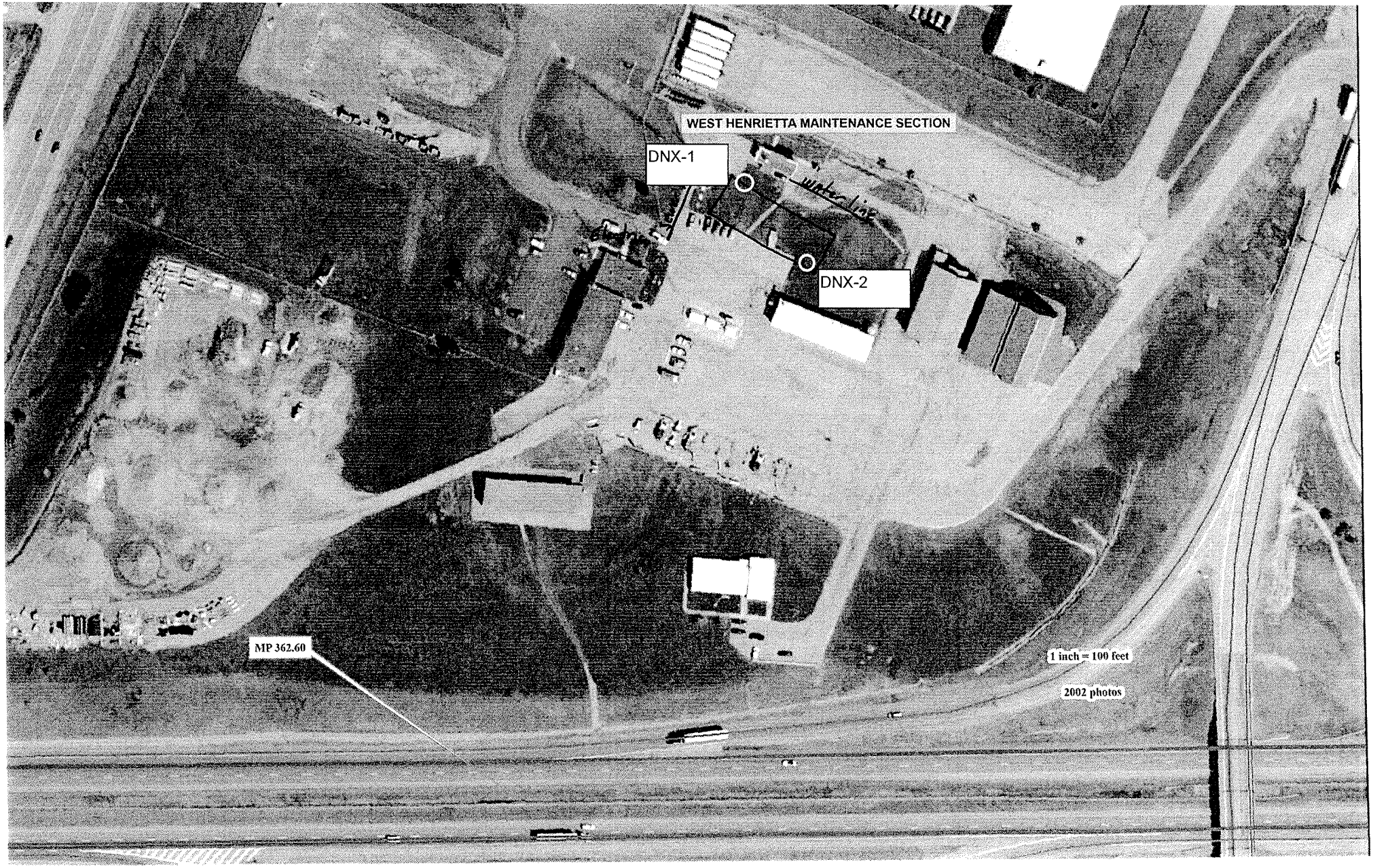


FISHERASSOCIATES

Figure No. 2

Subsurface Exploration Location Plan
Proposed NYSTA VSB
West Henrietta Maintenance Area
Town of West Henrietta, Monroe County, New York

FA #07701J August 2010


WEST HENRIETTA MAINTENANCE SECTION
DNX-1
DNX-2
water line
MP 362.60
1 inch = 100 feet
2002 photos

APPENDICES

APPENDIX A

TEST BORING LOGS

SM 282 E 12/02

PSN _____ BORNUM FHX-1
REGION Buffalo Division
COUNTY Monroe
PIN West Henrietta Maintenance Facility
PROJECT New York State Thruway Vehicle Storage Buildings FA#07701J
ACTUAL COORDINATES (N) 1,112,611.010 (E) 1,396,798.770 **DATUM** NAD83
DATE START 7/20/2010 **DATE FINISH** 7/20/2010

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION
SUBSURFACE EXPLORATION LOG

HOLE FH-X
LINE Thruway Mainline
STA MP362.60
OFFSET ft
SURF. ELEV. 576.19
DEPTH TO WATER _____

CASING	**O. D.**		in	**I. D.**		in	**WT OF HAMMER-CASING**	lb	**HAMMER FALL-CASING**	in
SAMPLER	**O. D.**	2	in	**I. D.**	1-3/8	in	**WT OF HAMMER-SAMPLER**	140 lb	**HAMMER FALL-SAMPLER**	30 in

CASING BLOWS/ft	DEPTH ft BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER in 0/6	6/12	12/18	18/24	MOIST. CONT. (%)		DESCRIPTION OF SOIL AND ROCK	
	0.0	SS1	8	7	6	8	6.2%	(0.00) (0.20)	2" ASPHALT PAVEMENT Brown cmf SAND; some SILT; trace f GRAVEL Soil Recovery= 14"	(M-NPL)
		SS2	10	13	15	17	8.6%		Brown SILT; and mf SAND; little f GRAVEL Soil Recovery= 24"	(W-NPL)
	5.0	SS3	15	19	18	19	9.0%		Similar Soil; Cobble Fragments Soil Recovery= 24"	(W-NPL)
		SS4	50	26	28	27	8.7%		Brown cmf SAND; and SILT; trace f GRAVEL Soil Recovery= 24"	(W-NPL)
	10.0	SS5	17	15	25	20	7.8%		Brown SILT; some cmf SAND; little mf GRAVEL Soil Recovery= 22"	(W-NPL)
		SS6	17	28	90	68	8.1%	(10.00)	Similar Soil; Cobble Fragments Soil Recovery= 24" Encountered auger refusal at 10 feet. Began advancing wet rotary 3-7/8" roller bit at 10 feet.	(W-NPL)
	15.0	SS7	30	30	35	50	7.4%		Brown cmf+ SAND; and SILT; little CLAY; trace mf GRAVEL Soil Recovery= 22"	(W-LPL)
	20.0	SS8	21	100/5"			16.0%	(20.00)	Similar Soil Soil Recovery= 4"	(W-LPL)
	25.0									

The subsurface information shown here was obtained for design and estimate purposes. It is made available so that users may have access to the same information available to the State. It is presented in good faith. By the nature of the exploration process, the information represents only a small fraction of the total volume of the material at the site. Interpolation between data samples may not be indicative of the actual material encountered.

CONTRACT D213678 **CONTRACTOR** ATL

DRILL RIG OPERATOR Neil Kenny; Andy Conant
SOIL & ROCK DESCRIPTION Drue Cline (ATL)
REG GEOTECHNICAL ENGINEER Adam Schneider, PE (ATL)
DATE APPROVED _____
RESIDENT ENGINEER _____
STRUCTURE NAME _____ **B.I.N.** _____

SM 282 E 12/02

PSN _____ BORNUM FHX-1
REGION Buffalo Division
COUNTY Monroe
PIN West Henrietta Maintenance Facility
PROJECT New York State Thruway Vehicle Storage Buildings FA#07701J

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION
SUBSURFACE EXPLORATION LOG

HOLE FH-X
LINE Thruway Mainline
STA MP362.60
OFFSET ft
SURF. ELEV. 576.19
DEPTH TO WATER _____

ACTUAL COORDINATES (N) 1,112,611.010 (E) 1,396,798.770 **DATUM** NAD83
DATE START 7/20/2010 **DATE FINISH** 7/20/2010

CASING	**O. D.**		in	**I. D.**		in	**WT OF HAMMER-CASING**		lb	**HAMMER FALL-CASING**	in
SAMPLER	**O. D.**	2	in	**I. D.**	1-3/8	in	**WT OF HAMMER-SAMPLER**	140	lb	**HAMMER FALL-SAMPLER**	30 in

CASING BLOWS/ft	DEPTH ft BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER in (0/6 6/12 12/18 18/24)	MOIST. CONT. (%)		DESCRIPTION OF SOIL AND ROCK	
	25.0	SS9	30 100/1"	8.7%	(25.00)	Brown cmf SAND; some mf GRAVEL; little SILT (Possible Weathered Rock Fragments) Soil Recovery= 4" BOTTOM OF HOLE AT 25.60 ft	(S-NPL)

Notes:
1. *Borehole was backfilled with on-site soils and the surface was patched with asphalt cold patch.*
2. *An automatic hammer was used to advance the 2-inch OD split spoon sampler.*
3. *4 1/4-inch ID hollow stem augers were used to advance the borehole.*
4. *Offset boring 5 feet west of staked location due to overhead utilities.*
5. *Water level readings may be affected by water introduced during drilling operations.*
6. *Drilling Inspector: David Glover, Fisher Associates*

DATE	TIME	DEPTH ft			ARTESIAN HEAD HEIGHT ABOVE GROUND	FILLED WITH WATER AT END OF DAY
		HOLE	CASING	WATER		
20-Jul-10	09:00	10.00	8.00	DRY		
20-Jul-10	09:30	12.00	10.00	DRY		
20-Jul-10	10:00	25.60	10.00	8.40		
20-Jul-10	10:30	9.00	OUT	5.00		

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CONTRACT D213678 **CONTRACTOR** ATL

DRILL RIG OPERATOR Neil Kenny; Andy Conant
SOIL & ROCK DESCRIPTION Drue Cline (ATL)
REG GEOTECHNICAL ENGINEER Adam Schneider, PE (ATL)
DATE APPROVED _____
RESIDENT ENGINEER _____
STRUCTURE NAME _____ **B.I.N.** _____

SM 282 E 12/02

PSN _____ BORNUM FHX-2

REGION Buffalo Division

COUNTY Monroe

PIN West Henrietta Maintenance Facility

PROJECT New York State Thruway Vehicle Storage Buildings FA#07701J

ACTUAL COORDINATES (N) 1,112,532.260 (E) 1,396,852.020 **DATUM** NAD83

DATE START 7/20/2010 **DATE FINISH** 7/20/2010

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION

SUBSURFACE EXPLORATION LOG

HOLE FH-X

LINE Thruway Mainline

STA MP362.60

OFFSET ft

SURF. ELEV. 577.96

DEPTH TO WATER _____

CASING	**O. D.**		in	**I. D.**		in	**WT OF HAMMER-CASING**	lb	**HAMMER FALL-CASING**	in
SAMPLER	**O. D.**	2	in	**I. D.**	1-3/8	in	**WT OF HAMMER-SAMPLER**	140 lb	**HAMMER FALL-SAMPLER**	30 in

CASING BLOWS/ft	DEPTH ft BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER in 0/6	6/12	12/18	18/24	MOIST. CONT. (%)		DESCRIPTION OF SOIL AND ROCK	
	0.0	SS1	2	4	4	9	9.9%	(0.00)	8" TOPSOIL & ORGANIC MATERIAL	
									Brown mf SAND; trace f GRAVEL; trace SILT; trace ORGANIC MATERIAL (root hairs) Soil Recovery= 20"	(M-NPL)
		SS2	9	12	14	17	8.8%	(2.00)	Brown mf SAND; trace mf GRAVEL; trace SILT Soil Recovery= 24"	(M-NPL)
	5.0	SS3	11	18	14	16	8.5%		Brown cmf+ SAND; some SILT; little mf GRAVEL; little CLAY Soil Recovery= 24"	(M-LPL)
		SS4	25	46	38	30	7.3%		Similar Soil Soil Recovery= 20"	(M-LPL)
		SS5	30	31	26	32	8.0%	(8.00)	Similar Soil Soil Recovery= 24"	(M-LPL)
	10.0								BOTTOM OF HOLE AT 10.00 ft	

Notes:
1. *Borehole was backfilled with on-site soils and the surface was patched with asphalt cold patch.*
2. *An automatic hammer was used to advance the 2-inch OD split spoon sampler.*
3. *4 1/4-inch ID hollow stem augers were used to advance the borehole.*
4. *Drilling Inspector: David Glover, Fisher Associates*

DATE	TIME	DEPTH ft			ARTESIAN HEAD HEIGHT ABOVE GROUND	FILLED WITH WATER AT END OF DAY
		HOLE	CASING	WATER		
20-Jul-10	12:00	10.00	8.00	DRY		
20-Jul-10	12:30	4.00	OUT	DRY		

The subsurface information shown here was obtained for design and estimate purposes. It is made available so that users may have access to the same information available to the State. It is presented in good faith. By the nature of the exploration process, the information represents only a small fraction of the total volume of the material at the site. Interpolation between data samples may not be indicative of the actual material encountered.

CONTRACT D213678 **CONTRACTOR** ATL

DRILL RIG OPERATOR Neil Kenny; Andy Conant

SOIL & ROCK DESCRIPTION Abbie Heinl, IE (ATL)

REG GEOTECHNICAL ENGINEER Adam Schneider, PE (ATL)

DATE APPROVED _____

RESIDENT ENGINEER _____

STRUCTURE NAME _____ **B.I.N.** _____

APPENDIX B

LABORATORY TESTING OF SELECTED SOIL SAMPLES

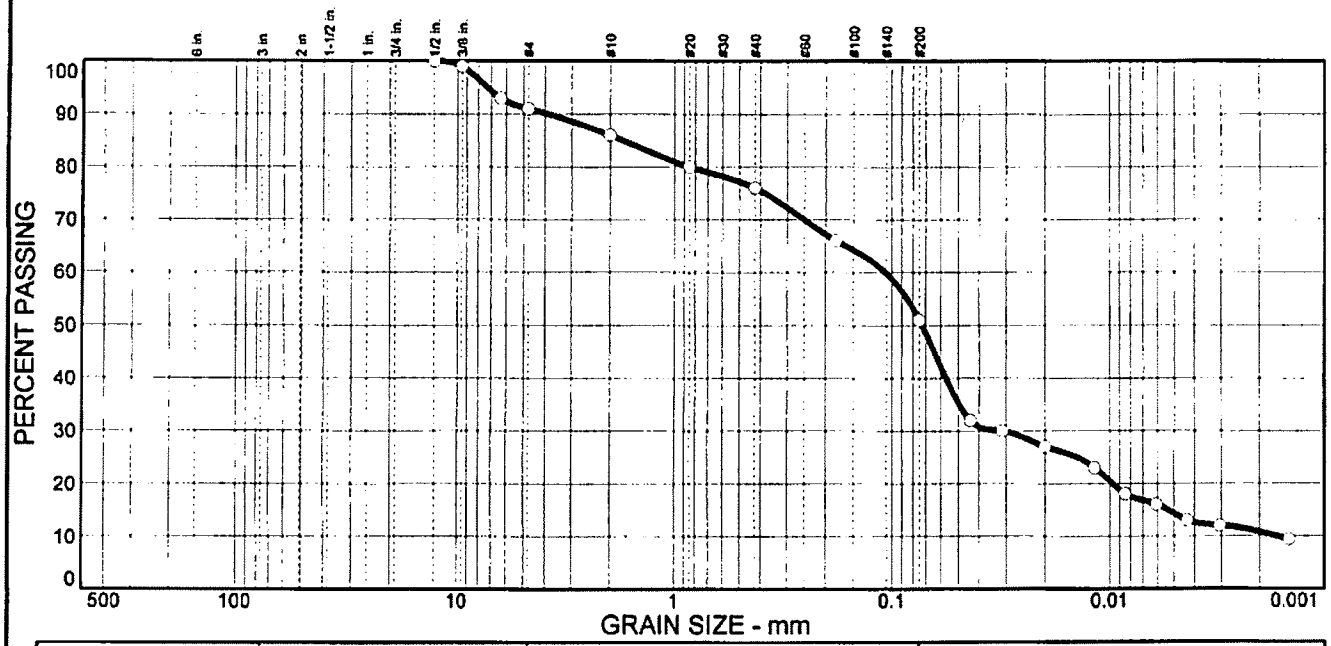
Particle Size Distribution Report

Project: Thruway VSB's **Report No.:** CD3165SL-09-08-10

Client: Fisher Associates **Date:** 8/16/10

Sample No: FHX-1; S-7 **Source of Sample:** Boring Sample Henrietta

Location: In-Situ **Elev./Depth:** 15.0 - 17.0'



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	0	9	5	10	25	37	14

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2 in.	100		
3/8 in.	99		
1/4 in.	93		
#4	91		
#10	86		
#20	80		
#40	76		
#80	66		
#200	51		

* (no specification provided)

Soil Description

Brown cmf+ SAND; and SILT; little CLAY; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 1.74 D_{60}= 0.108 D_{50}= 0.0729

D_{30}= 0.0312 D_{15}= 0.0054 D_{10}= 0.0017

C_u= 64.59 C_c= 5.43

Classification

USCS= AASHTO=

Remarks

Moisture content 7.4%

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: _____ Date: 9/30/10

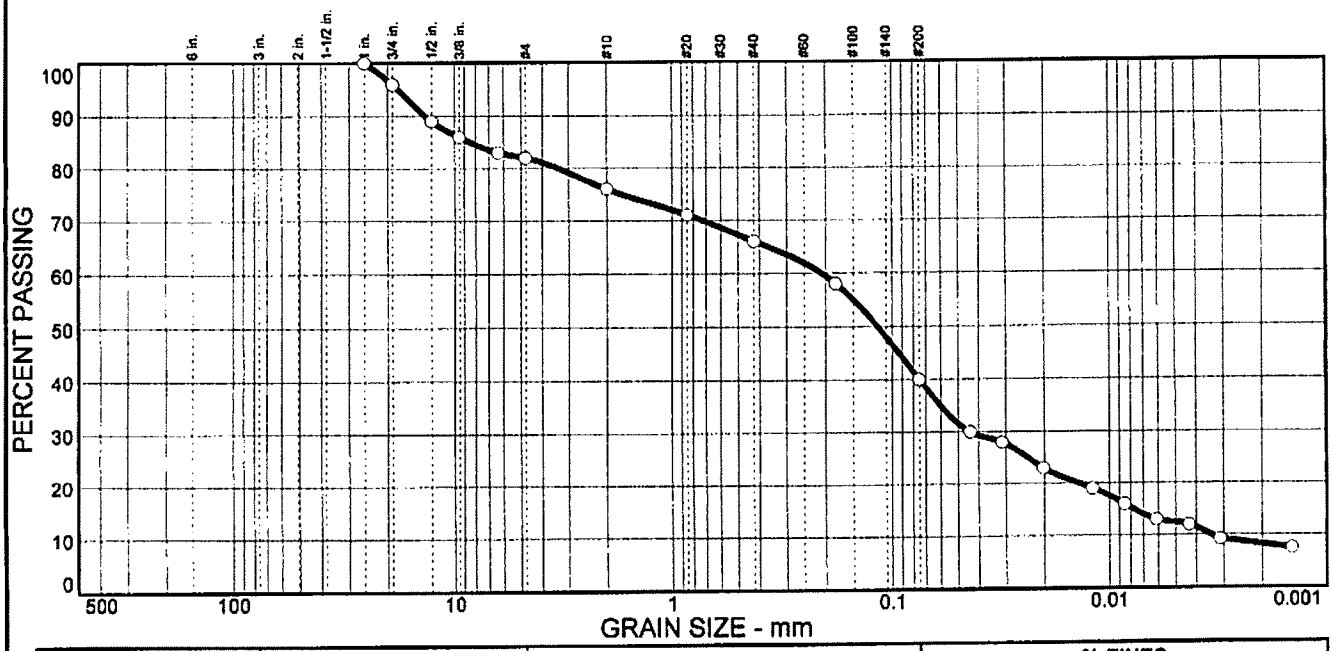
Particle Size Distribution Report

Project: Thruway VSB's **Report No.:** CD3165SL-10-08-10

Client: Fisher Associates **Date:** 8/16/10

Sample No: FHX-2; S-3 **Source of Sample:** Boring Sample Henrietta

Location: In-Situ **Elev./Depth:** 4.0 - 6.0'



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	4	14	6	10	26	28	12

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1 in.	100		
3/4 in.	96		
1/2 in.	89		
3/8 in.	86		
1/4 in.	83		
#4	82		
#10	76		
#20	71		
#40	66		
#80	58		
#200	40		

* (no specification provided)

Soil Description

Brown cmf+ SAND; some SILT; little mf GRAVEL; little CLAY

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 8.48 D_{60}= 0.209 D_{50}= 0.116

D_{30}= 0.0440 D_{15}= 0.0078 D_{10}= 0.0034

C_u= 61.51 C_c= 2.72

Classification

USCS= AASHTO=

Remarks

Moisture content 8.5%

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: _____ Date: 9/30/10