



PW Laboratories, Inc.

6544 Fremont Road - East Syracuse, New York 13057

Office 315.437.1420 ~ Fax 315.503-3058 ~ pwlabsinc@hotmail.com

March 28, 2017

Ms. Mary Kay Genthner, P.E.
PASSERO ASSOCIATES
242 West Main Street, Suite 100
Rochester, NY 14614

Re: L-16205
William H. Morse State Airport
Apron Investigation
Bennington, Vermont
Passero Project #20120400.0009

Dear Ms. Genthner [mkgenthner@passero.com]:

Enclosed are the results of field and laboratory testing performed at your request for the above referenced project. Results include:

1.	Mechanical Analysis (on Table)	1 Each
2.	Natural Moisture Content [Oven Dry] (ASTM D2216)	1 Each
3.	Laboratory Compaction Test (ASTM D1557)	1 Each
4.	Specific Gravity of Soils (ASTM D854 & C127)	1 Each
5.	Atterberg Limits (ASTM D4318)	1 Each
6.	Unified Soil Classification System (ASTM D2487)	1 Each
7.	CBR - 3 Point (ASTM D1883)	1 Each

(The reports listed below were previously sent to you under cover letter dated 3/14/2017)

1.	Pavement Section Thickness Measurement	9 Each
2.	Digital Photographs of Cores	1 Set
3.	Test Boring using 2-inch O.D. Split Spoon Sampler Advanced by Hollow Stem Augers (ASTM D1586)	8 Each
4.	Test Pit Log	1 Each

All requested tests have been completed on the previously received sample(s) for the above project. All sample remains are scheduled to be disposed of on 3/28/2018. Please notify PW Laboratories, Inc. by letter or telephone prior to 3/28/2018 if you would prefer to pick up the sample(s) or that the sample(s) be retained by PW Laboratories, Inc. for an additional period periodk you for this opportunity to work with you.

Respectfully,

PW LABORATORIES, INC.

A handwritten signature in blue ink, appearing to read 'Donald P. Blasland'.

Donald P. Blasland, SET

President

DPB/bll



PW Laboratories, Inc.

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Sieve Analysis of Soil / Aggregate

Project Title: William H. Morse State Airport
Apron Investigation
Bennington, Vermont
Passero Project #20120400.0009

Project #: L-16205
Test Method: ASTM D422 & D1140

Report #: 1
Report Date: March 28, 2017

			Sieve Size - Percent Passing Sieve																
Lab I.D. #	Sample I.D.	Depth (Feet)	1 1/2"	1"	3/4"	1/2"	3/8"	1/4"	#4	#10	#30	#40	#60	#100	#200				
34199	TP #1	2.6 - 3.0	100	98.8	97.1	96.2	95.6	93.8	92.0	85.4	75.2	72.2	67.5	62.7	53.3				

Sample mass, as received, meets minimum mass requirements of test method: Yes X No

Prewashed

Performed By: M.S. **Checked By:** Patrick Edmiston

Entire Sample X

Remarks: _____

Mass Retained on #200 Only _____

Not Prewashed: _____



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March 28, 2017

L-16205

William H. Morse State Airport

Apron Investigation

Bennington, Vermont

Passero Project #20120400.0009

Natural Moisture Content ASTM D2216

Lab I.D. #	Sample I.D.	Depth (Feet)	Moisture Content as a Percent of Dry Weight
34199	TP #1	2.6 - 3.0	20.2

Standard Modified

Procedure A B

C D

Preparation Method:

Moist Dry

Rammer Used:

Manual Mechanical

MAXIMUM DRY DENSITY (P.C.F.)

117.0

OPTIMUM MOISTURE CONTENT (%)

13.2

Performed in accordance with:

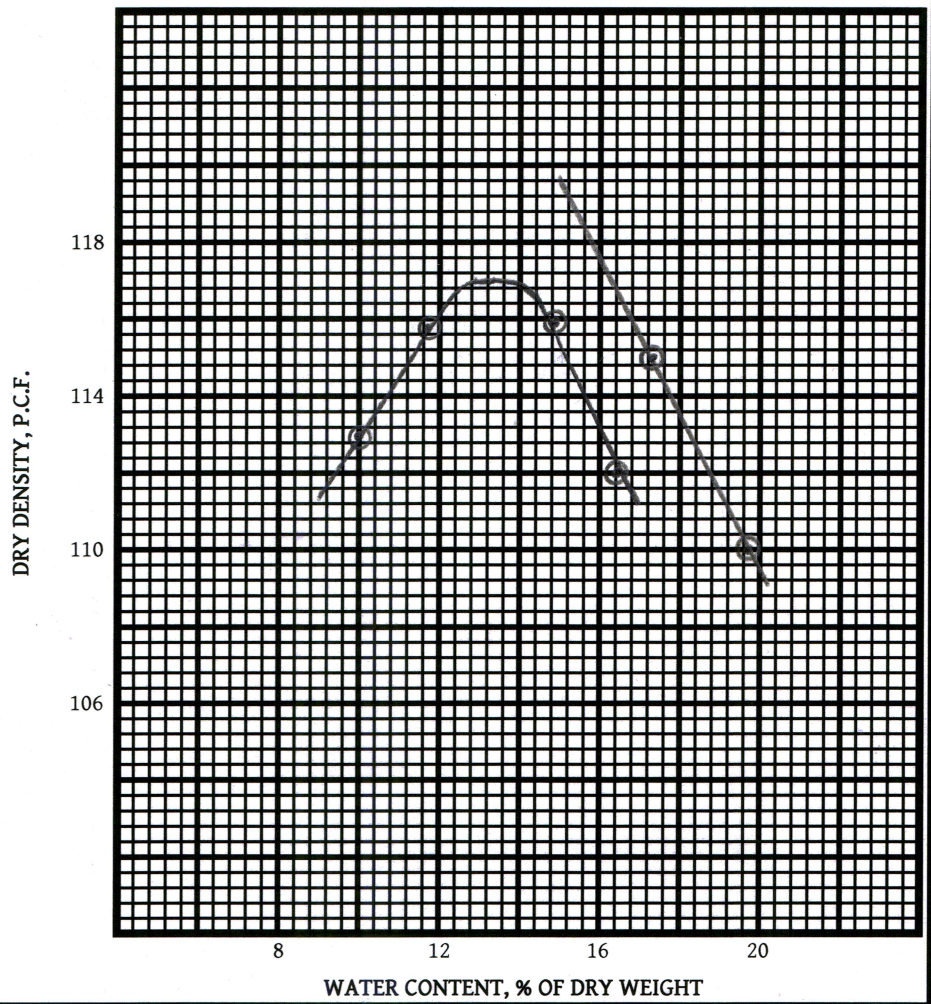
ASTM D1557-78

2.9% retained on the 3/4" sieve.

Bulk Specific Gravity: 2.31

Apparent Specific Gravity: 2.70

Compaction Test Report



SAMPLE NO.	1	2	3	4			
MOLD + SAMPLE WT.	23.12	23.50	23.79	23.65			
MOLD WEIGHT	13.92	13.92	13.92	13.92			
WET SAMPLE WT.	9.20	9.58	9.87	9.73			
WET DENSITY, P.C.F.	124.3	129.4	133.3	131.5			
MOISTURE CONTENT	10.0	11.7	14.9	17.4			
DRY DENSITY, P.C.F.	113.0	115.8	116.0	112.0			

Material

Color: Brown

Classification: CL

Type : In Situ

Location: TP #1 2.6'- 3.0'

Lab I.D. #: 34199

Client: Passero Associates

Project Title: William H. Morse State Airport

Apron Investigation

Bennington, Vermont

Passero Project #20120400.0009

Test Date: March 17, 2017

Tested By: M.S.

Checked By: Patrick J. Edmiston

Project #: L-16205

Report #: 1



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March 28, 2017

L-16205

William H. Morse State Airport

Apron Investigation

Bennington, Vermont

Passero Project #20120400.0009

Specific Gravity of Soils ASTM D854

Specific Gravity and Absorption of Coarse Aggregate ASTM C127

Lab I.D. #	Sample I.D.	Depth (Feet)	Apparent Specific Gravity	Specific Gravity of Solids (G)	Weighted Average Specific Gravity	Bulk Specific Gravity
34199	TP #1	2.6 - 3.0	2.69	2.70	2.70	2.31



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March 28, 2017

L-16205

William H. Morse State Airport

Apron Investigation

Bennington, Vermont

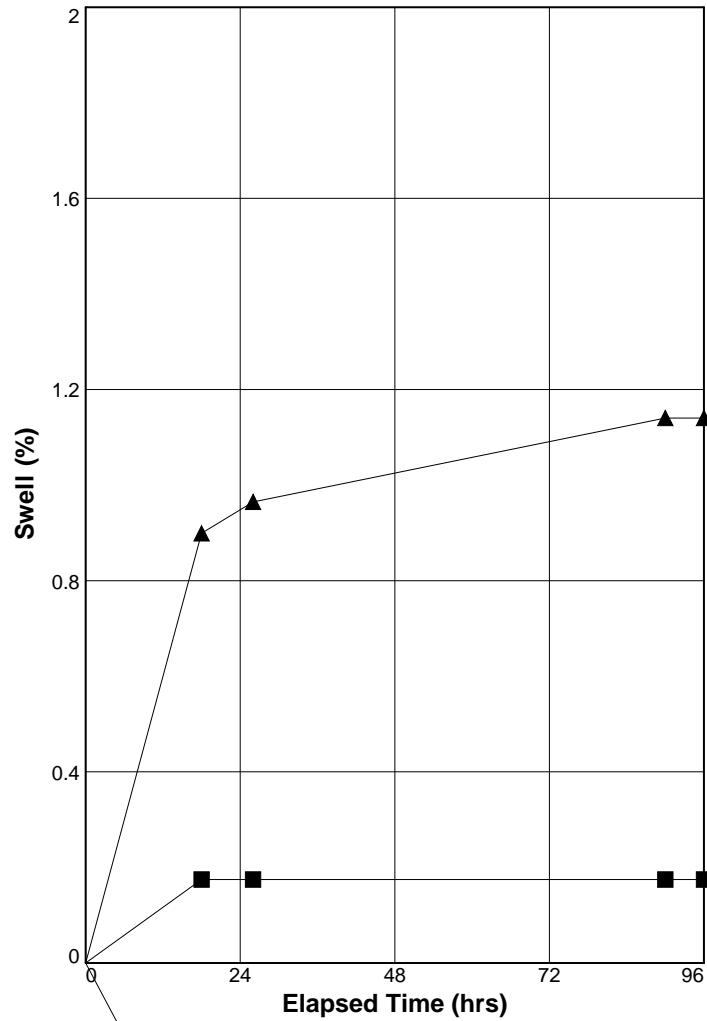
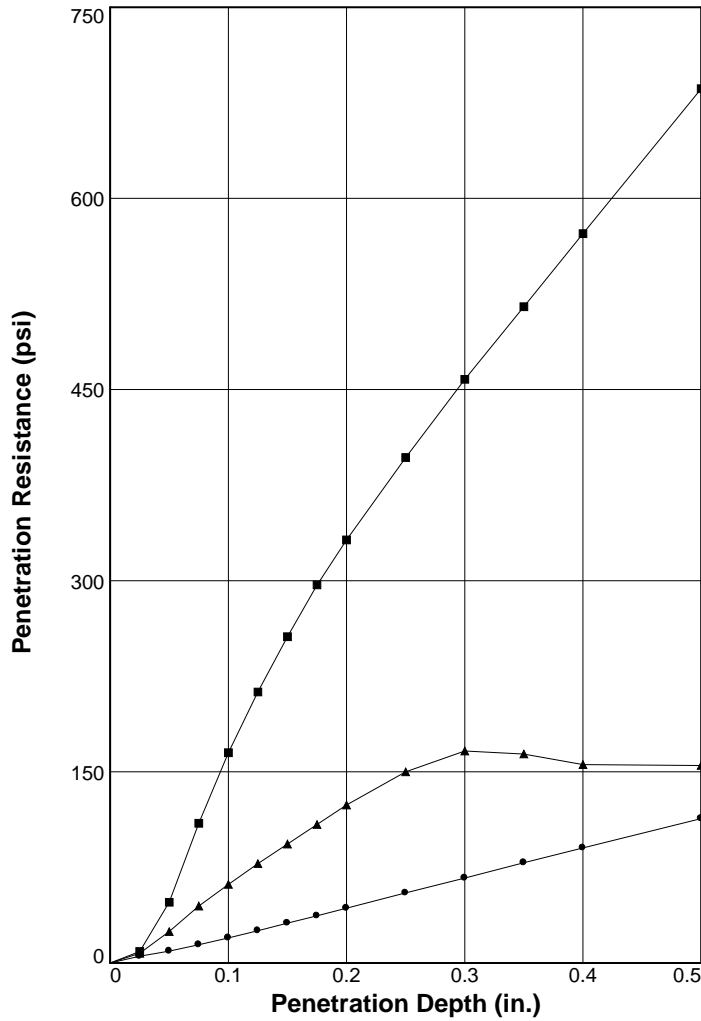
Passero Project #20120400.0009

Atterberg Limits ASTM D4318 & Unified Soil Classification ASTM D2487

Lab I.D. #	Sample I.D.	Depth (Feet)	Plastic Limit	Liquid Limit	Plasticity Index	Classification
34199	TP #1	2.6 - 3.0	23	30	7	CL

BEARING RATIO TEST REPORT

ASTM D 1883-07



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	111.3	95.1	17.5	111.3	95.1	17.9	2.0	2.9	0.000	40	0
2 △	111.8	95.6	9.1	110.5	94.5	17.2	7.0	8.7	0.013	40	1.1
3 □	117.4	100.3	12.8	117.2	100.2	15.2	21.8	24.5	0.028	40	0.2

Material Description							USCS		Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown moist SILT, little C-M-F sand, little M-F gravel, trace clay							CL		117.0	13.2	30	7

Project No: L-16205 CLIENT: PASSERO ASSOCIATES
Project: GEOTECHNICAL EXPLORATION - WILLIAM H. MORSE AIRPORT
Location: BENNINGTON, VERMONT
Sample Number: TP-1 ID# 34199 **Depth:** 2.6 TO 3.0 FEET
Date: SAMPLED: 3/6/2017

Test Description/Remarks:
 REMOLDED-PRESOAKED

 COMPACTION METHOD:
 ASTM D1557

BEARING RATIO TEST REPORT
PW Laboratories, Inc.

Figure ONE

BEARING RATIO TESTING RESULTS (ASTM D 1883-07)

Date: SAMPLED: 3/6/2017
Project No.: L-16205 CLIENT:PASSERO ASSOCIATES
Project: GEOTECHNICAL EXPLORATION - WILLIAM H. MORSE AIRPORT
Location: BENNINGTON, VERMONT
Depth: 2.6 TO 3.0 FEET **Sample Number:** TP-1 ID# 34199
Material Description: Brown moist SILT, little C-M-F sand,
 little M-F gravel, trace clay
USCS Classification: CL
Liquid Limit: 30 **Plasticity Index:** 7
Test Description: REMOLDED-PRESOAKED
Maximum Dry Density, pcf : 117.0 **Optimum Moisture Content, %:** 13.2
Testing Remarks: COMPACTION METHOD:
 ASTM D1557

Sample 1 (PER LAYER 56 Blows; Surcharge: 40 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 4454.4 Wt. Soil+Tare, gms. 3792.1 Wt. Tare, gms. 0 Moisture, % 17.5

Unit Weight

Wt. Mold+Soil, lbs. 28.11 Wt. Mold, lbs. 18.29 Ht. Soil, in. 4.59 Density, pcf 111.3

Swell Data

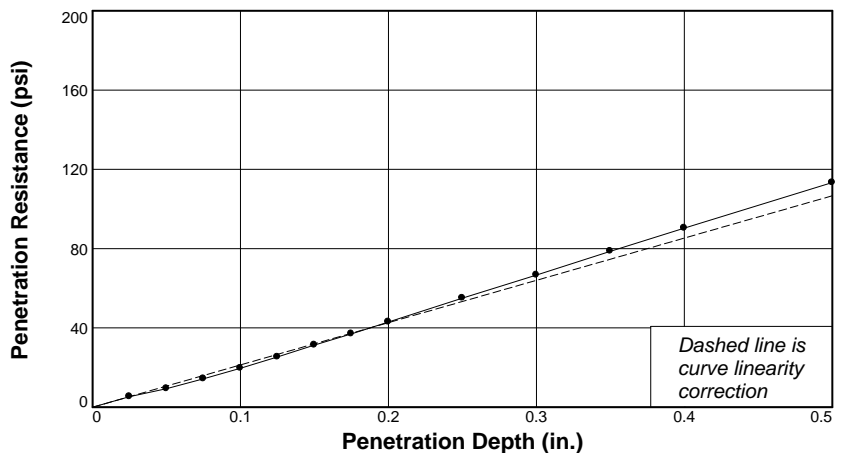
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	562	0.0
18	541	-0.5
26	541	-0.5
90	541	-0.5
96	541	-0.5

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
1)	4851.6	4178.6	419.4	17.9

Penetration Test Data

Pen. in.	Dial Reading	Stress psi	CBR %
0.0	0	0.0	
0.025	16	5.3	
0.05	28	9.3	
0.075	43	14.3	
0.1	59	19.7	2.0
0.125	76	25.3	
0.15	94	31.3	
0.175	111	37.0	
0.2	129	43.0	2.9
0.25	165	55.0	
0.3	200	66.7	
0.35	236	78.7	
0.4	271	90.3	
0.5	340	113.3	



Sample 2 (PER LAYER 56 Blows; Surcharge: 40 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 4127.8 Wt. Soil+Tare, gms. 3783.0 Wt. Tare, gms. 0 **Moisture, % 9.1**

Unit Weight

Wt. Mold+Soil, lbs. 24.83 Wt. Mold, lbs. 15.73 Ht. Soil, in. 4.56 **Density, pcf 111.8**

Swell Data

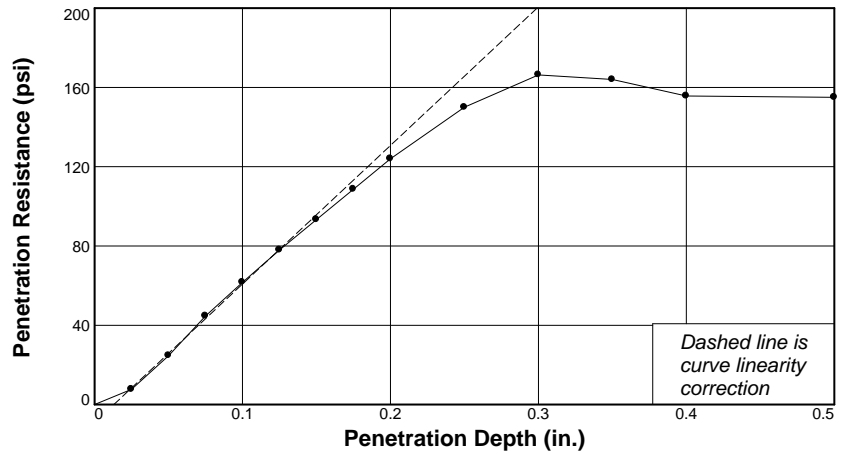
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	652	0.0
18	693	0.9
26	696	1.0
90	704	1.1
96	704	1.1

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
1)	4831.1	4183.0	419.1	17.2

Penetration Test Data

Pen. in.	Dial Reading	Stress psi	CBR %
0.0	0	0.0	
0.025	23	7.7	
0.05	74	24.7	
0.075	134	44.7	
0.1	185	61.7	7.0
0.125	234	78.0	
0.15	280	93.3	
0.175	326	108.7	
0.2	372	124.0	8.7
0.25	450	150.0	
0.3	499	166.3	
0.35	492	164.0	
0.4	467	155.7	
0.5	465	155.0	



Sample 3 (PER LAYER 56 Blows; Surcharge: 40 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 4504.2 Wt. Soil+Tare, gms. 3991.7 Wt. Tare, gms. 0 **Moisture, % 12.8**

Unit Weight

Wt. Mold+Soil, lbs. 28.22 Wt. Mold, lbs. 18.29 Ht. Soil, in. 4.58 **Density, pcf 117.4**

Swell Data

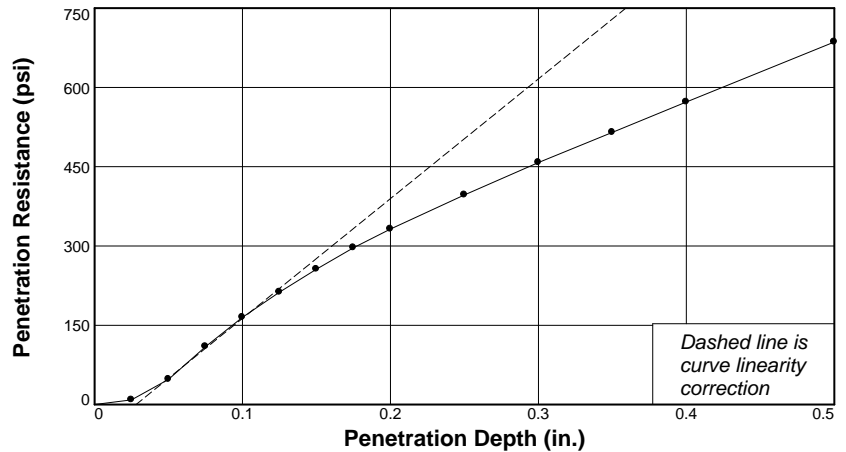
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	670	0.0
18	678	0.2
26	678	0.2
90	678	0.2
96	678	0.2

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
1)	4968.4	4368.9	420.7	15.2

Penetration Test Data

Pen. in.	Dial Reading	Stress psi	CBR %
0.0	0	0.0	
0.025	27	9.0	
0.05	143	47.7	
0.075	329	109.7	
0.1	495	165.0	21.8
0.125	638	212.7	
0.15	768	256.0	
0.175	890	296.7	
0.2	996	332.0	24.5
0.25	1190	396.7	
0.3	1374	458.0	
0.35	1545	515.0	
0.4	1717	572.3	
0.5	2058	686.0	





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Date of Report: March 14, 2017

Date Cored: March 13, 2017

L-16205

William H. Morse Airport

Apron Investigation

Bennington, Vermont

Pavement Section Thickness (ASTM D3549)

			Asphalt Pavement Estimated Thickness		
Lab I.D.	Core I.D.	Core Location	1st (UPPER) COURSE (Inches)	2nd COURSE (Inches)	Asphalt Pavement Total Thickness (Inches)
34190	C-1	See Engineer's Drawing	2 1/8 CT	2 1/2 BI	4 5/8
34191	C-2	See Engineer's Drawing	1 3/4 CT	2 1/8 BI	3 7/8
34192	C-3	See Engineer's Drawing	1 1/4 CT	1 3/4 BI	3
34193	C-4	See Engineer's Drawing	1 5/8 CT	1 1/8 BI	2 3/4
34194	C-5	See Engineer's Drawing	1 5/8 CT	1 5/8 BI	3 1/4
34195	C-6	See Engineer's Drawing	1 1/4 CT	1 7/8 BI	3 1/8
34196	C-7	See Engineer's Drawing	1 5/8 CT	1 3/4 BI	3 3/8
34197	C-8	See Engineer's Drawing	1 5/8 CT	1 3/8 BI	3
34198	C-9	See Engineer's Drawing	1 1/4 CT	2 1/4 BI	3 1/2

Note: (1) Description of course type derived from estimate of nominal maximum aggregate size

(2) Thickness measurements were obtained to the nearest 1/8 Inch

Pavement Description

CT = Coarse Top

BI = Binder



BORING LOG

PROJECT:	William H. Morse State Aiprort	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	BORING NUMBER:	B-1
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

GROUND WATER READINGS

DATE STARTED:	03/07/17	DATE COMPLETED:	03/07/17	WHILE DRILLING:	Depth to Water: None Noted	Casing At: 4.0'
DRILLER:	Marc Cheney	HELPER:	Zack Cheney	BEFORE CASING REMOVED:	None Noted	6.0'
CASING TYPE:	3 1/4" Hollow Stem Augers			AFTER CASING REMOVED:	None Noted	
DRILL RIG:	Truck Mountedl Central Mine Equipment Model 55			CAVED AT DEPTH:	3.1'	

SAMPLE NUMBER	DEPTH OF SAMPLE	BLOW COUNTS OF SAMPLER DRIVE (per 6")	C/N	RECOVERY (Inches)	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	DEPTH OF STRATA CHANGE
1b	0.2'-2.0'				Brown cmf SAND, little cmf GRAVEL, trace SILT (moist, compact)	
2	2.0'-2.0'	100@0"	N/100+	0	No Sample Recovery - <i>Cobbles Noted to 4.0'</i>	4.0
3	4.0'-6.0'	18-33-21-18	N/43	5	Brown SILT and cmf GRAVEL, trace cmf SAND (moist, hard)	
4	6.0'-8.0'	17-17-9-17	N/26	6	Similar Soil (moist, hard)	
					Bottom of Boring @ 8.0'	

Notes:
 Key to Drilling Terms: N - No. of blows to drive sampler 12" w/ 140 lb. hammer falling / 30"; C - % of Bedrock Core Recovery



BORING LOG

PROJECT:	William H. Morse State Airprt	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	BORING NUMBER:	B-2
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

GROUND WATER READINGS			
DATE STARTED:	03/07/17	DATE COMPLETED:	03/07/17
DRILLER:	Marc Cheney	HELPER:	Zack Cheney
CASING TYPE:	3 1/4" Hollow Stem Augers		
DRILL RIG:	Truck Mountedl Central Mine Equipment Model 55		

WHILE DRILLING:	None Noted	Casing At:	4.0'
BEFORE CASING REMOVED:	None Noted	Casing At:	6.0'
AFTER CASING REMOVED:	None Noted		
CAVED AT DEPTH:	3.9'		

SAMPLE NUMBER	DEPTH OF SAMPLE	BLOW COUNTS OF SAMPLER DRIVE (per 6")	C/N	RECOVERY (Inches)	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	DEPTH OF STRATA CHANGE
1a	0.0'-0.3'	4-5-5-5	N/10	10	3" Topsoil (moist)	0.3
1b	0.3'-2.0'				Brown SILT, little cmf SAND (moist, medium compact)	
2	2.0'-4.0'	5-7-6-6	N/13	12	Brown SILT, some cmf SAND, little mf GRAVEL (moist, very stiff)	
3	4.0'-6.0'	5-5-6-5	N/11	17	Similar Soil (moist to wet, stiff)	
4	6.0'-8.0'	17-6-7-55	N/13	12	Similar Soil (moist to wet, stiff)	
					Bottom of Boring @ 8.0'	

Notes:
 Key to Drilling Terms: N - No. of blows to drive sampler 12" w/ 140 lb. hammer falling / 30"; C - % of Bedrock Core Recovery



BORING LOG

PROJECT:	William H. Morse State Airport	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	BORING NUMBER:	B-4/C-2
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

GROUND WATER READINGS

DATE STARTED:	03/06/17	DATE COMPLETED:	03/06/17	WHILE DRILLING:	Depth to Water:	Casing At:
					None Noted	4.3'
DRILLER:	Marc Cheney	HELPER:	Zack Cheney	BEFORE CASING REMOVED:	None Noted	6.3'
					AFTER CASING REMOVED:	None Noted
CASING TYPE:	3 1/4" Hollow Stem Augers			CAVED AT DEPTH:	4.1'	
DRILL RIG:	Truck Mounted Central Mine Equipment Model 55					

SAMPLE NUMBER	DEPTH OF SAMPLE	BLOW COUNTS OF SAMPLER DRIVE (per 6")	C/N	RECOVERY (Inches)	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	DEPTH OF STRATA CHANGE
					4" Asphalt Pavement	0.3
1	0.3'-2.3'	22-18-15-12	N/3	12	Brown cmf SAND, little mf GRAVEL, trace SILT (moist, loose) 28" Subbase Course	
2a	2.3'-2.9'	12-10-15-29	N/25	14	Similar Soil (moist, medium compact)	2.9
2b	2.9'-4.3'				Brown SILT and cmf GRAVEL, trace cmf SAND, trace CLAY (moist, very stiff)	
3	4.3'-6.3'	26-29-22-35	N/51	16	Similar Soil (moist, hard)	
4	6.3'-8.3'	27-48-63-77	N/111	16	Similar Soil (moist, hard)	
					Bottom of Boring @ 8.3'	

Notes:
 Key to Drilling Terms: N - No. of blows to drive sampler 12" w/ 140 lb. hammer falling / 30"; C - % of Bedrock Core Recovery



BORING LOG			
PROJECT:	William H. Morse State Airprt	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	BORING NUMBER:	B-5/C-7
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

GROUND WATER READINGS						
DATE STARTED:	03/07/17	DATE COMPLETED:	03/07/17	WHILE DRILLING:	Depth to Water: None Noted	Casing At: 4.3'
DRILLER:	Marc Cheney	HELPER:	Zack Cheney	BEFORE CASING REMOVED:	None Noted	6.3'
CASING TYPE:	3 1/4" Hollow Stem Augers			AFTER CASING REMOVED:	None Noted	
DRILL RIG:	Truck Mountedl Central Mine Equipment Model 55			CAVED AT DEPTH:	5.1'	

SAMPLE NUMBER	DEPTH OF SAMPLE	BLOW COUNTS OF SAMPLER DRIVE (per 6")	C/N	RECOVERY (Inches)	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	DEPTH OF STRATA CHANGE
					3 1/2" Asphalt Pavement	0.3
1	0.3'-2.3'	22-21-14-19	N/35	18	Brown cmf SAND and cmf GRAVEL, trace SILT (moist, compact) 24" Subbase Course	
2a	2.3'-3.0'	11-10-6-8	N/16	10	Similar Soil (moist, medium compact)	3.0
2b	3.0'-4.3'				Brown Mottled SILT, little CLAY, trace cmf SAND (moist, very stiff)	
3	4.3'-6.3'	11-6-10-15	N/14	18	Brown Similar Soil (moist, stiff)	
4	6.3'-8.3'	11-11-10-15	N/21	11	Similar Soil (moist to wet, very stiff)	
					Bottom of Boring @ 8.3'	

Notes:

Key to Drilling Terms: N - No. of blows to drive sampler 12" w/ 140 lb. hammer falling / 30"; C - % of Bedrock Core Recovery



BORING LOG

PROJECT:	William H. Morse State Aiprort	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	BORING NUMBER:	B-6/C-8
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

GROUND WATER READINGS

DATE STARTED:	03/07/17	DATE COMPLETED:	03/07/17	WHILE DRILLING:	Depth to Water:	Casing At:
					None Noted	4.3'
DRILLER:	Marc Cheney	HELPER:	Zack Cheney	BEFORE CASING REMOVED:	None Noted	5.2'
CASING TYPE:	3 1/4" Hollow Stem Augers			AFTER CASING REMOVED:	None Noted	
DRILL RIG:	Truck Mountedl Central Mine Equipment Model 55			CAVED AT DEPTH:	3.4'	

SAMPLE NUMBER	DEPTH OF SAMPLE	BLOW COUNTS OF SAMPLER DRIVE (per 6")	C/N	RECOVERY (Inches)	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	DEPTH OF STRATA CHANGE
					3 1/2" Asphalt Pavement	0.3
1	0.3'-2.3'	11-21-16-13	N/37	17	Brown cmf SAND and cmf GRAVEL, trace SILT (moist, compact) 30" Subbase Course	
2a	2.3'-2.8'	8-6-7-6	N/13	7	Similar Soil (moist, medium compact)	2.8'
2b	2.8'-4.3'				Brown SILT, some cmf SAND, little mf GRAVEL (moist, very stiff)	
3	4.3'-5.2'	9-100@4"	N/100+	6	Similar Soil w/interlayered fine SAND (moist, very compact)	
					<i>Sampler & Auger Refusal @ 5.2'</i>	
					Bottom of Boring @ 5.2'	

Notes:
 Key to Drilling Terms: N - No. of blows to drive sampler 12" w/ 140 lb. hammer falling / 30"; C - % of Bedrock Core Recovery



BORING LOG

PROJECT:	William H. Morse State Airprt	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	BORING NUMBER:	B-7/C-9
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

GROUND WATER READINGS

DATE STARTED:	03/07/17	DATE COMPLETED:	03/07/17	WHILE DRILLING:	Depth to Water:	Casing At:
DRILLER:	Marc Cheney	HELPER:	Zack Cheney	BEFORE CASING REMOVED:	None Noted	4.3'
CASING TYPE:	3 1/4" Hollow Stem Augers			AFTER CASING REMOVED:	None Noted	
DRILL RIG:	Truck Mountedl Central Mine Equipment Model 55			CAVED AT DEPTH:	3.7'	

SAMPLE NUMBER	DEPTH OF SAMPLE	BLOW COUNTS OF SAMPLER DRIVE (per 6")	C/N	RECOVERY (Inches)	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	DEPTH OF STRATA CHANGE
					3 1/2" Asphalt Pavement	0.3
1	0.3'-2.3'	12-22-20-6	N/42	7	Brown cmf SAND, trace mf GRAVEL, trace SILT (wet, compact) 12" Subbase Course	2.3'
1b	1.3'-2.3'				Brown SILT, little cmf SAND, trace CLAY (moist, hard)	
2	2.3'-4.3'	4-5-5-26	N/10	10	Brown SILT and cmf GRAVEL, little cmf SAND, trace CLAY (moist, stiff)	
3	4.3'-6.3'	15-11-10-10	N/21	10	Similar Soil (moist, very stiff)	
4	6.3'-8.3'	10-12-9-11	N/21	17	Similar Soil (moist, very stiff)	
					Bottom of Boring @ 8.3'	

Notes:
Key to Drilling Terms: N - No. of blows to drive sampler 12" w/ 140 lb. hammer falling / 30"; C - % of Bedrock Core Recovery



BORING LOG

PROJECT:	William H. Morse State Airprt	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	BORING NUMBER:	B-8
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

GROUND WATER READINGS

DATE STARTED:	03/07/17	DATE COMPLETED:	03/07/17	WHILE DRILLING:	Depth to Water:	Casing At:
					None Noted	4.0'
DRILLER:	Marc Cheney	HELPER:	Zack Cheney	BEFORE CASING REMOVED:	5.0'	6.0'
CASING TYPE:	3 1/4" Hollow Stem Augers			AFTER CASING REMOVED:	None Noted	
DRILL RIG:	Truck Mountedl Central Mine Equipment Model 55			CAVED AT DEPTH:	3.8'	

SAMPLE NUMBER	DEPTH OF SAMPLE	BLOW COUNTS OF SAMPLER DRIVE (per 6")	C/N	RECOVERY (Inches)	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	DEPTH OF STRATA CHANGE
1a	0.0'-0.3'	3-3-5-6	N/8	12	4" Topsoil (moist)	0.3
1b	0.3'-2.0'				Brown SILT, little cmf SAND, trace mf GRAVEL (moist, stiff)	
2	2.0'-4.0'	6-6-7-8	N/13	14	Similar Soil (moist, stiff)	
3	4.0'-6.0'	3-4-6-5	N/10	9	Similar Soil (moist, stiff)	
4	6.0'-8.0'	4-5-6-11	N/11	8	Similar Soil (moist to wet, stiff)	
					Bottom of Boring @ 8.0'	

Notes:
Key to Drilling Terms: N - No. of blows to drive sampler 12" w/ 140 lb. hammer falling / 30"; C - % of Bedrock Core Recovery



Key to Boring Logs

Burmister Classification of Soils	
Soil Description: Color, principal soil type and remaining soil types in decreasing pre-dominancy.	
Percentages By Weight:	
35-50%	and
20-35%	some
10-20%	little
0-10%	trace

Description of Soil Compactness (Based on SPT "N" Value)		
Primary Soil Type	Term of Compactness	Range of "N" Values
Coarse Grained Soils (Gravels and Sands)	Very Loose	N Value: < 4
	Loose	N Value: 4 to 9
	Medium Compact	N Value: 10 to 29
	Compact	N Value: 30 to 49
	Very Compact	N Value: ≥ 50
Fine Grained Soils (Silts and Clays)	Very Soft	N Value: < 2
	Soft	N Value: 2 to 3
	Medium Stiff	N Value: 4 to 7
	Stiff	N Value: 8 to 14
	Very Stiff	N Value: 15 to 29
	Hard	N Value: ≥ 30

Sample Number:

Soil - The number of the sample obtained (S-#).

Bedrock – The number of the bedrock sample obtained, referred to as a Run (R-#).

SPT "N" Value:

The number of blows of a 140 lb. weight hammer, falling 30", driving a 2" split spoon.

Recovery: Soil – Inches of soil recovered in the 2" split spoon.

Bedrock - Inches of Bedrock recovered during the core run, reported in inches and as percentage of core run.

RQD: Bedrock – Portions of the Bedrock core, full diameter and ≥ 4" in length. Reported in inches and as percentage of core run.

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TEST PIT LOG

PROJECT:	William H. Morse State Aiprort	JOB NUMBER:	G011-17
LOCATION:	Bennington, Vermont	TEST PIT NUMBER:	TP-1
CLIENT:	PW Laboratories, Inc.	SURFACE ELEVATION:	As Obtained by Client

				GROUND WATER READINGS		
DATE STARTED:	03/07/17	DATE COMPLETED:	03/07/17	DEPTH FIRST ENCOUNTERED	Depth to Water:	Time:
FIELD REPRESENTATIVE:	Marc Cheney			DEPTH PRIOR TO BACKFILL	None Noted	
EXCAVATOR TYPE:	Rubber Track 25 Series New Holland			NOTES:	None Noted	
BUCKET SIZE/TYPE:	18" General Purpose					

DEPTH	SAMPLE NUMBER	SAMPLE DEPTH	DESCRIPTION OF SOIL (Color, Primary Matrix, Complementary Matrix)	STRATA CHANGE DEPTH
0	0.0'-0.3'		3" Topsoil (moist)	0.3
	0.3'-2.0'		Brown SILT and c-m-f GRAVEL, some Cobbles, some c-m-f SAND (moist)	2.0
	2.0'-2.6'		Topsoil/Organics, trace Wood, trace Roots (moist)	2.6
	2.6'-3.0'	2.6'-3.0'	Brown SILT, little c-m-f SAND, little m-f GRAVEL, trace CLAY (moist)	
			Bottom of Test Pit @ 3.0'	
5				
10				
15				

Notes:

