REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION

FOR

PROPOSED F.W. WEBB BUILDING AMHERST, NY

PREPARED FOR

GREEN LEAF CONSTRUCTION 98 ADAMS STREET, SUITE 105 LEOMINSTER, MA 01453

ATTN: Mr. Jami Anderson, Senior Project Manager



PREPARED BY JOHN P. STOPEN ENGINEERING LLP 450 SOUTH SALINA STREET, ROOM 400 SYRACUSE, NY 13201-0029

> January 12, 2024 JPSLLP #223246.00

JOHN P. STOPEN ENGINEERING, LLP

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January 12, 2024

via email to <u>JAnderson@greenleafcm.com</u> Green Leaf Construction 98 Adams Street, Suite 105 Leominster, MA 01453

ATTN: Mr. Jami Anderson, Senior Project Manager

RE: Report of Subsurface Exploration and Geotechnical Engineering Evaluation Proposed F.W. Webb Building Amherst, New York JPSLLP #223246.00

Dear Mr. Anderson:

This documents subsurface explorations and geotechnical engineering evaluations for the Proposed F.W. Webb building in Amherst, New York. We determined the proposed expansion should be constructed on conventional foundations with concrete slab-on-grade floor.

SITE DESCRIPTION

The approximately 20-acre vacant site was at 669 S. Youngs Road in Amherst, NY (Figure 1). Based on historic aerial photographs, a wood-framed single family house was near the center of the site. The building was demolished sometime between 1985 and 1995. The site was bounded by Ellicott Creek to the south and west, S. Youngs Rd to the east and a field to the north. A recent survey indicated that the site sloped down from Elevation 695 ft at the northeast corner down to Elevation 678 ft along Ellicott Creek at the southeast corner of the site.

PROJECT DESCRIPTION

Current plans for the site include constructing an approximately 110,000 sq-ft one-story steel-framed warehouse building with the floor level at Elevation 393.0 ft with a loading dock along the south side of the building. Paved parking is planned along the west, south and east of the building with stormwater management areas to the west and south of the parking areas. Grades will have to be raised as much as 7 ft along the southwest building corner to meet the proposed floor level.

A Grading Plan indicated that grades in the western paved parking area will be raised by as much as 7 ft in some areas.

Building loads were not available, but we estimated maximum column loads of 250 kips and maximum wall loads of 2 kips per foot. Warehouse floor loads were not available, but we presume relatively light plumbing parts to be stored on racks.

GEOLOGY AND SEISMICITY

Based on local geology we believed the site was underlain by a shallow layer of dense glacial till over shallow bedrock. We expected the bedrock to be encountered at less than 10-ft-depth. Bedrock was expected to be Onondaga and Bois Blanc Limestone.

According to ASCE 7-16, the design earthquake is characterized by mapped spectral response accelerations $S_s = 0.171 \text{ g}$, $S_1 = 0.045 \text{ g}$, and PGA = 0.096 g.

PREVIOUS SUBSURFACE EXPLORATIONS

Explorations were performed by Terracon Consultants in November of 2021 for a different project just to the north of the subject site. It consisted of drilling 18 Test Boring (B-#) but Test Borings B-16, B-17 and B-18 were drilled within the subject site. Pertinent Test Boring logs are in Appendix A.

The explorations encountered between two to four feet of topsoil mixed with old fill consisting of silt, clay, sand, glass and limestone fragments. Standard Penetration Test (SPT) N-values in the topsoil/fill ranged from 5 to 29 blows/ft with an average of about 12 blows/ft, indicating an overall stiff state. Below the topsoil one to two feet of dense glacial till was encountered above Limestone bedrock. Standard Penetration Test (SPT) N-values in the fine sand ranged from 55 to 100+ blows/ft with an average of about 50 + blows/ft, indicating an overall very dense state. Sampler and Auger refusal was encountered between 3.5 and 5 ft below grade (Elevation 677.1 to 683 ft).

Groundwater was not encountered in the borings.

Bedrock was encountered between 3.5 and 5 ft below grade (Elevation 677.1 to 683 ft). Nearby rock cores indicated Rock Quality Designations between 55% to 78%. Rock core recovery was not recorded on the logs.

SUBSURFACE EXPLORATIONS AND FINDINGS

While the three test borings provided good detail on subsurface conditions, we planned additional explorations to confirm conditions across the rest of the site. We directed and oversaw the subsurface exploration on December 13, 2023 that consisted of excavating the 23 Test Pits shown on Figure 2. Test pits were excavated by our subcontractor Jerry's Contracting Enterprises, Inc. using a tracked excavator. Subsurface conditions were as shown on the Test Pit Logs in Appendix B. Our Engineer interpreted the results of the 2023 explorations and previous explorations to develop the soil profiles on Figures 3 and 4.

The test pits typically encountered 10 to 18 inches of topsoil. Below the topsoil, 0.5 to 4.5 ft of dense glacial till was encountered. Pocket Penetrometer readings indicated Unconfined Compressive Strength (UCS) of the silty soil of was typically from 2.5 to greater than 4.5 tsf which indicated a very stiff to hard consistency. Hard limestone was encountered below the topsoil and glacial till between 10 inches and 6.7 ft below grade (Elevation 680.75 ft to Elevation 690 ft). The excavator could not rip into the hard bedrock.

Groundwater was not encountered in any of the test pits.

We interpreted results of the explorations to develop the bedrock surface on Figure 2.

PREVIOUS LABORATORY TESTING

Compression strength testing was performed previously by Terracon on the limestone bedrock from Run #1 of B-8 (between 7.0 to 7.3 ft). The uniaxial compressive strength (UCS) from the testing was about 12,000 psi. Results are in Appendix C.

GEOTECHNICAL ENGINEERING EVALUATION

Based on the findings of the explorations, we determined that the building should be constructed on conventional shallow foundations. The floor can be constructed as a concrete slab-on-grade.

Foundations bearing on the native glacial till should be proportioned for a net allowable bearing pressure of 3 ksf. Foundations bearing on the rock should be proportioned for a net allowable bearing pressure of 10 ksf. A higher bearing pressure on rock could be justified on a case-by-case basis, but minimum practical footing sizes and/or footing sizes required to resist uplift loads may govern. Based on the finished floor Elevation at 693 ft, we expect foundation bearing level from Elevation 688 ft to 690 ft. Where bedrock is deeper than expected foundation bearing level it might be practical to excavate deeper (anticipated 2 to 4 ft below bearing level) to found footings on bedrock or lean concrete placed on rock. Foundations requiring protection frost should bear at least 48 inches below final adjacent grade. Footings required frost protection that bear on rock above this level may be acceptable but should be approved by the engineer at the time of construction.

Four-foot-high retaining walls may be required at loading docks. Conventional cantilever walls may be most compatible with the proposed type of construction. Design cantilevered stem walls for active earth pressure. For seismic design, the seismic resultant force increment should be applied at a distance of 0.3H above the bottom of the wall and calculated according to the Mononobe-Okabe method. The traffic vertical surcharge should be taken as at least 300 psf to account for both potential construction and long term loads. The horizontal component of surcharge should be determined by multiplying the vertical value by 0.5. Walls should be backfilled with free-draining crushed stone or sand and gravel having less than 10 percent passing the #200 sieve.

We determined that Site Class B should be used for Seismic Design in accordance with Section 1613 of the NYS Building Code (NYSBC) based on the previous shear wave velocity measurements taken at the site.

The 10 to 18-inch-thick layer of topsoil should be removed from building and pavement areas and to at least 5 ft beyond. This material is not suitable for re-use as structural fill.

The native glacial till soil is moisture sensitive and has a narrow range of moisture content for compaction and will lose strength if disturbed when wet and is susceptible to frost-heave. You should plan to import granular structural fill.

The silty subgrade soils will be sensitive to construction traffic. It may be advantageous to provide a working mat of an 18-inch-thick layer of crushed stone in areas of pavements or on-grade floors in these areas. The tops of the mat should be cleared of contaminated stone before placing required additional subbase.

Water is not expected to be encountered during excavation work for foundations. Water from precipitation can probably be handled with sumps and pumps.

GEOTECHNICAL ENGINEERING RECOMMENDATIONS

Based on our evaluations, we recommend constructing the proposed structure on conventional foundations with a concrete slab-on-grade floor according to:

- A. Site Preparation
- 1. Remove vegetation and topsoil from building and pavement areas and to at least 5 ft beyond.
- 2. Repair test pit excavations by removing disturbed soil at test pit locations and backfilling with compacted structural fill.
- 3. If necessary, lower grades further to 12 inches below bottom of the proposed floor slab in building area and pavement areas and to 5 ft beyond.

- 4. Proof-roll subgrade in building and pavement areas in condition of low soil moisture, by making at least 4 overlapping passes of a self-propelled vibrating drum compactor having static weight of at least 10 tons. Proofrolling is to have the effects of compacting the subgrade and exposing unstable areas. This requirement can be waived where bedrock is exposed. The silty glacial till layer below the topsoil is moisture-sensitive and will lose strength if disturbed when wet. Therefore, after subgrade approval by the Engineer's representative, subgrade should be covered with imported granular structural fill without delay to protect it.
- 5. Repair unstable or un-compactable areas disclosed by proofrolling and as directed by the engineer's representative, by undercutting unsuitable soil and replacing with well-compacted structural fill.
- 6. After subgrade approval by the Engineer's representative, compact structural fill and backfill in building area to at least 93 percent of the maximum modified Proctor density as determined by ASTM D1557 procedure. Place fill with lift thicknesses compatible with compaction equipment and testing laboratory capabilities, but no thicker than 12-inch loose thickness.
- 7. Use structural fill conforming to the gradation requirements of NYSDOT 733-04 Type 2. Consideration may be given to substituting other moisture insensitive, less expensive material, for structural fill if it has less than 10 percent passing the #200 sieve, is well graded, and has no particles greater than 4 inches.
- B. Foundation Design and Construction
- 1. Set foundations to bear on undisturbed natural subgrade or structural fill on stable natural subgrade.
- 2. Proportion footings for net allowable bearing pressure of 3 ksf for footing bearing on undisturbed natural glacial till or structural fill on stable native soils. For footings bearing on bedrock proportion footings for net allowable bearing pressure of 10 ksf.
- 3. Use minimum column footing width of 36 inches; use minimum wall footing width of 24 inches.
- 4. Construct footings requiring protection from frost heave at least 48 inches below finished grade. Footings bearing directly on hard rock may bear above this depth if approved by the Engineer at the time of construction.
- 5. Construct footings on stable subgrade free of loose or disturbed material after approval by the Engineer's representative.
- 6. If unsuitable subgrade is encountered at bearing level, undercut subgrade as directed by the Engineer's representative and replace with well compacted structural fill.
- 7. For seismic design use Site Class B in accordance with NYSBC Section 1613.
- C. Concrete Slab-on-Grade Floor
- 1. Construct concrete slab-on-grade floor on subbase consisting of at least 4 inches of well compacted crushed stone or crushed gravel conforming to NYSDOT Standard Specification Item 733-04 Type 2.

Compact the subbase to at least 95 percent of the maximum modified Proctor density as determined by ASTM D1557.

- 2. Before placing subbase, proofroll subgrade by making at least 4 overlapping passes in each of 2 perpendicular directions using a smooth-drum, vibratory roller having static weight of at least 10 tons. Cover subgrade with subbase without delay after approval of proofrolling by Engineer's representative.
- 3. For approved floor subgrade, use subgrade modulus of 150 pci for slab thickness design.
- 4. Furnish a vapor barrier beneath slabs in conditioned or moisture sensitive spaces, and especially if impermeable floor finishes are used. Vapor barrier is to conform to Stego 10 mil, or equivalent.
- D. Building Entries
- Construct pavements and slabs at out-swinging doors within 5 ft of the building over non-frostheave susceptible soil to a depth of 4 ft, such as NYS DOT Standard Specification Item 733-04 Type 2.
- E. Retaining Walls at Loading Docks
- 1. For retaining walls, use design parameters in Table 1:

Table 1. Values for Retaining Walls

Table 1. Values for retaining walls backfilled with structural fill over rock						
Unit weight (γ)	135 pcf					
Internal Friction Angle	34°					
Ka	0.28					
K _p	3.54					
Vertical Surcharge	300 psf for traffic loads (if applicable)					
Seismic Resultant Force	$\Delta P_{ae}=0.5\gamma H^2 0.75 a_h$					
a _h = peak ground acceleration	0.096 g					

- F. Pavement Design and Construction
- 1. Construct all pavements on a subbase course for drainage. Proofroll the subgrade as described in Section C above.
- 2. Repair unstable areas by over-excavating and replace with well-compacted structural fill as directed by Engineer's representative. Compact structural fill to a minimum of 95 percent of the maximum modified Proctor dry density.
- 3. After results of proofrolling are approved by engineer's representative, place pavement subbase without delay.
- 4. Pavement subbase to consist of crushed stone conforming to NYSDOT Specification Item 733-04 Type 2 or 4 and compacted to at least 95 of the maximum modified Proctor maximum density as determined by ASTM D 1557 procedures without correction for oversized particles.

5. Design pavements based on CBR = 10 for pavements constructed on at least 6 inches of imported granular structural fill provided subgrade is stable during proofrolling, compacted at moisture content dryer than 1 percent wet of optimum, and the following thicknesses given in Table 2:

TABLE 2

Bayamant Type		Top Course	Binder Course	Subbase
Pavement Type	WIDX. ESALS	Thickness (in)	Thickness (in)	Thickness (in)
Standard Duty	141,600	2.0	2.0	4
Heavy Duty	220,000	2.0	2.0	5

If the design ESALs exceed those shown in Table 2, these values will have to be re-evaluated and adjusted accordingly. All asphalt should conform to NYS DOT Standard Specifications.

- 6. For concrete pavements, use 6 inches of unreinforced concrete over 8 inches of well compacted subbase designed based on a subgrade modulus of 150 pci.
- G. Special Inspections

In accordance with Chapter 17 of the New York State Building Code, these special Geotechnical Inspections should be provided:

- 1. Subgrade approval by Engineer's representative for building area before placing structural fill, and for footing subgrade and floor subgrade.
- 2. Verification of structural fill and backfill materials and documentation of the degree of relative compaction.

Geotechnical Engineering Report F.W. Webb Amherst, NY – Green Leaf Construction #223246.00



Thank you for the opportunity to be of service to Green Leaf Construction. Please contact us if you have questions or if we can be of further service.

Respectfully submitted,

JOHN P. STOPEN ENGINEERING LLP

Edin Hurtie

EDIN HURTIC, E.I.T. Geotechnical Engineer

EH/JT

JASON THORPE, M.Sc., P.E. Partner, Geotechnical Engineer

Attachments: Figure 1. Site Location Plan Figure 2. Subsurface Exploration Plan Figure 3. Soil Profile A Figure 4. Soil Profile B Appendix A: 2021 Test Boring Logs Appendix B: 2023 Test Pit Logs Appendix C: 2021 Laboratory Testing











		I	BORING LO	DG NO. B-1	6					Page 1 of	1
F	PROJ	ECT: 669 Youngs Road		CLIENT: The K Orcha	rog Grou Ird Park, I	р NY					
	SITE:	669 Youngs Road Amherst, NY									
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.9483° Longitude: -78.7266°	A	pproximate Surface Elev.:	688 (Ft.) +/-	DEPTH (Ft.)	WATER LEVEL DBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
1	<u><u>x</u> <i>1_x</i> <u>x</u></u>	DEPTH TOPSOIL 0.6		ELEV	<u>ATION (Ft.)</u> 687.5+/-			$\overline{)}$	_		
		SILTY CLAY (CL-ML), trace sand, red-b	rown, medium stiff			-	-	X	17	1-2-3-2 N=5	21.8
LATE.GDT 12/15/21		<u>SANDY SILTY CLAY (CL-ML)</u> , trace grav	vel, brown, stiff		686+/-	_	-		17	4-4-6-6 N=10	10.0
DATATEMP		<u>SANDY SILT (ML)</u> , trace gravel, trace cla	ay, red-brown, hard		682+/-	-		\mathbb{X}	9	6-40-50/0"	11.6
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BOR	No	one encountered at completion of sampling			Drill Rig: Died	rich D-	50		Drille	er: J. Tojdowski	
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			E	BORING LO)G NO. B-1	7				F	Page 1 of 1
	Ρ	ROJI	ECT: 669 Youngs Road		CLIENT: The K	rog Group					
	S	ITE:	669 Youngs Road Amherst, NY								
	MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.9477° Longitude: -78.7278°		Approximate Surface	e Elev.: 681 (Ft.) +/- El EVATION (Et)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
-	1 2		<u>TOPSOIL</u> 0.6 <u>FILL - SILTY SAND</u> , trace limestone fraç	gments, trace glass f	ragments, black	680.5+/- 679+/-	_			17	4-10-19-14 N=29
PLATE.GDT 12/15/21	3		SILTY CLAY WITH HIGHLY WEATHERE orange brown, hard	D LIMESTONE FRA	<u>GMENTS (CL-ML)</u> ,	677+/-	_		$\left \right\rangle$	14	18-25-30-50/5" N=55
RATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL J5215072 669 YOUNGS ROAD GPJ TERRACON _DATATE		Str	atification lines are approximate. In-situ, the transition ma	ay be gradual.		Hammer Type: Au	tomatic				
VALID IF SEPA	Adv 3 B	anceme .25 inch arrel Sa	int Method: ID Hollow Stem Augers and 2 inch OD Split mpler	See Exploration and Te description of field and used and additional dat	sting Procedures for a aboratory procedures a (If any).	Notes:					
DG IS NOT	Aba B	ndonme oring ba	ent Method: ackfilled with auger cuttings upon completion.	symbols and abbreviation	lated from Google Earth.						
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IS BORIN		No	ne encountered at completion of sampling	15 Marway	DCON Cir, Ste 2B	Drill Rig: Diedrich D-5	50		Driller	: J. To	jdowski
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			E	BORING LO)G NO. B-1	8				F	Page 1 of 1
	Ρ	ROJI	ECT: 669 Youngs Road		CLIENT: The K Orcha	rog Group ard Park, NY					
	S	ITE:	669 Youngs Road Amherst, NY								
	MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.9475° Longitude: -78.7254°		Approximate Surfac	e Elev.: 684 (Ft.) +/-	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
<u>.</u>	1 2		2.0	y, red-brown, stiff		683.5+/- 682+/-	-	-		19	1-1-9-5 N=10
GDT 12/15/2	3		WEATHERED LIMESTONE, brown-gray			690 5+/	_	-	\times	2	50/4"
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NG LC			WATER LEVEL OBSERVATIONS			Boring Started: 11-17	-2021	E	Boring	g Com	oleted: 11-17-2021
HIS BORI		INC	me encountered at completion of sampling	15 Marway	Cir, Ste 2B	Drill Rig: Diedrich D-5	50		Driller	: Ј. То	jdowski



TEST PIT LOGS

Client	Green L	eaf Constructio	on	Date	12/13/2023	
Project	F.W. We	bb Amherst		 Datum		
Location	Amherst	;, N.Y.		Weather		
Job No.	223247.	00		Observer	Brandon Rhea	, P.E.
Test Pi	t No	1 Elev	ation	±690,5 ft	Water	None
donth	maiatura	nookot non			Description	
uepin	Moist	pocket pen	W X	14" Topsoil w	ith organics/roots	Dark Br. CLAY Loam
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	*	0.5 15F			SI. SIILY CLAT, Ir.	
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			pa	a x"/y# = advancement of	%-inch diameter tile pr	obe under stated force
Test Pi	it No	2 Eloy	pa	a x"/y# = advancement of +602 ft	½-inch diameter tile pr	obe under stated force
Test P	it No	Elev	pa vation	a x"/y# = advancement of ±692 ft	½-inch diameter tile proWater	obe under stated force
Test P	it No	2 Elev	pation	a x"/y# = advancement of ±692 ft	^{1/2} -inch diameter tile pro Water Description	obe under stated force None
Test P	it No moisture Moist	2 Elev	vation	<pre>a x"/y# = advancement of ±692 ft 12" Topsoil w</pre>	^{1/2-inch diameter tile pro Water Description /ith organics/roots}	obe under stated force None Dark Br. Clay Loam
Test Pi	it No moisture Moist	2 Elev pocket pen	vation	 x"/y# = advancement of ±692 ft x 12" Topsoil w 12" Red/Br. \$ 	¹ /2-inch diameter tile pro Water Description /ith organics/roots Silty CLAY, tr. root	obe under stated force None Dark Br. Clay Loam s, tr. f sand
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Test Pi	it No moisture Moist	2 Elev pocket pen 1.5 TSF	pation	a x"/y# = advancement of 1 ±692 ft × 12" Topsoil w ≤ 12" Red/Br. S 1' Bedrock	^{1/2} -inch diameter tile pro <u>Water</u> <u>Description</u> /ith organics/roots Silty CLAY, tr. root	obe under stated force None Dark Br. Clay Loam s, tr. f sand
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Test P depth	it No	2 Elev pocket pen 1.5 TSF	pa vation	a x"/y# = advancement of 1 ±692 ft × 12" Topsoil w 5 12" Red/Br. S 1' Bedrock	¹ /2-inch diameter tile pro <u>Water</u> <u>Description</u> vith organics/roots Silty CLAY, tr. root	obe under stated force None Dark Br. Clay Loam s, tr. f sand
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TEST PIT LOGS

Client Project Location Job No.	Green L F.W. We Amherst 223247.	eaf Construction Bbb Amherst C, N.Y. 00	on	Date Datum Weather Observer	12/13/2023 Brandon Rhea,	P.E.
Test Pi	it No	3 Elev	ation	±691.5 ft	Water	None
depth	moisture	pocket pen	w		Description	
	Moist	0.5 TSF	× × ×	× 12" Topsoil D	ark Br. Silty CLAY	Loam
		1.0 TSF	87	र्क 6" Light Br. C	layey SILT with roc	ots
	V	2.0 TSF		10" Reddish I	Br. Stiff Clayey SIL	T
				Bedrock	r ann an canno lann a ann a ann an an ann an an ann an	
5'						
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			k	ba x"/y# = advancement of ?	%-inch diameter tile pro	be under stated force
Test Pi	it No	4Elev	ration	ba x"/y# = advancement of t ±694 ft	%-inch diameter tile pro	be under stated force None
Test Pi	it No	4 Elev	vation	oa x"/y# = advancement of 1 ±694 ft	12-inch diameter tile pro Water Description	be under stated force None
Test Pi	it No moisture Moist	4 Elev pocket pen 0.5 TSF	vation	ba x"/y# = advancement of t ±694 ft t 12" Topsoil D	%-inch diameter tile pro Water Description Dark Br. Sandy SILT	be under stated force None
Test Pi	it No moisture Moist	4 Elev pocket pen 0.5 TSF 0.75 TSF	vation	ba x"/y# = advancement of 1 ±694 ft 12" Topsoil D 12" Red/Br. S	½-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Po	be under stated force None Γ Loam ossible Fill)
Test Pi	it No moisture Moist	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation	2a x"/y# = advancement of 1 ±694 ft 12" Topsoil D 12" Red/Br. S Red/Br. Very	%-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Pc Stiff Clayey SILT v	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi	it No moisture Moist	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation	a x"/y# = advancement of 1 ±694 ft 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles. tr. o	%-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Po Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi	it No moisture Moist	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation	a x"/y# = advancement of 1 ±694 ft 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	%-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Po Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi depth 5'	it No moisture Moist	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation	ba x"/y# = advancement of 1 ±694 ft 12" Topsoil D 11 12" Red/Br. Very cobbles, tr. o Bedrock	¹ ∕₂-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Pc Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi	it No moisture Moist	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation	ba x"/y# = advancement of 1 ±694 ft x 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	%-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Po Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi depth 5'	it No Moist 	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation	ba x"/y# = advancement of 1 ±694 ft x 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	¹ / ₂ -inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Pc Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi	it No	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation $_{x \times x}^{F}$	ba x"/y# = advancement of 1 ±694 ft x 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	½-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Pc Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi depth	it No	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	$w \\ x_x \\ y_y \\ $	a x"/y# = advancement of 1 ±694 ft 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	%-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Pc Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and I)
Test Pi	it No	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	ration	ba x"/y# = advancement of 1 ±694 ft x 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	¹ / ₂ -inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Pc Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and
Test Pi	it No	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	ration w × × √ √ √ √ √ √ √ √ √ √ √ √ √ √	ba x"/y# = advancement of 1 ±694 ft 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	%-inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Po Stiff Clayey SILT v rganics (Glacial Till rganics (Glacial Till	be under stated force None F Loam ossible Fill) vith Gravel, and I)
Test Pi	it No	4 Elev pocket pen 0.5 TSF 0.75 TSF 4.0 TSF	vation	a x"/y# = advancement of 1 ±694 ft 12" Topsoil D 12" Red/Br. S Red/Br. Very cobbles, tr. o Bedrock	¹ / ₂ -inch diameter tile pro Water Description Dark Br. Sandy SILT SILT some Clay (Po Stiff Clayey SILT v rganics (Glacial Till	be under stated force None Γ Loam ossible Fill) vith Gravel, and

TEST PIT LOGS

Client Project Location Job No.	Green L F.W. We Amherst 223247.	eaf Constructic bb Amherst , N.Y. 00	on 		Date Datum Weather Observer	12/13/2023 Brandon Rhea,	P.E.
Test Pi	t No	5 Elev	ation)	±690 ft	Water	None
depth	moisture	pocket pen	w			Description	
	Moist			X X X	10" D. Brown	Sandy SILT Loam	with tree roots
	4				7" Light Br. M	edium Dense Silty	F. SAND
				ifa wa wa suli wa si s	Bedrock	na population a sector of a sector of the	ma
						www.sawer for myself for galance of the control of the system of	, a tit a An Antitita de de a d'an arte
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-						 	·
				· · · · · · · · · · · · · · · · · · ·			
4.01						······	
10'							
				··· ···			
				t a grata a a ga a New ana a			
				pa x"/ya	f = advancement of 1	1/2-inch diameter tile prot	be under stated force
Test P	it No.	6 Elev	atior	1	±689.5 ft	Water	None
				· · · · ·			
depth	moisture	pocket pen	w	ļ,		Description	
	Moist			× × × ×	12" Topsoil D	ark Br. Sandy SILT	Loam with organics
				5/.85	and roots		
		2.5 TSF		15/50	18" Light Br.	Clayey SILT, tr. roo	its
		>4.5 TSF		1.50 51	Light Br. Very	y Hard Sandy SILT,	with gravel
5'			1	0	and cobbles		
	4				Bedrock		· · · · · · · · · · · · · · · ·
				1 11 111	171		
				· I · · (-		· ··· · · · · · · · · ·	
				1 · · · (- · · · · · · · ·	1	· ··· ··· ·· ·· · · · · · · · · · · ·	
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10'					· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
10'					· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·

TEST PIT LOGS

Client Project Location Job No.	Gre F.W Aml 223	en L V. We herst 247.	eaf Con ebb Ami , N.Y. 00	istruction nerst	on		Date Datum Weather Observer	12/13/2023 Brandon Rhea,	P.E.
Test Pi	it No.		7	_ Elev	atior	ו <u> </u>	±688.5 ft	Water	None
depth	moist	ture	pocket	t pen	w			Description	
	Mọi	st				× × ×	D. Brown Sar	ndy SILT Loam with	tree roots
						15 11-	Light Brown S	Silty SAND tr. roots	en ander en alekten er en
							Red/Brown S	tiff Silty CLAY, tr. f	sand
	<u>}</u>								
E'			25-31	5 TSF		///			
5			2.0-0.			.//./	Light Drown L	Jord Silby CLAV wit	h aabblaa and
					<u> </u>	08/05		Taru Silly CLAT WIL	n cobbles and
	*					1 37/ I	poulders (Gla		
							Bedrock	و میدور استان و بیش و میرو ا	
10'									
						 A second sec second second sec	second a second when the second se	and a second	in the second
							و و و و و و و و و و و و و و و و و و و	and a stand of the second stand stands and the second stands and the second stands and the second stands and th	
						pa x"/	y# = advancement of 1	%-inch diameter tile prot	be under stated force
Test P	it No.		8	Elev	vation	pa x"/	v# = advancement of 1 ±685.5 ft	%-inch diameter tile prot	be under stated force
Test P	it No.		8	_ Elev	vation	pa x"/	y# = advancement of 1 ±685.5 ft	%-inch diameter tile prof Water Description	be under stated force
Test P depth	it No. moist	ture	8 pocke	_ Elev	vation	pa x"/	v# = advancement of 1 ±685.5 ft 6" D. Brown \$	%-inch diameter tile prot Water Description Sandy SILT Loam v	be under stated force None vith organics/roots
Test P depth	it No. moist	ture	8 pocke	_ Elev	vation	pa x"/	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow	¹ /2-inch diameter tile prof Water Description Sandy SILT Loam v m f SAND some roo	be under stated force None vith organics/roots
Test P depth	it No.	ture	8 pocke	_ Elev	vation	pa x"/	v# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown S	Water Water Description Sandy SILT Loam v m f SAND some roo	be under stated force None vith organics/roots
Test P depth	it No.	ture	8 pocke	Elev	vation	pa x"/	/# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$	¹ /2-inch diameter tile prof Water Description Sandy SILT Loam v In f SAND some roo	be under stated force None vith organics/roots
Test P	it No.	ture	8 pocke 2.5-3.	Elev t pen 5 TSF	vation	pa x"//	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 1 Bedrock	½-inch diameter tile prof Water Description Sandy SILT Loam v n f SAND some roo tiff Silty CLAY	be under stated force None vith organics/roots ots
Test P depth	it No.	ture	8 pocke 2.5-3.	_ Elev t pen 5 TSF	vation	pa x"/	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 1" Bedrock	^{1/2-inch diameter tile prof Water Description Sandy SILT Loam v n f SAND some roo}	be under stated force None vith organics/roots ofs
Test P depth	it No.	ture	8 pocke 2.5-3.	_ Elev t pen 5 TSF	vation	pa x"/	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 1 Bedrock	^{1/2-inch diameter tile prof Water Description Sandy SILT Loam v n f SAND some roo}	pe under stated force None vith organics/roots ots
Test P depth 5'	it No.	ture	8 pocke 2.5-3.	Elev t pen 5 TSF	vation	pa x"/	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 11 Bedrock	¹ /2-inch diameter tile prot Water Description Sandy SILT Loam v n f SAND some roo stiff Silty CLAY	be under stated force None vith organics/roots ots
Test P depth	it No.	ture	8 pocke	_ Elev t pen 5 TSF	vation	pa x"/	/# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ T Bedrock	¹ /2-inch diameter tile prof Water Description Sandy SILT Loam v n f SAND some roo	be under stated force None vith organics/roots ots
Test P depth 5'	it No.	ture	8 pocke 2.5-3.	_ Elev t pen 5 TSF	vation	pa x"/	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 1 Bedrock	2-inch diameter tile prof Water Description Sandy SILT Loam v n f SAND some roo	be under stated force None vith organics/roots ots
Test P depth	it No.	ture	8 pocke	Elev	vation	pa x"/	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 1" Bedrock	2-inch diameter tile prot Water Description Sandy SILT Loam v n f SAND some roo stiff Silty CLAY	be under stated force None vith organics/roots ots
Test P depth 5'	it No.	ture	8 pocke 2.5-3.	Elev	vation	pa x"/	/# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 1 Bedrock	¹ /2-inch diameter tile prof Water Description Sandy SILT Loam v rn f SAND some roo stiff Silty CLAY	pe under stated force None vith organics/roots ots
Test P depth 5'	it No.	ture	8 pocke	Elev t pen 5 TSF	vation	pa x"/	y# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 11 Bedrock	2-inch diameter tile prof Water Description Sandy SILT Loam v n f SAND some roo tiff Silty CLAY	be under stated force None vith organics/roots ots
Test P depth 5'	it No.	ture	8 pocke	_ Elev t pen 5 TSF	vation	pa x"/	/# = advancement of 1 ±685.5 ft 6" D. Brown \$ 6" Light Brow Red/Brown \$ 1" Bedrock	2-inch diameter tile prof Water Description Sandy SILT Loam v n f SAND some roo tiff Silty CLAY	be under stated force None vith organics/roots ots

TEST PIT LOGS

Client	Green L	eaf Constructio	on	Date	12/13/2023	
Project	F.W. We	bb Amherst		Datum		
Location	Amherst	, N.Y.		Weather		
Job No.	223247.	00		Observe	r Brandon Rhea,	P.E.
Test Pi	it No	9 Elev	ation	1 ±684.3 ft	Water	None
depth	moisture	pocket pen	w		Description	
··· • • • • • • • • • • • • • • • • • •	Moist	0.5 TSF		メ _ダ メ _メ D. Brown S	andy SILT Loam with	n roots
		0.75 TSF	1 1	Tight Brown	n Silty CLAY some Sa	and
				TRS Red/Brown	Stiff Silty CLAY tr. f	sand
	¥	2.5 TSF		Bedrock	nakian na si	
5'						
U						
			\vdash			an an san san marana sa sa sa sa sa
				e a construction de la const		
10'				· · · · · · · · · · · · · · · · · · ·		
						an ang ang ang ang ang ang ang ang ang a
	1			pa x"/y# = advancement	of ½-inch diameter tile pro	be under stated force
Test P	it No	10Elev	vatior	pa x"/y# = advancement 	of ½-inch diameter tile pro Water	be under stated force None
Test P	it No	10 Elev	/atior	pa x"/y# = advancement 1	of ½-inch diameter tile pro Water Description	be under stated force None
Test P depth	it No moisture Moist	10 Elev pocket pen 0.5 TSF	vatior	pa x"/y# = advancement ±682.75 ft	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L	be under stated force None .oam with roots/org.
Test P depth	it No moisture Moist	10 Elev pocket pen 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \times \times$ $\cancel{\times} \times$ $\cancel{\times} \times \times$ $\cancel{\times} \times$ $\cancel{\times} \times$ $\cancel{\times} \times$ $\cancel{\times} \times \times$ $\cancel{\times} \times$ \times	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P depth	it No moisture Moist	10 Elev pocket pen 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times} \cancel{\times} \cancel{\times}$ $\cancel{\times} \cancel{\times} \cancel{\times}$ $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times}$ $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times}$ $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times}$ $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times} $	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P depth	it No moisture Moist	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times}$ \cancel	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P	it No moisture Moist	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{14}$ " Topsoi 10" Light B $\cancel{11}$ " $\cancel{11}$ " $\cancel{11}$ " Old 1" Stee Bedrock	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P depth	it No Moist	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times}$	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P	it No Moisture	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior w	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{\times}$	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L Irown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P depth	it No Moist	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement ±682.75 ft <u>× × ×</u> 14" Topsoi <u>· · · · · · · ·</u> 10" Light B 10" Light B Hedrock	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P	it No Moist	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \times \cancel{\times}$ $\cancel{-5} \times \cancel{-5} \times $	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L Irown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P depth 5'	it No Moist	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement ±682.75 ft	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P depth 5' 10'	it No	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \cancel{\times} \cancel{\times} 14$ " Topsoi $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{\times} 14$ " Topsoi 10" Light B $\cancel{10}$ " Uight B $\cancel{10}$ " Old 1" Stee Bedrock	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P	it No	10 Elev pocket pen 0.5 TSF 0.5 TSF	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{14}$ " Topsoi 10" Light B $\cancel{1}^{1}$ " $\cancel{1}^{2}$ $\cancel{1}^{2}$ Old 1" Stee Bedrock	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)
Test P depth 5' 10'	it No	10 Elev	vatior	pa x"/y# = advancement $\pm 682.75 \text{ ft}$ $\cancel{\times} \cancel{\times} \cancel{\times} \cancel{14}$ " Topsoi 10° Light B 10° Light B 10° Did 1" Stee Bedrock	of ½-inch diameter tile pro Water Description I D. Br. Sandy SILT L rown Soft f. Sandy S el Line	be under stated force None .oam with roots/org. ILT (Old Fill)

TEST PIT LOGS

Client Project Location Job No.	Green Lo F.W. We Amherst 223247.	eaf Constructio bb Amherst , N.Y. 00	<u></u>	Date Datum Weather Observer	12/13/2023 Brandon Rhea,	P.E.
Test Pi	it No	_11Elev	/atior	±688.5 ft	Water	None
depth	moisture	pocket pen	w		Description	
	Moist	0.5 TSF	1	🗶 🗶 🗴 9" Topsoil D.	. Brown Sandy SILT	Loam with
		[1	· こう: with roots/org	ganics	wa • • • • • • • • • • • • • • • • • • •
		2.5 TSF	+	. <@, { 10" Red/Brov	wn Sandy SILT tr. ro	pots
	V			<u>کړ کړې</u> Red/Brown ₹	Sandy SILT some G	ravel
5'	ļ	4.0TSF	+	Bedrock		· · · · · · · · · · · · · · · · · · ·
			+			
		<u> </u>	+			
			-			
	ļ!					
101						
10'	 	 	<u> </u>			· • · · · · · · · · · · · · · · · · · ·
			<u> </u>	· · · · · · · · · · · · · · · · · · ·		
				pa x"/y# = advancement of	f 1/2-inch diameter tile prol	be under stated force
Test P	it No	12 Elev	vatio	±689 ft	Water	None
depth	moisture	pocket pen	Tw	<u> </u>	Description	
<u> </u>	Moist	0.5 TSF	+	× × × 12" Topsoil I	D. Brown Sandy SIL	T Loam with
		1.75 TSF	1	with roots/or	rganics	
	├ ₩		1	THE IST Light Brow	_ wn f. Sandy SILT, tr	. roots
	 	1	+	Bedrock		n na an
		·			و موسط و معامل و در ماه و در د	
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			<u> </u>	nan sa an		
	<u> </u>				n and the second second second second	
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10'			\top	n an ann an Ann Ann Ann Ann Ann Ann Ann	··· / ··· · · · · · · · · · · · · · · ·	
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	1	+	+			
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TEST PIT LOGS

Client Project Location Job No.	Green L F.W. We Amherst 223247.	eaf Constructi ebb Amherst t, N.Y. 00	on	Date Date Wes	e um ather server	12/13/2023 Brandon Rhea,	P.E.
Test Pi	t No	13 Elev	/ation	±687 ft		Water	None
depth	moisture	pocket pen	w]	Description	
	Moist			メ _メ メ _メ 16" To	psoil/O	rganics/Roots mixe	d with #2 Stone
					FILL)	Anno 1997 - 19	
				Bedro	ck	a maarini di sara di sara da aya da	· ·· · · · · · · · · · · · · · · · · ·
<i>c</i> ,					····.		
5							····· ·· · · · · · · · · · · · · · · ·
						<u>.</u>	
				- ANAL			
10'							
					1. N. 1		an an an the states
			-			n na se ana an agus na se an seo se	
	1	1		pa x"/y# = advance	ment of 3	2-inch diameter tile prot	be under stated force
Test P	it No.	14 Elo		1600 #		Water	Nama
			vatior				None
depth	moisture		vatior	1 <u> </u>			None
depth	moisture Moist	pocket pen		× × × × 12" TC	psoil D	Description . Brown Clayey Sil	T Loam
depth	moisture Moist ♥	pocket pen	w	1 <u>±000 n</u> <u>× × × × 12" Tc</u> <u>→ → → 4" Brc</u>	opsoil D wn Loo	Description . Brown Clayey SIL se Silty f SAND (P	T Loam
depth	moisture Moist	pocket pen		<u>× × ×</u> 12" To 1 12" To	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam
depth	moisture Moist ♥	pocket pen	w	$\frac{x}{1} = \frac{12^{\circ}}{1}$	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam
depth	moisture Moist	pocket pen		$\begin{array}{c c} \underline{x} & \underline{x} & \underline{x} \\ \hline & \underline{x} & \underline{x} & \underline{x} \\ \hline & \underline{x} & \underline{x} \\ \hline & \underline{x} & \underline{x} \\ \hline & \underline{x} & $	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam
depth 5'	Moisture	pocket pen		$\begin{array}{c c} \underline{} & \underline{} \\ \underline{}$	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam Ssible Fill)
depth 5'	moisture Moist	pocket pen		× × × × 12" Tc	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam ossible Fill)
<u>depth</u>	moisture Moist	pocket pen		$\begin{array}{c c} \hline & \hline \\ \hline \\$	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam Dossible Fill)
depth 5'	moisture Moist	pocket pen		$\frac{x \times x \times 12^{\circ}}{1 \times 10^{\circ}}$	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam ossible Fill)
depth 5'	moisture Moist	pocket pen		$\frac{1}{2} = \frac{1}{2} = \frac{1}$	opsoil D wn Loo ck	Description Brown Clayey SIL se Silty f SAND (P	T Loam Dossible Fill)
depth 5'	moisture Moist	pocket pen		$\frac{1}{1} = \frac{12^{\circ}}{12^{\circ}} $	ppsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam ossible Fill)
depth 5'	moisture Moist	pocket pen		× × × × 12" Tc	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam ossible Fill)
depth	moisture Moist	pocket pen		$\begin{array}{c c} \hline & \hline \\ \hline \\$	opsoil D wn Loo ck	Description . Brown Clayey SIL se Silty f SAND (P	T Loam ossible Fill)

TEST PIT LOGS

Client Project Location Job No.	Green L F.W. We Amherst 223247.	eaf Constructio bb Amherst , N.Y. 00	<u>on</u>		Date Datum Weather Observer	12/13/2023 Brandon Rhea, P.E.		
Test Pi	it No	15 Elev	ratior	۱ 	±692 ft	Water	None	
depth	moisture	pocket pen	w			Description		
	Moist	0.5 TSF		X X X	18" Topsoil D	. Brown Silty Claye	ey Loam	
		2.5 TSF	1		Light Brown S	Sandy SILT with or	ganics (Glacial Till)	
		4.0 TSF	1	5 1 18-				
				5.5	an an an tao an tao an tao an tao an	ana nyanaka na kali kali katuka wili ini kalini na na na na katuka katu i	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
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				pa x"/y#	= advancement of	⅓-inch diameter tile pro	be under stated force	
Test P	it No	16Elev	vatio	pa x"/y#	= advancement of ±69⊙ft	%-inch diameter tile pro	be under stated force None	
Test P	it No	16 Elev	vation	pa x"/y#	= advancement of ±69Oft	½-inch diameter tile pro Water Description	be under stated force None	
Test P	it No moisture Moist	16 Elev	vation	pa x"/y#	= advancement of ±69⊙ft 12" Topsoil D	¹ ∕⊱-inch diameter tile pro Water Description D. Brown Silty Claye	be under stated force None ey Loam	
Test P	it No. Moist ∳	16 Elev	vation	pa x"/y#	= advancement of ±690 ft 12" Topsoil D ग्रन 4" Red Soft S	 ½-inch diameter tile pro Water Description Brown Silty Claye Silty Clay 	be under stated force None ey Loam	
Test P	it No. Moist 	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	 ⅓-inch diameter tile pro Water Description Brown Silty Claye Silty Claye 	be under stated force None ey Loam	
Test P	it No moisture Moist	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	 ½-inch diameter tile pro Water Description Drown Silty Claye Silty Clay 	be under stated force None ⊋y Loam	
Test P depth	it No moisture Moist	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	 ⅓-inch diameter tile pro Water Description Brown Silty Claye Silty Clay 	be under stated force None ey Loam	
Test P depth	it No Moisture	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	 ⅓-inch diameter tile pro Water Description Drown Silty Claye Silty Clay 	be under stated force None ey Loam	
Test P depth	it No Moist	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	 ½-inch diameter tile pro Water Description Drown Silty Claye Silty Clay 	be under stated force None ey Loam	
Test P depth	it No Moist	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	⅓-inch diameter tile pro Water Description). Brown Silty Claye Silty Clay	be under stated force None ey Loam	
Test P depth 5'	it No Moist	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	%-inch diameter tile pro Water Description D. Brown Silty Claye Silty Clay	be under stated force None ey Loam	
Test P depth	it No Moisture	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	<pre>½-inch diameter tile pro</pre>	be under stated force None ey Loam	
Test P depth 5'	it No Moist	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	%-inch diameter tile pro Water Description D. Brown Silty Claye Silty Clay	be under stated force None ey Loam	
Test P depth 5' 10'	it No moisture Moist	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D 4" Red Soft S Bedrock	½-inch diameter tile pro Water Description Description Brown Silty Claye Silty Clay	be under stated force None ey Loam	
Test P depth 5'	it No	16 Elev	vation	pa x"/y#	= advancement of ±69Oft 12" Topsoil D T 4" Red Soft S Bedrock	%-inch diameter tile pro Water Description D. Brown Silty Claye Silty Clay	be under stated force None ey Loam	

TEST PIT LOGS

Client Project Location Job No.	Green L F.W. We Amherst 223247.	eaf Constructio bb Amherst , N.Y. 00	on	Date Datum Weather Observer	12/13/2023 Brandon Rhea, P.E.		
Test Pi	it No	17 Elev	ration	±691 ft	Water	None	
depth	moisture	pocket pen	w		Description		
	Moist	0.75 TSF		× × 14" Topsoil [D. Brown Silty Claye	y Loam	
		0.75 TSF		<u>종 종, 종</u> , 5" Red Soft S	Silty Clay	ana ang kang pantana tang katang ang tang tang tang tang tang tang	
				Bedrock			
5'							
						na an an an tha an	
10'							
				pa x"/y# = advancement of	f 1/2-inch diameter tile prol	be under stated force	
Test P	it No	18 Elev	vation	±690.5 ft	Water	None	
depth	moisture	pocket pen	w		Description		
	Moist	0.5 TSF		🗽 🎸 🧹 12" Topsoil I	D. Brown Silty Clay	Loam w/ roots	
	*	1.0 TSF		4" Light Brov	wn Soft Silty Clay tr.	roots	
				Bedrock		gag i kant in kina kan ina mana manana ana	
				n gan - yyy - y wyynnyn yy n'r namo, ann narran gynamado nan 'r ar r addo'r r ddad '	reade dat i reali i dell'estando anti anti estando		
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TEST PIT LOGS

Client Project Location Job No.	Green L F.W. We Amherst 223247.	eaf Constructio bb Amherst , N.Y. 00	on	Date Datum Weather Observer	12/13/2023 Brandon Rhea,	, P.E.
Test Pi	it No	19 Elev	ration	±689 ft	Water	None
depth	moisture	pocket pen	w		Description	
	Moist	0.5 TSF		× 、 イ / 14" Topsoil E	. Brown Silty Claye	ey Loam
	Ý		T i	T T Bedrock		
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				ng tao na gama na sana na na na na na na manakatati na na sana akatat		n na an
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		- 	$\left \right $	ny nga sinaga si na yan si si ya ganasan na man dan si na mantisisi si si kukuku s		
			<u> </u>			
10'				ana ing kanang pangangan kanang ang pangang pangang pangang pangang pangang pangang pangang pangang pangang pa	an a	
			1 i			
				pa x"/y# = advancement of	12-inch diameter tile pro	bbe under stated force
Test P	it No	20 Elev	vation	pa x"/y# = advancement of ±685.75 ft	1/2-inch diameter tile pro	obe under stated force None
Test P	it No	20 Elev	/ation	pa x"/y# = advancement of ±685.75 ft	12-inch diameter tile pro	obe under stated force
Test P	it No moisture Moist	20 Elev pocket pen	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $4 \times 4 \times 10^{\circ} \text{ D. Browr}$ $10^{\circ} \text{ Bedrock}$	½-inch diameter tile pro Water Description SILT/GRAVEL and	obe under stated force None Igular (FILL)
Test P	it No moisture Moist	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $\xrightarrow{4} x \xrightarrow{4} x$ $\xrightarrow{1} 10" D. Brown Bedrock$	½-inch diameter tile pro Water Description n SILT/GRAVEL an	bbe under stated force None Igular (FILL)
Test P depth	it No moisture Moist	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $\frac{4}{10^{\circ}} \text{ D. Browr}$ Bedrock	½-inch diameter tile pro Water Description SILT/GRAVEL and	obe under stated force None Igular (FILL)
Test P	it No moisture Moist	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $4 \times 4 \times 10^{\circ} \text{ D. Browr}$ $7^{1} \times 7^{1} \times 10^{\circ} \text{ Bedrock}$	½-inch diameter tile pro Water Description n SILT/GRAVEL an	obe under stated force None Igular (FILL)
Test P depth	it No moisture Moist	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $\frac{4}{10^{\circ}} \text{ D. Browr}$ Bedrock	½-inch diameter tile pro Water Description SILT/GRAVEL and	obe under stated force None Igular (FILL)
Test P depth	it No moisture Moist	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $4 \times 4 \times 10^{\circ} \text{ D. Browr}$ Bedrock	½-inch diameter tile pro Water Description n SILT/GRAVEL an	obe under stated force None Igular (FILL)
Test P depth	it No moisture Moist	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $\xrightarrow{\times} \times \times 10^{\circ} \text{ D. Browr}$ Bedrock	⅓-inch diameter tile pro Water Description SILT/GRAVEL an	bbe under stated force None Igular (FILL)
Test P	it No	20 Elev	vation	pa x"/y# = advancement of ±685.75 ft	½-inch diameter tile pro Water Description n SILT/GRAVEL an	bbe under stated force None Igular (FILL)
Test P depth 5'	it No	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $4 \times 4 \times 10^{\circ} \text{ D. Browr}$ Bedrock	½-inch diameter tile pro Water Description n SILT/GRAVEL an	bbe under stated force None
Test P depth 5'	it No	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $4 \times 4 \times 10^{\circ} \text{ D. Browr}$ Bedrock	⅓-inch diameter tile pro Water Description n SILT/GRAVEL an	obe under stated force None Igular (FILL)
Test P depth 5' 10'	it No	20 Elev	vation	pa x"/y# = advancement of ±685.75 ft * x * x 10" D. Brown T 10" D. Brown Bedrock	½-inch diameter tile pro Water Description n SILT/GRAVEL an	bbe under stated force None
Test P depth 5'	it No	20 Elev	vation	pa x"/y# = advancement of $\pm 685.75 \text{ ft}$ $\xrightarrow{a} \times \xrightarrow{a} 10" \text{ D. Browr}$ Bedrock	⅓-inch diameter tile pro Water Description ∩ SILT/GRAVEL an	obe under stated force None Igular (FILL)

TEST PIT LOGS

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Client	Green L	eaf Construction	on		Date	12/13/2023	
Project	F.W. We	ebb Amherst			Datum		
Location	Amhers	t, N.Y.			Weather		
Job No.	223247.	00			Observer	Brandon Rhea	, P.E.
Test Pi	t No	21 Elev	vation	. <u> </u>	±684.5 ft	Water	None
depth	moisture	pocket pen	w			Description	
	Moist		×	× × ×	12" Topsoil D	. Brown Silty Claye	ey Loam (Fill)
			Ø	2000	6" Light Brow	n Mottled large col	bbles (Fill)
				·	Bedrock		· · · · · · · · · · · · · · · · · · ·
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10'							тин ултан калин талан
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				pa x"/y	# = advancement of	½-inch diameter tile pro	obe under stated force
Test P	it No	Elev	vation	pa x"/y	# = advancement of ±685 ft	½-inch diameter tile pro	obe under stated force
Test P	it No	22 Elev	vation	pa x"/y	# = advancement of 1 ±685 ft	½-inch diameter tile pro Water Description	obe under stated force
Test P depth	it No moisture Moist	22 Elev pocket pen	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D	^{1/2-inch diameter tile pro Water Description Brown Silty Clay}	obe under stated force None ey Loam (Fill)
Test P	it No moisture Moist	22 Elev pocket pen	vation	pa x"/y 	# = advancement of ±685 ft 12" Topsoil D	^{1/2-inch diameter tile pro} Water Description D. Brown Silty Clay pck (Fill)	bbe under stated force None ey Loam (Fill)
Test P depth	it No moisture Moist	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D 12" Angular Ro Bedrock	^{1/2-inch diameter tile pro Water Description D. Brown Silty Clay pock (Fill)}	obe under stated force None ey Loam (Fill)
Test P	it No moisture Moist	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D 10" Angular Re Bedrock	^{1/2} -inch diameter tile pro Water Description Description Description Description Description	bbe under stated force None ey Loam (Fill)
Test P depth	it No moisture Moist	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D n = 6" Angular Re Bedrock	^{1/2-inch diameter tile pro Water Description Description Description (Fill)}	obe under stated force None ey Loam (Fill)
Test P depth	it No Moist	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D 10 - 6" Angular Re Bedrock	^{1/2-inch diameter tile pro Water Description 0. Brown Silty Clay ock (Fill)}	obe under stated force None ey Loam (Fill)
Test P depth 5'	it No moisture Moist	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D nt - 6" Angular Ro Bedrock	½-inch diameter tile pro Water Description 0. Brown Silty Clay pock (Fill)	bbe under stated force None ey Loam (Fill)
Test P depth	it No Moisture	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D 10 - 6" Angular Re Bedrock	½-inch diameter tile pro Water Description 0. Brown Silty Clay ock (Fill)	obe under stated force None ey Loam (Fill)
Test P depth 5'	it No Moist	22 Elev	vation	pa x"/y	# = advancement of 1 ±685 ft 12" Topsoil D 10" Angular Ro Bedrock	½-inch diameter tile pro Water Description 0. Brown Silty Clay ock (Fill)	bbe under stated force None ey Loam (Fill)
Test P depth	it No moisture Moist	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D 12" Angular Ro Bedrock	½-inch diameter tile pro Water Description 0. Brown Silty Clay pock (Fill)	obe under stated force None ey Loam (Fill)
Test P depth 5'	it No	22 Elev	vation	pa x"/y	# = advancement of 1 ±685 ft 12" Topsoil D 10" Angular R Bedrock	V2-inch diameter tile province for the province of the prov	obe under stated force None ey Loam (Fill)
Test P depth 5'	it No Moisture	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D 12" Angular Ro Bedrock	½-inch diameter tile pro Water Description 0. Brown Silty Clay pock (Fill)	bbe under stated force None ey Loam (Fill)
Test P depth 5'	it No Moisture	22 Elev	vation	pa x"/y	# = advancement of ±685 ft 12" Topsoil D 	½-inch diameter tile pro Water Description). Brown Silty Clay pock (Fill)	obe under stated force None ey Loam (Fill)

TEST PIT LOGS

Client Project Location Job No.	Green L F.W. We Amherst 223247.	eaf Constructio bb Amherst , N.Y. 00	on	Date Datum Weather Observer	12/13/2023 Brandon Rhea, P.E.		
Test Pi	t No	23 Elev	ation _	±687 ft	Water	None	
depth	moisture	pocket pen	w		Description		
	Moist	0.5 TSF	× ,	د ۲ م ۲ م م ۲ م	. Red Silty Clay Loa	am w/ roots	
		0.75 TSF	<u>-</u>	<u>₅ s < -</u> 6" Light Brow	n Sandy SILT with	roots	
				Bedrock	s , on state is a, is in a gampa on a some AP is P is	z artear artear artematica tearne internet internet artear artear artear artear artear artear artear artear art	
			~ · · · · ·	gens y a sega segar i i - sonebur - sogenyaldi segi tay i ta talah da sablay. Ta ta sene i ter		aan ah	
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10'						nga ta kawa waka manenenen na antiken kata kata k	
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				pa x"/y# = advancement of	1/2-inch diameter tile prol	be under stated force	
Test P	it No	Elev	ation	·····	Water		
<u> </u>			1 1				
depth	moisture	pocket pen	W		Description		
			┨───┤	ing you , is a constant of a second second		a an ann an a' a' a' a' ann ann an a' an an ann a'	
1			<u> </u>	a second company and a second s	nna natalanna Prin attal nu t-t-t-tal tri attala. Et-t-t-		
				· · · · · · · · · · · · · · · · · · ·			
5'							
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5'							
5' 							



ASTM D7012 (Method C) Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens

E	Boring No.: B-8	L	ithology :	Limest	one
S	ample No.: Run #1	Moisture	Content :	0%	
Sam	ple Depth: 7.0'-7.3'	Lab Tem	perature :	75°	F
Sam	pling Date: 11/16/21	Load	ding Rate:	42	psi/s
	D'		llaadat		
	Diameter: 1.975	in iviaximum Axia			
	Length: 4.08	in Commenciation	Failure:	39290	
	L/D: <u>2.1</u>	Compressive	Strengtn:	12,825	psi
	End Area: 3.06	in Compressive	Strength:	88.43	Мра
		Unit Weigh	t of Rock:	167	рст
B	efore the Test		After	the Tess	t IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
Project:	699 Youngs Road		Technician	1:	K. Lemcke
Project No.:	J52150/2	nerracon	Test Date:	D. / I	12/02/2021
	Urchard Park, NY	15 Manuary Circle Cuite 20		ву:	M. FIORIIO
Client :	The Krog Group	15 Marway Circle Suite 2B	Review Da	ite :	12/02/2021
		Kocnester, New York			

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