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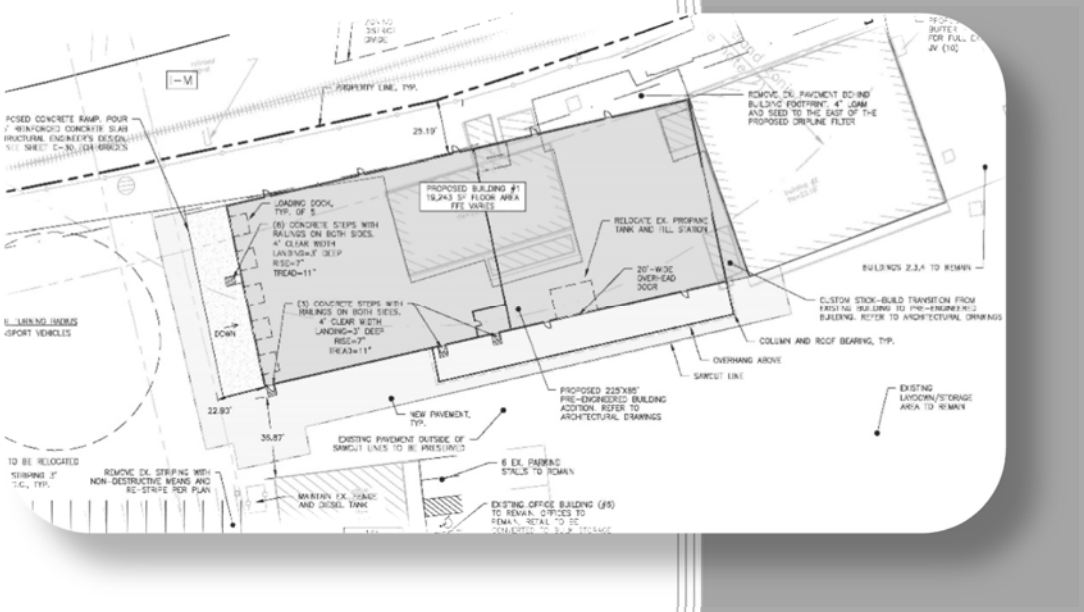
ENGINEERING | EXPLORATION | EXPERIENCE

Geotechnical Report

New Warehouse, Eldridge Lumber
Presumpscot Street, Portland, Maine



Client

BAS Eldredge, LLC
627 US Route 1
York, Maine 03909

Project #: 18304
Date: 11/16/18

SUMMIT
GEOENGINEERING SERVICES

145 Lisbon Street (PO Box 7216) Lewiston, Maine 04243 | (207) 576-3313
173 Pleasant Street Rockland, Maine 04841 | (207) 318-7761
www.summitgeoeng.com

November 16, 2018
Summit #18304

BAS Eldredge, LLC
627 US Route 1
York, Maine 03909
Attn: Dan Remick

Reference: Geotechnical Engineering Report, Proposed New Warehouse
Presumpscot Street, Portland, Maine 04101

Dear Mr. Remick:

Summit Geoengineering Services, Inc. (SGS) has completed a geotechnical investigation for the proposed new warehouse at the site referenced above. Our scope of services included the drilling of two test borings and one cone penetration test (CPT) at the site and preparing this geotechnical report summarizing our findings and providing a geotechnical recommendations for design and construction of the foundations for the new building.

Our scope of services for this project did not include an environmental site assessment or further investigation for the presence or absence of hazardous or toxic material on, below, or around the site. Any statements in this report, or on the soil boring logs, regarding odors or unusual and suspicious conditions observed are for informational purposes and are not intended to constitute an environmental assessment.

1.0 Project and Site Description

The project consists of the construction of a new warehouse on Presumpscot Street in Portland, Maine. We understand that the site was once a rail yard, and is closely bordered by railroad tracks to the east. The proposed building footprint is approximately 19,243 square feet. The FFE of the new warehouse is 22.20 feet throughout most of the building; in the area closer to the truck docks the FFE is 24.2 feet. The building is proposed to be constructed at or near the existing ground surface which has an elevation of approx. 22 feet. We understand that the building will be a single story pre-engineered metal structure with a ridge height of approximately 33 feet and a clear span of approximately 85 feet. The new building will be connected to the existing building by a wood framed attachment. An existing building is located within the foot print of the new warehouse. We understand that the building will be demolished prior to construction.

Column loads for the new building will range from 16.8 kips to 89.3 kips (total dead and live load). The column spacing will be 27’-6”.

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2.0 Subsurface Exploration

Summit Geoengineering Services (SGS) observed the subsurface conditions with the drilling of 2 test borings and 1 cone penetration test (CPT) on October 10, 2018 using a track mounted AMS Power Probe 9500 VTR rig. The borings (B-1 and B-2) and CPT (CPT-1) were performed within the proposed building footprint. Borings B-2 and the CPT were terminated on refusal, presumed to be bedrock, at depths of 31.5 and 37.8 feet below the existing ground surface

The borings were completed using 3 inch casings and spoon sampling conducted at 5-foot depth intervals. The CPT was performed using a Vertek 5-ton digital cone pushed at a constant rate (2 cm/s) with a single-point hollow stem anchor set at a depth of 5 feet.

Soil samples were visually classified (ASTM D2488) by SPT split spoon sampling (ASTM D1586). The boring and CPT locations are shown on the Boring Location Plan in Appendix A. Boring and CPT logs are provided in Appendix B.

3.0 Subsurface Conditions

3.1 Soil

The following subsurface layers and thicknesses were encountered in our geotechnical investigation, starting from the ground surface:

- ***Pavement***
- ***Fill***
- ***Stiff Silty Clay***
- ***Sand***

The ***Pavement*** was encountered at all three locations and was approximatley 3 inches thick. The pavement is in good condition.

The ***Fill*** ranges in total thickness from 2.5 feet to roughly 7.5 feet. The soil is variable, ranging from brown sand and sand and gravel in seams to brown fine sand to sandy silt with a little clay and gravel. Spoon penetration tests (SPT N-values) for this layer ranged from 2 blows per foot (bpf) to 17 bpf. The 2 bpf, from a depth of 5 to 7 feet at the B-2 location appeared to be a fin-grained fill soil imported to the site. The fill layer was generally dry near the surface and wet at the bottom (B-2 sample at 5 to 7 feet).

The ***Stiff Silty Clay*** layer is described as olive-brown to olive-gray silty clay. SPT-N values ranged from 6 to 18 bpf and averaged 10 bpf. Pocket penetrometer tests (a rough measure of the soil shear strength) ranged from 2.0 tsf to greater than 4.5 tsf in the upper section and 1.0 tsf to 3.0 tsf in the lower section.

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The ***Sand*** layer extended from a depth of 24 feet to 31.5 feet at the B-1 location, 17 feet to the end of the boring (22 feet) at the B-2 location, and from 24 feet to 37.8 feet at the CPT location. The sand layer varies from a brown or gray fine sand with a trace of silt to an interlayered fine sand and gray silty clay. SPT-N values in the sand ranged from 5 to 6 blows per foot indicating a loose condition. These may be artificially low due to excess hydrostatic forces due to differential water elevations on the inside and outside of the drilling casing.

3.2 Bedrock

Very dense stratum were encountered at a depth of 37.8 feet at the CPT location and 31.5 feet at the B-2 location. Refusal could have been on bedrock or a very dense glacial till. Mapping by the Maine Geological Survey indicates the bedrock at the site is of the Precambrian Z Spring Point Formation consisting of green schist and amphibolite facies ranging from mafic to felsic volcanic rock.

3.3 Groundwater

Groundwater was observed at the boring locations at the completion of drilling at the depths and elevations below.

GROUNDWATER DEPTHS AND ELEVATIONS		
Location	Depth (ft)	Approximate Elevation (ft)
B-1	13.7	8.3
B-2	12.7	9.3
CPT-1	7.8	14.2

The above depths were measured in the boreholes at completion of the boring.

The elevations above place the groundwater table in the stiff silty clay deposit. We expect that the groundwater measurements taken at the completion of the borings is lower than the permanent level. We believe that the permanent groundwater lies below the stiff silty clay layer in the underlying sand deposit. The groundwater observed in the borings is likely infiltrated surface water perched on top of the stiff silty clay layer.

4.0 Foundation Recommendations

Based on our findings, the new building can be adequately supported by the existing soils using conventional shallow spread footings. A soft fill layer was encountered at a depth of 5 to 7 feet at the B-2 location. This soil appeared to be reworked fill soil. Local ground improvement, including geotextile and crushed stone may be required for areas where soil such as this is

encountered beneath footings. SGS should be notified so we can make observations of the subgrade soil prior to placing the concrete formwork.

4.1 Allowable Bearing Pressure and Footing Subgrade Preparation

Based upon current grades and the finish floor elevation, the footings will be constructed on the existing fill or stiff silty clay soils. The footings can be sized using an allowable bearing pressure of 3,000 psf. This allowable bearing pressure applies given that the following recommendations are followed:

- All pavement and demolished building foundations are removed from within the building footprint.
- Voids remaining after removal of the existing foundations within the new building footprint are backfilled with Structural Fill (SF).
- Where the footing subgrade soil consists of fill, it is proofrolled using a vibratory compactor with a minimum operating weight of 3 tons.
- Where the footing subgrade consists of stiff silty clay, the excavation is completed using a smooth edged bucket to minimize disturbance to the footing subgrade soil.
- Debris and unsuitable soils, where encountered, are removed and replaced with ¾" crushed stone (CS) or structural fill (SF).
- Exterior footings and interior footings exposed to freezing temperatures are placed at a minimum depth of 4 feet for frost protection.
- SGS is notified so we can observe the footing subgrade condition after proofrolling and prior to the placement of concrete.

4.2 Frost Protection

The design air freezing index for the Portland area is approximately 1,200 degree F days (10 year, 90% probability). Based on this, a total of 4 feet of frost protection should be provided for the exterior footings.

Exterior footing exposed to freezing temperatures should be constructed at the design frost protection depth of 4 feet below the exterior finished grade. We recommend that the exterior of all foundation elements exposed to freezing temperatures be backfilled with Foundation Backfill (FB). The portion of FB passing the 3" sieve size should meet the following gradation requirements:

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FOUNDATION BACKFILL	
Sieve Size	**Percent Finer**
3 inch	100
¼ inch	25 to 100
No. 40	0 to 50
No. 200	0 to 6*

Reference: MDOT Specification 703.06, Type E (2014)
*Reduced from 7% to 6% from Type E Standard

Maximum particle size should be limited to 6 inches. Foundation backfill should be placed in 6 to 12 inch lifts and compacted to 95% of its optimum dry density determined in accordance with ASTM D1557. The compaction requirement can be reduced to 90% beneath landscaped areas.

4.3 Seismic Design

Based on the summary of field testing and soil descriptions, we recommend Site Class D be used in accordance with the 2012 or 2015 International Building Code. The following seismic site coefficients should be used:

SUBGRADE SITE SEISMIC DESIGN COEFFICIENTS - IBC	
Seismic Coefficient	**Site Class D**
Short period spectral response (S_S)	0.245
1 second spectral response (S_1)	0.079
Maximum short period spectral response (S_{MS})	0.391
Maximum 1 second spectral response (S_{M1})	0.189
Design short period spectral response (S_{DS})	0.261
Design 1 second spectral response (S_{D1})	0.126

There are no soil conditions at this site that are considered susceptible to liquefaction during seismic events.

4.4 Groundwater Control

Groundwater will be below the proposed slab and footing elevations. Based on this perimeter underdrains are not necessary.

In the event that perimeter underdrains are used, they should consist of 4 inch rigid perforated PVC placed adjacent to the exterior footings and surrounded by a minimum of 6 inches of crushed stone wrapped in filter fabric to prevent clogging from the migration of the fine soil

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particles in the foundation backfill soils. The underdrain pipe should be outlet to a location where it will be free flowing, preferably a man hole or catch basin. Where exposed at the ground surface, the ends of pipes should be screened or otherwise protected from entry and nesting of wildlife, which could cause clogging.

4.5 Slab on Grade

The new building slab subgrade will consist of the existing fill soil. We recommend that after the pavement and existing building foundations are removed and backfilled, that the entire slab area be proofrolled. Proofrolling should consist of making a minimum of 6 passes in each of two perpendicular directions using a vibratory roller with a minimum operating weight of 10 tons.

We recommend that the building slab be constructed on a minimum of 8 inches of SF.

SF should meet the following gradation requirements:

STRUCTURAL FILL (SF)	
Sieve Size	**Percent finer**
3 inch	100
½ inch	35 to 80
¼ inch	25 to 65
No. 40	0 to 30
No. 200	0 to 7

Reference: MDOT Specification 703.06, Type

SF placed within the building footprint should be compacted to 95% of its maximum dry density determined in accordance with ASTM D1557. The maximum particle size should be limited to 6 inches.

It is possible that portions of the existing pavement base soil meets the requirements for SF. If it is desired to use the existing fill as SF we recommend that a grain size analysis be performed on a representative sample to confirm it meets the SF requirements.

5.0 Pavement Recommendations

The mean annual freezing index for the Portland area is estimated at 900 degree days. Based on the subgrade and mean annual freezing index, the anticipated mean annual frost penetration depth is 36 inches. We recommend a minimum total section thickness of 18 inches for pavement in unheated areas. We further recommend that the pavement section consist of the following materials:

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PAVEMENT MATERIAL RECOMMENDATIONS			
Material	**Thickness (in)**		**Specification**
	Light Duty	**Heavy Duty**	
Asphalt Surface Course	1	---	MDOT 703.09 Type 9.5 mm
Asphalt Surface Course	---	1.5	MDOT 703.09 Type 12.5 mm
Asphalt Binder Course	2	2.5	MDOT 703.09 Type 19 mm
Base Soil	3	3	MDOT 703.06 Type A
Subbase Soil	12	12	MDOT 703.06 Type D

We recommend that the existing subgrade soil be proofrolled by making a minimum of 6 passes in each of two perpendicular directions using a vibratory roller with a minimum operating weight of 10 tons.

Pavement underdrains are not necessary.

6.0 Earthwork Considerations

The earthwork for the construction of this building should be straight forward. The only possible concern is for localized soft areas which may require local improvement (such as encountered at the B-2 location). SGS should be notified so we can make observations of the footing subgrade soil.

The existing fill is classified as OSHA Type B and excavations into this soil should be a maximum of 1H:1V. Cuts into the stiff silty clay soil can be made at 0.75H:1V since this soil is classified as OSHA Type A.

Groundwater will be below the base of the footings and dewatering is not expected. Surface water should be diverted away from excavations.

7.0 Closure

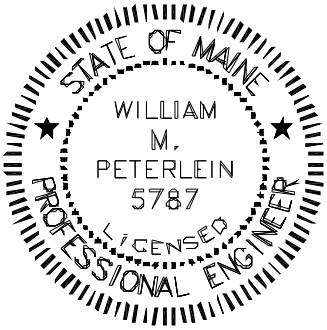
Our recommendations are based on professional judgment and generally accepted principles of geotechnical engineering and project information provided by others. Some changes in subsurface conditions from those presented in this report may occur. Should these conditions or the proposed development differ from those described in this report, SGS should be notified so that we can re-evaluate our recommendations.

It is recommended that this report be made available in its entirety to contractors for informational purposes and be incorporated in the construction Contract Documents.

We appreciate the opportunity to serve you during this phase of your project. If there are any questions please do not hesitate to call.

Sincerely,
Summit Geoengineering Services, Inc.

William M. Peterlein, PE
President and Principal Engineer



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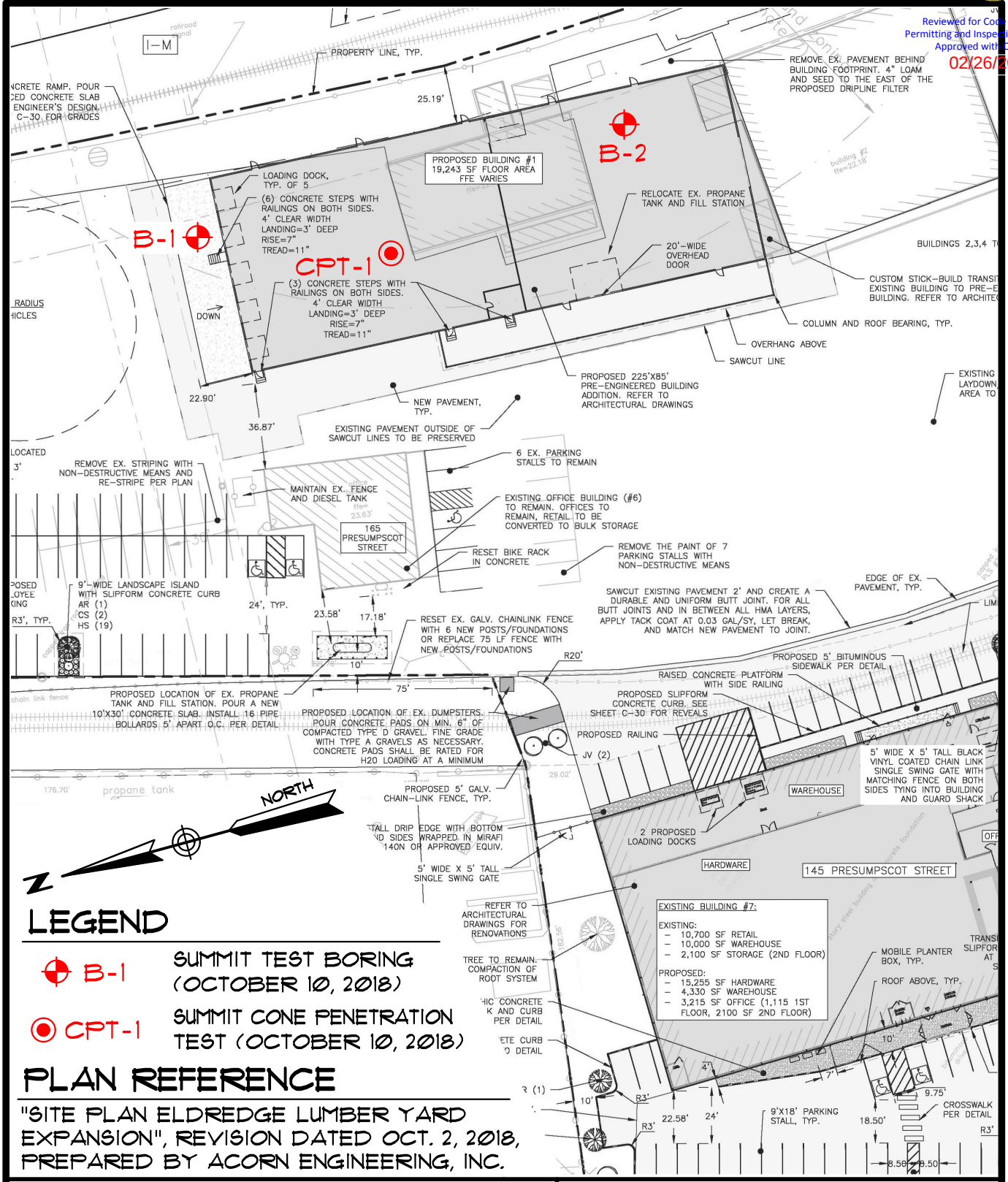
APPENDIX A

EXPLORATION LOCATION



LEGEND

- B-1 — SUMMIT TEST BORING (OCTOBER 10, 2018)
- CPT-1 — SUMMIT CONE PENETRATION TEST (OCTOBER 10, 2018)

PLAN REFERENCE

"SITE PLAN ELDREDGE LUMBER YARD EXPANSION", REVISION DATED OCT. 2, 2018, PREPARED BY ACORN ENGINEERING, INC.

EXPLORATION LOCATION PLAN
ELDREDGE LUMBER WAREHOUSE EXPANSION

165 PRESUMPSCOT STREET - PORTLAND, MAINE

PREPARED FOR

BAS ELDREDGE, LLC

DATE: 10-16-2018	DRAWN BY: KRF	CHECKED BY: WMP
JOB: 18304	SCALE: 1" = 60'	FILE: 18304 BOR

145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel.: (207) 576-3313

173 PLEASANT STREET
ROCKLAND, ME 04841
Tel.: (207) 318-7761

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APPENDIX B

EXPLORATION LOGS

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-1**

Project: Eldrich Lumber Warehouse Expansion | Project #: 18304

Location: 456 Presumpscot Street | Sheet: 1 of 1

City, State: Portland, Maine | Chkd by:

Drilling Co: Summit Geoengineering Services | Boring Elevation: 22 ft +/-

Driller: S. Floyd | Reference: Grading and Utilities, Acorn Engineering, REV 8-13-18

Summit Staff: B. Peterlein, P.E. | Date started: 10/10/2018 Date Completed: 10/10/2018

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Power Probe	Length:	24" SS
Model:	VTR 9100	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
10/10/2018	13.7 ft	8.3 ft	In borehole at Completion

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
						3" Asphalt		
1						Brown SAND with Sand and Gravel seams, dry,		FILL
	S-1	24/8	1 to 3	9		compact, SP		
2				6				
				6				
3				5				
						Olive-gray Silty CLAY, stiff to very stiff, moist, CL	PP = 4.5 tsf	
4								GLACIAL MARINE
5								
	S-2	24/24	5 to 7	6		Olive-gray Silty CLAY, stiff to very stiff, moist, CL	PP = 4.0 to 4.3 tsf	
6				8				
				10				
7				11				
8								
9								
10								
	S-3	24/24	10 to 12	5		Olive-gray Silty CLAY, stiff, moist, CL	PP = 2.5 to 3.0 tsf	
11				5				
				7				
12				9				
13								
14								
15								
	S-4	24/24	15 to 17	3		Olive-brown to olive gray Silty CLAY, moist, firm, CL		
16				3				
				4				
17				5				
						Brown fine SAND, trace Silt, moist, SP		
18								
19								
20								
	S-5	24/24	20 to 22	3		Interlayered brown fine SAND and gray Silty CLAY,		
21				2		wet, loose to firm, SP or CL		
				3				
22				6				
						End of Boring at 22 ft		

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content

LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test

Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints

Shallow = 0 to 35 degrees

Dipping = 35 to 55 degrees

Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches

Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	Eldrich Lumber Warehouse Expansion	Boring #:	B-2
Location:	456 Presumpscot Street	Project #:	18304
City, State:	Portland, Maine	Sheet:	1 of 2
		Chkd by:	

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	22 ft +/-
Driller:	S. Floyd	Reference:	Grading and Utilities, Acorn Engineering, REV 8-13-18
Summit Staff:	B. Peterlein, P.E.	Date started: 10/10/2018	Date Completed: 10/10/2018

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Power Probe	Length:	24" SS
Model:	VTR 9100	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
10/10/2018	12.7 ft	9.3 ft	In borehole at Completion

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
1								
	S-1	24/12	1 to 3	9		Brown fine SAND, compact, dry, becomes coarse at		FILL
2				10		2 ft, Silt in spoon tip		
				7				
3				5				
4								
5								
	S-2	24/24	5 to 7	1		Gray Sandy SILT, little Clay, trace Gravel, wet, ML		
6				1		(Reworked glacial till)		
				1				
7				1				
8								
9								GLACIAL MARINE
10								
	S-3	24/24	10 to 12	2		Olive-gray Silty CLAY, slightly mottled, stiff, moist,	PP = 2.0 to 3.0 tsf	
11				4		CL		
				4				
12				6				
13								
14								
15								
	S-4	24/24	15 to 17	3		Olive-gray Silty CLAY, fine sand seams (2 mm) at 4"	PP = 1.8 to 2.2 tsf	
16				4		to 6" spacings, moist, CL		
				4				
17				5				
18								
19								
20								
	S-5	24/24	20 to 22	2		Olive-brown Clayey SILT, interlayered with Silty SAND,		
21				3		wet, firm, ML		
				3				
22				6				
23								
24								
25								
	S-6	24/24	25 to 27	2		Gray to olive fine to medium SAND, trace Silt, wet,		
26				3		loose, SP		
				3				
27				1				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees
Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: B-2

Project:	Eldrich Lumber Warehouse Expansion	Project #:	18304
Location:	456 Presumpscot Street	Sheet:	2 of 2
City, State:	Portland, Maine	Chkd by:	

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	22 ft +/-
Driller:	S. Floyd	Reference:	Grading and Utilities, Acorn Engineering, REV 8-13-18
Summit Staff:	B. Peterlein, P.E.	Date started: 10/10/2018	Date Completed: 10/10/2018

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Power Probe	Length:	24" SS
Model:	VTR 9100	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
10/10/2018	12.7 ft	9.3 ft	In borehole at Completion

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
27				PROBE				
						Gray to olive fine to medium SAND, trace Silt, wet, loose, SP		
28								
29								
30								
31								
32						End of Boring at 31.5 ft on Refusal		
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
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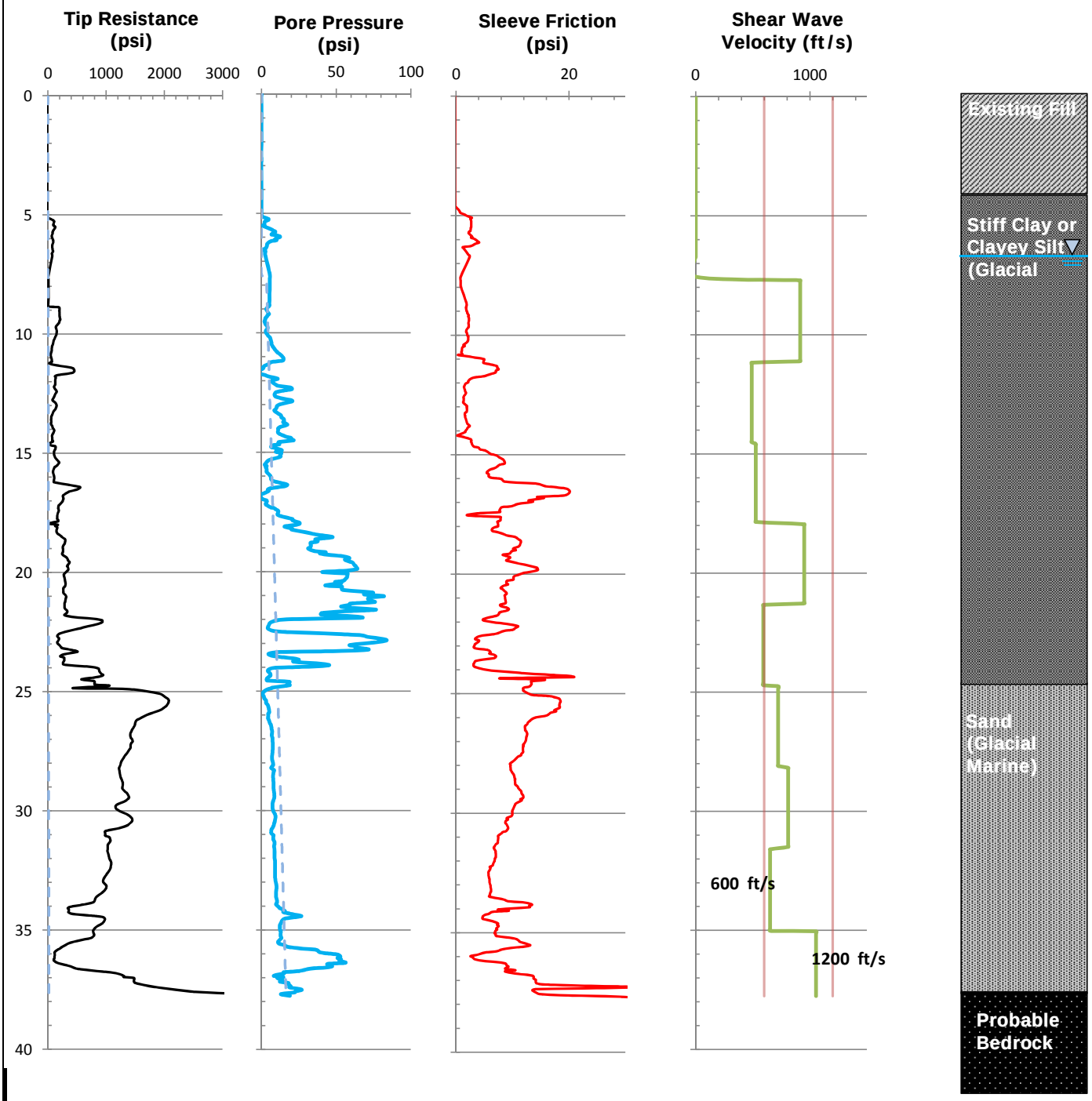
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

PIEZOCONE PENETRATION LOG

Project:	Eldrich Lumber Warehouse Expansion	Test Number:	CPT-1
Location:	456 Presumpscot Street	Sheet:	1 of 1
City, State	Portland, Maine	Project Number:	18304
		Method:	ASTM D5778
		Weather:	50° Sunny

Cone ID:	Vertek #4544.101	Test Elevation:	22.0 feet +/-
Cone Type:	VTK 5 Ton Digital Cone	Reference:	Grading and Utilities, Acorn Engineering, REV 8-13-18
Piezocone:	Silicone Single Filter	Date started: 10/10/2018	Date Completed: 10/10/2018
Push Rig:	AMS Power Probe 9500 VTR	ESTIMATED GROUND WATER DEPTH	
Anchor Style:	Single Point Hollow Anchor	Date / Depth / Elevation / Reference	
Performed By:	Craig Coolidge, P.E.	10/10/2018 / 7.6 / 14.4 ft. +/- / Interpreted from pore pressure	



NOTES:

Soil Profile based on interpretation of CPT measurements and nearby borings
Shear Wave Velocity test (V_s) performed at 3.3 feet (1-meter) increments
Abrupt push refusal encountered at depth of 37.8 feet

Project: Eldredge Lumber-Indoor Yard
Date Prepared: 2/13/2019

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/26/2019

Structural Statement of Special Inspections

Project: *Eldredge Lumber-Indoor Yard*

Location: *165 Presumpscot St., Portland, ME*

Owner: *Eldredge Lumber*

This *Statement of Special Inspections* encompass the following discipline: **Structural**

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of approved agencies to be retained for conducting these inspections and tests.

The approved agencies shall keep records of all Structural inspections and shall furnish inspection reports to the Building Code Official (BCO) and the Structural Registered Design Professional in Responsible Charge (SRDP). Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Structural Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Structural Registered Design Professional in Responsible Charge at an interval determined by BCO.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted to the BCO prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: Upon request of the Building Official

Prepared by:

Aaron C. Jones, P.E.
(type or print name of the Structural Registered Design Professional in Responsible Charge)

Signature

2/13/2019
Date

Design Professional Seal

Owner's Authorization:

Signature Date

Building Code Official's Acceptance:

Signature Date

Structural Statement of Special Inspections (Continued)

List of Agents

Project: *Eldredge Lumber-Indoor Yard*

Location: *165 Presumpscot St. Portland, ME*

Owner: *Eldredge Lumber*

This *Statement of Special Inspections* encompass the following discipline: **Structural**

(Note: *Statement of Special Inspections* for other disciplines may be included under a separate cover)

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- ☒ Soils and Foundations
- ☒ Cast-in-Place Concrete
- ☐ Precast Concrete System
- ☐ Masonry Systems
- ☒ Structural Steel
- ☐ Wood Construction
- ☐ Special Cases

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. Special Inspector (SI 1)		
2. Special Inspector (SI 2)		
3. Testing Agency (TA 1)		
4. Testing Agency (TA 2)		
5. Other (O1)		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Structural Statement of Special Inspections (Continued)

Final Report of Special Inspections

Note that all Agent's Final Reports must be received prior to issuance.

Project: *Eldredge Lumber-Indoor Yard*
Location: *165 Presumpscot St Portland, ME*
Owner: *Eldredge Lumber*
Owner's Address: *165 Presumpscot St Portland, ME*

Architect of Record: *Hiroko Lindsey* (name) *Lindsey Architects* (firm)

Structural Registered Design Professional in Responsible Charge: *Aaron C. Jones, P.E.* (name) *Structural Integrity, Inc.* (firm)

To the best of my information, knowledge and belief, the Special Inspections required for this project, and itemized in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,

Aaron C. Jones
(Type or print name)

Structural Integrity, Inc.
(Firm Name)

Signature

2/13/2019
Date

Licensed Professional Seal

Structural Statement of Special Inspections (Continued)

Special Inspector's/Agent's Final Report

Project:

Special Inspector or Agent: _____

(name) *(firm)*

Designation:

To the best of my information, knowledge and belief, the Special Inspections or testing required for this project, and designated for this Inspector/Agent in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Special Inspector or Agent:

_____
(Type or print name)

_____ _____
Signature Date

Licensed Professional Seal or
Certification Number

Structural Schedule of Special Inspections

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided to the Special Inspector for their records. *NOTE VERIFICATION THAT QUALIFIED INDIVIDUALS ARE AVAILABLE TO PERFORM STIPULATED TESTING AND/OR INSPECTION SHOULD BE PROVIDED PRIOR TO SUBMITTING STATEMENT. AGENT QUALIFICATIONS IN SCHEDULE ARE SUGGESTIONS ONLY; FINAL QUALIFICATIONS ARE SUBJECT TO THE DISCRETION OF THE REGISTERED DESIGN PROFESSIONAL PREPARING THE SCHEDULE.*

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge or Special Inspector of Record deems it appropriate that the individual performing a stipulated test or inspection have a specific certification, license or experience as indicated below, such requirement shall be listed below and shall be clearly identified within the schedule under the Agent Qualification Designation.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

Experienced Testing Technician

ETT	Experienced Testing Technician – An Experienced Testing Technician with a minimum 5 years experience with the stipulated test or inspection

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Other

Project: Eldredge Lumber-Indoor Yard
Date Prepared: 2/13/2019

Structural Schedule of Special Inspections

SOILS

VERIFICATION AND INSPECTION IBC Section 1705.6	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Y	P			PE/GE, EIT or ETT	
2. Verify excavations are extended to proper depth and have reached proper material.	Y	P			PE/GE, EIT or ETT	
3. Perform classification and testing of compacted fill materials.	Y	P			PE/GE, EIT or ETT	
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	Y	C			PE/GE, EIT or ETT	
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	Y	P			PE/GE, EIT or ETT	

Structural Schedule of Special Inspections
CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION IBC Section 1705.3	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Inspect reinforcement, including prestressing tendons, and verify placement.	Y	P	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3		PE/SE or EIT	
2. Inspect anchors cast in concrete.	Y	P	ACI 318: 17.8.2		PE/SE or EIT	
3. Inspect anchors post-installed in hardened concrete members. a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads. b. Mechanical anchors and adhesive anchors not defined in 4.a.	Y	C P	ACI 318: 17.8.2.4 ACI 318: 17.8.2		PE/SE or EIT	
4. Verify use of required design mix.	Y	P	ACI 318: Ch. 19, 26.4.3, 26.4.4		PE/SE or EIT	
5. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	Y	P	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12		ACI-CFTT or ACI-STT	
6. Inspect concrete and shotcrete placement for proper application techniques.	Y	C	ACI 318: 26.5		PE/SE or EIT	
7. Verify maintenance of specified curing temperature and techniques.	Y	P	ACI 318: 26.5.3-26.5.5		PE/SE or EIT	
8. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	Y	N/A	ACI 318: 26.11.2		ACI-STT	
9. Inspect formwork for shape, location and dimensions of the concrete member being formed.	Y	P	ACI 318: 26.11.1.2(b)		PE/SE or EIT	

Project: Eldredge Lumber-Indoor Yard
Date Prepared: 2/13/2019

Structural Schedule of Special Inspections - STEEL CONSTRUCTION

VERIFICATION AND INSPECTION IBC Section 1705.2 AISC 360-16 SPECIFICATIONS AND CODES Chapter N	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Material verification of high-strength bolts, nuts and washers:						
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	Y	S	Applicable ASTM material specifications; AISC 335, Section A3.4; AISC LRFD, Section A3.3		PE/SE or EIT	
b. Manufacturer's certificate of compliance required.	Y	S			PE/SE or EIT	
2. Prior to bolting, the following inspection tasks and verifications shall be carried out:						
a. Verify the manufacturer's certifications for the fastener materials, the fasteners are marked in accordance with ASTM requirements, and that the correct fasteners are selected for the joint details.	Y	S	Applicable ASTM material specifications; AISC 335, Section A3.4; AISC LRFD, Section A3.3			
b. Verify that the correct bolting procedure is used for the joint detail.	Y	P				
c. Examine the preparation of holes and faying surfaces.	Y	P				
d. Verify that bolts, nuts, washers, etc. are kept in protected storage.	Y	S				
3. Inspection of high-strength bolting						
a. Bearing-type connections.	Y	P	AISC LRFD Section M2.5 IBC Sect 1704.3.3		AWS/AISC-SSI	
b. Slip-critical connections.	Y	C or P (method dependent)			AWS/AISC-SSI	
4. Material verification of structural steel (IBC Sect 1705.2):						
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	Y	S	ASTM A 6 or ASTM A 568 IBC Sect 1708.4		PE/SE or EIT	
b. Manufacturers' certified mill test reports.	Y	S	ASTM A 6 or ASTM A 568 IBC Sect 1708.4		PE/SE or EIT	
5. Material verification of weld filler materials:						
a. Identification markings to conform to AWS specification in the approved construction documents.	Y	S	AISC, ASD, Section A3.6; AISC LRFD, Section A3.5		PE/SE or EIT	
b. Manufacturer's certificate of compliance required.	Y	S			PE/SE or EIT	
6. Submit current AWS D1.1 welder certificate for all field welders who will be welding on this project.	Y	S	AWS D1.1		PE/SE or EIT	
7. Inspection of weld preparation:						
a. Observe joint preparations, dimensions, cleanliness, tacking, and backing type and fit for groove welds	Y	P			PE/SE or EIT	
b. Observe joint preparations, dimensions, cleanliness, and tacking of CJP groove welds	Y	P			PE/SE or EIT	
c. Verify the proper configuration and finish of access holes.	Y	P			PE/SE or EIT	
d. Observe the fit-up of fillet welds including dimensions, cleanliness, and tacking.	Y	P			PE/SE or EIT	

Project: Eldredge Lumber-Indoor Yard
Date Prepared: 2/13/2019

8. Inspection of structural steel welding (IBC 1704.3.1):						
a. Verify that the environmental conditions (wind speed, precipitation, and temperature) are within the allowable limits.	Y	P				
b. Complete and partial penetration groove welds.	Y	C	AWS D1.1		AWS-CWI	
c. Multi-pass fillet welds.	Y	C			AWS-CWI	
d. Single-pass fillet welds> 5/16”	Y	C			AWS-CWI	
e. Single-pass fillet welds< 5/16”	Y	P			AWS-CWI	
f. Floor and deck welds.	Y	P	AWS D1.3		AWS-CWI	
g. No welding is done over cracked tack welds.	Y	P				
h. Verify that steel headed stud anchors are placed and installed correctly.	Y	P				
9. Inspection after welding:						
a. Verify that welds are properly cleaned.	Y	P			PE/SE or EIT	
b. Verify size, length, and location of the welds.	Y	P			PE/SE or EIT	
c. Verify that the welds meet visual acceptance criteria (crack prohibition, weld/base metal fusion, crater cross section, weld profile, weld size, undercut, porosity).	Y	P			PE/SE or EIT	
d. Locate and examine any arc strikes.	Y	P			PE/SE or EIT	
e. Visually inspect the *k*-area for cracks within 3” (75 mm) of welds of doubler plates, continuity plates, or stiffeners performed in the *k*-area.	Y	P			PE/SE or EIT	
f. After rolled heavy shapes and built-up heavy shapes are welded, visually inspect the weld access hole for cracks.	Y	P			PE/SE or EIT	
g. Verify that backing and weld tabs are removed.	Y	P			PE/SE or EIT	
10. Inspection of steel frame joint details for compliance (IBC Sect 1704.3.2) with approved construction documents:						
a. Details such as bracing and stiffening.	Y	P			PE/SE or EIT	
b. Member locations.	Y	P			PE/SE or EIT	
c. Application of joint details at each connection.	Y	P			PE/SE or EIT	

Project: Eldredge Lumber-Indoor Yard
Date Prepared: 2/13/2019

Structural Schedule of Special Inspection Services

FABRICATION AND IMPLEMENTATION PROCEDURES – STRUCTURAL STEEL

VERIFICATION AND INSPECTION IBC Section 1705.2.1	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. AISC Certification	Y	S	Fabricator shall submit one of the two qualifications		PE/SE or EIT	
3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents.	Y	S	IBC 1704.2.2		PE/SE or EIT	

Project: Eldredge Lumber-Indoor Yard
Date Prepared: 2/13/2019

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/26/2019

Quality Assurance Plan – Seismic and Wind

QUALITY ASSURANCE FOR SEISMIC RESISTANCE CHECK LIST [IBC 1705.12]

Seismic Design Category B

☐ **FOR SEISMIC DESIGN CATEGORY C OR HIGHER: N/A**

Structural:

☐ The seismic-force-resisting systems
- ☐ Steel Braced Frames and associated connections/anchorage
- ☐ Steel Moment Frames and associated connections
- ☐ Shear walls: ☐ CMU ☐ Concrete ☐ Diaphragms: ☐ Floor ☐ Roof
- ☐ Other:

QUALITY ASSURANCE FOR WIND RESISTANCE CHECK LIST [IBC 1705.11]

Wind Exposure Category B

REQUIRED	NOT REQUIRED	NOT APPLICABLE	QUALITY ASSURANCE PLAN REQUIREMENTS (A Quality Assurance Plan is required where indicated below)
☐	☐	☒	In wind exposure Category B, where the 3-second-gust basic wind speed is 120 miles per hour (mph) (52.8 *m/sec)* or greater.
☐	☐	☒	In wind exposure Categories C and D, where the 3-second-gust basic wind speed is 110 mph (49 *m/sec)* or greater.

Prepared by:

Signature Date

Building Code Official's Acceptance:

Signature Date

Contractor's Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated in the Quality Assurance Plan must submit a Statement of Responsibility. The Statement of Responsibility is required for Seismic Design Category C or higher. Make additional copies of this form as required.

Project:

Contractor's Name:

Address:

License No.:

Description of designated building systems and components included in the Statement of Responsibility:

Contractor's Acknowledgment of Special Requirements

I hereby acknowledge that I have received, read, and understand the Quality Assurance Plan.

I hereby acknowledge that quality control will be exercised to obtain conformance with the construction documents approved by the Building Official.

_____ _____
Signature Date

Reviewed for Code Compliance
Permitting and Inspections Departmen
Approved with Conditions
02/26/2019

COMcheck Software Version 4.1.1.0

Envelope Compliance Certificate

Section 1: Project Information

Energy Code: **2009 IECC**
Project Title: Warehouse at Eldredge Lumber
Project Type: Addition

Construction Site:
165 Presumpscot St
Portland, ME 04103

Owner/Agent:
BAS Eldredge LLC
P.O. Box 69
Cape Neddick, ME 03902
207-363-2004 ext 126
dremick@eldredgelumber.com

Designer/Contractor:
Hiroko Lindsey
Lindsey Architects
436 York Street
Suite A
York Harbor, ME 03911
2076419739
hiroko@lindseyarchitects.com

Building Location (for weather data): Portland, Maine
Climate Zone: 6a
Vertical Glazing / Wall Area Pct.: **1%**

Building Use: Activity Type(s)	Floor Area
1-Warehouse : Nonresidential	19214
2-Office : Nonresidential	238

Section 2: Envelope Assemblies and Requirements Checklist

Envelope PASSES: Design 1% better than code.

Envelope Assemblies:

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Roof 1: Metal Building, Screw Down, [Bldg. Use 1 - Warehouse]	19714	13.0	19.0	0.037	0.049
Roof 2: Attic Roof with Wood Joists, [Bldg. Use 1 - Warehouse]	479	38.0	0.0	0.027	0.027
East Wall: Metal Building Wall, Single Layer Mineral Fiber (compressed at girt), [Bldg. Use 1 - Warehouse]	4873	13.0	5.6	0.069	0.069
Entry Door: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 1 - Warehouse]	25	---	---	1.200	0.800
Entry Door copy 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 1 - Warehouse]	25	---	---	1.200	0.800
North Wall: Metal Building Wall, Single Layer Mineral Fiber (compressed at girt), [Bldg. Use 1 - Warehouse]	1571	13.0	5.6	0.069	0.069
Loading Dock Overhead Door: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	144	---	---	0.102	0.500
Loading Dock Overhead Door: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	144	---	---	0.102	0.500
Loading Dock Overhead Door: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	144	---	---	0.102	0.500
Loading Dock Overhead Door: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	144	---	---	0.102	0.500
Loading Dock Overhead Door: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	144	---	---	0.102	0.500
West Wall: Metal Building Wall, Single Layer Mineral Fiber (compressed at girt), [Bldg. Use 1 - Warehouse]	4648	13.0	5.6	0.069	0.069
Entry Door copy 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 1 - Warehouse]	25	---	---	1.200	0.800

Entry Door copy 2: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 1 - Warehouse]	25	---	---	1.200	0.800
Entry Door copy 3: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 1 - Warehouse]	25	---	---	1.200	0.800
Overhead Door: Uninsulated Double-Layer Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	346	---	---	1.200	0.500
Connector West: Wood-Framed, 16" o.c., [Bldg. Use 1 - Warehouse]	193	13.0	7.5	0.051	0.051
Floor 1: Concrete Floor (over unconditioned space), [Bldg. Use 1 - Warehouse]	19714	---	10.0	0.076	0.064
Floor 2: Slab-On-Grade:Unheated, Horizontal with vertical 2 ft., [Bldg. Use 2 - Office]	66	---	10.0	---	---

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

Air Leakage, Component Certification, and Vapor Retarder Requirements:

- ☐ 1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.
- ☐ 2. Windows, doors, and skylights certified as meeting leakage requirements.
- ☐ 3. Component R-values & U-factors labeled as certified.
- ☐ 4. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- ☐ 5. 'Other' components have supporting documentation for proposed U-Factors.
- ☐ 6. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.
- ☐ 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- ☐ 8. Cargo doors and loading dock doors are weather sealed.
- ☐ 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.
- ☐ 10. Building entrance doors have a vestibule equipped with self-closing devices.
  Exceptions:
  - ☐ Building entrances with revolving doors.
  - ☐ Doors not intended to be used as a building entrance.
  - ☐ Doors that open directly from a space less than 3000 sq. ft. in area.
  - ☐ Doors used primarily to facilitate vehicular movement or materials handling and adjacent personnel doors.
  - ☐ Doors opening directly from a sleeping/dwelling unit.

Section 3: Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope system has been designed to meet the 2009 IECC requirements in COM*check* Version 4.1.1.0 and to comply with the mandatory requirements in the Requirements Checklist.

Hiroko Lindsey - Architect		2-12-19
Name - Title	Signature	Date