ADDENDUM NO. 1

TO

CITY OF AUBURN, MAINE

Public Safety Facility CMAR Bid #2024-036

DATE: May 3, 2024

This addendum amends and /or supplements the bid documents as indicated below. Only these items alter the bid documents. Any verbal discussions or responses are hereby declared null and void. Please acknowledge this addendum on the Bid Proposal Form.

The due date for proposals has been postponed; the new due date for proposals is Tuesday May 28, 2024, at 2:00pm.

Q: Do you anticipate any ledge?

A: See attached *Preliminary Geotechnical Engineering Services Report* by SW Cole Engineering dated December 30, 2021.

Q: Will there be drawing released to the proposing CMs?

A: There are no additional drawings available currently, as the Design Team is currently completing programming work. The City anticipates the Design Team will complete Schematic Design during the summer of 2024.

Q: Is a full construction budget required as part of this RFP?

A: No

Q: If a full budget is requested, do we have the City's permission to solicit subcontractor input/budgeting?

A: N/A

Q: In addition to the information required for submission as listed under section "Submission Requirements", pages 4-7; is there any additional information needed for the item titled "Financial Condition" as stated on page 8, Section 1, Appendices?

A: No additional information is required than requested in the RFP.

Q: Can you confirm that the City is not anticipating a cost of construction estimate at the time of submission and only request what is listed on the provided "Public Safety Facility Cost Proposal" sheet of the RFP, page 11 of 11.

A: Cost of construction is estimated at $36,000,000 and no additional construction cost estimating is required with response to the RFP, beyond what is listed on the provided Public Safety Facility Cost Proposal.

REPORT

21-0922 S

December 30, 2021

Preliminary Geotechnical Engineering Services

Proposed Building Additions
Engine 3 / Central Fire Station
550 Minot Avenue
Auburn, Maine

Prepared For:
Woodard & Curran
Attn: Megan McDevitt, P.E.
41 Hutchins Drive
Portland, Maine 04102

Prepared By:
S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039
T: 207-657-2866

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21-0922 S

December 30, 2021

Woodard & Curran
Attn: Megan McDevitt, P.E.
41 Hutchins Drive
Portland, Maine 04102

Subject: Preliminary Geotechnical Engineering Services
Proposed Building Additions
Engine 3 / Central Fire Station
550 Minot Avenue
Portland, Maine

Dear Megan:

In accordance with our Agreement dated October 13, 2021, we have completed subsurface explorations for the subject project. This report summarizes our findings and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information in order to develop preliminary geotechnical considerations relative to foundations, earthwork, and pavement associated with the proposed development. Our scope of services included review of prior subsurface data, five test boring explorations, a preliminary geotechnical assessment of the subsurface findings, and preparation of this report.

1.2 Site and Proposed Construction

The site is located at the existing Engine 3 / Central Fire Station at 550 Minot Avenue in Auburn, Maine. The existing facility includes a multi-story building with apparatus bays and a full basement, a rear fire training yard, and associated paved and landscape areas.

The existing building basement daylights on the westerly side with the surrounding exterior grades retained by cast-in-place concrete retaining walls and slopes. Based on review of the original 1969 building plan set provided by Woodard & Curran, we understand the existing building foundations are supported on H-piles with a soil supported basement floor slab; the 1969 foundation plan is attached in Appendix D. A topographic survey is not available at this time; however, existing grades slope down to the east and west. Taylor Brook is located along the westerly edge of the site.

We understand proposed improvements include construction of two new building additions on the east and west sides of the existing building. The proposed westerly addition will be three-stories with a full basement level, matching the existing basement elevation. The proposed easterly addition with be three-stories and on-grade, matching the existing first floor level. We anticipate the additions will be steel-framed.

Proposed and existing site features are shown on the "Exploration Location Plan" attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

2.1.1 Current Explorations

Five test borings (B-101, B-102 and B-103 on the easterly side of the site and B-201 and B-202 on the westerly side of the site) were made on December 2, 2021 by S. W. Cole Explorations, LLC. These boring locations were selected by S.W.COLE in collaboration with Woodard & Curran and established in the field by S.W.COLE using measurements from existing site features. These approximate exploration locations are shown on the "Exploration Location Plan" attached in Appendix B. Logs of these explorations and a key to the notes and symbols used on these logs are attached in Appendix C.

2.1.2 Prior Explorations

Six test borings were made by others in the 1960s for design of the original fire station. Logs and locations of these prior explorations are shown on Sheet C-1 of the original plan set, attached in Appendix D. Please note that current site grades and conditions differ from those at the time of these explorations.

2.2 Testing

The current test borings were drilled using a combination of hollow stem auger and cased wash-boring techniques. The soils were sampled at 2 to 5 foot intervals using a split spoon sampler and Standard Penetration Testing (SPT) methods. Pocket Penetrometer Tests (PPT) were performed where stiffer cohesive soils were encountered. SPT blow counts and PPT results are shown on the logs.

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Moisture content test results are noted on the boring logs.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

The current explorations encountered a subsurface profile generally consisting of uncontrolled fill overlying native glaciomarine soils, overlying glacial till overlying refusal surfaces (probable bedrock) with depth. The soil and bedrock conditions encountered at the explorations are summarized below. Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

Uncontrolled Fill: Underlying a surficial layer of pavement or topsoil, the current borings encountered uncontrolled fill consisting of loose to medium dense sand with vary portions of silt, gravel, debris including brick, and layers of brown silty clay. The fill extended to depths ranging from about to 2 to 12 feet below ground surface.

Glaciomarine Soils: Underlying the uncontrolled fill, the current borings encountered glaciomarine soils including silty clay, clayey silt, and silty sands. A layer of softer gray silty clay was encountered at borings B-103 and B-202 varying in thickness up to about 13 feet thick. The glaciomarine soils were penetrated at borings B-102 and B-201 at depths of about 26 and 10 feet, respectively; the remainder of the borings were terminated in the silty sand soils.

Glacial Till: Underlying the glaciomarine soils, borings B-102 and B-201 encountered glacial till consisting of loose to medium dense silty sand with some gravel. Boring B-102 was terminated in the glacial till at a depth of 27 feet. Boring B-201 penetrated a thin mantle of till overlying a refusal surface at a depth of 10.5 feet.

Refusal Surfaces: A refusal surface (probable bedrock) was encountered at boring B-201 at a depth of about 13 feet after penetrating about 2.5 feet into a probable weathered bedrock surface.

3.2 Groundwater

The soils were generally damp to moist from the surface. Saturated soils and free water were encountered at depths ranging from about 3 feet at boring B-201 made in lower elevation adjacent to the daylight basement on the west side of the building, to about 16 to 17 feet at borings B-101 and B-202 made at higher elevations. Groundwater likely becomes perched on the relatively impervious silty clay, glacial till, and bedrock encountered at some of the explorations. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to periods of snowmelt and precipitation, as well as changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint; however, the site includes some geotechnical limitations and associated premium development costs which should be considered for project planning, as presented herein.

4.2 Foundation and Floor Slab Considerations

The borings encountered variable thickness of loose uncontrolled fill and glaciomarine soils, including compressible, soft gray silty clay. Additionally, we understand the existing building foundations are supported on H-piles with a soil supported basement floor slab. Considering the presence of compressible soils and the existing building foundations, we recommend planning include supporting the proposed building addition foundations on driven H-piles end bearing on bedrock to preclude adverse differential post-construction settlement. Additionally, we recommend planning consider a pile supported floor slab for the easterly building addition. We anticipate the basement floor slab for the westerly building addition may be soil supported provided all existing underlying pavement, utilities, organics, and fill are removed and replaced with compacted Structural Fill.

4.3 Excavation, Dewatering and Grading Considerations

Excavation work at the site will generally encounter uncontrolled fills and silty clay soils. Care must be exercised during construction to limit disturbance of the bearing soils. Earthwork and grading activities should ideally occur during drier, non-freezing weather of Spring, Summer, and Fall. Construction equipment should not operate directly on the native soils. Final cuts to subgrade should be performed with a smooth-edged bucket to help reduce soil disturbance.

Sumping and pumping dewatering techniques should be adequate to control groundwater in shallow excavations. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA regulations to prevent sloughing and caving of the sidewalls during construction. Care must be taken to preclude undermining adjacent structures, utilities, and roadways. The design and planning of excavations, excavation support systems, and dewatering are the responsibility of the contractor.

The existing site soils are unsuitable for reuse for the proposed building additions. Granular portions of the existing fill, free of silty clay, organics, debris, and organics, may be suitable for reuse to raise grades in paved areas provided they are at a suitable moisture content at the time of reuse. The existing silts and clays are unsuitable for reuse beneath building, paved, and hardscaped areas, but may be suitable for reuse in landscape areas. Handling and disposal of the site soils must follow all applicable regulations.

4.4 Pavement and Utility Considerations

Conventional flexible pavements appear feasible at the site. We recommend planning consider proof-rolling pavement subgrades comprised of uncontrolled fill; areas which become soft or continue to yield after proof-rolling should be removed and replaced with compacted Granular Borrow. Pavement subgrades comprised of silts and silty clay should be excavated with a smooth-edged bucket and remain as undisturbed as practicable. We recommend installing woven geotextile fabric on silty and clayey pavement subgrades.

In all cases, we recommend the uncontrolled fill be removed and replaced with compacted Granular Borrow beneath proposed utility pipes and structures.

4.5 Recommendations for Additional Study

Our preliminary evaluation is based on site observations, review of the available historic building foundation plan and subsurface data, and recent test borings. We recommend design phase explorations and geotechnical engineering services be provided as design progresses. We recommend design phase explorations include additional test borings drilled to bedrock to help estimate driven pile lengths as well as explorations in proposed paved and stormwater management areas.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you as project design progresses.

Sincerely,

S. W. Cole Engineering, Inc.

Evan M. Walker, P.E.
Senior Geotechnical Engineer

EMW:tjb

APPENDIX A

Limitations

This report has been prepared for the exclusive use of Woodard & Curran for specific application to the proposed Building Additions at Engine 3 / Central Fire Station at 550 Minot Avenue in Auburn, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures

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LEGEND

APPROXIMATE BORING LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN PREPARED FROM ORTHOIMAGERY ENTITLED "ORTHOREGIONAL2018," PROVIDED BY THE MAINE GEOLIBRARY AND A 1"=80' SCALE PLAN OF THE SITE ENTITLED "CONCEPTUAL APPROACH: SITE PLAN," PREPARED BY WOODARD & CURRAN, DATED DECEMBER 15, 2020, PROVIDED AS A PDF FILE.

2. THE BORING LOCATIONS WERE SELECTED BY CARPENTER ASSOCIATES AND LOCATED IN THE FIELD BY GPS SURVEY BY S. W. COLE ENGINEERING, INC. USING A MAPPING GRADE TRIMBLE GPS RECEIVER.

3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.

4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 25 50 100 150 Feet

S.W.COLE ENGINEERING, INC.

WOODARD & CURRAN

EXPLORATION LOCATION PLAN

PROPOSED BUILDING ADDITIONS
ENGINE 3 / CENTRAL FIRE STATION
550 MINOT AVENUE
AUBURN, MAINE

Job No.	21-0922	Scale	1" = 50'
Date:	12/30/2021	Sheet	1

R:\2021\21-0922\ArcProject\21-0922.aprx, 12/30/2021 9:19 AM 11x17 Sheet 1 - ELP, Scale: 1:600, CMORRISON, S. W. COLE ENGINEERING, INC.

APPENDIX C

Exploration Logs and Key

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Woodard & Curran
PROJECT: Proposed Central Fire Station Additions
LOCATION: 550 Minot Avenue, Auburn, Maine

BORING NO.: B-101
SHEET: 1 of 1
PROJECT NO. 21-0922
DATE START: 12/2/2021
DATE FINISH: 12/2/2021

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** | **TOTAL DEPTH (FT):** 22.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: N/A | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): ▽ 16 ft Soils Moist Below 5', Wet to Saturated Below 16' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0.4-2.4	24/16	10-8-7-6			0.4 4" Asphalt Pavement Medium dense, brown, gravelly SAND, some silt, with brick (FILL)		
			2D		2.4-4.4	24/16	5-5-5-6					
	5		3D		5-7	24/18	1-3-3-4			4.0 Stiff, brown, silty CLAY, some sand, trace gravel (FILL) 5.0 Loose, brown, SILT and fine SAND, some clay, some gravel (FILL) 7.0 Layered, brown silty CLAY and loose, gravelly silty SAND (FILL)		
	10		4D		10-12	24/6	3-4-2-2			12.0 Stiff to medium, brown silty CLAY		
	15		5D		15-17	24/24	1-1-1-1	q_p=0.5-1.5 ksf			▽	
	20		6D		20-22	24/16	6-8-9-6			20.0 Medium dense, brown, gravelly SAND, some silt		

Bottom of Exploration at 22.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Woodard & Curran
PROJECT: Proposed Central Fire Station Additions
LOCATION: 550 Minot Avenue, Auburn, Maine

BORING NO.: B-102
SHEET: 1 of 1
PROJECT NO. 21-0922
DATE START: 12/2/2021
DATE FINISH: 12/2/2021

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT):
TOTAL DEPTH (FT): 27.0
LOGGED BY: Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: N/A / N/A
SAMPLER: Standard Split-Spoon
HAMMER TYPE: N/A
HAMMER WEIGHT (lbs): 140 / 140
CASING ID/OD: 4 in / 4 1/2 in
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 12 ft Soils Moist Below 5', Wet to Saturated Below 12' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_U = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		1-3	24/18	3-4-4-3			0.4 4.5" Asphalt Pavement Loose, brown, silty SAND AND GRAVEL (FILL)		
			2D		3-5	24/24	4-4-6-6	q_P=7 to 4 ksf		2.6 Stiff, dark brown to brown, silty CLAY, some sand (FILL)		
	5		3D		5-7	24/20	8-8-7-7	q_P=4 to 3.5 ksf		3.5 Very stiff to stiff, brown, silty CLAY		
	10		4D		10-12	24/24	2-2-2-2	q_P=1.5 to 0.5 ksf			▽	
										12.0 Stiff to medium, gray-brown to gray, silty CLAY		
	15		5D		15-17	24/18	WOH-1-1-6	q_P=0.5 ksf				
										16.8 Medium dense, brown, silty fine SAND		
	20		6D		20-22	24/15	6-6-6-10			20.0 Medium dense, orange-brown, silty SAND, some gravel		
	25		7D		25-27	24/16	13-12-15-14			25.5 Medium dense, brown and gray-brown, silty SAND, some gravel (Till)		

Bottom of Exploration at 27.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

CLIENT: Woodard & Curran
PROJECT: Proposed Central Fire Station Additions
LOCATION: 550 Minot Avenue, Auburn, Maine

BORING NO.: B-103
SHEET: 1 of 1
PROJECT NO. 21-0922
DATE START: 12/2/2021
DATE FINISH: 12/2/2021

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT):
TOTAL DEPTH (FT): 26.4
LOGGED BY: Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: N/A
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Moist to Wet Below 5', Saturated Below 10' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_U = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0.4-2.4	24/16	19-22-16-10			0.4 4.5" Asphalt Pavement; Dense, brown, SAND AND GRAVEL, some silt (FILL)		
			2D		2.4-4.4	24/16	9-9-8-4	q_P=1.5-3 ksf		2.0 Stiff, brown, silty CLAY		
	5		3D		5-7	24/24	2-1-2-2	q_P=1-1.5 ksf				
	10		4D		10-12	24/24	1-1-1-2	q_P=0.5-1.5 ksf; w =36.8 %		11.5 Medium, gray, silty CLAY	▽	
	15		5D		15-17	24/24	WOR-WOH/12"-1	w =41.4 %				
	20		6D		20-22	24/24	WOH-18"-3			Frequent Sand Seams Below 21'; Hydraulic Push Rod Probe Below 22'		
	25									24.4		

ROD PROBE

Depth	Resistance	Interpreted Soil Type
24.4-25.4	28	Probable Sand
25.4-26.4	48	

Bottom of Exploration at 26.4 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Woodard & Curran
PROJECT: Proposed Central Fire Station Additions
LOCATION: 550 Minot Avenue, Auburn, Maine

BORING NO.: B-201
SHEET: 1 of 1
PROJECT NO. 21-0922
DATE START: 12/2/2021
DATE FINISH: 12/2/2021

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** | **TOTAL DEPTH (FT):** 12.8 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: N/A | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): ▽ 3 ft Soils Wet to Saturated Below 3' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_U = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0.6-2.6	24/18	6-5-4-5			0.5 6" Asphalt Pavement Medium dense, brown, gravelly SAND, some silt (FILL)		
			2D		2.6-4.6	24/22	4-6-8-12	q_P=7 ksf		2.3 2.6 Loose, dark gray-brown to gray, clayey SILT, some sand	▽	
	5		3D		5-7	24/22	4-3-4-4	q_P=5 to 4.5 ksf		5.0 Very stiff, gray-brown, mottled, silty CLAY, with clayey silt layers Very stiff to stiff, brown, silty CLAY		
	10		4D		10-11.8	22/20	3-7-18-50/4"			10.0 10.5 Loose, brown, silty SAND, some gravel (Till) Probable Weathered Bedrock		

Refusal at 12.8 feet
Probable Bedrock

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

CLIENT:	Woodard & Curran
PROJECT:	Proposed Central Fire Station Additions
LOCATION:	550 Minot Avenue, Auburn, Maine

BORING NO.:	**B-202**
SHEET:	1 of 1
PROJECT NO.	21-0922
DATE START:	12/2/2021
DATE FINISH:	12/2/2021

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** **TOTAL DEPTH (FT):** 26.0 **LOGGED BY:** Evan Walker

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: N/A **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:**

HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): ▽ 17 ft Soils Moist Below 5', Saturated Below 17' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_U = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0.5-2.5	24/8	11-8-6-5			0.4 Asphalt Pavement Medium dense to loose, brown gravelly SAND, some silt (FILL)		
			2D		2.5-4.5	24/0	4-3-2-2					
	5		3D		5-7	24/12	2-1-1-2			6.0 Loose, brown SILT AND SAND, trace gravel (FILL)		
	10		4D		10-12	24/24	4-6-8-9	q_P=7 to 5 ksf		10.0 Very stiff to stiff, brown, silty CLAY		
	15		5D		15-17	24/24	3-3-4-5	q_P=4 to 2 ksf			▽	
										17.0 Medium, gray-brown to gray, silty CLAY, with sand seams		
	20		6D		20-22	24/24	WOH-WOH-1-2	q_P=0.5 ksf				
										Hydraulic Push Rod Probe Below 22'		
	25									24.0 ROD PROBE Depth / Resistance / Interpreted Soil Type 24-25 HYD Probable Sand 25-26 HYD		
										Bottom of Exploration at 26.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES & SYMBOLS
Test Boring and Test Pit Explorations

Stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

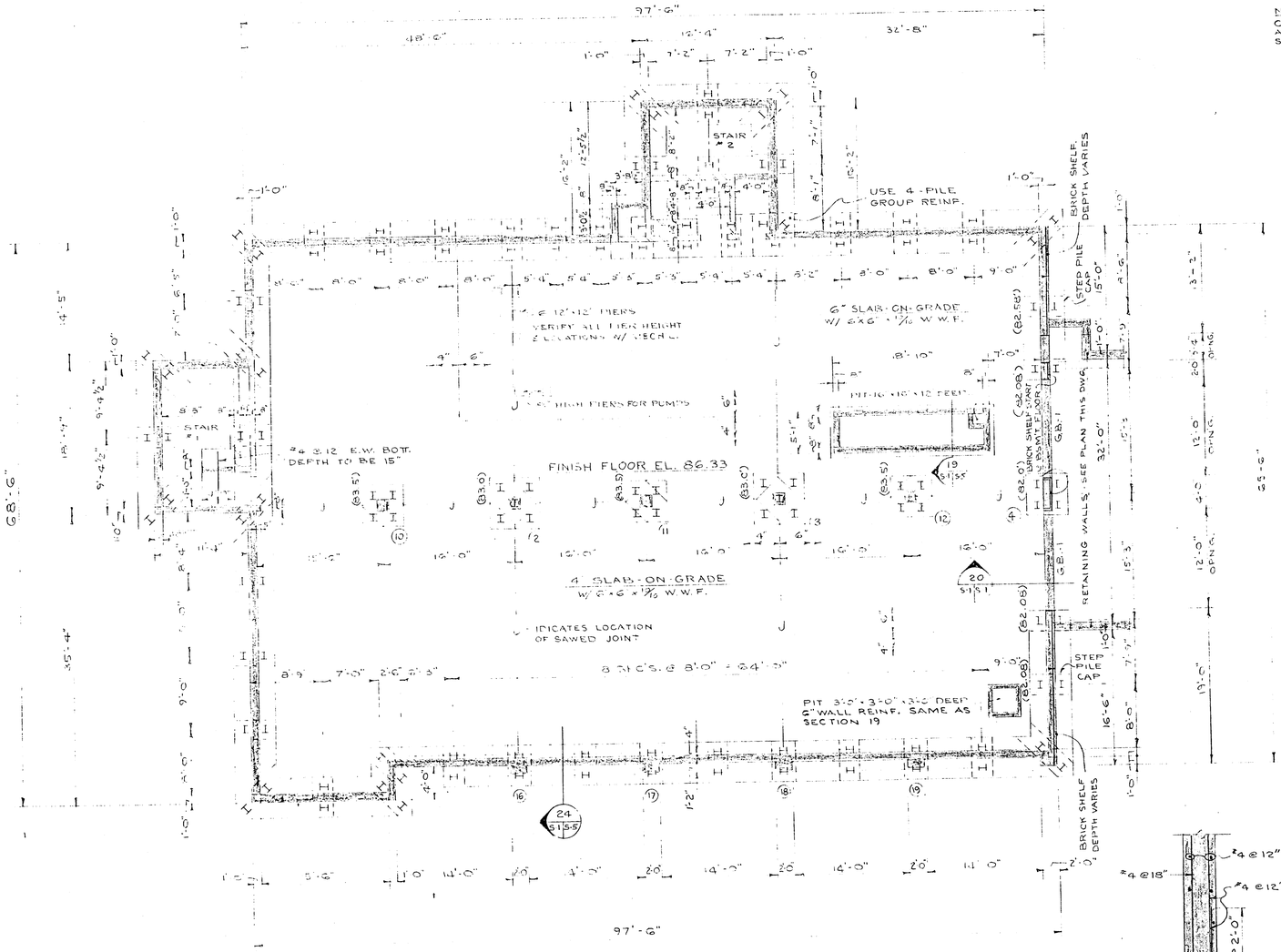
REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

APPENDIX D

Historic Plans

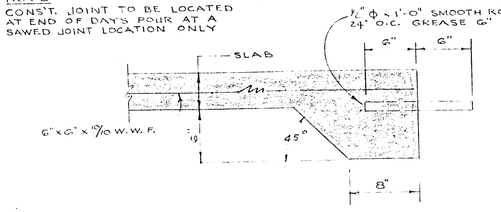
80' NE CORNER OF BLDG.
PIPE #1
FIRST FL ELEV
BASM'T ELEV
B1
SURFACE ELEV. 106'-6"
BROWN SANDY SILT
BROWN SANDY SILTY CLAY
GRAY SILTY CLAY
BOTTOM OF EXPLORATION
B2
SURFACE ELEV. 93'-0"
TOPSOIL
BROWN SANDY SILT
GRAYISH BROWN SILTY CLAY
BROWN GRAVELLY SAND
REFUSAL
B3
SURFACE ELEV.
TOPSOIL
BROWN SILTY CLAY
GRAY SILTY SANDY CLAY
BROWN SILTY SAND W/GRANITE ROCK
REFUSAL
NOTE
B4
B5
SURFACE ELEV. 83'-6"
BROWN SILTY GRAVELLY SAND
REFUSAL
B6
SURFACE ELEV.
BROWN SILTY GRAVELLY SAND
DECOMPOSED ROCK
TOWLE ST.
AVE
REMOVE APPLE
PIPE #2
EXISTING
LINES OF DEMOLISHED BUILDINGS
TAYLOR BROOK
LEGEND
EXISTING CONTOURS
NEW CONTOURS
NEW GRADES
BORINGS
PIPE #1
24" ACCMP 96' LONG
RIP RAP @ EA END
INV. IN ELEV 90' ±
INV. OUT ELEV 89' ±
SLOPE ENDS TO CONFORM TO GRADING
PIPE #2
12" ACCMP 150' LONG
W/PAVED INVERT
RIP RAP OUTFALL
INV. IN ELEV 84' ±
INV. OUT ELEV 83' ±
SLOPE ENDS TO CONFORM TO GRADING
CENTRAL FIRE HDQRS
AUBURN, MAINE
SITE PLAN
DRAWN BY REB
CHECKED BY ERG
SCALE 1" = 20'
DATE 12 DEC 1969
DEANE M WOODWARD
ARCHITECT
AUBURN MAINE



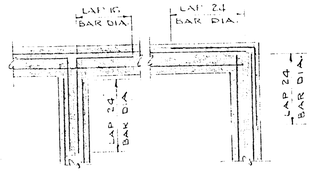
NOTE
TOP OF PILES @ EL. 83.33' UNLESS INDICATED THUS (82.0')

FOUNDATION PLAN
SCALE 1/8" = 1'-0"

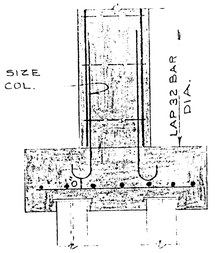
NOTE
CONST. JOINT TO BE LOCATED AT END OF DAYS POUR AT A SAWED JOINT LOCATION ONLY



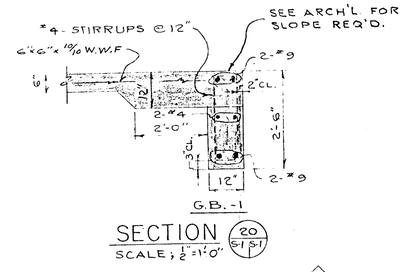
FLOOR CONST'R. JOINT DETAIL
NO SCALE



TYP. CORNER REINF. DETAILS
NO SCALE



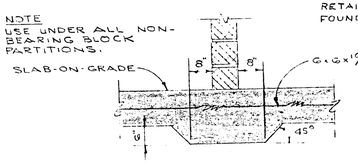
PILE CAP TO COLUMN
NO SCALE



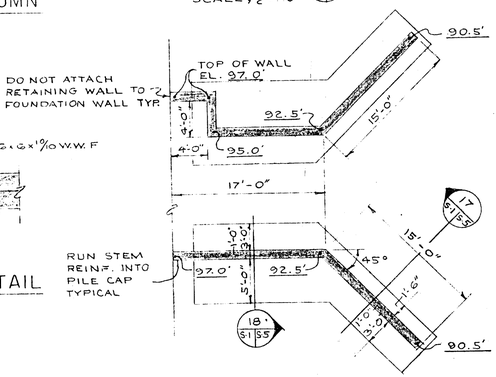
SECTION (20 S1 S5-1)
SCALE; 1/2" = 1'-0"

PILE CAP TO WALL
SCALE 1/2" = 1'-0"

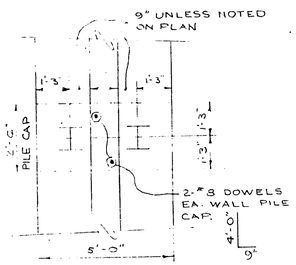
NOTE
USE UNDER ALL NON-BEARING BLOCK PARTITIONS.



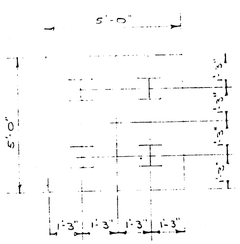
TYP. THICKENED SLAB DETAIL
NO SCALE



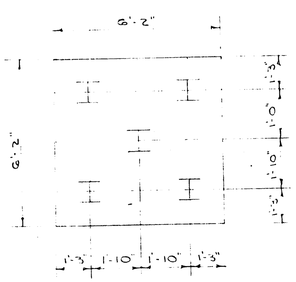
RETAINING WALL PLAN
SCALE; 1/8" = 1'-0"



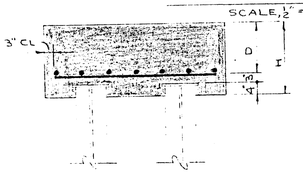
TWO PILE GROUP



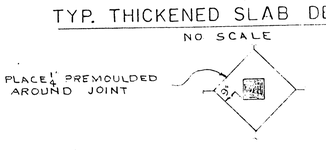
FOUR PILE GROUP



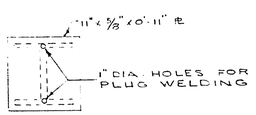
FIVE PILE GROUP



PILE CAP SECTION
NO SCALE

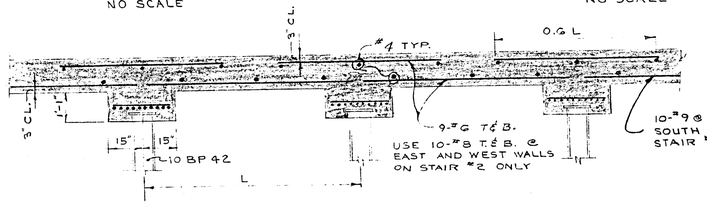


SLAB JOINT AT CONC. COLUMN
NO SCALE



PILE CAP PLATE

PILE CAPS				
FILE GROUP	D	H	REINFORCING LONG WAY	REINFORCING SHORT WAY
2	21"	28"	10 - #5	4 - #5
4	13"	26"	21 - #5	21 - #5
5	25"	32"	14 - #6	14 - #6



ELEVATION - FOUNDATION WALL PILE CAP
NO SCALE

General Notes

1. Provide pockets in concrete foundation walls for all steel columns.
2. Provide 2-#5 diagonal bars 5'-0" long at steps in foundation walls and at corners of wall openings. Provide 2-#4 vertical each side and 2-#6 horizontal at top of openings, extend 2'-0" beyond opening each side.
3. Verify with mechanical for all openings and pipe sleeves required in concrete and structural steel. Location and size of holes in steel beams shall be verified with Engineer before cutting. Holes will be stiffened as required to maintain strength of beam.
4. Chamfer corners of all concrete columns and beams 3/4" unless noted.
5. Provide keys at all construction joints.
6. Splices shall be made by lapping bars 24 bar diameter unless noted.
7. Clearance of reinforcing bars from adjacent concrete surfaces shall be:
   a. When unformed face of concrete is in contact with earth, 3"; except slabs, 1 1/2".
   b. Where formed face of concrete is in contact with earth, 2".
   c. At columns, beams, lintels, and spandrels, 1 1/2".
   d. In slabs, 3/4".
   e. The maximum allowable deviation from the figures above, when placing reinforcing in forms, shall be 1/4" for concrete shapes 10" or less in depth or width, and 1/2" for concrete shapes more than 10" in depth or width.
8. Lintels in non-bearing masonry walls shall be as follows:
   Clear opening to 6'-0" - 8" bond beam block with 1-#5 bottom
   Clear opening to 7'-0" to 10'-0" - 8" bond beam block with 1-#7 bottom.
9. Base plates shall be grouted to proper grade with 1" non-shrink grout. No chloride ions will be allowed in grout at first floor.
10. All steel joists shall be field welded to beams and bearing plates with a minimum of 2" of weld each side of joist.
11. Field weld steel beams to bearing plates with 3" minimum of weld each side of beam.

REGISTERED ARCHITECT STATE OF MAINE No. 1311

CENTRAL FIRE HDQRS. AUBURN, MAINE	
FOUNDATION PLAN-DETAILS	
DEANE M. WOODWARD ARCHITECT AUBURN MAINE	S-1
24 OF 5	

CARROLL E. TAYLOR & ASSOCIATES
CONSULTING ENGINEERS
410 SUMMER STREET
AUBURN MAINE

DRAWN BY	DOJ
CHECKED BY	R.W.S.
SCALE	AS NOTED
DATE	12-12-69

69-33