ADDENDUM NUMBER 3: Bid#10-16

South Mill Pond Tennis Courts, Leary Ball Field Lighting and Portsmouth High School Lighting Issued: January 11, 2015

This Addendum forms part of the original document marked: Bid#10-16 South Mill Pond Courts, Leary Field Lighting and Portsmouth High School Lighting.

General Bid Clarifications

- 1. One construction gate is to be located on the parking lot side of the project. Location will be determined in the field.
- 2. The callout on sheet L5.05, detail 3 is referring to the painted line striping for the location of the hockey goal crease. The hockey goal and net are not to be included in the bid.
- 3. On sheet L4.01 the spot grades along the block retaining wall in the southwest corner of the tennis courts were adjusted to the other side of the wall. See attachment SK-2.

The following questions have been asked and answered.

Question 1:	I could not find a supplier or model number for the basketball standards or hockey nets. Could you please supply this information?
Answer:	The hockey nets and goals are not to be included in the bid. See number 2 above, under general bid clarifications. Please refer to the attached revised specification, section 02804 SITE IMPROVEMENTS for the basketball standards.
Question 2:	Please confirm the limits of the windscreen in alternate #2; is it just the outer North and East facing fence runs? A highlighted plan would be helpful.
Answer:	The windscreens will only be necessary on the outer North and East facing fence runs. The fencing on the South side and the West side of the courts, as well as the inner fencing will not require any windscreen.
<u>Question 3:</u> Answer:	Please provide specs and details for the removable volleyball posts and nets. Please refer to the attached additional specification section 02804 SITE IMPROVEMENTS for information on the volleyball posts and nets.
Question 4:	Is the precast concrete segmental block retaining wall in the southwest corner of the tennis courts in base bid or just if alternate #3 is constructed?
Answer:	The precast concrete segmental block retaining wall in the southwest corner will only be constructed if alternate #3 is accepted.
Question 5:	In base bid, does the bituminous concrete walkway wrap around the corner at the southwest corner? Please confirm the limits of the bituminous concrete walks.
Answer:	An SK drawing will be provided for this in addendum #4.
Question 6:	How many project signs will be required? 01580 is unclear, please confirm the quantity.

Answer:	There will be three (3) project signs required. One (1) sign will be located at the South Mill Pond tennis courts, one (1) sign will be located at Leary Ball Field and one (1) sign will be located at Portsmouth High School.
Question 7:	Please provide specifications and details for the (4) basketball goals or are we to reuse the (4) that the City is salvaging?
Answer:	The Salvaged basketball goals will not be used for this project. New basketball goals will be installed. Please refer to the attached additional specification, section 02804 SITE IMPROVEMENTS for the basketball standards.
Question 8:	Is the chain link fence fabric to be 6-gauge core- 2" mesh or 6-gauge core- 1 ¾" mesh? Specs and details differ.
Answer:	The chain link fabric shall be 6-gauge core- 1 ¾" as shown on sheet L5.03, detail 3. Please disregard the measurement given in the specifications.
Question 9:	There is no erosion control shown on sheet L2.02. Is it the intent to not use any at this field?
Answer:	There will be no erosion control needed at this field.
Question 10:	There is no construction fence on sheet L2.02. Is it the intent to use the field fencing as construction fence?
Answer:	Yes, the existing fence will serve as a construction fence during the installation the Leary Ball Field lighting.
Question 11:	On sheet L2.02, the construction fence is shown going through an existing utility pole. Are we removing this pole?
Answer:	We are not removing this utility pole. Please refer to the attached sheet SK -1 for the revisions.
Question 12:	On sheet L3.01 the fourth ADA landing is drawn at 2'-0" however it is dimensioned at 5'-0". Is it the intent to make the landing what ADA requires which is 5'?
Answer:	On sheet L3.01, the line set 2' from the beginning of the landing is representing the spillway, which is called out on sheet L4.01. From the spillway to the corner of the walk is at a 2% slope, meeting ADA standards. Refer to the attached sheet SK-2 for further clarification.
Question 13:	I want to double check that the grading on sheet L4.01 is correct in relation to this landing being drawn incorrectly.
Answer:	It is drawn correctly, the dimension is incorrect. Please refer to the attached sheet SK-2 for clarification.
Question 14:	Please clarify the limits of base bid curbing. If alternate 3 is not accepted then where does this curbing end?
Answer:	An SK will be provided for this in addendum #4.

Specifications

- 1. Add Section 02804 SITE IMPROVEMENTS
- 2. Section 02300 EARTHWORK- Add MUSCO Lighting Foundation Design- Attached
- 3. Section 02300 EARTHWORK- Add Portsmouth High School Geotechnical Report- Attached

<u>Plans</u>

- 1. Sheet L2.01 provide revisions as indicated on sheet SK-1
- 2. Sheet L4.01 provide revisions as indicated on sheet SK-2

Attachments

- 1. Specification Section 02804 SITE IMPROVEMENTS
- 2. SK-1
- 3. SK-2
- 4. MUSCO Lighting Foundation Design
- 5. Portsmouth High School Geotechnical Report

All else remains unchanged.

Please acknowledge this addendum within your proposal. Failure to do so may subject a bidder to disqualification.

End of Addendum #3

SECTION 02804

SITE IMPROVEMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The General Documents, as listed in the Table of Contents, and applicable parts of Division 1, General Requirements shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.02 SCOPE OF WORK

- A. The work of this Section consist of all site improvements and related items as indicated on the Drawings and/or as specified herein and includes, but is not limited to, the following:
 - 1. Basketball Post, Backboard, Rim and Nets
 - 2. Volleyball Posts, Nets, and Ground Sleeves

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications:
 - 1. Section 31 23 16 Excavation, Borrow & Backfill
 - 2. Section 03 35 00 Cast-In-Place Concrete

1.04 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions of the site before submitting his bid, and shall be fully responsible for carrying out all site work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed.
- B. Plans, surveys, measurements and dimensions under which the work is to be performed are believed to be correct to the best of the Landscape Architect's knowledge, but the Contractor shall have examined them for himself during the

bidding period, as no allowance will be made for any errors or inaccuracies that may be found therein.

1.05 SCHEDULING

A. The Contractor shall submit to the Landscape Architect, for approval by the Owner, a progress schedule for all work as specified herein.

1.06 QUALITY ASSURANCE

- A. Materials and methods of construction shall comply with the following standards:
 - 1. ASTM: American Society for Testing and Materials
 - 2. ANSI: American National Standards Institute
 - 3. FS: Federal Specifications
 - 4. IMI: International Masonry Institute
 - 5. PCA: Portland Cement Association
- B. Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for the proper performance of the work of this Section.
- C. Layout: After staking out the work, and before beginning final construction, obtain the Landscape Architect's approval for layout. Contractor shall make adjustments as determined by the Landscape Architect. Landscape Architect may make adjustments to layout as is required to meet existing and proposed conditions without additional cost to the contract price.
- D. The following standards including all current amendments form a part of these Specifications:
 - 1. American Society for Testing and Materials (ASTM):

A36	Structural Steel
A53	Pipe, Steel, Black and Hot-Dipped, Zinc Coated,
	Welded and Seamless
A120	Pipe, Steel, Black and Hot-Dipped Zinc Coated
	(Galvanized), Welded and Seamless, for Ordinary
	Uses
A307	Carbon Steel Externally and Internally Threaded
	Standard Fasteners
A325	High Strength Bolts for Structural Steel Joints
A500	Cold Formed Welded and Seamless Carbon Steel
	Structural Tubing Rounds and Shapes

- 2. American Welding Society (AWS):
 - D1.1 Structural Welding Code
- 3. Steel Structures Painting Council (SSPC):
 - SSPC Surface Preparation Specifications

1.07 SUBMITTALS

- A. Shop Drawings: Submit shop drawings in accordance with Division 1 requirements.
 - 1. Basketball Post, Backboard, Rim, and Nets
 - 2. Volleyball Posts, Nets, and Ground Sleeves
- B. Product Information: Provide manufacturer's data showing installation and limitations in use. Supply Certificates of Compliance for all materials required for fabrication and installation, certifying that each material item complies with, or exceeds, specific requirements. Work includes but is not limited to:
 - 1. Basketball Post, Backboard, Rim and Nets
 - 2. Volleyball Posts, Nets, and Ground Sleeves

PART 2 - PRODUCTS

2.01 BASKETBALL POST, BACKBOARD, RIM AND NETS

- A. Backboard shall be constructed with ¹/₂" thick clear polycarbonate, contain 1/2" perforated holes, and measure 72" x 42". Backboard shall be framed with "E" channeled aluminum extrusion and attached with stainless steel hardware. Official sized white target and shall be silk screened on the face of the backboard. Goal mounting holes (4) to be standard 5" (horizontal) x 4" (vertical) mounting centers.
- B. Goal shall be Model # RB3000 front mount 18" single ring goal (5/8"), nylon net, powder coated finish.
- C. Pole shall be Gooseneck Pole System, 5 ¹/₂" O.D. schedule 40 steel pipe with 6layer galvanized finish.
- D. Backboard, goal, and net shall be manufactured by True Bounce, Inc. 194 Riverside Avenue, New Bedford MA 02746, (866) 873-3715, or approved equal.

2.02 VOLLEYBALL POSTS, NETS, AND GROUND SLEEVES

- A. The posts shall be 3" O.D. by 10 ¹/₂' to 12' foot long, schedule 40 galvanized steel posts and include High strength moveable eye hooks and pulley with stainless steel set screws and nuts, single point adjustment, and top and bottom internal drive caps for poles.
- B. The net shall be 32' x 39" #42 knotted nylon outdoor netting. The net shall be framed with 22-oz. 4" tapes, top, bottom and sides made with Triple Ultra-Violet / Mildew Protected vinyl to prevent fading and weather damage. The stitching shall be ultra violet and mildew resistant for prolonged outdoor use. Nets shall include galvanized steel aircraft cable top and bottom with protective clear vinyl coating, 1-1/8" wooden dowels; triple re-enforced netting attachment to side tapes for extra durability.
- C. The ground sleeves shall be PIP 3" hard surface economy floor socket with seamless anodized aluminum construction and powder coated aluminum cap. The socket shall be approximately 18" deep.
- D. Volleyball posts, nets, and ground sleeves shall be manufactured by A United Volleyball Supply, LLC. 14615 NE 91st St. Building B, Redmond, WA 98052, 1(425)-576-8835, or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The installer shall examine previous work, related work, and conditions under which this work is to be performed and notify the Contractor in writing of all deficiencies and conditions detrimental to the proper completion of this work. Beginning work means installer accepts substrates, subgrades, previous work, and conditions.
- B. The Contractor shall be responsible for timing the delivery of all site improvement elements so as to minimize on-site storage time prior to installation. All stored materials must be protected from weather, careless handling and vandalism.
- C. The contractor to install all elements for Basketball Post, Backboard, Rim and Nets, and Sports Bleachers per manufacturer's instruction.

3.02 BASKETBALL POSTS

A. For new post installation, post shall be Gooseneck Pole system, 5 ¹/₂" O.D. schedule 40 steel pipe with 6-layer galvanized finish.

3.03 VOLLEYBALL POSTS, NETS, AND GROUND SLEEVES

- A. The ground sleeves shall be installed per tennis post footing detail, refer to sheet L5.04 detail 2 in the plans.
- B. Ground sleeve cap shall be color seal coated to match surrounding surface.

- END OF SECTION 02804 -





POLE IDENTIFICATION										
POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	FIXTURE CONFIGURATION (FIX. PER XARM)	FIXTURE AND ACCESSORIES EPA (FT ²)						
A1-A4	LSS70C	4B	5 (5)	13.5						
B2	LSS80B	5B	11 (6+5)	28.6						
B3, B4	LSS80B	5B	10 (5+5)	26.0						
C2	LSS80B	5B	13 (7+6)	28.6						
C3	LSS80B	5B	7 (4+3)	17.5						
C4	LSS80B	5B	8 (4+4)	20.0						
F1, F2	LSS70D	5B	12 (6+6)	31.2						
F3, F4	LSS80B	5B	12 (6+6)	31.2						
P1, P2	LSS40A	1B	2 (2)	5.2						
P3	LSS40A	1B	2 (2)	5.0						
S1	LSS80B	5B	13 (7+6)	36.4						
S2, S7	LSS80C	6B	18 (6+6+6)	39.6						
S3, S6	LSS80B	5B	9 (5+4)	19.8						
T1, T2, T5, T6	LSS40A	1B	2 (2)	4.4						
T3, T4	LSS50AB	2B	4 (4)	8.4						

PRECAST BASE IDENTIFICATION

PRECAST BASE TYPE	PRECAST BASE WEIGHT	PRECAST BASE LENGTH	PROJECTION ABOVE GRADE	STANDARD EMBEDMENT	OUTSIDE DIAMETER
1B	920 LBS	15'-2"	7'-2"	8'-0"	9.56"
2B	1,690 LBS	17'-3"	7'-3"	10'-0"	12.00"
4B	3,490 LBS	22'-0"	8'-0"	14'-0"	15.75"
5B	4,580 LBS	23'-11"	7'-11"	16'-0"	18.25"
6B	6,930 LBS	26'-1"	8'-1"	18'-0"	20.56"

CONCRETE/REINFORCEMENT NOTES

CONCRETE SHALL COMPLY WITH THE FOLLOWING ASTM STANDARDS: MIXTURE WITH ASTM C-94, PORTLAND CEMENT WITH ASTM C-150 TYPE 1-A, AGGREGATES WITH ASTM C-33 AND BE IN CONFORMANCE WITH ACI 318.

CONCRETE SHALL BE AIR-ENTRAINED (COMPLY WITH ASTM C-260), HAVE A MAXIMUM WATER -CEMENT RATIO, w/cm = 0.43 AND HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.

DESIGN SLUMP LIMITS ARE 4" MINIMUM AND 6" MAXIMUM. THE JOB SITE SLUMP MAY BE INCREASED BY THE USE OF A WATER REDUCING AGENT MEETING ASTM C494-92.

CONCRETE REINFORCEMENT SHALL COMPLY WITH ASTM A615 GRADE 60, EXCEPT TIES CAN BE OF GRADE 40 AND BE IN CONFORMANCE WITH ACI 315 & 318.

CONCRETE DRILLED PIERS MUST ATTAIN 3,000 PSI STRENGTH PRIOR TO POLE INSTALLATION AND FIXTURE MOUNTING.

THE DEPTH EQUAL TO THE PRECAST BASE EMBEDMENT SHALL BE THOROUGHLY CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACEMENT.

DESIGN PARAMETERS:

WIND: 100 MPH (EXP. C, I = 1.0) PER IBC CODE, 2009 EDITION (ASCE 7-05). DESIGN WIND PARAMETERS ARE AS NOTED. ACTUAL WIND SPEED AND EXPOSURE MUST BE VERIFIED FOR THE SITE BY THE PROPER GOVERNING OFFICIAL.

GEOTECHNICAL PARAMETERS: ALLOWABLE END BEARING SOIL PRESSURE: 4,000 PSF ALLOWABLE LATERAL SOIL BEARING PRESSURE: 0 PSF/FT (GRADE TO -2'-0"); AS PROVIDED ON PAGE 4 OF REFERENCED SOIL REPORT (BELOW -2'-0") IN ACCORDANCE WITH THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE,

CHAPTER 18.

OVER EXCAVATE 2'-0" BELOW THE BOTTOM OF THE SPREAD FOOTING TO A DEPTH OF -8'-6" BELOW GRADE, REPLACE THE OVER EXCAVATED AREA WITH COMPACTED STRUCTURAL FILL. THE STRUCTURAL FILL SHOULD BE IBC, TABLE 1806.2, CLASS 3 OR BETTER AND BE COMPACTED TO 98% OF STANDARD PROCTOR (ASTM D698). FOOTINGS MAY BEAR ON BEDROCK, OVER EXCAVATION OF BEDROCK IS NOT REQUIRED.

DESIGN SOIL PARAMETERS ARE AS NOTED. ACTUAL ALLOWABLE SOIL PARAMETERS MUST BE VERIFIED ON SITE. REFERENCE GEOTECHNICAL ENGINEERING REPORT, PROJECT NO. 2140758.K, PREPARED BY WESTON & SAMPSON; PEABODY, MA.

A GEOTECHNICAL ENGINEER OR REPRESENTATIVE OF IS RECOMMENDED (NOT REQUIRED) TO BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY PROBLEMS ARISE IN FOUNDATION INSTALLATION.

ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR EXCAVATION PROCEDURES MAY OCCUR. POLE FOUNDATIONS WILL NEED TO BE ANALYZED ACCORDING TO THE SOIL CONDITIONS THAT EXIST. IF ANY DISCREPANCIES OR INCONSISTENCIES ARISE, NOTIFY THE ENGINEER OF SUCH DISCREPANCIES, FOUNDATIONS WILL THEN BE REVISED ACCORDINGLY. REVISIONS WILL BE ANALYZED PER RECOMMENDATIONS DIRECTED BY A LICENSED ENGINEER.

ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION AND CONCRETE BACKFILL PLACEMENT, TEMPORARY CASINGS OR DRILLERS SLURRY MAY BE USED TO STABILIZE THE EXCAVATION DURING INSTALLATION. CASINGS MUST BE REMOVED DURING CONCRETE BACKFILL PLACEMENT. CONCRETE BACKFILL MUST BE PLACED WITH A TREMIE WHEN SLURRY OR WATER IS PRESENT WITHIN THE EXCAVATION OR WHEN THE FREE DROP EXCEEDS 6'-0".

CONTRACTOR MUST BE FAMILIAR WITH THE COMPLETE SOIL INVESTIGATION REPORT AND BORINGS, AND CONTACT THE GEOTECHNICAL FIRM (IF NECESSARY) TO UNDERSTAND THE SOIL CONDITIONS AND THE POSSIBILITY OF GROUND WATER PUMPING AND EXCAVATION STABILIZATION OR BRACING DURING PRECAST BASE INSTALLATION AND PLACEMENT OF CONCRETE BACKFILL.

GENERAL NOTES:

FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION. ENGINEER MUST BE NOTIFIED IF FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN / NEAR ANY SLOPES STEEPER THAN 3H : 1V. POLES, FIXTURES, PRECAST BASES, ELECTRICAL ITEMS AND INSTALLATION PER MUSCO LIGHTING.



USE OR REPRODUCTION OF THIS INFORMATION OTHER THAN ITS INTENDED PURPOSE FOR THIS PROJECT IS PROHIBITED WITHOUT WRITTEN CONSENT FROM MUSCO SPORTS LIGHTING, LLC.

DESIGN NOTES

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW HAMPSHIRE.

LARRY L. OLSON DATE:

SEPC OF IOWA - 1427

LICENSE RENEWAL DATE: JULY 31, 2016 DRAWING NO. COVERED BY THIS SEAL: C1-C4



OF FOUR



THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH SOIL, WITH A CLASSIFICATION OF CLASS 5 (TABLE 1806.2) OR BETTER. COMPACTION, 95% FOR COHESIVE SOIL AND 98% FOR A COHESIONLESS SOIL BASED UPON STANDARD PROCTOR TESTING (ASTM D698).

POLE FOUNDATION SCHEDULE										
		FORCES (1.))	D	RILLED PIE	R	R	EINFORCIN	G	ဟ _
DESIGNATION	MOMENT (M) FT-LBS	SHEAR (V) LBS	VERTICAL (P) LBS	DIAMETER INCHES	EMBEDMENT DEPTH (4.)	CONCRETE BACKFILL YD ³ (2.)	CORE DIAMETER INCH (3.)	VERTICAL REINFORCING	HORIZONTAL TIES	H H DS H, NH
A2	72,121	1,635	2,007	36	21'-0"	4.4	29	12 - #6	#4 @ 12"	
A3	72,121	1,635	2,007	36	34'-0"	7.8	29	12 - #6	#4 @ 12"	
A4	72,121	1,635	2,007	36	40'-0"	9.4	29	12 - #6	#4 @ 12"	
B2	140,716	2,596	3,482	42	22'-0"	6.2	35	16 - #7	#4 @ 12"	
B3	133,156	2,504	3,392	42	34'-0"	10.5	35	16 - #7	#4 @ 12"	IN → N
B4	133,156	2,504	3,392	42	40'-0"	12.6	35	16 - #7	#4 @ 12"	
C2	142,413	2,620	3,662	42	22'-0"	6.2	35	16 - #7	#4 @ 12"	
C3	109,706	2,209	3,122	42	46'-0"	14.8	35	16 - #7	#4 @ 12"	
C4	116,532	2,296	3,212	42	22'-0"	6.2	35	16 - #7	#4 @ 12"	
F1, F2	115,125	2,381	3,402	42	46'-0"	14.8	35	16 - #7	#4 @ 12"	MEST
S1	162,459	2,863	3,662	42	22'-0"	6.2	35	16 - #7	#4 @ 12"	AVE 4VE
S2	177,095	3,201	4,552	42	23'-0"	6.2	35	16 - #7	#4 @ 12"	
 CORE DIAMETER EQUAL TO INSIDE DIAMETER OF TIES. DRILLED PIERS MUST PENETRATE 2-0° BEYOND SOFT CLAY INTO GLACIAL TILL. Under Grading and the set of t										POLE AND FOUNDATION POLE AND FOUNDATION POLE AND FOUNDATION SCALE: SEE PLAN SCALE: SEE PLAN NOTES: SCAN #156912D DATE SCAN #156912D DATE SCAN #156912D DATE SCAN #156912D DATE SCAN #156912D DHONE NUMBER: 641-752-6334 EMAIL: MSL.INFO@SEPC.BIZ
										DRAWING NUMBER



INSTALLATIO

CONCRET REINFORC PRECAST FOUR HOU THEN THE CONCRET





ASD LOAD COMBINATION D+W.

1.

VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT)

SUSPEND PRECAST BASE "Y" OFF THE BOTTOM OF THE EXCAVATION DURING MONOLITHIC CONCRETE 2. BACKFILL PLACEMENT AND CURING. NA = NOT APPLICABLE, SUSPENSION NOT REQUIRED.

3. MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.



POLE FOUNDATION ELEVATION

SCALE: NOT TO SCALE

SOIL BACKFILL NOTE:

THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH SOIL, WITH A CLASSIFICATION OF CLASS 5 (TABLE 1806.2) OR BETTER. COMPACTION, 95% FOR COHESIVE SOIL AND 98% FOR A COHESIONLESS SOIL BASED UPON STANDARD PROCTOR TESTING (ASTM D698).

DRILLED PIER

1ETER HES	EMBEDMENT DEPTH	SUSPENSION "Y" (2.)	CONCRETE BACKFILL YD ³ (3.)
36	14'-0"	NA	2.6
12	16'-0"	NA	4.1
36	10'-0"	2'-0"	2.0
36	9'-0"	1'-0"	1.8
36	16'-0"	NA	2.8
36	18'-0"	NA	2.9
36	10'-0"	2'-0"	2.0
36	11'-0"	1'-0"	2.2





POLE FOUNDATION SCHEDULE - SPREAD FOOTING OPTION								
		FOOTI	NG		PIER		<u>v</u> _	
DESIGNATION SIZE THICKNESS TOP & E (TOTAL) QUA		REINFORCEMENT TOP & BOTTOM (TOTAL) QUANTITY - SIZE	DIAMETER INCHES	CORE DIA. INCHES (1.)	VERTICAL REINFORCING			
A1-A4	9'-0" x 9'-0"	2'-0"	(40) 10 - #7's EACH WAY	48	41	18 - #7	15 6 2 5	
B2-B4	12'-0" x 12'-0"	2'-0"	(48) 12 - #7's EACH WAY	48	41	18 - #7	IO I E J	
C2	12'-0" x 12'-0"	2'-0"	(48) 12 - #7's EACH WAY	48	41	18 - #7		
C3, C4	10'-0" x 10'-0"	2'-0"	(40) 10 - #7's EACH WAY	48	41	18 - #7		
F1, F2	10'-0" x 10'-0"	2'-0"	(40) 10 - #7's EACH WAY	48	41	18 - #7		
F3, F4	12'-0" x 12'-0"	2'-0"	(48) 12 - #7's EACH WAY	48	41	18 - #7		
P1-P3	6'-6" x 6'-6"	2'-0"	(32) 8 - #6's EACH WAY	36	29	12 - #6		
S1, S2, S7	12'-0" x 12'-0"	2'-0"	(48) 12 - #7's EACH WAY	48	41	18 - #7		
S3, S6	10'-0" x 10'-0"	2'-0"	(40) 10 - #7's EACH WAY	48	41	18 - #7		
T1-T6	6'-6" x 6'-6"	2'-0"	(32) 8 - #6's EACH WAY	36	29	12 - #6	MEST	
CORE DIAMETER (SEE FOUNDATION SCHD.)			BLOCK OUT BELOW PIEF BLOCK OUT BELOW PIEF #4 TIES AT 1 #4 TIES AT 1 G LIGHT STRU (SEE PRECA VERTICAL PI (SEE FOUND (51" PROJEC 5'-1' CDETAIL NOT TO SCALE	18"Ø x 18" DEI FOR 1B-2B P 30"Ø x 18" DEI FOR 4B-6B P 2" O.C. CTURE PREC/ ST BASE SCH IER REINFORC DATION SCHEE TION INTO PIE 1"	EP SOCKET RECAST BASE EP SOCKET RECAST BASE AST BASE EDULE) CEMENT DULE) ER)		DRAWING TITLE: POLE AND FOUNDATION POLE AND FOUNDATION SCALE: SEE PLAN NOTES: SCAN #156912D MARSHALLTOWN, IOWA 50158 PHONE NUMBER: 641-752-6334 EMAIL: MSL.INFO@SEPC.BIZ PHONE NUMBER	



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Portsmouth High School Light Poles Weston & Sampson Project No. 2140758.K

December 22, 2015

City of Portsmouth, New Hampshire c/o Michael Moonan Weston & Sampson 427 Main Street, 4th Floor Worcester, Massachusetts 01608

RE: Geotechnical Engineering Report Proposed Light Poles at Portsmouth High School – Portsmouth, New Hampshire

INTRODUCTION

Weston & Sampson Engineers, Inc. (Weston & Sampson) is pleased to present our geotechnical engineering report for the proposed light poles at Portsmouth High School in Portsmouth, New Hampshire. Up to Twenty-eight new light poles are proposed at locations surrounding the existing Portsmouth High School athletic fields. Light poles and foundations currently exist at many of the proposed light pole locations. It is our understanding that new foundations will be required at twenty-three of the locations and existing foundations will be re-used at five locations. Borings were completed at nineteen of the proposed new foundation locations (including two alternative locations in the practice field area) as shown on the attached **Soil Exploration Plans**. We understand that pole heights will range between 40 ft. and 90 ft. Light pole foundations typically consist of cylindrical precast concrete bases installed in drilled shafts and backfilled with structural concrete.

SITE CONDITIONS

Surface Conditions

The Portsmouth High School Athletic Fields consist of a shared baseball and soccer field, a football field, tennis courts, and a practice field. All fields are located to the south of the school, except for the practice field, which is located to the east of the school. Wetlands border the football and shared baseball and soccer fields to the south, the baseball field to the west, south, and east, the tennis courts on all sides, and the practice field to the south, east, and north.

Based on topographic information provided on Project Plans prepared by Weston & Sampson, surface elevations in the shared baseball and soccer fields slope upward from the south towards the north between approximately El. 11 ft. and 22 ft., are relatively level surface in the baseball field between approximately El. 12 ft. and 14 ft., and are relatively level in the tennis

courts and the practice field at between approximately El. 26 ft. and 28 ft. The elevation datum was not provided on the plans.

Subsurface Explorations

Subsurface conditions at proposed light pole foundation locations were explored by advancing twenty-one borings (B1 through B20 and B14A) to depths up to 46 ft. below the existing ground surface (BGS) at the approximate locations shown on the attached **Soil Exploration Plans**. The borings were completed between November 2 and 4, 2015 and on December 11, 2015 by New England Boring Contractors of Derry, NH using an ATV-mounted drill rig and hollow stem auger and drive-and-wash casing drilling methods.

Standard penetration tests (SPT) were completed in each boring using a standard 24-in. long by 1%-in. inside diameter (2-in. outside diameter) split spoon sampler driven 24 in. by blows from a 140-lb. winch operated safety hammer falling 30-in. per blow. Sampling intervals generally ranged from continuous (every 2 ft.) in the fill and organic soils to every 5 ft. in the underlying native soils. SPT (sampler) refusal, where noted in the attached boring logs, is defined as more than 100 hammer blows for less than six inches of sampler penetration. Auger refusal is defined as no discernable advance of the augers over a period of approximately 5 minutes.

A Weston & Sampson representative observed drilling activities in the field. Subsurface conditions encountered in our explorations are described in the following sections and in the attached **Boring Logs**.

Subsurface Conditions

Subsurface conditions in the approximately upper 7.5 feet was generally consistent in the borings and consisted of up to 7-inches of topsoil overlying undocumented (non-engineered) FILL to depths ranging between 2 and 7.5 ft. BGS. A layer of BURIED TOPSOIL (organics) was encountered below the fill to depths ranging between 4 and 6.5 ft. BGS in borings B4, B6, B9, and B13. Native, inorganic soil deposits below the fill and organics varied by location as discussed below.

<u>Baseball Field</u> – Borings B1 through B4 were performed at light pole foundation locations around the baseball field. Dense, SILTY SAND with little gravel and little clay and medium stiff to very stiff CLAYEY SILT were encountered below the fill and organics to depths ranging between approximately 7.5 and 12.5 ft. BGS. These deposits were underlain by very soft to medium stiff, moderately plastic CLAY to depths ranging between approximately 20 and 44 ft. BGS. Dense GLACIAL TILL, containing fine to coarse sand with varying amounts of gravel and silt, was encountered below the CLAY in borings B1, B2, and B4. Refusal was encountered directly below the CLAY at an approximate depth of 32 ft. BGS in boring B3.

<u>Shared Baseball and Soccer Fields</u> – Borings B7 through B12 and B18, B19, and B20 were performed at light pole foundation locations around the shared baseball and soccer fields. Borings B9, B11, B19, and B20 encountered similar subsurface conditions below the fill and organics as those encountered in borings around the baseball field. Borings B9, B11, and B19 encountered layers of very stiff, medium dense SAND with little gravel and trace silt, and stiff to very stiff SANDY SILTY to approximately 7.5 ft. BGS. Very soft to stiff, moderately plastic CLAY

was encountered below these layers to depths ranging between 15 and 38 ft. BGS. Dense to very dense glacial till was encountered directly below the clay. Boring B20 was advanced to 34 ft. BGS without sampling to attempt to estimate the top of the glacial till. Gray, gravelly CLAY was encountered at 33 ft. BGS based on a change in auger resistance during drilling and was terminated at 35.5 ft. BGS due to significant heave in the augers.

Borings B7, B8, B10, B12, and B18 encountered layers of dense SAND, very stiff to stiff SANDY SILT, very stiff to hard CLAYEY SILT, and medium dense to very dense GLACIAL TILL below the fill and organics. Boring B18 was advanced through overburden soils without sampling to estimate the top of glacial till. Borings B7, B8, B10, and B12 encountered either sampler or auger refusal at depths ranging between approximately 9.5 and 21.8 ft. BGS. Boring B18 was terminated in the glacial till at 16 ft. BGS.

<u>Tennis Courts and Practice Field</u> – Borings B5 and B6 were performed at light pole foundation locations around the tennis courts and borings B13, B14, B14A, B15, B16, and B17 were performed at light pole foundation locations around the practice field (including alternative light pole foundation areas). Layers of hard SANDY SILT and dense to very dense GLACIAL TILL were encountered below the fill and organics in these borings. Roller bit and sampler refusals were encountered at depths of approximately 13 and 19.1 ft. BGS in borings B5 and B6, respectively. Roller bit and auger refusals were encountered in borings B14, B14A, B15, B16, and B17 at depths ranging between approximately 4.3 and 12.3 ft. BGS. Boring B14A was performed approximately 4 ft. from B14.

It could not be confirmed if the refusals encountered in the borings were on boulders, obstructions, or bedrock. Rock core sampling was not performed at refusal depths to assess the nature of the refusals.

Groundwater

Groundwater was observed in all borings, except in B14, B14A, and B15 at depths ranging between approximately 2 and 6 ft. BGS based on wet samples encountered during drilling. It should be expected that groundwater levels will fluctuate with season, variations in precipitation, construction in the area, and other factors. Perched groundwater conditions could exist close to the ground surface, especially during and after extended periods of wet weather.

GEOTECHNICAL RECOMMENDATIONS

Based on the subsurface conditions encountered in our explorations and our engineering analyses, construction of the proposed light poles is feasible following the recommendations contained herein. The primary geotechnical considerations for the light pole foundations is the presence of very soft clay to depths ranging between approximately 15 ft. and 44 ft. BGS and the possibility of bedrock above precast concrete base support depths. As previously discussed, light pole foundations typically consist of cylindrical precast concrete bases installed in drilled shafts and backfilled with structural concrete. At locations where bedrock exists above precast concrete base support depths, construction of shallow spread footings for support of the light poles will be required. The light pole foundations should be designed in accordance with the provisions of the current

edition of the Massachusetts State Building Code and the Technical Specifications provided by the light pole manufacturer.

Precast Concrete Base Support

The proposed light poles can be supported by precast concrete bases installed in drilled shafts and backfilled with concrete provided bedrock does not exist above proposed support depths. The drilled shafts should extend through the fill, buried topsoil (organics), and clay soils and at least 2 feet into the underlying native medium dense (or denser) glacial till or on bedrock. Drilled shaft excavations will require use of temporary casing and/or drilling fluid to maintain open excavations and support the surrounding ground. All loose and disturbed materials should be removed from the base of the shaft prior to placement of the precast base. Backfill around the precast base should consist of Portland cement concrete with a minimum (28 day) compressive strength of 3,000 pounds per square inch. The concrete should be placed from the bottom of the shaft using a tremie pipe during extraction of the temporary casing.

An allowable bearing pressure of 4,000 psf can be used at the base of the shaft to resist axial loads provided all loose material and slough is removed from the bored hole prior to placement of the precast light pole base and concrete backfill. Skin friction along the shaft sidewall should be ignored when calculating resistance to axial loads.

Resistance to lateral loads can be calculated using the soil parameters in the following tables. Resistance in the top two feet of foundation embedment should be ignored. Groundwater at the ground surface should be assumed.

	SAND FILL	CLAYEY SILT FILL	SILTY SAND
Submerged Unit Weight, Ib/ft ³	52.6	52.6	52.6
Soil Angle of Internal Friction, ϕ	30	-	28
Unconfined compressive strength, psf	-	1,500	_
Coefficient of Passive Earth Pressure, K _p (Rankine)	3	_	2.8

	SAND	CLAYEY SILT (Including Buried Topsoil)	CLAY	GLACIAL TILL
Submerged Unit Weight, Ib/ft ³	57.6	52.6	42.6	72.6
Soil Angle of Internal Friction, ϕ	30	_	-	35
Unconfined compressive strength, psf	_	1500	100	_
Coefficient of Passive Earth Pressure, Kp (Rankine)	3	-	-	3.7

Shallow Spread Footing Support

Construction of shallow spread footings for support of the light poles could be required at locations where bedrock is above precast concrete base support depths. All fill and organic soils should be

removed from the entire zone-of-stress influence beneath footings to expose the native, inorganic soils or bedrock. The zone-of-influence is defined by planes extending horizontally away from the outside edges of the footings for 2 ft. and then down and away at a 1H:1V slope. Footing bases should be compacted with a 700-pound vibratory plate compactor, or equivalent effort, until firm and stable. Standing water should be removed from excavations prior to placing concrete or fill. In no case shall fill or concrete be installed on frozen soils or in standing water. Compacted 1-1/2-inch crushed stone fill should be used to elevate subgrades up to bottom of footing elevations as necessary.

Backfill around spread footings should consist of Gravel conforming to the requirements of Item 304.2 of the New Hampshire Department of Transportation (NHDOT) Standard Specifications for Road and Bridge Construction. This material should be placed in 10-inch maximum loose lifts, with each lift compacted to a minimum of 95 percent of the materials maximum dry density as determined by ASTM Specification D1557. Material excavated from the footing excavation could be re-used as Gravel provided the material is dry, inorganic, and free of deleterious materials, contains less than 20 percent by weight passing the No. 200 Sieve, and is approved by the geotechnical engineer. Excavated clayey silt, silty clay, and buried topsoil materials are not considered suitable for re-use.

Footings bearing on the materials discussed above should be designed using an allowable bearing pressure of 4,000 psf. The allowable bearing pressure can be increased to 6,000 psf to resist temporary wind and seismic loads provided the resultant load eccentricities remain within the middle third of the footing. Resistance to lateral loads can be obtained by passive pressure against the sides of the footings equivalent to the pressure due to a fluid with a unit weight of 350 pounds per cubic foot (pcf), assuming the top of the fluid is 12 inches below finished grade. Lateral resistance can also be provided by friction along the bottoms of the footings assuming a footing base friction coefficient of 0.45. Footings should be embedded at least 4 ft. below the nearest proposed adjacent ground surface exposed to freezing.

LIMITATIONS

We have prepared this report for use by the City of Portsmouth and the design and construction teams for the proposed light poles on this site, only. The information herein could be used for bidding or estimating purposes but should not be construed as a warranty of subsurface conditions. We have made observations only at the aforementioned locations and only to the stated depths. These observations do not reflect soil types, strata thicknesses, water levels or seepage that may exist between observation locations. We should be consulted to observe foundation installation. We should be consulted to review final design and specifications in order to see that our recommendations are suitably followed. If any changes are made to the proposed structures, foundation types, or configurations, our recommendations may not be applicable, and we should be consulted.

The preceding recommendations should be considered preliminary, as actual soil conditions may vary. In order for our recommendations to be final, we should be retained to observe actual subsurface conditions encountered. Our observations will allow us to interpret actual conditions and adapt our recommendations if needed.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty, expressed or implied, is given.

It has been a pleasure assisting you with this project and we look forward to our continued involvement. Please call if you have any questions.

Very truly yours,

WESTON & SAMPSON, INC.

Thomas J. Strike, PE Project Engineer

Mark P. Mitsch, PE Senior Associate

Attachments:

Soil Exploration Plans (2 pages) Boring Logs (24 pages)

O:\Portsmouth NH\Portsmouth HS Light Poles\Report\Geotech Letter Report - Portsmouth HS Lightpoles_revised 12.22.15.doc





pla	nnina, permi	ttina.		2.0		PROJECTREPORT OF BORING No.B1Portsmouth HighSHEET1OF1				B1		
des	ign, construc on, maintena	ction,	leston	Samp	ISON _®	School Light Poles Project No. 2140758.K				40758.K		
				-		Po	ortsmouth, NH		CHKD BY	T	homas	s J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOR	RING LOCATION			See atta	ached	plan
FOREN	/IAN Inginee	R:		Ben Cross Iulie A Eatr	n FIT	-GRC DAT	OUND SURFACE	ELEV.	11/3/15	14 ft	<u>+/-</u>	DATUM <u>NA</u> 11/3/15
SAMDI												
SAIVIEL	LR.	USING A 1	40 lb. WINCH OPE	PLER (SPT) DRIVE	AMMER.	-	DATE	TIME	WATER AT		ING AT	STABILIZATION TIME
CASIN	G:	HOLLOW S	STEM AUGER			-	11/3/15	NA	2 ft. +/-	N	A	NA
CASING	SIZE:	2 1/4 IN. IN			OTHER:	-						
DEPTH	CASING	<u> </u>		SAMPLE							0.7.5	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	SIR	ATUM DESCRIPTION
0		S-1	14/24	0-2	6-15-6-10	Very s trace	stiff, gray, CLAYEY SI gravel; moist.	LT FILL,	some fine sand,			6" TOPSOIL
		S-2	12/24	2-4	9-11-12-15	Very s little g	stiff, gray, CLAYEY SI ravel, trace organics	LT FILL, (roots); w	some fine sand, /et.	1	CL	AYEY SILT FILL
5-		S-3	12/24	4-6	9-12-20-23	Dense	e, gray-brown, fine to	medium	SILTY SAND, little			
Ŭ						grave	I, little clay; wet.					
						-						SILTY SAND
10 —		S-4	15/24	10-12	5-5-2-3	Loose	e, gray, fine to mediun	n SAND,	trace silt; wet.			
		_				Botto	m 3": gray, CLAY, trac	ce fine sa	nd; wet.			
15												
15-		S-5	24/24	15-17	WOH/12"-2-1	Very	soft, gray, CLAY, trace	e fine sar	nd; wet.	2		CLAY
										3		
20 —		56	24/24	20.22	1 6 15 16	Top 2	1": same as above wi	ith some	fine sand. Medium	4		
		3-0	24/24	20-22	4-0-13-10	dense wet.	e, gray, fine to coarse	sandy G	RAVEL, little silt;			GLACIAL TILL
							Boring termin	nated at 2	22 ft.			
0.5												
25-												
30 —												
						-						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT	D		BLOWS/FT		1. Wa	iter level based on ob	servation	of wet sample.			
4	-4 -10	V. L	OOSE	2-4	SOFT	3. Au	ger grinding below 18	ft.				
10)-30	M.	DENSE	4-8	M. STIFF	4. 5 ft	. heave in auger at 20) ft.				
30	50 50		DENSE	8-15 15-30	STIFF V. STIFF							
				> 30	HARD							
GENERA	AL NOTES:	i) THE S		LINES REPRES			JNDARY BETWEEN SO		. TRANSITIONS MA			
		FLUC	TUATIONS IN T	HE LEVEL OF G			DUE TO OTHER FACTO	DRS THAP	THOSE PRESENT	AT THE T	IME	J.
		MEAS	SUREMENTS AR	E MADE.								
										BORIN	G No.	B1

							PROJECT REPORT OF BORING No. B2					B2
plai	nning, permi ian, construc	tting.	locton	Com	eon	Portsmouth High SHEET				1 OF		
operatio	on, maintena	ance M	IGSLUIC	waiiip	JUII ®	School Light Poles Project No. 2140758.K				40758.K		
						Po	ortsmouth, NH		CHKD BY	T	homas	s J. Strike, PE
BORING Co. New England Boring Contractors							ING LOCATION		5	See atta	ached	plan
FOREN	ΛAN			Ben Cross		GRC	UND SURFACE	ELEV.		13 ft	t. +/-	DATUM NA
WSE E	NGINEE	R:	J	lulie A. Eato	on, EIT	DAT	E START		11/4/15	DATE	END	11/4/15
SAMPI	FR							GR		READ		
0, 111		USING A 1	40 lb. WINCH OPE	RATED SAFETY H	IAMMER.	-	DATE	TIME	WATER AT		NG AT	STABILIZATION TIME
CASIN	G:	DRIVEN 4"	CASING USING A	300 LB. HAMMER	FALLING 30 IN. AND	-	11/4/15	NA	3 ft. +/-	N	A	NA
		THE DRIVE	E AND WASH TECH	INIQUE		_						
CASING	G SIZE:	4 IN. INSID	E DIAMETER.		OTHER:	_						
DEPTH	CASING			SAMPLE						NOTEO	отр	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	518	ATUM DESCRIPTION
0		S-1	15/24	0-2	5-6-9-11	Mediu	m dense, brown, SIL	TY SANE	FILL, little gravel,			5" TOPSOIL
			0 /0 /			trace	organics (roots); mois	st.				
		S-2	0/24	2-4	19-19-21-26	No re	covery.			1		
		6.2	0/24	16	12 0 14 10	No re	COVERV			2		SAND FILL
5 —		3-3	0/24	4-0	13-9-14-10		sovery.					
		S-4	11/24	6-8	10-12-14-19	Very	stiff, gray-brown mottle	ed, CLAY	'EY SILT; wet.			
										3		CLAVEV SILT
10-		S-5	24/24	9-11	4-4-6-5	Stiff, g	gray-brown mottled, C	LAYEY S	SILT; wet.			
						_						
						-						
						-						
		S-6	24/24	14-16	WOH/24"	Verv	soft gray CLAY trace	e fine sar	ud: wet	4		
15 –			2021			very (in, gruy, obrit, audo		id, 1101.			
20-		S-7	0/24	19-21	WOR/24"	No re	covery.			5		
						-						
												CLAY
		S-8	24/24	24-26	WOR/24"	Verv	soft. grav. CLAY. trace	e fine sar	id: wet.			02.11
25-						, .	, g,,,					
						_						
30 —		S-9	24/24	29-31	WOH/24"	Same	as above.					
						-						
						-						
		<u> </u>				1						
						L						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:	_			_	
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	1. Wa	ter level reading take	n in hole	after casing was re	emoved.		
)-4	V.	LOOSE	0-2	V. SOFT	2. Ro	ler bit grinding betwee	en 3 and	5 ft.			
4-10 LOOSE 2-4 SOFT						3. Op	en noie arilling below	9π. nmor				
10-30 M. DENSE 4-8 M. STIFF 30.50 DENSE 9.15 STIFF						5 WC	R = weight of the rod					
>50 V. DENSE 15-30 V. STIFF								-				
> 30 HARD												
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES	SENT THE APPROXIMA	TE BO	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MAY	Y BE GRA	ADUAL.	
		ii) WATE	R LEVEL READI	NGS HAVE BEE	EN MADE IN THE DRILL	HOLE	S AT TIMES AND UNDE	R CONDIT	IONS STATED ON T	HIS BOR	ING LOG	Э.
1		FLUC	TUATIONS IN TI	HE LEVEL OF G	ROUNDWATER MAY O	DCCUR	DUE TO OTHER FACTO	ORS THAP	THOSE PRESENT	AT THE T	IME	
1		MEAS	SUREMENTS AR	E MADE.								
										BORIN	IG No.	В2

O:\Portsmouth NH\Portsmouth HS Light Poles\Field\[11.2-11.4, 12.11 logs.xlsx]B-19

ola	nnina, permi	ttina.		2.0		De	PROJECT		REPORT OF E	BORIN	G No.	B2
des	ign, construc on, maintena	ction,	<i>lestor</i>	Samp	ISON _®	Sch	nool Light Poles		Project No.		<u>2</u> 21	40758.K
						Po	ortsmouth, NH		CHKD BY	Т	homas	s J. Strike, PE
BORIN	G Co.		New Engla	nd Boring C	ontractors	BOR	ING LOCATION			See atta	ached	plan
FOREN	/IAN NGINEE	R:		Ben Cross Julie A. Fato	on, FIT		F START	ELEV.	11/4/15	DATE	<u>. +/-</u> FND	DATUM <u>NA</u> 11/4/15
SAMPI	EB.					-		CR				
	LIX.	USING A 1	40 lb. WINCH OPE	RATED SAFETY H	IAMMER.	-	DATE	TIME	WATER AT		NG AT	STABILIZATION TIME
CASIN	G:	DRIVEN 4"	CASING USING A	300 LB. HAMMER	FALLING 30 IN. AND	-	11/4/15	NA	3 ft. +/-	N	A	NA
CASING	SIZE:	4 IN. INSID	E AND WASH TEC	HNIQUE	OTHER:	-						
DEPTH	CASING	Ī		SAMPLE		1				NOTEO	OTO	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT		NUTES	518	ATUM DESCRIPTION
35		S-10	24/24	34-36	WOH/12"-4-4	Soft, g	gray, CLAY, little fine	sand, littl	e silt; wet.			
		0.11	10/04	20.44		Vorva	oft gray CLAX trace	o fino cor	nd: wot			CLAY
40 —		5-11	10/24	39-41	WOR/18-2	very	Solt, gray, CLAT, trace		iu, wei.			
						-						
45—		S-12	8/24	44-46	16-14-19-36	Denso grave	e, gray, fine to coarse l; wet.	SAND, s	ome silt, little	6		GLACIAL TILL
						-	Boring termir	nated at 4	46 ft.			
						-						
50-												
55 —												
						-						
60 —												
6E						-						
05-												
							FQ·					
BLO	WS/FT		ENSITY	BLOWS/FT	DENSITY	6. Rol	LO. Ierbit grinding at abou	ut 44 ft.				
()-4	V.	LOOSE	0-2	V. SOFT	1						
4	-10)-30		OOSE DENSE	2-4 4-8	SOFT M STIFF							
30)-50)-50		ENSE	8-15	STIFF							
>	50	V.	DENSE	15-30	V. STIFF							
GENER		i) THE S	TRATIFICATION	> 30					TRANSITIONS MA	Y BF GR		
		ii) WATE	R LEVEL READ	INGS HAVE BEE	EN MADE IN THE DRILL	HOLE	AT TIMES AND UNDE	R CONDI	TIONS STATED ON T	THIS BOR	ING LOC	Э.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY	OCCUR	DUE TO OTHER FACTO	ORS THAN	N THOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.						BORIN	IG No.	B2
										1	-	

							PROJECT		REPORT OF E	BORIN	G No.	B3
pla des	nning, permi ign, construc	tting,	locton	esami	ienn	Po	ortsmouth High		SHEET		1	OF 1
operati	on, maintena	ance 7	GOLUIL	xoump	JOUII®		ool Light Poles		Project No.	—т	21 homa	40758.K
BORIN	G CO.		New Englar	nd Boring C	ontractors					See att	ached	plan
WSF F	NGINEE	R:		Iulie A Eato	on FIT		F START	ELEV.	11/3/15	DATE	. +/- FND	11/3/15
					,							
SAMPL	ER:	2 IN. OD S		PLER (SPT) DRIVE	EN 24 INCHES	-	DATE					STABILIZATION TIME
CASIN	G:	DRIVEN 4"	CASING USING A	300 LB. HAMMER	R FALLING 30 IN. AND	-	11/4/15	NA	3 ft. +/-	N	A	24 hrs.
		THE DRIVE	E AND WASH TECH	HNIQUE		_						
CASING	SIZE:	4 IN. INSID	E DIAMETER.		OTHER:	_						
DEPTH	CASING			SAMPLE	1		SAMPLE DE	ESCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	Madi	m danaa brawn fina	to modi			_	
0		5-1	16/24	0-2	3-8-10-9	some	gravel, trace silt; moi	st.	IM SAND FILL,			6" TOPSOIL
		S-2	18/24	2-4	8-42-30-31	Very	lense, brown, CLAYE	Y SILT F	ILL, little fine	1		
						sand,	trace gravel, roots; m	noist.		2	CANI	
5-		S-3	0/24	4-6	80-45-23-21	No re	covery.				SAIN	FILL
_			4/04	0.0	24.24.44.0	Voru	langa brown agndy (
		5-4	4/24	0-0	34-31-14-8	wet.	lense, brown, sandy (GRAVEL	TILL, trace sitt,			
										3		
10_		S-5	8/24	9-11	7-4-2-2	Mediu	ım stiff, gray-brown m	ottled, C	LAYEY SILT; wet.			CLAVEY SILT
10												
15		S-6	24/24	14-16	WOH/24"	Very	soft, gray, CLAY, trace	e fine sar	id; wet.	4		
15-												
		S-7	8/24	19-21	WOR/24"	Same	as above.			5		
20-						1						
												CLAY
		S-8	24/24	24-26	WOR/24"	Same	as above.					
25-												
		S-9	12/23	29-30.9	WOR/21"-100/2"	Same	as above.					
30 —			12/20	20 00.0								
										6		
							Roller bit ref	fusal at 3	2 ft.			
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	1. Wa	ter level reading take	n in hole	on 11/4/15.			
()-4	V.	LOOSE	0-2	V. SOFT	2. Ro	ler bit grinding betwee	en 3 and	5 ft.			
4	-10		DENSE	2-4	SOFT	3. Op	en hole drilling below	9 ft. mmor				
30)-50)-50		ENSE	4-0 8-15	STIFF	5. WC	R = weight of the rod	er.				
>	50	v.	DENSE	15-30	V. STIFF	6. Ro	lerbit refusal at 32 ft.	(5 minute	es grinding, 0" adva	ance).		
				> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRE	SENT THE APPROXIMA	TE BO	JNDARY BETWEEN SO	IL TYPES	TRANSITIONS MAY	Y BE GRA	DUAL.	
		ii) WATE	R LEVEL READ			HOLE			TIONS STATED ON T	HIS BOR	ING LOO	Э.
		MEAS	SUREMENTS AR	E MADE.	SIGUNDWATER WAY C	JUCUR	DUL TO UTHER FAUL		THOSE FRESHIL	ST THE I		
										BORIN	IG No.	B3

O:\Portsmouth NH\Portsmouth HS Light Poles\Field\[11.2-11.4, 12.11 logs.xlsx]B-19

			-			_	PROJECT		REPORT OF E	BORIN	G No.	B4
plai desi	nning, permi ign, construc	tting,	leston	eSamn	son	Po	ortsmouth High		SHEET	1		OF 2
operation	on, maintena	nce m	OUTUIL	country	oon®		ortsmouth. NH		CHKD BY	Т	i ∠ homas	40758.K s J. Strike. PE
	0.00			ad Daring C	a atra ata ra				-		abad	nlon
FORF	G CO. /AN			Ben Cross	Unitacions	- GRC	UND SURFACE	FI FV.		14 ft	+/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	n, EIT	DAT	E START		11/3/15	DATE	END	11/3/15
SAMDI	ED					-						
	LIN.	USING A 1	40 lb. WINCH OPE	RATED SAFETY H	AMMER.	-	DATE	TIME	WATER AT		IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW S	STEM AUGER				11/4/15	NA	2.5 ft. +/-	N	A	24 hrs.
						-						
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER: See note 4	_						
DEPTH	CASING			SAMPLE			SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
(feet)	(blows/ft)	N0.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	Hard	dark brown SILTY S		little sand little			
0		3-1	//24	0-2	0-14-20-9	grave	l, trace organics (root	s); moist.				SAND FILL
		S-2	7/24	2-4	6-7-17-23	Very	stiff, dark brown, CLA	YEY SILT	, little sand, little	1		
						grave	l, trace organics (root	s); wet.		2	В	JRIED TOPSOIL
5-		S-3	11/24	4-6	13-9-16-14	Same	as above. Bottom 7":	: without	organics.			
												CLAYEY SILT
						-						
10_												
10		S-4	1/24	10-12	WOH/24"	Very	soft, gray, CLAY, trace	e fine sar	id; wet.	3		
						-						
						-						
45												
15-		S-5	23/24	15-17	WOH/18"-1	Same	as above.					CLAY
						-						
20 –		S-6	24/24	20-22	WOH/18"-1	Same	as above.					
25 —		S-7	24/24	25-27	1_1_1_1	Same	as above					
		<u> </u>	<u></u>	20-21	1-1-1-1					4		
						1						
			-									
30 -		S-8	24/24	29-31	WOH/18"-8	Same fine o	as above. Bottom 12	": with po	ockets of some			
		80	24/24	21.22	10 2 5 6	Medii	um stiff arav SANDY		tle silt: wet			
		- 3-9	24/24	51-55	10-3-3-0	·	in oun, gruy, or no r	010,11,110				
						1						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT			BLOWS/FT		1. Wa	ter level reading take	n in hole 3-5 ft	on 11/4/15.			
4	-4 -10		OOSE	2-4	SOFT	3. WC)H = weight of the rod	l and han	nmer.			
10)-30	<u>М</u> .	DENSE	4-8	M. STIFF	4. Sw	itched to Drive and W	ash meth	nod: Driven 4" casi	ng using	300 lb.	hammer falling 30 in.
30)-50	D	ENSE	8-15	STIFF	Move	d location ~3 ft. north.	Open ho	ble drilling below 9	ft.		
>	50	V.	DENSE	15-30	V. STIFF							
	L NOTES			> 30					TRANSITICUT		DI IA :	
GENERA	LINUTES:	 i) IHE S⁻ ii) W/∆T⊏ 		LINES REPRES			JNDARY BETWEEN SO	IL IYPES	I RANSITIONS MA	T BE GRA	UUAL.	
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY (CCUR	DUE TO OTHER FACTO	ORS THAN	THOSE PRESENT	AT THE T	IME	-
		MEAS	UREMENTS AR	E MADE.								
										BORIN	G No.	B4

O:\Portsmouth NH\Portsmouth HS Light Poles\Field\[11.2-11.4, 12.11 logs.xlsx]B-19

							PROJECT		REPORT OF E	BORIN	G No.	B4
plai	nning, permit ian. construc	ting.	locton	Com	ienn	Po	ortsmouth High		SHEET		2	OF 2
operati	on, maintena	nce 📶	GOLUIC	xoamp	JUII®	Sch	nool Light Poles		Project No.		21	40758.K
						P	ortsmouth, NH		CHKD BY	I	homas	s J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOR	ING LOCATION			See att	ached	plan
FOREM	/IAN			Ben Cross		GRC	UND SURFACE	ELEV.		14 f	t. +/-	DATUM NA
WSE E	NGINEE	R:		lulie A. Eato	on, EIT	DAT	E START		11/3/15	DATE	END	11/3/15
SAMPI	FR:		PLIT SPOON SAME	PLER (SPT) DRIVE	N 24 INCHES			GR		READ	INGS	
		USING A 1	40 lb. WINCH OPE	RATED SAFETY H	IAMMER.	-	DATE	TIME	WATER AT	CASI	NG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			_	11/4/15	NA	2.5 ft. +/-	N	A	NA
						_						
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER: See note 4	_						
DEPTH	CASING		-	SAMPLE			SAMPLE DE	SCRIPT	ION	NOTES	STE	ATUM DESCRIPTION
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		0, 111 22 22			NOTEO	011	
35		S-10	24/24	34-36	9-2-4-4	Top 1	2": gray, GRAVEL, so	me clay,	little fine sand;			<u> </u>
						grave	l; wet.	AT, IIIIe	lille Sallu, liace			CLAY
						Ŭ						
		S 11	16/24	30.41	8 13 22 24	Dens	e grav sandy GRAVE	-l some	silt: wet			
40 —		0-11	10/24	00-41	0-10-22-24	2 0110	, g.u., cu.u. c	, 000				GLACIAL TILL
							Boring termir	nated at 4	41 ft.			
						1						
45 -												
10												
50 —												
						1						
55 -												
60 -												
						1						
65 -												
						1						
						1						
	GRANU	AR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY							
)-4	V.	LOOSE	0-2	V. SOFT							
4	-10	L	OOSE	2-4	SOFT							
10)-30	M.	DENSE	4-8	M. STIFF							
30	J-5U 50			8-15	SHFF							
^	50	^{v.}	DENSE	> 30	V. SHEF HARD							
GENERA	NOTES.	i) тнс о	TRATIFICATION						TRANSITIONS MA		ימווסג	
GENERA	LINUIES.	i) WATE	R LEVEL READ	NGS HAVE BEF					IONS STATED ON T			3.
1		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY C	OCCUR	DUE TO OTHER FACTO	ORS THAN	THOSE PRESENT	AT THE T	IME	-
1		MEAS	SUREMENTS AR	E MADE.								
										BORIN	IG No.	B4
I												

							PROJECT		REPORT OF E	BORIN	G No.	B5
pla des	nning, permi ían, construc	tting.	locton	e Samn	enn	Po	ortsmouth High		SHEET	1		OF 1
operati	on, maintena	nce 🖊	GOLUIC	xoamp	JUII®	Sch	ool Light Poles		Project No.		21	40758.K
						Po	ortsmouth, NH		CHKD BY		homas	s J. Strike, PE
BORIN	G Co.		New Englar	nd Boring Co	ontractors	BOR	ING LOCATION			See atta	ached	plan
FORE	ΛAN			Ben Cross		GRC	UND SURFACE	ELEV.		26 ft	. +/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	_DAT	E START		11/4/15	DATE	END	11/4/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAMF	PLER (SPT) DRIVE	N 24 INCHES			GR		READ	INGS	
		USING A 1	40 lb. WINCH OPE	RATED SAFETY H	AMMER.	_	DATE	TIME	WATER AT	CASIN	IG AT	STABILIZATION TIME
CASIN	G:	DRIVEN 4"	' CASING USING A	300 LB. HAMMER	FALLING 30 IN. AND	_	11/4/15	NA	3 ft. +/-	N	A	NA
		THE DRIVE	E AND WASH TECH	HNIQUE		-						
CASING	SIZE:	4 IN. INSID	DE DIAMETER.		OTHER:							
DEPTH	CASING	No			PLOW/S/6"		SAMPLE DE	ESCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
	(blows/it)	NO. S_1	6/24		5-19-23-10	Dense	e brown gravelly fine	to coars	e SAND FILI			
Ŭ			0/24	0-2	5-15-25-10	trace	silt; moist.		o, o,			2 101 3012
		S-2	4/24	2-4	9-11-12-12	Mediu FILL,I	m dense, brown, grav ittle silt; moist.	velly, fine	to coarse SAND	4		SAND FILL
5-		S-3	5/24	4-6	23-20-14-8	Hard,	brown, SAND SILT, to	race orga	anics (roots), trace	2	В	JRIED TOPSOIL
		64	12/24	6.0	19 24 22 20	Dense	h, well.	coarea S				
		3-4	13/24	0-0	10-24-22-30	grave	l, some silt, trace clay	; wet.	AND, Some			
		0.5	11/11		40,400/5/	Vanu	lanas brown fina ta					
10 —		5-5	11/11	9-9.9	40-100/5"	grave	l, some silt, trace clay	; wet.	AND, Some	3 ⊿		GLACIAL TILL
										5		
							Roller bit ref	usal at 1	3 ft.			
15 —												
20 -												
20												
0.5												
25-												
						-						
30 —												
						1						
L							50					
					DENSITY		ES: ler bit grinding betwor	en 3 and	4 ft			
BLO)-4			0-2	V SOFT	2 Wa	ter level based on ob	servation	- n.			
4	-10	L L	OOSE	2-4	SOFT	3. Op	en hole drilling below	9 ft.	for wet sumple.			
10)-30	M.	DENSE	4-8	M. STIFF	4. Rol	ler bit grinding below	9.5 ft.				
30	0-50		DENSE	8-15	STIFF	5. Rol	ler bit refusal (5 minu	tes grind	ing, 0" advance) ar	nd loss o	f wash	circulation at 13 ft.
>	50	V.	DENSE	15-30	V. STIFF							
		i) THE C							TRANSITIONO		DUA	
GENERA	NE NUTES:	i) THE S	R LEVEL READ	NGS HAVE REE			S AT TIMES AND LINDER	יו∟ ו די R CON⊓	INS STATED ON T		ING I OP	3.
		FLUC	TUATIONS IN TI	HE LEVEL OF G	ROUNDWATER MAY (CCUR	DUE TO OTHER FACTO	ORS THAP	N THOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.								
										BORIN	G No.	B5

			-				PROJECT		REPORT OF E	BORIN	G No.	B6
plai desi	nning, permi gn, construc	tting,	locton	e Samn	lenn	Po	ortsmouth High		SHEET		1	OF 1
operati	on, maintena	ance	GOLUIL	xoamp	JUII®	Sch	nool Light Poles		Project No.	<u> т</u>	21	40758.K
						P					nomas	
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOR	ING LOCATION	/		See atta	ached	plan
FOREN	/AN			Ben Cross				ELEV.	11/4/15	26 ft		DATUM NA
WSE E	NGINEE	к:		iulie A. Eald	л, ЕП		ESTART		11/4/15	DATE	END	11/4/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAMP	PLER (SPT) DRIVE	N 24 INCHES	_		GR	OUNDWATER	READ	INGS	
CARINI	<u>.</u>	USING A 1	40 lb. WINCH OPE	RATED SAFETY H	AMMER.	-	DATE		WATER AT			STABILIZATION TIME
CASIN	Э.	THE DRIVE	E AND WASH TECH		FALLING 30 IN. AND	-	11/4/15	INA	5 II. 1 /-		A	INA
CASING	SIZE:	4 IN. INSIE	E DIAMETER.		OTHER:	-						
DEPTH	CASING			SAMPLE		-						
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
0		S-1	8/24	0-2	2-7-7-9	Mediu	m dense, brown, fine	to coars	e, SAND FILL,			3" TOPSOIL
			0/04	0.4	10.11.0.0	nue g		 .allu fina				
		S-2	3/24	2-4	13-11-6-8	FILL,	trace to little silt; mois	velly, fine st.	to coarse SAND	1		SAND FILL
5		S-3	7/24	4-6	33-6-5-4	Stiff, g	gray-brown, CLAYEY	SILT, sor	ne fine sand,	2		
5-						trace	organics (roots); wet.				Bl	JRIED TOPSOIL
		S-4	24/24	6-8	10-17-29-35	Top 8	": becomes hard with	little orga	anics.			
						grave	l; wet.	II OAND,	some sin, inde			
		S-5	5/24	9-11	33-71-76-99	Very	lense, brown, fine to o	coarse sa	andy GRAVEL,	3		
10 —			0.21			little to	o some silt; wet.		•	Ů		
		86	12/17	14 15 4	45 60 100/5"	Same	as above					GLACIAL TILL
15 —		3-0	12/17	14-13.4	45-00-100/5	Jame	as above.					
			0/4	10.10.1	400/48					4		
20 —		S-7	0/1	19-19.1	100/1"	No re	covery. Sampler refu	sal at 10	1 ft			
							Cumpler rold	our ut ro				
25 —												
30 -												
		<u> </u>										
		<u> </u>										
		<u> </u>				1						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS		ES:		A f t			
BLO	WS/FI			BLOWS/FT		1. RO	ter lovel based on ob	en s anu	4 IL			
4	-10		OOSE	2-4	SOFT	3. Op	en hole drilling below	9 ft.	or wet sample.			
10)-30	M.	DENSE	4-8	M. STIFF	4. Ro	ler bit grinding below	18 ft.				
30)-50		ENSE	8-15	STIFF							
>	50	V.	DENSE	15-30	V. STIFF							
		ן) דווב פי	TRATIFICATION						TRANSITIONS MAY			
CENERV		ii) WATE	R LEVEL READI	NGS HAVE BEE		HOLE	S AT TIMES AND UNDER		IONS STATED ON T	HIS BOR	ING LOC	6.
		FLUC	TUATIONS IN TI	HE LEVEL OF G	ROUNDWATER MAY (OCCUR	DUE TO OTHER FACTO	ORS THAN	THOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.								
										BORIN	IG No.	B6

			_				PROJECT		REPORT OF E	BORIN	G No.	B7
plai des	nning, permi an. construc	tting.	locton	Com	icon	Po	ortsmouth High		SHEET	1		OF 1
operati	on, maintena	nce M	GOLUIC	xoamp	JUII ®	Sch	nool Light Poles		Project No.		21	40758.K
						P	ortsmouth, NH		CHKD BY	T	homas	s J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOF	ING LOCATION		S	See atta	ached	plan
FOREM	/IAN		Dav	id Thomps	on	GRC	UND SURFACE	ELEV.		16 ft	. +/-	DATUM NA
WSE E	NGINEE	R:		lulie A. Eato	on, EIT	DAT	E START		11/2/15	DATE	END	11/2/15
SAMPI	FR							GR			INGS	
0, 111		USING A 1	40 lb. WINCH OPE		IAMMER.	-	DATE	TIME	WATER AT		IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-	11/2/15	NA	4 ft. +/-	N	A	NA
CASING	SIZE:	2 1/4 IN. IN	SIDE DIAMETER.		OTHER:	_						
DEPTH	CASING			SAMPLE			SAMPLE DE			NOTES	STE	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMFLE DE			NOTES	515	ATOW DESCRIPTION
0		S-1	13/24	0-2	4-3-11-9	Mediu	Im dense, brown, fine	to coars	e SAND FILL,			6" TOPSOIL
						some	gravel, some slit; mo	IST.				SAND FILL
		S-2	18/24	2-4	6-6-10-20	very	fine sand trace grave	ed, SILT el: moist	Y CLAY FILL,		S	ILTY CLAY FILL
		6.2	12/24	4.6	10 15 15 20	Dens	brown fine to coars		little gravel little			
5 —		3-3	12/24	4-0	19-10-10-20	silt; w	et.		nuc graver, nuc	1		
												SAND
10_												CLAYEY SILT
10		S-4	24/24	10-12	1-5-19-15	Very	stiff, gray, CLAYEY SI	LT, some	e fine sand; wet.			
						silt: w	n 6 . gray, ine to coa et.	rse sano	y GRAVEL, IIIIle			
						,				2		
15 —		S-5	14/24	15-17	6-4-7-3	Mediu	ım dense. arav. fine to	o coarse	SAND. some			
		00	1-11/2-1	10 17	0470	grave	I, little silt; wet.		,			GLACIAL TILL
20-												
		S-6	17/22	20-21.8	3-11-14-100/4"	Mediu	Im dense, gray, fine to	o coarse	SAND, some			
						grave						
							Sampler refu	sal at 21	.8 π.			
25 -												
						1						
						l						
30 -					ļ							
-												
						1						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	1. Wa	ter level based on ob	servation	of wet sample.			
0)-4	V.	LOOSE	0-2	V. SOFT	2. Au	ger grinding between	12 and 1	5 ft.			
4	-10		OOSE	2-4	SOFT							
10	1-30 N 50			4-8	M. SHFF							
30	50			0-15 15_20								
	50	^v .		> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES		TE BO	JNDARY BETWEEN SO	IL TYPES	TRANSITIONS MA	Y BE GRA	DUAL.	
		ii) WATE	R LEVEL READI	NGS HAVE BEE	EN MADE IN THE DRILL	HOLE	S AT TIMES AND UNDE	R CONDIT	IONS STATED ON T	HIS BOR	ING LOO	Э.
1		FLUC	TUATIONS IN TI	HE LEVEL OF G	ROUNDWATER MAY	OCCUR	DUE TO OTHER FACTO	ORS THAP	THOSE PRESENT	AT THE T	IME	
1		MEAS	SUREMENTS AR	E MADE.						·		
										BORIN	G No.	B7

			-				PROJECT		REPORT OF E	BORIN	G No.	B8
plai des	nning, permi ign, construc	tting.	locton	e Samn	lenn	Po	ortsmouth High		SHEET		1	OF 1
operatio	on, maintena	ance 📶	GOLUIL	xoamp	JUII®	Sch	ool Light Poles		Project No.	— -	21	40758.K
						P				I	noma	
BORIN	G Co.		New Englar	nd Boring Co	ontractors	BOR	ING LOCATION	/		See att	ached	plan
FOREN			Dav	vid Thompso				ELEV.	11/0/15	15 f	<u>t. +/-</u>	DATUM NA
WSE E	INGINEE	к:	i	Julie A. Eald	л, ЕП		ESTART		11/2/15		END	11/2/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAMP	PLER (SPT) DRIVE	N 24 INCHES	_		GR			INGS	
CARINI	<u> </u>	USING A 1	40 lb. WINCH OPE	RATED SAFETY H	AMMER.	-	DATE		WATER AT	CASI		STABILIZATION TIME
CASIN	G.	HOLLOW	STEM AUGER			-	11/2/15	INA	4 11. +/-		A	INA
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:	-						
DEPTH	CASING			SAMPLE		-						
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
0		S-1	3/24	0-2	9-9-6-11	Mediu	m dense, brown, fine	to mediu	um SAND FILL,		3" -	TOPSOIL/MULCH
			40/04			little g	ravel, little silt; moist.	r				SAND FILL
		S-2	13/24	2-4	11-14-21-24	Hard,	brown, CLAYEY SILI	I, trace fi	ne sand; moist.			
		S-3	16/24	4-6	18-22-19-19	Hard,	brown-gray mottled,	CLAYEY	SILT, trace fine	1		
5-			10/21		10 22 10 10	sand;	wet.					CLAYEY SILT
									<u> </u>	2		
10 —							Auger refus	sal at 9.5	π.			
15 -												
20												
20-												
25 –												
30 —												
		<u> </u>										
						1						
						NOT						
RI O					DENSITY		EO. ter level hased on oh	servation	of wet sample			
)-4		LOOSE	0-2	V. SOFT	2. Au	ger grinding starting a	t 9 ft. Au	ger refusal at 9.5 ft	. (5 minu	utes grir	nding, 0" advance).
4	-10	L	OOSE	2-4	SOFT		0			-	÷	. ,
10	0-30	M.	DENSE	4-8	M. STIFF							
30	0-50		ENSE	8-15	STIFF							
>	50	V.	DENSE	15-30	V.SIIFF HADD							
GENERA		i) THE 9	TRATIFICATION						TRANSITIONS MA	YBECR		
		ii) WATE	R LEVEL READ	INGS HAVE BEE	N MADE IN THE DRILL	HOLE	AT TIMES AND UNDE	R CONDI	FIONS STATED ON 1	HIS BOR	ING LOC	G.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY (OCCUR	DUE TO OTHER FACTO	ORS THAP	N THOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.						r		
										BORIN	IG No.	B8

		_	_				PROJECT		REPORT OF E	BORING	G No.	B9
plai desi	nning, permi an. construc	ting.	locton	Com	ionn	Po	ortsmouth High		SHEET	1		OF 1
operatio	on, maintena	nce M	GOLUIC	<i>woallip</i>	JUII ®	Sch	nool Light Poles		Project No.		21	40758.K
						P	ortsmouth, NH		CHKD BY	T	nomas	s J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOF	ING LOCATION		5	See atta	ached	plan
FOREN	/IAN		Dav	vid Thompso	on	GRC	UND SURFACE	ELEV.		11 ft	. +/-	DATUM NA
WSE E	NGINEE	R:	J	ulie A. Eato	on, EIT	DAT	E START		11/2/15	DATE	END	11/2/15
SAMPI	FR							GR		READ	INGS	
0, 111		USING A 1	40 lb. WINCH OPE	RATED SAFETY H	AMMER.	-	DATE		WATER AT		IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW S	STEM AUGER			-	11/2/15	NA	2 ft. +/-	N	A	NA
						_						
CASING	SIZE:	2 1/4 IN. IN	SIDE DIAMETER.		OTHER:	_						
DEPTH	CASING			SAMPLE						NOTES	етп	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE		ION	NUTES	318	ATOW DESCRIPTION
0		S-1	8/24	0-2	3-8-6-10	Mediu	Im dense, brown, fine	to mediu	um SAND FILL,			3" TOPSOIL
			10/01			some	gravel, little slit; mois	ы. Туран та				SAND FILL
		S-2	12/24	2-4	2-3-5-5	trace	im, dark gray, CLAYE gravel_roots: wet	SILT, I	ittle fine sand,		ы	
		6.2	24/24	16	5 10 11 20		": same as above with	h little ord	nanice (roote)	1	BI	JRIED TOPSOIL
5 —		3-3	24/24	4-0	5-10-11-20	Very	stiff, brown-gray mottle	ed, CLAY	EY SILT, little fine			
						sand;	wet.					
												CLAYEY SILT
10												
10-		S-4	24/24	10-12	1-1/12"-1	Very	soft, gray, SILTY CLA	Y, trace f	ine sand, wet.			
						-						CLAY
15 —		8.5	24/24	15 17	WOU/24"	Verv	soft gray CLAY: wet					
		3-5	24/24	10-17	WOH/24	very.	Sont, gray, OLAT, wet.			2		
20												
20-		S-6	24/24	20-22	80-96-24-24	Very	dense, brown, fine to	coarse sa	andy GRAVEL,			GLACIAL TILL
						little s	ilt; wet.					
							Boring termin	nated at 2	22 ft.			
						-						
25 —						-						
20						1						
30-]						
						1						
						4						
						-						
<u> </u>	GRANI	AP SC			SIVE SOILS		FS					
BI O	WS/FT		ENSITY	BLOWS/FT	DENSITY	1 W=	ter level based on ob	servation	of wet sample			
0)-4	V.	LOOSE	0-2	V. SOFT	2. WC	DH = weight of the har	mmer.				
4	-10	L	OOSE	2-4	SOFT							
10)-30	M.	DENSE	4-8	M. STIFF							
30)-50	D	ENSE	8-15	STIFF							
>	50	V.	DENSE	15-30	V. STIFF							
				> 30	HARD							
GENERA	L NOTES:	i) THE ST	TRATIFICATION	LINES REPRES	SENT THE APPROXIM	TE BO	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MAY	Y BE GRA	DUAL.	
		II) WAIE	R LEVEL READI							UIS ROK		5 .
1		MEAS	UREMENTS AD		IN OUNDWATER MAY	JUCUR	DUL TO UTHER FAUL		THUSE FRESENT	AL LE L		
		WLAC		- 170 .0						BORIN	G No.	B9
										1 - 5		

							PROJECT		REPORT OF E	BORIN	G No.	B10
plai des	nning, permit ign, construc	tion,	leston	Samn	ISAN	Po	ortsmouth High		SHEET Broject No.	1	21	OF 1
operati	on, maintena	nce 🖬	UUUUUL	~~~	UUII ®	P	ortsmouth, NH		CHKD BY	T	i ∠ homas	3 J. Strike, PE
	G Co		New Engla	nd Boring C	ontractors					Soo atta	pehod	nlan
FOREN	0 00. /AN		Dav	/id Thompso	on	- GRC	UND SURFACE	ELEV.		12 ft	. +/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	DAT	E START		11/2/15	DATE	END	11/2/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAME	PLER (SPT) DRIVE	N 24 INCHES			GF		READ	INGS	
		USING A 1	40 lb. WINCH OPE	RATED SAFETY H	AMMER.	_	DATE	TIME	WATER AT	CASIN	IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-	11/2/15	NA	4 ft. +/-	N	A	NA
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:	-						
DEPTH	CASING			SAMPLE							0.7.5	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	SIR	ATUM DESCRIPTION
0		S-1	12/24	0-2	2-6-7-7	Mediu moist	m dense, brown, SIL	TY SANE), little gravel;			7" TOPSOIL
		S-2	0/24	2-4	4-6-9-11	No re	covery.					SILTY SAND
			0,21		10011		,					
5-		S-3	24/24	4-6	9-15-22-18	Hard,	gray-brown mottled, (CLAYEY	SILT, little fine			
						sanu,	wet.			1		
						-						CLAYEY SILT
10 —		<u> </u>	45/45	10 11 2	7 1 100/2"	Top 8	": hard, gray, CLAYE`	Y SILT, s	ome sand; wet.			
		5-4	15/15	10-11.3	7-1-100/3	Very o	lense, gray, fine to co	arse SA	ND, some gravel;	2		GLACIAL TILL
							Auger refus	al at 11.3	3 ft.			
15 —						-						
						-						
20 —						-						
						_						
						_						
25 -												
						-						
						-						
30 -												
		——				-						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT			BLOWS/FT	U SOFT	1. Wa 2. Au	ter level based on ob per refusal at 11.3 ft. (servatior	i of wet sample. is grinding, 0" adva	ince).		
4	-10	L	OOSE	2-4	SOFT				,	,		
10	0-30	М.	DENSE	4-8	M. STIFF							
30)-50 50		DENSE	8-15 15-30	STIFF							
	50	· · ·		> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES	SENT THE APPROXIM	ATE BOU	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MA	Y BE GRA	DUAL.	
		ii) WATE	R LEVEL READ	NGS HAVE BEE	N MADE IN THE DRIL	HOLES	AT TIMES AND UNDE		TIONS STATED ON T	HIS BOR	NG LOO	Э.
		FLUC	SUREMENTS AP	HE LEVEL OF G E MADF	ROUNDWATER MAY	JCCUR	DUE TO OTHER FACTO	JRS THAN	N THOSE PRESENT	AIIHET	IME	
										BORIN	G No.	B10

							PROJECT		REPORT OF E	BORIN	G No.	B11
plai des	nning, permi ign, construc	tting.	locton	Sam	lenn	Po	ortsmouth High		SHEET		1	OF 1
operati	on, maintena	ance	GOLUIL	xoamp	JUII®	Sch	nool Light Poles		Project No.	— -	21	40758.K
						P	Drtsmouth, NH		CHKD BY	I	nomas	S J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOF	RING LOCATION			See atta	ached	plan
FOREN		<u></u>	Dav	vid Thompso			UND SURFACE	ELEV.	11/0/15		<u>. +/-</u>	DATUM NA
WSE E	NGINEE	R:		ulle A. Eato	DN, EII	-DAI	ESTART		11/2/15		END	11/2/15
SAMPL	ER:	2 IN. OD SI	PLIT SPOON SAMF	PLER (SPT) DRIVE	N 24 INCHES	_		GR	OUNDWATER	READ	INGS	
	•	USING A 1	40 lb. WINCH OPER	RATED SAFETY H	AMMER.	-	DATE	TIME	WATER AT	CASI	NG AT	STABILIZATION TIME
CASIN	G:	HOLLOWS	STEM AUGER			-	11/2/15	NA	2 π. +/-		A	NA
CASING	SIZE:	2 1/4 IN. IN	SIDE DIAMETER.		OTHER:	-						
DEPTH	CASING	<u></u>		SAMPLE								
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	ESCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
0	,	S-1	16/24	0-2	3-5-11-16	Mediu	ım dense, brown-gray	, fine to r	nedium SAND,			6" TOPSOIL
						little g	ravel, little silt; moist.					
		S-2	16/24	2-4	10-11-13-16	Mediu	Im dense, brown, fine	to mediu	um SAND, little			
		6.2	24/24	4.6	11 10 15 15	Same				1		SAND
5 —		3-3	24/24	4-0	11-12-15-15	Jame	as above.					SAND
]						
10 —			10/01	10.10		.,						
		<u>S-4</u>	18/24	10-12	WOH/18"-1	very	soft, gray, CLAY; wet.			2		CLAY
												CLAT
15												
15-		S-5	12/24	15-17	WOR/6"-9-8-2	Mediu	ım dense, gray, fine to	o mediun	n SAND, little clay;	3		
						wet.						
						-				4		GLACIAL TILL
20 –		S-6	6/24	20-22	33-23-20-19	Dens	e, gray, fine to coarse	SAND, s	ome gravel, little	-		
						silt; w	et.					
							Boring termin	nated at 2	22 ft.			
25 —						-						
30-												
						1						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT		ENSITY	BLOWS/FT		1. Wa	iter level based on ob	servation	of wet sample.			
)-4 _10		LOUSE	0-2 2-4	V. SOFT	2. WC	P = weight of the rad	IIIIei.				
10)-30	M.	DENSE	4-8	M. STIFF	4. Au	ger grinding below 19	ft.				
30)-50	D	ENSE	8-15	STIFF			-				
>	50	V.	DENSE	15-30	V. STIFF							
				> 30	HARD							
GENERA	L NOTES:	i) THE ST		LINES REPRES		TE BO	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MA	Y BE GRA	ADUAL.	、 、
		II) WATE	R LEVEL READI					K CONDIT	I UNS STATED ON T	HIS BOR	ING LOO	.
		MEAS	UREMENTS AR	E MADE.		R	DOL TO OTHER FACIN		THOSE PRESENT			
										BORIN	IG No.	<u>B11</u>
										1		

							PROJECT		REPORT OF E	BORIN	G No.	B12
plai	nning, permit ian. construc	ting.	locton	Com	ienn	Po	ortsmouth High		SHEET	1		OF 1
operatio	on, maintena	nce 📶	GOLUIC	xoamp	JUII®	Sch	nool Light Poles		Project No.		21	40758.K
						P	ortsmouth, NH		CHKD BY	T	homas	s J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOR	RING LOCATION		5	See atta	ached	plan
FOREN	/IAN		Dav	/id Thompso	on	GRC	OUND SURFACE	ELEV.		22 ft	. +/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	DAT	E START		11/2/15	DATE	END	11/2/15
SAMPI	FR							GR		READ	INGS	
0, 1011		USING A 1	40 lb. WINCH OPE	RATED SAFETY H	IAMMER.	-	DATE		WATER AT		IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-	11/2/15	NA	6 ft. +/-	N	A	NA
						-						
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:	_						
DEPTH	CASING			SAMPLE						NOTEO	OTE	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	214	ATUM DESCRIPTION
0		S-1	11/24	0-2	3-8-9-10	Mediu	im dense, brown, SIL	TY SANE) FILL, trace			3" TOPSOIL
						grave	l; moist.					SAND FILL
		S-2	19/24	2-4	5-9-11-14	Mediu	Im dense, brown, SIL	TY SANE), trace gravel,			SILTY SAND
			11/04	4.0	00.07.00.00	Vonu	danaa brown fina ta	aaaraa S				
5 —		5-3	11/24	4-0	30-37-20-33	arave	I. little silt: moist.	coarse S	AND, Some	4		
						J	,, .,			' '		
												GLACIAL TILL
10						1						
10-		S-4	12/18	10-11.5	15-9-65-100/0"	Very	dense, brown, gravell	y SAND,	little silt; wet.			
										2		
							Auger refus	al at 11.5	5 ft.			
15 —												
20												
20-												
25 -												
						1						
30.						1						
50						l						
						ļ						
		<u> </u>				1						
	GRANU	AR SC		COHE	I SIVE SOILS	ΝΟΤ	FS:					
BLO	WS/FT		ENSITY	BLOWS/FT	DENSITY	1. Wa	ter level measured in	hole afte	er casing was remo	ved.		
)-4	V.	LOOSE	0-2	V. SOFT	2. Au	ger refusal at 11.5 ft. ((5 minute	s grinding, 0" adva	ince).		
4	-10	L	OOSE	2-4	SOFT							
10)-30	M.	DENSE	4-8	M. STIFF							
30)-50		DENSE	8-15	STIFF							
>	50	V.	DENSE	15-30	V.SIIFF							
GENERA	NOTES		TRATIEICATION						TRANSITIONS			
GENERA	LINUTES:	i) IHES ii) WAT⊏		NGS HAVE REF			S AT TIMES AND LINDE	יו∟ ו זיצ R CONרו	INS STATED ON T		ING I O	
1		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY (CCUR	DUE TO OTHER FACTO	ORS THAN	N THOSE PRESENT	AT THE T	IME	
1		MEAS	SUREMENTS AR	E MADE.								
										BORIN	G No.	B12
T-												

							PROJECT		REPORT OF E	BORIN	G No.	B13
plai desi	nning, permi ign, construc	tting,	lecton	e Samn	enn	Po	ortsmouth High		SHEET		1	OF 1
operati	on, maintena	ance I	GOLUIL	xoump	DUII®		ool Light Poles		Project No.	—т	21 homas	40758.K s.I. Strike PE
	~ ~									<u> </u>		
BORIN	G CO.		New Englar	nd Boring Co	ontractors					See atta	ached	plan
WSE E		R:		Julie A. Fato	n, FIT		F START		11/4/15	DATE	 /- FND	11/4/15
	FD :				,	-		00				
SAMPL	ER:	2 IN. OD SI		PLER (SPT) DRIVE	N 24 INCHES	-	DATE					STABILIZATION TIME
CASIN	G:	DRIVEN 4"	CASING USING A	300 LB. HAMMER	FALLING 30 IN. AND	-	11/4/15	NA	4 ft. +/-	N	A	NA
	-	THE DRIVE	E AND WASH TECH	HNIQUE		-						
CASING	SIZE:	4 IN. INSID	E DIAMETER.		OTHER:	_						
DEPTH	CASING			SAMPLE			SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	NA 11		<u> </u>			0	
0		S-1	13/24	0-2	3-7-7-7	FILL,	im dense, dark brown some silt, little gravel,	, fine to r trace or	ganics; moist.			3" TOPSOIL
		S-2	16/24	2-4	9-9-22-24	Top 8	": Hard, dark brown s	andy SIL	T, roots; moist.			SANDTILL
						Dens	e, gray, fine to mediun	n SÁND,	little gravel, little	1	BI	JRIED TOPSOIL
5-		S-3	12/24	4-6	29-29-19-34	siit; m	OIST.			2		
Ŭ						Dense	e, brown-gray, SILTY	SAND, s	ome gravel; wet.	3		
						-						GLACIAL TILL
10		S-4	6/24	9-11	67-76-28-13	Very	dense, brown, fine to o	coarse S	AND, some			
10-						grave	l, little silt; wet.					
										4		
						-	Roller bit refu	sal at 12	.3 π.			
45												
15-												
						-						
20-												
						-						
25 —												
						1						
30 —												
						1						
						l						
	GRANU	LAR SC	L DILS	COHE	SIVE SOILS	NOT	ES:			L		
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	1. Wa	ter level based on ob	servation	of wet sample.			
()-4	V.	LOOSE	0-2	V. SOFT	2. Op	en hole drilling below	4 ft.				
4	-10		OOSE	2-4	SOFT	3. Ro	ler bit grinding below	6 ft.	utoo ariadia - 4"	duance'		
10 20)-30)-50			4-8 8_15	MI. STIFF	4. KO	ier bit refusal at 12.31	ιι. (5 MIN	utes grinding, 4" a	uvance)		
>	50	v.	DENSE	15-30	V. STIFF							
				> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES	SENT THE APPROXIMA	TE BO	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MA	Y BE GRA	DUAL.	
		ii) WATE		INGS HAVE BEE	N MADE IN THE DRILL	HOLE	S AT TIMES AND UNDER		TIONS STATED ON T	HIS BOR		Э.
		FLUC	UREMENTS AP	TE LEVEL OF G	ROUNDWATER MAY (JUCUR	DUE TO UTHER FACTO	JKS I HAN	N THUSE PRESENT.	ALIHET	INIE	
										BORIN	G No.	B13

planning, permitting, design, construction, Weston Samnson,							PROJECT		REPORT OF E	BORING	G No.	B14
plai	nning, permit ian, construc	ting,	locton	Com	ioon	Po	ortsmouth High		SHEET	1	1	OF 1
operati	on, maintena	nce M	IGSLUIC	xoa iiip	ISUII®	Scl	nool Light Poles		Project No.		21	40758.K
						P	ortsmouth, NH		CHKD BY	T	homas	s J. Strike, PE
BORIN	G Co		New Englar	nd Borina C	ontractors	BOF			ç	See atta	ached	nlan
FOREN	/AN		Hew Engla	Ben Cross	ontraotoro		UND SURFACE	FLEV		26 ft	+/-	DATUM NA
WSF F		R:		Iulie A Fato	on FIT		F START		11/4/15	DATE	FND	11/4/15
					, 211							
SAMPL	ER:	2 IN. OD SI	PLIT SPOON SAMP	PLER (SPT) DRIVE	EN 24 INCHES	_		GR	OUNDWATER	READ	INGS	
	_	USING A 1	40 lb. WINCH OPE	RATED SAFETY H	IAMMER.	-	DATE	TIME	WATER AT	CASIN	IG AT	STABILIZATION TIME
CASIN	G:	DRIVEN 4"	CASING USING A	300 LB. HAMMER	FALLING 30 IN. AND	_		G	roundwater not	observ	/ed.	
		THE DRIVE	E AND WASH TECH	HNIQUE		_						
CASING	SIZE:	4 IN. INSID	E DIAMETER.		OTHER:	_						
DEPTH	CASING			SAMPLE			SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		O/WIT EE DE			NOTEO	011	
0		S-1	11/24	0-2	5-8-6-8	Mediu	um dense, brown, fine	e to medi	um SAND FILL,			3" TOPSOIL
						some	silt, little gravel; mois	st.				SAND FILL
		S-2	12/24	2-4	8-100/5"	Very	dense, brown, fine to	coarse S	AND, some			
						grave	i, little silt; moist.			1, 2		GLACIAL TILL
5-		S-3	0/0	4-	100/0	No pe	enetration.			3		
-							Roller bit ref	usal at 4.	3 ft.			
						-						
						-						
10-						-						
						-						
						-						
						-						
						-						
15 —						-						
						-						
						-						
						-						
						-						
20 –						-						
						-						
						-						
						-						
25-												
						1						
						1						
						1						
20						1						
30-						1						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	1. Ca	sing refusal at 3 ft.					
0)-4	V.	LOOSE	0-2	V. SOFT	2. Ro	ller bit grinding below	3 ft.				
4	-10	L	OOSE	2-4	SOFT	3. Ro	ller bit refusal at 4.3 ft	t. (10 min	utes grinding, 4" a	dvance).		
10)-30	M.	DENSE	4-8	M. STIFF							
30	0-50		ENSE	8-15	STIFF	1						
>	50	V.	DENSE	15-30	V. STIFF	1						
				> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES	SENT THE APPROXIMA	ATE BO	UNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MAY	Y BE GRA	ADUAL.	
		ii) WATE	R LEVEL READ	INGS HAVE BEE	EN MADE IN THE DRILI	L HOLE	S AT TIMES AND UNDE	R CONDI	TIONS STATED ON T	HIS BOR	ING LOC	Э.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY	OCCUR	DUE TO OTHER FACTO	ORS THAN	N THOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.								D 4 4
										BORIN	IG No.	В14

planning, permitting, design, construction, operation, maintenance						Po	PROJECT ortsmouth High		REPORT OF E	BORIN	G No. 1	B14A OF 1
operati	ign, construi on, maintena	ance	Vestor		SOII.®	Sch Po	nool Light Poles ortsmouth, NH		Project No. CHKD BY	т	21 homas	40758.K 3 J. Strike, PE
BORIN	GCo		New Engla	nd Boring C	ontractors	BOE				See att	ached	nlan
FORE	иan			Ben Cross	0111100013	-GRC	UND SURFACE	ELEV.		26 ft	t. +/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	DAT	E START		11/4/15	DATE	END	11/4/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAM	PLER (SPT) DRIVE	N 24 INCHES			GR	OUNDWATER	READ	INGS	
CASIN	C.	USING A 1	140 lb. WINCH OPE	RATED SAFETY H	AMMER.	_	DATE	TIME	WATER AT	CASI	NG AT	STABILIZATION TIME
CAOIN	0.	THE DRIVE	E AND WASH TEC	HNIQUE	FALLING 30 IN. AND	_						
CASING	G SIZE:	4 IN. INSIE	DE DIAMETER.		OTHER:	_						
DEPTH	CASING	No	REC/PEN (in)	SAMPLE	BLOWS/6"	-	SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
0	(010W3/11)	NO.			DEGW3/0							
						_						
		<u><u> </u></u>	0/1	4 4 1	100/1	No re	COVERV			1		
5 —			0/1	4-4.1	100/1	11010	Roller bit ref	usal at 4.	5 ft.	2, 3		
						-						
10 —						-						
						-						
15 —						-						
						_						
						-						
20 –												
						-						
						-						
25-												
						4						
						-						
20						1						
30-												
						-						
		<u> </u>				-						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT			BLOWS/FT		1. Ca 2. Ro	sing refusal at 4 ft. ller bit refusal at 4 5 ft	. (5 minu	tes arindina 4" ad	vance)		
4	-10	U V.	.OOSE	2-4	SOFT	3. Bo	ring advanced about 4	ft. west	of B14.	ra		
10	0-30	M.	DENSE	4-8	M. STIFF							
30	0-50		DENSE	8-15	STIFF							
`	00	^v .	DENSE	> 30	V. STIFF HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES	SENT THE APPROXIM	ATE BO	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MA	Y BE GRA	DUAL.	
		ii) WATE	ER LEVEL READ	INGS HAVE BEE	EN MADE IN THE DRIL	L HOLE	S AT TIMES AND UNDE	R CONDI	TIONS STATED ON T	THIS BOR	ING LOG	S.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY	OCCUR	DUE TO OTHER FACTO	ORS THAP	N THOSE PRESENT	AT THE T	IME	
		MEAS	SUKEMEN IS AR	E MADE.						BORIN	IG No.	B14A
										1	-	

in la		tting	-			_	PROJECT		REPORT OF E	BORIN	G NoB15
des	ign, construc		leston	Samu	son	PC Sch	ortsmouth High		SHEET Project No		1 OF 1 2140758 K
operau	ori, maintene					P	ortsmouth, NH		CHKD BY	Т	homas J. Strike, PE
BORIN	G Co.		New Engla	nd Borina C	ontractors	BOF			ç	See atta	ached plan
FORE	ЛAN		Wa	alter Hockel	e	GRC	UND SURFACE	ELEV.		29 ft	t. +/- DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	DAT	E START		12/11/15	DATE	END 12/11/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAM	PLER (SPT) DRIVE	N 24 INCHES	_		GF	ROUNDWATER	READ	DINGS
	~	USING A 1	40 lb. CATHEAD O	PERATED SAFET	HAMMER.	_	DATE	TIME	WATER AT	CASI	NG AT STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-		Ground	lwater not obsei	ved. S	ee note 5.
CASING	G SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:	-					
DEPTH	DEPTH CASING SAMPLE									NOTES	
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	ESCRIPT	ION	NOTES	STRATUM DESCRIPTION
0		S-1	14/24	0-2	3-13-28-57	Dens little t	e, brown, gravelly, fin o some silt: moist.	e to coar	se SAND FILL,		4" TOPSOIL
		S-2	7/24	2-4	34-34-28-22	Very	dense, brown, sandy,	coarse 0	GRAVEL, trace silt;	1	SAND FILL
					01012022	moist				2	
5-		S-3	10/15	4-5.3	26-68-100/3"	Very	dense, brown, sandy,	coarse C	GRAVEL, trace silt;		GLACIAL TILL
						moist				34	
							A			3,4	
							Auger reius	sai al 7.5	n.		
10 —											
15 —											
20 —											
25 —						-					
30 —											
		<u> </u>									
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:				
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	1. Sp	oon tilted north while	driving fr	om 1 ft. to 5.3 ft.		
()-4 _10	V.	LOOSE	0-2	V. SOFT	2. Au	ger grinding from 3.5	to 7.5 ft.	5 ft to 7 5 ft		
10)-30	м.	DENSE	4-8	M. STIFF	4. Au	ger refusal at 7.5 ft. (5	5 minutes	s grinding, less than	ı 2" adva	ance)
30	0-50		ENSE	8-15	STIFF						·
>	50	V.	DENSE	15-30	V. STIFF						
GENERA			TRATIFICATION							(BE GP/	
SENER		ii) WATE	R LEVEL READ	INGS HAVE BEE	N MADE IN THE DRILL	HOLE	S AT TIMES AND UNDE	R CONDI	TIONS STATED ON T	HIS BOR	ING LOG.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY O	OCCUR	DUE TO OTHER FACTO	ORS THAI	N THOSE PRESENT	AT THE T	IME
		MEAS	SUREMENTS AR	E MADE.							
I .											IU. DID

			-				PROJECT		REPORT OF E	BORIN	G No.	B16
pla des	nning, permi ían, construi	tting.	locton	e.Somn	lenn	Po	ortsmouth High		SHEET		1	OF 1
operati	on, maintena	ance 📶	GOLUIL	xoamp	JUII®	Sch	nool Light Poles		Project No.		21	40758.K
						P	ortsmouth, NH		CHKD BY		nomas	s J. Strike, PE
BORIN	G Co.		New Engla	nd Boring C	ontractors	BOF	ING LOCATION			See atta	ached	plan
FORE	ΛAN		Wa	alter Hockel	е	GRC	UND SURFACE	ELEV.		28 ft	: +/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	DAT	E START		12/11/15	DATE	END	12/11/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAM	PLER (SPT) DRIVE	N 24 INCHES			GR		READ	INGS	
		USING A 1	40 lb. CATHEAD O	PERATED SAFET	Y HAMMER.	-	DATE	TIME	WATER AT	CASIN	IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			_	12/11/2015		5.3 ft. +/-	5.8	ft.	NA
						-						
CASING	G SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:	-						
DEPTH	CASING			SAMPLE	1		SAMPLE DE	ESCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		-				_	
0		<u>S-1</u>	20/24	0-2	2-6-12-12	FII I	im dense, brown, grav little to some silt: moi:	velly, fine st	to coarse SAND			4" TOPSOIL
		\$ 2	10/24	2.4	23 32 30 45	Verv	lense brown-orange	mottled	gravelly fine to			SAND FILL
		3-2	19/24	2-4	23-32-30-45	coars	e SAND, some silt; m	oist.	graveny, mie to			
_		S-3	13/13	4-5.1	23-32-100/1"	Very	dense, brown, gravelly	y, fine to	coarse SAND,	1		GLACIAL TILL
5-			10/10	1 0.1	20 02 100,1	some	silt; moist.		,	2,3,4		
							Auger refus	sal at 5.8	ft.	, - ,		
10 -												
15 —												
20												
20-												
25 —												
						1						
						1						
						1						
30 -		1				1						
						1						
]						
						l						
	GRANU				SIVE SUILS		EO:	Ф				
BLO	vv∂/F1)_4			DLUWS/F1		1. AU	Jer grinding below 4.8) IL. Eminutos	arinding loss that	2" adva		
4	- -10		OOSE	2-4	SOFT	2. Au	yer refusal at 5.6 ft. (5 oundwater observed in	n hole aff	er drilling		ince)	
10)-30	И М	DENSE	4-8	M. STIFF	4. Be	drock and/or boulders	observe	d in wooded area	south of I	oorina	
30)-50		ENSE	8-15	STIFF			,				
>	50	V.	DENSE	15-30	V. STIFF							
				> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES	SENT THE APPROXIMA	TE BO	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MA	Y BE GRA	DUAL.	
		ii) WATE	R LEVEL READ	INGS HAVE BEE	EN MADE IN THE DRILL	HOLE	S AT TIMES AND UNDE	R CONDIT	TIONS STATED ON T	HIS BOR	ING LOO	Э.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY C	OCCUR	DUE TO OTHER FACTO	ORS THAP	NTHOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.						DOD		DIC
I										I ROKIN	G NO.	B10

-						_	PROJECT		REPORT OF E	BORIN	G No.	B17
pla des	nning, permi ign, construc	ction,	leston	esamn	son	Po	ortsmouth High		SHEET Broject No.		1	OF 1
operati	on, maintena	ance I	UUUUUL	~~~~	oon®	P	ortsmouth, NH		CHKD BY	— т	homas	3 J. Strike, PE
	G Co			nd Boring C	ontractore					Soo att	achod	nlan
FORE	<u>а со.</u> /AN		Wa	alter Hockel	e	GRC	UND SURFACE	ELEV.		26 ft	: +/-	DATUM NA
WSE E	NGINEE	R:		Iulie A. Eato	on, EIT	DAT	E START		12/11/15	DATE	END	12/11/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAME	PLER (SPT) DRIVE	N 24 INCHES			GR		READ	INGS	
		USING A 1	40 lb. CATHEAD O	PERATED SAFET	HAMMER.	_	DATE	TIME	WATER AT	CASI	IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-	12/11/2015		8 ft. +/-	8.5	ft.	NA
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:	-						
DEPTH	CASING			SAMPLE								
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	SIR	ATUM DESCRIPTION
0		S-1	17/24	0-2	4-8-9-6	Mediu FILI	3" TOPSOIL					
		S-2	14/24	2-4	6-6-7-10	Top 6	": same as above. Me	edium de	nse, brown SILTY			SAND FILL
		02	17/27	<u> </u>	00710	SAND, some organics (roots), trace gravel; moist.						
5-		S-3	15/24	4-6	12-14-13-16	Mediu	m dense, gray-brown	mottled,	fine to medium			SILTY SAND
Ű						SILTY	SAND, little gravel, t	race clay	; moist.			
						Very	lense, brown-gray, Gl	RAVEL, s	some sand, some	2		GLACIAL TILL
		S-4	1/1	8.5-8.6	100/1"	silt; w	et.			3		
10 —							Auger refus	sal at 8.6	ft.			
						-						
15 —												
20 —						-						
						-						
25 —												
30 —												
						1						
		<u> </u>										
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT	D		BLOWS/FT	DENSITY	1. Bot	tom 6": becomes gray	y, withou	t organics, trace cla	ay.		
4)-4 _10		LOOSE	0-2	V. SOFT	2. Aug	ger grinding below 7.5	5 ft. Auge	r leaning north wes	st.		
10)-30	M.	DENSE	4-8	M. STIFF	0. 010		in noice an	er unning.			
30)-50		ENSE	8-15	STIFF							
>	50	V.	DENSE	15-30	V. STIFF							
GENFRA		i) THE S	TRATIFICATION	LINES REPRES			JNDARY BETWEEN SO	IL TYPES	TRANSITIONS MA	Y BE GR4	DUAI	
		ii) WATE	R LEVEL READ	NGS HAVE BEE	N MADE IN THE DRILL	HOLE	S AT TIMES AND UNDE	R CONDI	TIONS STATED ON T	HIS BOR	ING LOC	Э.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY (OCCUR	DUE TO OTHER FACTO	ORS THAP	N THOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.						BODIN	GNo	
L											UNO.	DI/

pla	nning, permi	tting,		20		Pr	PROJECT		REPORT OF E	BORIN	G No.	B18
des operati	ign, construc ion, maintena	ction, ance	Vestor	Samp	SON ®	Sch	nool Light Poles		Project No.		21	140758.K
						P	ortsmouth, NH		CHKD BY		noma	S J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors		LING LOCATION			See atta	ached	plan DATUM NA
WSE E	NGINEE	R:		ulie A. Eato	on, EIT	DAT	E START		12/11/15	DATE	END	12/11/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAME	PLER (SPT) DRIVE	N 24 INCHES			GF		READ	INGS	
	-	USING A 1	140 lb. CATHEAD O	PERATED SAFET	HAMMER.	_	DATE	TIME	WATER AT	CASIN	IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-	12/11/2015		5 ft. +/-	14	ft.	NA
CASING	G SIZE:	2 1/4 IN. IN	NSIDE DIAMETER.		OTHER:	_						
DEPTH (feet)	CASING (blows/ft)	No.	REC/PEN (in)	SAMPLE DEPTH (ft)	BLOWS/6"	-	SAMPLE DE	ESCRIPT	ION	NOTES	STF	RATUM DESCRIPTION
0				(1)						1		6" TOPSOIL
5-												
						-				2	SAN	ID TO SILTY CLAY
										3	0/ 11	
10 —												
						-				4		
15_		S-1	13/24	14-16	19-24-20-18	Dense	e, brown, gravelly, fin	e to coars	se SAND, little to			GLACIAL TILL
10						some	silt; wet. Boring termin	nated at ?	16 ft			
							Doning termin		10 H.			
20 –												
25												
25-												
30 —												
						1						
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT			BLOWS/FT		1. Adv	vance boring through	overburd	en soils to estimat	e top of g	glacial t	ill.
4		L V.	LOOSE	2-4	SOFT	2. Gro 3. Aug	ger change observed	at ~7 ft.	Blue-gray-orange	SILTY CI	_AY cu	ttings observed).
10	D-30	M.	DENSE	4-8	M. STIFF	4. Au	ger grinding below 12	.5 ft.; est	mated as top of gla	acial till.		
30	J-50 • 50		DENSE	8-15 15-30	V. STIFF							
				> 30	HARD							
GENERA	AL NOTES:	i) THE S		LINES REPRES			JNDARY BETWEEN SC	IL TYPES	. TRANSITIONS MA	Y BE GRA	DUAL.	
		FLUC	TUATIONS IN TI	HE LEVEL OF G	ROUNDWATER MAY		DUE TO OTHER FACT	ORS THAP	THOSE PRESENT	AT THE T	IME	э.
		MEAS	SUREMENTS AR	E MADE.						r		5.10
L										BORIN	G No.	B18

							PROJECT		REPORT OF E	BORIN	G No.	B19
plai des	nning, permi gn, construc	tting,	lecton	Sami	levu	Po	ortsmouth High		SHEET	1	1	OF 2
operati	on, maintena	nce I	GOLUIL	xoump	JOUN®	Sci	ool Light Poles		Project No. CHKD BY	—т	21 homas	40758.K s.J. Strike, PF
	0.00			ad Daring C	ontroctoro						achod	
FORF	G CO. IAN			alter Hocke	e	GRC	UND SURFACE	FI FV.		13 ft	+/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	DAT	E START		12/11/15	DATE	END	12/11/15
SAMPL	ER:	2 IN. OD S	PLIT SPOON SAME	PLER (SPT) DRIVE	N 24 INCHES			GR	OUNDWATER	READ	INGS	
		USING A 1	40 lb. CATHEAD O	PERATED SAFET	Y HAMMER.	_	DATE	TIME	WATER AT	CASIN	IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-	12/11/2015		2.5 ft. +/-	N	A	NA
CASING	SIZE	2 1/4 IN IN				-						
DEPTH	CASING			SAMPLE	0	-						
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"		SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
0		S-1	14/24	0-2	3-7-7-5	Very	dense, brown, fine to o	coarse S	AND FILL, some			7" TOPSOIL
		62	17/24	24	10 7 0 14	Stiff	l, some sin, moist. lark grav fine to medi	ium SAN	DY SILT some			SAND FILL
		- 3-2	17/24	2-4	10-7-9-14	clay;	nost. Bottom 7": beco	mes ora	nge-gray.			
5-		S-3	16/24	4-6	11-14-9-14	Very	stiff, orange-gray, SIL	TY CLAY	, some fine to	1		SANDY SILT
Ŭ						mediu	im sand; wet.					
10-		S-4	24/24	9-11	1/12"-1-1	Very	soft, gray, CLAY, som	e silt, tra	ce fine to medium			
						sanu,	wet.					
15 —		S-5	24/24	14-16	WOR/6"-WOH/18"	Very : medii	soft, gray, CLAY, little	to some	silt, trace fine to	2,3		
				10.01		.,			c			
20 —		S-6	24/24	19-21	WOH/24"	very	soπ, gray, CLAY, little	silt, trace	e fine sand; wet.			
												CLAY
		67	24/24	24.26		Verv	off gray CLAY som	e silt littl	e fine to medium			
25 —		3-7	24/24	24-20	WOH/12 -2-1	sand;	wet.	c ont, nu				
		S-8	24/24	29-31	WOH/12"-8-5	Stiff,	aray, CLAY, some silt,	, little fine	to medium sand;			
30 –						wet. E	Bottom 4": loose, gray,	, fine to n	nedium SAND,	4		
						liace	ciay, trace siit, wet.					
						C off		masilt	rada fina ta			
		S-9	24/24	34-36	WOH/12"-3-1	mediu	im sand; wet.	nne slit, t		5		
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT			BLOWS/FT		1. Gro	oundwater observed in	n hole pri	or to advancing au	gers		
4	-10	L V.	OOSE	2-4	SOFT	2. WC)H = weight of hamme	er				
10)-30	M.	DENSE	4-8	M. STIFF	4. Au	ger change at ~30 ft.					
30)-50 50			8-15	STIFF	5. Op	en hole below 34 ft.					
^	50	v.	DENSE	> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES		TE BO	JNDARY BETWEEN SO	IL TYPES	TRANSITIONS MAY	Y BE GRA	DUAL.	
		ii) WATE	R LEVEL READ	NGS HAVE BEI	EN MADE IN THE DRILL	HOLE	S AT TIMES AND UNDER	R CONDIT	TIONS STATED ON T	HIS BOR	ING LOO	5.
		FLUC	TUATIONS IN T	HE LEVEL OF G	BROUNDWATER MAY C	OCCUR	DUE TO OTHER FACTO	ORS THAN	I THOSE PRESENT	AT THE T	IME	
		WEAG	JUNEWILINI O AR							BORIN	G No.	B19
L										1		

			-				PROJECT		REPORT OF E	BORIN	G No.	B19
plai desi	nning, permit an, construc	ting.	locton	e.Som	lenn	Po	ortsmouth High		SHEET	2	2	OF 2
operatio	on, maintena	nce M	GOLUIL	xoamp	DUII®	Sch	ool Light Poles		Project No.		21	40758.K
						P	ortsmouth, NH		CHKD BY		nomas	S J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOR	ING LOCATION			See atta	ached	plan
FOREN	/IAN		Wa	alter Hockel	е	GRC	UND SURFACE	ELEV.		13 ft	. +/-	DATUM NA
WSE E	NGINEE	R:		Julie A. Eato	on, EIT	DAT	E START		12/11/15	DATE	END	12/11/15
SAMPL	.ER:	2 IN. OD SI	PLIT SPOON SAMP	PLER (SPT) DRIVE	N 24 INCHES			GR		READ	INGS	
		USING A 1	40 lb. CATHEAD O	PERATED SAFET	Y HAMMER.	-	DATE	TIME	WATER AT	CASIN	IG AT	STABILIZATION TIME
CASIN	G:	HOLLOW	STEM AUGER			-	12/11/2015		2.5 ft. +/-	N	A	NA
						-						
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:							
DEPTH	CASING			SAMPLE			SAMPLE DE	SCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
(feet)	(blows/ft)	No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	Modiu	um stiff arov CLAV li	ttlo to so	mo silt traco fino			
35		S-10	24/24	36-38		sand;	wet. Bottom 6": gray,	gravelly,	fine to medium			CLAY
		0-10	27/27		WOR/12 -5-12	SANE	, some clay, trace silf	t; wet.				
		S-11	12/12	38-39	13-23 (see note 6)	Gray,	gravelly, fine to coars	e SAND,	little silt; wet.	6		GLACIAL TILL
40												
40-							Boring termir	nated at 3	39 ft.			
45 —												
50 —												
55												
55-												
60 —												
65												
		<u> </u>										
	GRANU	LAR SC	DILS	COHE	SIVE SOILS	NOT	ES:					
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	6. Du	e to lack of rods, spoo	on only dr	iven 12 inches.			
C)-4	V.	LOOSE	0-2	V. SOFT							
4	-10		OOSE	2-4	SOFT							
10	1-3U 1-50	M. 		4-ð 8_15	IVI. STIFF							
>	50		DENSE	15-30	V. STIFF							
	50	* .		> 30	HARD							
GENERA	L NOTES:	i) THE S	TRATIFICATION	LINES REPRES	SENT THE APPROXIMA	TE BOI	JNDARY BETWEEN SO	IL TYPES	. TRANSITIONS MA	Y BE GRA	DUAL.	
		ii) WATE	R LEVEL READ	NGS HAVE BEE	EN MADE IN THE DRILL	HOLE	S AT TIMES AND UNDE	R CONDIT	TIONS STATED ON T	HIS BOR	ING LOO	Э.
		FLUC	TUATIONS IN T	HE LEVEL OF G	ROUNDWATER MAY C	CCUR	DUE TO OTHER FACTO	ORS THAN	N THOSE PRESENT	AT THE T	IME	
1		MEAS	SUREMENTS AR	E MADE.								D 40
										BORIN	G No.	B19

plai desi operatio	nning, permit Ign, construc on, maintena	tting, tion,	<i>leston</i>	Samp	ISON _®	Po Scl	PROJECT ortsmouth High nool Light Poles		REPORT OF E SHEET Project No.		G No. 21	B20 OF 1 40758.K
						P	ortsmouth, NH		CHKD BY	T	homas	s J. Strike, PE
BORIN	G Co.		New Englar	nd Boring C	ontractors	BOF	ING LOCATION	/		See atta	ached	plan
FOREN	/IAN Nginefi		Wa	alter Hockel	e n FIT		UND SURFACE	ELEV.	12/11/15		. +/- END	DATUM NA 12/11/15
			0		, , , , , , , , , , , , , , , , , , , ,				2/11/13			
SAMPL	.ER:	2 IN. OD S	PLIT SPOON SAME	PLER (SPT) DRIVE	EN 24 INCHES	_	DATE					
CASIN	G:	HOLLOW	STEM AUGER	PERATED SAFET	Y HAMMER.	-	12/11/2015		3 ft. +/-	N	A	NA
						_						
CASING	SIZE:	2 1/4 IN. IN	ISIDE DIAMETER.		OTHER:							
DEPTH (feet)	CASING (blows/ft)	No.	REC/PEN (in)	SAMPLE DEPTH (ft)	BLOWS/6"		SAMPLE DE	ESCRIPT	ION	NOTES	STR	ATUM DESCRIPTION
0						-				1		
						-				2		
										_		
5 —										3		
						-						
						-						
10 —						-						
						-						
15 —												
						-						
						-						
20-												CLAY
						-						
						-						
25-												
20						-						
						-						
30 —												
						-						
						1				4		
		0.1	10/10	24.25.5	16 10 15				- 4			
	GRANU	AR SC	1 10/10 011 S	34-39.5 COHF	SIVE SOILS	Gray,	gravelly CLAY, some	sand, we	<i>θ</i> ι.			
BLO	WS/FT	D	ENSITY	BLOWS/FT	DENSITY	1. Ad	vance boring through	overburd	en soils to estimate	e top of t	ill or loa	ad bearing soils.
()-4	V.	LOOSE	0-2	V. SOFT	2. Gr	oundwater reading tak	ken after f	termination.			
4	-10)-30		DENSE	2-4 4_8	SOFT M STIFF	3. Au 4. Au	ger change observed	at ~4 ft. (pproxima	Blue-gray-orange telv 10 ft. of heave	SILTY CI	_AY cut	tings observed) Blow counts do not
30)-50		ENSE	8-15	STIFF	accur	ately represent densit	y.				
>	50	V.	DENSE	15-30	V. STIFF							
				> 30					TRANSITIONS		DUA	
GENERA	LINUTES:	i) THE S ii) WATE	R LEVEL READ	NGS HAVE BEE	EN MADE IN THE DRILL	L HOLE	S AT TIMES AND UNDE		INS STATED ON T	T BE GRA	ING LOG	5 .
		FLUC	TUATIONS IN TI	HE LEVEL OF G	ROUNDWATER MAY	OCCUR	DUE TO OTHER FACTO	ORS THAN	THOSE PRESENT	AT THE T	IME	
		MEAS	SUREMENTS AR	E MADE.						DODIN	0 N-	D00
										ROKIN	G NO.	B20