

ADDENDUM NO. 1

CONTRACT DOCUMENTS

June 6, 2013

PROJECT: Sanitary Sewer Lift Station & Force Main to Serve the
Bacon County Middle/High School
C&S Project No.: A3600.014

OWNER: City of Alma

BID DATE: June 14, 2013 at 1:00 p.m.

1. CONTRACT DOCUMENTS – Supplementary Conditions, Section 00800:

Add: The attached Geotechnical Recommendations for Proposed Wet Well Structure at New Bacon County High School, Alma, Georgia to the end of Section 00800 for contractor's reference regarding excavation and construction associated with lift station site and wet well.

END ADDENDUM NO. 1



WHITAKER LABORATORY, INC.

P.O. Box 7078 2500 Tremont Road Savannah, Georgia 31418
(912) 234-0696 Fax (912) 233-5061 Email: info@whitakerlab.net

March 19, 2013

Carter & Sloope, Inc.
6310 Peake Road
Macon, GA 31210

Attention: Mr. Shane Strong, P.E.
sstrong@cartersloope.com
478.477.3923 (tel), 478.447.3249 (cell)

Referencing: Geotechnical Recommendations for
Proposed Wet Well Structure at
New Bacon County High School, Alma, Georgia
Report No.: 3-19-13-1

Dear Mr. Strong:

As requested, Whitaker Laboratory, Inc. is providing the following geotechnical recommendations for the design and construction of the planned wet well structure to be located at the new Bacon County High School Facility in Alma, GA.

We understand the wet well will consist of a 6-foot inside diameter pre-cast concrete structure. The bottom of the wet well will reside approximately 21.5 feet below existing grade.

Whitaker performed a geotechnical evaluation for the new school structure in December 2011 (Whitaker Report No.: 12-2-11-1). The recommendations contained within this report are based upon the information generated from soil test boring B-1 performed during our original geotechnical evaluation. We understand that soil test boring B-1 is located within the general area of the planned wet well and this boring was advanced to a depth of 30 feet below the ground surface.

Due to the depth of excavation required for construction of the wet well, dewatering will be critical during construction. Groundwater was encountered 5 feet below the ground surface at the time the boring was performed. Based on experience, it is anticipated that a two-foot thick rock filled mat in combination with well points or deep sump pits will be required to dewater the excavation and stabilize the base subgrade soils. Please note that the rock mat shall be entirely wrapped in filter fabric (bottom sides and top).

Groundwater should be maintained at least 3 feet below the base of the excavation at all times. It is also anticipated that sheet piling may be used to stabilize excavation walls.

Regardless, the final design of the dewatering system and temporary retaining structure will be the responsibility of the contractor.

Due to the relatively high water table, there is potential for buoyant forces to damage the structure during and after construction. Typical design features to mitigate the impact of buoyant forces include increased mass and/or wider mat foundations that projects beyond the perimeter of the structure to engage the weight of the surrounding backfill. All grades should be sloped away from the structure and surface water should be collected and discharged such that water is not permitted to infiltrate the construction excavation.

Settlement of the pump station structure is anticipated to be minimal since the pressure exerted by the structure is assumed to be less than the overburden pressure, which existed prior to excavation. However, loosening and softening of subgrade soils during construction could lead to settlement. Careful groundwater control and subgrade preparation will be required. Past experience indicates that insufficient groundwater control combined with insufficient excavation support, could cause the subgrade soils to yield during excavation resulting in heave and disturbance of the bearing soils. If heaving/disturbance of the bearing soils goes undetected, potentially damaging settlements could occur to the structure.

Provisions should be made to over excavate 2 feet below the bottom of the structure and replace with a mat of #57 stone entirely wrapped in filter fabric. Dewatering shall be installed and operating prior to excavation. Dewatering shall extend a minimum of 5 feet below the bottom of structure elevation.

The pump station structure and temporary retaining structures must be capable of resisting the lateral earth pressures that will be imposed on them during and after construction.

Earth pressure coefficients should be selected by the designer based on the type of wall, whether the wall is braced or un-braced and other conditions. For “worst case” design conditions where positive drainage is not provided or is temporarily interrupted, the hydrostatic pressure will have to be added to the earth pressure on the wall. **For this design groundwater should be assumed to reside at the ground surface.**

Based upon the SPT testing performed and soil samples collected throughout the depths of the soil test boring, Whitaker Laboratory, Inc. is providing the following soil parameters for your use in the design and construction of the planned structure and retaining structures:

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 - 3 ½	2 - 3	SP-SM	110	47.6	25	0	0.41	2.46	0.45
3 ½ - 8 ½	9 - 16	SC	115	52.6	30	0	0.33	3.0	0.45
8 ½ - 13	16	CH	118	55.6	0	750	1	1	1
13 - 23	9 - 14	SP	115	52.6	30	0	0.33	3.0	0.45
23 - 30	9 - 14	CH	118	55.6	0	750	1	1	1

Soil parameters provided in the below table should be used for design of the pump station structure if an open excavation is utilized to install the lift station structure. If an open excavation is utilized, the below parameters assume the excavation will be sloped on a 1.5:1 (horizontal to vertical) extending away from the bottom of the wall up to the ground surface. Please also note that the coefficients given below are based on the use of select granular off-site sand backfill within a 1.5:1 (horizontal to vertical) wedge behind the walls. Clay soils (SC and CL) are not recommended for use as backfill:

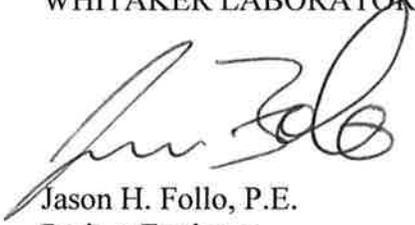
Soil Classification For Backfill	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
	Sat	Submerged			Active, K _a	Passive, K _p	At Rest K _o
SP-SM & SM	115	52.6	30	0	0.33	3.0	0.45

All backfill and/or fill should be placed in 8 to 10 inch thick, loose lifts and compacted by conventional compaction equipment to 95% density in accordance with ASTM D-1557. All of the backfill for this project should consist of a clean, free draining granular soil. The fill should be free of objectionable roots, clay lumps, organics and other debris. Soils classified as SW, SP, SM, or SM-SP with a maximum of 15% passing a #200 sieve may be acceptable.

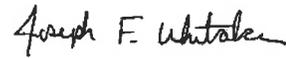
We have attached a boring location map and the soil test boring log to this report for your records.

It was a pleasure to serve you and we look forward to further opportunities to assist you on this and other projects. If you have any questions or if we can be of further assistance, please do not hesitate to contact us at our office.

Respectfully submitted,
WHITAKER LABORATORY, INC.

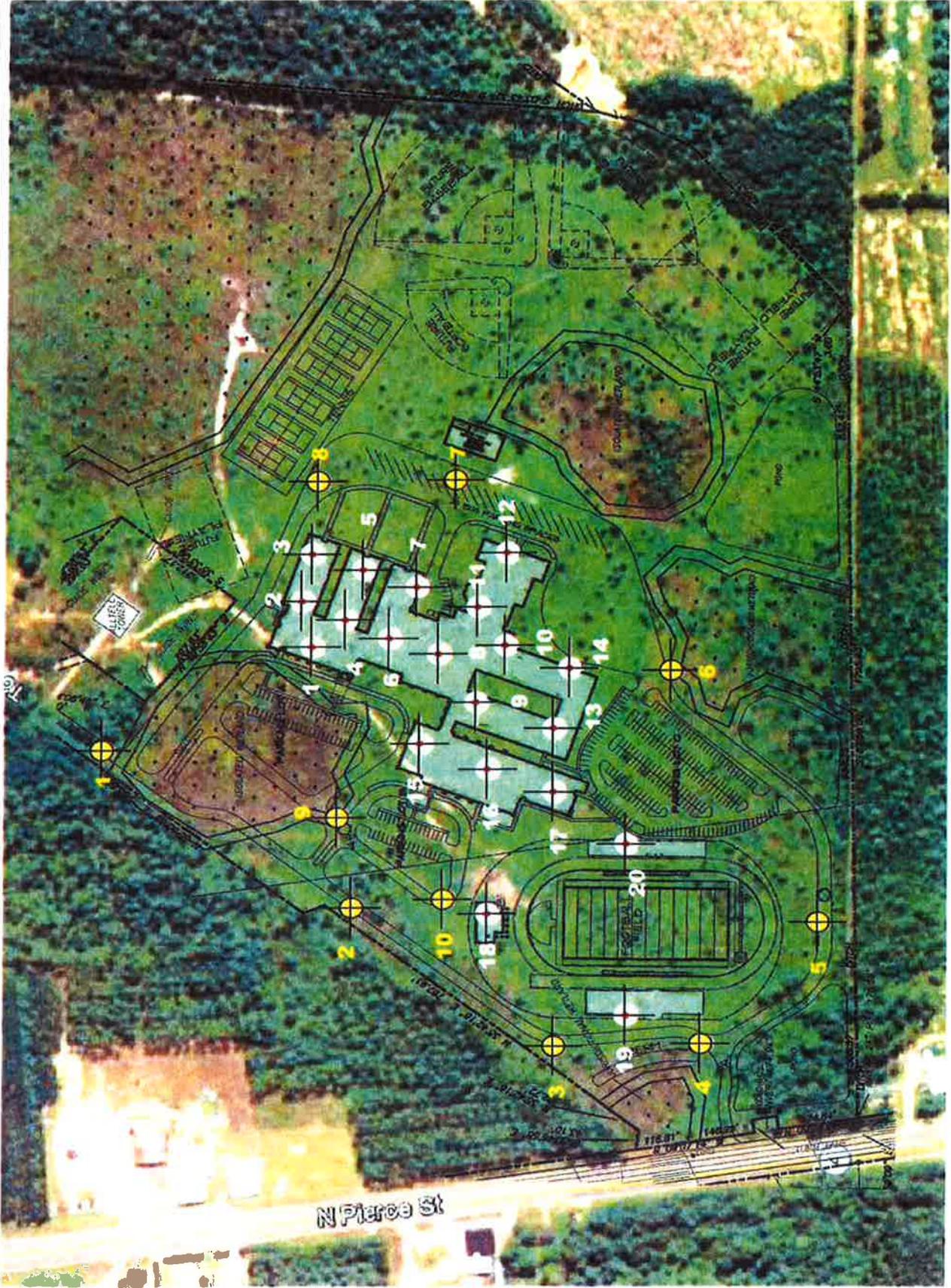
A handwritten signature in black ink, appearing to read 'Jason H. Follo', written over a horizontal line.

Jason H. Follo, P.E.
Project Engineer

A handwritten signature in black ink, appearing to read 'Joseph F. Whitaker', written over a horizontal line.

Joseph F. Whitaker, P.E.
Vice President

APPENDIX I
BORING LOCATION PLAN



Boring Location Plan

Bacon County High School, Alma, Georgia
WHITAKER LABORATORY, INC.

APPENDIX II
BORING RECORDS

Client: James W Buckley and Associates, Inc

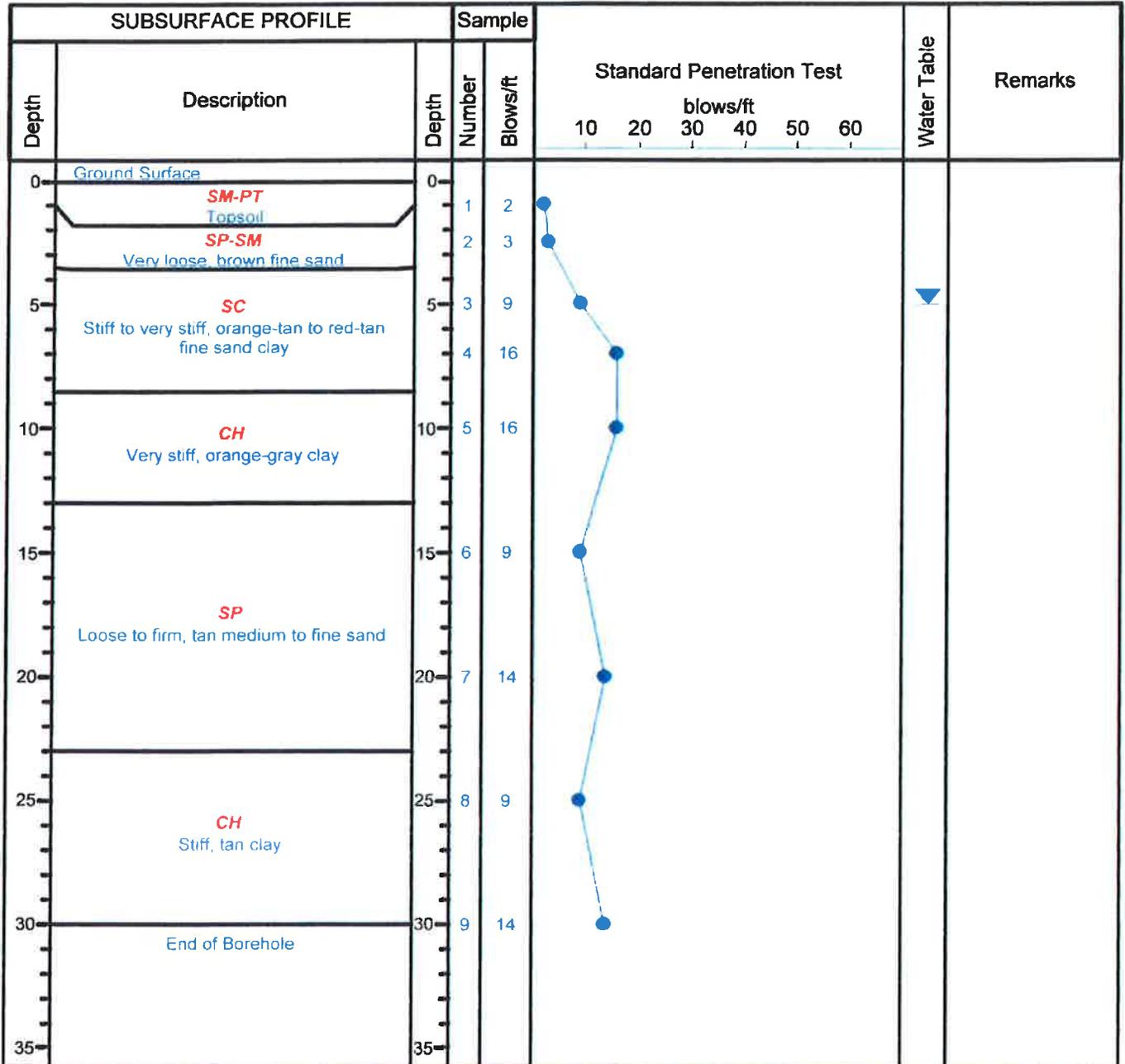
Boring No. B-1

Project: Bacon County High School

Date: 11/21/11

Location: Alma, GA

Engineer: Follo



Drilled By: Wilkerson

**WHITAKER LABORATORY
INC.**

Hole Size: 6.5"

Drill Method: H. S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 11/21/11

Sheet: 1 of 1