City of Flagler Beach
105 S. 2nd Street
Flagler Beach, Florida 32136
(386) 517 – 2000 ext. 233

ADDENDUM NO. 2

Additional and Revised Documents
Waste water Treatment Facility Sludge Management Improvements
Bid Number FB-240111
November 21, 2024

To All Plan Holders:

The following changes, clarifications and additions are hereby made a part of the bidding and contract documents for the above referenced project, and prepared by the City of Flagler Beach as fully completely as if the same were fully set forth therein.

Attached to this Addendum are revised and additional items for the bid package.

Exhibit "A": Revised Table of Contents to Volume 2 Technical Sections

Exhibit "B": Proposal/Scope from PW Tech on the Screw Press

Exhibit "C": Geotechnical Evaluation performed by Universal Engineering Services

Exhibit "D": Revised Drawings Sheet M2.0 and Sheet S1.1

Exhibit "E": Sign in Sheets from Pre-bid Meeting

Response to additional question:

The bid submission deadline will not be extended and stands as 2:00 PM, Friday, December 6, 2024.

Disclaimer: It is the sole responsibility of bidder to confirm that all addenda have been received prior to submitting bid and acknowledge such in bid documents

END OF ADDENDUM 2

Exhibit "A"

SECTION 00 01 01

CONTRACT DOCUMENTS FOR

CITY OF FLAGLER BEACH

105 S. SECOND STREET
CITY PROJECT NO: 238

CITY INVITATION TO BID NO: FB-240111

NOVEMBER 2024

VOLUME 2
TECHNICAL SECTIONS

CITY OF FLAGLER BEACH
WWTF SLUDGE MANAGEMENT IMPROVEMENTS
2000 AVENUE A
CITY PROJECT NO: 238

TABLE OF CONTENTS

DIVISION 7 THERMAL AND MOISTURE PROTECTION - NOT USED

DIVISION 8 DOORS AND WINDOWS - NOT USED

DIVISION 9 FINISHES

09750	Protective Floor Coating
09900	Painting
09901	Surface Preparation and Shop Prime Painting
09905	Piping, Valve and Equipment Identification System

DIVISION 10 SPECIAL TIES

10400	Signage Systems
10550	Fire Extinguishers, Cabinets and Accessories

DIVISION 11 Equipment

11314	Progressive Cavity Sludge Pumps
11340	Chemical Metering Pumps and Accessories
11553	Biosolid Dewatering Screw Press

DIVISION 12 FURNISHINGS – NOT USED

DIVISION 13 PROCESS INSTRUMENTATION AND CONTROL SYSTEM

13300	Process Instrumentation and Control System General Requirements
13310	Process Instrumentation and Control System Field Instruments
13315	Process Instrumentation and Control System Control Panels
13325	Process Instrumentation and Control System PLC Subsystem Hardware
13326	Process Instrumentation and Control System Programming
13360	Process Instrumentation and Control System Fiber Optic System

DIVISION 14 CONVEYING SYSTEMS – NOT USED

DIVISION 15 MECHANICAL

15000	Mechanical – General Requirements
15041	Disinfection of Piping and Structures
15044	Pressure Testing of Piping
15060	Ductile Iron Pipe and Fittings
15065	Polyvinyl Chloride (PVC) Pipe and Fittings
15076	PVC Double-Wall Containment Piping

DIVISION 16 ELECTRICAL

END OF TOC

THESE DOCUMENTS ARE ATTACHED AS INDIVIDUAL DOCUMENTS.

PWTech

PROPOSAL

TO: City of Flagler Beach

PROJECT / REF: Flagler Beach WWTP

SPEC . SECTIONS: N/A

DATE: 1/25/2024

PWT #: VDP-FL-19061

REV: - 6 - firm pricing Jan 25, 2024

SIZING INFORMATION: Sized to dewater 60 GPM of 1.8% municipal WAS sludge

MANUFACTURERS REP:

NOTES:

REVISION NOTES: - 6 - firm pricing Jan 25, 2024

PREPARED BY : Chris Hubbard | Joseph Collar

PROPOSAL CONTENT

- Scope of supply summary
- Scope Details
- Exceptions and Exclusions
- Governing Conditions and Warranty Notes
- Price
- Data Sheets
- GA Drawings
- PWTech Terms and Conditions and Warranty

*Volute is registered with the U.S. Patent and Trademark Office as a registered trademark of AMCON

SCOPE OF SUPPLY

Line	Qty.	Item	Manufacturer / Model / Description
1	1	Volute* Dewatering Press	PWTech - ES-303
2	1	Influent Sludge flowmeter	Rosemount™ Model 8750W with 2" ANSI Flanges
3	1	Control System for Item 1-2	PWTech
4		Documentation	Submittals, O&M manuals, Startup Report
5		Field services	Installation inspection, Commissioning, Testing and operator training
6		Delivery to site	

*Volute is registered with the U.S. Patent and Trademark Office as a registered trademark of AMCON, Inc., Yokohama, Japan

SCOPE DETAILS

1. Volute Dewatering Press - PWTech Model ES-303

Design

- The unit to be supplied will be an ES-303 with a MAXIMUM capacity of 100 GPM of thin sludge (<1%) or 1050 dry pounds per hour for heavier sludge (>3%)

Components

- The Dewatering Press consists of:
  - Flash mixing tank including mixer with gear motor.
  - Flocculation tank including mixer with gear motor.
  - Three (3) x 300 Series Dewatering Drum with a drive motor.
  - Filtrate collection pan and support frame.
  - Integrated, pre-wired control panel for the unit and appurtenances mounted on the flocculation tank. (may be provided mounted separately if requested).
- Connections are:
  - Inlet: DN 3" ANSI B16.5 Class 150 Flange
  - Filtrate outlet: DN 6" ANSI B16.5 Class 150 Flange
  - Drain: DN 2" ANSI B16.5 Class 150
  - Washwater Water inlet: ¾" FNPT

Materials and Construction

- The unit is all stainless steel. No carbon steel is used in the manufacture of the press.
- Unit is manufactured and assembled in the USA. All components are sourced from the USA or Japan.
- Electrical components are manufactured and tested prior to shipment to site in the United States.
- Gear Drives are Nissei GTR gear motors utilizing heloid gear reduction. They are one piece construction and are sealed for life.

Supplied spare parts

- No spare parts are included in this scope.

Additional Press information is appended to this scope.

2. Magnetic flowmeter, 2" Rosemount™ Model 8750W

Design

- 2" Flowmeter is designed for accurate measurement of flows between 10-200 GPM
- Suitable for direct burial and constant flooding (IP 68).
- Includes Compact mounting of transmitter on the flowmeter body
- Flowmeter out-puts analogue signal (4-20 mA) to Volute Press Control panel

Components

- 2 inch ANSI 150# flange connections.
- Includes grounding rings

Materials and Construction

- Coated Carbon Steel construction with a polyurethane, ceramic, neoprene, or Teflon liner as required by the application.
- All metallic wetted parts are stainless steel type 316

3. Electrical and Control

The Volute* unit is supplied with a pre-mounted, pre-wired control panel designed to control all aspects of the thickening/dewatering operation unless otherwise specified and noted.

- Control panel is:
  - Fed by a single 208, 240, or 480VAC, 3-phase, 60 Hz, power supply (client specified)
  - NEMA 4X rated manufactured in Stainless Steel type 304
  - Manufactured in a UL accredited facility and is UL listed
- Panel includes HMI and PLC control modules.
  - PLC/HMI is a single Unitronics Unistream 10.4 unit.
- All manual switching operations are undertaken via switches on the HMI
- Unit includes complete control system for unit and ancillary equipment including operation of the polymer preparation system and VFD control for feed pump.
- Control system may utilize a system flow meter and PID loop to allow operator to set the system flow.
- Control panel includes system running and system fault outputs to plant PLC and the ability to connect via Ethernet to external controls.
- A junction box on the polymer preparation skid is pre-wired to the polymer preparation components and designed for easy on-site connection to the main Volute* system control panel.
- Junction box is NEMA 4X FRP and includes numbered terminal block & wires with terminal block legend.

4. Documentation:

Scope includes:

- Submittals (hard copy and electronic) and
- O&M Manuals (hard copy and electronic).
- Startup Report
- PLC/HMI Program (electronic copy) – does not include programming software

5. Field Services:

Scope includes the following start-up services -

- On-site start-up and training services for:
  - One (1) trip consisting of four (4) consecutive days (8 hours per day, Monday-Friday) by a PWT field service engineer and/or qualified manufacturer's representative
- Services include:
  - Installation inspection
  - Commissioning of Volute* unit and Controls
  - Start-up of Ancillary equipment included in this Scope
  - Functional testing and calibration of equipment
  - Training on all equipment
- Phone consultation regarding installation will also be provided.
- Should additional services be deemed necessary by the PURCHASER, the additional services can be procured from PWT on a per diem basis. The current rate is $1000 per day plus travel.

6. Delivery and Freight

- Submittals issued approximately six (6) weeks from receipt of written Purchase Order
- Delivery is approx. twenty (20) weeks from receipt of written acceptance of Submittal documents [x]
- Deliver to site for all components **is INCLUDED in the price**.

[x] **PLEASE NOTE:** While seller believes this estimated delivery time to be a valid and realistic estimate, due to the unpredictable nature of current parts shortages, this does not constitute any form of guarantee regarding the delivery schedule.

EXCLUSIONS AND EXCEPTIONS:

The Following items are specifically excluded from this scope unless specifically noted otherwise:

- Taxes, permits, and bonding
- Any civil works including, but not limited to, any building works, construction of suitable foundations, and access structures.
- Installation including, but not limited to, mechanical, plumbing, and electrical hook-ups
- Unloading of delivered equipment on site and storage
- PLC/HMI Programming software unless specified elsewhere.

GOVERNING TERMS AND CONDITIONS AND WARRANTY

This scope is subject to Process Wastewater Technologies, LLC. Standard Terms and Conditions and Standard Warranty as attached. The following items are specific to this project:

Payment Terms:

Payment terms for this scope are as per the table below:

Trigger	Amount		Terms			Condition
Submittals	**20**	%	due NET	30	days	On Approval of Submittals
Delivery	**70**	%	due NET	30	days	On shipping, or the offer to ship
O&M	**5**	%	due NET	30	days	On Delivery of final O&M Manuals
Startup	**5**	%	due NET	30	days	On Completion of startup and any other services provided under this scope.

Validity

Validity of this proposal is strictly 30 days. Written authorization from seller is required to extend this.

Warranty

PWTech warrants that the Products shall be free from defects in material and workmanship for the shorter period of: (i) twelve (12) months from the date of start-up; (ii) the warranty period for the third party good or service embodied in the Product; or (iii) eighteen (18) months from the delivery of the specified Product.

PRICE

Total price for the ES-303 and appurtenances as per this scope: **$413,000.00**

Alternative offering:
Total Price for the ES-303[2]* and appurtenances as per this scope: **$338,000.00**

*ES-303[2] is the same size and design as ES-303, but delivered with one fewer drum, lowering its capacity by 33%. The ES-303[2] can be expanded to a full ES-303 and it's full capacity via a drum expansion at a later date.

Volute Dewatering Press Data Sheet - ES-303

Please note - All information here is generic and for preliminary reference only. Detailed dimensions, and other data is very project specific and this sheet has not been altered to reflect that. Project specific data would be available from PWTech at the appropriate time.

General Data		Over All Dimensions:	158" x 63" x 74" (L x W x H)
		Optimal Space requirement of installation:	218" x 146" (L x W)
		Minimum Opening dimensions for installation:	65" x 60"
		Weight — Empty:	4100 lbs
		Weight — Operating:	6650 lbs
		MAX Solids throughput (Solids >4%):	1050 Dry pounds per hour
		MAX Hydraulic throughput (Solids <1%):	105 GPM
		Power use:	3.9 HP
		Washwater use:	16 GPM intermittent, 48 GPH total
Dewatering Drum	General	Dimension:	12" diameter x 61" long
		Quantity:	3
		Rings, Tierods, spacers:	Type 304 Stainless Steel
		Screw:	304 Stainless Steel with CoCr coating
	Drive info	Gear Motor Supplier:	Nissei Corporation
		Model:	FSW-55-750-T040-WEX
		Motor Power:	0.4 kW (0.54HP) 4-Pole
		Insulation:	TEFC / IP65
		Gear Reduction:	750 : 1
Flash mixing tanks	General	Dimensions:	20" x 33" x 43" (L x W x H)
		Volume	112.3 Gallons
		Working Volume:	98.2 Gallons
		Material	Type 304 Stainless Steel
	Drive Info	Gear Motor Supplier:	Nissei Corporation
		Model:	FSW-30-15-T020 WA
		Motor Power:	0.2 kW 4-Pole
		Motor Insulation:	TEFC / IP65
		Gear Reduction:	15 : 1

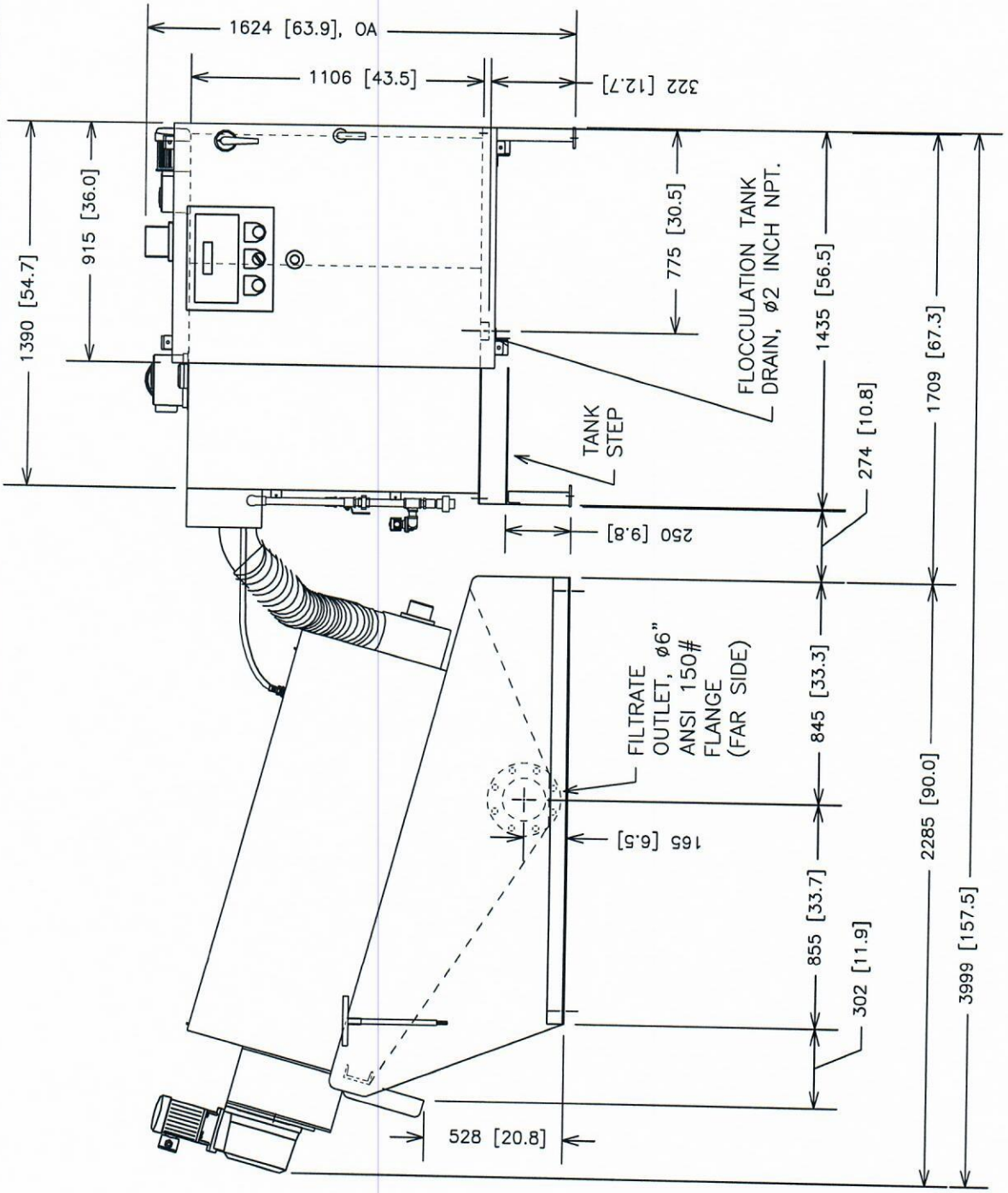
Flocculation tank	**General**	Dimensions:	33" x 33" x 43" (L x W x H)
		Volume	190.9 Gallons
		Working Volume:	167.0 Gallons
		Material	Type 304 Stainless Steel
	Drive Info	Gear Motor Supplier:	Nissei Corporation
		Model:	FSW-45-60-075 WEX
		Motor Power:	0.75 kW (1.0HP) 4-Pole
		Motor Insulation:	TEFC / IP65
		Gear Reduction:	60 : 1

Electrical	**General**	Supply Voltage:	208/240/440/480 VAC
		Service:	3-Phase, 3-Wire (No Neutral)
		Control Voltage:	Dual - 24VDC & 115VAC
		Minimum Required Breaker Size:*	12 Amps * 480 VAC
	Panel	Standard Panel Size:	36"(w) x 48"(h) x 12"(d)
		Panel Material:	Type 304 Stainless Steel
		Panel Rating:	Nema 4X
		Standard Control Module:	Unitronics Unistream 10 PLC

Polymer System	Supplier:	Velocity Dynamics, Inc.
	Model:	VM-5P-600-X0D
	Mixing Type:	Variable - Mechanical & Hydraulic
	Feed Pump Type:	Progressive Cavity
	Polymer Feed Capacity:	0.25 - 5 Gallons per hour
	Water Use:	60 - 600 Gallons per hour
	Dimensions:	24" x 34" x 42" (L x W x H)
	Weight:	~200 lbs

Connections	Feed Sludge:	3" ANSI 150# Flange
	Filtrate:	6" ANSI 150# Flange
	Drain:	2" FNPT Coupling
	Water:	3/4" FNPT Coupling
	Polymer Water Inlet:	1" FNPT
	Polymer Solutions Outlet.	1"FNPT
	Raw Polymer Feed Inlet:	1"FNPT

Exhibit "B"



**ALL METAL COMPONENTS ARE STAINLESS STEEL

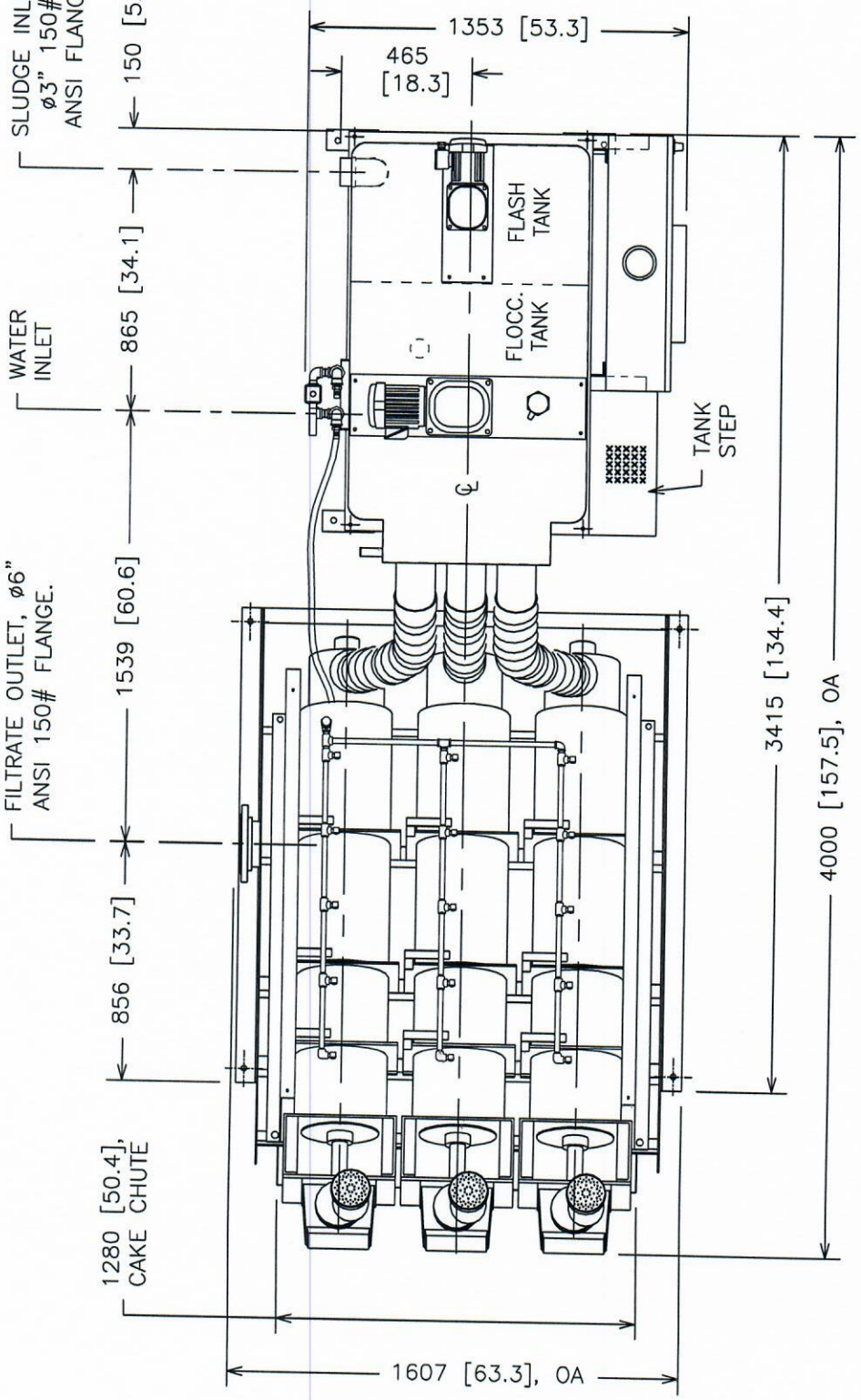
DIMENSIONS: MM [INCHES]

PWTech
PROCESS WASTEWATER TECHNOLOGIES

VOLUTE DEWATERING PRESS ES-303 GA ELEVATION

JOB# PWT VDP ES-303 GA	SCALE NTS
DATE JAN. 2015	
DRAWN PWTech Inc.	SHEET 1 OF 4
APPROV. ALEX DAVEY	

9004 YELLOW BRICK ROAD, SUITE D, ROSEDALE, MD 21237 PHONE: 410 238 7977 WEB: www.PWTech.us



PLAN VIEW

**ALL METAL COMPONENTS ARE STAINLESS STEEL

DIMENSIONS: MM [INCHES]

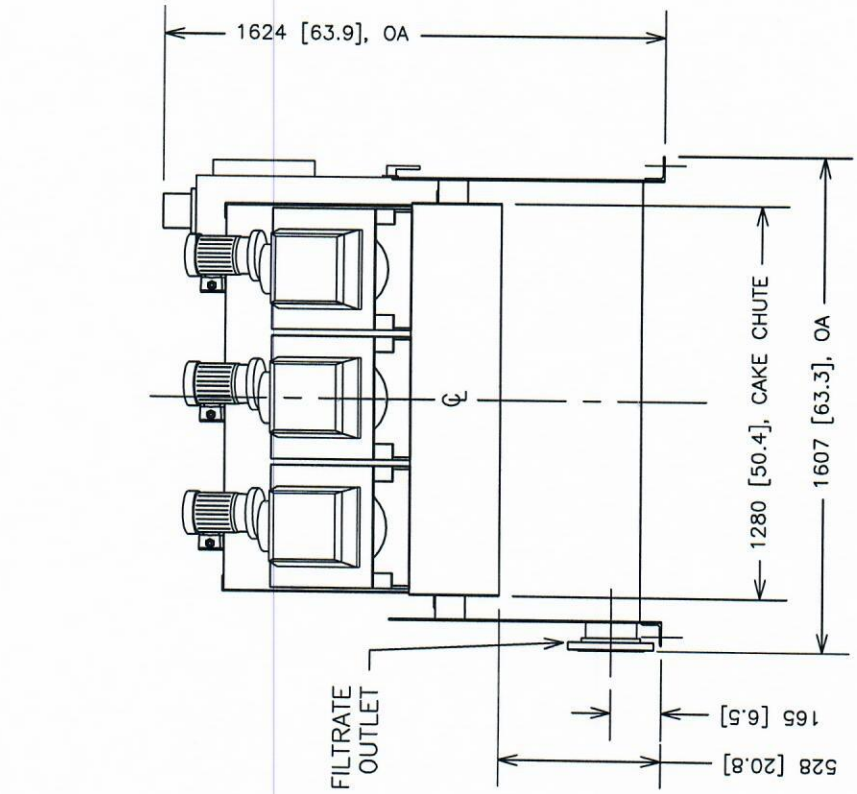
PWTech
PROCESS WASTEWATER TECHNOLOGIES

VOLUTE DEWATERING PRESS ES-303 GA PLAN

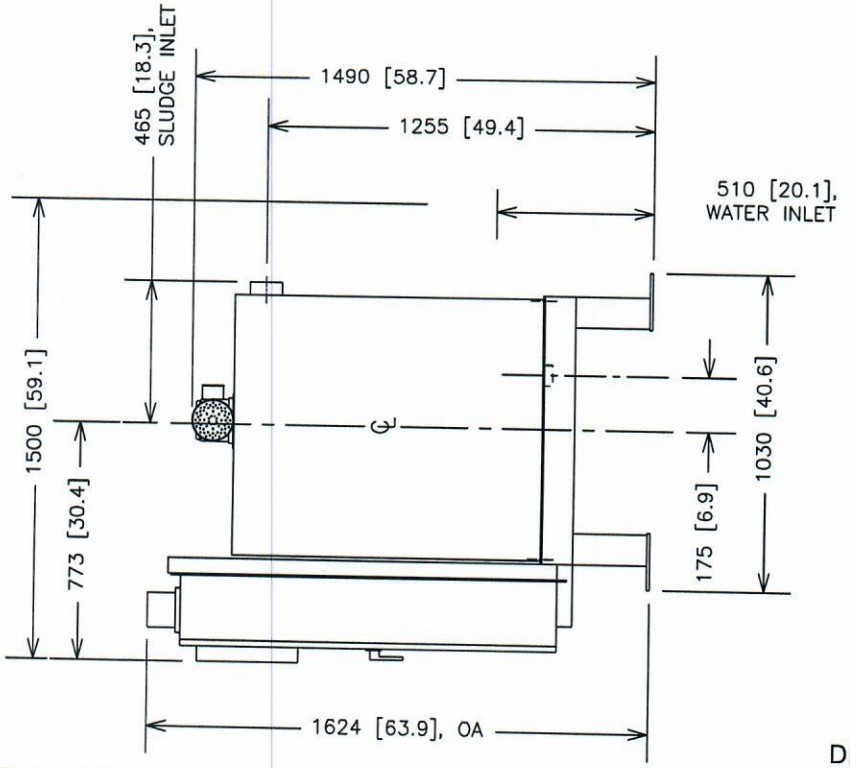
JOB# PWT VDP ES-303 GA	SCALE NTS
DATE JAN. 2015	
DRAWN PWTech Inc.	SHEET 2 OF 4
APPROV. ALEX DAVEY	

9004 YELLOW BRICK ROAD, SUITE D, ROSEDALE, MD 21237 PHONE: 410 238 7977 WEB: www.PWTech.us

Exhibit "B"



PRESS END ELEVATION



TANK END ELEVATION

**ALL METAL COMPONENTS ARE STAINLESS STEEL

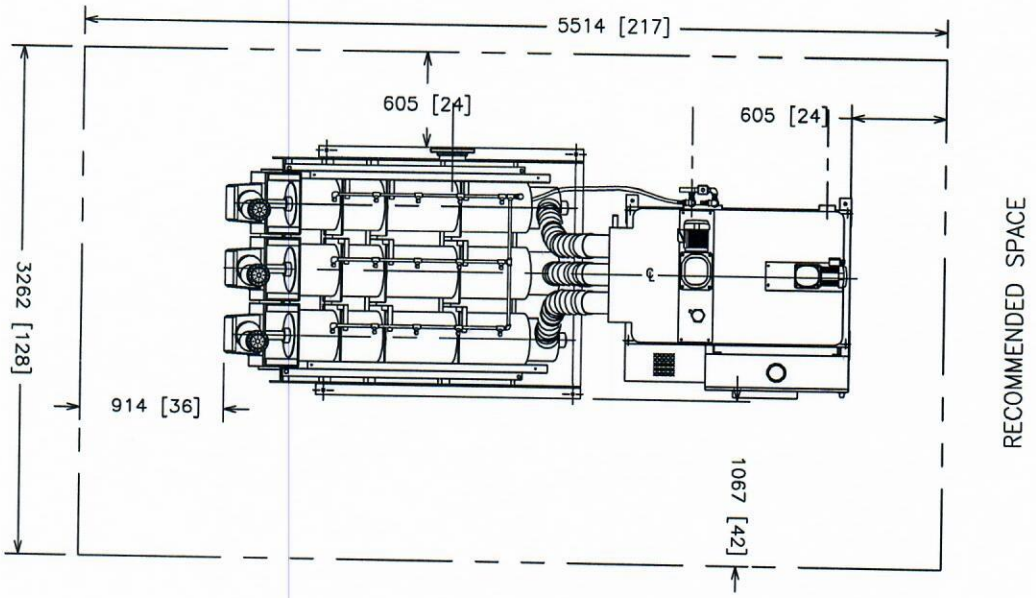
DIMENSIONS: MM [INCHES]

PWTech
PROCESS WASTEWATER TECHNOLOGIES

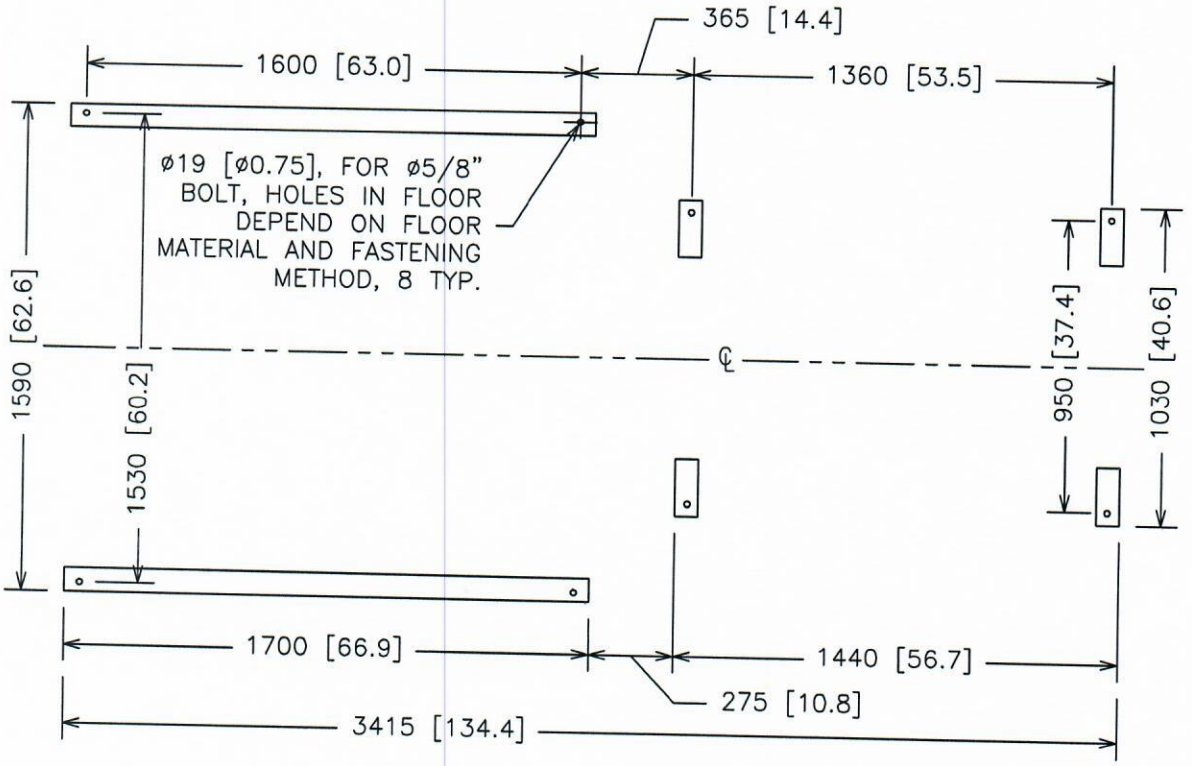
VOLUTE DEWATERING PRESS ES303 GA PRESS AND TANK END ELEV.

JOB# PWT VDP ES303 GA	SCALE NTS
DATE JAN. 2015	
DRAWN PWTech Inc.	SHEET 3 OF 4
APPROV. ALEX DAVEY	

9004 YELLOW BRICK ROAD, SUITE D, ROSEDALE, MD 21237 PHONE: 410 238 7977 WEB: www.PWTech.us



**ALL METAL COMPONENTS ARE STAINLESS STEEL



DIMENSIONS: MM [INCHES]

PWTech PROCESS WASTEWATER TECHNOLOGIES	VOLUTE DEWATERING PRESS ES303 GA REC. SPACE & ANCHOR PTS.	JOB# PWT VDP ES303 GA	SCALE NTS
		DATE JAN. 2015	
		DRAWN PWTech Inc.	SHEET 4 OF 4
		APPROV. ALEX DAVEY	

9004 YELLOW BRICK ROAD, SUITE D, ROSEDALE, MD 21237 PHONE: 410 238 7977 WEB: www.PWTech.us

Exhibit"C"

UNIVERSAL
ENGINEERING SCIENCES

GEOTECHNICAL EVALUATION

Flagler Beach Waste Water Treatment Plant Improvements
Flagler Beach, Flagler County, Florida

UES Project No. 0430.2000179.0000
UES Report No. 136638

October 7, 2020

Prepared for:

Mr. David Mahler
CPH, Inc.
500 West Fulton Street
Sanford, Florida 32771

Prepared by:

UNIVERSAL ENGINEERING SCIENCES
911 Beville Road, Suite 3
South Daytona, Florida 32119

UNIVERSAL
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Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
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LOCATIONS:
- Atlanta
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- Fort Myers
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- Jacksonville
- Kissimmee
- Leesburg
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- Tampa
- West Palm Beach

October 7, 2020

Mr. David Mahler
CPH, Inc.
500 West Fulton Street
Sanford, Florida 32771

Reference: **GEOTECHNICAL EVALUATION**
Flagler Beach Wastewater Treatment Plant Improvements
Flagler Beach, Flagler County, Florida
UES Project No. 0430.2000179.0000 and UES Report No. 136638

Dear Mr. Mahler:

Universal Engineering Sciences, Inc. has completed the geotechnical evaluation for the subject project. This report contains the results of our evaluation, an engineering interpretation of these with respect to the project characteristics described to us, and recommendations for shallow foundation support and site preparation.

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you as your plans proceed.

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES

Cody Wilson, E.I.
Project Engineer

BRIAN C. POHL LICENSE No 60216 STATE OF FLORIDA PROFESSIONAL ENGINEER

Brian C. Pohl, P.E.
Branch Manager
P.E. Number 60216

Attachments

CW/BCP/cme

1.0 INTRODUCTION

1.1 GENERAL

In this report we present the results of the subsurface evaluation for the proposed construction in Flagler Beach, Florida. We have divided this report into the following sections:

- SECTION 2.0 - SCOPE OF SERVICES
- SECTION 3.0 - FINDINGS
- SECTION 4.0 - FOUNDATION RECOMMENDATIONS
- SECTION 5.0 - CONSTRUCTION RELATED SERVICE
- SECTION 6.0 - LIMITATIONS

2.0 SCOPE OF SERVICES

2.1 PROJECT DESCRIPTION

Project information has been provided to us in correspondence with you. We were provided with a conceptual site plan indicating the location of the proposed structures and the requested boring locations. We understand the proposed project will consist of constructing a lift station, biological nutrient removal unit, flow splitter box, secondary clarifier with supporting infrastructure, disc filtration unit, sludge dewatering building and polymer bulk storage system. We understand the clarifier will have a diameter of 60-feet and a side water depth of 12-feet. Additionally, the pump station and flow splitter box will bear at depths of 25-feet and 10-feet below grade, respectively. A grading plan has not been provided at this time therefore, we have assumed one to three feet of fill will be placed within the structure areas.

Our recommendations are based upon the above considerations. If any of this information is incorrect, or if you anticipate any changes, inform Universal Engineering Sciences so that we may review our recommendations.

2.2 PURPOSE

The purposes of this investigation were:

- to investigate the general subsurface conditions at the site;
- to interpret and review the subsurface conditions with respect to the proposed construction; and,
- to provide geotechnical engineering recommendations for shallow foundation support and site preparation.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, at your request.

Our investigation was confined to the zone of soil likely to be influenced by the proposed construction. Our work did not address the potential for surface expression of deep geological

conditions, such as sinkhole development related to karst activity. A deep geological evaluation requires a more extensive range of field services than performed in this study.

2.3 FIELD INVESTIGATION

2.3.1 Borings

The subsurface conditions within the proposed structure areas were investigated with Standard Penetration Test (SPT) borings advanced to depths varying approximately between 10 and 60 feet below existing grade. The boring designations and approximated boring depths for each of the proposed structures are displayed in the table below. We performed the SPT borings according to the procedures of ASTM D-1586.

Proposed Structure	Boring Designation	Approximate Boring Depth (feet)
Master Lift Station	B-1	40
Biological Nutrient Removal Tank	B-2	40
	B-3 through B-6	10
Flow Splitter Box	B-7	20
Secondary Clarifier Supporting Infrastructure	B-8 and B-9	15
Secondary Clarifier	B-10	60
Disc Filtration	B-11	15
Sludge Dewatering Building	B-12	15
Polymer Bulk Storage System	B-13	15

The borings were located by our field personnel using tape measurements from established landmarks, and should be considered accurate only to the degree implied by the method used. The location of the borings is presented on the attached Boring Location Plan in Appendix A.

Samples obtained from the borings were transported to our laboratory for further evaluation. Samples of the soils encountered will be held in our laboratory for your inspection for 60 days unless we are notified otherwise.

2.4 LABORATORY INVESTIGATION

2.4.1 Index Testing

The soil samples recovered from the soil borings were returned to our laboratory and a UES Engineer visually examined and reviewed the field descriptions. The soils were classified in accordance with the Unified Soil Classification System (USCS). Tests consisting of percent passing a No. 200 sieve determination were performed to aide in classification of the soils.

3.0 FINDINGS

3.1 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix A: Boring Location Plan and Subsurface Profiles. The classifications and descriptions shown on the profiles are based upon visual characterizations of the recovered soil samples. Also, see Appendix A: Key to Boring Log, for further explanation of the symbols and placement of data on the Subsurface Profiles. The following discussion summarizes the soil conditions encountered.

The results of the borings generally indicated the presence of topsoil in the upper approximate 6 to 12-inches underlain by intermittent layers of fine sand (SP), fine sand with silt (SP-SM), weakly cemented fine sand with silt (SP-SM, HARDPAN) and sandy shell to the deepest boring termination depth of approximately 60 feet below existing grade.

3.2 GROUNDWATER

The groundwater level was encountered at depths varying between approximately 2.3 and 7.5 feet below grade. The depth of the measured groundwater level is noted on the Subsurface Profiles. It should be anticipated the groundwater level will fluctuate due to seasonal climatic variations, surface water runoff patterns, construction operations, and other interrelated factors

We recommend positive drainage be established and maintained on the site during construction. We further recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project.

4.0 FOUNDATION RECOMMENDATIONS

4.1 GENERAL

The following recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the structural loadings, construction locations, or grading information change from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

As presented in the subsurface profiles, very loose sandy soils were observed in the upper approximate 10 feet at Boring Location B-5. To preclude excessive settlement to the structure, we recommend the soils be improved by additional compactive effort. We recommend the upper 2 to 3 feet of the existing soils be removed within the south east corner of the Biological Nutrient Removal Tank and the exposed surface then be compacted with a heavy tracked dozer. The soils removed can then be replaced in compacted lifts in accordance with Section 4.3. With these recommendations we anticipate this will improve the upper 4 to 5 feet of the existing profile. If a significant cut occurs within the proposed tank area, then soil improvement will likely not be required. UES should be provided with the proposed grading plan to evaluate the necessity of the recommended improvements. Also, UES should be contacted during this portion of the site work to delineate the very loose soil zone.

4.2 STRUCTURE FOUNDATIONS

4.2.1 Bearing Pressure

The maximum allowable net soil bearing pressure for shallow foundations should not exceed 2,500 pounds per square foot (psf). Net bearing pressure is defined as the soil bearing pressure at the base of the foundation in excess of the natural overburden pressure. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

4.2.2 Foundation Size

The minimum widths recommended for any isolated column footing and continuous wall footings are 24 inches and 18 inches, respectively. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the size of the foundations.

4.2.3 Bearing Depth

The exterior foundations should bear at a depth of at least 18 inches below the exterior final grades and the interior footings should bear at a depth of at least 18 inches below the finish floor elevation to provide confinement to the bearing level soils. We recommend stormwater and surface water be diverted away from the building exterior, both during and after construction, to reduce the possibility of erosion beneath the exterior footings.

4.2.4 Bearing Material

The foundations may bear on either the compacted suitable natural soils or compacted structural fill. The bearing level soils, after compaction, should exhibit densities of at least 95 percent of the maximum dry density of the bearing soils as determined by ASTM D-1557 (Modified Proctor), to the depth described subsequently in the Site Preparation section of the report. In addition to compaction, the bearing soils must exhibit stability and be free of “pumping” conditions.

4.2.5 Settlement Estimates

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundations; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to vibration from offsite sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structures are based upon the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from these recommendations could result in an increase in the estimated post-construction settlement of the structures.

Due to the nature of the surficial soils, following the compaction operations, we expect a significant portion of settlement to be elastic in nature. This settlement is expected to occur relatively quickly, upon application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field test data which we have correlated to the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structures to be less than one inch.

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. Based on the subsurface conditions as determined by our borings and required improvement, it is anticipated that differential settlements will be within tolerable limits.

4.3 SITE PREPARATION FOR SHALLOW FOUNDATIONS

We recommend the following site preparation procedures for the structure areas:

1. Prior to construction, the location of existing underground utility lines within the construction area should be established. Provisions should then be made to relocate interfering utilities to appropriate locations. It should be noted that if underground pipes are not properly removed or plugged, they may serve as conduits for subsurface erosion which may subsequently lead to excessive settlement of the overlying structures.

2. Strip the proposed construction limits of all debris, grass, roots, topsoil, asphalt and other deleterious materials within and 5 feet beyond the perimeter of the proposed structure. Expect initial clearing and grubbing to depths of approximately 6 to 12 inches.

3. Due to the construction of the pump station and flow splitter box to depths on the order of 25 feet below existing grade, temporary groundwater control measures to dewater the area to facilitate the over-excavation and backfilling processes will be necessary. We recommend implementing temporary groundwater control measures if the groundwater is within two feet of the required depth of excavation at the time of construction. Dewatering measures should be the responsibility of the contractor. We recommend the groundwater control measures remain in-place until compaction of the existing soils is completed and backfilling has reached a height of 2 feet above the groundwater level at the time of construction. The site should be graded to direct surface water runoff from the construction area

4. Excavation work will be required to meet OSHA requirements. Either a braced sheet pile structure or excavation with temporary slopes cut back at 1.5 horizontal to 1 vertical (1.5H:1V) may be used depending on the specific project requirements. The 1.5H:1V slopes are contingent upon the dewatering system adequately controlling slope groundwater seepage. Sheet piling, if required, should be designed in accordance with OSHA requirements by a Florida Registered Professional Engineer.

   Compact the exposed surface using tracked dozer or vibratory equipment. **We recommend that vibratory equipment be operated in static mode within 75 feet of any existing structures.** The upper one foot of soils below the exposed surface within the structure areas should be improved to achieve a minimum compaction requirement of 95% of the Modified Proctor Test (ASTM D-1557). As discussed, we recommend the upper two feet of soils below the exposed surface (after the upper two to three feet are removed) be compacted to 95% of the Modified Proctor Test (ASTM D-1557) within the south east portion of the Biological Nutrient Removal Tank. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). Should the soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess moisture content within the disturbed soils allowed to dissipate before compacting.

5. Test the compacted surface for compliance at a minimum of one location per 2,500 square feet within the building area, or at a minimum of four locations.

6. Place fill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 percent and 10 percent, but strict moisture control may be required. Place fill in uniform 8 to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density. We recommend the compacted soils exhibit moisture content within

2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). If light compaction equipment is used, we recommend the lift thickness be reduced to 8 inch thick lifts.

7. Perform compliance tests within the backfill and fill soils at a minimum of one location per 2,500 square feet per lift (minimum four locations).

8. Compact and test footing cuts for compaction to a depth of two feet below bearing levels. We recommend that you test one out of every four (25 percent) column footings and perform one test per every 50 linear feet of wall footing. Compaction operations in confined areas, such as footing excavations, can best be performed with a lightweight vibratory sled or other hand-held compaction equipment.

5.0 CONSTRUCTION RELATED SERVICES

We recommend the owner retain Universal Engineering Sciences to perform construction materials tests and observations on this project. Field tests and observations include verification of foundation subgrades by monitoring filling operations and performing quality assurance tests on the placement of compacted natural soils and structural fill. We can also perform concrete testing, pavement section testing, structural steel testing and other construction materials testing services.

The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address problems that might arise during construction in a timely and cost-effective manner.

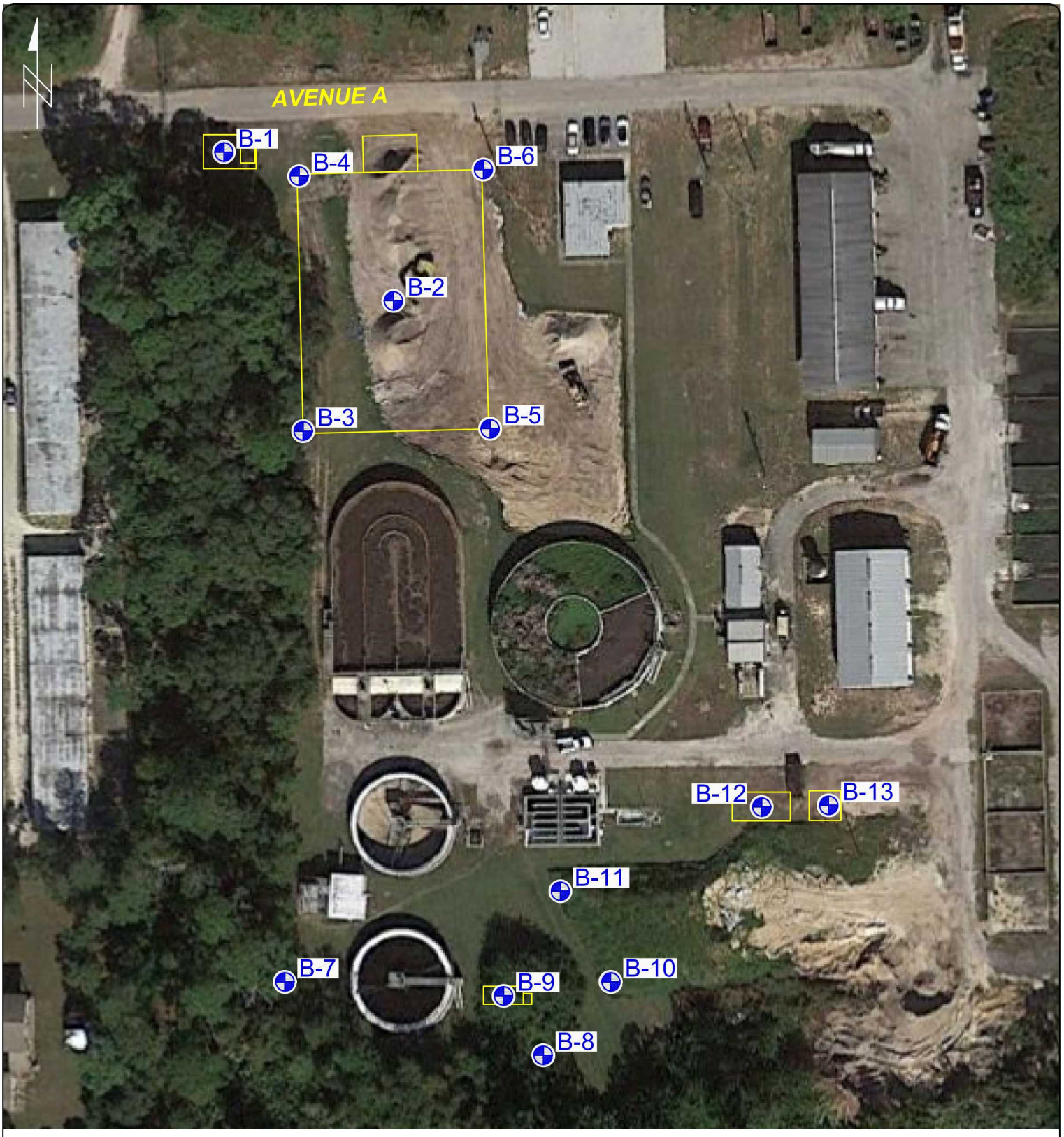
6.0 LIMITATIONS

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. An Association of Engineering Firms Practicing in the Geosciences (ASFE) publication, "Important Information about Your Geotechnical Engineering Report" appears in Appendix C, and will help explain the nature of geotechnical issues. Further, we present documents in Appendix C: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

Exhibit"C"

APPENDIX A

BORING LOCATION PLAN
SUBSURFACE PROFILES
SOILS CLASSIFICATION CHART



GRAPHIC SCALE
0 40 80
(IN FEET)
1 INCH ≈ 80 ft.

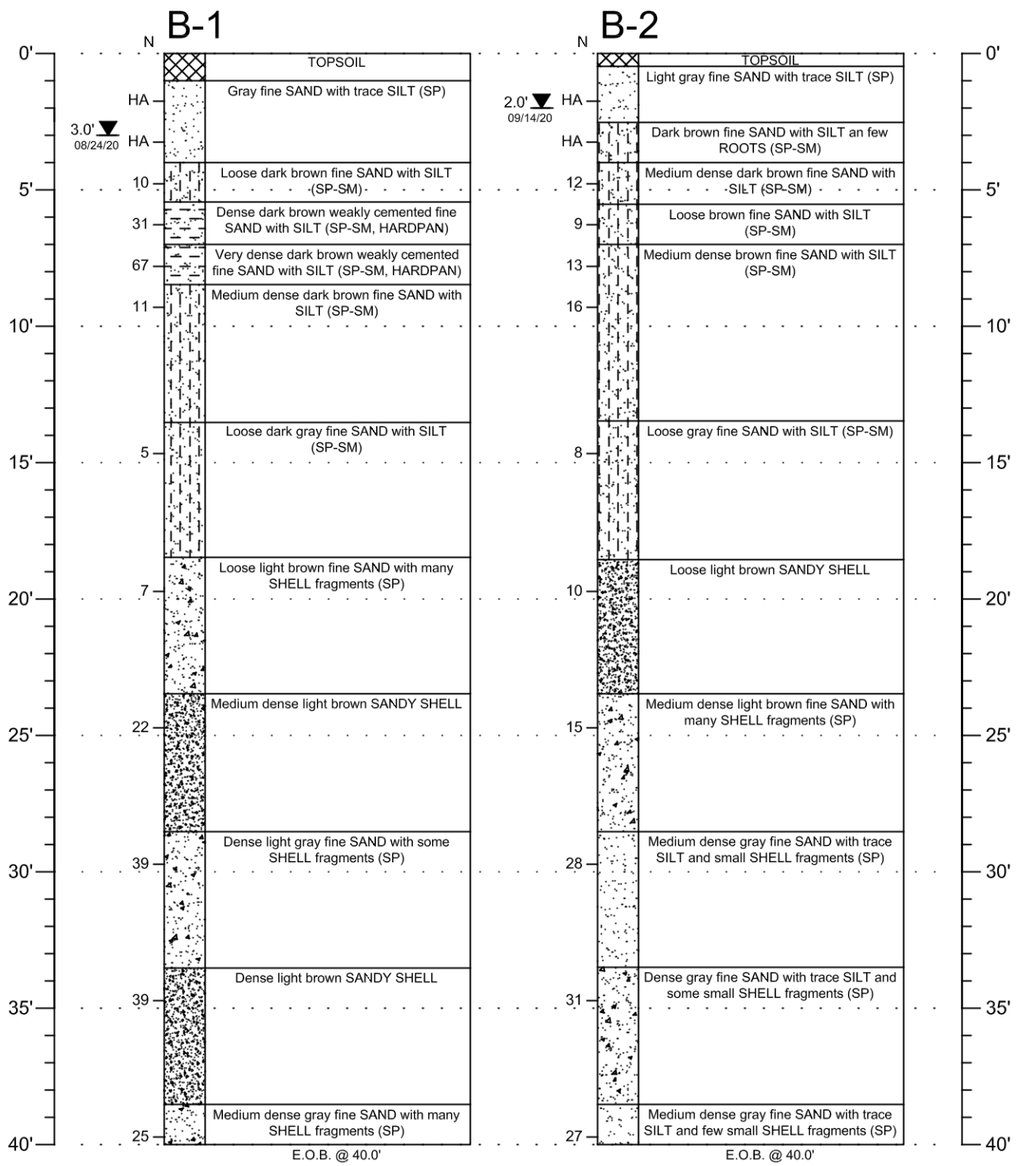
LEGEND

APPROXIMATE LOCATION OF STANDARD PENETRATION TEST (SPT) BORING

UNIVERSAL ENGINEERING SCIENCES

TITLE: BORING LOCATION PLAN			SCALE: 1" ≈ 80'
PROJECT: GEOTECHNICAL EVALUATION FLAGLER BEACH WWTP IMPROVEMENTS FLAGLER BEACH, FLORIDA			PAGE/FIG. NO.: A-1
DRAWN BY: MKL	DATE: 10/06/20	PROJECT NO.: 0430.2000179.0000	
CHECKED BY: BP	DATE: 10/06/20	REPORT NO.: 136638	

Exhibit"C"



Fine SAND (SP)

Fine SAND with some to many SHELL fragments (SP)

SHELL

Fine SAND with SILT (SP-SM)

Weakly cemented fine SAND with SILT (SP-SM, Hardpan)

TOPSOIL

NOTES:

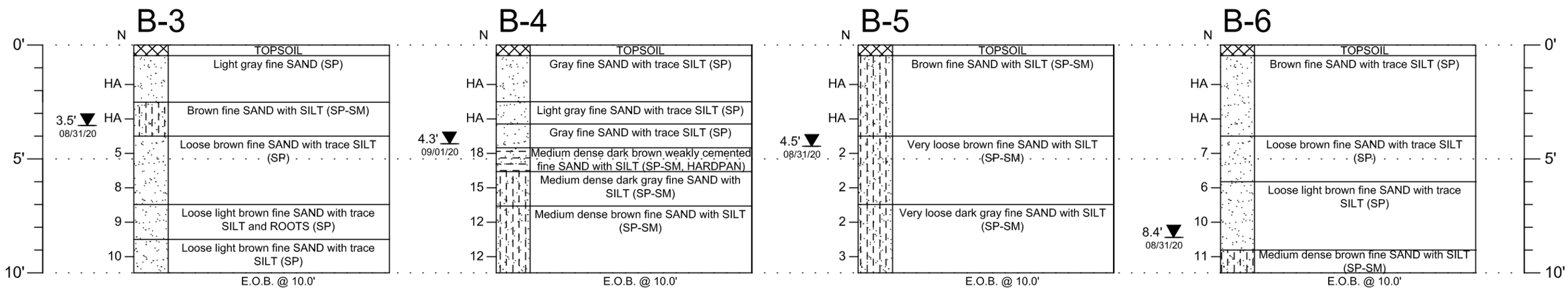
▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method

UNIVERSAL ENGINEERING SCIENCES

PROJECT:
GEOTECHNICAL EVALUATION
FLAGLER BEACH WWTP IMPROVEMENTS
FLAGLER BEACH, FLORIDA

TITLE:
SUBSURFACE PROFILES

DRAWN BY:	MKL	DATE:	10/06/20	PROJECT NO.:	0430.2000179.0000	SCALE: NA (in feet)	PAGE/FIG. NO.: A-2
CHECKED BY:	BP	DATE:	10/06/20	REPORT NO.:	136638		



Fine SAND (SP)

Fine SAND with some to many SHELL fragments (SP)

SHELL

Fine SAND with SILT (SP-SM)

Weakly cemented fine SAND with SILT (SP-SM, Hardpan)

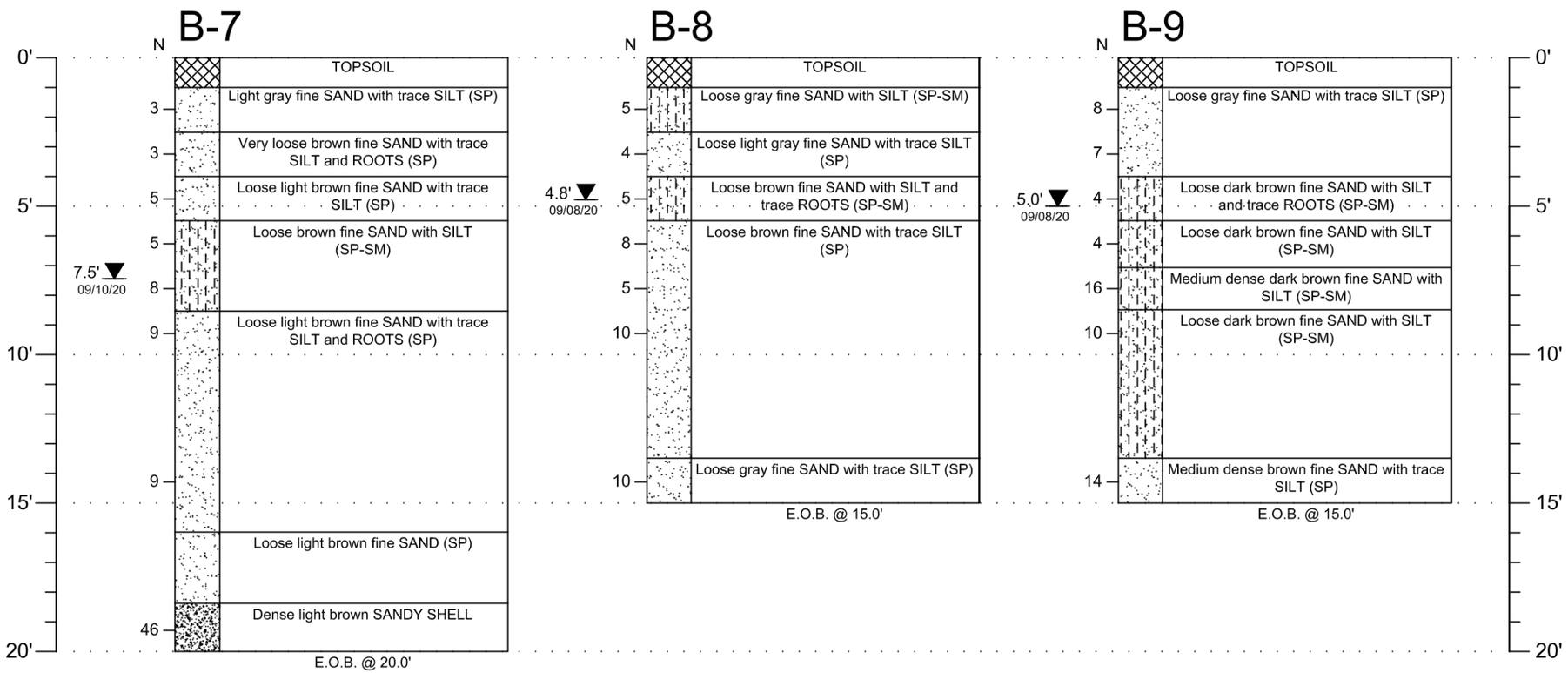
TOPSOIL

NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method

UNIVERSAL ENGINEERING SCIENCES

PROJECT: GEOTECHNICAL EVALUATION FLAGLER BEACH WWTP IMPROVEMENTS FLAGLER BEACH, FLORIDA						TITLE: SUBSURFACE PROFILES	
DRAWN BY: MKL	DATE: 10/06/20	PROJECT NO.: 0430.2000179.0000				SCALE: NA (in feet)	PAGE/FIG. NO.: A-3
CHECKED BY: BP	DATE: 10/06/20	REPORT NO.: 136638					



Fine SAND (SP)

Fine SAND with some to many SHELL fragments (SP)

SHELL

Fine SAND with SILT (SP-SM)

Weakly cemented fine SAND with SILT (SP-SM, Hardpan)

TOPSOIL

NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method

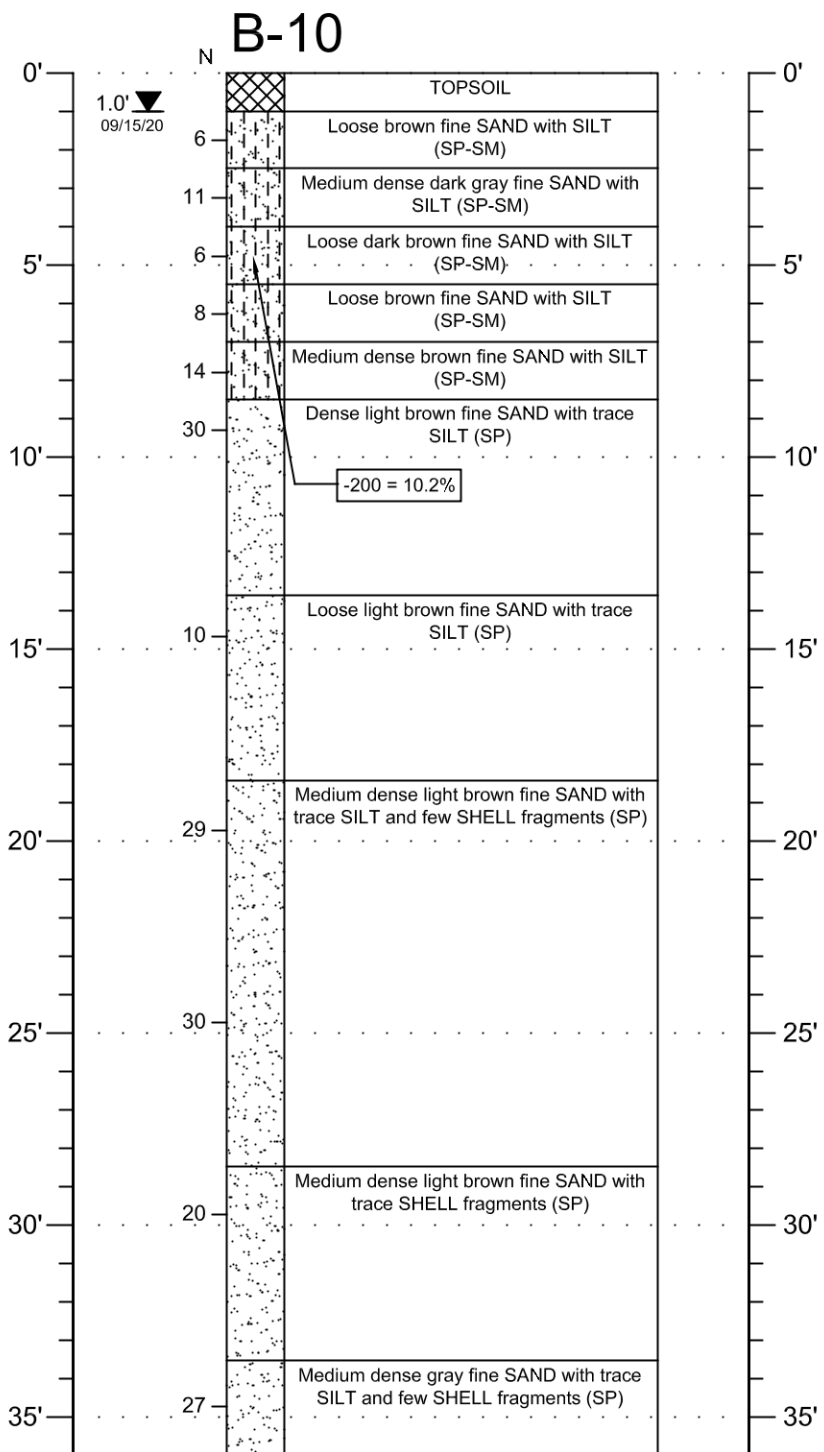
UNIVERSAL ENGINEERING SCIENCES

PROJECT:
GEOTECHNICAL EVALUATION
FLAGLER BEACH WWTP IMPROVEMENTS
FLAGLER BEACH, FLORIDA

TITLE:
SUBSURFACE PROFILES

DRAWN BY:	MKL	DATE:	10/06/20	PROJECT NO.:	0430.2000179.0000	SCALE: NA (in feet)	PAGE/FIG. NO.: A-4
CHECKED BY:	BP	DATE:	10/06/20	REPORT NO.:	136638		

Exhibit"C"



NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method

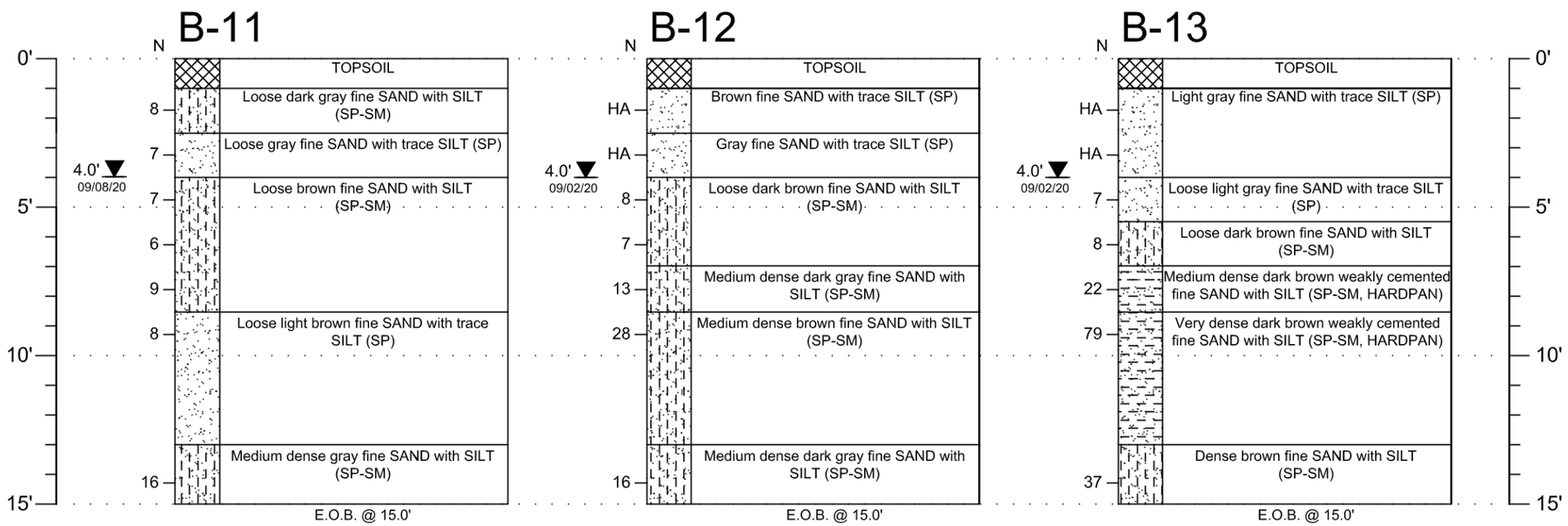
- Fine SAND (SP)
- Fine SAND with some to many SHELL fragments (SP)
- SHELL
- Fine SAND with SILT (SP-SM)
- Weakly cemented fine SAND with SILT (SP-SM, Hardpan)
- SILTY fine SAND (SM)
- TOPSOIL

UNIVERSAL ENGINEERING SCIENCES

PROJECT:
GEOTECHNICAL EVALUATION
FLAGLER BEACH WWTP IMPROVEMENTS
FLAGLER BEACH, FLORIDA

TITLE:
SUBSURFACE PROFILE

DRAWN BY:	MKL	DATE: 10/06/20	PROJECT NO.: 0430.2000179.0000	SCALE: NA (in feet)	PAGE/FIG. NO.: A-5
CHECKED BY:	BP	DATE: 10/06/20	REPORT NO.: 136638		



Fine SAND (SP)

Fine SAND with some to many SHELL fragments (SP)

SHELL

Fine SAND with SILT (SP-SM)

Weakly cemented fine SAND with SILT (SP-SM, Hardpan)

TOPSOIL

NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method

UNIVERSAL ENGINEERING SCIENCES

PROJECT:
GEOTECHNICAL EVALUATION
FLAGLER BEACH WWTP IMPROVEMENTS
FLAGLER BEACH, FLORIDA

TITLE:
SUBSURFACE PROFILES

DRAWN BY:	MKL	DATE:	10/06/20	PROJECT NO.:	0430.2000179.0000	SCALE: NA (in feet)	PAGE/FIG. NO.: A-6
CHECKED BY:	BP	DATE:	10/06/20	REPORT NO.:	136638		

UNIVERSAL
ENGINEERING SCIENCES

KEY TO BORING LOGS

SYMBOLS

SYMBOL	DESCRIPTION
N	No. of blows of a 140-lb weight falling 30 inches required to drive standard spoon 1 foot.
WOR	Weight of Drill Rods
WOH	Weight of Drill Rods and Hammer
% REC	Percent Core Recovery from Rock Core Drilling
RQD	Rock Quality Designation
EOB	End Of Boring
BT	Boring Terminated
-200	Fines Content or % Passing N0. 200 Sieve
MC	Moisture Content
LL	Liquid Limit
PI	Plasticity Index
K	Coefficient of Permeability
O.C.	Organic Content
▽	Estimated seasonal high groundwater level
▼	Measured groundwater level at time of drilling

RELATIVE DENSITY
(sand-silt)

Very Loose - Less Than 4 Blows/Ft.
Loose - 4 to 10 Blows/Ft.
Medium - 11 to 30 Blows/Ft.
Dense - 31 to 50 Blows/Ft.
Very Dense - More Than 50 Blows/Ft.

CONSISTENCY
(clay)

Very Soft - Less than 2 Blows/Ft.
Soft - 2 to 4 Blows/Ft.
Medium - 5 to 8 Blows/Ft.
Stiff - 9 to 15 Blows/Ft.
Very Stiff - 16 to 30 Blows/Ft.
Hard - More Than 30 Blows/Ft.

RELATIVE HARDNESS
(Limestone)

Soft - 100 Blows for more than 2"
Hard - 100 Blows for less than 2"

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Well-graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW**	Well-graded sands and gravelly sands, little or no fines
			SP**	Well-graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM**	Silty sands, sand-silt mixtures
			SC**	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Organic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75 mm) sieve.
** Use dual symbol (such as, SP-SM and SP-SC) for soil with more than 5% but less than 12% passing through No. 200 sieve.

MODIFIERS

These modifiers provide our estimate of the amount of minor constituents (SILT or CLAY sized particles) in the soil sample.
Trace - 5% or less
With SILT or with CLAY - 6% to 11%
SILTY or CLAYEY - 12% to 30%
Very SILTY or Very CLAYEY - 31% to 50%

These modifiers provide our estimate of the amount of organic components in the soil sample.
Trace - 1% to 2%
Few - 3% to 4%
Some - 5% to 8%
Many - Greater than 8%

These modifiers provide our estimate of the amount of other components (Shell, Gravel, Etc.) in the soil sample
Trace - 5% or less
Few - 6% to 12%
Some - 13% to 30%
Many - 31% to 50%

APPENDIX B

LABORATORY TESTING PROCEDURES

DESCRIPTION OF LABORATORY TESTING PROCEDURES

LABORATORY PERMEABILITY TEST

The laboratory permeability test is a Falling Head Test that is performed on soil samples recovered from this site. The data recovered from this test are used to calculate Darcy's Coefficient of Permeability (k) of the soil.

WASH 200 TEST

The Wash 200 test is performed by passing a representative soil sample over a No. 200 sieve and rinsing with water. The percentage of the soil grains passing this sieve is then calculated.

ORGANIC CONTENT TESTS

The organic content test is performed by weighing a sample before and after placing in a high temperature oven which burns the organic material in the sample. The percent of organic material by weight is then calculated.

MOISTURE CONTENT DETERMINATION ASTM D-2216

Moisture content is the ratio of the weight of water to the dry weight of soil. Moisture content is measured by drying a sample at 105 degrees Celsius. The moisture content is expressed as a percent of the oven dried soil mass.

ATTERBERG LIMITS

The Atterberg Limits consist of the Liquid Limit (LL) and the Plastic Limit (PL). The LL and PL were determined in general accordance with the latest revision of ASTM D-4318. The LL is the water content of the material denoting the boundary between the liquid and plastic states. The PL is the water content denoting the boundary between the plastic and semi-solid states. The Plasticity Index (PI) is the range of water content over which a soil behaves plastically and is denoted numerically by as the difference between the LL and the PL. The water content of the sample tested was determined in general accordance with the latest revision of ASTM D-2216. The water content is defined as the ratio of “pore” or “free” water in a given mass of material to the mass of solid material particles.

CONSOLIDATION TESTING

A single selected portion of the undisturbed sample was extruded from the 3-inch diameter sample tube for consolidation testing. The selected sample was trimmed and confined into a stainless steel disc having a diameter of 2.5 inches and a height of 1 inch. The disc was then “sandwiched” between 2 porous stones, saturated and subjected to incrementally increasing loads. The resulting deformation of the sample within the steel disc was measured using a micrometer gauge.

Exhibit"C"

APPENDIX C

GENERAL CONDITIONS
CONSTRAINTS AND RESTRICTIONS AND
IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

Universal Engineering Sciences, LLC
GENERAL CONDITIONS

SECTION 1: RESPONSIBILITIES

1.1 *Universal Engineering Sciences, LLC, Universal Engineering Inspections, LLC, and GFA International Inc. ("UES"), have the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of Universal Engineering Sciences, LLC, Universal Engineering Inspections, LLC, GFA International, Inc., its' agents, employees, professional staff, and subcontractors.*

1.2 The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.

1.3 The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties.

1.4 Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to a failure to schedule our services on the project or any resulting damages.

1.5 **PURSUANT TO FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.**

SECTION 2: STANDARD OF CARE

2.1 Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.

2.2 The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.

2.3 Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.

2.4 Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project.

SECTION 3: SITE ACCESS AND SITE CONDITIONS

3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.

3.2 The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL

4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.

4.2 UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.

4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

SECTION 5: BILLING AND PAYMENT

5.1 UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications.

5.2 Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.

5.3 If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

SECTION 6: OWNERSHIP AND USE OF DOCUMENTS

6.1 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES.

6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.

6.3 UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.

6.4 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express written consent of UES.

SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS

7.1 Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site.

7.2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.

7.3 Hazardous materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous waste.

7.4 UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold UES harmless for any and all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.

7.5 Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

SECTION 8: RISK ALLOCATION

8.1 Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed $50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of $1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or $400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.

SECTION 9: INSURANCE

9.1 UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.

SECTION 10: DISPUTE RESOLUTION

10.1 All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided by law, including the commencement of litigation.

10.2 If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:

(a) the claim will be brought and tried in judicial jurisdiction of the court of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and

(b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

SECTION 11: TERMINATION

11.1 This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses.

11.2 In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.

SECTION 12: ASSIGNS

12.1 Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.

SECTION 13. GOVERNING LAW AND SURVIVAL

13.1 The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance.

13.2 If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.

SECTION 14. INTEGRATION CLAUSE

14.1 This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein.

14.2 This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

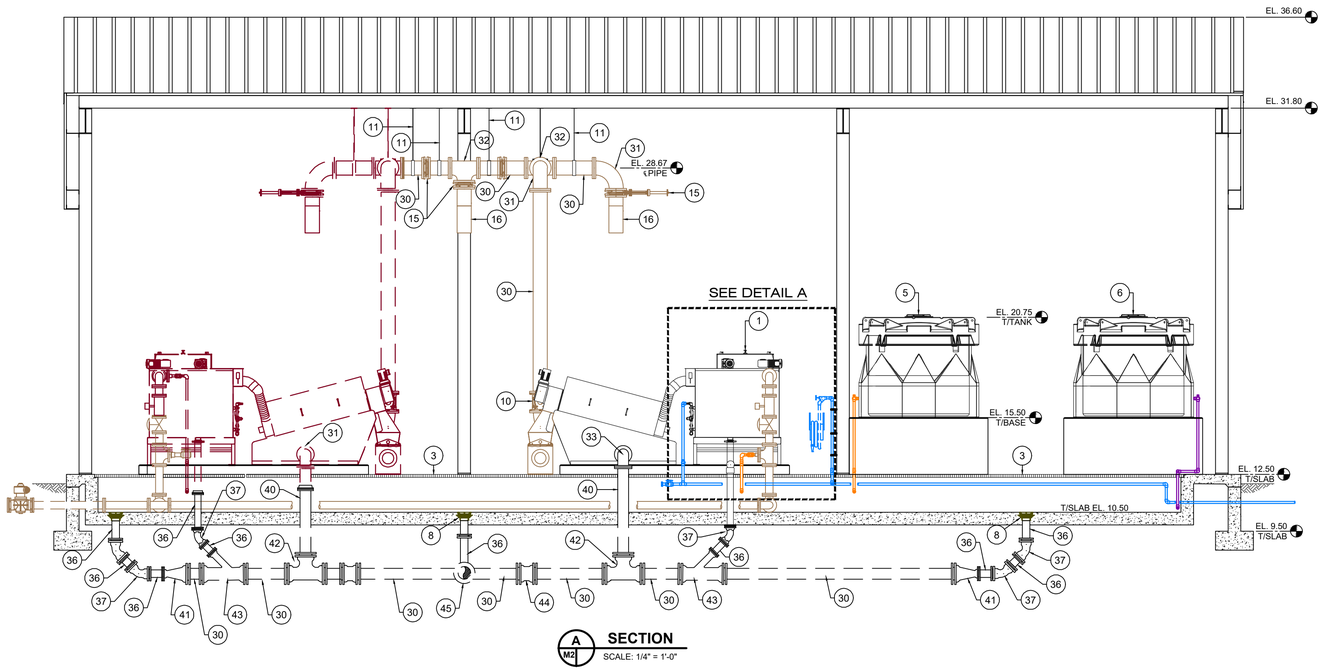
Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

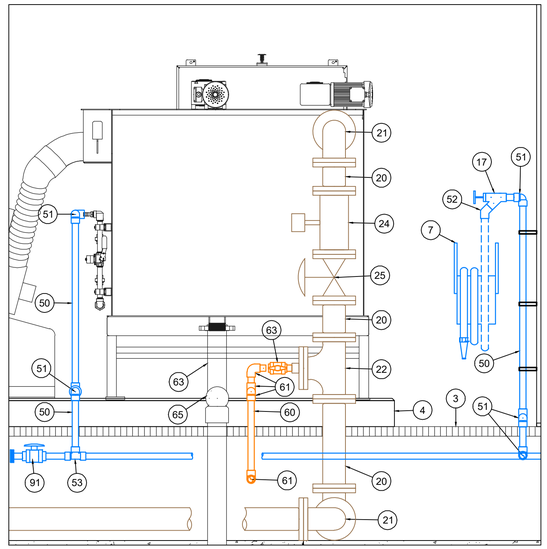
GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

Exhibit"D"



A M2 **SECTION**
SCALE: 1/4" = 1'-0"



DETAIL A
SCALE 3/4" = 1'

EQUIPMENT SCHEDULE

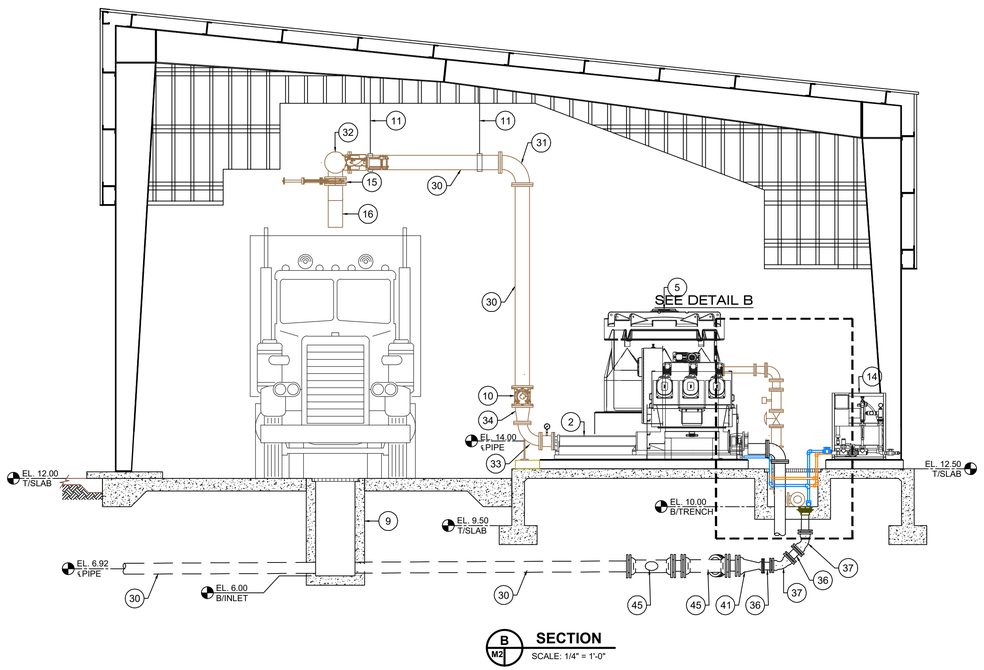
ITEM#	DESCRIPTION
1	DEWATERING PRESS ES303 GA
2	DEWATERED SLUDGE CAKE PUMP
3	PIPE TRENCH W/ FRP-GRATING
4	DEWATERING PRESS HOUSEKEEPING PAD
5	POLYMER TANK
6	BISULFITE TANK
7	HOSE REEL / WASH STATION
8	DRAIN INLET
9	TYPE "C" INLET
10	8" PLUG VALVE
11	PIPE HANGER SUPPORT (TYP.)
14	POLYMER PUMP
15	8" KNIFE GATE VALVE
16	FLEX BOOT
17	HOSE BIB

INFLUENT SLUDGE PIPING SCHEDULE

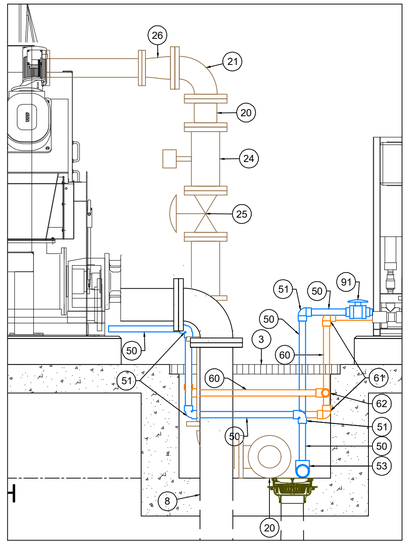
ITEM#	DESCRIPTION
20	4" DUCTILE IRON PIPE, FLG
21	4" DUCTILE IRON 90° BEND, FLG
22	4" DUCTILE IRON TEE, FLG
24	4" SCHEDULE 80 PVC MAGMETER
25	4" 80 PVC PLUG VALVE DIP
26	4" x 3" DUCTILE IRON REDUCER, FLG
27	3" DIP PIPE, FLG

EFFLUENT SLUDGE PIPING SCHEDULE

ITEM#	DESCRIPTION
30	8" DR14 PVC PIPE, PE
31	8" DUCTILE IRON 90° BEND, FLG
32	8" DUCTILE IRON TEE, FLG
33	6" DUCTILE IRON BASE 90° BEND, FLG
34	8"x6" DUCTILE IRON REDUCER, FLG
35	6" DUCTILE IRON 45° BEND, FLG
36	4" DUCTILE IRON PIPE, PE
37	4" DUCTILE IRON 45° BEND, MJ
38	4" DUCTILE IRON 90° BEND, FLG
39	6" DUCTILE IRON WYE, FLG
40	6" DUCTILE IRON PIPE, PE
41	8"x4" DUCTILE IRON REDUCER, MJ
42	8"x6" DUCTILE IRON TEE, MJ
43	8"x4" DUCTILE IRON WYE, MJ
44	8" PVC 45° BEND
45	8" PVC WYE, MJ



B M2 **SECTION**
SCALE: 1/4" = 1'-0"



DETAIL B
SCALE 3/4" = 1'

POLYMER PIPING SCHEDULE

ITEM#	DESCRIPTION
60	1" SCHEDULE 80 PVC POLYMER PIPE
61	1" SCHEDULE 80 PVC 90° BEND
62	1" SCHEDULE 80 PVC TEE
63	2" SCHEDULE 80 PVC CAP
66	1" SCHEDULE 80 PVC CAP

POLYMER EQUIPMENT SCHEDULE

ITEM#	DESCRIPTION
81	1" SCHEDULE 80 PVC BALL VALVE

POTABLE EQUIPMENT SCHEDULE

ITEM#	DESCRIPTION
91	1" SCHEDULE 80 PVC BALL VALVE

POTABLE PIPING SCHEDULE

ITEM#	DESCRIPTION
50	1" SCHEDULE 80 PVC POTABLE PIPE
51	1" SCHEDULE 80 PVC 90° BEND
52	1" SCHEDULE 80 PVC 45° BEND
53	1" SCHEDULE 80 PVC TEE

No.	Date	Revision	No.	Date	Revision
1			1		
2			2		
3			3		
4			4		

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Plans Prepared By:
CPH, LLC
A Full Service A & E Firm

ROCCO R. NASSO, P.E.
FL. P.E. NO. 64727

Designed by:	BMF/GMC
Drawn by:	T. MORGAN
Checked by:	D. MAHLER
Date:	2/21/2024
Job No.	F15907

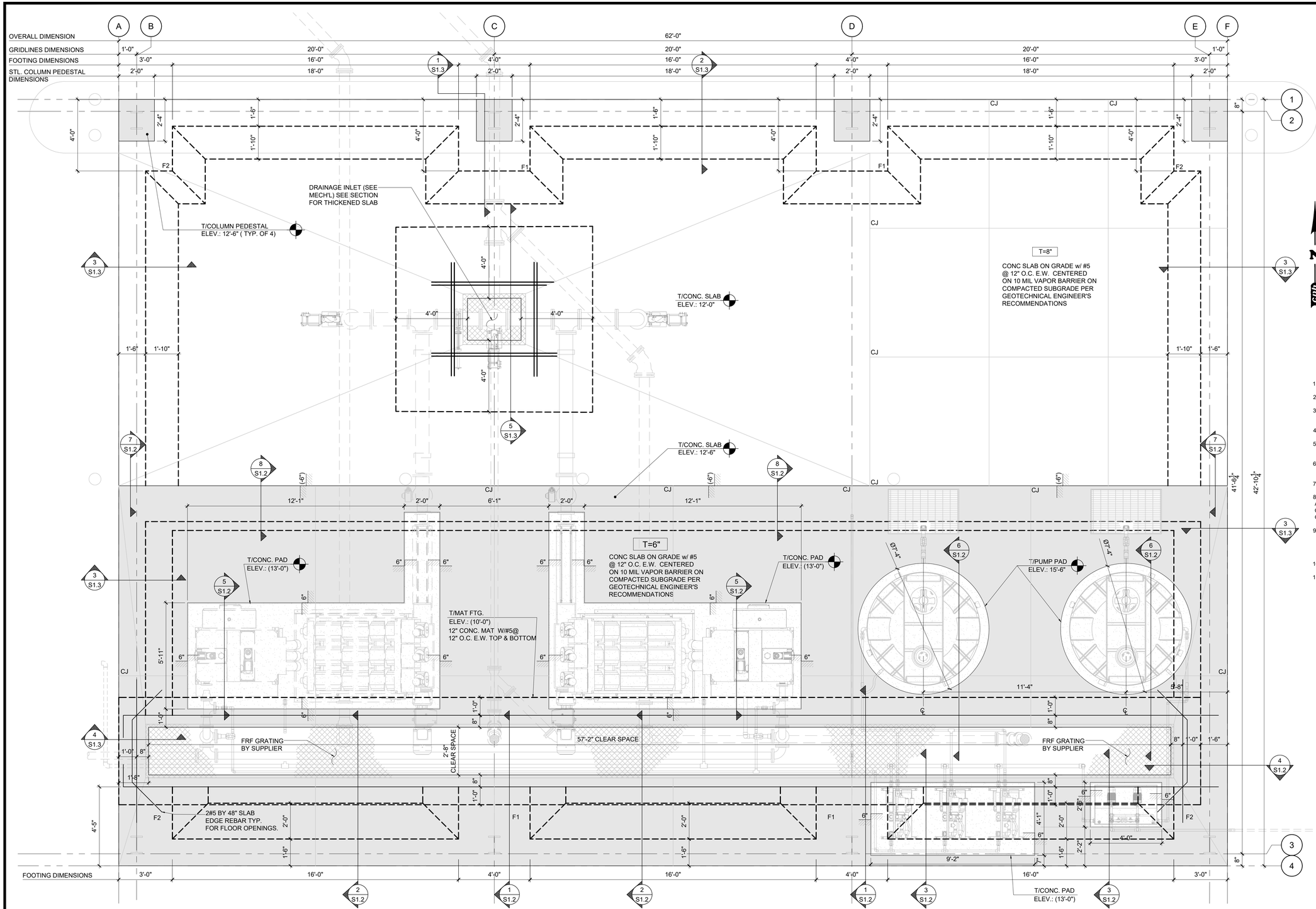
FLAGLER BEACH WWTF SLUDGE MANAGEMENT SYSTEM IMPROVEMENTS
City of Flagler Beach, Florida

BIOSOLIDS DEWATERING BUILDING/SECTIONS - EQUIPMENT/ INFLUENT/ CHEMICAL LINES

Sheet No. **M2.0**

Drawing name: J:\F15907\Civil\DWG_Current_Plan_Set\F15907_PLNT_MECH\F15907 19 M2.0~M2.1.dwg Nov 20, 2024 - 12:22pm gmoore

Exhibit"D"



FOUNDATION NOTES

1. TOP OF CONCRETE SLAB = SEE PLAN. SEE CIVIL FOR NVGD ELEVATION.
2. SEE CIVIL FOR DIMENSIONS NOT SHOWN.
3. SEE CIVIL AND MECH. FOR ALL SLEEVES, PIPES, INSERTS AND EMBEDDED ITEMS.
4. SEE CIVIL AND MECH. FOR SLOPES AND RECESSES.
5. VERIFY W/ CIVIL AND MECH. DRAWINGS ALL ELEVATIONS AND DIMENSIONS PRIOR TO FABRICATION AND CONSTRUCTION.
6. SEE SHEET S1.0 FOR STRUCTURAL NOTES. SEE SHEET S1.3 FOR SLAB OPENING DETAILS.
7. SEE CIVIL FOR WATERPROOFING.
8. FRP GRATING SHALL HAVE A DESIGN LIVE LOAD CAPACITY OF 250 PSF AND CAPACITY FOR ANY OF THE PLANT'S EQUIPMENT WHICH SHALL BE CONFIRMED WITH PLANT OWNER PRIOR TO CONSTRUCTION. ATTACH GRATING TO SUPPORTS PER SUPPLIER'S RECOMMENDATIONS.
9. WHERE REQUIRED, NEW SLAB SHALL BE 6" AND 8" CONC. SLAB ON GRADE. (F'c=4000 psi) W#5 @ 12" O.C. E.W. CENTERED ON 10 MIL VAPOR BARRIER ON PREPARED SUBGRADE PER GEOTECHNICAL REPORT. REFER TO CIVIL DRAWINGS FOR SLABS ADJACENT TO BUILDING.
10. F# DENOTES NEW CONCRETE FOOTING, SEE SCHEDULE ON THIS SHEET.
11. CJ DENOTES CONTROL JOINTS, SEE DETAIL ON THIS SHEET.

FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F1	4'-0"x4'-0"x2'-6"	(4) #6 O.C. E.W. TOP & BOTTOM
F2	3'-0"x4'-0"x2'-6"	(2) #6 O.C. E.W. TOP & BOTTOM

NOTES

COLUMN FOUNDATIONS ARE PRELIMINARY SIZES.
G/C TO PROVIDE PRE-ENGINEERED
CANOPY SUBMITTALS WITH COLUMN REACTIONS TO
SEOR FOR COLUMN FOUNDATION FINAL DESIGN.

No.	Date	Revision
1	#	#
2	#	#
3	#	#
4	#	#

No.	Date	Revision
1	#	#
2	#	#
3	#	#
4	#	#

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Ph: ##########

JOSE M. ORTIZ, PE
67920

Designed by:	EA
Drawn by:	DAS
Checked by:	EA/JMO
Date:	02/03/204
Job No.	F15907

FLAGLER BEACH WWTF BIOSOLIDS IMPROVEMENTS
CITY OF FLAGLER BEACH, FLORIDA

STRUCTURAL NOTES

Sheet No.
S1.1

J:\F15907\Structural\01_CAD\S1.1 STRUCTURAL FND PLAN.dwg, 11/20/2024 11:37:22 AM, Dennis Aron,

WASTEWATER TREATMENT PLANT
SLUDGE MANAGEMENT
IMPROVEMENTS
PRE-BID MEETING
SIGN-IN SHEET

13-Nov-24	COUNCIL CHAMBER ROOM	10:00 AM

	NAME & EMAIL	COMPANY & PHONE NO.
1	~~Adam Schumacher~~ tcorrigan@conecrahan.com	561-400-1662
2	Lindsey Maguray lindsey@sgscsi.com	SGS Contracting 239-699-0568
3	David Gibbons dgibbons@dsiinnorations.com	DSI Innorations 904-591-0431
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WASTEWATER TREATMENT PLANT
SLUDGE MANAGEMENT
IMPROVEMENTS
PRE-BID MEETING
SIGN-IN SHEET

13-Nov-24	COUNCIL CHAMBER ROOM	10:00 AM

	NAME & EMAIL	COMPANY & PHONE NO.
1	LEE RICHARDS Lrichards@cityofflaglerbeach.com	City of Flagler Beach 386-517-2000 ext. 248
2	CHRIS NOVAK Cnovak@cityofflaglerbeach.com	City of Flagler Beach 386-517-2000 ext. 242
3	BILL FREEMAN Bfreeman@cityofflaglerbeach.com	City of Flagler Beach 386-517-2000 ext. 230
4	JENIFER CREWS Jcrews@cityofflaglerbeach.com	City of Flagler Beach 386-285-7737
5	JOHNNY LYNN jlynn@cityofflaglerbeach.com	City of Flagler Beach 386-517-2029
6	Cody Mills Sawcross, inC Bids@sawcross.com	8503403698
7	Alex Burgos ~~L7 Constructs~~ aburgos@L7constructs.com	L7 Construction, Inc 321-972-9325
8		
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