

# LIFT STATION 4003 UPGRADE

JOINT WATER & SEWER COMMISSION PROJECT # 703 - SPLOST 2016

## BRUNSWICK, GEORGIA

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Mr. Andrew Burroughs, PE

24-Hour Contact: Todd Kline, PE, Director of Engineering

Emergency # (912)634-0258

Planning & Construction Division: (912)261-7126

FOR THE



BRUNSWICK-GLYNN JOINT WATER & SEWER COMMISSION

1703 Gloucester Street  
Brunswick, GA 31520  
(912) 261-7100

APRIL 2020

NOTES:  
CONTRACTOR SHALL NOTIFY BGJWSC PLANNING AND  
CONSTRUCTION DIVISION 48 HOURS BEFORE STARTING  
WORK ON THIS PROJECT

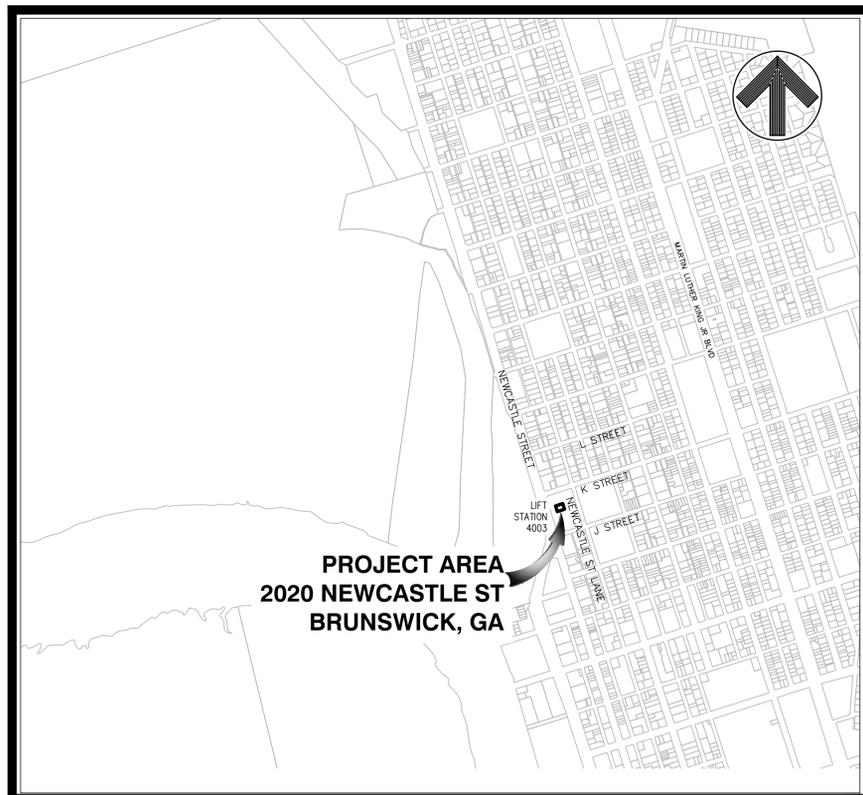


**HUSSEY GAY BELL**

Established 1958

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www.husseygaybell.com

CALL BEFORE YOU DIG  
AT LEAST 72 HOURS PRIOR TO WORK  
COMMENCEMENT THE CONTRACTOR IS  
RESPONSIBLE FOR CALLING THE UTILITIES  
PROTECTION CENTER(UPC) AT 1-800-282-7411  
AND REQUEST UNDERGROUND UTILITY  
LOCATE SERVICE



**VICINITY MAP**  
SCALE: 1" = 1000'

SHEET NO.	DESCRIPTION
01	COVER - VICINITY MAP - SCHEDULE OF DRAWINGS
02	PROJECT MAP - LEGEND - GENERAL NOTES
03	EXISTING SEWER PLAN & PROFILE
04	PROPOSED SITE PLAN
05	STAKING PLAN
06	PUMP DEMOLITION PLAN
07	LIFT STATION SECTION
09	BASE AND MID LEVEL PLAN VIEW
10	BUILDING EXTERIOR IMPROVEMENTS
12	BUILDING INTERIOR IMPROVEMENTS & DETAILS
13	BIOTRICKLING FILTER SYSTEM
14	ODOR CONTROL SECTIONS AND NOTES
15-16	MISCELLANEOUS DETAILS
S1	GENERAL NOTES
S2	PLAN AND SECTION
S2.1	SECTION
S3	CONCRETE JOINTS DETAILS
S4	TYPICAL CONCRETE DETAILS
E1	LEGEND, NOTES, & FIXTURE SCHED
E2	LIGHTING AND POWER PLAN
E3	ONE-LINE, PANEL SCHED, & SCADA

**SCHEDULE OF DRAWINGS**

**ISSUED FOR BID APRIL 20, 2020**

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 E:\BGJWSC\119291605 lift station 4003 upgrade\acad files\construction\SBT 01\_Cover.dwg  
 Apr 22, 2020 - 2:28pm  
 Printed By: shenayna



**PROJECT MAP**  
SCALE: 1" = 400'

**GENERAL NOTES**

- It is the requirement of the contractor to make his own interpretation of all surface and subsurface data that is presented as to the nature and extent of the materials to be excavated, graded and compacted. The information shown on these plans and within the specifications does not in any way guarantee the amount or the nature of the material which may be encountered.
- The contractor shall notify the engineer of any conflict with existing utilities not shown on these plans prior to the installation of any pipe.
- All property/right-of-way lines are approximate, unless monument or pin locations are shown.
- All property monuments and R/W monuments that are disturbed or damaged shall be replaced by a licensed surveyor. Concrete monument markers shall be a minimum 4" x 4" x 2'6".
- All fences, posts, sheds, stored items, etc., moved to perform the work shall be replaced or moved back to the original location and any damage caused by removal and replacement shall be repaired so as to place the item in a condition equal to or better than existing at the start of the work.
- The contractor shall provide a legible set of as-built marked prints to the engineer showing in detail all changes from the design drawings. The locations of all service lines shall be shown with dimensions to permanent structures or manholes.
- All work shall be performed in a manner as to permit traffic to operate with the least amount of inconvenience possible. At least one travel lane must remain open at all times. All traffic control devices, signs, striping, and flagging shall be furnished by the contractor.
- All existing drive and crossroads will be provided ingress/egress routes at all times during the construction activities.
- The contractor shall not leave drainage ditches blocked, except for a brief time during actual installation of pipe. Provide temporary bypass drainage as required to have properly functioning drainage at all other times. Regrade all ditches disturbed by installation of pipe.
- All ditch banks, existing grass shoulders, and other areas that are disturbed shall be reseeded.
- The contractor is required to contact all utility companies and have utilities located before work begins. It is the contractor's responsibility to protect all utilities. Any damage to utilities shall be repaired at the expense of the contractor. If trench of pipe is within 5ft. of power poles, contractor must notify power company and take all precautions as required by power company. Backfilling and compaction required the same day as excavation occurs.

**NOTE:**  
HORIZONTAL DATUM IS ON GEORGIA STATE PLANE COORDINATES,  
EAST ZONE, DERIVED FROM EGPS NETWORK OBSERVATIONS.  
  
VERTICAL DATUM IS NAVD88, DERIVED FROM EGPS NETWORK OBSERVATIONS.

- It is the contractor's responsibility to coordinate with utility company for any guy wire relocation, or temporary utility line disconnections. All fees by the utility company for conducting these services shall be paid by the contractor.
- The contractor shall pay special attention to underground telephone fiber optic cables, and the underground gas mains and overhead power cables. The contractor must stay a minimum of 7.5 ft. away from power lines for safety of construction activities. The contractor shall comply with the High Voltage Act of Georgia. The contractor shall take every precaution necessary for safety purposes. In areas where construction activities require such, the contractor shall have utility company wrap lines, support poles, etc. The contractor shall pay all fees to the utility company for their work.
- Required shutdown of utility lines shall be coordinated with the Brunswick-Glynn County Joint Water & Sewer Commission. All requests for disruption shall be made at least by 9:00AM the working day prior to the scheduled interruption.
- The engineer shall approve any dewatering plan prior to its implementation.
- All water main piping shall have a minimum of 36" of cover.
- All force main piping shall have a minimum of 36" of cover.
- All valves and fittings shall be restrained.
- Clearing shall be performed to the extent necessary to construct the work within designated clearing easements.
- The contractor shall schedule and accomplish the work so as to avoid damage to private property and to minimize any inconvenience to property owners and their customers.
- The JWSC will retain salvage rights to all material and equipment. All materials and equipment retained by JWSC shall be delivered to a place designated by the JWSC Representative. Any materials or equipment not retained by the JWSC shall be removed from the site and disposed off-site by the contractor in accordance with the applicable regulation.
- Contractor must provide asset information in a spreadsheet for assets purchased on a single line item costing \$500 or more. The spreadsheet will be used to update the records in the BGJWSC asset management database to reflect equipment in the project site.

LEGEND		LEGEND	
EXISTING	PROPOSED	EXISTING	PROPOSED
○ SIGN	SIGN	○ IPF	IRON PIN
○	SPIGOT	□	CONCRETE MONUMENT
→ OR →	DITCH	▬▬▬▬▬▬	RAILROAD
▬▬▬▬▬▬ 48" RCP	STORM DRAIN LINE	▬▬▬▬▬▬	ASPHALT PAVEMENT
■	DRAINAGE INLET	▬▬▬▬▬▬	CASING
▬ SAN	SANITARY SEWER LINE	▬▬▬▬▬▬	FENCE
SSMH (S)	SANITARY SEWER MANHOLE	▬▬▬▬▬▬	RIGHT-OF-WAY
▬ FM	FORCE MAIN	▬▬▬▬▬▬	ROAD CENTERLINE
	AIR RELEASE VALVE IN MANHOLE	▬▬▬▬▬▬	WOODS LINE
	PLUG VALVE IN MANHOLE	☁ ☁ ☁	TREE OR BUSH
⊕	FIRE HYDRANT ASSEMBLY	▬▬▬▬▬▬	LIMITS OF DISTURBANCE
⊕	VALVE	▬▬▬▬▬▬	TEMPORARY SEDIMENT BARRIER
⊕	WATER METER	○ Sd1-S	TEMPORARY SEDIMENT TRAP
⊕	WATER LINE	○ Sd1-NS	S-SENSITIVE(DOUBLE) NS-NON SENSITIVE
⊕	WATER VALVE	○ Sd1-Bb	TEMPORARY SEDIMENT BASIN
⊕	LIGHT POLE	○ Sd2	BRUSH BARRIER
⊕	GUY WIRE	▬▬▬▬▬▬	INLET SEDIMENT TRAP
⊕	GUY POLE	▬▬▬▬▬▬	DUST CONTROL
⊕	TELEPHONE POLE	▬▬▬▬▬▬	MULCHING
⊕	TELEPHONE BOX	▬▬▬▬▬▬	TEMPORARY GRASSING
⊕	POWER POLE	▬▬▬▬▬▬	PERMANENT GRASSING
⊕	GAS METER	○ Co	TEMPORARY CONSTRUCTION EXIT
⊕	TRANSFORMER	○ St	STORM DRAIN OUTLET PROTECTION
▬ P	POWER LINE	▬▬▬▬▬▬	CONTOURS
▬ T	TELEPHONE LINE	▬▬▬▬▬▬	WETLANDS
▬ E	ELECTRIC LINE	▬▬▬▬▬▬	UTILITY/CONSTRUCTION EASEMENT
▬ OXY	OXYGEN LINE		
▬ FOC	FIBER OPTIC CABLE		
▬ UGC	UNDERGROUND CABLE		
▬ MB	MAILBOX		

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Established 1958  
329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T: 912.354.4626

DESIGNED	DRAWN	CHECKED
JCB	SK	JCB
DATE: APRIL 2020		
JOB NO. 119291605		
SCALE: AS SHOWN		

REVISIONS:

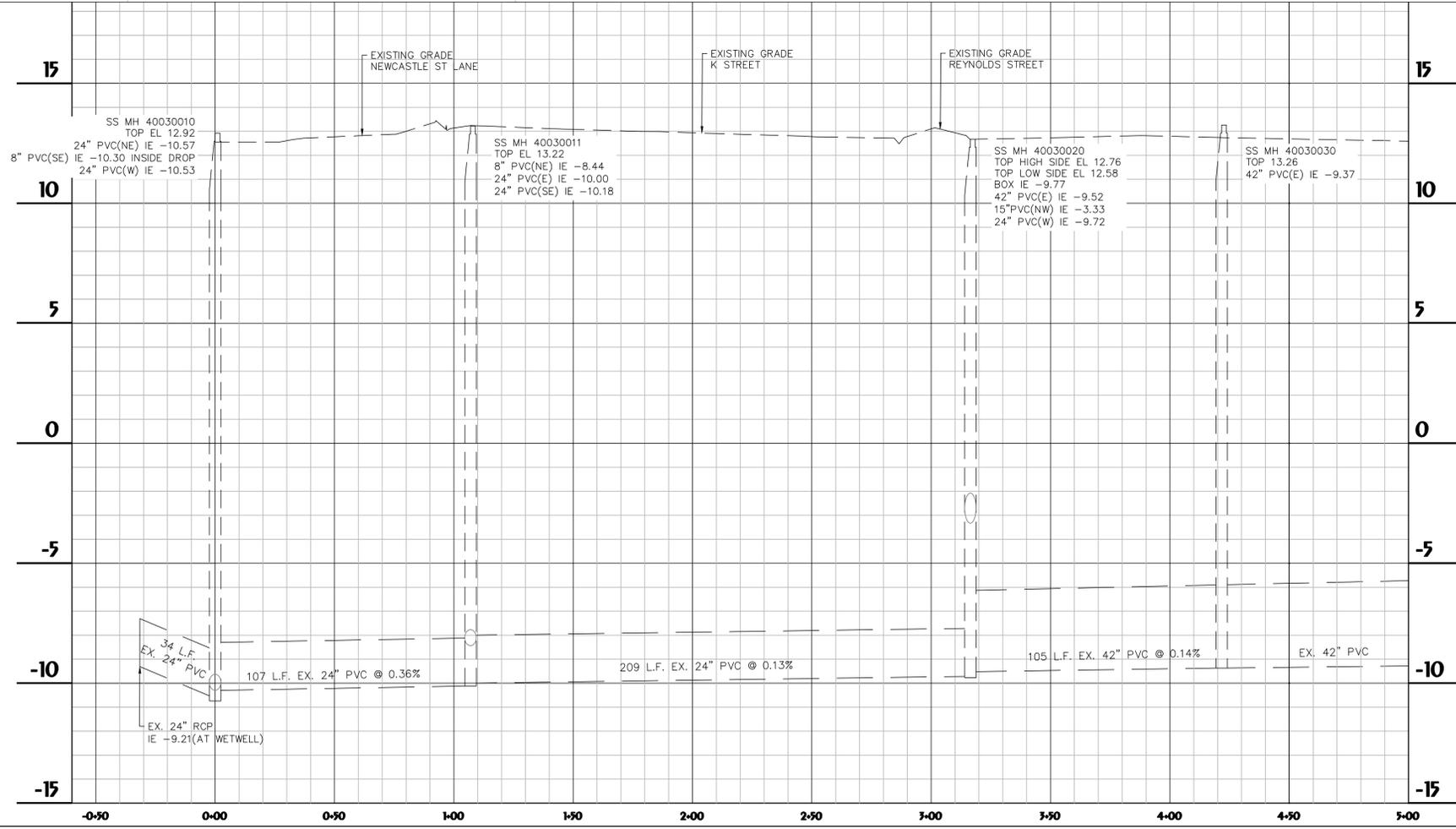
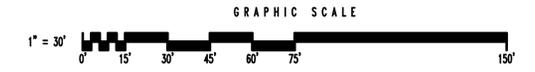
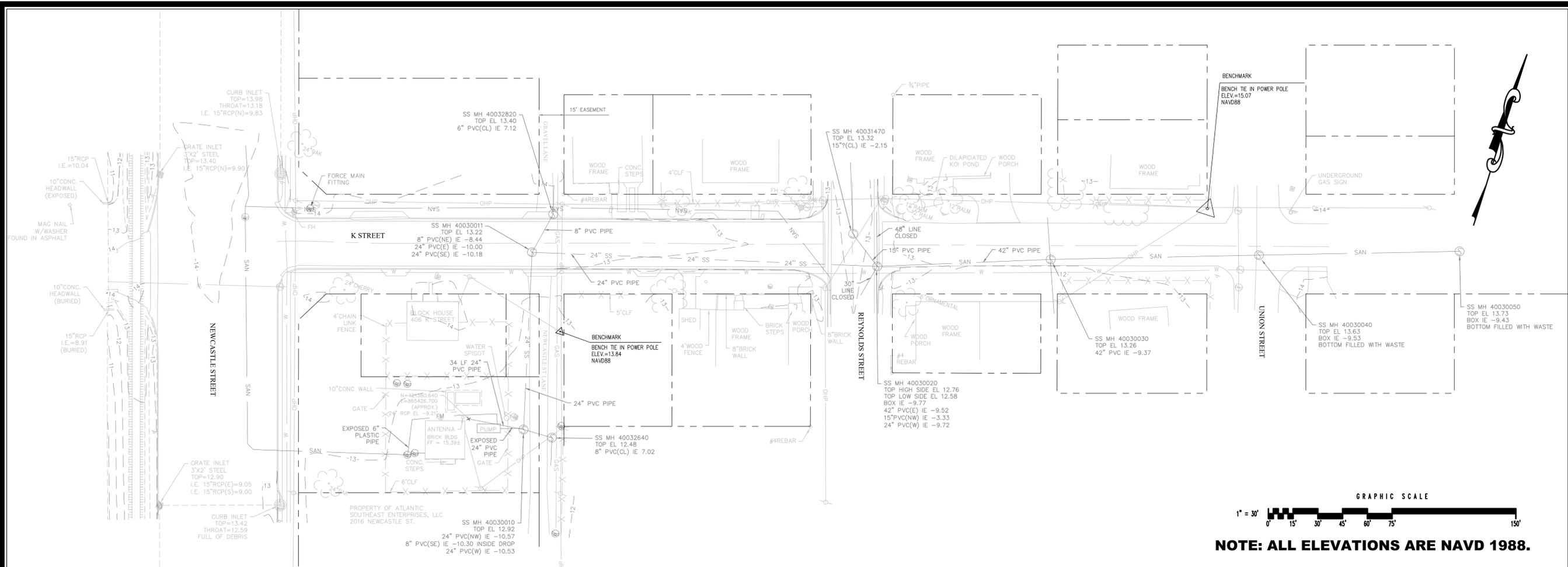
**LIFT STATION 4003 UPGRADE**  
JOINT WATER & SEWER COMMISSION PROJECT #705-SPOST 2016  
FOR THE  
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JOINT WATER & SEWER COMMISSION

**PROJECT MAP - LEGEND - GENERAL NOTES**

DRAWING NUMBER  
**02**



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 SCALE: 1" = 30'

**LIFT STATION 4003 UPGRADE**  
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 FOR THE  
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**EXISTING SEWER PLAN & PROFILE**

DRAWING NUMBER  
03

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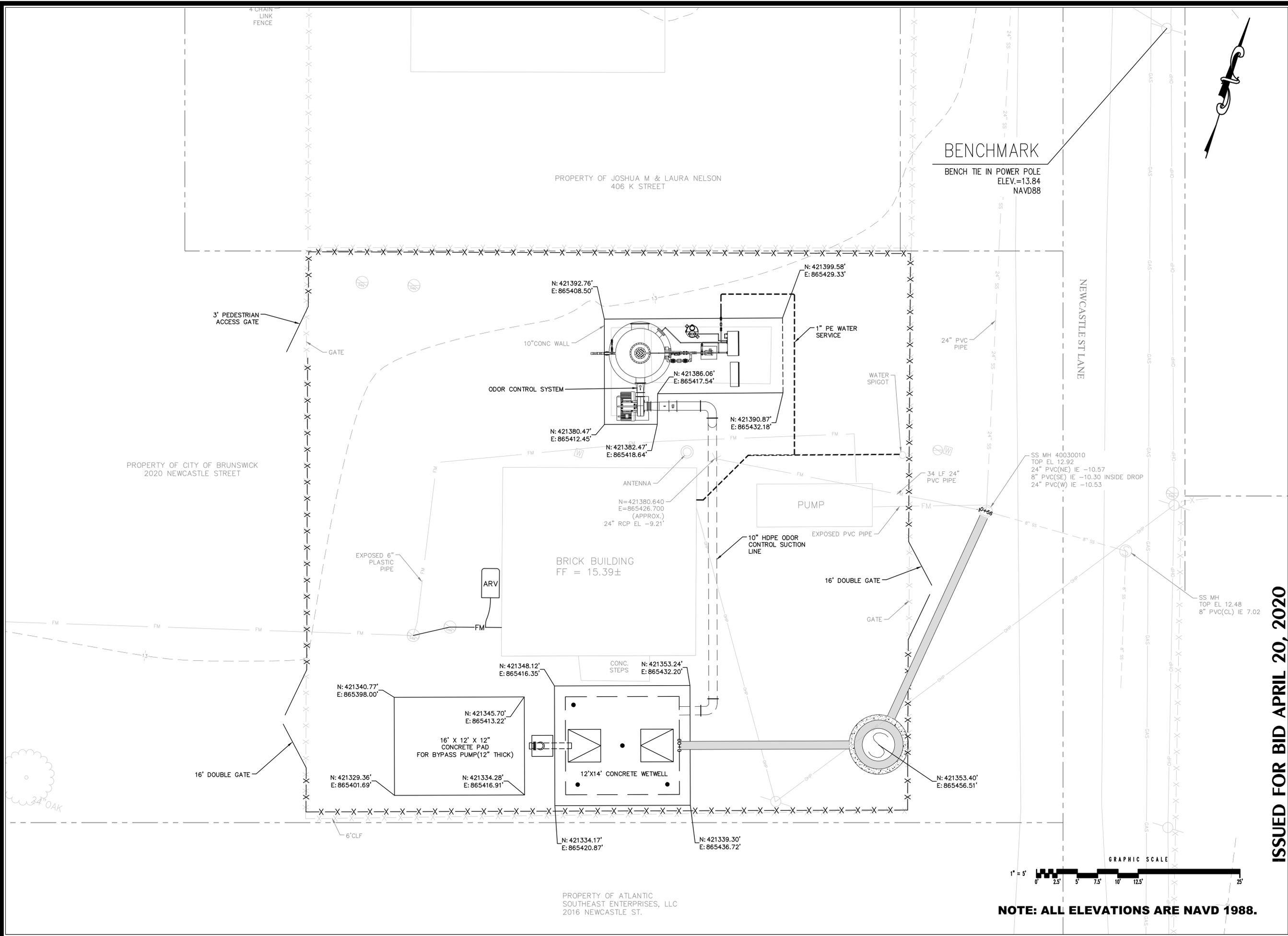
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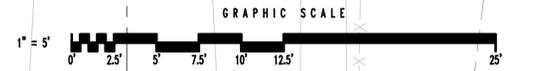
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**STAKING PLAN**

DRAWING NUMBER  
**05**

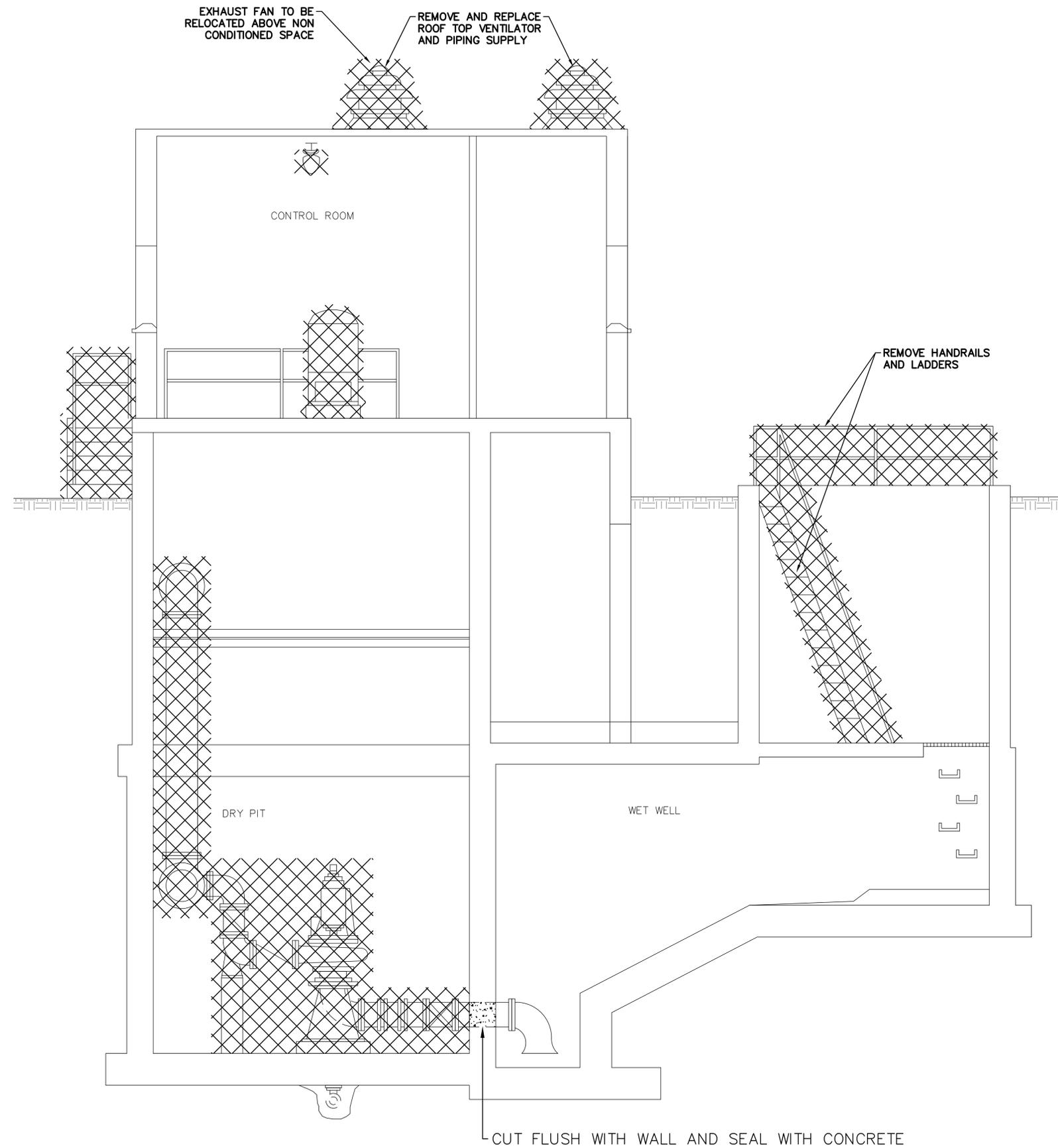
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**NOTE: ALL ELEVATIONS ARE NAVD 1988.**



EXISTING LIFT STATION  
SECTION VIEW  
SCALE: 3/8" = 1'-0"

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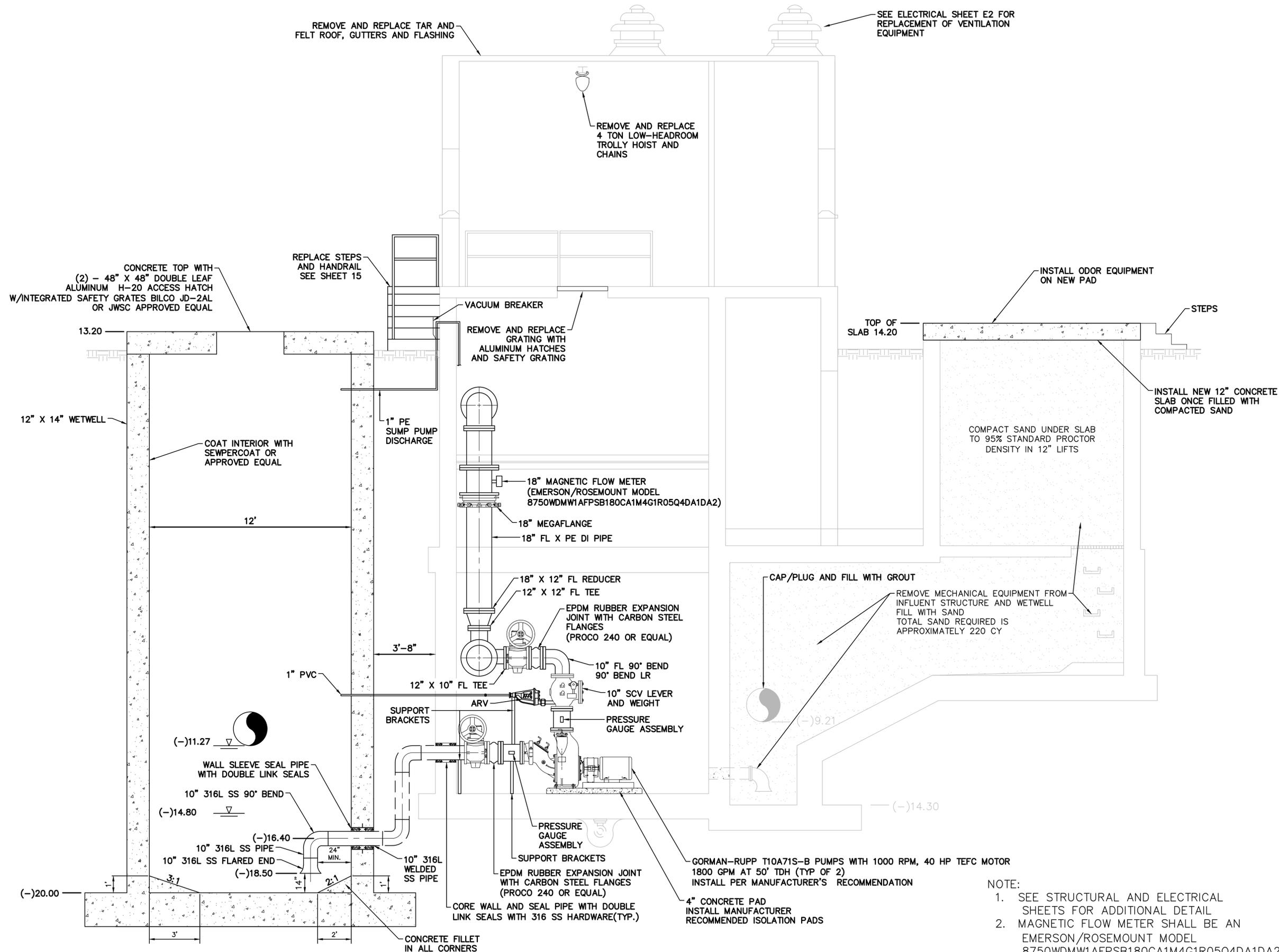
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SCALE: 3/8" = 1'		

**LIFT STATION 4003 UPGRADE**  
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**PUMP DEMOLITION PLAN**

DRAWING NUMBER  
**06**



REMOVE AND REPLACE TAR AND FELT ROOF, GUTTERS AND FLASHING

SEE ELECTRICAL SHEET E2 FOR REPLACEMENT OF VENTILATION EQUIPMENT

REMOVE AND REPLACE 4 TON LOW-HEADROOM TROLLEY HOIST AND CHAINS

CONCRETE TOP WITH (2) - 48" X 48" DOUBLE LEAF ALUMINUM H-20 ACCESS HATCH W/INTEGRATED SAFETY GRATES BILCO JD-2AL OR JWSC APPROVED EQUAL

REPLACE STEPS AND HANDRAIL SEE SHEET 15

INSTALL ODOR EQUIPMENT ON NEW PAD

VACUUM BREAKER  
REMOVE AND REPLACE GRATING WITH ALUMINUM HATCHES AND SAFETY GRATING

TOP OF SLAB 14.20

STEPS

INSTALL NEW 12" CONCRETE SLAB ONCE FILLED WITH COMPACTED SAND

COMPACT SAND UNDER SLAB TO 95% STANDARD PROCTOR DENSITY IN 12" LIFTS

12" X 14" WETWELL

COAT INTERIOR WITH SEWPERCOAT OR APPROVED EQUAL

1" PE SUMP PUMP DISCHARGE

18" MAGNETIC FLOW METER (EMERSON/ROSEMOUNT MODEL 8750WDMW1AFPSB180CA1M4G1R05Q4DA1DA2)

18" MEGAFLANGE  
18" FL X PE DI PIPE

CAP/PLUG AND FILL WITH GROUT

REMOVE MECHANICAL EQUIPMENT FROM INFLUENT STRUCTURE AND WETWELL FILL WITH SAND TOTAL SAND REQUIRED IS APPROXIMATELY 220 CY

18" X 12" FL REDUCER  
12" X 12" FL TEE  
EPDM RUBBER EXPANSION JOINT WITH CARBON STEEL FLANGES (PROCO 240 OR EQUAL)

10" FL 90° BEND 90° BEND LR  
10" SCV LEVER AND WEIGHT  
PRESSURE GAUGE ASSEMBLY

1" PVC

SUPPORT BRACKETS

ARV

(-)11.27

WALL SLEEVE SEAL PIPE WITH DOUBLE LINK SEALS

10" 316L SS 90° BEND (-)14.80

10" 316L SS PIPE (-)16.40

10" 316L SS FLARED END (-)18.50

(-)20.00

24" MIN.

14"

2"

CONCRETE FILLET IN ALL CORNERS

PRESSURE GAUGE ASSEMBLY  
SUPPORT BRACKETS  
EPDM RUBBER EXPANSION JOINT WITH CARBON STEEL FLANGES (PROCO 240 OR EQUAL)

CORE WALL AND SEAL PIPE WITH DOUBLE LINK SEALS WITH 316 SS HARDWARE(TYP.)

GORMAN-RUPP T10A71S-B PUMPS WITH 1000 RPM, 40 HP TEFC MOTOR 1800 GPM AT 50' TDH (TYP OF 2) INSTALL PER MANUFACTURER'S RECOMMENDATION

4" CONCRETE PAD INSTALL MANUFACTURER RECOMMENDED ISOLATION PADS

SECTION A-A VIEW  
SCALE: 3/8" = 1'-0"

NOTE:

1. SEE STRUCTURAL AND ELECTRICAL SHEETS FOR ADDITIONAL DETAIL
2. MAGNETIC FLOW METER SHALL BE AN EMERSON/ROSEMOUNT MODEL 8750WDMW1AFPSB180CA1M4G1R05Q4DA1DA2
3. UNIT HEATER TO BE REMOVED AND REPLACED



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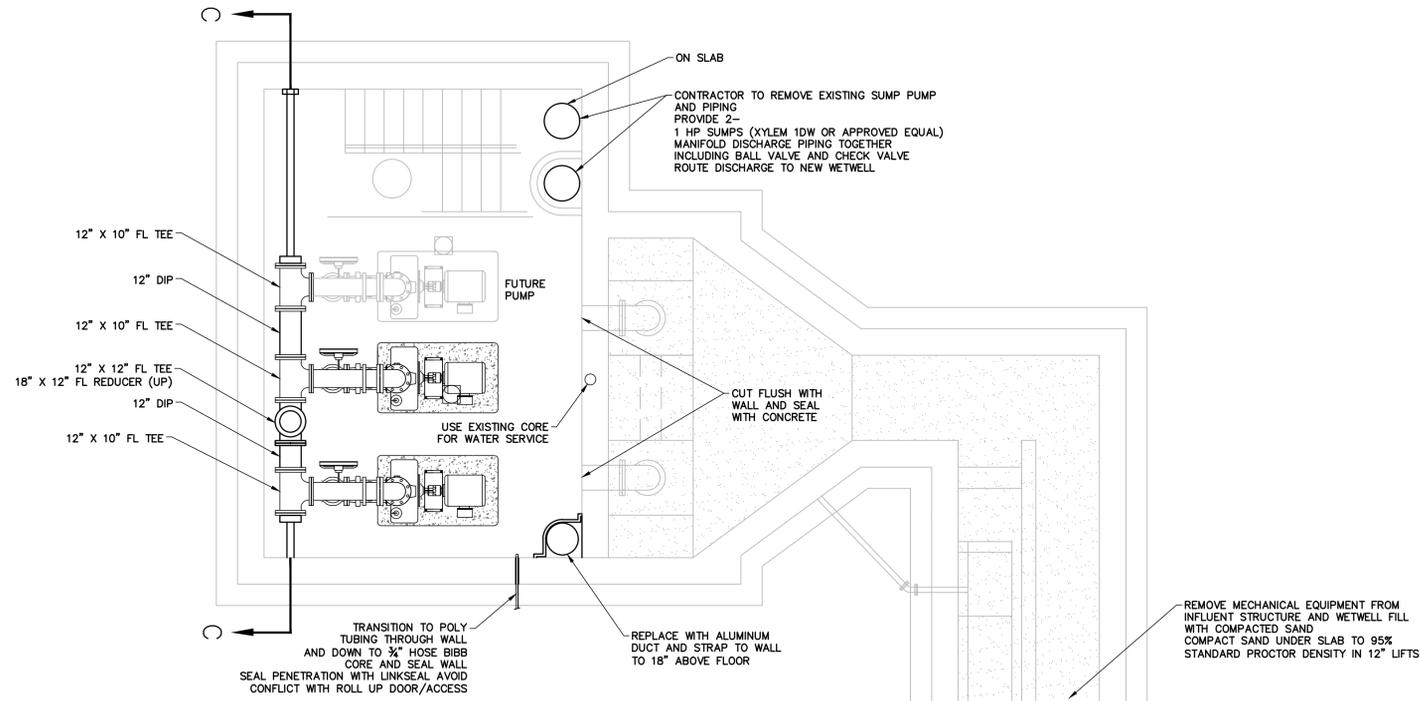
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**LIFT STATION SECTION**

DRAWING NUMBER  
**07**

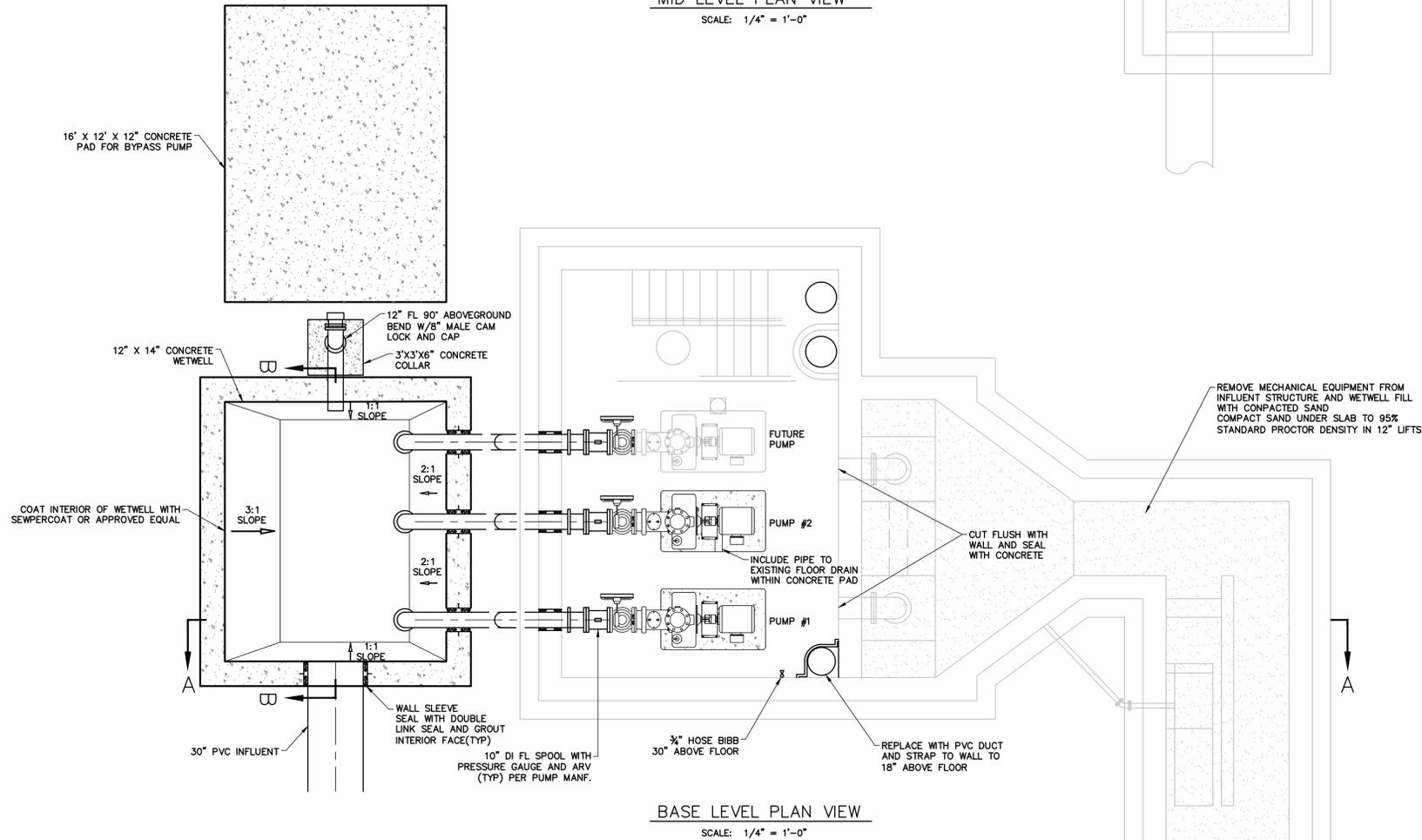
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MID LEVEL PLAN VIEW  
SCALE: 1/4" = 1'-0"



BASE LEVEL PLAN VIEW  
SCALE: 1/4" = 1'-0"

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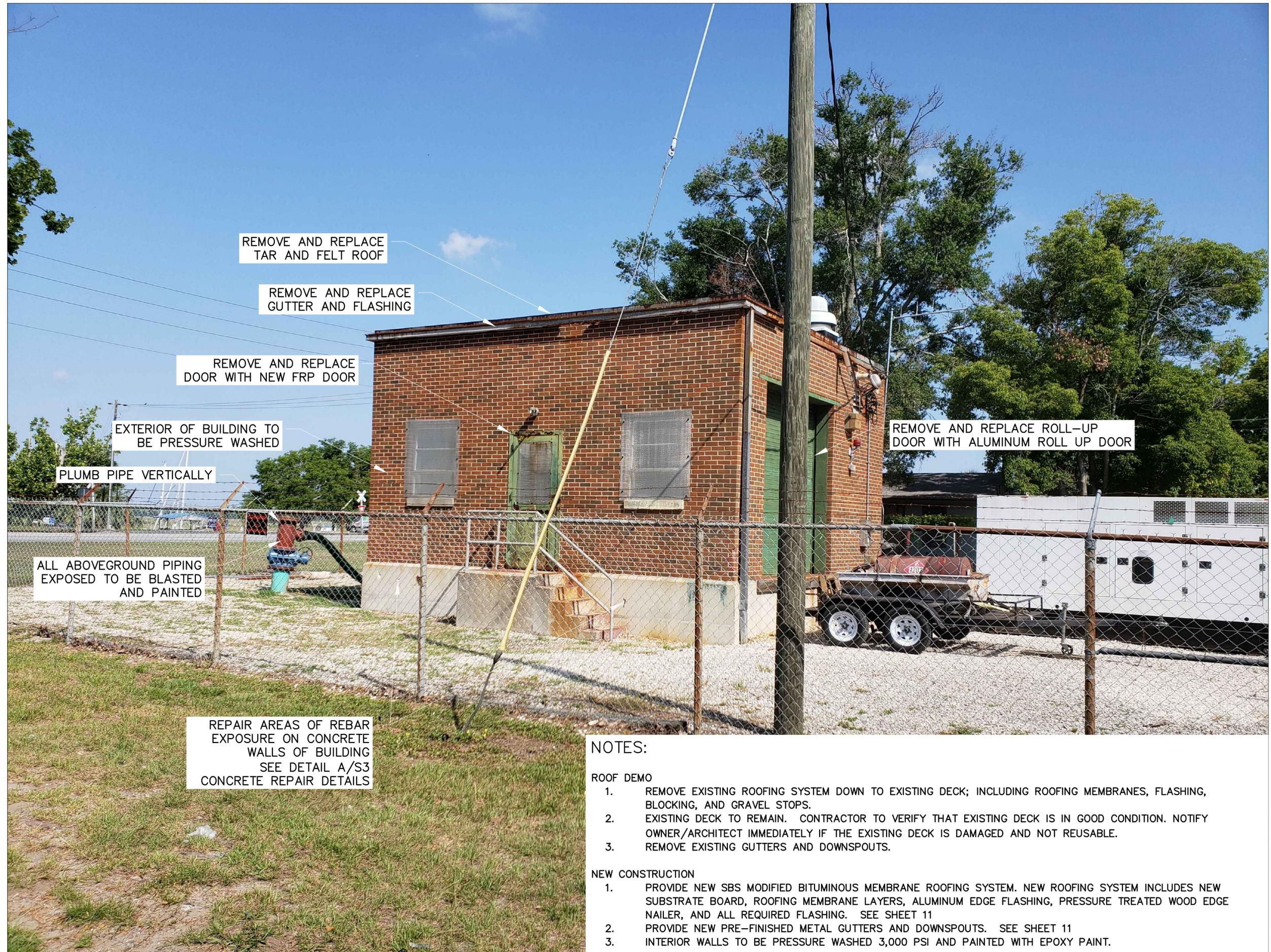
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**BASE AND MID LEVEL PLAN VIEW**

DRAWING NUMBER

09



REMOVE AND REPLACE  
TAR AND FELT ROOF

REMOVE AND REPLACE  
GUTTER AND FLASHING

REMOVE AND REPLACE  
DOOR WITH NEW FRP DOOR

EXTERIOR OF BUILDING TO  
BE PRESSURE WASHED

PLUMB PIPE VERTICALLY

ALL ABOVEGROUND PIPING  
EXPOSED TO BE BLASTED  
AND PAINTED

REPAIR AREAS OF REBAR  
EXPOSURE ON CONCRETE  
WALLS OF BUILDING  
SEE DETAIL A/S3  
CONCRETE REPAIR DETAILS

REMOVE AND REPLACE ROLL-UP  
DOOR WITH ALUMINUM ROLL UP DOOR

**NOTES:**

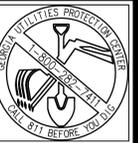
**ROOF DEMO**

1. REMOVE EXISTING ROOFING SYSTEM DOWN TO EXISTING DECK; INCLUDING ROOFING MEMBRANES, FLASHING, BLOCKING, AND GRAVEL STOPS.
2. EXISTING DECK TO REMAIN. CONTRACTOR TO VERIFY THAT EXISTING DECK IS IN GOOD CONDITION. NOTIFY OWNER/ARCHITECT IMMEDIATELY IF THE EXISTING DECK IS DAMAGED AND NOT REUSABLE.
3. REMOVE EXISTING GUTTERS AND DOWNSPOUTS.

**NEW CONSTRUCTION**

1. PROVIDE NEW SBS MODIFIED BITUMINOUS MEMBRANE ROOFING SYSTEM. NEW ROOFING SYSTEM INCLUDES NEW SUBSTRATE BOARD, ROOFING MEMBRANE LAYERS, ALUMINUM EDGE FLASHING, PRESSURE TREATED WOOD EDGE NAILER, AND ALL REQUIRED FLASHING. SEE SHEET 11
2. PROVIDE NEW PRE-FINISHED METAL GUTTERS AND DOWNSPOUTS. SEE SHEET 11
3. INTERIOR WALLS TO BE PRESSURE WASHED 3,000 PSI AND PAINTED WITH EPOXY PAINT.

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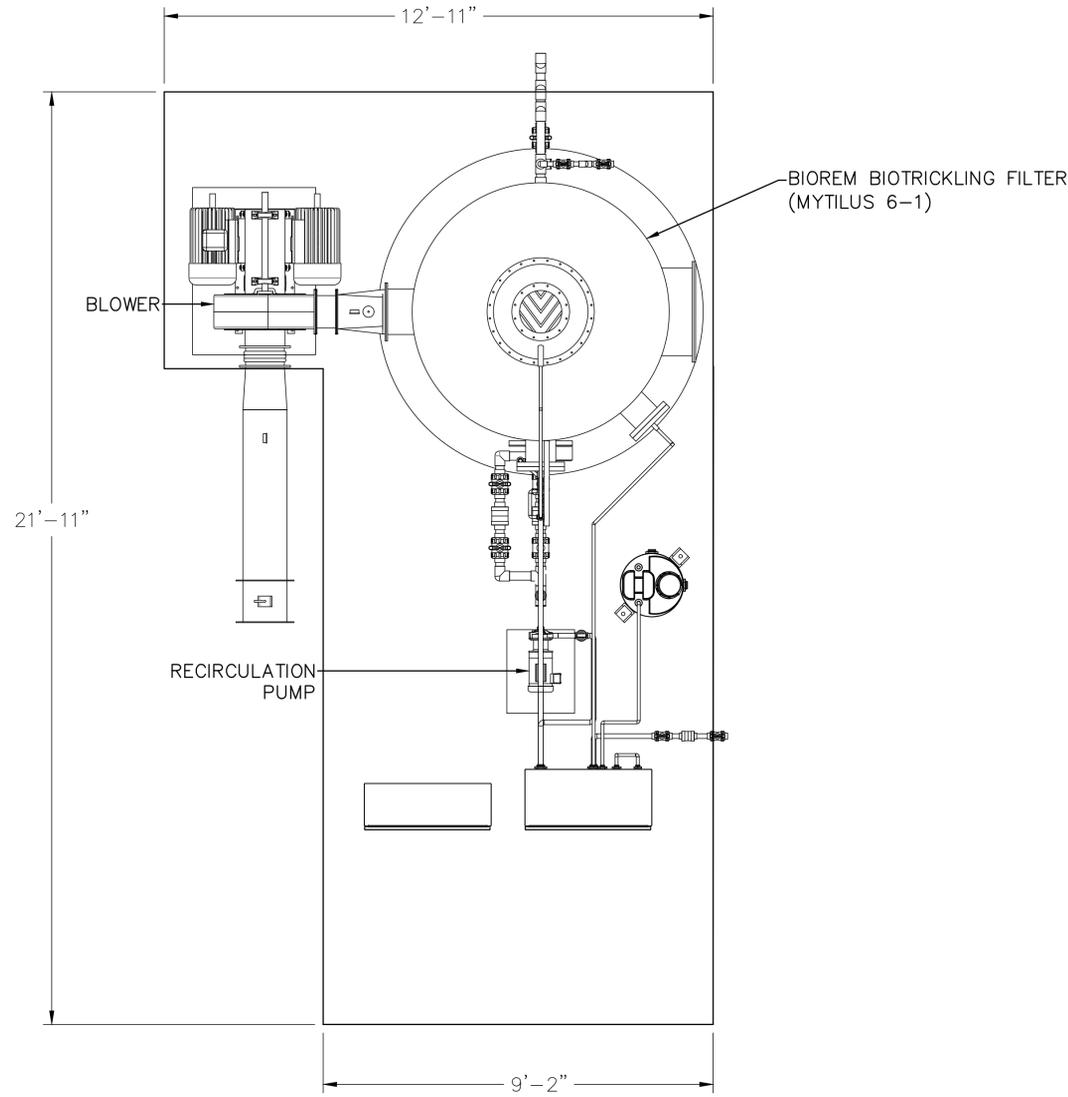

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**BUILDING EXTERIOR IMPROVEMENTS**

DRAWING NUMBER  
**10**







**BIOTRICKLING FILTER SYSTEM**

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**BIOTRICKLING FILTER SYSTEM**

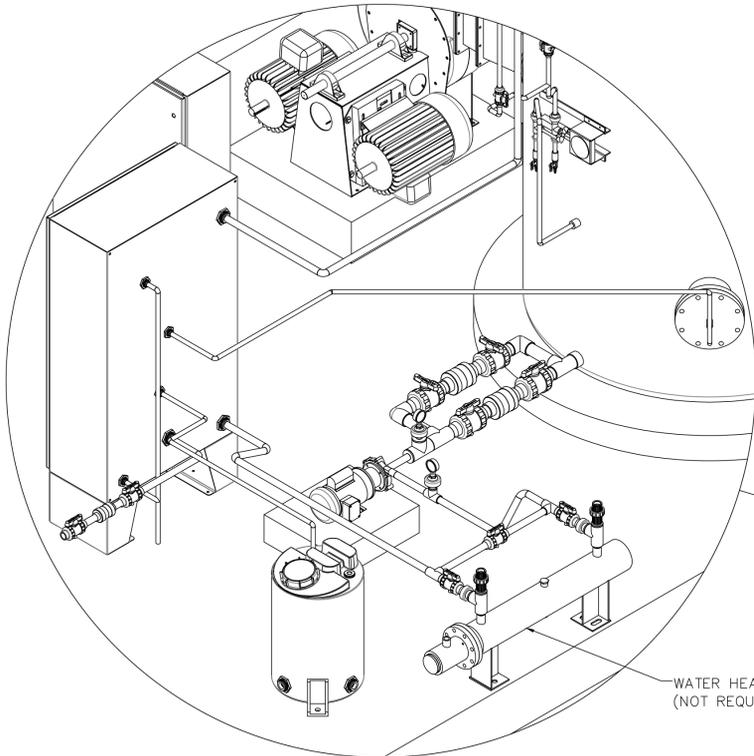
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**13**

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SCALE: 6" = 1'		

REVISIONS:


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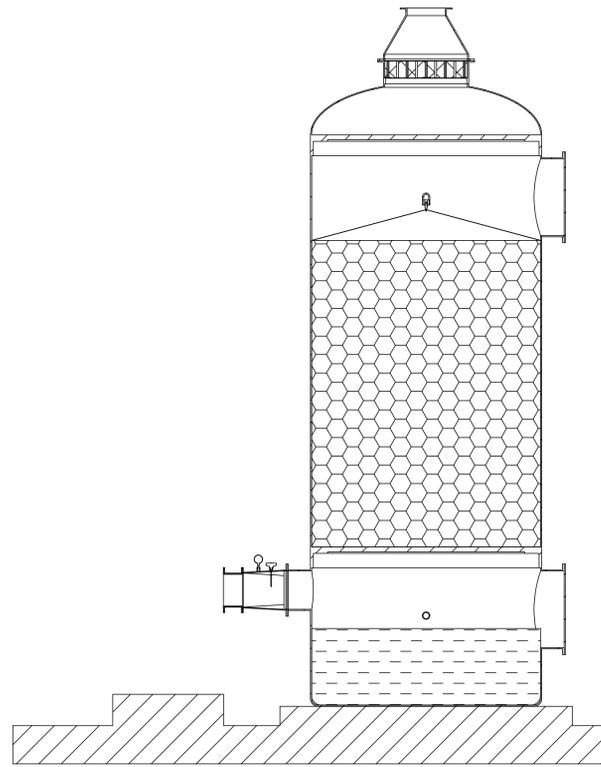




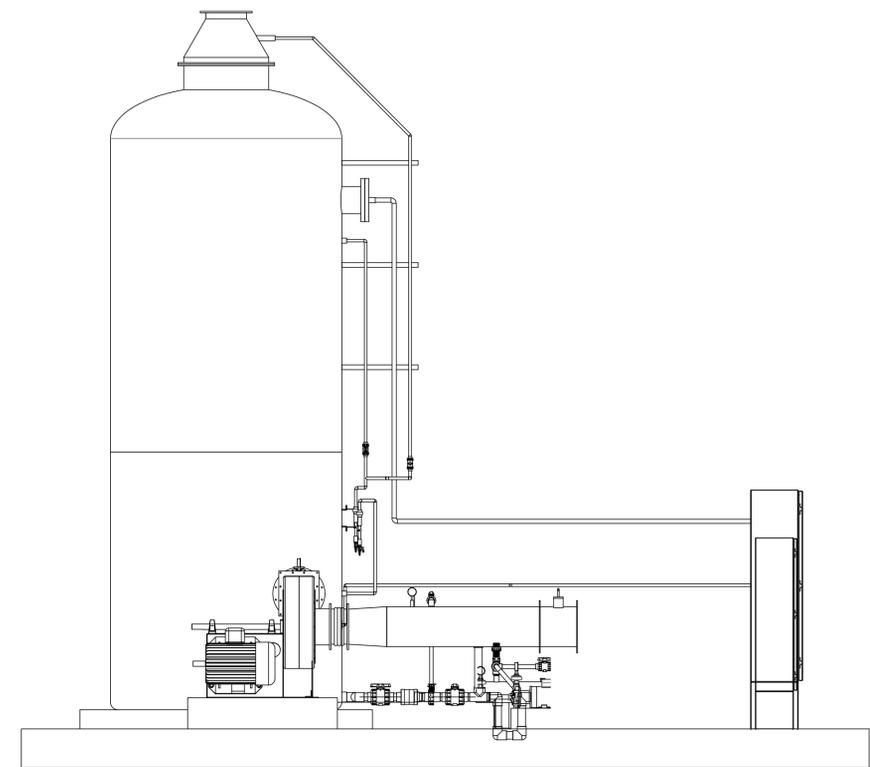
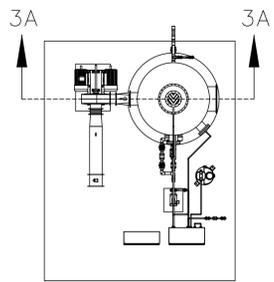
WATER HEATER (OPTIONAL)  
(NOT REQUIRED FOR THIS PROJECT)

DETAIL 4A  
NOT TO SCALE

1. ALL GASKETS (TO BE EPDM), HARDWARE, PVC PIPING, DUCTWORK AND SUPPORTS FOR INTERCONNECTING DUCTWORK & PIPING BY OTHERS.
2. ALL ANCHORAGE HARDWARE BY OTHERS.
3. ALL EXPOSED PIPING AND PUMP CAVITIES TO BE HEAT TRACED & INSULATED, IF REQUIRED, BY OTHERS.
4. VESSEL, FAN & WATERBOX HOUSEKEEPING PADS BY OTHERS
5. SEE ASSEMBLY DRAWINGS BTF-6-1-SA-500 FOR WATERBOX PANEL DETAILS. DRAWING TO BE PROVIDED BY MANUFACTURER.
6. SEE DRAWING BTF-6-1-SA-250 FOR HUMIDIFIER IRRIGATION SPOOL DETAILS, AND BTF-6-1-SA-450 FOR BIOFILTER IRRIGATION MANIFOLD DETAILS. DRAWING TO BE PROVIDED BY MANUFACTURER.
7. REFER TO P & ID DRAWING(S) BTF-6-A-D-100 FOR SYSTEM INSTRUMENTATION & PROCESS FLOW DIAGRAM. DRAWING TO BE PROVIDED BY MANUFACTURER.
8. WATERBOX & ELECTRICAL CONTROL PANEL TO BE A MINIMUM DISTANCE OF 3 FT FROM ANY FOUL AIR SOURCE IN ACCORDANCE WITH NFPA 820 VENTILATION "C" AREA STANDARDS.
9. CONTRACTOR IS RESPONSIBLE FOR ANY/ALL FIELD CUTTING (IF REQUIRED)
10. THE EQUIPMENT ARRANGEMENT ON THIS SHEET IS SHOWN FOR INFORMATIONAL PURPOSES ONLY. SEE PLAN VIEW ON SHEET E1 FOR EQUIPMENT ARRANGEMENT.



SECTION 3A-3A  
NOT TO SCALE



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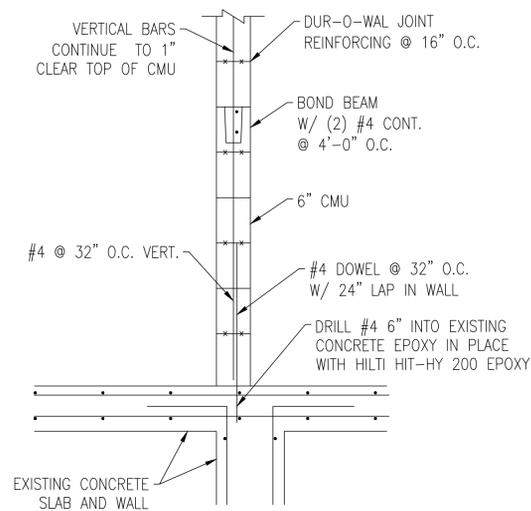
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JOB NO. 119291605		
SCALE: NOT TO SCALE		

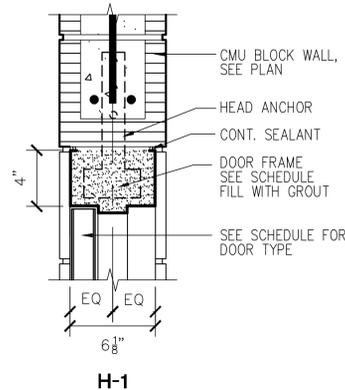
**LIFT STATION 4003 UPGRADE**  
 JOINT WATER & SEWER COMMISSION PROJECT #705-SPLOST 2016  
 FOR THE  
 BRUNSWICK-GLYNN COUNTY  
 JOINT WATER & SEWER COMMISSION  
**ODOR CONTROL SECTIONS AND NOTES**

DRAWING NUMBER  
**14**

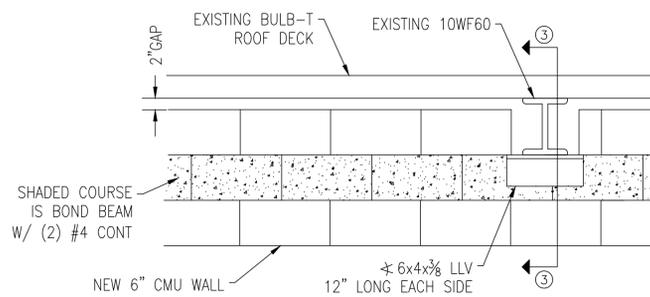




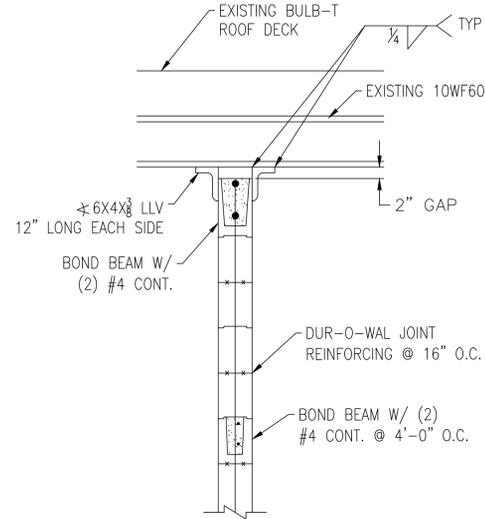
**CMU TO ROOF DECK SECTION 1** NTS



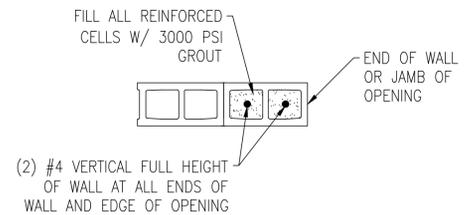
**CMU TO ROOF DECK SECTION 2** NTS



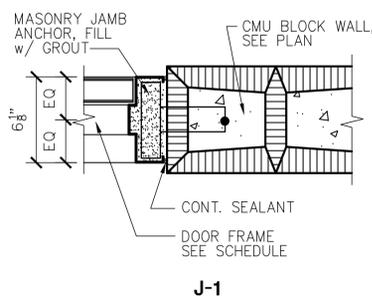
**CMU TO ROOF DECK SECTION 3** NTS



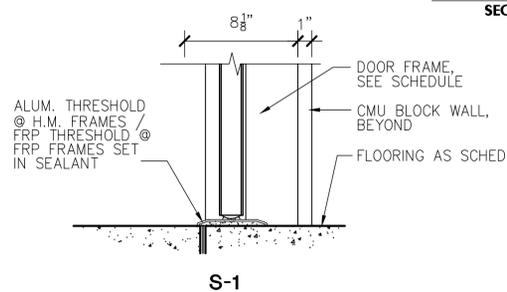
**TYPICAL END OF WALL / DOOR JAMB** NTS



**TYPICAL DOOR HEADER** NTS



**HEAD, JAMB & SILL DETAILS** NTS



**S-1**

DOOR SCHEDULE														
MARK	DOOR						FRAME			FINISH		FIRE RATING	REMARKS	
	WIDTH	HT	THK	MAT	TYPE	MAT	TYPE	HEAD	JAMB	SILL	DOOR			FRAME
100	3'-0"	7'-0"	1 3/4"	FRP	B	FRP	B	H-1	J-1	S-1	PT	PT	--	
101	3'-0"	7'-0"	1 3/4"	FRP	A	FRP	B	H-1	J-1	S-1	PT	PT	--	

**DOOR HARDWARE**

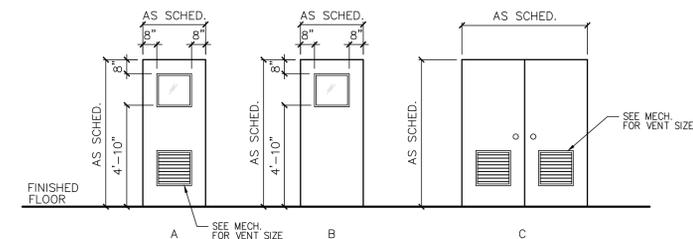
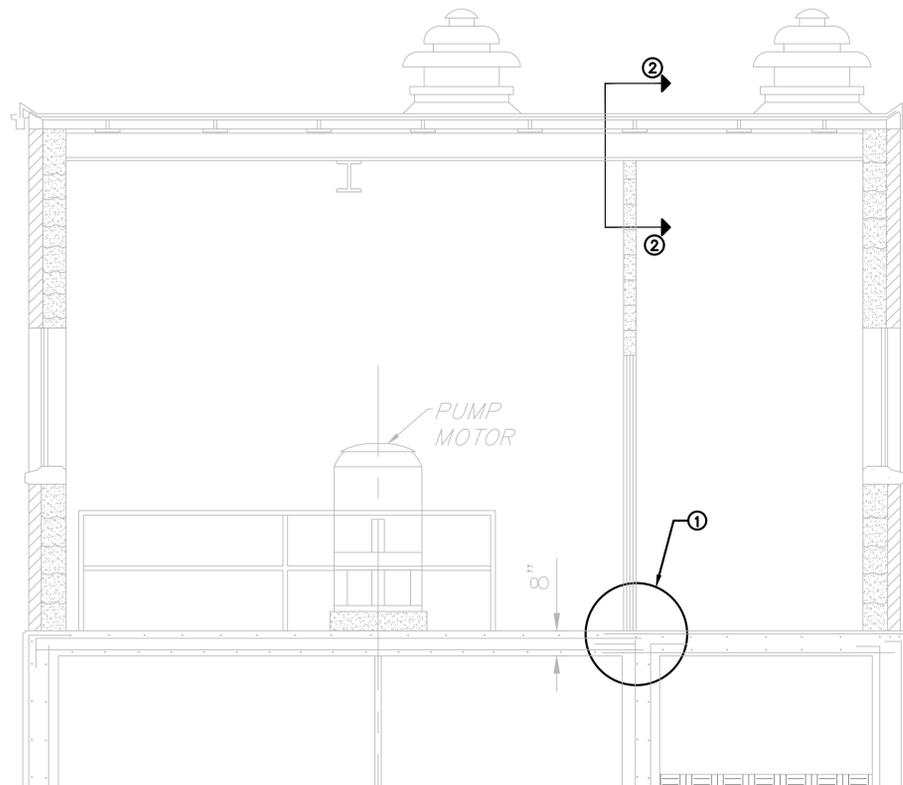
EACH DOOR TO RECEIVE:

3	EA	HINGE	BB5002 450 N 630	BO
1	EA	DORMITORY/EXIT LOCK	DG163 63 8245 LNJ US32D	SA
1	EA	SURFACE CLOSER	P1601SS TBGN	NO
1	EA	THRESHOLD	1716A 36"	PE
1	EA	GASKETING	5880 17"	PE
1	EA	SWEEP	315CN 36"	PE

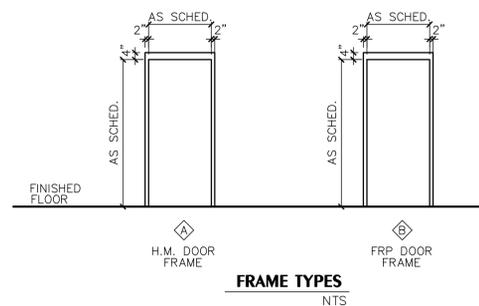
H.M. DOOR FRAMES TO RECEIVE ALUMINUM THRESHOLD.  
FRP DOOR FRAMES TO RECEIVE FRP THRESHOLD.

**NOTES:**

- ALL MASONRY WORK SHALL BE IN ACCORDANCE WITH ACI 530.
- ALL CMU SHALL BE FM = 1500 LIGHTWEIGHT ASTM C90.
- MASONRY SHALL BE INSTALLED IN A RUNNING BOND PATTERN, UNLESS SPECIFICALLY NOTED OTHERWISE ON THE STRUCTURAL OR ARCHITECTURAL PLANS.
- FILL ALL REINFORCED MASONRY UNITS, ALL UNITS BELOW GRADE, AND ALL UNITS SUPPORTING SOIL WITH 3000 PSI GROUT PER ASTM C476.
- GROUT LIFTS IN VERTICAL CELLS SHALL NOT EXCEED 4'-0".
- MORTAR FOR MASONRY SHALL BE ASTM C270 TYPE "S". MASONRY JOINTS SHALL BE 3/8" THICK FULL BED ON ALL HORIZONTAL AND VERTICAL JOINTS.
- HORIZONTAL JOINT REINFORCEMENT SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A153 CLASS B2.
- SEE OTHER DISCIPLINES' DRAWINGS FOR SIZE AND LOCATION OF OPENINGS.
- THE CONTRACTOR SHALL TAKE ADDITIONAL PRECAUTIONS WHEN MASONRY IS TO BE CONSTRUCTED DURING COLD WEATHER (AMBIENT TEMPERATURE BELOW 40 DEGREES FAHRENHEIT). DURING HOT CONDITIONS (ABOVE 90 DEGREES FAHRENHEIT) PRECAUTIONS SHALL BE TAKEN TO MINIMIZE EXCESS HEAT IN THE MASONRY UNITS, WATER AND MORTAR. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDATION PRESCRIBED BY THE PORTLAND CEMENT ASSOCIATION FOR COLD OR HOT WEATHER CONSTRUCTION.
- ALL VERTICAL AND HORIZONTAL REBAR SHALL BE THE SAME SIZE AS SHOWN ON THE STRUCTURAL PLANS AS THE MAIN WALL REINFORCING.
- DO NOT LOCATE MORE THAN 1 VERTICAL BAR IN EACH CELL UNLESS SPECIFICALLY DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS.
- PROVIDE REBAR SPACERS IN THE WALL TO SUPPORT AND HOLD THE VERTICAL REBAR IN THE CENTER OF THE CELL SPACED NOT MORE THAN 48" ON CENTER.
- PROVIDE 2 VERTICAL BARS AT EACH END OF THE WALLS. THESE VERTICAL BARS SHALL BE LOCATED WITHIN 16 INCHES OF THE END OF THE WALL. UNLESS SHOWN OTHERWISE ON THE STRUCTURAL PLANS.
- PROVIDE 2 VERTICAL BARS EACH SIZE OF ALL OPENING IN THE MASONRY WALL. UNLESS SHOWN OTHERWISE ON THE STRUCTURAL PLANS.
- PROVIDE 1 BOND BEAM OVER AND UNDER ALL MASONRY OPENINGS. THESE BOND BEAMS SHALL HAVE A MINIMUM OF 2 HORIZONTAL REBARS. EXTEND THE BOND BEAM 16 INCHES BEYOND THE EDGES OF THE OPENING
- PROVIDE BOND BEAMS IN THE WALL WITH 2 HORIZONTAL BARS SPACED NOT MORE THAN 4'-0" O.C. VERTICALLY. VENEER.
- IN SEISMIC DESIGN CATEGORY "E" STRUCTURES PROVIDE A CONTINUOUS, SINGLE-WIRE JOINT REINFORCEMENT OF MINIMUM WIRE SIZE W1.7 AT A SPACING OF 16" O.C. IN BRICK VENEER. MECHANICALLY ATTACH THIS WIRE TO THE BRICK VENEER ANCHORS.



**DOOR TYPES** NTS



**FRAME TYPES** NTS

**ISSUED FOR BID APRIL 20, 2020**



**HUSSEY GAY BELL**  
Established 1958  
329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T: 912.354.4626

REVISIONS:

DESIGNED	DRAWN	CHECKED
JCB	SK	JCB
DATE: APRIL 2020		
JOB NO. 119291605		
SCALE: NOT TO SCALE		

**LIFT STATION 4003 UPGRADE**  
JOINT WATER & SEWER COMMISSION PROJECT #705-SPL0ST 2016  
FOR THE  
BRUNSWICK-GLYNN COUNTY  
JOINT WATER & SEWER COMMISSION  
**MISCELLANEOUS DETAILS**

DRAWING NUMBER

**16**

GENERAL NOTES:

- 1) CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE PRIOR TO STARTING WORK AND SHALL NOTIFY THE ARCHITECT AND/OR STRUCTURAL ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY EXISTING SITE CONDITIONS THAT ARE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS.
- 2) ALL REFERENCED STANDARDS REFER TO THE LATEST EDITION.
- 3) DESIGN CRITERIA:
  - A) BUILDING CODE: IBC 2018 WITH GEORGIA AMENDMENTS
  - B) FLOOR LIVE LOAD: 100 PSF, WETWELL CAP DESIGNED FOR H-20 LOADING
  - C) ROOF LIVE LOAD: 20 PSF
  - D) GROUND SNOW LOAD: 0 PSF
  - E) RISK CATEGORY: III
  - F) WIND LOAD DATA:
    - a) V: 142 MPH
    - b) WIND EXPOSURE FRONT: B
    - c) WIND EXPOSURE BACK: B
    - d) INTERNAL PRESSURE COEFF: + - .18
    - e) EDGE ZONE DISTANCE: 3'-0"
    - f) COMPONENTS AND CLADDING LOADS (PSF):
 

I) ROOF INTERIOR ZONE:	9.60	-21.76
II) ROOF EDGE ZONE:	9.60	-36.52
III) ROOF CORNER EDGE ZONE:	9.60	-54.96
IV) WALL INTERIOR ZONE:	19.92	-21.58
V) WALL EDGE ZONE:	19.92	-26.56
  - G) EARTHQUAKE DESIGN DATA:
    - a) SEISMIC IMPORTANCE FACTOR: 1.25
    - b) Ss: 0.158
    - c) S1: 0.073
    - d) Sds: 0.169
    - e) Sd1: 0.117
    - f) SITE CLASS: D
    - g) SEISMIC DESIGN CATEGORY: B
    - h) RESPONSE MODIFICATION FACTOR R: N/A EXISTING BUILDING
    - i) SEISMIC RESPONSE COEFFICIENT Cs: N/A EXISTING BUILDING
    - j) BASIC SEISMIC FORCE RESISTING SYSTEM: N/A EXISTING BUILDING
    - k) DESIGN BASE SHEAR: N/A EXISTING BUILDING
    - l) ANALYSIS PROCEDURE: N/A EXISTING BUILDING
    - H) FLOOD LOADS: NOT APPLICABLE
    - I) DESIGN SOIL BEARING PRESSURE: N/A EXISTING BUILDING
- 4) THE DESIGN LOADING INFORMATION PROVIDED IS FOR INFORMATIONAL PURPOSES ONLY. ALL COMPONENTS, CLADDING, FINISHES, VENEERS, MECHANICAL UNITS, ARCHITECTURAL FEATURES, ETC. SHALL BE DESIGNED FOR ADEQUATE CONNECTIVE CAPABILITY UNDER CODE SPECIFIED LOADING. THESE MANUFACTURER'S SHALL BE RESPONSIBLE TO DETERMINE THE REQUIRED LOADING CONDITIONS FOR THEIR PRODUCT, INCLUDING ANY SUPERIMPOSED LOADS, DEAD LOADS, CONCENTRATED LOADS AND ANY LOADS SHOWN ON THE PLANS.
- 5) CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL DISCIPLINES, INCLUDING BUT NOT LIMITED TO GROUNDING WIRES, CONDUITS, PIPE AND DUCT PENETRATIONS, ELECTRICAL, MECHANICAL AND PLUMBING OPENINGS, EQUIPMENT LOADS, ETC. SEE ARCHITECTURAL, CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR ITEMS NOW SHOWN ON THE STRUCTURAL DRAWINGS.
- 6) THE CONTRACTOR SHALL PROTECT ANY EXISTING FACILITIES, UTILITIES OR STRUCTURES FROM ALL DAMAGE.
- 7) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND ERECTION OF ALL TEMPORARY BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION.
- 8) CONTRACT DRAWINGS, DOCUMENTS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, SHORING AND TEMPORARY BRACING.
- 9) DO NOT SCALE THE DRAWINGS.
- 10) THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THE SAFETY OF ALL PERSONS AND STRUCTURES AT THE SITE AND ADJACENT TO THE SITE. VISITS TO THE SITE BY THE STRUCTURAL ENGINEER OR THE STRUCTURAL ENGINEER'S REPRESENTATIVE SHALL NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY.
- 11) CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER AND ARCHITECT OF ANY UNUSUAL AND OR EXCESSIVE LOADS DUE TO EQUIPMENT OR CONSTRUCTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OR ARCHITECT OF ANY LOADS FROM EQUIPMENT THAT ARE DIFFERENT FROM THE DESIGN LOADS SHOWN ON THESE PLANS.

GENERAL NOTES (CONT):

- 12) THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL CONSTRUCT THIS PROJECT IN ACCORDANCE WITH ALL APPLICABLE BUILDING CODES AND ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS.
- 13) WORK NOT INDICATED AS PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT AT CORRESPONDING PLACES SHALL BE REPEATED.
- 14) IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS, THE MORE RIGID REQUIREMENT SHALL BE ASSUMED TO GOVERN UNTIL A RULING IS MADE BY THE ARCHITECT/ENGINEER.
- 15) THE CONTRACTOR SHALL REFER TO ELECTRICAL, MECHANICAL, ARCHITECTURAL AND OTHER DISCIPLINES' DRAWINGS FOR LOCATIONS OF ALL OPENINGS. CONTRACTOR IS RESPONSIBLE TO COORDINATE THESE DRAWINGS WITH THE DRAWINGS OF OTHER DISCIPLINES. THE STRUCTURAL ENGINEER AND ARCHITECT SHALL BE IMMEDIATELY NOTIFIED OF ANY OPENINGS FOUND BY THIS COORDINATION THAT ARE REQUIRED IN THE STRUCTURAL MEMBERS. NO CUTS OR MODIFICATIONS OF ANY MEMBERS SHALL BE MADE THAT ARE NOT APPROVED BY THE STRUCTURAL ENGINEER.
- 16) THE ENGINEER'S APPROVAL OF SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS. DEVIATION FROM THE CONTRACT DOCUMENTS SHALL BE SUBMITTED SEPARATELY FOR APPROVAL.
- 17) THE CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS IN A TIMELY MANNER, ALLOWING THE ENGINEER AT LEAST TWO WEEKS TO REVIEW THE SHOP DRAWINGS. THE CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS IN A DIGITAL PDF FORMAT. ANY ITEMS NOT SPECIFICALLY DESIGNED OR DETAILED ON THESE DESIGN DRAWINGS SHALL BE SUBMITTED WITH CALCULATIONS TO THE STRUCTURAL ENGINEER FOR REVIEW.
- 18) PRIOR TO SUBMITTING ANY ITEMS FOR APPROVAL, INCLUDING SHOP DRAWINGS, THE CONTRACTOR SHALL REVIEW THE MATERIALS AND COORDINATE ALL TRADES. ALL COORDINATION REQUIREMENTS SHALL BE NOTED ON THE SUBMITTALS. NO SUBMITTALS OR OTHER ITEMS FOR REVIEW SHALL BE FORWARDED TO THE STRUCTURAL ENGINEER OR ARCHITECT UNTIL THEY HAVE BEEN REVIEWED AND APPROVED BY THE CONTRACTOR.
- 19) SUBMITTALS SHALL NOT BE THE REPRODUCTION OF THE CONTRACT DOCUMENTS.
- 20) THE CONTRACTOR SHALL NOT PROCEED WITH FABRICATION WITHOUT APPROVED SHOP DRAWINGS.
- 21) THE CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF ALL SLOTS, PIPE SLEEVES, ANCHOR BOLTS, ETC. AS REQUIRED FOR ALL TRADES PRIOR TO CONSTRUCTION.
- 22) SEE MECHANICAL, PLUMBING, FIRE PROTECTION, HVAC, ELECTRICAL AND OTHER TRADES DRAWINGS FOR ADDITIONAL INFORMATION AFFECTING THE STRUCTURAL WORK, INCLUDING:
  - A) HANGERS, SUSPENDED PIPING, SUSPENDED EQUIPMENT, SUSPENDED DUCT WORK.
  - B) ELECTRICAL CONDUIT, ELECTRICAL BOXES
  - C) INSERTS, EMBEDMENTS AND OTHER SUPPORTED EQUIPMENT
  - D) SLAB ON GRADE OR FLOOR EQUIPMENT AND ANCHORS
  - E) UNDERGROUND DUCT, ELECTRICAL TRENCHES, PITS, MANHOLES, PIPING
  - F) SEISMIC TIES FOR EQUIPMENT REQUIRING ADDITIONAL SEISMIC STABILITY
- 23) ONCE THE PROJECT IS COMPLETED, IT IS THE OWNER'S RESPONSIBILITY TO PROVIDE THE APPROPRIATE MAINTENANCE TO PROTECT THE STRUCTURAL INTEGRITY OF THE STRUCTURE. AS PART OF THE CONTRACT, THE CONTRACTOR IS REQUIRED TO INFORM THE OWNER(S) OF THIS IN WRITING.
- 24) THE STRUCTURAL DESIGN OF THIS BUILDING TAKES INTO CONSIDERATION THE ANTICIPATED GRAVITY, LATERAL AND UPLIFT LOADS BASED ON SOUND ENGINEERING JUDGEMENT. THE ENGINEER OF RECORD RESERVES THE RIGHT TO VERIFY AND MODIFY THE STRUCTURE AS NEEDED AS A RESULT OF THESE LOADS IN THE SHOP DRAWING PROCESS.

CONCRETE NOTES:

- 1) ALL CONCRETE SHALL CONFORM TO ACI 301.
- 2) ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE ACI CODE.
- 3) ALL CONCRETE SHALL BE 4000 PSI @ 28 DAYS.
- 4) SUBMIT MIX DESIGN TO ENGINEER FOR APPROVAL.
- 5) THE CONCRETE SLUMP SHALL BE 5 TO 7 INCHES AFTER ADDITION OF HRWR.
- 6) THE CONCRETE AIR ENTRAINMENT SHALL BE 4 TO 6%.
- 7) FLYASH MAY BE USED TO 25% OF THE CEMENTIOUS MATERIAL.
- 8) ALL CONCRETE REINFORCING STEEL TO BE ASTM A615 GRADE 60.
- 9) REBAR SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH ACI DETAILING MANUAL LATEST EDITION.
- 10) MINIMUM LAP ON ALL REBAR SHALL BE 50 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
- 11) ALL REINFORCING BARS SHOWN TO BE HOOKED SHALL HAVE A STANDARD HOOK PER CRSI AND ACI STANDARDS, UNLESS SPECIFICALLY NOTED OTHERWISE ON THE STRUCTURAL PLANS.
- 12) CORNER BARS ARE REQUIRED AT ALL CORNERS UNLESS SPECIFICALLY NOTED OTHERWISE ON THE STRUCTURAL PLANS.
- 13) REINFORCEMENT SHALL BE HELD IN PLACE DURING CONCRETE PLACEMENT. IF REQUIRED, ADDITIONAL BARS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.
- 14) SUBMIT REBAR SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
- 15) NO CALCIUM CHLORIDE SHALL BE USED IN THE CONCRETE MIX.
- 16) THE CONTRACTOR SHALL TAKE THE PRECAUTIONS SPECIFIED BY ACI WHEN PLACING CONCRETE IN HOT OR COLD WEATHER CONDITIONS.
- 17) NO WATER SHALL BE ADDED TO THE CONCRETE AT THE SITE OR IN ROUTE TO THE SITE.
- 18) PROVIDE REBAR SUPPORTS AND TIES IN THE CONCRETE PER ACI AND CRSI SPECIFICATIONS.
- 19) REINFORCING SHALL BE INSTALLED IN THE CONCRETE IN ACCORDANCE WITH THE FOLLOWING COVER REQUIREMENTS
  - A) CONCRETE POURED AGAINST THE GROUND: 3"
  - B) CONCRETE EXPOSED TO THE GROUND OR WEATHER: 2"
  - C) CONCRETE NOT EXPOSED TO THE WEATHER OR IN CONTACT WITH THE GROUND:
    - 1) #3 - #11 BARS: 3/4"
    - 2) LARGER THAN #11 BARS: 1 1/2"
  - D) CONCRETE IN BEAMS OR COLUMNS: 1 1/2"
- 20) A QUALIFIED TESTING LABORATORY SHALL BE RETAINED BY THE GENERAL CONTRACTOR TO COLLECT CYLINDER AND PERFORM THE NECESSARY CONCRETE TESTS. A MINIMUM OF FIVE CYLINDERS SHALL BE TAKEN FOR EVERY 50 CUBIC YARDS OR PORTION THEREOF OF EACH DAY'S POUR. TWO CYLINDERS SHALL BE TESTED AT 7 DAYS, 2 CYLINDERS SHALL BE TESTED AT 28 DAYS AND THE REMAINING CYLINDER SHALL BE HELD IN RESERVE IF NEEDED. ONE COPY OF THE TEST REPORTS SHALL BE SENT TO THE AND STRUCTURAL ENGINEER. NO ADDITIONAL ELEMENTS SHALL BE ADDED TO THE CONCRETE AFTER THE CONCRETE FOR THE CYLINDERS IS TAKEN.
- 21) IN ADDITION TO THE CONCRETE CYLINDERS THE TESTING LABORATORY SHALL PERFORM THE FOLLOWING TEST EACH TIME CONCRETE CYLINDERS ARE TAKEN:
  - A) STANDARD SLUMP TEST
  - B) AIR ENTRAINMENT TEST
  - C) TEMPERATURE
- 22) THE CONTRACTOR SHALL REPAIR AND PATCH DEFECTIVE AREAS IMMEDIATELY AFTER REMOVAL OF FORMS.
- 23) ALL PLUMBING SLOTS SHALL BE FILLED WITH CONCRETE TO THE SAME DEPTH AS THE FLOOR SLAB AFTER PIPING IS INSTALLED.
- 24) REBAR DOWELS SHALL MATCH VERTICAL REINFORCING, ALL SLAB DOWELS SHALL BE STRAIGHT, SMOOTH AND FREE OF BURRS AT THE ENDS. DOWELS SHALL BE PROPERLY SUPPORTED DURING CONSTRUCTION AND PROPERLY ALIGNED TO KEEP DOWELS PARALLEL TO THE DIRECTION OF EXPECTED MOTION.
- 25) THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE PROPER DESIGN OF ALL TEMPORARY FRAMEWORK, FORMWORK AND SHORING.
- 26) ALL CONCRETE SHALL HAVE XYPEX C-500 / C-500 NF ADDITIVE ADDED TO THE CONCRETE AT 10 LBS/CY.
- 27) ALL CONSTRUCTION JOINTS BELOW GRADE SHALL BE COATED WITH XYPEX CONCENTRATE. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR APPLICATION.
- 28) THE CONTRACTOR MAY USE A PRECAST CONCRETE CAP AS AN ALTERNATE TO THE CAST-IN-PLACE CAP. IF THE CAST-IN-PLACE CAP IS CAST SEPARATE, CONTRACTOR SHALL ENGAGE A STRUCTURAL ENGINEER TO DESIGN OR VERIFY THE EXISTING DESIGN FOR LIFTING STRESSES. DESIGN CAP FOR HS 20 LOADING. PROVIDE SIGNED & SEALED CALCULATIONS FOR ANY CHANGES. ENGINEER SHALL DESIGN AND DETAIL THE LIFT POINTS AND MECHANISMS. PROVIDE SIGNED & SEALED CALCULATIONS AND DETAILS. AT NO ADDITIONAL COST TO THE OWNER.

SHOP DRAWING SUBMITTALS:

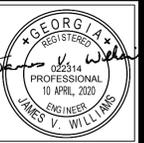
- 1) REVIEW BY HUSSEY GAY BELL, INC (HGB) OF SUBMITTALS IS FOR THE GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AS PRESENTED BY THE CONTRACT DOCUMENTS. NO DETAILED CHECK OF QUANTITIES OR DIMENSIONS WILL BE MADE.
- 2) THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT ALL SUBMITTALS COMPLY WITH THE LATEST PROJECT PLANS, SPECIFICATIONS, GOVERNING CODES AND REGULATIONS AND IS SOLELY RESPONSIBLE FOR CONFIRMING ALL QUANTITIES, DIMENSIONS, FABRICATION TECHNIQUES AND COORDINATING WITH ALL TRADES.
- 3) A SHOP DRAWING SUBMITTAL SCHEDULE SHALL BE SUBMITTED A MINIMUM OF 4 WEEKS PRIOR TO THE FIRST SHOP DRAWING SUBMITTAL.
- 4) SHOP DRAWINGS ARE TO BE SUBMITTED IN A TIMELY MANNER ALLOWING ADEQUATE TIME FOR PROCESSING. THE ARCHITECT AND ENGINEER WILL REVIEW AND RETURN THE SHOP DRAWINGS WITHIN 14 CALENDAR DAYS OF RECEIVING THE SUBMITTAL.
- 5) SHOP DRAWINGS MUST BE REVIEWED AND APPROVED BY THE CONTRACTOR PRIOR TO SUBMITTING TO HGB. SHOP DRAWINGS THAT HAVE NOT BEEN REVIEWED BY THE CONTRACTOR OR SHOW CLEAR EVIDENCE OF NOT HAVING BEEN REVIEWED, WILL BE RETURNED TO THE CONTRACTOR WITHOUT REVIEW OR APPROVAL.
- 6) SHOP DRAWINGS FOR SPECIFIC COMPONENTS, SUCH AS COLUMNS, FOOTINGS ETC., SHALL BE SUBMITTED IN THEIR ENTIRETY. SHOP DRAWINGS FOR SIMILAR LAYOUTS, SUCH A FLOOR FRAMING, SHALL BE SUBMITTED TOGETHER.
- 7) ALL SHOP DRAWINGS SHALL BE SUBMITTED WITH A LETTER OF TRANSMITTAL. DO NOT COMBINE DIFFERENT SUBMITTALS ON THE SAME LETTER OF TRANSMITTAL.
- 8) ALL SHOP DRAWINGS SHALL BE SUBMITTED IN A DIGITAL PDF FORMAT.
- 9) ALL CHANGES AND ADDITIONS ON SHOP DRAWING RE-SUBMITTALS SHALL BE CLEARLY CLOUDED AND NOTED. SHOP DRAWING RE-SUBMITTALS THAT ARE NOT CLEARLY CLOUDED AND NOTED AS REQUIRED WILL BE RETURNED UNREVIEWED AND UNAPPROVED.
- 10) SHOP DRAWINGS THAT REQUIRE ENGINEERING DESIGN AND SUBMITTAL OF CALCULATIONS AND DRAWINGS SIGNED AND SEALED BY AN ENGINEER SHALL MEET THE REQUIREMENTS OF THE SPECIFICATIONS FOR THE INDIVIDUAL COMPONENT THAT IS APPLICABLE AND THE ADDITIONAL REQUIREMENTS OF THE "SHOP DRAWINGS REQUIRING SPECIALTY ENGINEERING" SECTION OF THESE SPECIFICATIONS.
- 11) SHOP DRAWINGS THAT DO NOT MEET ALL OF THE ABOVE REQUIREMENTS WILL NOT BE REVIEWED BUT WILL BE REJECTED AND RETURNED TO THE CONTRACTOR.
- 12) ALL SUBMITTAL SHALL HAVE HGB-STRUCTURAL DEPARTMENT DOCUMENT REVIEW STAMP AS SHOWN BELOW.
- 13) REVIEW OF SHOP DRAWINGS AND OTHER SUBMITTALS BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS BEFORE SUBMITTAL TO THE ENGINEER. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. CONTRACTOR IS ALSO RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION.

**HUSSEY GAY BELL**  
Established 1958

DOCUMENT REVIEW			
<small>These documents have been reviewed only for general conformance with the design concept of the project and general compliance with the Contract Documents. Modifications or comments made on these documents do not relieve the Contractor from compliance with the requirements of the Contract Documents. Approval of a specific item does not include approval of the assembly of which the item is a component. The Contractor is responsible for information that pertains solely to fabrication processes; confirming and coordinating dimensions at the jobsite; the means, methods, techniques, sequences, and procedures of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner.</small>			
<input type="checkbox"/> NO EXCEPTIONS TAKEN	<input type="checkbox"/> MAKE CORRECTIONS NOTED		
<input type="checkbox"/> AMEND & RESUBMIT	<input type="checkbox"/> REJECTED/RESUBMIT		
<input type="checkbox"/> DOCUMENT NOT REVIEWED	<input type="checkbox"/>		
DATE: _____	BY: _____		

STAMP WILL BE DATED, INITIALED AND MARKED ONE OF THE FOLLOWING:

- a. "NO EXCEPTIONS TAKEN" - MEANS NO EXCEPTIONS WERE FOUND ON THE SHOP DRAWINGS AND MAY BE USED FOR FABRICATION AND ERECTION.
- b. "MAKE CORRECTIONS NOTED" - MEANS THE EXCEPTIONS WERE FEW OR SMALL, FABRICATION AND ERECTION MAY START AS SOON AS THE DRAWINGS ARE REVISED. ALSO, A RECORD COPY OF THE REVISIONS SHALL BE SENT TO THE "ENGINEER OF RECORD".
- c. "AMEND & RESUBMIT" - MEANS THAT THE CORRECTIONS WERE MANY OR LARGE. REVISE THE SHOP DRAWINGS AND RESUBMIT THEM. FABRICATION AND/OR ERECTION MAY NOT START TILL THE DRAWINGS HAVE BEEN REVIEWED AND STAMPED "NO EXCEPTION TAKEN" OR "MAKE CORRECTIONS NOTED & SUBMIT RECORD COPY".
- d. "REJECTED/RESUBMIT" - MEANS THAT THE SHOP DRAWING HAS TOO MANY CORRECTIONS OR DOES NOT COMPLY WITH GENERAL DESIGN CONCEPTS. ALSO, IF SHOP DRAWINGS HAVE NOT BEEN CHECKED BY THE DETAILER/ FABRICATOR AND REVIEWED BY CONTRACTOR, DRAWINGS WILL BE REJECTED. DRAWINGS REQUIRING A PROFESSIONAL ENGINEERING SEAL, THAT ARE NOT SEALED, WILL BE REJECTED.
- e. "DOCUMENT NOT REVIEWED" - MEANS THAT THE SUBMITTAL DOCUMENT WAS NOT REVIEWED BY HGB STRUCTURAL DEPARTMENT



**HUSSEY GAY BELL**  
Established 1958  
329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T: 912.354.4626

DESIGNED	DRAWN	CHECKED
MDZ	DEM	JW
DATE: APRIL 2020		
JOB NO. 119291605		
SCALE: AS SHOWN		

REVISIONS:				

**LIFT STATION 4003 UPGRADE**  
JOINT WATER & SEWER COMMISSION PROJECT #705-SPL0ST 2016  
FOR THE  
BRUNSWICK-GLYNN COUNTY  
JOINT WATER & SEWER COMMISSION  
GENERAL NOTES

DRAWING NUMBER

**S1**

ISSUED FOR BID APRIL 20, 2020



**HUSSEY GAY BELL**  
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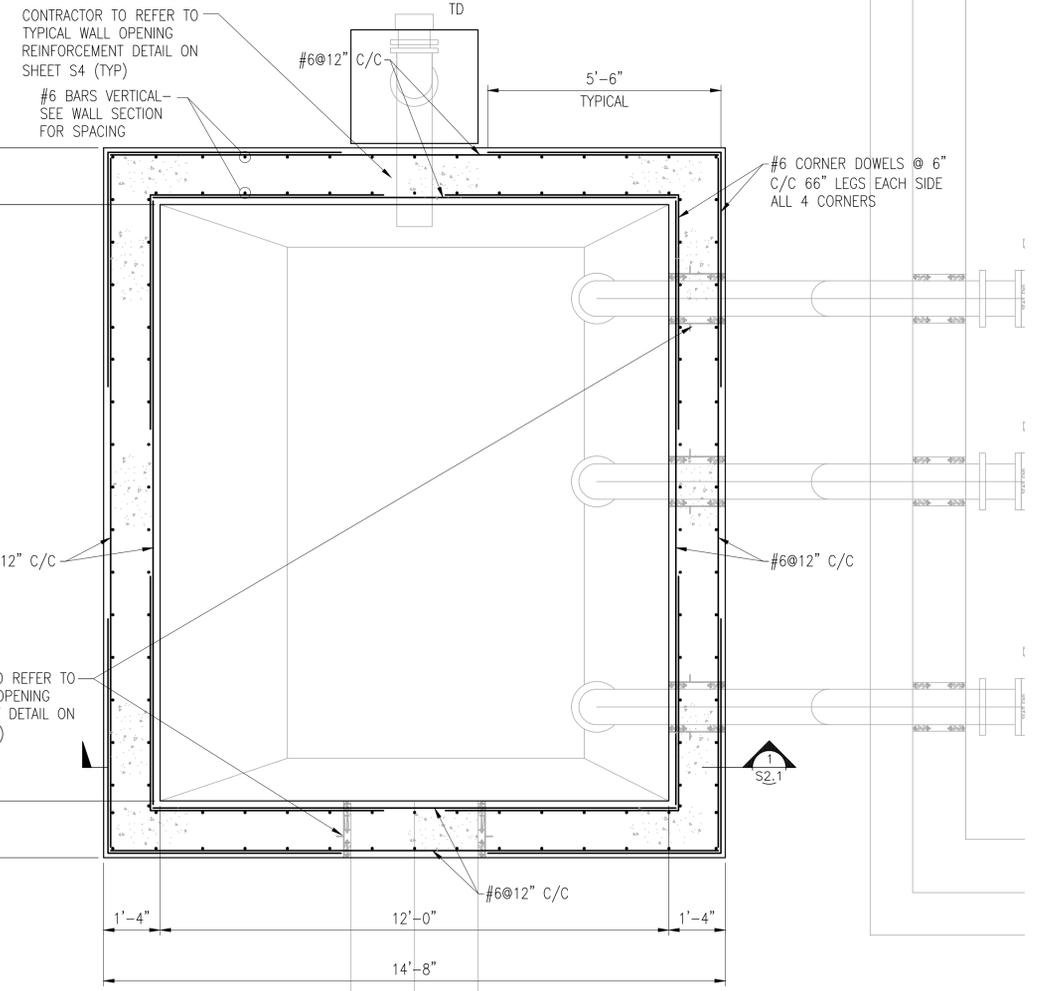
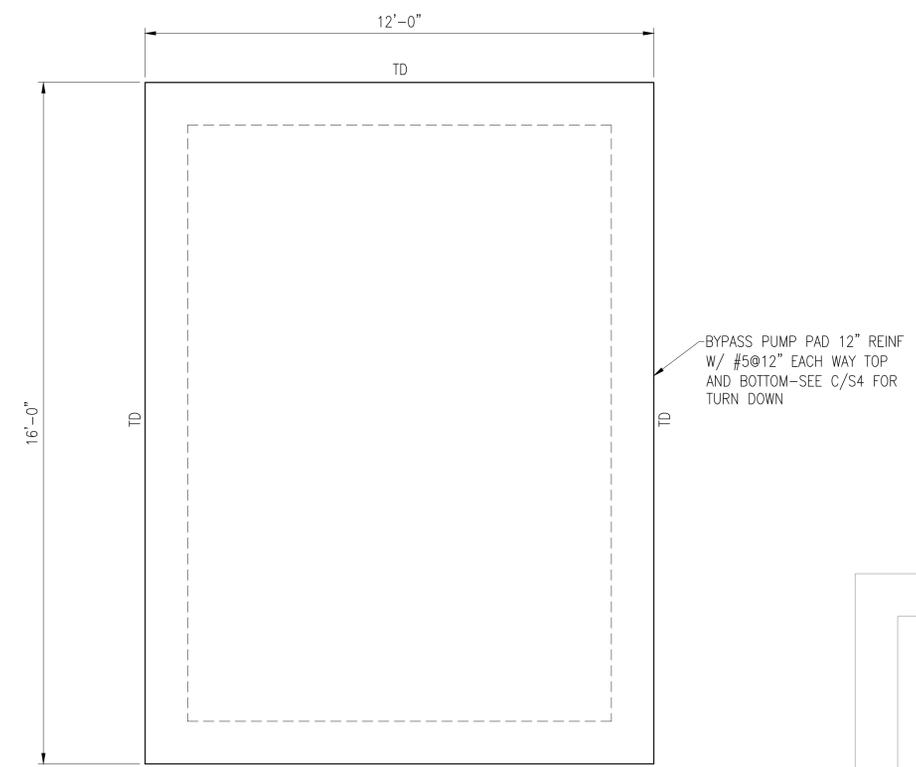
REVISIONS:


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MDZ	DEM	JVW
DATE: APRIL 2020		
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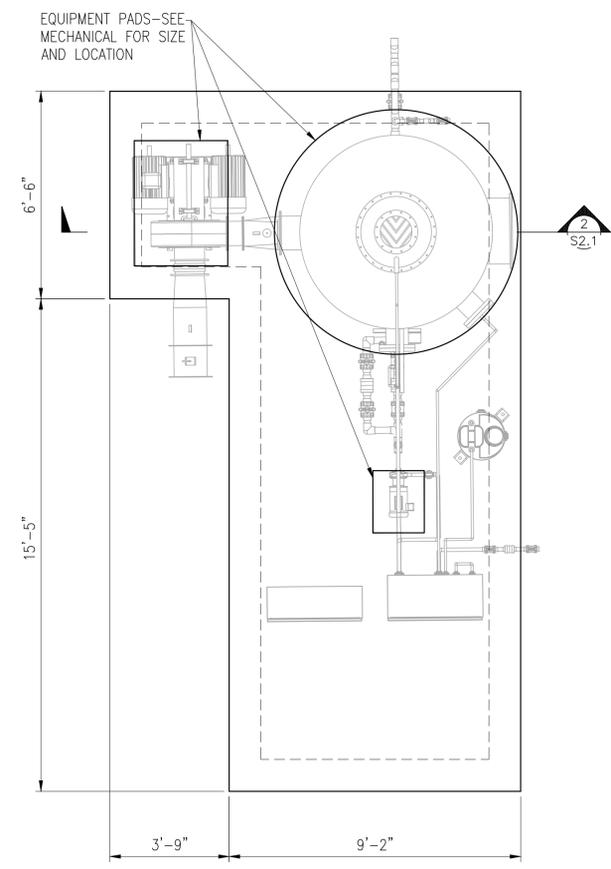
**LIFT STATION 4003 UPGRADE**  
 JOINT WATER & SEWER COMMISSION PROJECT #705-SPOST 2016  
 FOR THE  
 BRUNSWICK-GLYNN COUNTY  
 JOINT WATER & SEWER COMMISSION  
 PLAN AND SECTION

DRAWING NUMBER  
**S2**

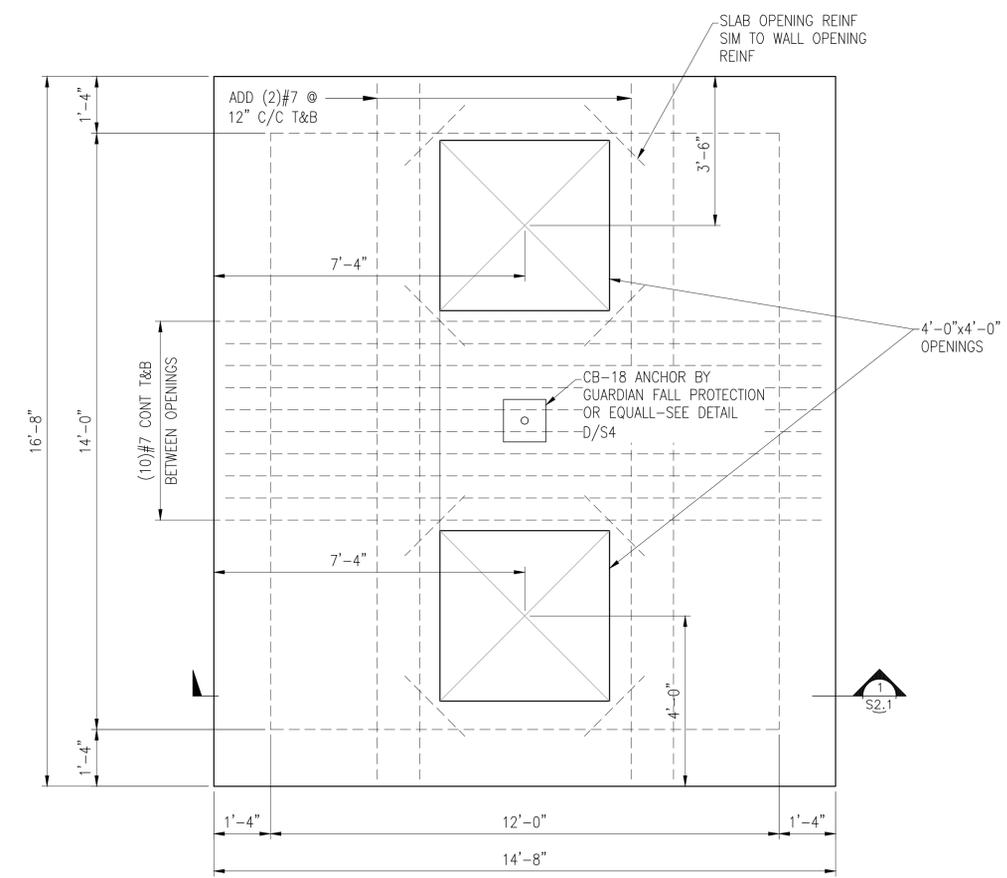
**ISSUED FOR BID APRIL 20, 2020**



**LIFT STATION PLAN**  
 1/2"=1'-0"



**ODOR CONTROL CAP PLAN**  
 3/8"=1'-0"



**LIFT STATION TOP PLAN**  
 1/2"=1'-0"



**HUSSEY GAY BELL**  
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REVISIONS:

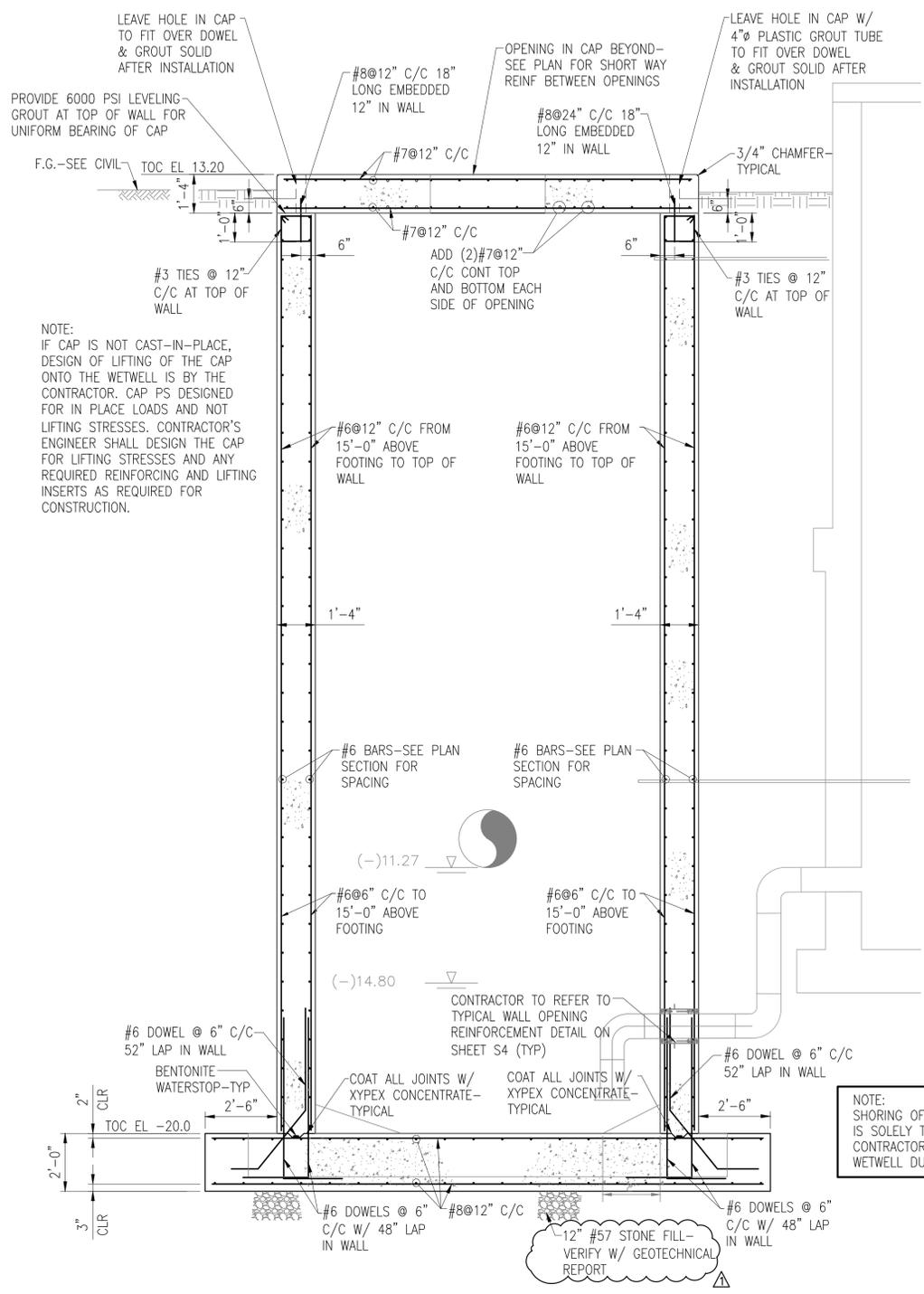
ADDENDUM NO. 1 - MAY 12, 2020
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DESIGNED	DRAWN	CHECKED
MDZ	DEM	JVW
DATE: APRIL 2020		
JOB NO. 119291605		
SCALE: AS SHOWN		

**LIFT STATION 4003 UPGRADE**  
 JOINT WATER & SEWER COMMISSION PROJECT #705-SPLST 2016  
 FOR THE  
 BRUNSWICK-GLYNN COUNTY  
 JOINT WATER & SEWER COMMISSION

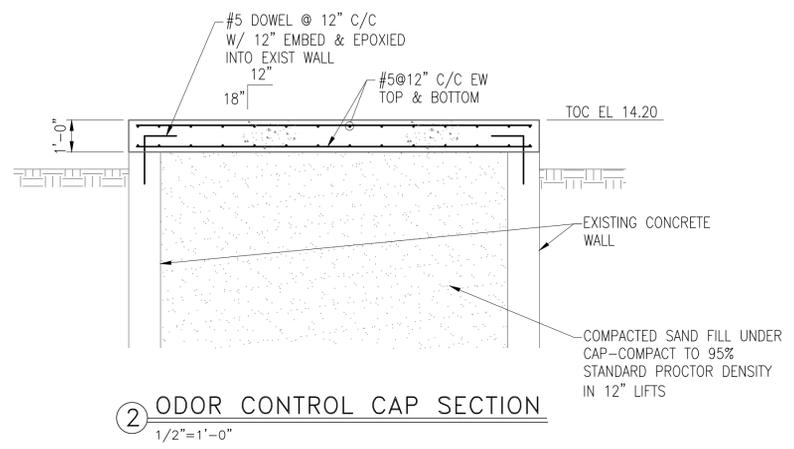
DRAWING NUMBER  
**S2.1**  
 OF

ISSUED FOR BID APRIL 10, 2020

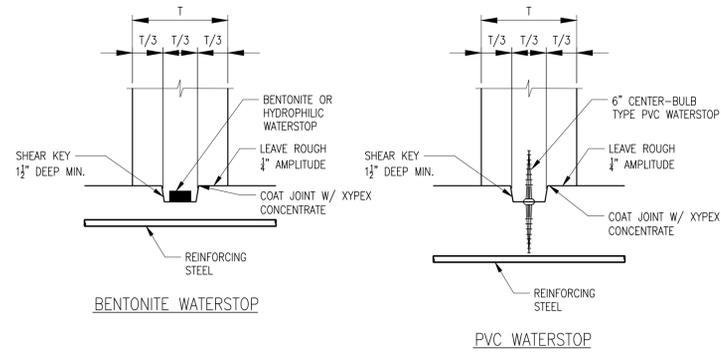


**1 LIFT STATION SECTION**  
 1/2"=1'-0"

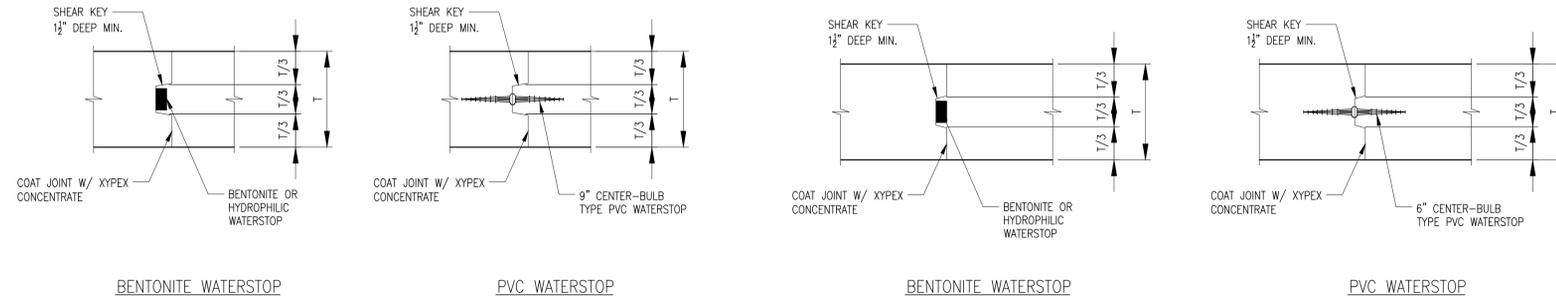
NOTE:  
 SHORING OF EXCAVATION AND DEWATERING IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. DO NOT DAMAGE EXISTING WETWELL DURING CONSTRUCTION.



**2 ODOR CONTROL CAP SECTION**  
 1/2"=1'-0"



BASE OF WALLS



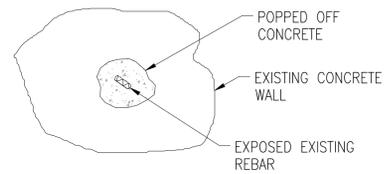
VERTICAL WALL JOINT

ELEVATED OR SLAB ON GRADE

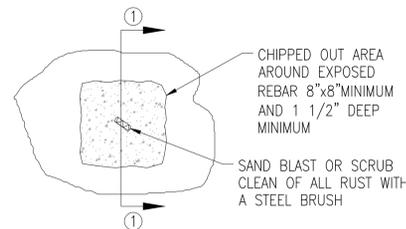
- NOTE:
1. REINFORCING STEEL IS CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS.
  2. CONSTRUCTION JOINTS SHALL BE WETTED PRIOR TO SUBSEQUENT POUR. REMOVE ANY STANDING WATER.

TYP CONSTRUCTION JOINTS W/WATERSTOP

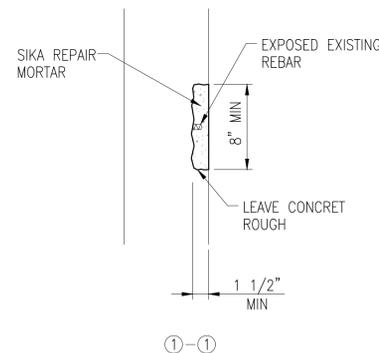
NTS  
ALL JOINTS CONTAINING LIQUID, BELOW GRADE, AND RETAINING WALLS UNLESS NOTED.



TYPICAL EXISTING CONDITION



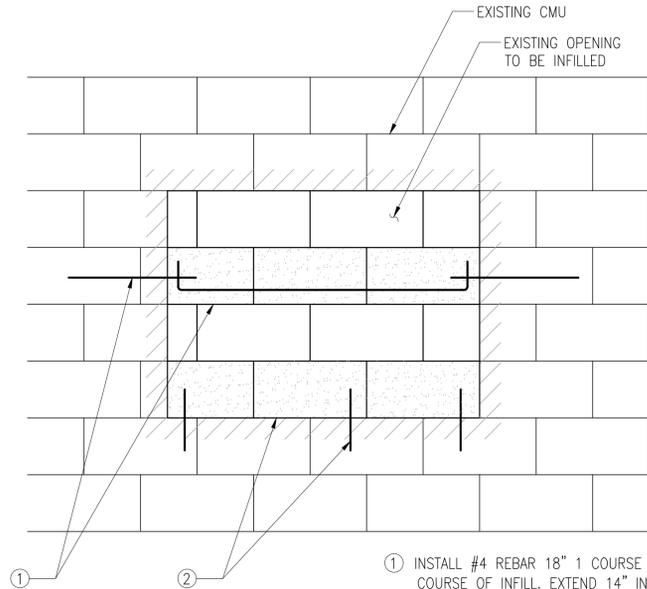
TYPICAL PREPARED ELEVATION



DETAIL A – CONCRETE REPAIR DETAILS

NTS

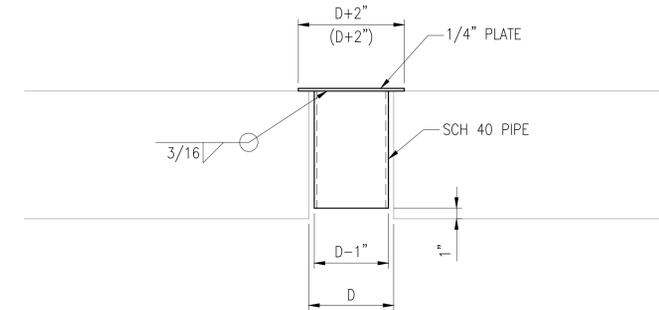
- REPAIR INSTRUCTIONS
1. CLEAN & WET PER MANUFACTURER'S INSTRUCTIONS.
  2. PRIME REBAR AND CONCRETE WITH SIKA ARMATEC EPOCEM.
  3. PATCH CONCRETE WITH SIKAREPAIR 223 REPAIR MORTAR.
  4. FOLLOW ALL MANUFACTURER SPECIFICATIONS AND RECOMMENDATION PRACTICES.



DETAIL B – CMU INFILL DETAIL

NTS

1. INSTALL #4 REBAR 18" 1 COURSE BELOW TOP COURSE OF INFILL. EXTEND 14" INTO EXISTING CMU, DO NOT EPOXY. INSTALL BOND BEAM AT THIS LEVEL W/ (1)#4 BAR W/ 4" HOOK EACH END. GROUT SOLID WITH 3000 PSI GROUT.
2. FILL TOP COURSE OF EXISTING CMU BELOW OPENING TO BE INFILLED WITH 3000 PSI GROUT. INSTALL #4 REBAR AT 24" C/C (2 MINIMUM) 4 INCHES INTO NEW GROUT AND EXTENDING 4" INTO OPENING. FILL BOTTOM COURSE OF NEW CMU INFILL SOLID WITH 3000 PSI GROUT.



DETAIL C – EXISTING PUMP HOLE CLOSURE DETAIL

NTS

NOTES

1. DETAILS ON THIS DRAWING APPLY TO ALL DRAWINGS UNLESS OTHERWISE NOTED.



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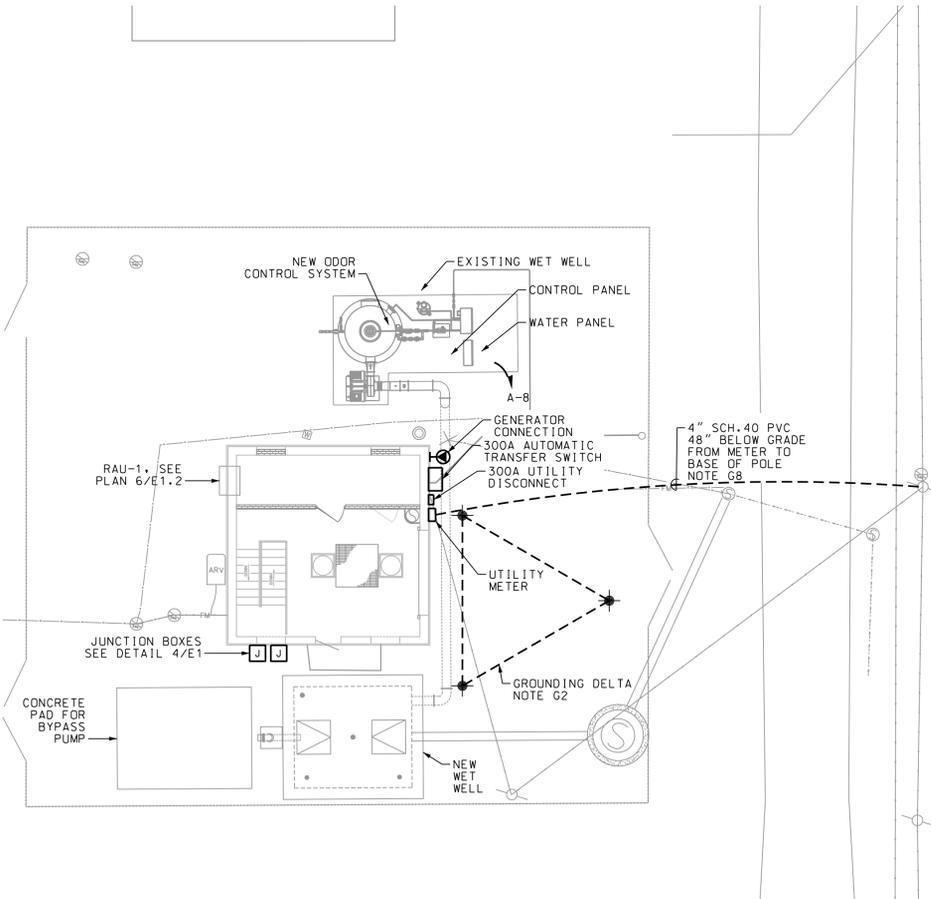
LIFT STATION 4003 UPGRADE  
JOINT WATER & SEWER COMMISSION PROJECT #705-SPL0ST 2016  
FOR THE  
BRUNSWICK-GLYNN COUNTY  
JOINT WATER & SEWER COMMISSION  
CONCRETE JOINTS DETAILS

DRAWING NUMBER

S3

ISSUED FOR BID APRIL 20, 2020





**1 SITE PLAN - ELECTRICAL**  
E1 SCALE: 1" = 10' - 0"



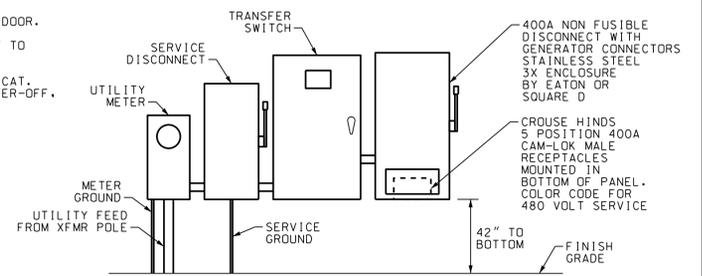
- LEGEND:**
- HOME RUN
  - EQUIPMENT AS NOTED
  - CIRCUIT BREAKER
  - 20A DUPLEX RECEPTACLE, NEMA 5-20R, TYPE WR
  - WP WEATHERPROOF
  - GROUND TO GROUND ROD SYSTEM
  - GF GROUND FAULT CIRCUIT INTERRUPTER PROTECTION
  - AIC INTERRUPTING CAPACITY IN AMPS
  - CONDUIT SYSTEM CONCEALED BELOW GRADE
  - EXPOSED CONDUIT
  - PUMP MOTOR, HORSEPOWER INDICATED
  - N.T.S. NOT TO SCALE
  - SP SURGE PROTECTION DEVICE
  - DRIVEN GROUND ROD LOCATION
  - S SWITCH, 48" UP
  - S<sub>3</sub> THREE WAY SWITCH, 48" AFF
  - S<sup>3P</sup> 20A 120/277V 3-WAY TOGGLE SWITCH WITH PILOT LIGHT, 48" AFF
  - NEMA 4X STAINLESS STEEL DISCONNECT SWITCH MOUNTED ON EQUIPMENT FRAME, RATINGS AS NOTED ON ONE-LINE
  - A ALARM HORN, MOUNT 12' AFF ON BUILDING - NOTE G6, G7
  - R RED ALARM LIGHT, MOUNT 12' AFF ON BUILDING - NOTE G6
  - M MULTI-COLOR ALARM LIGHT ON BUILDING - NOTE G6.
  - PC PHOTO CELL: TORK MODEL 2107: 120/277V, 2000W/1800W/600W TUNGSTON/BALLAST/LED RATED
  - W WALL MOUNTED LED EMERGENCY BATTERY PACK
  - E WALL MOUNTED LED EMERGENCY EXIT LIGHT WITH TWO HEADS
  - EXP EXPLOSION PROOF: CLASS 1, DIV. 1
  - G GENERATOR RECEPTACLE - SEE 2/E1

**GENERAL NOTES (APPLICABLE TO ALL DRAWINGS)**

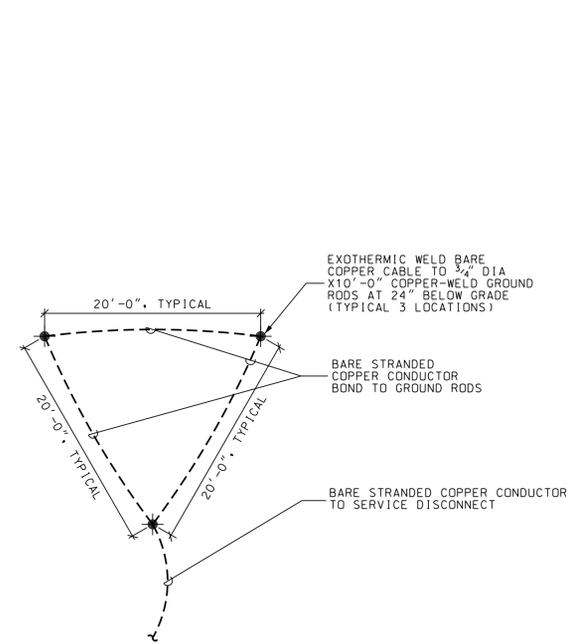
- G1. FIELD COORDINATE THE ELECTRICAL SERVICE WITH GREG MCCRANIE, GEORGIA POWER DISTRIBUTION ENGINEER, 912-267-5127.
- G2. INSTALL GROUNDING DELTA IN THIS AREA. REFER TO SECONDARY GROUNDING DETAIL, 3/E1, FOR INSTALLATION REQUIREMENTS.
- G3. PROVIDE A TRANS-SOCKET METER. EQUIPMENT SHALL COMPLY WITH THE REQUIREMENTS OF THE GEORGIA POWER BLUE BOOK, 2017 EDITION.
- G4. ALL CONDUIT TERMINATIONS TO ELECTRICAL ENCLOSURES SHALL UTILIZE THREADED HUBS; LOCK NUTS AND BUSHINGS ARE NOT ACCEPTABLE. SEE SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
- G5. EXTEND UNSWITCHED AND ENERGIZED CONDUCTOR TO ALL EXIT SIGNS AND EMERGENCY BATTERY PACKS.
- G6. PROVIDE MULTI-COLOR ALARM LIGHT AND RED LIGHT ON OUTSIDE OF EACH STATION. REFER TO SCADA SPEC ON SHEET E3. PROVIDE PLASTIC ENGRAVED SIGN WITH 1/2" LETTERING ADJACENT TO FRONT DOOR IDENTIFYING LIGHT STATUS.
- G7. IF EITHER ALARM OCCURS, HORN TO SOUND UNTIL SILENCE SWITCH IS PUSHED.
- G8. THE CONTRACTOR SHALL FURNISH AND INSTALL ONE 4" SCH. 40 PVC CONDUIT FROM THE TRANSFORMER POLE (ACROSS THE LANE) TO THE UTILITY METER ON THE BUILDING. COORDINATE WITH EXISTING UNDERGROUND UTILITIES, THE OWNER AND GEORGIA POWER. THE CONDUIT SHALL BE INSTALLED 48" BELOW GRADE, MINIMUM. PROVIDE A DETECTABLE WARNING TAPE 12" ABOVE THE CONDUIT. THE CONDUIT SHALL TURN UP TO ABOVE GRADE AT THE BASE OF THE TRANSFORMER POLE.
- G9. CONNECT AIR FLOW FAN MONITORING SYSTEM, PROVIDED BY DIV.15, AS REQUIRED. ONE PRESSURE SENSOR SHALL BE INSTALLED IN THE EXHAUST FAN DUCT. THE OTHER SENSOR SHALL BE INSTALLED ADJACENT TO THE MONITOR PANEL. EXTEND ALARM CONDUCTORS TO SCADA PANEL. LIKEWISE, ONE SENSOR FOR THE SUPPLY FAN SHALL BE INSTALLED IN THE DUCT AND THE OTHER ADJACENT TO THE MONITOR PANEL.
- G10. EXTEND THROUGH 3-POSITION SWITCH ADJACENT TO MAIN DOOR.
- G11. EXTEND PHOTO CONTROL TO 3-POSITION SWITCH. CONNECT TO UP/PHOTO POSITION.
- G12. 3-POSITION, MAINTAINED CONTACT, 20A/277V, HUBBELL CAT. NO. HBL1385. LABEL SWITCH POSITIONS: UP-PHOTO, CENTER-OFF, DOWN-MANUAL/ON

**DEMOLITION NOTES**

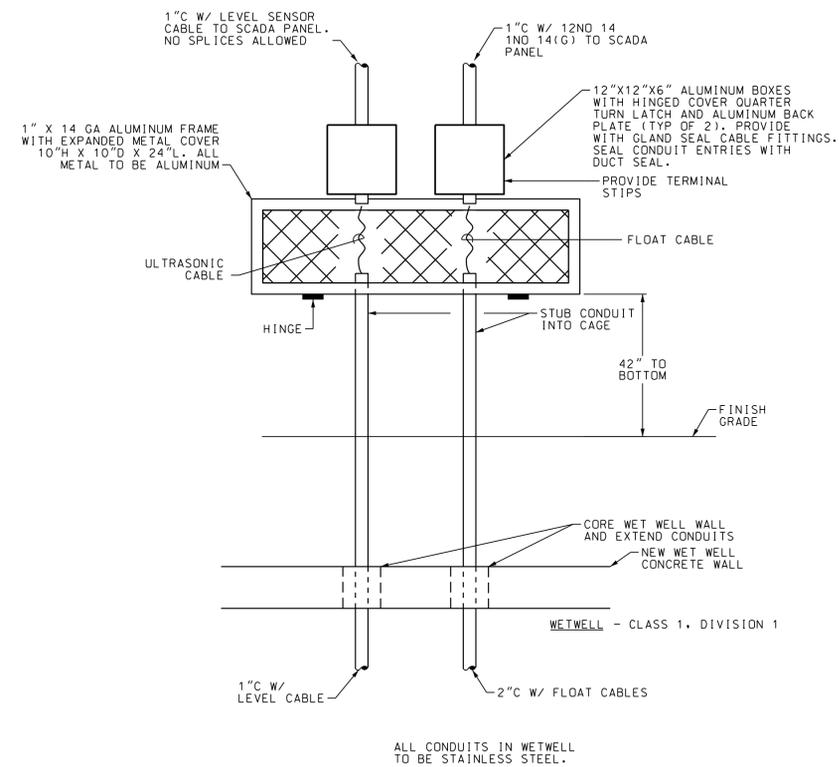
- D1. THE EXISTING DISTRIBUTION PANEL, TRANSFER SWITCH, LIGHTING SYSTEM, RECEPTACLES, VFDS, AND OTHER ELECTRICAL EQUIPMENT INCLUDING ALL CONDUITS AND CONDUCTORS SHALL BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE AS PART OF THIS CONTRACT. THE CONTRACTOR SHALL DISPOSE OF THIS MATERIAL OFF-SITE AS PART OF THE CONTRACT. COORDINATE WITH OWNER FOR ANY MATERIALS TO BE RETAINED BY THE OWNER.
- D2. THE CONTRACTOR SHALL COORDINATE WITH GEORGIA POWER FOR MODIFICATIONS AND/OR REMOVAL OF THE EXISTING SERVICES TO THE EXISTING PUMP STATION BUILDING.



**2 SERVICE EQUIPMENT DETAIL**  
E1 NOT TO SCALE



**3 SECONDARY ELECTRICAL GROUNDING**  
E1 NOT TO SCALE



**4 JUNCTION BOX DETAIL**  
E1 NOT TO SCALE

**LIGHTING FIXTURE SCHEDULE - LF-1**

TYPE	DESCRIPTION	LAMP	MOUNTING	NOTES
A	LED ENCLOSED/GASKETED INDUSTRIAL LITHONIA FEM-L48-6000-LM-LPPCL-MD-MVOLT-GZ10-50K-80CR1-DPMB-STSL	LED INCLUDED	SURFACE	LF-2
B	LED ENCLOSED/GASKETED INDUSTRIAL WALL MTD LITHONIA DMW2-L24-2000LM-PCL-WD-MVOLT-GZ10-50K-80CR1-OMB-STSL	LED INCLUDED	WALL	10' AFF
C	LED EXTERIOR WALL SCNCE LITHONIA QLWX1LED-20W-40K	LED INCLUDED	WALL	14' AFF
XA	LED EXIT SIGN LITHONIA LHOM-LED-R-SD	LED INCLUDED	WALL	8' AFF
ELU	LED EMERGENCY LIGHT ELM2-LED-SD	LED INCLUDED	WALL	8' AFF

**NOTES - LIGHTING FIXTURE SCHEDULE**

- LF-1. FIXTURES SHOWN INDICATE QUALITY OF FIXTURES DESIRED. OTHER MANUFACTURERS OF EQUAL FIXTURES ARE ACCEPTABLE UPON REVIEW AND APPROVAL OF THE ENGINEER. PRIOR APPROVAL NOT REQUIRED.
- LF-2. MOUNT FIXTURE WITH BOTTOM OF LENS AT SAME ELEVATION AS BOTTOM OF CONCRETE STRUCTURE.
- LF-3. PROVIDE CLASS 1, DIV 1 RATED FIXTURE.

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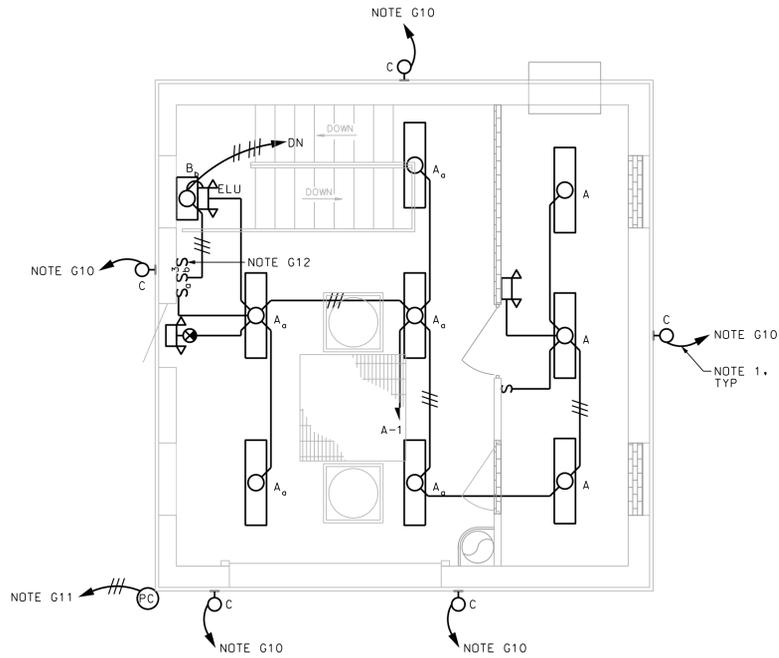
REVISIONS:

NO.	DATE	DESCRIPTION

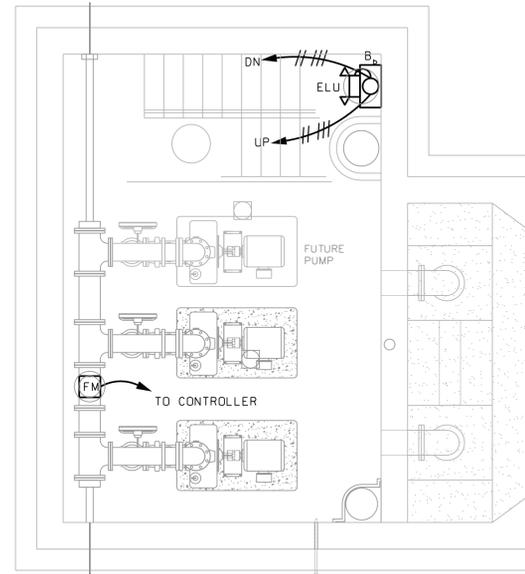
DESIGNED/ DRAWN/ CHECKED  
CC AL CC  
DATE: APRIL 2020  
JOB NO. 119291605  
SCALE: 1" = 10'-0"

**LIFT STATION 4003 UPGRADE**  
FOR THE  
BRUNSWICK-GLYNN COUNTY  
JOINT WATER & SEWER COMMISSION  
**LEGEND, NOTES, & FIXTURE SCHED**

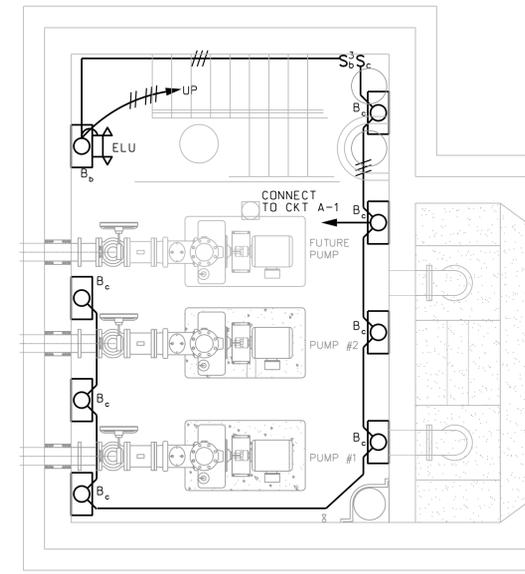
DRAWING NUMBER  
**E1**



**1 LIGHTING ENTRANCE FLOOR PLAN**  
E2 SCALE: 1/4" = 1'-0"



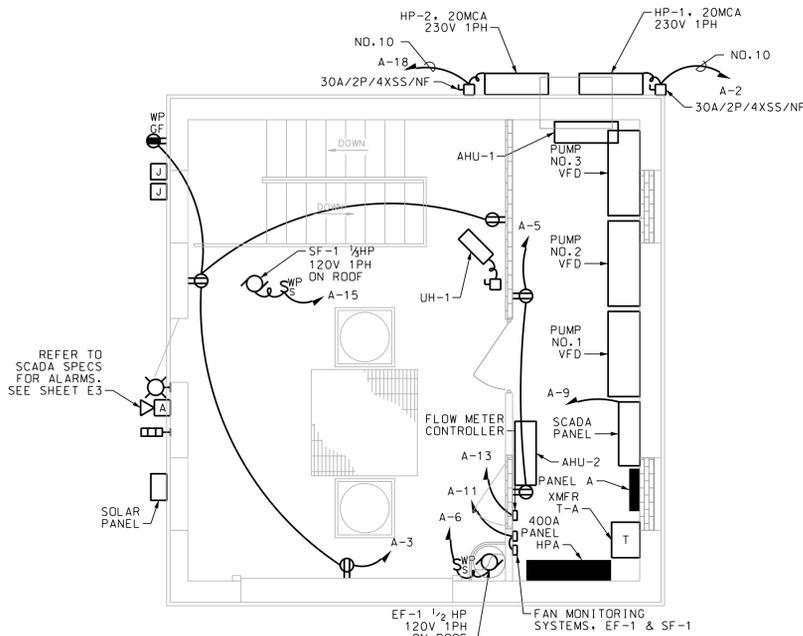
**2 LIGHTING INTERMEDIATE FLOOR PLAN**  
E2 SCALE: 1/4" = 1'-0"



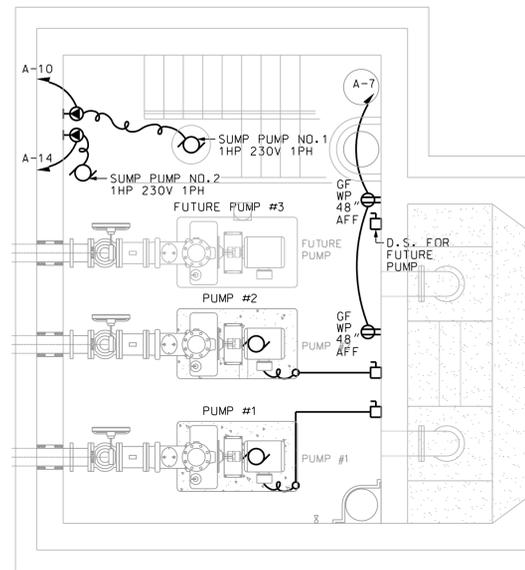
**3 LIGHTING BOTTOM FLOOR PLAN**  
E2 SCALE: 1/4" = 1'-0"

**NOTES: ELECTRICAL PLANS**

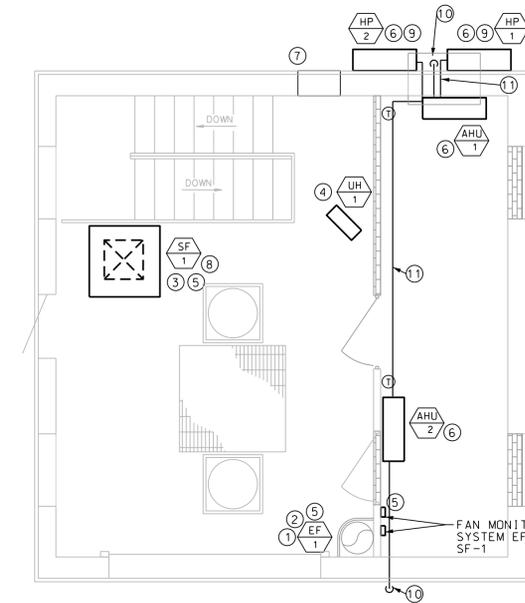
1. CONCEAL CONDUIT TO EXTERIOR LIGHTS WITHIN BUILDING. DRILL HOLE THROUGH WALL INTO BACK-BOX LOCATION FOR EACH LIGHT. CONDUIT SHALL NOT BE INSTALLED ON BUILDING EXTERIOR UNLESS SPECIFICALLY NOTED.
2. NEMA L6-20R RECEPTACLE FOR SUMP PUMP. MOUNT OUTLET 48" AFF.
3. ROUTE CONDUIT TO PUMP NO.1 & NO.2 ACROSS FLOOR TO FOUNDATION STRUCTURE. PROVIDE STAINLESS STEEL RIGID CONDUIT BETWEEN DISCONNECT SWITCH AND PUMP FOUNDATION. STRAP CONDUIT DIRECTLY TO THE FLOOR WITH STAINLESS STEEL 2-HOLE STRAPS AND STAINLESS STEEL ANCHORS.



**4 POWER ENTRANCE FLOOR PLAN**  
E2 SCALE: 1/4" = 1'-0"



**5 POWER BOTTOM FLOOR PLAN**  
E2 SCALE: 1/4" = 1'-0"



**6 HVAC ENTRANCE FLOOR PLAN**  
E2 SCALE: 1/4" = 1'-0"

**NOTES: HVAC SYSTEM**

- 1 EXHAUST FAN SHALL BE GREENHECK MODEL TCBRU-1-10 OR APPROVED EQUAL. FAN SHALL BE SPARK RESISTANT B WITH ALUMINUM WHEEL AND BELT DRIVEN MOTOR. OUT OF THE AIR STREAM. FAN SHALL RUN CONTINUOUSLY. COORDINATE WITH EXISTING CONDITIONS AND ELECTRICAL. FAN SHALL BE SIZED FOR 1100 CFM AT 0.375 ESP AND 1/2 HP. COORDINATE OPENING IN ROOF AND NEW CURB WITH NEW ROOF INSTALLATION.
- 2 REMOVE EXISTING FAN AND REPLACE WITH NEW AS SHOWN. CONNECT TO NEW 18" PVC DUCT. FIELD COORDINATE CONNECTIONS. NEW DUCT SHALL EXTEND THROUGH EXISTING FLOOR OPENING AND DOWN TO 6" ABOVE BOTTOM LEVEL FLOOR. PROVIDE SUPPORTS AND ANCHORS AS REQUIRED FOR DUCT.
- 3 SUPPLY FAN SHALL BE GREENHECK MODEL TCBRS-1-10 OR APPROVED EQUAL. FAN SHALL BE SPARK RESISTANT B WITH ALUMINUM WHEEL AND BELT DRIVEN MOTOR. OUT OF THE AIR STREAM. FAN SHALL RUN CONTINUOUSLY. COORDINATE WITH EXISTING CONDITIONS AND ELECTRICAL. FAN SHALL BE SIZED FOR 1100 CFM AT 0.375 ESP AND 1/3 HP. COORDINATE OPENING IN ROOF AND NEW CURB WITH NEW ROOF INSTALLATION.
- 4 UNIT HEATER SHALL BE QMARK MUH OR APPROVED EQUAL. HEATER SHALL BE SIZED FOR 7.5 KW WITH HORIZONTAL DISCHARGE. HEATER SHALL BE PROVIDED WITH MOUNTING BRACKETS, DISCONNECT SWITCH AND BUILT-IN THERMOSTAT.
- 5 FAN SHALL BE PROVIDED WITH FAN MONITORING SYSTEM (GREENHECK) TO ALARM WHEN THERE IS NO AIR FLOW. PROVIDE WITH TWO PRESSURE SWITCHES, ONE MOUNTED IN THE DUCT. COORDINATE WITH ELECTRICAL.
- 6 UNITS SHALL BE CARRIER MODEL 38MAR/40MAQ 2.5 TONS OR APPROVED EQUAL. PROVIDE WITH WALL MOUNTED WIRED THERMOSTAT WITH SETTINGS TO SCHEDULE THE UNITS FOR LEAD-LAG OPERATION.
- 7 EXISTING 24"x24" LOUVER TO REMAIN FOR REUSE.
- 8 NEW 18" PVC DUCT. FIELD COORDINATE CONNECTIONS. NEW DUCT SHALL EXTEND THROUGH FLOOR AND DOWN TO 6" ABOVE BOTTOM LEVEL FLOOR. PROVIDE SUPPORTS AND ANCHORS AS REQUIRED FOR DUCT.
- 9 MOUNT UNIT ON SUPPORTS FROM WALL. UNIT SHALL BE 12" ABOVE FINISHED FLOOR.
- 10 PVC CONDENSATE DRAIN PIPE FROM UNIT. TURN DOWN OUTSIDE WALL TO GROUND.
- 11 INSULATED REFRIGERANT LINE SET FROM AHU TO HP.

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FOR THE  
BRUNSWICK-GLYNN COUNTY  
JOINT WATER & SEWER COMMISSION  
LIGHTING AND POWER PLAN**

DRAWING NUMBER

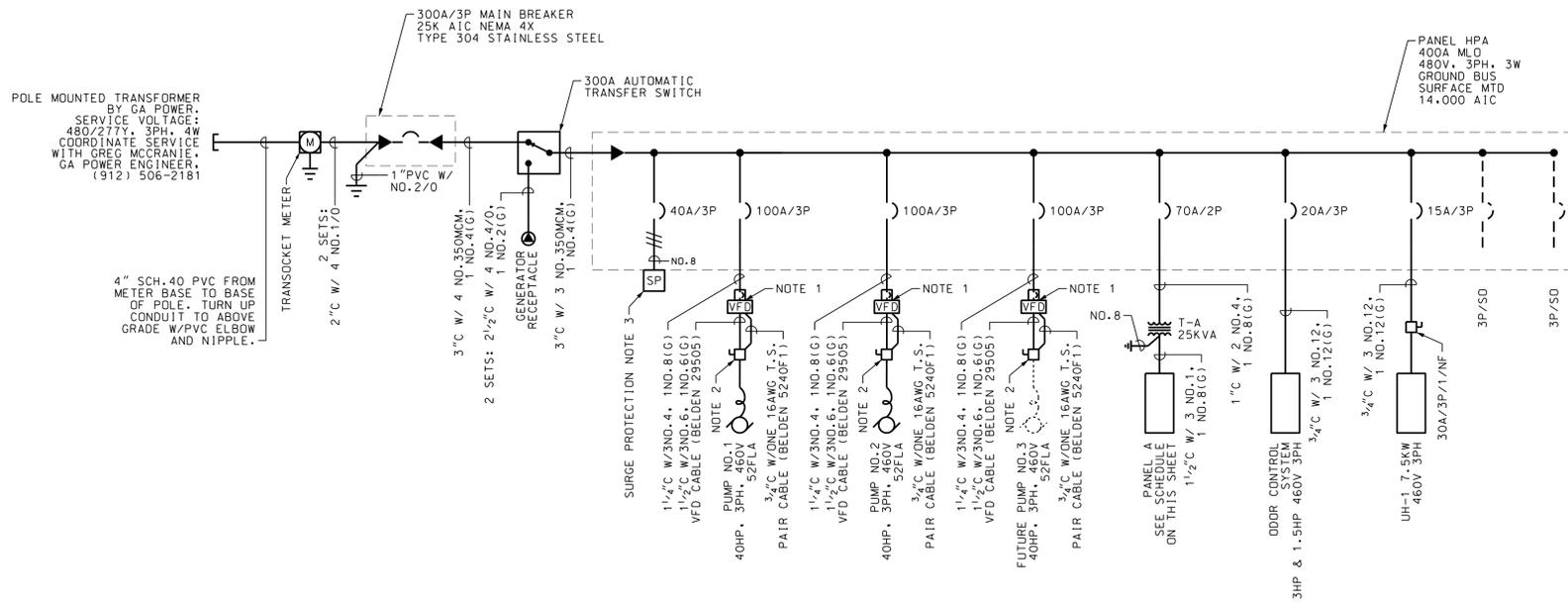
**E2**

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**1 ONE LINE DIAGRAM - PUMP STATION 4003**  
E3 SCALE: NONE

**LEGEND**

- CONDUIT AND CONDUCTORS
- CONDUIT W/ DATA/ETHERNET CABLE

**SCADA SYSTEM**

- I. SYSTEM REQUIREMENTS
  - A. PROVIDE SCADA SYSTEM THAT MEETS OWNER'S STANDARDS INCLUDING ALL HARDWARE, SOFTWARE, PROGRAMMING, INSTALLATION, TESTING, DEMONSTRATING OPERATION AND WARRANTY.
  - B. THE SYSTEM SHALL BE PROVIDED BY ELECTRIC MACHINE CONTROL, INC. (EMC). CONTACT JAMES DENTON (205) 661-3998, CELL (205) 910-8348. EMC SHALL ALSO PROVIDE ALL INSTRUMENTATION, AUTOMATIC TRANSFER SWITCH, AND VFDS.
  - C. PROVIDE ALL FIELD WIRING IN CONDUITS AS REQUIRED. COORDINATE ALL CONNECTIONS, ALARMS AND CONTROL WITH EQUIPMENT PROVIDED UNDER OTHER SECTIONS OF THE SPECIFICATIONS.
- II. PRODUCTS
  - A. THE SCADA PANEL SHALL BE PROVIDED IN A NEMA 3R ALUMINUM ENCLOSURE. PREWIRED OFF-SITE AND TESTED BEFORE INSTALLATION. ALL CONDUCTORS SHALL BE TERMINATED ON IDENTIFIED TERMINAL STRIPS. ALL WIRING AND COMPONENTS SHALL BE IDENTIFIED AND MATCHED TO AS BUILT DRAWING. LABEL ALL FIELD WIRING TO MATCH TERMINAL STRIP.
  - B. SCADA PANEL SHALL BE POWERED FROM A 120 VOLT CIRCUIT WITH INTEGRAL SURGE PROTECTION, UPS WITH SOLAR PANEL TO POWER BACKUP BATTERY. INTEGRAL RECEPTACLE, 24 VDC POWER SUPPLY, MODEM WITH CELLULAR ALARM SYSTEM, SEL PLC AND RTAC WITH ALL I/O REQUIRED, DATA SWITCH, SIGNAL ISOLATORS AND CONTROL RELAYS. PROVIDE CONTROL DEVICES ON COVER OF PANEL TO INCLUDE HOA SWITCH, ETM FOR EACH PUMP, HMI PANEL IDENTIFYING STATUS AND ALARMS, FLOAT MODE STATUS LIGHT AND RESET BUTTON AND SILENCE SWITCH.
  - C. SCADA PANEL TO BE HOFFMAN 36" X 30" X 12" WITH SUBPANEL, DRAWING POCKET, INTERNAL WIRE DUCT, SQUARE D CONTROL DEVICES, FUSES, TERMINAL BLOCKS, GROUND BUS, LISTED FOR UL 508, AND ALL INTERNAL WIRING.
  - D. WETWELL LEVEL SENSOR TO BE RADAR SENSOR RATED FOR CLASS I, DIV I LOCATION VEGAPULS 61 WITH SENSOR CABLE EXTENDING CONTINUOUS TO SCADA PANEL. MOUNT SENSOR ON STAINLESS STEEL BRACKET. CALIBRATE IN FIELD.
  - E. FLOATS TO BE MERCURY TYPE WITH CABLES EXTENDING CONTINUOUS TO FIELD JUNCTION BOX, RATED FOR CLASS I, DIV I LOCATION. MOUNT FLOATS ON STAINLESS STEEL BRACKET. SET ELEVATION IN FIELD.
  - F. REMOTE ALARM LIGHTS SHALL BE PATLITE, 24 VDC, RATED FOR EXTERIOR LOCATION. MULTI-LIGHT TOWER TO BE GREEN/RED/YELLOW AND HI-LEVEL ALARM TO BE RED. PROVIDE 24 VDC EXTERIOR RATED ALARM HORN SIMILAR TO FEDERAL SIGNAL 450E SERIES.
  - G. DUPLEX PUMP BACKUP CONTROLLER TO BE PRIMEX PC-240 SERIES.
  - H. MODEM TO BE SEL #3061 #JBCB FOR VERIZON NETWORK.

**III. SYSTEM OPERATION**

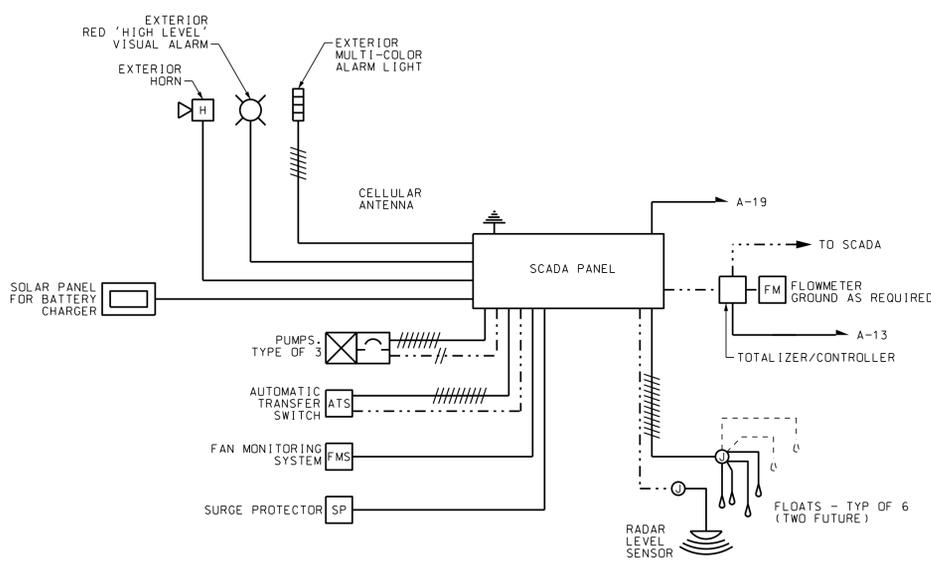
- A. PUMP CONTROL SHALL BE AS FOLLOWS: THE LEAD PUMP SHALL RUN WHEN CALLED UPON AND WITH A CONTROL SCHEME TO MATCH INFLUENT FLOW. (FLOW MATCHING). THE LAG PUMP WILL BE CALLED UPON ONCE THE LEAD PUMP IS AT FULL SPEED AND THE RATE OF RISE OF THE WATER LEVEL EXCEEDS THE PUMPING CAPACITY OF THE LEAD. THE LEAD PUMP SHALL SPEED MATCH WITH THE LAG PUMP TO MATCH INFLUENT FLOW. AS THE WET WELL LEVEL DROPS, THE LEAD PUMP WILL BE STOPPED AND THE LAG PUMP WILL CONTINUE UNTIL THE LOW WATER LEVEL IS ACHIEVED. ONCE ALL PUMPS ARE OFF THE ALTERNATOR WILL SELECT THE LAG PUMP FROM THE PREVIOUS CYCLE TO BE LEAD. PROVIDE FOR ABILITY TO MODIFY CONTROLS FOR RATE AND FLOW GAIN AND TO AVOID PUMP SPEED CONSTANTLY CHANGING TO MATCH INSTANTANEOUS FLOW CHANGES.
- B. FLOAT MODE CONTROLLER TO BE PRIMEX DUPLEX CONTROLLER TO CONTROL THE TWO PUMPS. IF THE HIGH FLOAT HAS BECOME ACTIVE, THE FLOAT CONTROLLER WILL TAKE CONTROL OF THE STATION UNLESS OVERRIDDEN BY THE SCADA SYSTEM REMOTELY OR LOCAL HUMAN INTERACTION.
- C. PROVIDE AUDIBLE AND VISUAL ALARMS OUTSIDE STATION. MULTI LIGHT TO BE USED WITH A SEQUENCING FOR DIFFERENT ISSUES. MULTI LIGHT TOWER, GREEN, YELLOW, RED.
  - \* MOTOR FAULT - YELLOW FLASH
  - \* BIO-TOWER FAULT - YELLOW AND GREEN
  - \* VENTILATION FAULT GREEN AND RED
  - \* HIGH LEVEL - SEPARATE RED LIGHT STROBE WITH HORN. (CONTINUOUS STROBE WHILE ACTIVE ALARM AND CONSTANT ILLUMINATION ALARM ACKNOWLEDGED AND ALARM CONDITION PERSISTS).
 PROVIDE SILENCE SWITCH ON COVER OF SCADA PANEL. PROVIDE ENGRAVED SIGN BELOW ALARM LIGHTS IDENTIFYING ALARMS.
- D. CONNECT TO ODOR CONTROL STATION TO MONITOR POINTS AND ALARMS FOR THIS SYSTEM.
- E. CONNECT TO AUTOMATIC TRANSFER SWITCH TO MONITOR STATUS AND TO ALLOW REMOTE TRANSFER OF SWITCH TO NORMAL, INTERMEDIATE OR EMERGENCY POSITION AS LONG AS ATS CONTROLS ARE SATISFIED. PROVIDE CONTROLS TO GO TO INTERMEDIATE POSITION AND REMAIN THERE EVEN IF NO EMERGENCY POWER EXISTS. INFORMATION FROM TRANSFER SWITCH TO INCLUDE STATUS OF POWER AVAILABLE, SWITCH POSITION, VOLTAGES, CURRENT, POWER (KW).
- F. CONNECT TO FAN MONITOR SYSTEM FOR MONITORING AND ALARM.
- G. CONNECT TO LEVEL CONTROLLER AND FLOATS AS REQUIRED FOR CONTROLS SPECIFIED. PROVIDE 'FLOAT MODE' STATUS LIGHT IN SCADA PANEL COVER.
- H. CONNECT TO PUMP VFDS FOR ALL MONITOR AND CONTROL FUNCTIONS. CONNECT HOA SWITCH IN SCADA PANEL TO POSITION OF VFD. CONNECT ELAPSED TIME METER TO RUN CONTACT IN VFD. CONNECT COMMON FAULT AND 'OVERTEMPERATURE' CONTACTS IN VFD TO SCADA.

- NOTES:**
1. ALL STARTERS TO BE VFDS AS SPECIFIED.
  2. 100A/3P/1/NF DISCONNECT SWITCH WITH AUXILIARY CONTACTS. CONTACTS SHALL BREAK FIRST/MAKE LAST. CONTACTS SHALL INTERRUPT VFD RUN CIRCUIT BEFORE SWITCH OPENS.
  3. SURGE PROTECTION SHALL BE EQUIVALENT TO ASCO 400 SERIES 150KVA; CAT. NO. 430-480D-P-15-A-C-A-3-2-0 IN NEMA 4X NON-METALLIC BOX, RATED 150KAIC PER PHASE.
  4. EMERGENCY GENERATOR CONNECTION. SEE DETAIL 2/E1.

SCHEDULE OF PANEL 'A'										
PHASE 1					WIRE 3					
VOLTAGE 240 / 120					BUS AMPS: 125 A					
A.L.C. RATING: 10,000 A					MOUNTING SURFACE					
LOCATION DESCRIPTION	LOAD (KVA)	LOAD TYPE	TRIP POLE	#	PH	#	TRIP POLE	LOAD TYPE	LOAD (KVA)	LOCATION DESCRIPTION
LIGHTS	0.5	A	20A/1P	1	A	2	30A/2P	D	1.8	HP-1 20MCA
RCPT - INTERIOR	0.6	B	20A/1P	3	B	4	-	D	1.8	230V 1PH
RCPT - INTERIOR	0.4	B	20A/1P	5	A	6	20A/1P	G	1.1	EF-1 1/2HP 120V 1PH
RCPT - PIT	0.4	B	20A/1P	7	B	8	20A/1P	H	1.0	ODOR CONTROL WATER PANEL
SCADA	0.1	H	20A/1P	9	A	10	20A/2P	F	0.7	SUMP PUMP NO.1
FAN MONITORING SYSTEM	0.2	H	20A/1P	11	B	12	-	F	0.7	1HP 230V 1PH 6.3A
FLOW METER TOTALIZER/CONTROLLER	0.1	H	20A/1P	13	A	14	20A/2P	G	0.7	SUMP PUMP NO.2
SF-1 1/3HP 120V 1PH	0.8	G	20A/1P	15	B	16	-	G	0.7	1HP 230V 1PH 6.3A
SPARE			20A/1P	17	A	18	30A/2P	D	1.8	HP-2 20MCA
SPARE			20A/1P	19	B	20	-	D	1.8	230V 1PH
SPARE			20A/1P	21	A	22	20A/1P			SPARE
SPARE			20A/1P	23	B	24	20A/1P			SPARE
SPARE			20A/1P	25	A	26	20A/1P			SPARE
SPARE			20A/1P	27	B	28	20A/1P			SPARE
SPARE			20A/1P	29	A	30	20A/1P			SPARE

PANEL LOAD ANALYSIS									
Load Type	DESCRIPTION	Conn. KVA	Demand KVA	2017 NEC Reference	Load Type	DESCRIPTION	Conn. KVA	Demand KVA	2017 NEC Reference
A	Lighting	0.5	0.6	NEC Article 215.3	E	Heating	0.0	0.0	NEC Article 220.60
B	Receptacles	1.4	1.4	NEC Table 220.44	F	Largest Motor	1.4	1.8	NEC Article 440.7
C	Kitchen Equipment	0.0	0.0	NEC Table 220.56	G	Other Motors	3.4	3.4	NEC Article 440.7
D	Air-Conditioning	7.4	7.4	NEC Article 220.60	H	Other Loads	1.4	1.4	
Phase A Connected Load		7.4	7.4			TOTAL CONNECTED LOAD		15.5	64.6
Phase B Connected Load		8.2	8.2			TOTAL DEMAND LOAD		16.0	66.6
						MINIMUM SIZING AMPS		25.0	104.1



**2 VEGA RADAR SYSTEM RISER DIAGRAM**  
E3 NOT TO SCALE

**ISSUED FOR BID APRIL 20, 2020**

**LIFT STATION 4003 UPGRADE**  
 FOR THE  
 BRUNSWICK-GLYNN COUNTY  
 JOINT WATER & SEWER COMMISSION  
**ONE-LINE, PANEL SCHED, & SCADA**

DRAWING NUMBER

**E3**



**HUSSEY GAY BELL**  
*Established 1958*  
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