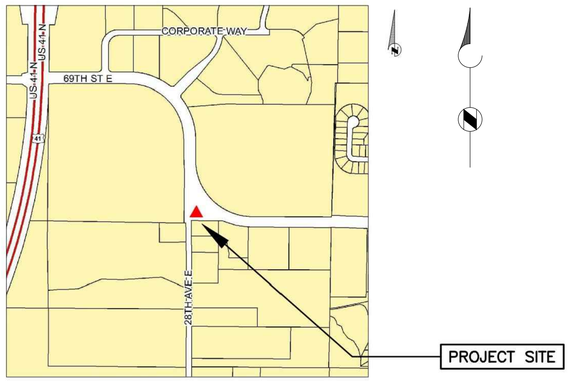
MASTER LIFT STATION N1-B REHABILITATION

BID SET

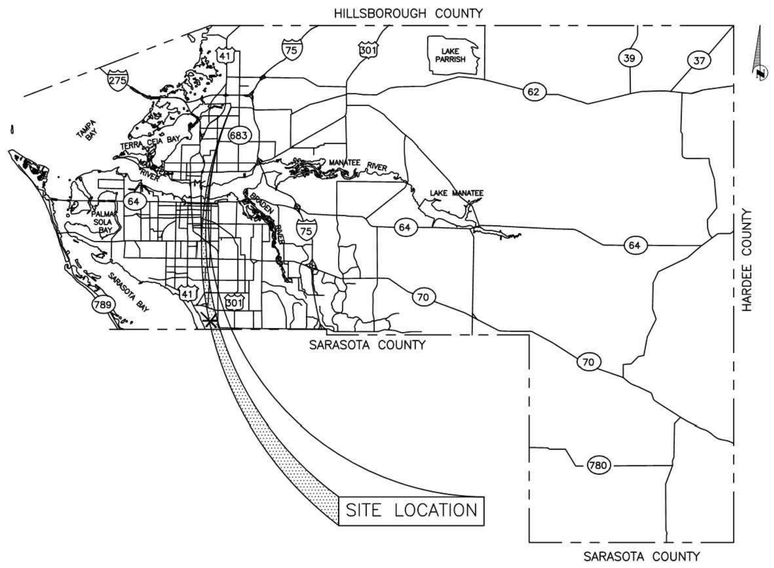
AUGUST 2022

PROJECT NO. 6022388 / 6022389



2903 69th COURT, PALMETTO, FL 34221

VICINITY MAP
MANATEE COUNTY



VICINITY MAP
MLS N1-B SITE
2903 69TH CT, PALMETTO, FL

COUNTY BOARD

COUNTY ADMINISTRATOR - SCOTT HOPES

COMMISSIONERS:
DISTRICT 1 - JAMES SATCHER
DISTRICT 2 - REGGIE BELLAMY
DISTRICT 3 - KEVIN VAN OSTENBRIDGE
DISTRICT 4 - MISTY SERVIA
DISTRICT 5 - VANESSA BAUGH
AT LARGE - CAROL WHITMORE
AT LARGE - GEORGE KRUSE

Brown AND Caldwell

CERTIFICATE OF AUTHORIZATION NO. 2602
6151 LAKE OSPREY DRIVE, 3RD FLOOR
SARASOTA, FL 34240

DWG NUMBER	SHEET NUMBER	DRAWING TITLE
		GENERAL
1	G-00-001	COVER
2	G-00-002	INDEX OF DRAWINGS
3	G-00-003	ABBREVIATIONS
4	G-00-004	SYMBOLS AND LEGENDS 1
5	G-00-081	CONSTRUCTION LAYDOWN, ACCESS AND CONTRACTOR FACILITIES
		CIVIL
6	C-00-001	CIVIL SYMBOLS, LEGENDS AND NOTES
7	C-00-002	CIVIL DETAILS
8	CD-01-001	CIVIL DEMOLITION KEY PLAN
9	C-01-110	BYPASS PUMPING PLAN
10	C-01-111	SURVEY AND SITE PLAN
11	C-09-011	EROSION AND SEDIMENTATION CONTROL PLAN
12	C-09-051	EROSION AND SEDIMENTATION CONTROL DETAILS
		STRUCTURAL
13	S-00-001	GENERAL STRUCTURAL NOTES 1
14	S-00-002	GENERAL STRUCTURAL NOTES 2
15	S-00-501	STANDARD DETAILS 1
16	S-01-102	CODE ANALYSIS AND CODE COMPLIANCE PLANS
17	S-01-103	STRUCTURAL BUILDING PLAN
18	S-01-301	STRUCTURAL BUILDING ELEVATIONS
		MECHANICAL
19	M-00-001	MECHANICAL DETAILS 1
20	MD-01-011	MLS N1-B ROOM DEMOLITION PLAN
21	M-01-111	MLS N1-B ROOM PLAN
22	MD-01-012	MLS N1-B ROOM DEMOLITION SECTIONS
23	M-01-112	MLS N1-B ROOM SECTIONS
		ELECTRICAL
24	E-00-001	LEGEND AND SYMBOLS SHEET 1
25	E-00-002	LEGEND AND SYMBOLS SHEET 2
26	E-00-003	LEGEND AND SYMBOLS SHEET 3
27	E-00-004	INSTALLATION DETAILS SHEET 1
28	E-00-005	INSTALLATION DETAILS SHEET 2
29	E-00-006	INSTALLATION DETAILS SHEET 3
30	E-00-007	ATS, SWBD, MCC, AND VFD EQUIPMENT ELEVATIONS
31	E-00-008	LUMINAIRE SCHEDULE
32	E-01-100	ELECTRICAL SITE PLAN
33	E-01-101	ELECTRICAL BUILDING POWER PLAN
34	E-01-102	ELECTRICAL BUILDING LIGHTING PLAN
35	E-01-103	PUMP BUILDING LIGHTING
36	E-01-104	ELECTRICAL PUMP BUILDING PLAN
37	E-01-105	PLAN VIEW FOR ROOF AND PUMP ROOM
38	E-01-601	ONE-LINE DIAGRAM
39	E-01-602	RISER DIAGRAM
40	E-01-603	ELECTRICAL PUMP VFD SCHEMATIC
41	E-01-604	TYPICAL MOTOR CONTROL SCHEMATIC 1
42	ED-01-601	DEMOLITION ONE-LINE DIAGRAM
		INSTRUMENTATION
43	I-00-001	LEGEND AND SYMBOLS - 1
44	I-00-002	LEGEND AND SYMBOLS - 2
45	I-00-003	LEGEND AND SYMBOLS - 3
46	I-10-501	INSTALLATION DETAILS SHEET
47	I-10-601	N1B MASTER LIFT STATION P&ID

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

ENGINEER OF RECORD
R. GAYLORD, PE 80981

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD

FILENAME
156470-G-00-002.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

GENERAL

INDEX OF DRAWINGS

DRAWING NUMBER
G-00-002

SHEET NUMBER 2 OF 47

EQUIPMENT ABBREVIATIONS

LCP	LOCAL CONTROL PANEL
M	MOTOR
MOP	MOTOR OPERATOR
P	PUMP
PLC	PROGRAMMABLE LOGIC CONTROLLER
SWBD	SWITCHBOARD

PIPING TYPE ABBREVIATIONS

DI	DUCTILE IRON
PVC	POLYVINYL CHLORIDE

GENERAL ABBREVIATIONS

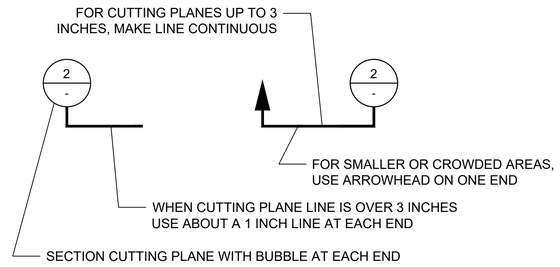
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
BLDG	BUILDING
BM	BENCH MARK
BV	BALL VALVE
CF	CUBIC FOOT
CFM	CUBIC FEET PER MINUTE
C&G	CURB AND GUTTER
CHAN	CHANNEL
CI	CAST IRON
CJ	CONSTRUCTION JOINT
CL	CENTERLINE OR CLASS
CPLG	COUPLING
CULV	CULVERT
DEMO	DEMOLITION / DEMOLISH
DIA	DIAMETER
DWY	DRIVEWAY
E	EAST OR ENGINE
EA	EACH
ECF	EQUIPMENT CONNECTION FITTING
EL	ELEVATION
ELEC	ELECTRICAL / ELECTRIC
ELEV	ELEVATION
ENGR	ENGINEER
EOP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
ESMT	EASEMENT
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
EXIST	EXISTING
FFE	FINISH FLOOR ELEVATION
FG	FINISHED GRADE
FLR	FLOOR
FM	FORCEMAIN
FT	FEET / FOOT OR FOG TANK
GEN	GENERATOR
GT	GATE
GV	GATE VALVE OR GAS VALVE
HOR	HORIZONTAL
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
INV	INVERT
L	LENGTH
LCP	LOCAL CONTROL PANEL
LF	LINEAR FEET
LOC	LOCATION
M	MOTOR
MATL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM / MINUTE
MISC	MISCELLANEOUS
N	NORTH
N/A	NOT APPLICABLE
NAVD	NATIONAL AMERICAN VERTICAL DATUM
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
NW	NORTHWEST
OD	OUTSIDE DIAMETER
OHP	OVERHEAD POWER
P	POWER
PH	PHASE
PL	PROPERTY LINE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PROP	PROPOSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PV	PLUG VALVE
PVMT	PAVEMENT
Q	FLOW
QTY	QUANTITY
R	RADIUS
R/W	RIGHT OF WAY
RE	RIM ELEVATION
REF	REFERENCE
RP	REFERENCE POINT
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT OF WAY
S	SOUTH
SCH	SCHEDULE
STA	STATION
STD	STANDARD
STL	STEEL
STRUC	STRUCTURE / STRUCTURAL
SW	SOUTHWEST OR SIDEWALK
SWBD	SWITCHBOARD
SWK	SIDEWALK
W	WEST OR WIDTH

PIPE CALL OUT SYSTEM

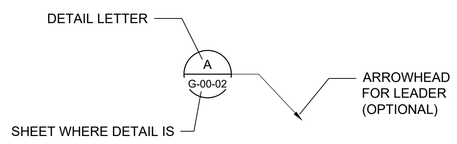
X" - XXX - XXX
- PIPE TYPE
- FLOW STREAM
- PIPE SIZE

REFERENCE SHEET G-00-04 FOR FLOW STREAM AND PIPE TYPE ABBREVIATIONS

SECTION CUT SYMBOLS



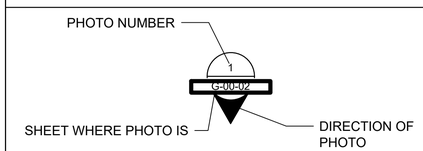
DETAIL CALL OUT SYMBOLS



GENERAL NOTES

1. ABBREVIATIONS FOR THE ENTIRE PROJECT EXCEPT ELECTRICAL ARE PROVIDED IN THESE GENERAL SHEETS.
2. ALL MECHANICAL SYMBOLS ARE IDENTIFIED IN THESE GENERAL SHEETS. GENERAL SHEETS DO NOT PROVIDE SYMBOLS NOR DETAILS FOR FOR ANY DISCIPLINE OTHER THAN MECHANICAL SYMBOLS. REFERENCE THE INDIVIDUAL DISCIPLINE SHEETS FOR ADDITIONAL DISCIPLINE-SPECIFIC SYMBOLS.

PHOTO DIRECTION SYMBOL



EQUIPMENT CALL OUT SYSTEM

XXX-XXXX
- SEQUENTIAL NUMBER
- AREA RELATED NUMBER (ALSO DIRECTLY RELATED TO EXACT I SHEET)
- EQUIPMENT ABBREVIATION

HEX-8201
- SEQUENTIAL NUMBER
- AREA 82
- ABBREVIATION FOR HEAT EXCHANGER

LINETYPE LEGEND

- NEW
- DEMOLITION
- EXISTING
- ROAD RECONSTRUCTION
- RELOCATE OR REMOVE AND KEEP
- LAYDOWN AREA

SHEET NUMBERING STRATEGY

X - XX - XX
- SHEET NUMBER DESIGNATION
- AREA DESIGNATION
- DISCIPLINE DESIGNATION

DISCIPLINE DESIGNATION (SINGLE CHARACTER)
- G - GENERAL
- C - CIVIL
- CD - CIVIL DEMOLITION
- S - STRUCTURAL
- I - INSTRUMENTATION
- M - PROCESS/MECHANICAL
- MD - PROCESS/MECHANICAL DEMOLITION
- E - ELECTRICAL
- ED - ELECTRICAL DEMOLITION

AREA DESIGNATION
- 01 - MLS N1-B REHABILITATION

CIVIL DESIGNATIONS
- 00 - GENERAL INFORMATION, NOTES, ABBREVIATIONS, SYMBOLS, LEGENDS AND STANDARD DETAILS
- 01 - SITE
- 08 - PAVING AND GRADING
- 09 - EROSION AND CONTROL

G, C, M, A, S, H, P SHEET NUMBER DESIGNATORS
- 0X - GENERAL NOTES, ABBREVIATIONS, SYMBOLS
- 0X - PLANS - EXISTING AND DEMOLITION
- 1X - PLANS - NEW
- 2X - PARTIAL AND ENLARGED PLANS
- 3X - SECTIONS, ELEVATIONS AND PROFILES
- 4X - SCHEMATICS, ISOMETRICS AND SCHEDULES
- 5X - DETAILS

PLAN SHEET DESIGNATORS

EXISTING	NEW	
00	10	SUBSURFACE AND FOUNDATION PLANS
01	11	LOWER, 1ST FLOOR AND FLOOR PLANS
02	12	UPPER, TOP AND 2ND FLOOR PLANS
03	13	ROOF PLAN

ELECTRICAL DESIGNATORS
- 00 - GENERAL INFORMATION, NOTES, ABBREVIATIONS, SYMBOLS, LEGENDS AND STANDARD DETAILS
- 01 - SITE
- 02 - SCHEMATICS AND SCHEDULES

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

ENGINEER OF RECORD
R. GAYLORD, PE 80981

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	B. SILLMAN
DRAWN:	P. VITERI
CHECKED:	S. HALL
CHECKED:	A. MODY
APPROVED:	R. GAYLORD

FILENAME
156470-G-00-003.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

GENERAL

ABBREVIATIONS

DRAWING NUMBER
G-00-003

SHEET NUMBER 3 OF 47

Path: C:\BCPW\D2331105 FILENAME: 156470-G-00-003.DWG PLOT DATE: 8/23/2022 12:21 PM CAD USER: PHILLIP DAVIS

PIPE FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE
	EXISTING PIPE
	EXISTING PIPING TO BE ABANDONED OR REMOVED UNDER THIS CONTRACT. ABANDONED WHEN NOT IN CONFLICT WITH NEW CONSTRUCTION WORK.
	NEW PIPE
	BLIND FLANGE
	CAP OR PLUG
	TEE
	TEE CROSS
	TEE UP
	TEE DOWN
	ELBOW DOWN OR UP AT 45°
	ELBOW CONTINUATION
	ELBOW UP
	ELBOW DOWN
	ELBOW CONTINUATION
	22.5° ELBOW
	45° ELBOW
	90° ELBOW
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER

(NOTE THAT ON I SHEETS THE CONCENTRIC REDUCER SYMBOL IS USED GENERICALLY FOR ALL REDUCERS. THE M SHEETS AND THE SPECIFICATIONS DELINEATE WHETHER THE REDUCER SHALL BE CONCENTRIC, ECCENTRIC - FLAT BOTTOM OR ECCENTRIC FLAT TOP.)

PIPE FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE
	LATERAL
	LATERAL UP
	LATERAL DOWN

MAJOR PIPE DEVICES

	MAGNETIC FLOW METER
DM	DENSITY METER
	ROTAMETER
	STATIC MIXER

PIPE JOINTS AND COUPLINGS

DOUBLE LINE	SINGLE LINE
	FLANGED JOINT
	MECHANICAL JOINT
	VICTAULIC JOINT
	SOCKET JOINT
	PVC-SOLVENT WELD JOINT
	WELDED JOINT
	PUSH ON JOINT
	UNION
	EXPANSION JOINT (SEE SPECS FOR TYPE)
	ELASTOMER AND FABRIC EXPANSION JOINT
	BRAIDED FLEXIBLE JOINT
	FLEXIBLE HOSE
	SLEEVE TYPE MECHANICAL COUPLING
	FLANGED COUPLING ADAPTER
	EQUIPMENT CONNECTION FITTING
	DISMANTLING JOINT

PIPE VALVE SYMBOLS

DOUBLE LINE	3D SYMBOLS	SINGLE LINE
		THREE WAY VALVE
		GATE VALVE (FLANGED)
		GATE VALVE (THREADED)
		PLUG VALVE (GEAR OPERATOR)
		PLUG VALVE (LEVER HANDLE)
		BALL VALVE (THREADED)
		BALL VALVE (FLANGED)
		BUTTERFLY VALVE (LUGGED/WAFER)
		BUTTERFLY VALVE (AWWA W/ HANDWHEEL ACTUATOR)
		GLOBE VALVE (FLANGED)
		GLOBE VALVE (THREADED)
		DIAPHRAGM VALVE (FLANGED)
		DIAPHRAGM VALVE (THREADED)
		CHECK VALVE
		TRIPLE DUTY VALVE
		DOUBLE LEAF CHECK VALVE
		BALL CHECK VALVE
		KNIFE GATE VALVE
		SPECTACLE FLANGE

NOTE:

1. SOLID FILLED VALVES INDICATE NORMALLY CLOSED (NC) POSITION.

2. SINGLE LINE PIPE SHOWN DOES NOT DEPICT FITTING TYPES. SEE SPECIFICATIONS FOR MATERIALS AND FITTINGS TO BE USED.

3. ALL PIPING LESS THAN 4 INCHES IS DEPICTED WITH A SINGLE LINE ON DRAWINGS HAVING A SCALE OF 1/4"=1'-0". FOR PIPING DRAWN AT OTHER SCALES WITH A SINGLE LINE, REFER TO THE TABLE:

SCALE	PIPE SIZE
1/8" = 1'-0"	LESS THAN 8"
3/16" = 1'-0"	" " 6"
1/4" = 1'-0"	" " 4"
3/8" = 1'-0"	" " 3"
1/2" = 1'-0"	" " 2"
3/4" = 1'-0"	" " 1 1/2"
1" = 1'-0"	" " 1"

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BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD
FILENAME 156470-G-00-004.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389

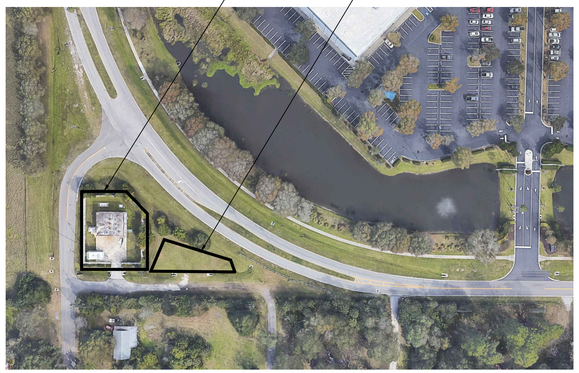
GENERAL

SYMBOLS AND LEGENDS 1

DRAWING NUMBER
G-00-004

SHEET NUMBER 4 OF 47

NORTH

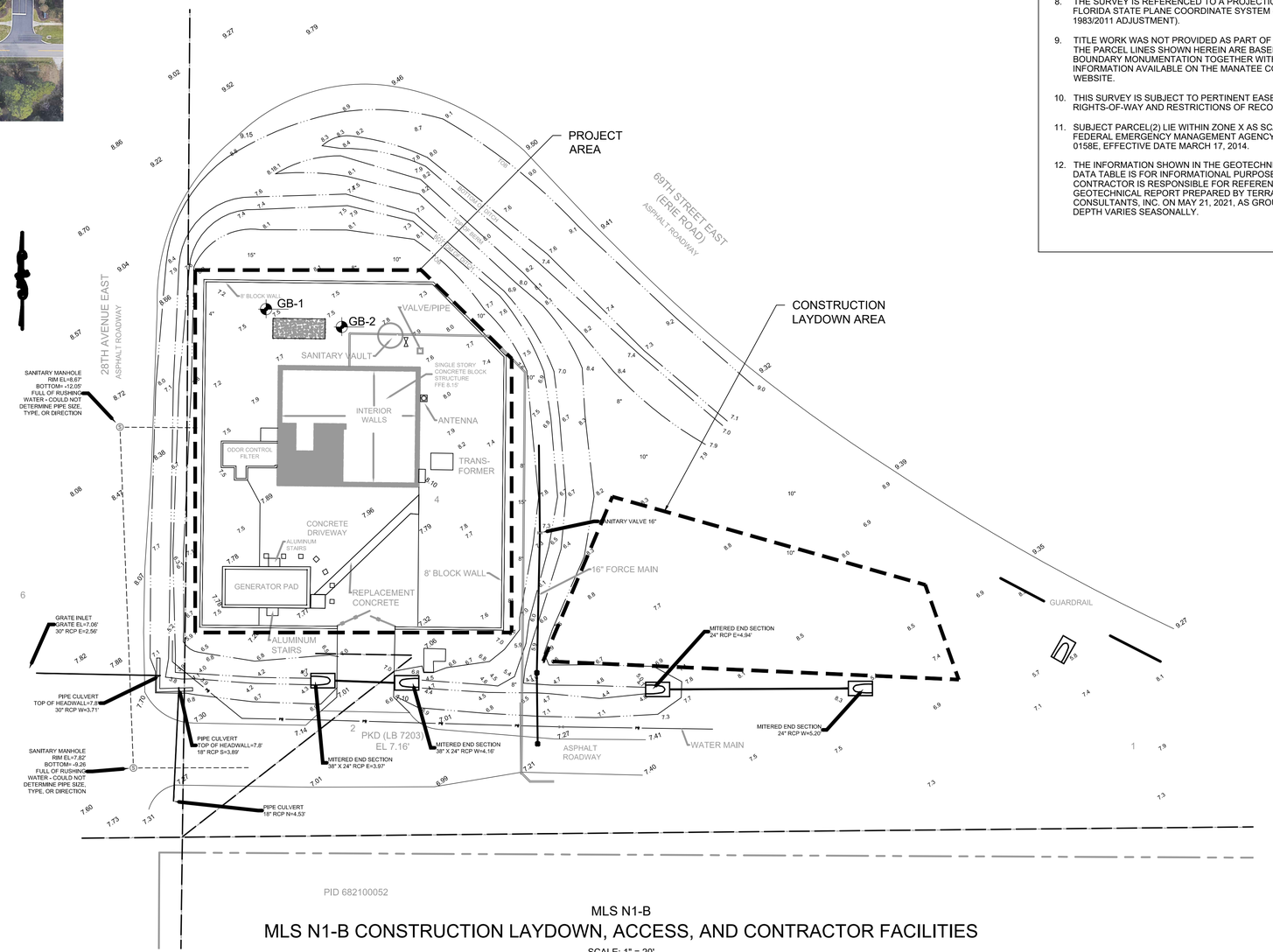


MLS N1-B

AERIAL VIEW

SCALE: 1" = 70'

GEOTECHNICAL BORING DATA				
BORING	APPROXIMATE NORTHING	APPROXIMATE EASTING	BORING DEPTH	APPROXIMATE GROUND WATER LEVEL (BELOW SURFACE GRADE) (FEET)
B-1	1178925.81	482604.49	25.0	6.0
B-2	1178920.44	482627.50	23.8	6.0



LEGEND

R/W	RIGHT-OF WAY	←	GUY WIRE
PID	PARCEL IDENTIFICATION	▭	WATER METER
PB	PLAT BOOK	Ⓢ	SANITARY MANHOLE
OR	OFFICIAL RECORD	Ⓢ	STORM MANHOLE
PG	PAGE		MAILBOX
BM	BENCHMARK	☼	LIGHT POLE
FFE	FINISHED FLOOR ELEVATION		FIRE HYDRANT
EL	ELEVATION		BACKFLOW PREVENTER
PKD	PK NAIL AND DISK	⊙	BOLLARD
●	IRON ROD W/ CAP	▭	UTILITY BOX
⊙	PK NAIL W/ DISK	⬠	ANTENNA
■	UNDERGROUND UTILITY MARKER	⋈	VALVE
BM-X	SITE BENCHMARK	▭	MITERED END SECTION
○	SIGN		ELECTRICAL BOX
⌀	UTILITY POLE		PALM TREE
GB-X	GEOTECHNICAL BORING		OAK TREE
			TREE

MLS N1-B

MLS N1-B CONSTRUCTION LAYDOWN, ACCESS, AND CONTRACTOR FACILITIES

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

NOTE:
1. BACKGROUND AERIAL IMAGE OBTAINED FROM LAND BOUNDARY INFORMATION SYSTEM (LABINS) WEBSITE.
2. SURVEY OBTAINED FROM HYATT SURVEY SERVICES, DATED 5/18/2021

FACILITY ADDRESS:
2903 69TH CT, PALMETTO, FL

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE CONTINUOUS ACCESS TO COUNTY STAFF FOR TYPICAL FACILITY OPERATIONS AND MAINTENANCE AT ALL TIMES.
2. CONTRACTOR SHALL COORDINATE WITH THE COUNTY ON A WEEKLY BASIS TO PLAN FOR DELIVERY AND HAULING SCHEDULES.
3. CONTRACTOR SHALL FIELD LOCATE POTENTIAL HAZARDS AND PROTECT EXISTING FACILITIES AND INFRASTRUCTURE PRIOR TO USE OF LAY DOWN AREA.
4. CONSTRUCTION LAY DOWN AREA MAY BE USED FOR STAGING, STORAGE DELIVERY, HAULING, PARKING AND FIELD OFFICE IF APPLICABLE.
5. AFTER CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL RESTORE THE LAYDOWN AREA WITH BAHIA SOD (SPECIFICATION 02485). AREA SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN PRE-EXISTING CONDITIONS.
6. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITION SHOWN PRIOR TO BID.
7. THE FOLLOWING NGS VERTICAL CONTROL MONUMENT WAS RECOVERED AND UTILIZED FOR ELEVATIONS INDICATED HEREON: "UNION" NAVD 1988 ELEVATION 8.59'
8. THE SURVEY IS REFERENCED TO A PROJECTION OF THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE NAD 1983/2011 ADJUSTMENT).
9. TITLE WORK WAS NOT PROVIDED AS PART OF THE SURVEY. THE PARCEL LINES SHOWN HEREIN ARE BASED ON FOUND BOUNDARY MONUMENTATION TOGETHER WITH PUBLIC INFORMATION AVAILABLE ON THE MANATEE COUNTY CLERK WEBSITE.
10. THIS SURVEY IS SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY.
11. SUBJECT PARCEL(2) LIE WITHIN ZONE X AS SCALED FROM FEDERAL EMERGENCY MANAGEMENT AGENCY MAP 12081C 0158E, EFFECTIVE DATE MARCH 17, 2014.
12. THE INFORMATION SHOWN IN THE GEOTECHNICAL BORING DATA TABLE IS FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR REFERENCING THE GEOTECHNICAL REPORT PREPARED BY TERRACON CONSULTANTS, INC. ON MAY 21, 2021, AS GROUND WATER DEPTH VARIES SEASONALLY.

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Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD

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GENERAL

CONSTRUCTION LAYDOWN, ACCESS AND CONTRACTOR FACILITIES

DRAWING NUMBER
G-00-081

SHEET NUMBER 5 OF 47

Path: C:\BCPW\D2331105 FILENAME: 156470-G-00-081.DWG PLOT DATE: 8/23/2022 12:30 PM CAD USER: PHILLIP DAVIS

CIVIL SYMBOLS AND LEGEND

- EXISTING GRADE SPOT ELEVATION
- OAK
- PALM
- PINE
- MISC TREE
- ORNAMENTAL
- PROPOSED DRAINAGE FLOW PATH
- (D) STORM DRAINAGE MANHOLE
- (SS) SANITARY SEWER MANHOLE
- SITE BENCHMARK
- FOUND BOUNDARY MONUMENT
- UTILITY VAULT
- MAILBOX
- SIGN
- POWER POLE
- LIGHT POLE
- GUY WIRE
- ANTENNA
- STAND PIPE
- AIR RELEASE VALVE
- CONTROL PANEL
- SANITARY / UTILITY VALVE
- FIRE HYDRANT
- WATER METER
- BACK FLOW PREVENTER
- (D) STORM MANHOLE
- SANITARY MANHOLE
- STORM GRATE INLET
- UTILITY VALVE

IRC	IRON ROD W/CAP
TOB	TOP OF BANK
D/W	CONCRETE DRIVEWAY
EP	EDGE OF PAVEMENT
STRM	STORM SEWER
FM	FORCE MAIN
W	WATER MAIN
AC	ASBESTOS CEMENT
SD	STORM DRAIN
CI	CAST IRON
DI	DUCTILE IRON
VCP	VITRIFIED CLAY PIPE
HDPE	HIGH DENSITY POLYETHYLENE
PVS	POLYVINYL CHLORIDE
FOC	FIBER OPTIC CABLE

- FM — FORCEMAIN
- PROPERTY LINE
- ROW
- SS — SANITARY SEWER
- SILT FENCE
- SD — STORM DRAIN
- CHAIN LINK FENCE
- 18 — EXISTING GRADE CONTOUR

- EXISTING FACILITIES
- EXISTING FACILITIES TO BE COMPLETELY DEMOLISHED
- NEW FACILITIES
- STAGING AREA
- EXISTING CONCRETE SIDEWALK
- PROPOSED CONCRETE SIDEWALK

COATING REPAIR NOTES

COATING SURFACE REPAIR PREPARATION NOTES:

1. COATING REPAIRS ARE REQUIRED TO BE PERFORMED BY AN APPLICATOR THAT HOLDS A CERTIFIED APPLICATOR CREDENTIAL FROM THE COATING SYSTEM MANUFACTURER.
2. PRIOR TO COATING SURFACE REPAIR PREPARATION OR COATING SYSTEM APPLICATION, CONTRACTOR SHALL CLEAN THE WET WELL, AS PER SPECIFICATION 13350A TITLED WET WELL CLEANING.
3. REMOVE ALL SURFACE CONTAMINANTS BY SOLVENT CLEANING IN ACCORDANCE WITH SSPC-SP1 SOLVENT CLEANING. A CLEANING DETERGENT SUCH AS TRISODIUM PHOSPHATE AND/OR A DEGREASER MUST BE UTILIZED TO FACILITATE CLEANING. *CLEANING MAY BE ACCOMPLISHED THROUGH PRESSURE WASHING WITH A MINIMUM 3,000 PSI (FAN TIP). CLEANING AGENTS MAY STILL BE NECESSARY IN ORDER TO EXPOSE THE SUBSTRATE AND PROVIDE A CLEAN SURFACE FOR LINING REPAIR PROCEDURES.* ABRASIVE BLAST WILL BE REQUIRED FOR CONCRETE SURFACE PROFILE (CSP) CSP3 THRU CSP5 PER ICRI TECHNICAL GUIDELINE NO. 310.2R-2013 (SEE TABLES 7.1 AND 7.2). SEE NOTE 9.
4. SURFACES MUST BE SOUND AND CONTAMINANT-FREE WITH SURFACE PROFILE EQUIVALENT TO A MINIMUM CONCRETE SURFACE PROFILE (CSP) CSP3 TO CSP5 IN ACCORDANCE WITH ICRI TECHNICAL GUIDELINE NO. 310.2R-2013.
5. ALL DAMAGED LININGS (COATINGS) AND CONCRETE SHALL BE REMOVED UNTIL ENCOUNTERING INTACT AND ADHERENT SURROUNDING LININGS AND CONCRETE.
6. ALL LINING (COATING) EDGES SHALL BE FEATHERED INTO THE SURROUNDING COATINGS.
7. ALL EXPOSED CONCRETE SHALL BE TESTED FOR A PH OF 9 OR BETTER PRIOR TO PROCEEDING TO ANY APPLICATIONS. CONCRETE NOT MEETING THIS REQUIREMENT, SHALL BE REMOVED. A MINIMUM OF ONE (1) TEST PER EVERY 50 SQUARE FEET PER EVER REPAIR AREA IDENTIFIED IS REQUIRED.
8. CUT INTO THE EXISTING COATINGS TO SQUARE OFF THE EDGES TO BE REPAIRED.
9. ABRASIVE BLAST OR MECHANICALLY ABRADE ALL SURFACES TO BE COATED:
   - BARE CONCRETE: ABRADE IN ACCORDANCE WITH SSPC-SP13/NACE NO. 6 TO PROVIDE AN ICRI-CSP5 PROFILE.
   - EXISTING COATINGS: ABRADE FROM THE AREA TO BE PATCHED UP AT LEAST 2 INCHES ONTO THE EXISTING COATINGS TO THOROUGHLY AND UNIFORMLY SCARIFY AND DE-GLOSS, AND TO PROVIDE A MINIMUM ANGULAR ANCHOR PROFILE OF 3.0 MILS.
10. ALL SURFACES MUST BE CLEAN, DRY, AND CONTAMINANT-FREE PRIOR TO THE APPLICATION OF COATINGS.
11. ALL PREPARED SURFACES MUST BE COATED AS SOON AS POSSIBLE ON THE SAME DAY AS SURFACE PREPARATION TO PREVENT FLASH RUSTING OR RE-CONTAMINATION OF THE SUBSTRATE.
12. NO NEW COATINGS (LININGS) SHALL BE APPLIED BEYOND THOSE SURFACES ROUGHEN/PREPARED.
13. ANY SURFACES WHICH FALL OUT OF COMPLIANCE WITH THE ABOVE SURFACE CLEANLINESS DEFINITIONS MUST BE RE-CLEANED PRIOR TO COATING.

COATING REPAIR SYSTEM NOTES:

1. RAVEN LINING SYSTEMS AND GML COATINGS ARE THE APPROVED LINING PRODUCTS FOR THIS PROJECT. THE APPLICATION INSTRUCTIONS ARE BASED ON THE RAVEN LINING SYSTEMS, COATING 405 TDS. SHOULD THE CONTRACTOR PREFER TO UTILIZE AN ALTERNATE SYSTEM THAT IS A MANATEE COUNTY APPROVED PRODUCT (GML COATINGS), A PRODUCT SPECIFIC APPLICATION PROCEDURE SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
2. THE REPAIRS SHALL BE APPLIED BY A BRUSH/TROWEL.
3. APPLY ALL COATING SYSTEM TO MANUFACTURER INSTRUCTIONS AND RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE PROPOSED COATING REPAIR SYSTEM AND PREPARATION AND APPLICATION INSTRUCTIONS TO THE COUNTY FOR REVIEW AND APPROVAL.
4. THE APPLICATOR/CONTRACTOR SHALL RECORD THE ENVIRONMENTAL CONDITIONS (TEMPERATURE AND MOISTURE) AT TIME OF APPLICATIONS.
5. THE CONTRACTOR SHALL INFORM THE COUNTY OF THE COATING REPAIR AT LEAST 48-HOUR PRIOR TO PERFORMING THE REPAIR TO ALLOW FOR AN INSPECTOR TO BE PRESENT DURING THE REPAIR ACTIVITIES.
6. BARE CONCRETE ONLY: APPLY RAVEN PRIMER 175, RAVEN 171FS, OR RAVEN 155 (WHICHEVER IS APPROPRIATE) ACCORDING TO MANUFACTURER INSTRUCTIONS. SCREED OFF ONTO THE ADJACENT WELL-ADHERED EXISTING COATINGS.
7. PIT FILLER (AS NEEDED TO FILL SHARP, ANGULAR PITS AND VOIDS): ADD AGGREGATE (SUCH AS FUMED SILICA OR BULKING POWDER), AS RECOMMENDED BY THE COATING MANUFACTURER, TO INCREASE ITS VISCOSITY AND APPLY THIS PATCHING MATERIAL TO FILL ALL SHARP, ANGULAR PITS AND VOIDS.
8. ALL REPAIR SURFACES: APPLY RAVEN 405 TDS @ 80.0 - 125.0 MILS PER COAT.
9. FINAL INSPECTION OF COATING SYSTEM REPAIR AREAS SHALL BE FREE FROM PINOLES, HOLIDAYS, VOIDS, THIN FILM MILLAGE, OR OTHER DEFECTS. IF APPLICATION DEFECTS ARE PRESENT, AS DETERMINED BY THE MANUFACTURER, THE CONTRACTOR SHALL REPAIR DEFECTS ACCORDING TO MANUFACTURER'S INSTRUCTION AT ADDITIONAL COST.

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE COUNTY'S REPRESENTATIVE IMMEDIATELY TO REPORT ANY CONFLICTS BETWEEN WHAT IS SHOWN HEREIN AND ACTUAL CONDITIONS DISCOVERED DURING CONSTRUCTION.
2. THE CONTRACTOR, WORKING WITH THE COUNTY, SHALL COORDINATE THE SHUTDOWN, STARTUP AND/OR PARTIAL INTERFERENCE WITH ONGOING SYSTEM OPERATIONS.
3. THE CONTRACTOR SHALL CONTROL ALL FUGITIVE DUST ORIGINATING FROM THE PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.
4. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE DRAWINGS HAVE BEEN ESTABLISHED BASED ON BEST AVAILABLE INFORMATION AT THE TIME OF THE PREPARATION OF THE PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT SIZE, LOCATION, DEPTH AND HEIGHT OF ALL UNDERGROUND AND OVERHEAD UTILITIES WHICH MAY BE WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.
5. NEW FORCE MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
6. A 36" MINIMUM DEPTH OF COVER FOR PIPES LESS THAN 20" SHALL BE PROVIDED UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED BY THE COUNTY'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL PROVIDE SUPPORT FOR UTILITY POLES WHERE CONSTRUCTION MAY CAUSE THE POLE TO LOSE ITS SUPPORT. CONTRACTOR SHALL COORDINATE WITH POWER COMPANY TO SUPPORT POLES AND/OR RELOCATE DOWN GUY WIRES AS NECESSARY FOR CONSTRUCTION OF FACILITIES.
8. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED SHEETING AND TRENCH SHORING REQUIRED TO PROTECT EXISTING UTILITIES AND OTHER FACILITIES INTENDED TO REMAIN IN SERVICE.
9. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO ESTABLISH THE PROPOSED PIPELINE, RIGHT-OF-WAY LINES, EASEMENT LINES, BASE LINES, BENCH MARKS (ELEVATION), CENTER LINES AND STATIONING COORDINATE CONTROL AS REQUIRED TO CONSTRUCT THIS PROJECT.
10. THE CONTRACTOR SHALL COMPLY WITH THE "TRENCH SAFETY ACT", CHAPTER 90-96, FLORIDA STATUTES. THE CONTRACTOR SHALL INSTALL BARRIER WALLS, SHEETING, SHORING, ETC. THAT COMPLIES WITH THE LATEST FDOT STANDARDS AND OSHA REQUIREMENTS AROUND ALL EXCAVATION PITS.
11. THE CONTRACTOR SHALL NOTIFY AND CALL "SUNSHINE 811" PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL FURTHER COORDINATE WITH UTILITY COMPANIES TO RESOLVE CONFLICTS WHICH MAY ARISE IN THE FIELD DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST 72 HOURS PRIOR TO EXCAVATION.
12. CONFLICTS ARISING FROM EXISTING UTILITIES SHALL BE BROUGHT TO THE COUNTY REPRESENTATIVE'S ATTENTION IMMEDIATELY.
13. ALL DISTURBED GRASS AREAS SHALL BE RESTORED WITH SOLID SOD UNLESS OTHERWISE NOTED OR DIRECTED BY THE COUNTY'S REPRESENTATIVE. ALL SHRUBS AND LANDSCAPING REQUIRED TO BE REMOVED FOR THE INSTALLATION OF THE NEW OR TEMPORARY UTILITIES SHALL BE RESTORED BY THE CONTRACTOR TO EQUAL CONDITION. ALL GRASS AREAS AFFECTED SHALL BE RE-SODDED WITH BAHIA. SEE SPECIFICATION 02485, SEEDING AND SODDING FOR ADDITIONAL REQUIREMENTS.
14. FINISHED GRADE FOR GROUND ELEVATIONS ON DRAWINGS REFER TO GRADE AFTER SODDING.
15. ALL PROPOSED BURIED DUCTILE IRON PIPE AND FITTINGS AND VALVES SHALL BE WRAPPED IN POLYETHYLENE PLASTIC.
16. ALL WORK SHOWN ON THESE DRAWINGS IS TO BE CONSTRUCTED WITHIN PUBLIC RIGHTS-OF-WAY, EASEMENTS OF RECORD OR COUNTY OF MANATEE OWNED PROPERTY. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR ENCROACH ON LAND OR CONSTRUCT ANY PART OF THE PROJECT OUTSIDE PUBLIC RIGHTS-OF-WAY, EASEMENTS OF RECORD OR COUNTY OF MANATEE OWNED PROPERTY. ANY CONFLICT BETWEEN PUBLIC RIGHT-OF-WAY, EASEMENTS OF RECORD OR COUNTY OF MANATEE OWNED PROPERTY AS SHOWN ON THE DRAWINGS AND THOSE ESTABLISHED IN THE FIELD SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE COUNTY'S REPRESENTATIVE FOR RESOLUTION.
17. SIDEWALKS, DRIVEWAYS AND CURBING DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN ACCORDANCE WITH THE COUNTY OF MANATEE STANDARDS. SIDEWALKS REMOVED AND REPLACED IN CURB AND GUTTER AREAS AT INTERSECTIONS SHALL HAVE HANDICAP RAMPS INSTALLED.
18. CONTRACTOR SHALL PROVIDE "AS-BUILT" ELEVATIONS AND LOCATIONS FOR THE FOLLOWING, WHICH INCLUDE, BUT IS NOT LIMITED TO: AT MINIMUM, EVERY 100 FEET AND AT ANY GRADE CHANGES OR DIRECTION CHANGES OF THE PROPOSED UTILITIES; AT ALL FITTINGS, BENDS, VALVES; ALL PIPE INVERTS INTO EXISTING STRUCTURES; BOTTOM OF ALL MANHOLES AND; ELEVATIONS AND LOCATIONS OF EACH EXISTING UTILITY CROSSING ANY PROPOSED UTILITY.
19. CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE COUNTY'S REPRESENTATIVE AND OBTAIN ALL NECESSARY PERMITS PRIOR TO BEGINNING WORK IN THE RIGHT OF WAY PER SECTION 02050 and 01005.
20. THE CONTRACTOR SHALL RESTORE ALL PROPERTY AND INFRASTRUCTURE INCLUDING UTILITIES DISTURBED BY CONSTRUCTION ACTIVITIES TO THE CONDITIONS, WHICH EXISTED PRIOR TO CONSTRUCTION. THE COST OF SUCH RESTORATION SHALL BE INCLUDED IN THE BID.
21. ALL WORK TO BE IN ACCORDANCE WITH COUNTY OF MANATEE ORDINANCES, REGULATIONS, AND STANDARDS.
22. CONTRACTOR IS SOLELY RESPONSIBLE FOR PROJECT SAFETY.
23. THE INFORMATION PROVIDED IN THESE DRAWINGS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. THE CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH BIDS WILL BE BASED.
24. ALL GRADES SHOWN IN PLAN ARE FINISHED GRADES.
25. ANY CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF MANATEE COUNTY AND ANY OTHER LOCAL, STATE OR FEDERAL AGENCY WITH JURISDICTION. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE COUNTY.
26. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING IN OR AROUND AREAS OF OVERHEAD AND UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUBSURFACE UTILITY INVESTIGATIONS AND VISUAL VERIFICATION OF IDENTIFIED UTILITIES PRIOR TO EXCAVATION.
27. THE CONTRACTOR SHALL RESTRICT PERSONNEL, THE USE OF EQUIPMENT, AND THE STORAGE OF MATERIALS TO AREAS WITHIN THE LIMITS OF CONSTRUCTION AND STAGING OR LAY DOWN AREAS, SHOWN ON G-00-081.

GENERAL NOTES

28. ALL EXCESS MATERIAL, AS DESIGNATED BY THE ENGINEER, IS TO BE DISPOSED BY THE CONTRACTOR WITHIN 72 HOURS OF BEING DEPOSITED IN THE CONSTRUCTION AREA AND AT THE CONTRACTOR'S EXPENSE.
29. ALL DISPOSAL OF MATERIALS, RUBBISH AND DEBRIS, SHALL BE MADE AT A LEGAL DISPOSAL SITE OR BY OTHER PRIOR APPROVED MANNER. MATERIAL CLEARED FROM THE SITE AND DEPOSITED ON ADJACENT AREAS WILL NOT BE CONSIDERED AS HAVING BEEN DISPOSED OF PROPERLY. OWNERSHIP OF DEMOLISHED MATERIAL SHALL BE SPECIFIED AND A CHAIN OF CUSTODY PROVIDED TO THE COUNTY.
30. ANY KNOWN OR SUSPECTED HAZARDOUS MATERIAL FOUND IN OR ON THE PROJECT BY THE CONTRACTOR SHALL BE IMMEDIATELY REPORTED TO THE COUNTY, WHO SHALL DIRECT THE CONTRACTOR TO PROTECT THE AREA OF KNOWN OR SUSPECTED CONTAMINATION FROM FURTHER ACCESS. THE COUNTY WILL ARRANGE FOR INVESTIGATION, IDENTIFICATION, AND REMEDIATION OF THE HAZARDOUS MATERIAL. THE CONTRACTOR WILL NOT RETURN TO THE AREA OF CONTAMINATION UNTIL APPROVAL IS PROVIDED BY THE COUNTY.
31. CONTRACTOR SHALL AVOID THE REMOVAL AND ANY DAMAGE TO ANY EXISTING TRESS UNLESS OTHERWISE DIRECTED BY THE CONTRACT DOCUMENTS.
32. NO PERMANENT CONCRETE THRUST BLOCKS SHALL BE USED AS PART OF THIS PROJECT. JOINT RESTRAINT SHALL BE ACCOMPLISHED THROUGH MECHANICAL RESTRAINTS ONLY. ALL BURIED PIPE SHALL BE MECHANICALLY RESTRAINED.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE PERMITS.
34. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE MAY BE SOME CONFLICTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, PROTECT, AND REPLACE (IF DAMAGED) ANY AND ALL EXISTING UTILITIES ON THIS PROJECT AT THEIR OWN EXPENSE.
35. CONTRACT SHALL REFERENCE THE MANATEE COUNTY UTILITY APPROVED PRODUCT LIST. DISCREPANCIES AND/OR ASSUMPTIONS WITHOUT REFERENCE TO THE APPROVED PRODUCT LIST WILL NOT CONSTITUTE A REASON FOR INCREASED COMPENSATION FOR THE WORK BID. ANY DISCREPANCIES BETWEEN THE UTILITY APPROVED PRODUCT LIST AND THE SPECIFICATIONS SHALL BE BROUGHT TO THE COUNTIES ATTENTION.
36. SURVEY OBTAINED FROM HYATT SURVEY SERVICES, DATED 5/18/2021
37. FACILITY ADDRESS: 2903 69TH CT, PALMETTO, FL

GENERAL LIFT STATION NOTES

1. ELECTRICAL, INSTRUMENTATION, AND CONTROL DRAWINGS FROM APPROVED MANUFACTURER'S O&Ms SHALL BE LAMINATED AND PLACED INSIDE THE CONTROL PANEL.
2. PRIOR TO ACCEPTANCE OF THE LIFT STATION, THE SITE SHALL BE COMPLETELY CLEARED OF ALL CONSTRUCTION DEBRIS, THE CONTROL PANELS SHALL BE CLEANED OF ALL METAL SHAVINGS, ALL PIPING SHALL BE FINISH COATED, AND THE LIFT/PUMP STATION SHALL BE TESTED AND FOUND TO BE FULLY OPERATIONAL.
3. ALL ABOVE GROUND PIPING SHALL BE COLOR COATED: BLUE FOR POTABLE WATER, GREEN FOR WASTEWATER, AND PURPLE FOR REUSE.
4. THE LOCATION OF ALL BURIED PIPING AND ELECTRICAL CONDUITS ARE TO BE INCLUDED ON THE RECORD DRAWINGS.
5. ALL WORK COMPLETED FOR THIS PROJECT SHALL COMPLY WITH THE MANATEE COUNTY PUBLIC WORKS STANDARD, PART 1. UTILITIES STANDARDS MANUAL, BOARD APPROVED FEBRUARY 25, 2020.

BURIED UTILITY NOTES

1. EXISTING UTILITIES ARE CONSIDERED TO BE SHOWN IN THE HORIZONTAL PLAN WITH REASONABLE ACCURACY. HOWEVER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE WHATEVER FURTHER INVESTIGATIONS ARE NECESSARY TO ESTABLISH THE EXACT LOCATION OF THE EXISTING UTILITY AND ADJUST ROUTING OF NEW UTILITY FACILITIES PRIOR TO LAYING THE NEW UTILITIES TO MEET THE INTENT OF THE DESIGN.
2. THE ENGINEER DOES NOT ASSUME RESPONSIBILITY THAT DURING CONSTRUCTION UNDERGROUND PIPING AND UTILITIES OTHER THAN THAT SHOWN MAY BE ENCOUNTERED. ANY DAMAGE TO EXISTING PIPING AND UTILITIES MUST BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE COUNTY AT THE EXPENSE OF THE CONTRACTOR.

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

ENGINEER OF RECORD
R. GAYLORD, PE 80981

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	B. SILLMAN
DRAWN:	P. VITERI
CHECKED:	S. HALL
CHECKED:	A. MODY
APPROVED:	R. GAYLORD

FILENAME
156470-C-00-001.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389
CIVIL

CIVIL SYMBOLS, LEGENDS, AND NOTES

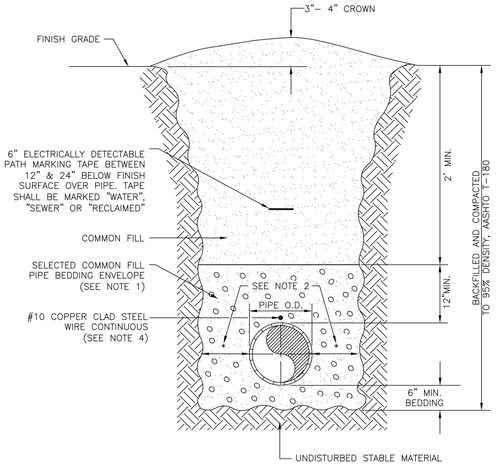
DRAWING NUMBER
C-00-001

SHEET NUMBER 6 OF 47

Path: C:\BCPWD2331098 FILENAME: 156470-C-00-001.DWG PLOT DATE: 8/23/2022 12:46 PM CAD USER: PHILLIP DAVIS

NOTES:

1. USE OF TYPE A–2 AND A–3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
4. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

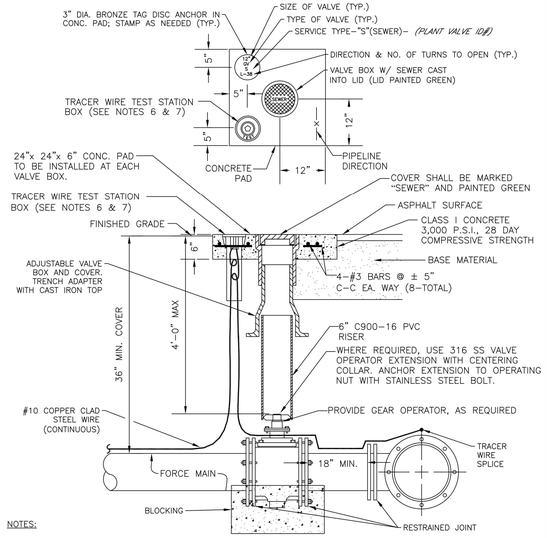


MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY / DATE	February 25, 2020 DATE OF APPROVAL	TRENCH WITH UNIMPROVED SURFACE TYPE A–1 PIPE BEDDING	UG–11

TRENCH WITH UNIMPROVED SURFACE
TYPE A-1 PIPE BEDDING

DETAIL A VAR

SCALE: NONE



NOTES:

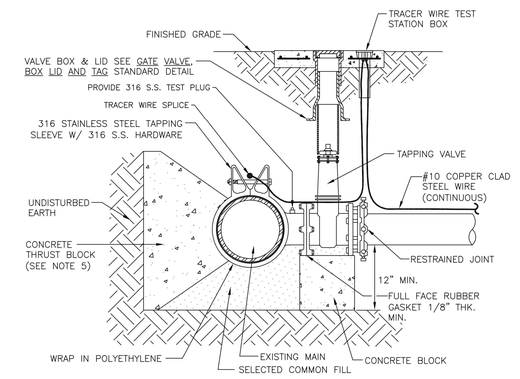
1. "SV" TO BE IMPRESSED INTO THE NEWLY–POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A GREEN DISC WITH "SV" AND A 1/8" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
3. VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS, CURBS OR GUTTERS.
4. PRECAST CONCRETE PADS AND THRUST BLOCKS SHALL NOT BE USED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. USE NON–TRAFFIC RATED BOXES FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICLE TRAFFIC, USE TRAFFIC RATED BOXES. WHERE POSSIBLE, LOCATE TRACE WIRE TESTING STATION OUTSIDE OF TRAVEL LANE OR IN MEDIAN, CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.
7. TRACER WIRE BOX SHALL BE LOCATED OUTSIDE THE ROADWAY ON THOROUGHFARES, LOCAL ARTERIAL AND STATE ROADWAYS.
8. THE BRASS TAG SHALL HAVE A "PLANT VALVE ID# WHEN VALVES ARE INSTALLED WITHIN THE COUNTY TREATMENT PLANT LIMITS. THE PLANT VALVE ID# SHALL BE SHOWN ON THE CONSTRUCTION PLANS AND RECORD DRAWINGS.
9. REFER TO SECTION 1.11 IN THE PUBLIC WORKS UTILITY STANDARDS MANUAL FOR FURTHER DETAILS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY / DATE	February 25, 2020 DATE OF APPROVAL	VALVE, BOX, COVER AND TAG	US–11

VALVE BOX, COVER, AND TAG

DETAIL B VAR

SCALE: NONE



ELEVATION

NOTES:

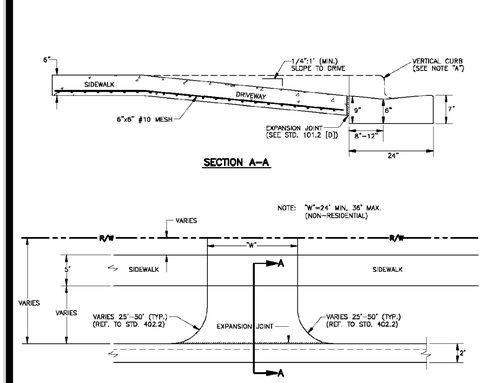
1. PRIOR TO TAPPING, CONTRACTOR TO DEMONSTRATE 60 MINUTE HYDROSTATIC TEST OF THE TAPPING SLEEVE AND VALVE WITH NO LOSS OF 150 PSI FOR FORCE MAIN.
2. ALL FITTINGS TO BE WRAPPED WITH 20 MIL POLYETHYLENE PLASTIC SHEETING AT THRUST BLOCK.
3. ALL TAPS MUST BE OF A SMALLER SIZE THAN THE MAIN BEING TAPPED & PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS GREATER) FROM A JOINT OR FITTING.
4. CONTRACTOR TO SUPPLY A DRY HOLE FOR TAPPING CREW TO WORK IN AND A BACK–HOE TO LOWER TAPPING MACHINE INTO THE HOLE.
5. WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR "TEES."
6. TRACER WIRE TEST STATION BOX IS REQUIRED AT CONNECTIONS TO EXISTING MAINS.
7. SEE SECTION 1.11 TAPPING SLEEVES AND VALVES IN THE PUBLIC WORKS UTILITY STANDARDS MANUAL FOR FURTHER DETAILS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY / DATE	February 25, 2020 DATE OF APPROVAL	TAPPING SLEEVE AND VALVE (FORCE MAINS)	US–12

TAPPING SLEEVE AND VALVE
(FORCE MAIN)

DETAIL C VAR

SCALE: NONE



SECTION A–A

PLAN VIEW

A) IF REPLACING VERTICAL CURB AND GUTTER, REPLACE WITH MIAMI CURB AND GUTTER.
• NO CHANGE WITH 3" VALLEY CROSSING

B) SIDEWALK, CONSTRUCT WITH 6" CONCRETE, 6"x6" #10 MESH, 3000 PSI AT 28 DAYS.

C) DRIVEWAY CONSTRUCTED WITH 6" CONCRETE WITH 6"x6" #10 MESH, 3000 PSI AT 28 DAYS.

D) EXPANSION JOINT 1/2" PREFORMED JOINT FILLER PER FDOT SECTION 932–1.1 OR APPROVED ALTERNATE.
• IF DRIVE IS WIDER THAN 12', ADD JOINTS AT 10' CENTERS

E) 5' SIDEWALK ON LOCAL STREETS, 5' SIDEWALK ON THOROUGHFARES.
(MIXED USE PATHS MAY REQUIRE 8' SIDEWALKS PER LAND DEVELOPMENT CODE.)

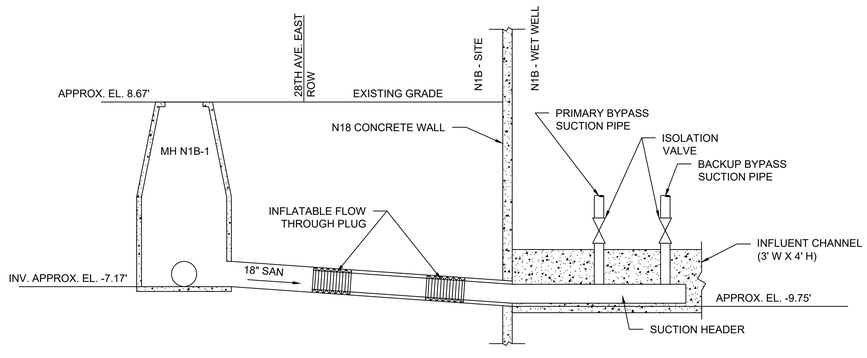
MANATEE COUNTY TRANSPORTATION DEPARTMENT			
REV.BY / DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	COMMERCIAL & INDUSTRIAL DRIVE	101.3

REINFORCED CONCRETE SIDEWALK

DETAIL D VAR

SCALE: NONE

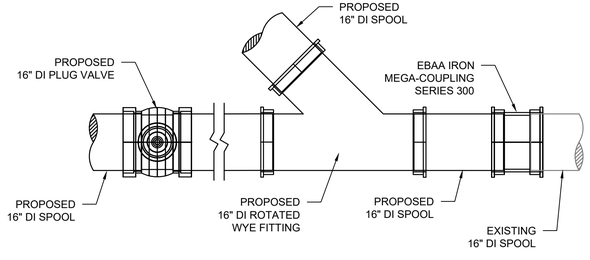
NOTES:
1. BEFORE INSERTING THE TEMPORARY INFLATABLE FLOW-THROUGH PLUG, CLEAN THE PIPE FROM ANY DEBRIS OR FOREIGN SUBSTANCES.
2. SEAL ANNUALAR SPACE BETWEEN INFLATABLE PLUG AND HOST 18" SANITARY SEWER, ACCORDING TO MANUFACTURER INSTRUCTIONS.
3. ENSURE FLOW HAS STOPPED AND ANNULAR SPACE IS PROPERLY SEALED.
4. BYPASS PUMPING CONTROLS (FLOATS) SHALL BE PLACED IN MH N1B-1. CONTRACTOR TO SUBMIT BYPASS PLAN FOR APPROVAL OF CONTROLS, EMERGENCY PUMPING, AND PROPOSED SURCHARGED DEPTH.
5. OBTAIN ANY NECESSARY CONFINED SPACE SAFETY PROCEDURES/PERMITS REQUIRED FOR THE BYPASS.
6. CONTRACTOR TO FOLLOW ALL MANUFACTURER INSTRUCTIONS FOR SAFETY, INSTALLATION, AND USAGE.
7. ONLY DAILY ACCESS TO MH N1B-1 CAN BE USED DURING INSTALLATION/REMOVAL OF THE INFLATABLE PLUG, CONTROLS, AND ASSOCIATIVE BYPASS SYSTEM. THE CONTRACTOR SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS BEFORE ACCESS IS REQUIRED. MAINTENANCE OF TRAFFIC SHALL BE PERMITTED ONLY DURING NORMAL WORKING HOURS.
8. THE CONTRACTOR SHALL SUBMIT FLOW-THROUGH PLUG DATA THAT SHOWS THAT THE PROPOSED SURCHARGE/CONTROLS WONT EXCEED FLOW-THROUGH PLUG'S PRESSURE RATING. THE MAXIMUM STATIC PRESSURE EXERTED BETWEEN THE MH N1B-1 RIM ELEVATION (8.67') AND THE INFLUENT CHANNEL INVERT (-9.75') IS ANTICIPATED TO BE 18.5' OF HEAD.



WET WELL BYPASS

DETAIL E VAR

SCALE: NONE



CONNECTION TO EXISTING 16" FORCE MAIN

DETAIL F VAR

SCALE: NONE

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Sarasota, FL 34240

ENGINEER OF RECORD
R. GAYLORD, PE 80981

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD

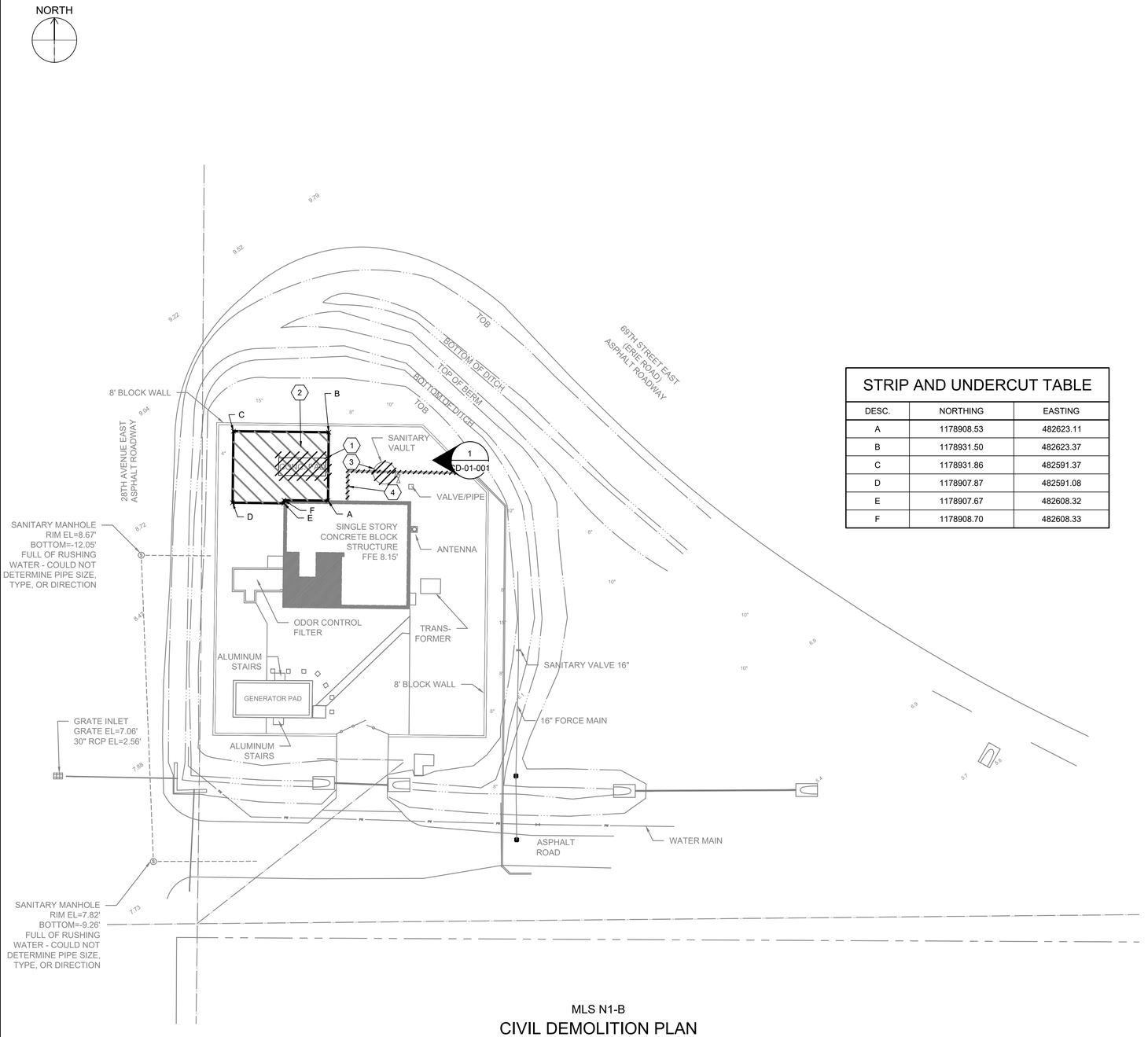
FILENAME 156470-C-00-002.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389

CIVIL

CIVIL DETAILS

DRAWING NUMBER
C-00-002

SHEET NUMBER 7 OF 47



MLS N1-B

CIVIL DEMOLITION PLAN

SCALE : 1' = 20'

STRIP AND UNDERCUT TABLE

DESC.	NORTHING	EASTING
A	1178908.53	482623.11
B	1178931.50	482623.37
C	1178931.86	482591.37
D	1178907.87	482591.08
E	1178907.67	482608.32
F	1178908.70	482608.33

GENERAL NOTES:

1. THE AREA SHOWN TO BE STRIPPED AND UNDERCUT SHALL INCLUDE THE BUILDING AREA, PLUS A PERIMETER MARGIN OF 5 FEET. THE AREA SHALL BE UNDERCUT 2 FEET BEYOND THE DEPTH OF THE BUILDING'S FOUNDATION TO CHECK FOR AND REMOVE ANY ADDITIONAL UNSUITABLE MATERIALS (e.g.WOOD DEBRIS) WITHIN THE EXISTING FILL. PER SPECIFICATION SECTION 02100.
2. FOLLOWING THE COMPLETION OF THE REMOVAL/REPLACEMENT OF THE DEBRIS FILL, DENSIFICATION OF THE EXISTING SANDY SOILS SHALL PROVIDE SUITABLE SUPPORT OF THE PROPOSED BUILDING. PER SPECIFICATION SECTION 02220.
3. DEMOLITION OF THE EXISTING VALVE VAULT SHALL INCLUDE REMOVAL OF THE TOP 3' OF THE CONCRETE STRUCTURE. THE DEMOLITION MAY INCLUDE LEAVING THE CONCRETE AS FILL WITHIN THE INTERIOR SPACE BUT CONCRETE SHALL BE DEMOLISHED INTO PIECES THAT COULD BE EASILY REMOVED AND SHALL NOT DAMAGE AND EXISTING OR PROPOSED INFRASTRUCTURE.
4. THE EXISTING 16' FORCE MAIN SHALL BE COMPLETELY REMOVED TO THE EXTENT REQUIRED TO INSTALL THE NEW FORCE MAIN, AS DETAILED ON SHEET C-01-111.
5. NOTE THE CONCRETE PAD SHOWN IN PHOTO 1/CD-01-001 WAS PREVIOUSLY USED AS A 1,000 GALLON DIESEL FUEL TANK, WHICH WAS REMOVED IN JANUARY 2018. RECORD DRAWINGS SHOW THAT THERE WERE FOUR (4) GROUND WATER MONITORING WELLS ADJACENT TO EACH CORNER OF THE CONCRETE PAD. NO INFORMATION RELATED TO THE DECOMMISSIONING OF THE GROUND WATER MONITORING WELLS AND MAY BE ENCOUNTERED WHEN EXCAVATING (STRIPPING/UNDERCUTTING).
6. WHEN THE DIESEL FUEL TANK WAS REMOVED THERE WERE NO VISUAL SIGNS OF LEAKAGE OR REPORTED DISCHARGES OF THE DIESEL FUEL TANK. CLOSURE SAMPLING WAS NOT REQUIRED DUE TO THE EXISTING CONDITIONS (DOUBLE WALLED TANK, RELEASE DETECTION DEVICES, NO REPORTED DISCHARGES). INFORMATION CANNED BE OBTAINED FROM FDEP'S ONLINE NEXUS SYSTEM VIA FACILITY ID NUMBER 41/8944468.
7. CRUSHED 57 STONE IS NOT ALLOWED UNDER THE BUILDINGS FOOTPRINT. CRUSHED 57 STONE IS ONLY ALLOWED FOR DRAINAGE PURPOSES, AS SHOWN ON SHEET C- 01-111.

KEYNOTES:

1. DEMOLISH CONCRETE PAD
2. STRIP AND UNDERCUT AREA (SEE ORIGINAL NOTES)
3. DEMOLISH VALVE VAULT AND 16" VALVE AND APPURTENANCE
4. DEMOLISH AND REMOVE EXISTING 16" FORCE MAIN TO THE EXTENTS SHOWN.

PHOTO 1 / CD-01-001

LEGEND

DEMOLISH

STRIPPED AND UNDERCUT

0 20' 40'

SCALE IN FEET

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
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156470-CD-01-001.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

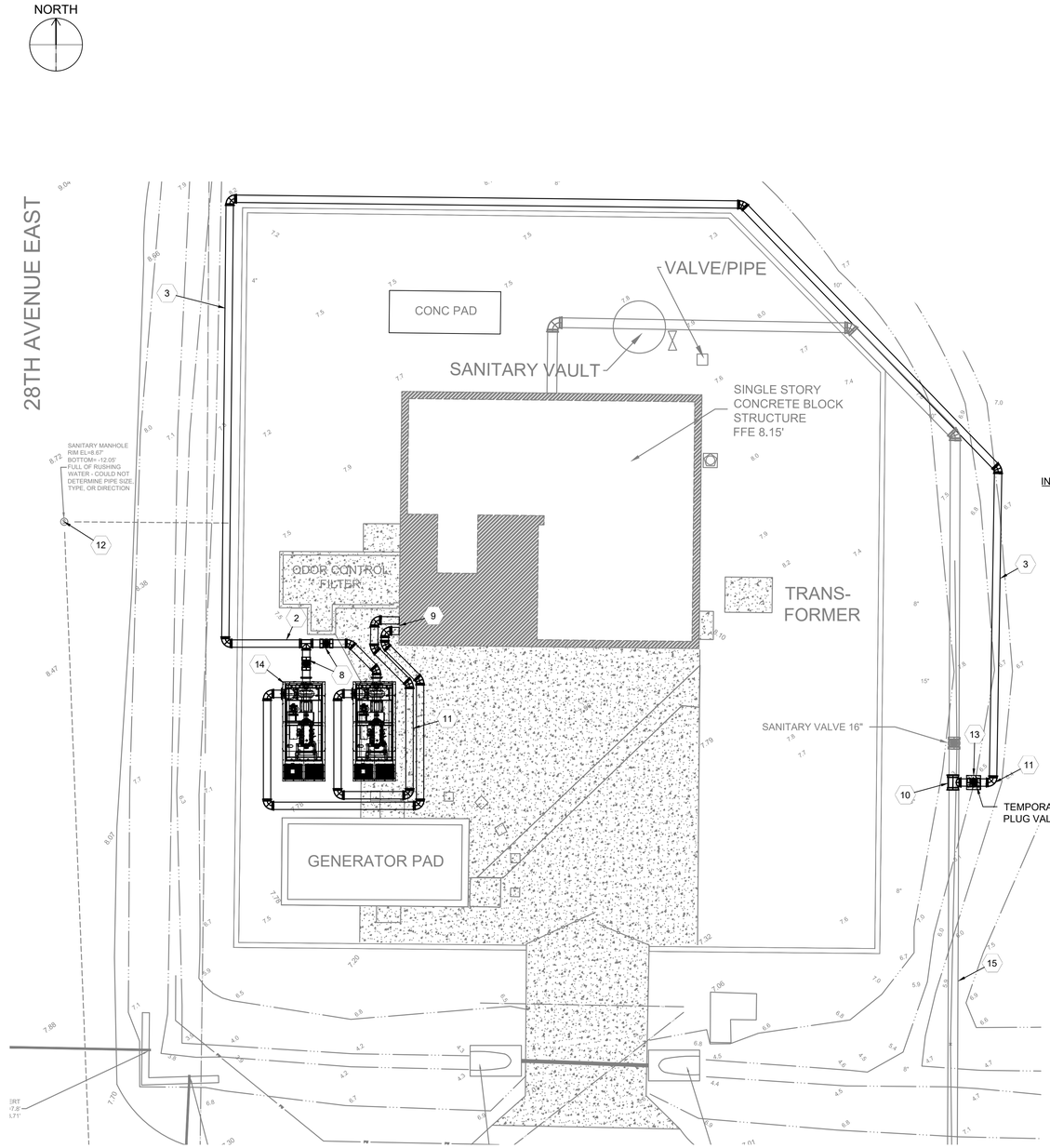
CIVIL

CIVIL DEMOLITION KEY PLAN

DRAWING NUMBER
CD-01-001

SHEET NUMBER 8 OF 47

Path: C:\BCPW\D2331098 FILENAME: 156470-CD-01-001.DWG PLOT DATE: 8/23/2022 1:08 PM CAD USER: PHILLIP DAVIS



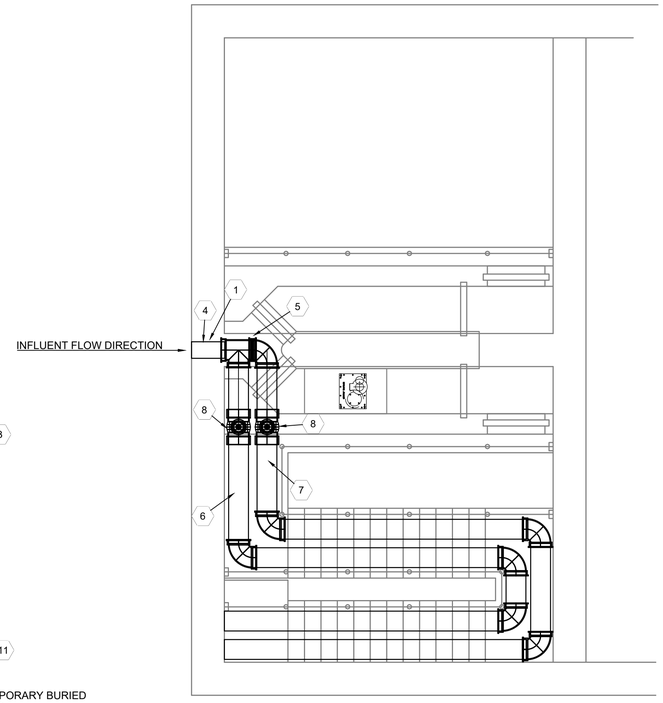
MLS N-1 B

BYPASS PUMPING SITE PLAN

SCALE : 1" = 10'

0 10 20

SCALE IN FEET



MLS N1-B BYPASS PUMPING SYSTEM CHARACTERISTICS		
CONDITION	HEAD (FEET)	TOTAL CAPACITY (GPM)
WET WEATHER PEAK	232	3520
DRY WEATHER MINIMUM	104	1268
DRY WEATHER AVERAGE	134	2000
DRY WEATHER MAXIMUM	193	2876

GENERAL NOTES:

1. THE CONTRACTOR SHALL ENSURE THAT THE INFLATABLE FLOW-THROUGH BYPASS PLUG SYSTEM IS COMPATIBLE WITH THE APPLICATION. THIS INCLUDES VERIFYING THAT THE UPSTREAM PRESSURES DO NOT EXCEED THE INFLATABLE PLUG MAXIMUM RATED PRESSURE RESISTANCE.
2. A MANIFOLD HEADER TO THE INFLATABLE FLOW-THROUGH BYPASS PLUG IS REQUIRED FOR REDUNDANCY AND TO PROTECT THE WET WELL FROM FLOODING DURING WET WELL CLEANING AND/OR COATING REPAIR IS BEING PERFORMED.
3. THE CONTRACTOR SHALL SUBMIT A BYPASS PLAN FOR COUNTY AND ENGINEERS REVIEW AND APPROVAL PER SPECIFICATION REQUIREMENTS. CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR THE BYPASS.
4. THE CONTRACTOR MAY SUBMIT ALTERNATIVE BYPASS PLAN FOR CONSIDERATION, AS AN ALTERNATIVE TO THE BYPASS PLAN SHOWN. HOWEVER, NO LANE CLOSURES ARE ALLOWED FOR PUBLIC ROADWAYS BETWEEN THE HOURS OF 5AM AND 9PM. IF ANY TEMPORARY MAINTENANCE OF TRAFFIC IS REQUIRED, IT SHALL BE A PART OF THE BYPASS PLAN AND WILL REQUIRE COUNTY APPROVAL.
5. THE TAPPING SLEEVE AND VALVE USED TO PERFORM THE BYPASS SHALL REMAIN IN PLACE AFTER BYPASS IS COMPLETED, CONTRACTOR SHALL PLACE BLIND FLANGE ON 12" 90° BEND AND REMOVE ABOVE-GRADE TEMPORARY 12" BYPASS PIPING IN PLACE FOLLOWING BYPASSING ACTIVITIES.
6. ALL TEMPORARY BYPASS PIPE SHALL BE MECHANICAL RESTRAINED.
7. THE CONTRACTOR SHALL VERIFY THE 16" FORCE MAIN DISCHARGE CONNECTION POINT AND PIPE OUTER DIAMETER PRIOR TO INSTALLING (AND ORDERING OF MATERIALS) TAPPING SLEEVE AND VALVE FOR BYPASS OPERATION. CONTRACTOR SHALL NOTIFY COUNTY 10 BUSINESS DAYS PRIOR TO TAPPING ACTIVITIES.
8. THE BYPASS PUMPING SYSTEM SHALL BE 100% REDUNDANT. AN OPERATOR IS REQUIRED ON SITE AT ALL TIMES DURING BYPASS OPERATIONS (24 HOURS PER DAY/7 DAYS PER WEEK, IF APPLICABLE). SEE SPECIFICATION 02720 - SANITARY SEWER BYPASS PUMPING FOR ADDITIONAL INFORMATION.
9. THE BYPASS PUMPING STATION STAGING IS SHOWN FOR GENERAL ARRANGEMENT PURPOSES. BYPASS PUMPING SKID AND PIPING SHALL BE PLACED IN SUCH A WAY THAT MAINTAINS COUNTY ACCESS TO ALL BUILDING AND ANCILLARY STRUCTURES INCLUDING THE GENERATOR AND ODOR CONTROL SYSTEM.
10. FOR ALL PENETRATIONS THROUGH WALLS/STRUCTURES, TEMPORARY OR PERMANENT REPAIR TO THE WALL/STRUCTURE SHALL BE DONE TO RESTORE THE WALL/STRUCTURE TO SIMILAR OR BETTER CONDITION.

KEYNOTES:

1. EXISTING INFLUENT PIPE (18") / DOWNSTREAM CHANNEL (3' W X 4' H)
2. TEMPORARY DISCHARGE HEADER (SEE DETAIL E/C-00-002)
3. TEMPORARY 12" BYPASS PIPING (ABOVE GRADE)
4. INFLATABLE FLOW THROUGH PLUG UPSTREAM OF CHANNEL (SEE DETAIL E/C-00-002)
5. HEADER TO FACILITATE PRIMARY AND BACKUP BYPASS SUCTION CONNECTIONS.
6. PRIMARY TEMPORARY BYPASS PUMPING SUCTION PIPING
7. BACKUP TEMPORARY BYPASS PUMPING SUCTION PIPING
8. ISOLATION VALVES
9. WET WELL DOOR TO STAIRWELL
10. TAPPING SLEEVE (16") AND VALVE (12") (SEE DETAIL C/C-00-002)
11. 12" DI 90° BEND (PERMANENT)
12. MANHOLE MH N1B-1 TO BE UTILIZED FOR BYPASS PUMPING MONITORING (SEE DETAIL E/C-00-002)
13. VALVE BOX, COVER AND TAG (SEE DETAIL B/C-00-002)
14. BYPASS PUMPING SKID (TYP).
15. 16" FORCE MAIN (EXISTING)

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156470-C-01-110.DWG

BC PROJECT NUMBER
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CLIENT PROJECT NUMBER
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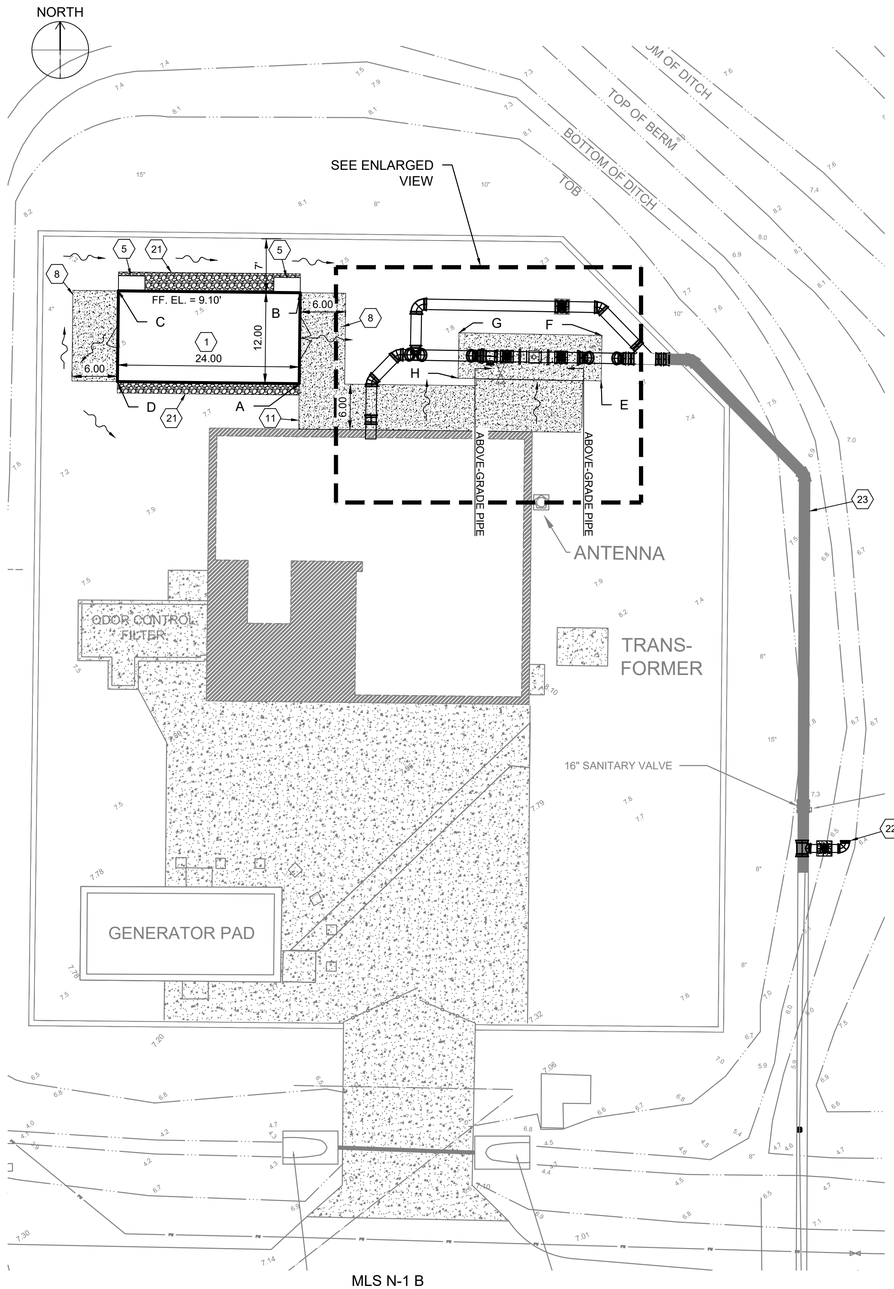
CIVIL

BYPASS PUMPING PLAN

DRAWING NUMBER
C-01-110

SHEET NUMBER 9 OF 47

Path: C:\BCPW\D2231098 FILENAME: 156470-C-01-110.DWG PLOT DATE: 8/23/2022 12:53 PM CAD USER: PHILLIP DAVIS



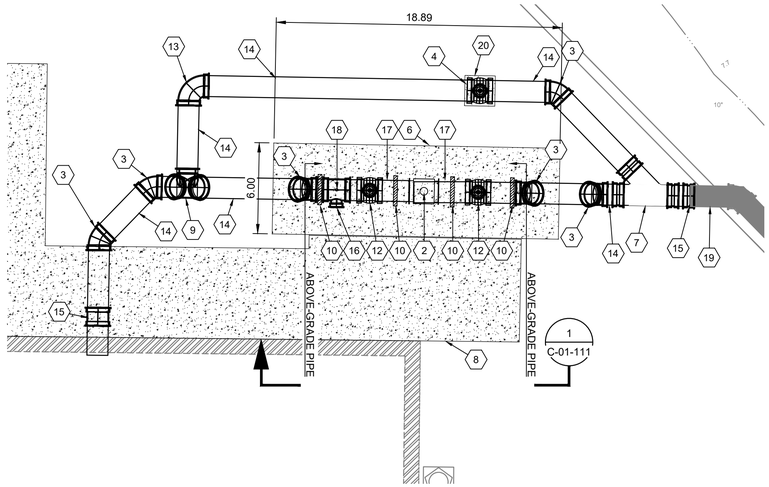
MLS N-1 B

SURVEY AND SITE PLAN

SCALE : 1" = 10'

SITE BENCH MARKS				
BM #	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	1178799.896	482633.880	7.16	ND LB 7203
3	1179055.204	482571.230	8.86	NL TP
4	1178866.663	482651.482	7.78	IRC LB 7203
6	1178833.622	482533.609	7.22	TP XCUT

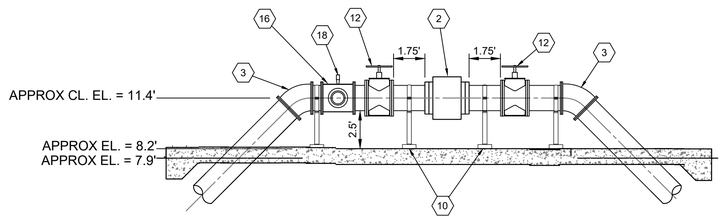
NORTHING AND EASTING TABLE			
LETTER	DESCRIPTION	NORTHING	EASTING
A	SOUTHEAST CORNER OF BUILDING	1178912.56	482618.14
B	NORTHEAST CORNER OF BUILDING	1178926.56	482618.31
C	NORTHWESTCORNER OF BUILDING	1178931.93	482596.31
D	SOUTHWEST CORNER OF BUILDING	1178912.81	482596.14
E	SOUTHEAST CORNER OF PAD	1178914.92	482660.03
F	NORTHEAST CORNER OF PAD	1178920.92	482660.14
G	NORTHWESTCORNER OF PAD	1178921.28	482641.26
H	SOUTHWEST CORNER OF PAD	1178915.28	482641.15



ENLARGED PLAN

FORCE MAIN AND FLOW METER

SCALE : 1" = 5'



SECTION 1

FORCE MAIN AND FLOW METER

SCALE : NTS

GENERAL NOTES:

1. MANATEE COUNTY REQUIRES THE FOLLOWING SETBACKS:
   SIDE:15'
   REAR: 20'
   FRONT: 30'
   THE SURVEY DETERMINED THAT THERE WERE NO IMMEDIATE RIGHT-OF-WAY LINES. THEREFORE, ALL REQUIRED SETBACK DISTANCES ARE SATISFIED FOR THE PROPOSED ELECTRICAL BUILDING
2. ALL BELOW-GRADE PIPING SHALL BE RESTRAINED MJ PIPE AND FITTINGS. ALL ABOVE-GRADE PIPING SHALL BE FLANGED PIPING AND FITTINGS.
3. CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT, FITTINGS, AND APPURTENANCES DIMENSIONS AND ADJUST CONCRETE PAD LAND PIPE LENGTHS ACCORDINGLY.
4. THE FINISHED FLOOR ELEVATION FOR THE BUILDING LANDINGS SHALL MATCH THE ELECTRICAL BUILDINGS FINISHED FLOOR ELEVATION (EL. = 9.10').
5. THE SIDEWALKS SHALL HAVE AN APPROXIMATE ELEVATION OF 7.95' AND PROVIDE A RAMP UP TO THE BUILDING LANDING AND MAG METER PAD ELEVATION OF 8.20'.
6. AC UNITS SHALL BE PLACED AT LEAST 1-FT AWAY FROM THE EAVES.

KEYNOTES:

1. PRECAST CONCRETE ELECTRIC BUILDING WITH CONCRETE SLAB AND FOUNDATION
2. FLOW METER (THE MAGNETIC FLOW METER SHALL BE MCCROMETER UTLRA MAG MODEL UM-06, NO EQUAL.)
3. 16" 45° DEGREE BEND
4. 16" PLUG VALVE
5. AIR CONDITIONING CONDENSER PADS (APPROX. EL. 8.20')
6. CONCRETE PAD (SEE SHEET S-01-103)
7. 16" WYE FITTING
8. ELECTRICAL BUILDING LANDING. CONTRACTOR TO SLOPE CONCRETE AWAY FROM STRUCTURES TO PROMOTE POSITIVE DRAINAGE. CONCRETE SHALL HAVE A MINIMUM SLOPE OF 0.5% (USE SIDEWALK DETAIL D/C-00-002)
9. 16" X 16" DI TEE
10. ADJUSTABLE PIPE STANTION (SEE DETAIL A & B/M-00-001)
11. 6' SIDEWALK (SEE DETAIL D/C-00-002 AND GENERAL NOTE NO. 7)
12. 16" PLUG VALVE
13. 16" DI 90° BEND
14. BURIED 16" DI PIPE
15. SLEEVE TYPE COUPLING IN ACCORDANCE WITH SPECIFICATION SECTION 02640 (VALVES AND APPURTENANCES)
16. 16" X 8" DI TEE
17. 16" DI SPOOL PIECE (TYP)
18. 2" AIR RELEASE VALVE
19. BURIED 16" DI PIPE (EXISTING)
20. VALVE, BOX, COVER, AND TAX (SEE DETAIL B/C-00-002)
21. AREA TO BE GRAVELED. DESIGN-BUILDER SHALL PLACE NON-WOVEN GEOTEXTILE FABRIC-CARTHAGE MILLS #FX-40HS, MIRAFI #140N OR APPROVED EQUAL ON THE SOIL COVERING ENTIRE AREA TO BE GRAVELED. PLACE MINIMUM 12" OF #57 WASHED STONE ON TOP OF GEOTEXTILE FABRIC.
22. BLIND FLANGE SHALL BE INSTALLED ON 12" 90° BEND AFTER BYPASS IS COMPLETED.
23. THE CONTRACTOR SHALL EXPOSE EXISTING PIPE FOLLOWING THE COUPLING CONNECTION. IF THE JOINTS ARE RESTRAINED, THE CONTRACTOR MAY FILL AND RESTORE THE AREA, EXCEPT WHERE TESTING OR INSPECTION IS REQUIRED. IF THE EXISTING FORCE MAIN IS NOT RESTRAINED, THE CONTRACTOR SHALL PLACE A PIPE BELL RESTRAINER ON ALL JOINTS FOLLOWING 77 FEET OF THE EXISTING WYE FOLLOWING THE COUPLING CONNECTION.

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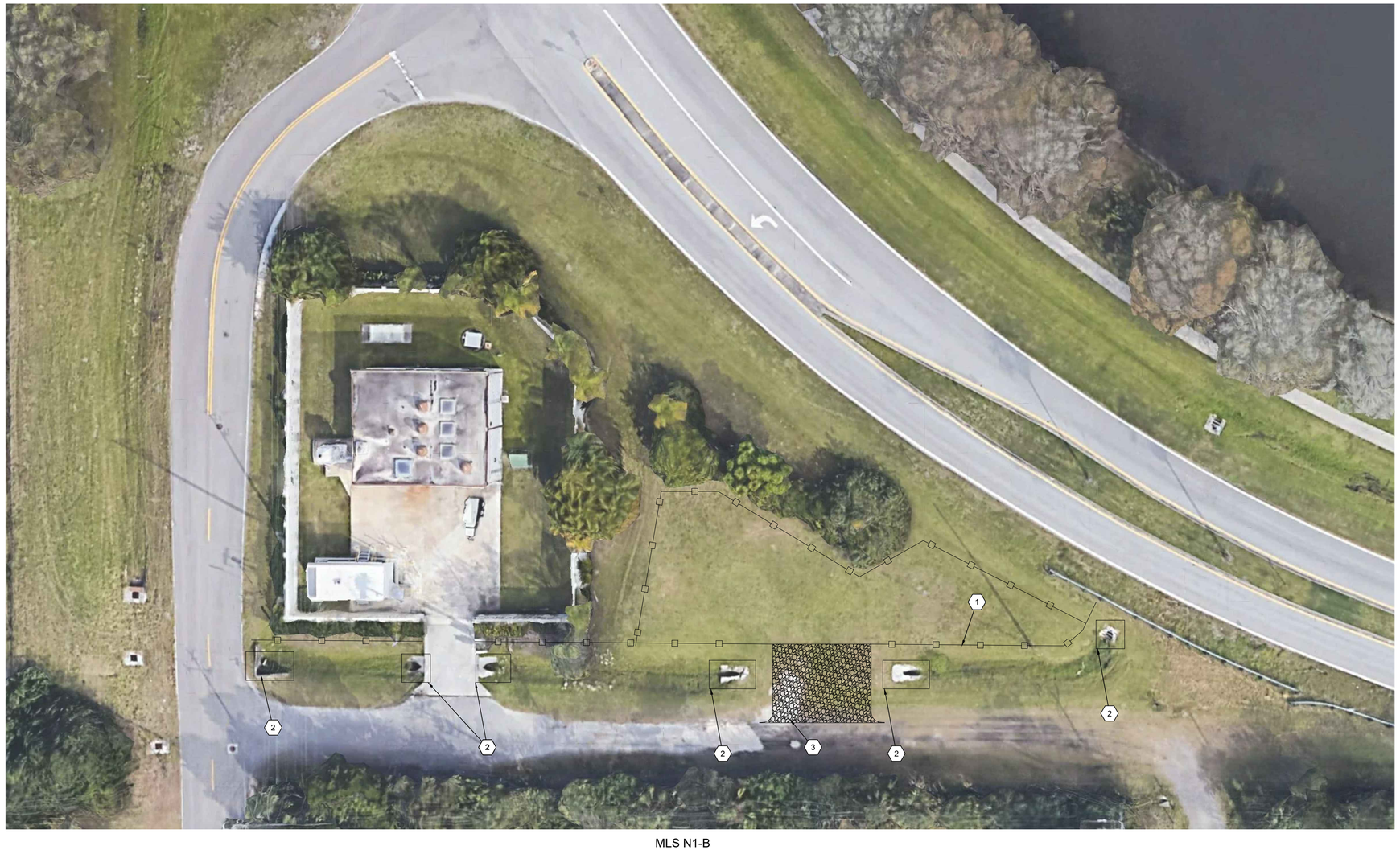
SURVEY AND SITE PLAN

DRAWING NUMBER
C-01-111

SHEET NUMBER 10 OF 47

NORTH



MLS N1-B

EROSION CONTROL AND SEDIMENTATION CONTROL PLAN

SCALE: 1" = 20'

GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL ON THIS PROJECT. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROL ACCORDING TO SECTION 02276 TO PREVENT RUNOFF, TRACKING, OR LOSS OF SEDIMENT FROM DISTURBED AREAS. ADDITIONAL EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED AT NO ADDITIONAL COST TO OWNER IF DEEMED NECESSARY BY COUNTY.
2. EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES, EXCEPT THOSE NEEDED TO INSTALL SUCH CONTROL.
3. PROTECT MATERIAL STOCKPILES FROM CONTRIBUTING TO SEDIMENT RUNOFF.
4. CONTRACTOR SHALL INSTALL AN EROSION MAT/SLOPE BLANKET ON ALL PERMANENT SLOPES STEEPER THAN 3:1. EROSION MAT/SLOPE BLANKET SHALL BE ORGANIC MATERIAL FIBER AND BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. ANY SOIL, MUD, OR DEBRIS WASHED, TRACKED, OR DEPOSITED ONTO PAVED SURFACES SHALL BE REMOVED PRIOR TO END OF EACH WORK DAY.
6. CONSTRUCTION ENTRANCE SHALL BE REMOVED AND AREA RESTORED PRIOR TO END OF PROJECT.
7. CONTRACTOR SHALL MAINTAIN EROSION AND SEDIMENT CONTROL UNTIL SITE IS STABILIZED.

KEYNOTES:

1. SILT FENCE SHALL BE PLACED ON THE TOP OF SLOPE OF THE EXISTING STORMWATER DITCH
2. WRAP MITERED END SECTIONS (SEE DETAILS ON C-09-051)
3. TEMPORARY CONSTRUCTION ENTRANCE

LEGEND:

SILT FENCE
SEE DETAILS E, F & G ON C-09-51

PROTECT INLET
SEE DETAILS A & C ON C-09-051

0 20' 40'
SCALE IN FEET

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EROSION AND SEDIMENTATION CONTROL PLAN

DRAWING NUMBER
C-09-011

SHEET NUMBER 11 OF 47

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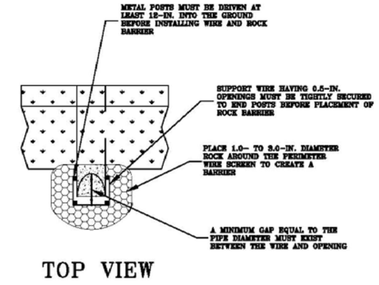
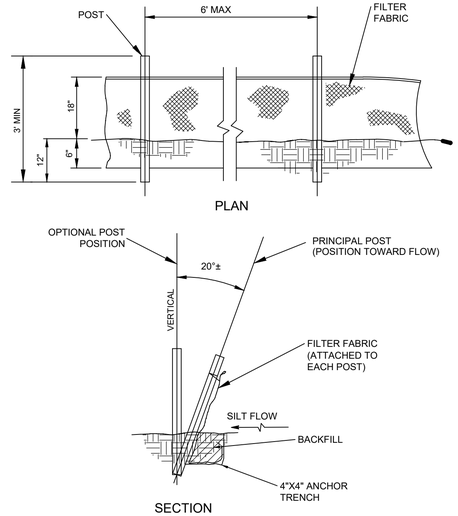


ROCK BARRIER OUTLET STRUCTURE

DETAIL A VAR

SCALE: NONE

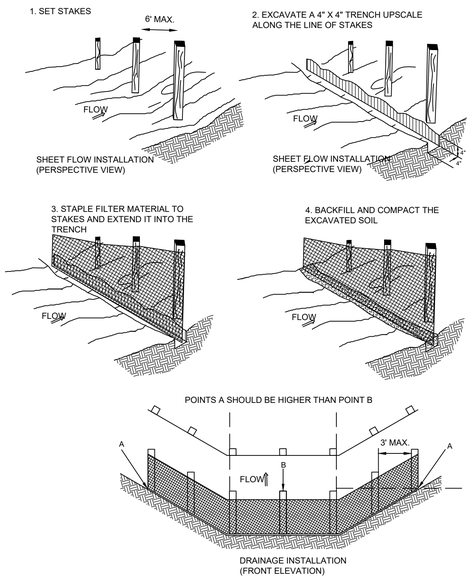


STEEL 1.33 LBS/FT MIN.) POST OPTIONS:
WOOD 2"X4" OR 2 1/2" DIA.

INSTALLING A FILTER FABRIC SILT FENCE (2 OF 2)

DETAIL B VAR

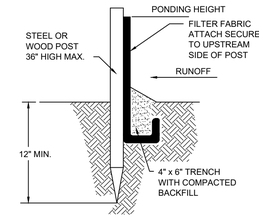
SCALE: NONE



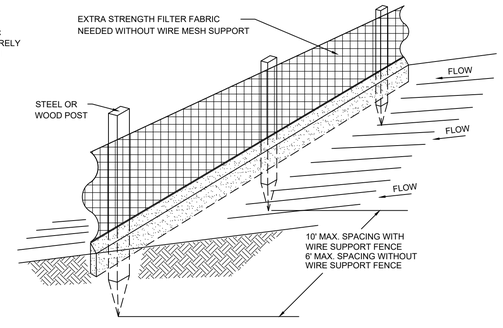
INSTALLING A FILTER FABRIC SILT FENCE (1 OF 2)

DETAIL C VAR

SCALE: NONE



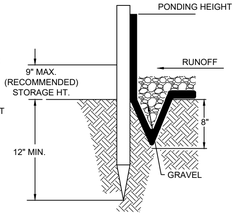
STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL



NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.

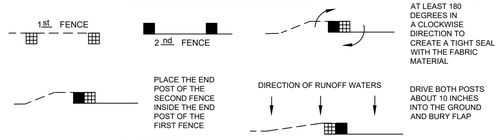
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.



ALTERNATE DETAIL
TRENCH WITH GRAVEL

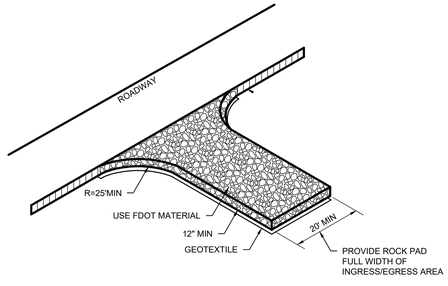
ATTACHING TWO SILT FENCES



SILT FENCE

DETAIL D VAR

SCALE: NONE



NOTES:
1. CONTRACTOR SHALL INSTALL AND MAINTAIN STABILIZED CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE VEHICLES TRAVERSE DIRT SURFACES PRIOR TO ENTERING PAVED PUBLIC ROADS.
2. THE ROCK PAD SHALL BE AT LEAST 12" THICK AND 30' LONG. MATERIAL SHALL BE 4" TO 6" QUARRY SPALLS AND MAY BE TOP-DRESSED WITH 1" TO 3" ROCK. WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA.
3. ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
4. IF THE PAD DOES NOT ADEQUATELY REMOVE THE MUD FROM THE WHEELS, THE WHEELS SHALL BE HOSED OFF BEFORE THE VEHICLE ENTERS A PAVED STREET. THE WASHING SHALL BE DONE ON AN AREA COVERED WITH CRUSHED ROCK AND WASH WATER SHALL DRAIN THROUGH A SILT FENCE TO SILT DRAINAGE.
5. IF SEDIMENT IS TRACKED OFFSITE, IT SHALL BE SWEPT OR SHOVELED FROM THE PAVED SURFACE BEFORE WASHING.

CONSTRUCTION ENTRANCE

DETAIL E VAR

SCALE: NONE

Brown AND Caldwell
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ENGINEER OF RECORD
R. GAYLORD, PE 80981

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD

FILENAME
156470-C-09-051.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

CIVIL

EROSION AND SEDIMENTATION CONTROL DETAILS

DRAWING NUMBER
C-09-051

SHEET NUMBER 12 OF 47

GENERAL

G 1 SCOPE
THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

G 2 PRECEDENCE
IF THERE IS A CONFLICT BETWEEN PROJECT SPECIFICATIONS AND STRUCTURAL DRAWINGS, INCLUDING STRUCTURAL NOTES, CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR CLARIFICATION. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

G 3 DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING CONSTRUCTION MANAGER OF DISCREPANCIES IN A TIMELY FASHION.

G 4 PROVISIONS FOR EQUIPMENT
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SPECIFIED ON THE STRUCTURAL DRAWINGS, BUT SPECIFIED ON OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

G 5 MEANS, METHODS & CONSTRUCTION LOADS
CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.

G 6 SAFETY
CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.

G 7 DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.

G 8 OPENINGS
OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AND PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DOCUMENTS.

DESIGN CRITERIA

D 1 GOVERNING BUILDING CODE
CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE. THIS CODE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE.

D 2 LIVE LOADS

1. ROOF LIVE LOAD ..... 30 PSF, UON
2. FLOOR LIVE LOAD ..... 300 PSF, UON

D 3 RISK CATEGORY OF BUILDING ..... III (FBC 1604.5)

D 4 WIND
ULTIMATE WIND SPEED ..... 155 MPH
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR ..... K_{zt}= 1.0
FACILITY IS IN A WIND-BORNE DEBRIS REGION
BUILDING ENCLOSURE....."ENCLOSED"
REFER TO SHEET S-00-002 FOR C&C PRESSURE

FOUNDATION

F 1 DESIGN BASIS
FOUNDATION DESIGN FOR PRECAST CONCRETE BUILDING IS BASED ON RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT TITLED: MASTER LIFT STATION N1-B, HC205095 (DATED, 05/21/2021) BY TERRACON. CONTRACTOR SHALL FOLLOW THE PROJECT SPECIFICATIONS AND TAKE INTO CONSIDERATION RECOMMENDATIONS CONTAINED IN THE REPORT. NOTIFY THE CONSTRUCTION MANAGER OF CONFLICTS BETWEEN SPECIFICATIONS AND THE REPORT RECOMMENDATIONS FOR RESOLUTION.

F 2 ALLOWABLE BEARING PRESSURE
SHALLOW FOUNDATIONS SHALL BEAR ON AT LEAST 1 FOOT OF COMPACTED NATIVE SOIL AND HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF **2,000** PSF.

F 3 MINIMUM FOUNDATION PREPARATION
THE UPPER 2 FEET OF THE SILL SOIL CONTAINS WOOD DEBRIS, CONTRACTOR REQUIRES TO REMOVE UPPER 2 FEET OF SOIL WITH STRUCTURAL FILL. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION AND REQUIREMENTS. ALL NEW FOUNDATIONS AND SLAB ON GRADE FLOORS SHALL BE SUPPORTED ON A MINIMUM OF 2 FOOT OF PROPERLY PLACED AND COMPACTED NATIVE SOIL OR STRUCTURAL FILL PER GEOTECHNICAL REPORT.

F 4 DIFFERING CONDITIONS
FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE INDICATED IN THE REPORT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER/ ENGINEER. CONTRACTOR IS RESPONSIBLE FOR REPLACING WORK CONDUCTED AFTER SUCH NOTIFICATION BUT BEFORE CONSTRUCTION MANAGER PROVIDES ADDITIONAL DIRECTIONS.

F 5 EXCAVATION, DE-WATERING & SAFETY
CONTRACTOR SHALL PROVIDE FOR ALL DE-WATERING OF EXCAVATIONS, AND DESIGN / PROVIDE ALL CRIBBING, SHORING AND BRACING REQUIRED FOR SAFETY AND TO ALLOW CONSTRUCTION OF THE WORK PRESENTED HEREIN. CONSTRUCTION ADJACENT TO EXISTING BUILDING SHALL BE COMPLETED AS NOTED IN REQUIREMENTS OF GEOTECHNICAL REPORT.

F6 STRUCTURAL BACKFILL
UNLESS OTHERWISE NOTED, STRUCTURAL BACKFILL SHALL BE PLACED IN UNIFORM LAYERS AND SHALL BE BROUGHT UP UNIFORMLY AROUND THE STRUCTURE. ADDITIONALLY, BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF FOUNDATION WALLS. SEE SPECIFICATION 02220 FOR ADDITIONAL INFORMATION.

CONCRETE

C 1 APPLICABLE CODES
CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301-10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", AND THE FOLLOWING CODES: ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

C 2 REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.

C 3 DESIGN STRENGTH
1. STRUCTURAL CAST-IN-PLACE CONCRETE ..... f'c = 4,500 PSI
2. REINFORCED STEEL ..... ASTM A615, GRADE 60 DEFORMED BARS UNLESS OTHERWISE NOTED

C 4 CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI AND AS FOLLOWS:
1. CONCRETE CAST AGAINST EARTH ..... 3"
2. CONCRETE EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER ..... 2"
3. CONCRETE NOT EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER ..... 1 1/2"

C 5 BAR DEVELOPMENT AND LAP SPLICE LENGTH
SEE TABLE ON S-00-002. IN SLABS, BEAMS, GIRDERS AND HORIZONTAL REINFORCING AT WALLS, SPLICES OF ADJACENT REINFORCING STEEL BARS SHALL BE STAGGERED AT LEAST ONE SPLICE LENGTH, UNLESS OTHERWISE SPECIFIED.

C 6 WELDING REINFORCING BARS
WELDING OF REINFORCING BARS NOT PERMITTED.

CONCRETE (continued)

C 7 STANDARD HOOKS
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF ACI-318. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.

C 8 CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

C 9 ANCHOR BOLTS
ANCHOR BOLTS SHALL BE STAINLESS STEEL TYPE 316 MATERIAL UNLESS OTHERWISE NOTED (SEE SPECIFICATIONS).

C 10 COMPATIBLE FINISHES
CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB-SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.

GROUT

GR 1 EQUIPMENT GROUTING
SEE MECHANICAL SPECIFICATIONS AND SPECIFICATION SECTION 03300, GROUT.

GR 2 EPOXY ADHESIVE GROUT AT ANCHORS INTO CONCRETE: HILTI HIT-RE 500-V3 EPOXY ADHESIVE ANCHOR SYSTEM BY HILTI INC. OR EQUAL APPROVED BY ENGINEER OF RECORD. INSTALLERS OF HORIZONTAL OR UPWARDLY INCLINED ADHESIVE ANCHORS SHALL BE CERTIFIED IN ACCORDANCE WITH THE ACI / CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.

PRECAST CONCRETE

PC 1 STANDARD AND QUALITY CONTROL
PRECAST UNITS AND THEIR INSTALLATION SHALL CONFORM TO PCI DESIGN HANDBOOK, LATEST EDITION, MINIMUM. MANUFACTURER SHALL DESIGN ALL UNITS. SUBMIT CALCULATIONS AND SHOP DRAWINGS SEALED BY A FLORIDA LICENSED PROFESSIONAL ENGINEER FOR REVIEW.

PC 2 MATERIAL STRENGTHS
1. PRECAST CONCRETE ..... f'c = 5,000 PSI
2. PRESTRESS STRANDS ..... 7-WIRE STRAND fpu = 270 KSI
PRESTRESSING WIRE fpu > 235 KSI
3. MILD REINFORCING STEEL ..... ASTM A615, GRADE 60
DEFORMED BARS UNLESS OTHERWISE NOTED

PC 3 DESIGN LOADING AND STRESSES
CONFORM TO DESIGN LOADS AND CODES INDICATED ON THE STRUCTURAL DRAWINGS. IN ADDITION, MANUFACTURER SHALL PROVIDE FOR LIFTING, TRANSPORTING, AND ERECTION STRESSES AND MAXIMUM TENSILE STRESS AT TRANSFER SHALL NOT EXCEED 150 PSI.

PC 4 CAMBER AND SERVICE LOAD TENSION
1. PROVIDE SUFFICIENT CAMBER TO OFFSET ALL DEAD LOADS. FOR UNITS ABOVE MOIST ENVIRONMENTS, PROVIDE 150 PSI MINIMUM SERVICE DEAD PLUS LIVE LOAD COMPRESSION.
2. .ABOVE DRY ENVIRONMENTS, LIMIT SERVICE DEAD PLUS LIVE LOAD TENSION TO 300 PSI.
3. SERVICE LOAD CONDITIONS INCLUDE EFFECTS OF PRESTRESS LOSSES, TOPPING SLAB, IF ANY, AND CONSTRUCTION INDUCED STRESSES WHETHER SHORED OR NOT.

PC 5 TOPPING SLAB AND CLOSURE GROUT
WHERE A TOPPING SLAB IS INDICATED, PROVIDE A ROUGH, RAKED SURFACE FREE OF MATERIALS WHICH WOULD INHIBIT BOND. CLOSURE GROUTING SHALL UTILIZE NON-SHRINK, CEMENTITIOUS GROUT UNLESS OTHERWISE NOTED.

PC 6 FIELD MODIFICATIONS
PRECAST UNITS, THEIR BEARING AND OTHER CONNECTIONS MAY NOT BE ALTERED IN THE FIELD OR DEVIATE FROM REVIEWED SHOP DRAWINGS WITHOUT THE WRITTEN ACCEPTANCE OF THE ENGINEER OF RECORD.

MODIFICATION OF EXISTING STRUCTURES

M 1 PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES OR PREPARING A FORMAL BID, CONTRACTOR SHALL REVIEW EXISTING FIELD CONDITIONS AND AS-BUILT DRAWINGS FOR THE EXISTING PUMP STATION FROM MANATEE COUNTY PUBLIC UTILITIES DEPARTMENT E.P.A. NO. C-120540060. NOTIFY ENGINEER/ OWNER FOR ANY DISCREPANCY.

M 2 NEW CONCRETE TO EXISTING
EXISTING CONCRETE SURFACES TO BE JOINED WITH NEW CONCRETE SHALL HAVE SURFACE PREPARATION PER SPECIFICATION SECTION 03300.

M 3 CUTS ON EXPOSED SURFACE
SURFACES TO BE SAWCUT SHALL BE NEATLY SAW CUT TO A DEPTH OF ±0.25" TO 1.0" DEPENDING ON THE DEPTH OF THE FILLER/SURFACER OR PATCH. SAWCUT SHALL BE INSTALLED PRIOR TO REMOVING THE EXISTING CONCRETE. STOP ALL SAWCUTS AT CORNERS, DO NOT CUT PAST THE PATCHED AREA (USE NEAT CHIPPING).

M 4 CONCRETE SURFACE PATCHING (NON-WATER BEARING/NON WET WELL USE)
WHERE EXISTING CONCRETE OR MASONRY IS REMOVED FROM SLABS AND WALLS TO REMAIN, PATCH SURFACE WHERE EXPOSED AS FOLLOWS: CHIP DOWN 3/8 INCH MINIMUM BELOW ADJACENT SURFACE AND LEAVE ROUGH. CLEAN SURFACE, APPLY BONDING AGENT AND FINISH SURFACE TO MATCH ADJACENT WITH NON-SHRINK GROUT. SEE SPECIFICATION SECTION 03300 FOR APPROPRIATE BONDING AGENTS. STUCCO WILL ALSO BE REPAIRED IN AND AROUND REFURBISHED AREAS OF THE EXISTING PUMP STATION TO MATCH EXISTING FINISH.

M 5 REINFORCING STEEL
NO REINFORCING STEEL SHALL BE CUT UNLESS APPROVED BY THE ENGINEER OF RECORD. PROTECT AND BEND REBAR AS NOTED.

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ENGINEER OF RECORD
ADARSH B. SHAH, PE #79948

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. BROWN
DRAWN: P.VITERI
CHECKED: C. DIXON
CHECKED: J. MINADEO
APPROVED: A. SHAH

FILENAME
156470-S-00-001.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

STRUCTURAL

GENERAL STRUCTURAL NOTES 1

DRAWING NUMBER
S-00-001

SHEET NUMBER 13 OF 47

Path: C:\BCPW\D2331108 FILENAME: 156470-S-00-001.DWG PLOT DATE: 8/23/2022 1:38 PM CAD USER: PHILLIP DAVIS

STRUCTURAL OBSERVATION

COORDINATE STRUCTURES TO RECEIVE STRUCTURAL OBSERVATION WITH ENGINEER. NOTIFY ENGINEER AT LEAST 48 HOURS BEFORE A DESIGNATED WORK IS TO BE COVERED.

ITEM	DESCRIPTION	TYPE
1. CONCRETE	- STRUCTURAL CONCRETE PLACEMENT	CONTINUOUS
2. BOLTS INSTALLED IN CONCRETE	- WEDGE AND ADHESIVE ANCHORS INSTALLATION - ALL ANCHOR BOLTS	PERIODIC
3. REINFORCING STEEL	- REINFORCING STEEL PLACEMENT IN FOUNDATION, SLABS AND WALLS	PERIODIC
4. WELDING	- ALL FIELD WELDING - ALL SHOP WELDING	PERIODIC
5. HIGH-STRENGTH BOLTS	- STRUCTURAL STEEL BOLTED CONNECTIONS	PERIODIC
6. STRUCTURE FILL	- SUBGRADE AND FILL	PERIODIC
7. FINAL INSPECTION	SUBSTANTIAL COMPLETION FINAL WALK-THRU	PERIODIC

STRUCTURAL DEFERRED SUBMITTALS

CONTRACTOR TO SUBMIT DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER CURRENTLY LICENSED IN FLORIDA TO ENGINEER BEFORE SUBMITTING TO JURISDICTION FOR REVIEW AND PERMITTING.

ITEM
1. ATTACHMENT OF MECHANICAL UNIT TO SUPPORT
2. ATTACHMENT OF PROCESS UNIT/EQUIPMENT TO SUPPORT
3. PRECAST CONCRETE BUILDING AND WALL ATTACHMENT TO FOUNDATION
4. SPECIALTY CONSTRUCTION OF PIPE SUPPORTS
5. ANCHOR BOLTS FOR ALL EQUIPMENT ANCHORAGE

COMPONENT AND CLADDING WIND PRESSURE (ULTIMATE WIND PRESSURE SHOWN)

AREA	ZONE DISCRIPTION	EFFECTIVE WIND AREA (SF)	PRESSURES (PSF)	
			POSITIVE	NEGATIVE (SUCTION)
ROOF	1	10	21.3	-83.4
		20	20	-77.9
		50	18.2	-70.7
		100	16.9	-65.1
	1'	10	21.3	-47.9
		20	20	-47.9
		50	18.2	-47.9
		100	16.9	-47.9
	2	10	21.3	-110.1
		20	20	-103
		50	18.2	-93.6
		100	16.9	-86.6
	3	10	21.3	-150
		20	20	-135.8
		50	18.2	-117.1
		100	16.9	-103
WALL	4-INTERIOR	10	47.9	-51.9
		20	45.8	-49.8
		50	43	-47
		100	40.9	-44.9
	5-CORNER	10	47.9	-63.9
		20	45.8	-59.7
		50	43	-54
		100	40.9	-49.8

end zone, "a" = 3'-0". REFER TO ASCE 7-16 FOR ZONE DEFINITIONS.

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES) FOR UNCOATED BARS IN NORMAL-WEIGHT CONCRETE WITH f_c' = 4,500 PSI OR HIGHER

ALL STEEL REINFORCING LAP SPLICES, UNLESS INDICATED OTHERWISE, SHALL SATISFY THE FOLLOWING:

LAP SPLICE SCHEDULE									
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BAR *	2'-0"	2'-6"	3'-2"	4'-0"	5'-6"	6'-6"	7'-2"	8'-0"	8'-11"
OTHER	1'-6"	2'-0"	2'-6"	3'-0"	4'-6"	5'-0"	5'-6"	6'-2"	6'-10"

ALL STEEL REINFORCING BAR DEVELOPMENT LENGTHS, UNLESS INDICATED OTHERWISE, SHALL SATISFY THE FOLLOWING:

DEVELOPMENT LENGTH SCHEDULE									
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BAR *	1'-8"	2'-0"	2'-6"	3'-0"	4'-4"	5'-0"	5'-6"	6'-2"	6'-8"
OTHER	1'-2"	1'-6"	2'-0"	2'-4"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"

* TOP BAR IS DEFINED ANY HORIZONTAL BAR PLACED SUCH MORE THAN 12 INCHES OF CONCRETE IS PLACED BELOW THE BAR IN ANY SINGLE CONCRETE PLACEMENT. CONCRETE WALL HORIZONTAL STEEL REINFORCING BARS ARE CONSIDERED TOP BARS.

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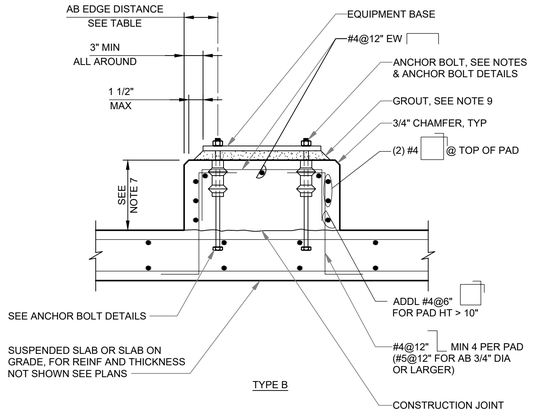
LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. BROWN
DRAWN: P. VITERI
CHECKED: C. DIXON
CHECKED: J. MINADEO
APPROVED: A. SHAH
FILENAME 156470-S-00-002.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389
STRUCTURAL

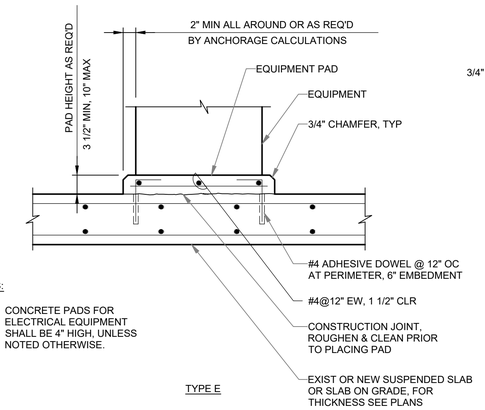
GENERAL STRUCTURAL NOTES 2

DRAWING NUMBER
S-00-002

SHEET NUMBER 14 OF 47



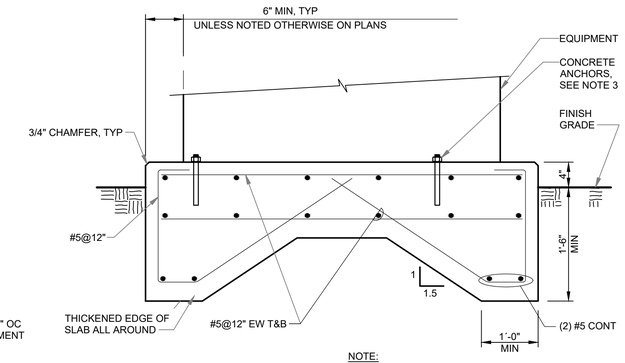
TYPE B



NOTES:

1. CONCRETE PADS FOR ELECTRICAL EQUIPMENT SHALL BE 4" HIGH, UNLESS NOTED OTHERWISE.

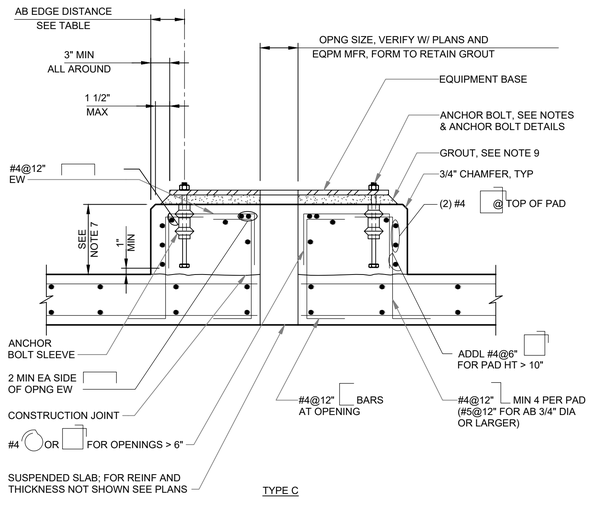
TYPE E



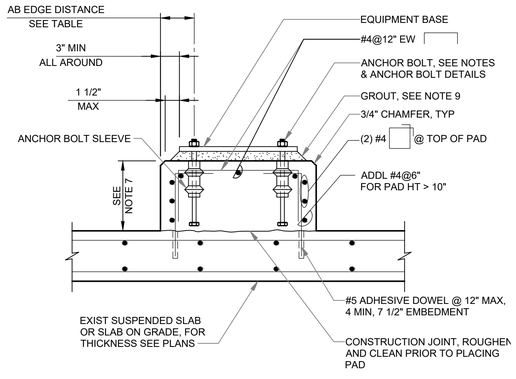
NOTE:

1. WHEN ANCHORAGE OF EQUIPMENT TO PAD IS REQUIRED, USE CONCRETE ANCHORS SPECIFIED, PER NOTE 3.

TYPE H



TYPE C



TYPE F

EQUIPMENT PAD DIMENSIONS					
AB DIA (IN.)	1/2	5/8	3/4	7/8	1
MIN PAD HT (IN.)	7 1/2	9 1/2	11	12 1/2	14
MIN AB EDGE DISTANCE	4 1/2	4 1/2	4 1/2	5 1/4	6
AB DIA (IN.)	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	17 1/2	19	20 1/2	24	27
MIN AB EDGE DISTANCE	7 1/2	8 1/4	9	10 1/2	12

CONCRETE EQUIPMENT PAD DETAILS

B
VARIES NONE

NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE PROJECT REPRESENTATIVE.
2. COORDINATE LOCATION OF ELECTRICAL CONDUIT AND DRAINAGE PIPING PENETRATIONS WITHIN THE EQUIPMENT PAD. STUB UP PENETRATIONS ON THE SAME SIDE OF THE EQUIPMENT AS REQUIRED FOR CONNECTION TO EQUIPMENT. EQUIPMENT DRAINS SHALL BE LOCATED AS REQUIRED FOR DRAINAGE FROM EQUIPMENT. EQUIPMENT PAD SHALL BE CONFIGURED ACCORDINGLY.
3. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE PROJECT REPRESENTATIVE DURING SHOP DRAWING SUBMITTAL. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING THE BASE PLATE, WHILE PAD IS BEING PLACED.
4. ANCHOR BOLT SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER UNLESS MECHANICAL SPECIFICATIONS CALL OUT OTHERWISE. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER UNLESS MECHANICAL SPECIFICATIONS CALL OUT OTHERWISE. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT AFTER BOLTS ARE ALIGNED. SEE ANCHOR BOLT DETAILS DRAWING.
5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL, SEE SPECIFICATION SECTION 11002 FOR LEVELING REQUIREMENT.
6. WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE BASE WHILE THE GROUT IS PLACED. ANCHOR BOLTS MAY BE USED FOR LEVELING WITH DOUBLE NUTS. HOWEVER, PRIOR TO TIGHTENING, THE BASE PLATE MUST BE HARD-SHIMMED AND THE LEVELING NUTS BACKED OFF. EACH ANCHOR BOLT MUST HAVE IT'S OWN SHIM PACK AND THE NUT FULLY TIGHTENED PRIOR TO GROUTING. WEDGES OR SHIMS THAT ARE LEFT IN PLACE SHALL NOT BE EXPOSED TO VIEW.
7. HEIGHT OF PADS SHALL BE MINIMUM REQUIRED FOR ANCHOR BOLT CLEARANCE TO KEEP ANCHOR BOLT ABOVE SUPPORTING SLAB (SEE TABLE BELOW). WHERE EQUIPMENT OR PIPING ELEVATION REQUIRE A PAD HEIGHT LESS THAN THE MINIMUM SHOWN, USE TYPE "B" EQUIPMENT PAD WITH ANCHOR BOLT EMBEDDED INTO BASE SLAB.
8. TYPE "D" PAD SHALL BE USED ONLY WHERE SPECIFICALLY INDICATED. PLACE THE SURROUNDING FLOOR SLAB AFTER THE EQUIPMENT PAD.
9. FOR GROUT APPLICATION, SEE SPECIFICATION SECTION 11002.
10. AT CONTRACTOR'S OPTION, ADHESIVE ANCHORS MAY BE USED IN LIEU OF CAST-IN-PLACE ANCHOR BOLTS FOR EQUIPMENT ANCHOR BOLTS LESS THAN 5/8" DIAMETER WHEN APPROVED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE PROJECT REPRESENTATIVE DURING SHOP DRAWING SUBMITTAL. ANCHORS SHALL BE INSTALLED WITH 4 1/2" MINIMUM EDGE DISTANCE IN EACH DIRECTION.
11. ANCHOR BOLTS AND EQUIPMENT PADS FOR RIGID EQUIPMENT MOUNTS SHALL COMPLY WITH SPECIFICATION SECTION 05501 & 11002. THESE REQUIREMENTS IN SECTION 11002 SHALL CONTROL OVER THE STANDARD DETAILS SHOWN ON THIS DRAWING.

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LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: A. BROWN
DRAWN: P.VITERI
CHECKED: C. DIXON
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APPROVED: A. SHAH

FILENAME
156470-S-00-501.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

STRUCTURAL

STANDARD DETAILS
1

DRAWING NUMBER
S-00-501

SHEET NUMBER 15 OF 47

Path: C:\BCPW\D2331108 FILENAME: 156470-S-00-501.DWG PLOT DATE: 8/23/2022 1:47 PM CAD USER: PHILLIP DAVIS

GENERAL CODE CRITERIA

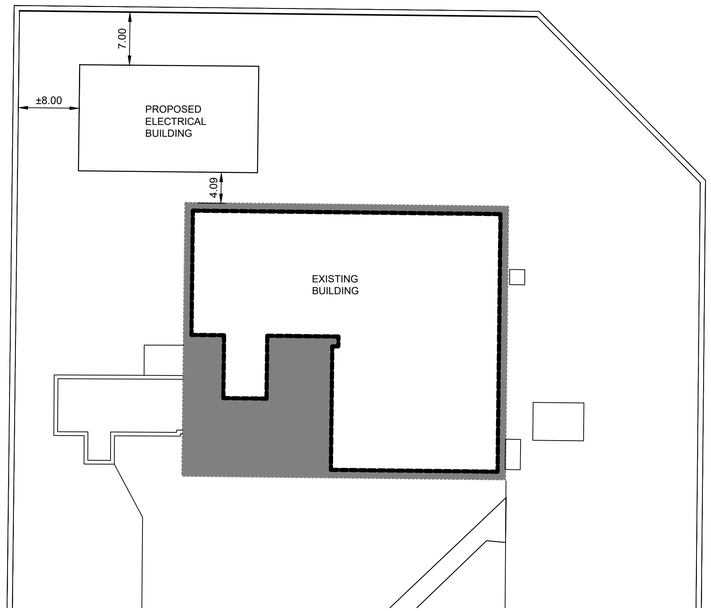
GENERAL CODES AND REGULATIONS	
BUILDING CODE	2020 FLORIDA BUILDING CODE
FIRE CODE	FLORIDA FIRE PREVENTION CODE, 7TH EDITION NFPA 1 & 101 2018
PLUMBING CODE	2020 FLORIDA BUILDING CODE - PLUMBING
MECHANICAL CODE	2020 FLORIDA BUILDING CODE - MECHANICAL
ELECTRICAL CODE	THE NATIONAL ELECTRICAL CODE - NFPA 70 / NFPA 70A
ENERGY CODE	2020 FLORIDA BUILDING CODE - ENERGY CONSERVATION CODE
ELECTRICAL BUILDING	
OCCUPANCY OF BUILDING	F2
CONSTRUCTION TYPE	II B

NUMBER OF STORIES	1				
BUILDING HEIGHT	12'-0"				
FLOOR AREA	336 SF				
BUILDING	OCCUPANCY	OCCUPIED	MECH AREA DESIGN	NEC HAZARD CLASS	AUTO SPRINKLER
	F2	NO	NON-CORROSIVE	DUSTY	NO

BUILDING CODE CHART: 2020 FLORIDA BUILDING CODE

	PROPOSED ELECTRICAL BUILDING	
OCCUPANCY OF BUILDING	F-2 (FBC) / SPECIAL PURPOSE INDUSTRICAL OCCUPANCY LOW HAZARD (NFPA 101, CH 6)	
ROOM SEPARATION RATING	N/A	
CONSTRUCTION TYPE	II B	
NUMBER OF STORIES	ALLOWABLE	ACTUAL
	3	1
BUILDING HEIGHT	ALLOWABLE	ACTUAL
	55	152
ALLOWABLE AREA PER FLOOR	ALLOWABLE	ACTUAL
	23000	336
SEPARATION RATINGS:		
FIRE SEPARATION DISTANCE	REQUIRED	PROVIDED
DISTANCE LESS THAN 5'	2 HR	2 HR
DISTANCE BETWEEN 5' & 10'	1 HR	N/A
DISTANCE BETWEEN 10' & 30'	0 HR	N/A
DISTANCE MORE THAN 30'	0 HR	N/A
FIRE RESISTANCE RATING:		
	REQUIRED	PROVIDED
STRUCTURAL FRAME	0 HR	0 HR
BEARING WALLS - EXTERIOR	0 HR	2 HR
BEARING WALLS - INTERIOR	0 HR	0 HR
NON BEARING WALLS AND PARTITIONS - INTERIOR	0 HR	2 HR
FLOOR CONSTRUCTION	0 HR	0 HR
ROOF CONSTRUCTION	0 HR	2 HR
INTERIOR FINISHES:		
	REQUIRED	PROVIDED
VERTICAL EXITS AND EXIST PASSAGEWAYS	CLASS B	CLASS B
EXIT ACCESS CORRIDORS & OTHER EXITWAYS	CLASS C	CLASS C
ROOMS AND ENCLOSED SPACES	CLASS C	CLASS C
FIRE PROTECTION SYSTEMS:		
	REQUIRED	PROVIDED
AUTOMATIC SPRINKLER SYSTEMS	NO	NO
ALT. AUTOMATIC FIRE EXTINGUISHING SYSTEMS	NO	NO
STANDPIPE SYSTEM	NO	NO
PORTABLE FIRE EXTINGUISHERS	YES	YES
FIRE ALARM AND DETECTION SYSTEMS	NO	YES
MEANS OF EGRESS:		
OCCUPANT LOAD FACTORS (SF/PERSON)	MECHANICAL EQUIPMENT / STORAGE - 300	
OCCUPANT LOAD CHART	REFERENCE CODE COMPLIANCE PLAN	
EGRESS WIDTH PER OCCUPANT	36" MIN.	36" MIN.
SPACES WITH ONE MEANS OF EGRESS	ALLOWABLE	2
MAX. EXIT ACCESS TRAVEL DISTANCE / COMMON PATH OF TRAVEL	300 FT. / 75 FT.	
EXIT ACCESS TRAVEL DISTANCE	REFERENCE CODE COMPLIANCE PLAN	
CORRIDOR FIRE-RESISTANCE RATING	0 HR	N/A
BUILDINGS WITH ONE EXIT	ALLOWABLE	N/A
ACCESSIBILITY:		
CONSTRUCTION SITES	--	
EQUIPMENT SPACES	SEE NOTE 1	
ACCESSIBILITY ROUTE/ENTRY	SEE NOTE 1	
PARKING	SEE NOTE 1	
SIGNAGE	N/A	

NOTES:
1. ACCESSIBILITY - 2020 FLORIDA BUILDING CODE - ACCESSIBILITY (7TH EDITION) UNDER SECTION 203 'GENERAL EXCEPTIONS" AND SECTION 203.5 "MACHINERY SPACES" EXEMPT THE FACILITY FROM ACCESSIBILITY REQUIREMENTS UNLESS OTHERWISE NOTED.

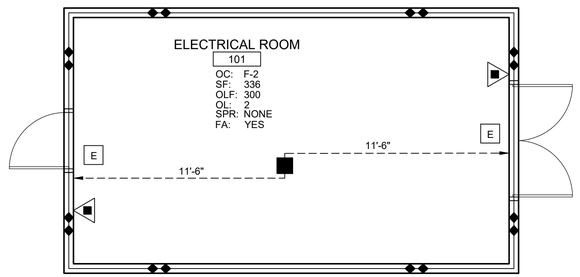


PROPOSED ELECTRICAL BUILDING
CODE COMPLIANCE SITE PLAN
SCALE : 1" = 10'

NORTH

ENERGY EFFICIENCY : 2020 FLORIDA BUILDING CODE - ENERGY CONSERVATION CODE

CLIMATE ZONE (CHAPTER 3)		
ZONE 2A		
	BUILDING ENVELOPE REQUIREMENTS (TABLE C402.1.3 / C402.1.4)	BUILDING ENVELOPE DESIGN
ROOFS / CEILINGS (R VALUE)		
INSULATION ABOVE ROOF DECK	R-25ci	R-25ci
METAL BUILDINGS	R-19+R-11 LS	R-19+R-11 LS
ATTIC AND OTHER	R-38	N/A
WALLS (R VALUE)		
MASS	R-5.7	R-18
METAL BUILDING	R-13+R-6.5ci	N/A
METAL FRAMED	R-13+R-5ci	N/A
WOOD-FRAMED AND OTHER	R-13+R-3.8ci OR R-20	N/A
SLAB-ON-GRADE FLOORS (R VALUE)		
UNHEATED	NR	NR
HEATED	R-7.5 FOR 12" BELOW	N/A
EXTERIOR DOORS (MAXIMUM R FACTOR)		
SWINGING	R-1.64	R-1.64
NON-SWINGING	R-4.75	N/A
FENESTRATION	BUILDING ENVELOPE REQUIREMENTS (TABLE C402.4)	BUILDING ENVELOPE DESIGN
VERTICAL FENESTRATION: MAX U FACTOR		
FIXED FENESTRATION	0.50	N/A
OPERABLE FENESTRATION	0.65	N/A
ENTRANCE DOORS	0.83	N/A
SKYLIGHTS (3% MIN):		
U-FACTOR	0.65	N/A
SHGC	0.35	N/A



ELECTRICAL BUILDING
CODE COMPLIANCE PLAN
SCALE : 1/4" = 1'-0"

NORTH

LIFE SAFETY LEGEND

▲	WALL MOUNTED FIRE EXTINGUISHER, MULTIPURPOSE DRY CHEMICAL FOR CLASS B FIRES (20 B FOR 50'-0" TRAVEL DISTANCE)
▲■	WALL MOUNTED FIRE EXTINGUISHER, CARBON DIOXIDE, FOR CLASS C FIRES (NO DRY CHEM.)(20 B FOR 50'-0" TRAVEL DISTANCE)
E	EXIT SIGN LOCATION. SEE ELECTRIC DRAWINGS
■ ## →	INDICATE DIRECTION OF EGRESS PATH ## IS THE DISTANCE IN FEET TO EXIT FROM SQUARE DOT TO ARROW
OC	OCCUPANCY
SF	SQUARE FEET
OLF	OCCUPANT LOAD FACTOR
OL	OCCUPANT LOAD
SPR	SPRINKLER
NA	NOT APPLICABLE
FA	FIRE ALARM
◆—	INDICATES 1 HOUR FIRE RATING
◆◆	INDICATES 2 HOUR FIRE RATING
◆◆◆	INDICATES 3 HOUR FIRE RATING
◆◆◆◆	INDICATES 4 HOUR FIRE RATING

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Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD

FILENAME
156470-S-01-102.DWG
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156470
CLIENT PROJECT NUMBER
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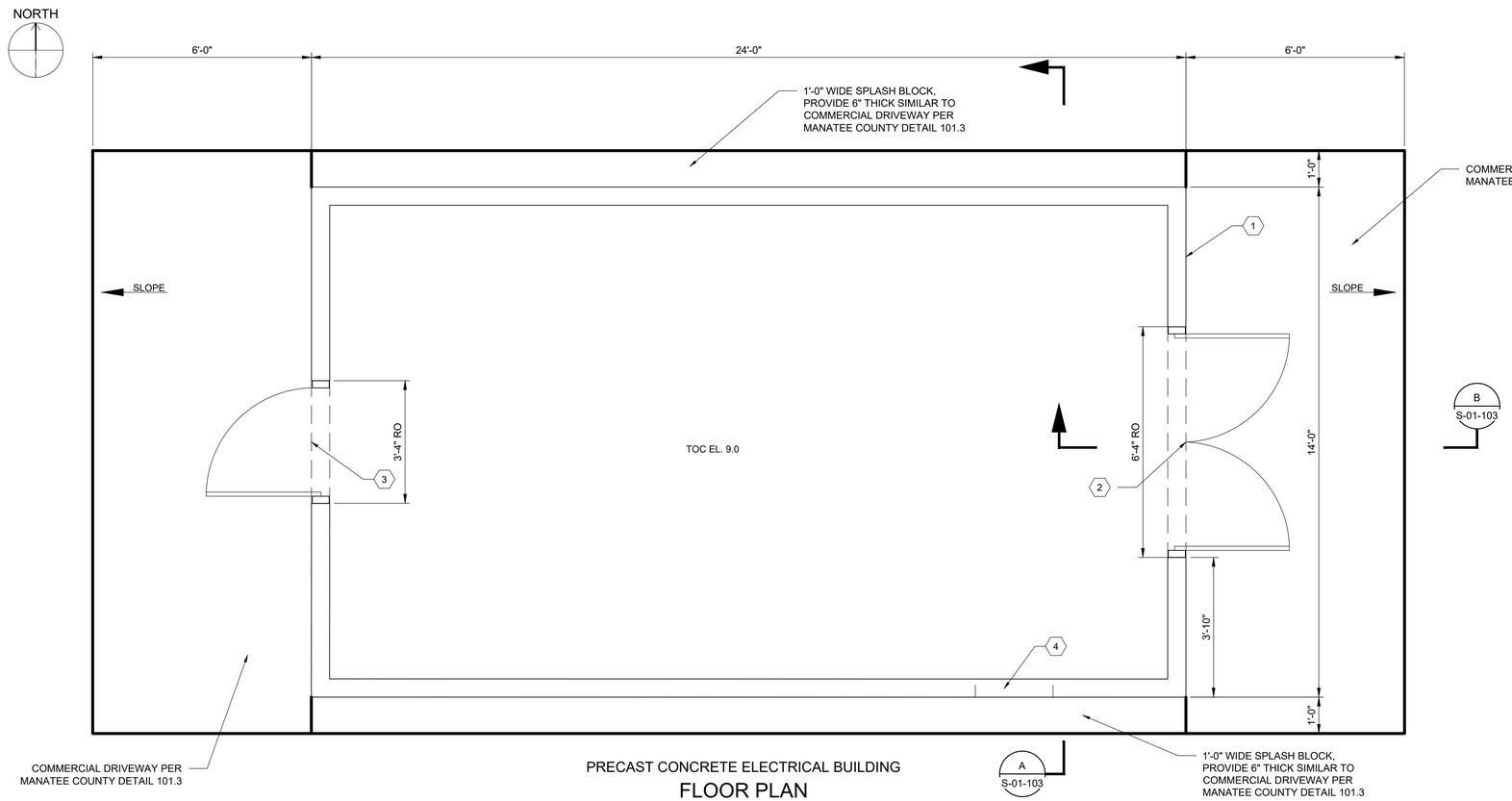
STRUCTURAL

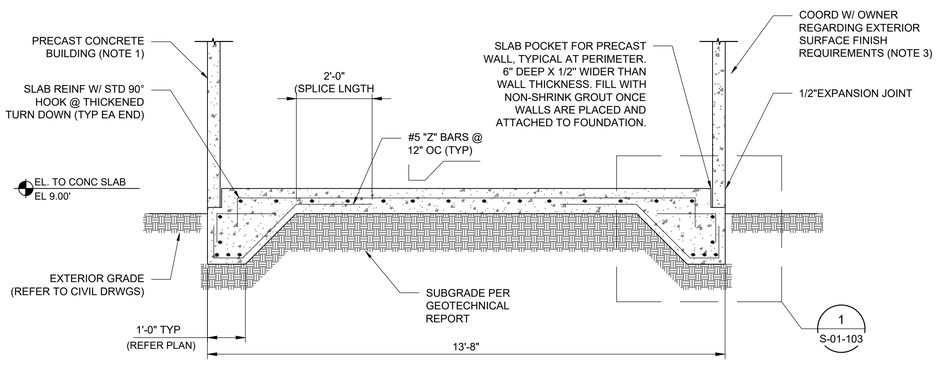
CODE ANALYSIS AND CODE COMPLIANCE PLANS

DRAWING NUMBER
S-01-102

SHEET NUMBER 16 OF 47

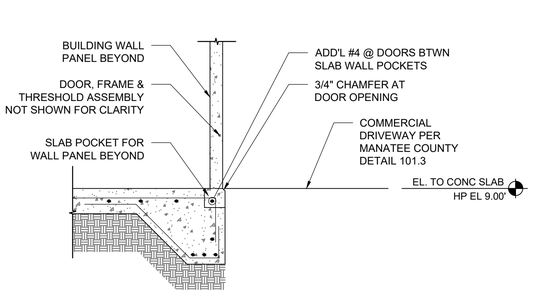


PRECAST CONCRETE ELECTRICAL BUILDING
FLOOR PLAN
SCALE : 1/2" = 1'-0"

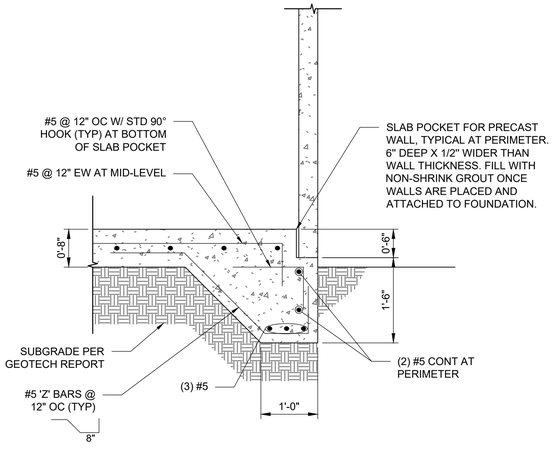


NOTES:
1. REFERENCE BUILDING MANUFACTURERS "APPROVED" SUBMITTAL FOR WALL THICKNESS & CONNECTIONS TO THE SLAB ON GRADE.
2. PREPARE COMPACTED SUBGRADE IN CONFORMANCE WITH THE PROJECT GEOTECHNICAL REPORT.
3. COORD WITH OWNER DURING SHOP DRAWING SUBMITTAL REVIEWS DURING CONSTRUCTION REGARDING CONCRETE EXTERIOR SURFACE FINISH TO BE PROVIDED.

SECTION A
SCALE : 1/2" = 1'-0"



SECTION B
SCALE : 1/2" = 1'-0"



DETAIL 1
SCALE : 3/4" = 1'-0"

GENERAL NOTES:

1. GENERAL CONTRACTOR SHALL COORDINATE EQUIPMENT AND HOUSEKEEPING PADS REQUIRED WITH OTHER DISCIPLINES. REFER TO DETAILS ON S-00-501. COORDINATE OPENINGS IN PRECAST BUILDING WITH ELECTRICAL DRAWINGS. NO OPENING(S) ARE ALLOWED IN FLOOR SLAB UNLESS APPROVED BY ENGINEER.
2. SUBMIT PRECAST BUILDING DESIGN CALCULATIONS AND SHOP DRAWINGS PER SPECIFICATION SECTION 13300. SEE GENERAL NOTES ON S-00-001 AND S-00-002.
3. AN "*" INDICATES APPROXIMATE DIMENSION OR LOCATION. GENERAL CONTRACTOR SHALL VERIFY AND ADJUST ALL DIMENSIONS BASED ON ACTUAL PRECAST BUILDING FURNISHED PRIOR TO FOUNDATION SLAB POUR.
4. PRECAST WALLS SHALL BE MINIMUM 4" THICK WITH 2-HOUR FIRE RATING REQUIRED. IF MEMBER THICKNESSES ARE REQUIRED TO BE INCREASED FOR ANY REASON, THE BUILDING OUT TO OUT DIMENSION SHALL BE INCREASED TO ACCOUNT FOR INCREASE IN THICKNESS. REFERENCE BUILDING MANUFACTURER'S APPROVED SUBMITTAL FOR WALL THICKNESS AND CONNECTIONS TO SLAB ON GRADE.
5. PRECAST BUILDING SHALL BE MODULAR BUILDING. PRECASTER TO DETERMINE ACTUAL PANEL SIZE BASED ON SHIPPING, FABRICATION, ACCESS AND DESIGN RESTRICTIONS. CONTRACTOR TO FIELD ASSEMBLE MODULAR UNITS ON SITE.
6. PREPARE COMPACTED SUBGRADE IN CONFORMANCE WITH THE PROJECT GEOTECHNICAL REPORT.
7. PRECAST BUILDING WALLS AND CEILING REQUIRED TO BE DESIGNED FOR 100 PLF CONDUIT LOADS FOR CABLE TRAY AT LOCATIONS SHOWN IN ELECTRICAL DRAWINGS. CONTRACTOR TO COORDINATE CABLE TRAY ATTACHMENT, CONDUIT PENETRATIONS AND LOADING REQUIREMENTS WITH ELECTRICAL CONTRACTOR AND PRECAST BUILDING MANUFACTURER.
8. EXTERIOR WALLS SHALL HAVE MINIMUM 2-HOUR FIRE RATING AND ANY PENETRATIONS IN THE WALL REQUIRED TO BE FILLED WITH FIREPROOFING MATERIAL.

KEYNOTES:

1. MODULAR PRECAST CONCRETE BUILDING, SEE SPECIFICATION SECTION 13300. PROVIDE SINGLE PLY PVC ROOFING SYSTEM BY SARNAFIL, OR EQUAL ON SLOPED CONCRETE ROOF (FULLY ADHERED WITH COLD ADHESIVE.) ATTACH PAINTED ALUM FASCIA DIRECTLY TO PRECAST CONCRETE. EXTERIOR FINISH SHALL BE MANUFACTURER'S STANDARD SPLIT FACE CONCRETE MASONRY OR AS REQUIRED BY OWNER. COORDINATE WITH OWNER DURING SHOP DRAWING SUBMITTAL PHASE (ASSUME WORST CASE FOR BID PURPOSE).
2. 6'-0" WIDE X 8'-0" STANDARD ALUMINUM DOUBLE DOOR. DOOR SHALL HAVE A FLORIDA PRODUCT APPROVAL OR MIAMI-DADE NOTICE OF ACCEPTANCE FOR WIND PRESSURES SHOWN ON S-00-002.
3. 3'-0" WIDE X 8'-0" STANDARD ALUMINUM SINGLE DOOR. DOOR SHALL HAVE A FLORIDA PRODUCT APPROVAL OR MIAMI-DADE NOTICE OF ACCEPTANCE FOR WIND PRESSURES SHOWN ON S-00-002.
4. OPENING FOR CONDUIT PENETRATION IN PRECAST BUILDING WALL. CONTRACTOR TO COORDINATE SIZE OF OPENING AND LOCATION WITH ELECTRICAL DRAWINGS.

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Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. BROWN
DRAWN: P. VITERI
CHECKED: C. DIXON
CHECKED: J. MINADEO
APPROVED: A. SHAH

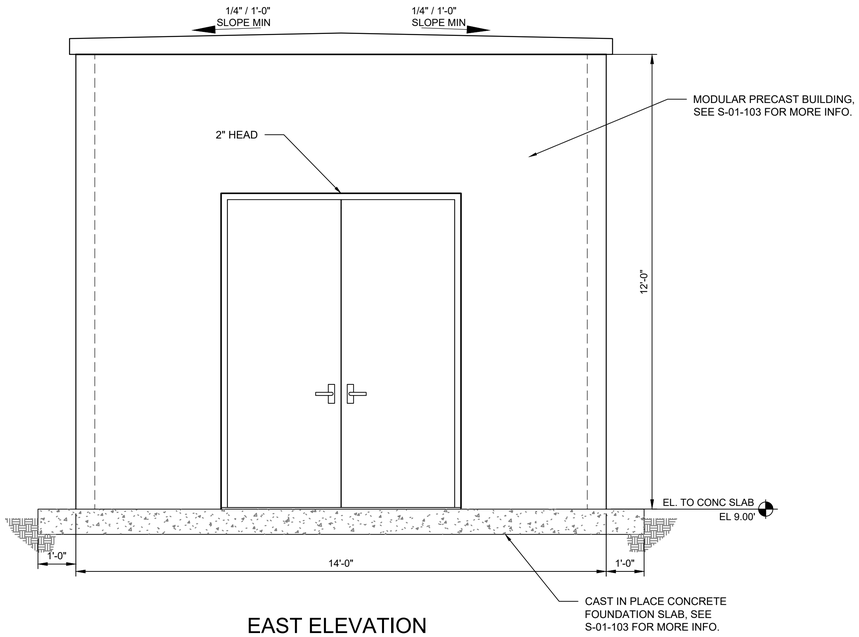
FILENAME
156470-S-01-103.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

STRUCTURAL

STRUCTURAL BUILDING PLAN

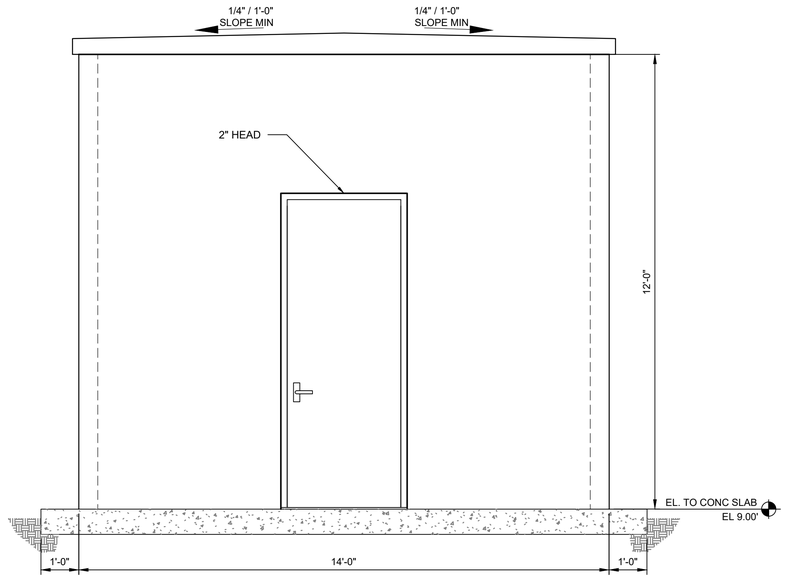
DRAWING NUMBER
S-01-103

SHEET NUMBER 17 OF 47



EAST ELEVATION

SCALE : NTS



WEST ELEVATION

SCALE : NTS

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MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: A. BROWN
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CHECKED: J. MINADEO
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FILENAME
156470-S-01-301.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

STRUCTURAL

STRUCTURAL BUILDING ELEVATIONS

DRAWING NUMBER
S-01-301

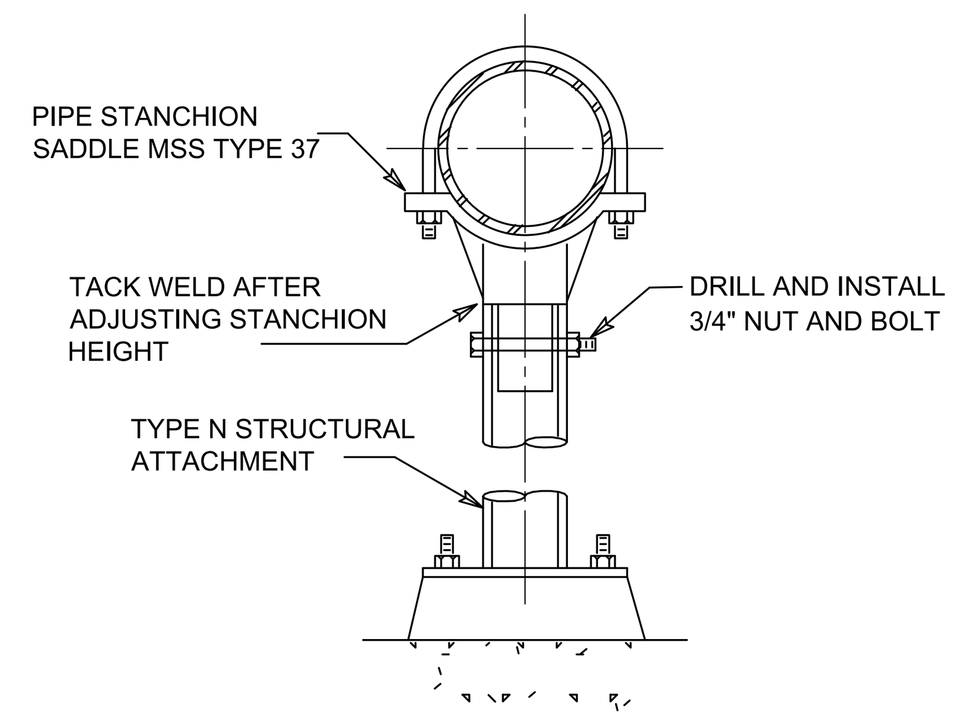
SHEET NUMBER 18 OF 47

Path: C:\BCPW\D2331108 FILENAME: 156470-S-01-301.DWG PLOT DATE: 8/23/2022 2:00 PM CAD USER: PHILLIP DAVIS

1 2 3 4 5 6

MECHANICAL GENERAL NOTES

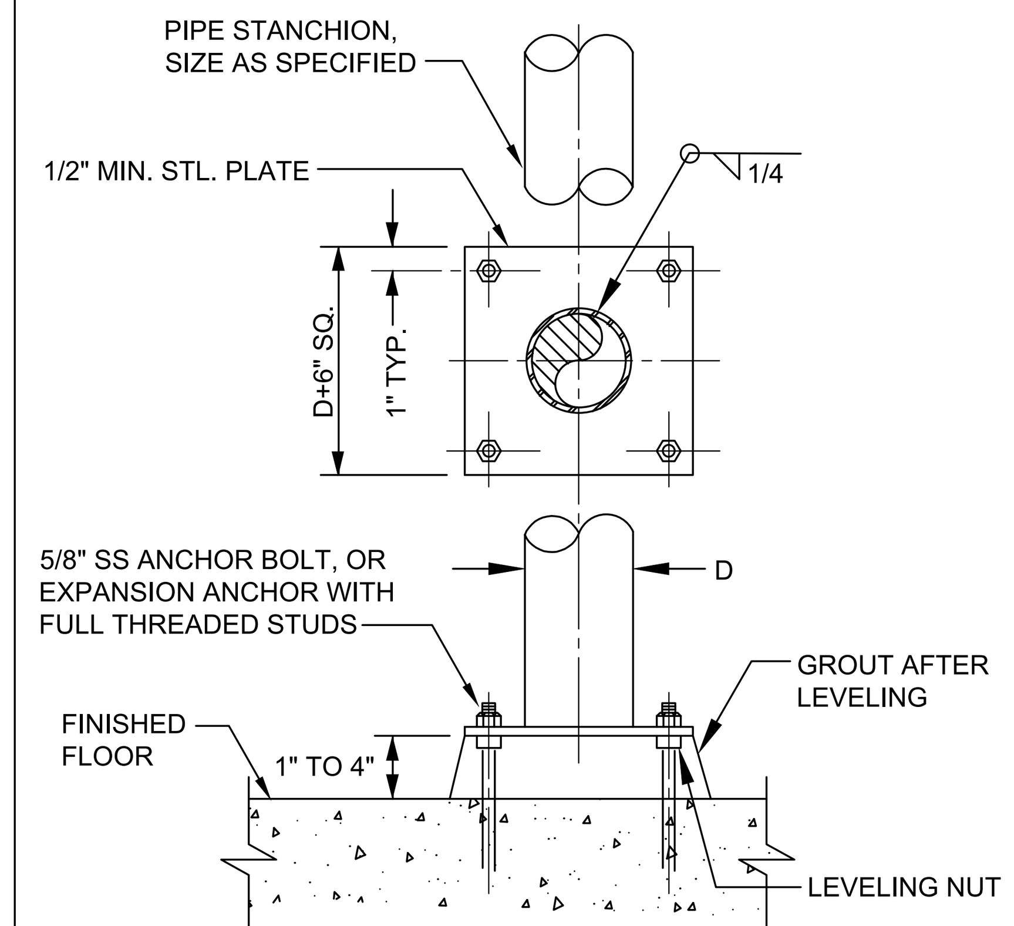
1. SEE SPECIFICATION SECTION 02615 (DUCTILE IRON PIPE), 02617 (INSTALLATION AND TESTING OF PRESSURE PIPE), AND 02640 (VALVES AND APPURTENANCES FOR GENERAL PIPING SYSTEM REQUIREMENTS.
2. THE ARRANGEMENT OF EQUIPMENT AND PIPING SHOWN IS NOT INTENDED TO SHOW DIMENSIONS PARTICULAR TO A SPECIFIC EQUIPMENT MANUFACTURER. THE DRAWINGS ARE IN PART DIAGRAMMATIC AND SOME FEATURES OF EQUIPMENT AND PIPING MAY REQUIRE REVISION TO MEET ACTUAL FIELD REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE AND CONFIRM ALL CRITICAL DIMENSIONS FOR EQUIPMENT AND PIPING PROVIDED AND SHALL PROVIDE ALL REVISIONS NECESSARY TO THE EQUIPMENT, EQUIPMENT PADS AND PIPING LAYOUT AS REQUIRED. THESE REVISIONS SHALL BE SUBMITTED WITH THE PIPING LAYOUT DRAWINGS.
3. MECHANICAL DRAWINGS SHOW EXISTING EQUIPMENT, PIPING AND STRUCTURES IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. HOWEVER CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING ALL EXISTING CONDITIONS PRIOR TO SUBMISSION OF PIPING LAYOUT DRAWINGS AND COMMENCEMENT OF WORK. CONTRACTOR SHALL PROVIDE ALL BENDS, OFFSETS, ADDITIONAL PIPING, WALL AND FLOOR PENETRATIONS, EXISTING PIPE REROUTING, ETC. AS REQUIRED TO CONFORM WITH EXISTING CONDITIONS.
4. THE DRAWINGS ARE IN PART DIAGRAMMATIC. PIPING LAYOUT DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH THE SPECIFICATIONS AND SHALL CLARIFY DETAILED CONNECTIONS TO AND AVOIDANCE OF NEW AND EXISTING EQUIPMENT, PIPING AND STRUCTURES. PIPING FITTING ANGLES AND VERTICAL AND HORIZONTAL LOCATION SHALL BE DETERMINED BY CONTRACTOR. CONTRACTOR SHALL INCLUDE FITTING ANGLES, AND VERTICAL AND HORIZONTAL PIPE LOCATIONS ON PIPING LAYOUT DRAWINGS AND SHALL PROVIDE ALL PIPING, FITTINGS, WALL AND FLOOR PENETRATION, AND ANCILLARY DEVICES AS SHOWN, SPECIFIED AND REQUIRED TO PROVIDE A FULLY FUNCTIONAL SYSTEM.
5. ALL PIPING CONNECTED TO EQUIPMENT SHALL BE PROVIDE WITH A FLANGED COUPLING ADAPTER, EQUIPMENT CONNECTION FITTING OR DISMANTLING JOINT.
6. HEADROOM CLEARANCE TO ANY EQUIPMENT OR PIPING OVERHEAD SHALL BE 7'-6" MINIMUM UNLESS SPECIFICALLY SHOWN OTHERWISE. THIS SHALL INCLUDE THE CLEARANCE TO THE LOWER PORTION OF ANY PIPE SUPPORT SYSTEM.
7. 1" GAUGE TAPS WITH CAPS SHALL BE PROVIDED IMMEDIATELY UPSTREAM AND DOWNSTREAM OF ALL PUMPS.
8. EXISTING PIPE MATERIAL TYPES MAY NOT BE THE SAME AS MATERIAL TYPES SPECIFIED FOR NEW PIPING. CONTRACTOR SHALL VERIFY PIPE MATERIAL AND JOINTS PRIOR TO COMMENCEMENT OF WORK. SEE DRAWING GENERAL DRAWINGS FOR PIPE SERVICE, ABBREVIATIONS AND PIPE LEGEND.
9. SIZES OF EQUIPMENT FOUNDATIONS AND EQUIPMENT PADS INDICATED ON THE DRAWINGS ARE APPROXIMATE. EXACT DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE SPECIFIC EQUIPMENT FURNISHED. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL AND MECHANICAL DRAWINGS.
10. PIPING SHALL BE INSTALLED SUCH THAT ADJACENT PIPING SYSTEMS DO NOT NEED TO BE DISTURBED IN ORDER TO TAKE APART PIPING.
11. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL REDUCERS IN HORIZONTAL PIPING IN LIQUID CARRYING PIPING SHALL BE TOP-FLAT ECCENTRIC REDUCERS.



ADJUSTABLE STANCHION - 4" THROUGH 24" PIPE

DETAIL A VAR

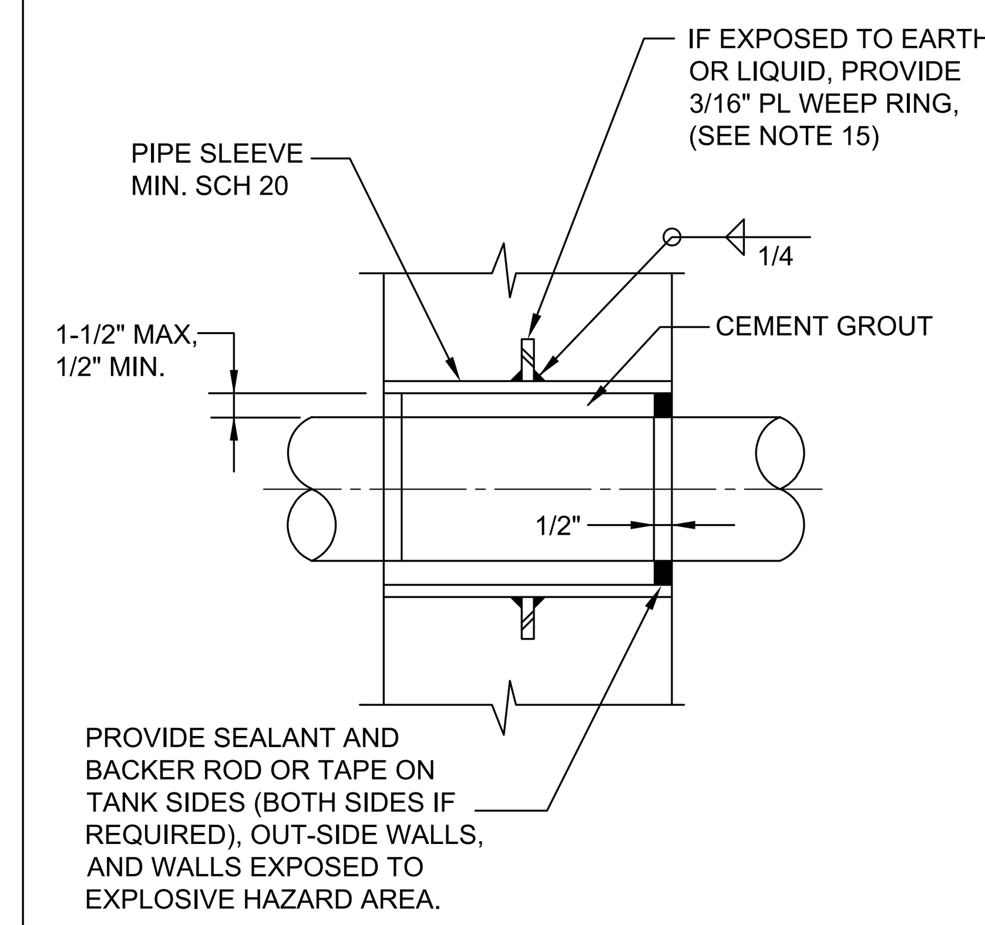
SCALE: NONE



TYPE N PIPE STANCHION FLOOR ATTACHMENT

DETAIL B VAR

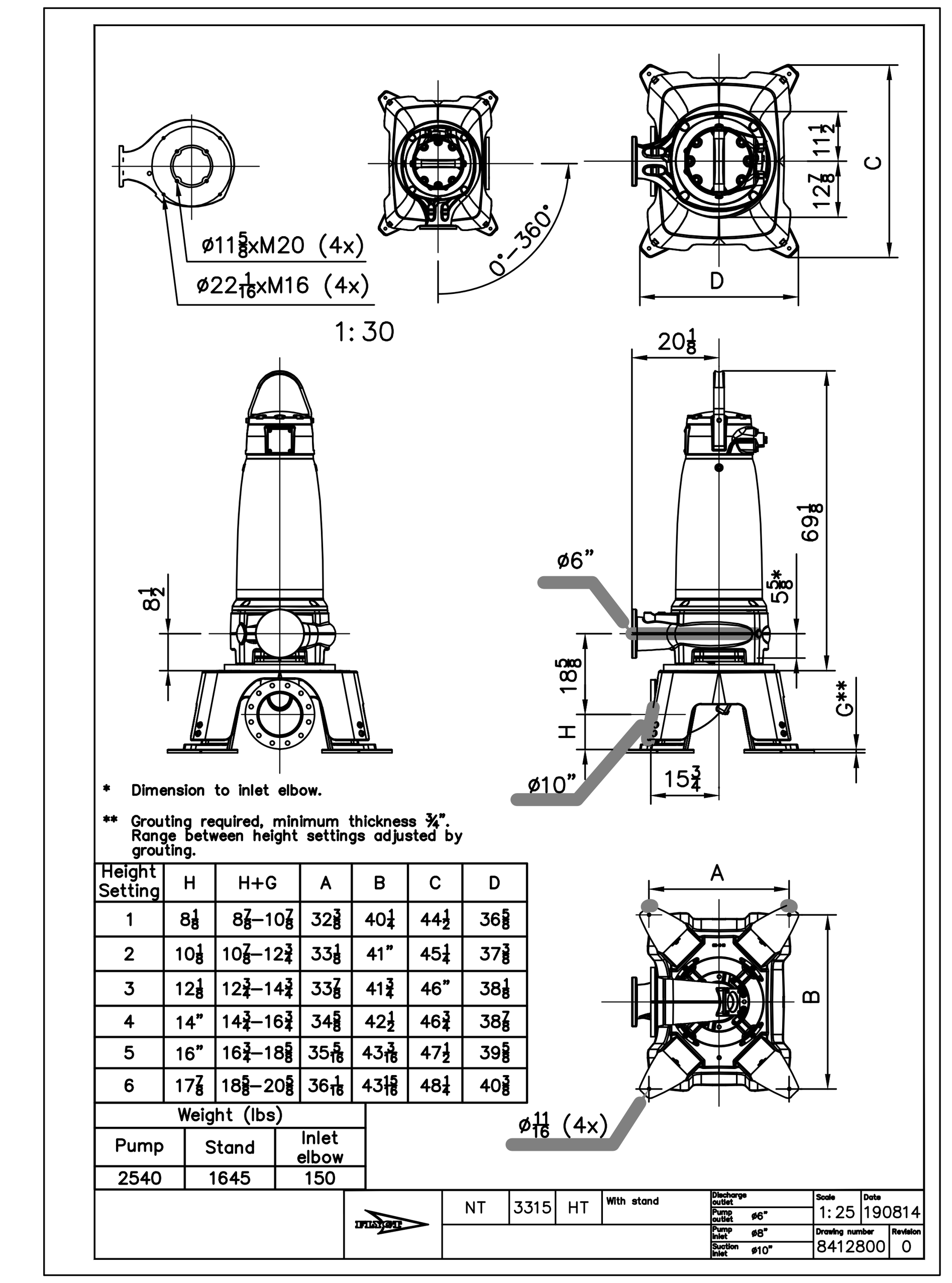
SCALE: NONE



TYPE E PIPE PENETRATION FOR WALLS

DETAIL C VAR

SCALE: NONE



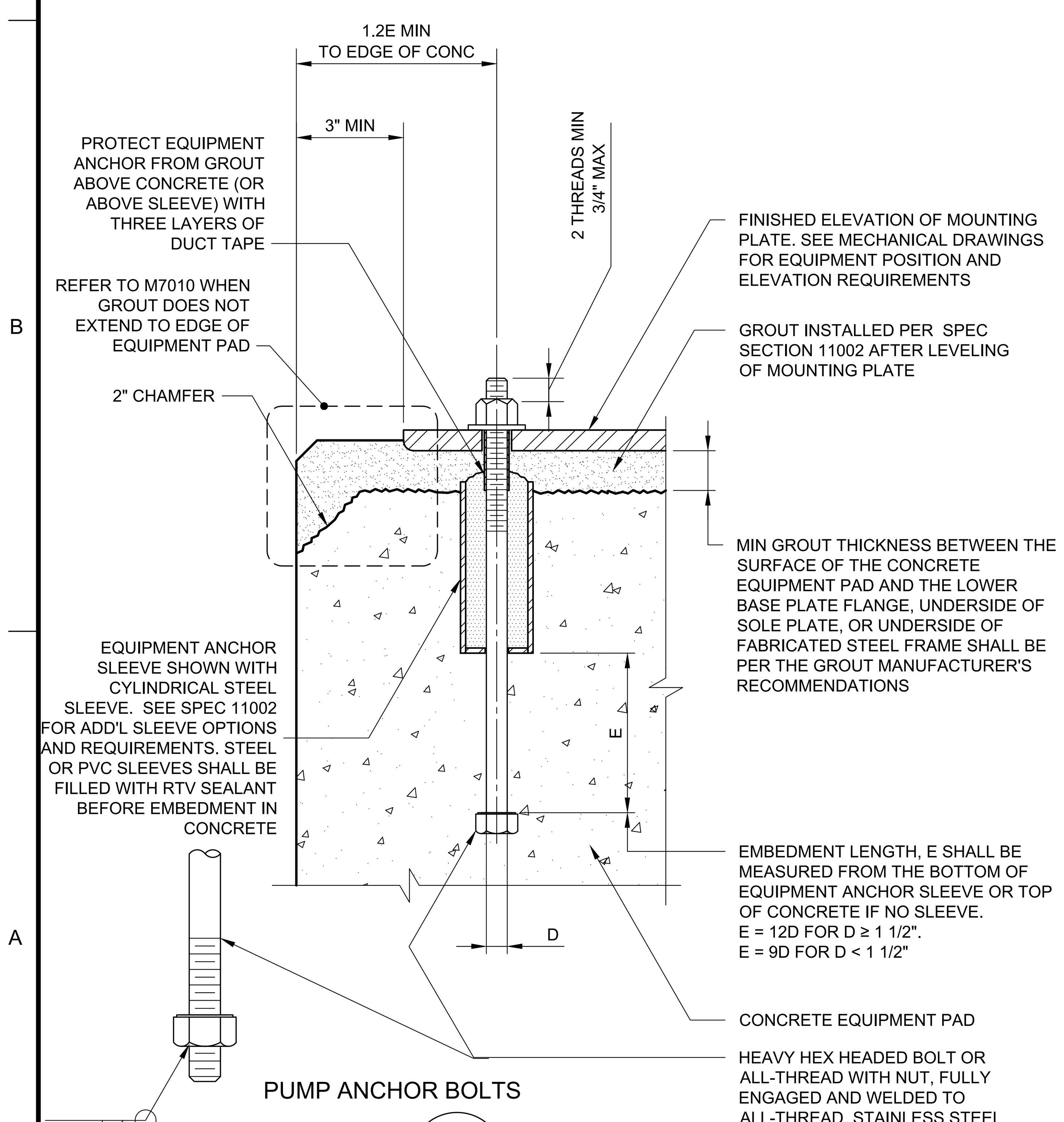
Height Setting	H	H+G	A	B	C	D
1	8 1/8	8 7/8–10 7/8	32 3/8	40 1/4	44 1/2	36 5/8
2	10 1/8	10 7/8–12 3/4	33 1/8	41"	45 1/4	37 3/8
3	12 1/8	12 3/4–14 3/4	33 7/8	41 3/4	46"	38 1/8
4	14"	14 3/4–16 3/4	34 5/8	42 1/2	46 3/4	38 7/8
5	16"	16 3/4–18 5/8	35 5/16	43 3/16	47 1/2	39 5/8
6	17 7/8	18 5/8–20 5/8	36 1/16	43 15/16	48 1/4	40 3/8

Weight (lbs)		
Pump	Stand	Inlet elbow
2540	1645	150

STEEL PEDESTAL SUPPORT

DETAIL D VAR

SCALE: NONE



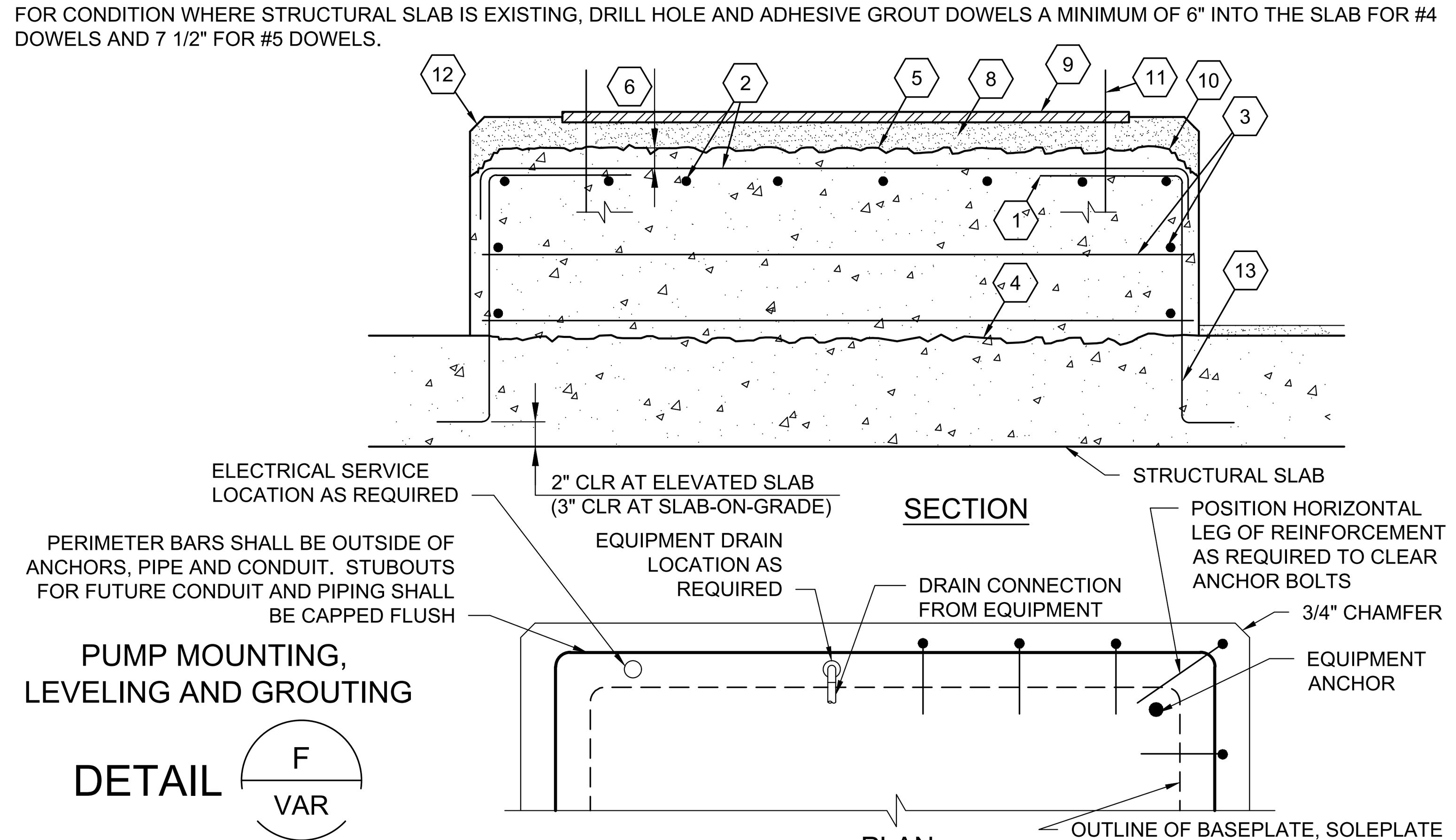
PUMP ANCHOR BOLTS

DETAIL E VAR

SCALE: NONE

KEY NOTES:

1. #4 @ 12" DOWELS FOR PADS ≤ 12" HIGH (#5 @ 12" FOR PADS > 12" HIGH) WITH 90 DEGREE STANDARD HOOK. PROVIDE 10" EMBEDMENT INTO STRUCTURAL SLAB OR HOOK BARS AT BOTTOM OF SLAB IF SLAB IS LESS THAN 12" THICK.
2. #4 @ 12" EACH WAY. TERMINATE WITH STANDARD HOOKS OR CLASS B LAP SPLICE WITH DOWEL HOOKS.
3. #4 CLOSED TIES @ 8" WITH 135° END HOOKS OR U-SHAPED BARS WITH LAP SPLICES.
4. ROUGHEN SLAB SURFACE TO 1/4" AMPLITUDE. REMOVE ALL LAITANCE AND LOOSE MATERIAL. APPLY BONDING AGENT 30 MINUTES OR LESS BEFORE PLACING CONCRETE. EXTENT OF ROUGHENED AREA SHALL BE 2 INCHES INSIDE THE PERIMETER OF THE EQUIPMENT PAD.
5. AFTER THE CONCRETE IS FULLY CURED, THE TOP OF THE EQUIPMENT PAD SHALL BE ROUGHENED PER SPEC SECTION 11002.
6. MINIMUM 1" CLEAR AFTER ROUGHENING TOP OF EQUIPMENT PAD.
7. THE CONTRACTOR SHALL COORDINATE LOCATION OF ELECTRICAL CONDUIT AND DRAINAGE PIPING PENETRATIONS WITHIN THE EQUIPMENT PAD. ALL PENETRATIONS SHALL STUB-UP ON THE SAME SIDE OF THE EQUIPMENT AS REQUIRED FOR CONNECTION TO EQUIPMENT. EQUIPMENT PAD DRAINS SHALL BE LOCATED AT DRAINAGE CONNECTIONS FROM EQUIPMENT. EQUIPMENT PAD SHALL BE CONFIGURED ACCORDINGLY.
8. EQUIPMENT PAD GROUT. MINIMUM THICKNESS PER GROUT MANUFACTURER'S INSTRUCTIONS.
9. BASEPLATE, SOLEPLATE OR FABRICATED STEEL FRAME.
10. 2-INCH ROUGHENED CHAMFER IN CONCRETE EQUIPMENT PAD ALL AROUND WHERE GROUT EXTENDS TO EDGE OF PAD.
11. PRIOR TO CONCRETE PLACEMENT, EQUIPMENT ANCHORS SHALL BE ACCURATELY SET ACCORDING TO THE EQUIPMENT MANUFACTURER'S MOUNTING TEMPLATE AND FIRMLY SECURED TO PREVENT SHIFTING DURING CONCRETE PLACEMENT.
12. 3/4-INCH CHAMFER IN EQUIPMENT PAD GROUT ALL AROUND.
13. FOR CONDITION WHERE STRUCTURAL SLAB IS EXISTING, DRILL HOLE AND ADHESIVE GROUT DOWELS A MINIMUM OF 6" INTO THE SLAB FOR #4 DOWELS AND 7 1/2" FOR #5 DOWELS.



PUMP MOUNTING, LEVELING AND GROUTING

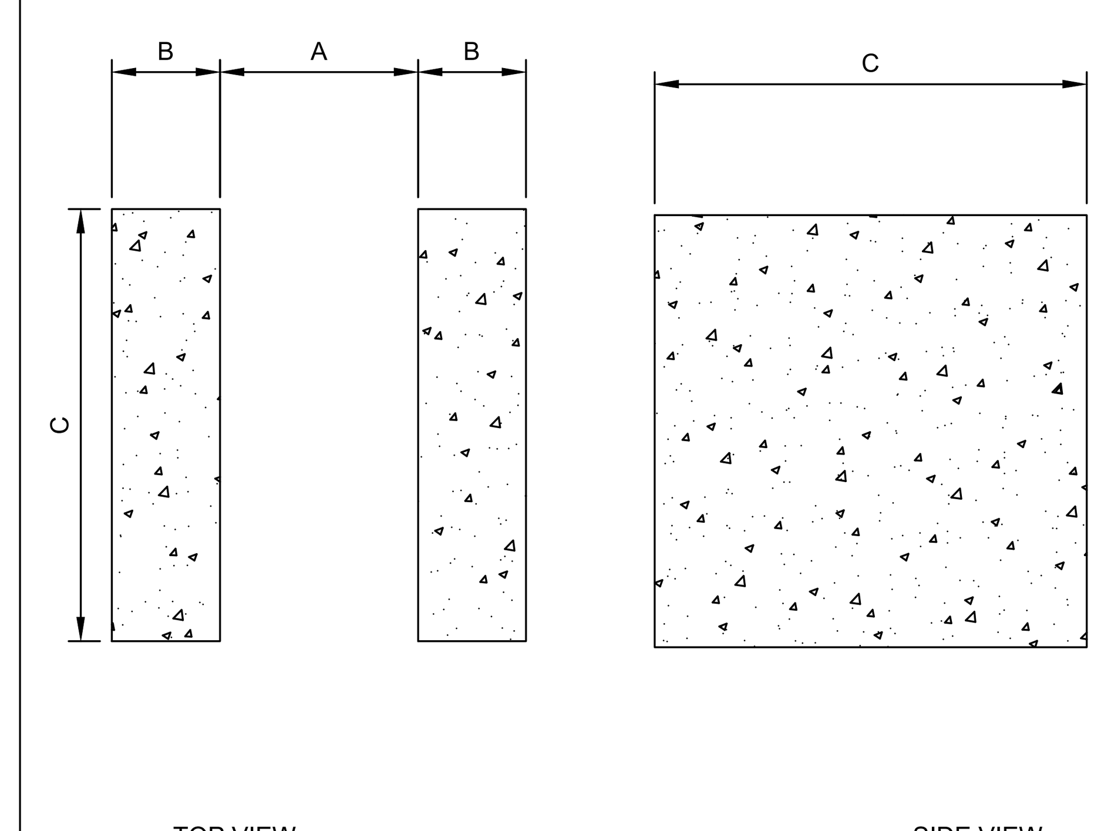
DETAIL F VAR

SCALE: NONE

NOTES:

1. CONCRETE PUMP SUPPORT WIDTH, LENGTH AND SPACING TO BE AS INDICATED IN TABLE. DIMENSIONS SHALL BE CONFIRMED WITH PUMP MANUFACTURER.
2. CONCRETE PUMP SUPPORT HEIGHT SHALL BE AS REQUIRED.
3. CONCRETE SLAB REINFORCING NOT SHOWN FOR CLARITY.
4. ANCHOR BOLTS TO BE AS REQUIRED.
5. WHERE INDICATED ON THE DRAWINGS, PROVIDE HORIZONTAL REINFORCING EACH FACE, SIZE AS INDICATED, IN LIEU OF TIES.

A	14"
B	12"
C	38"



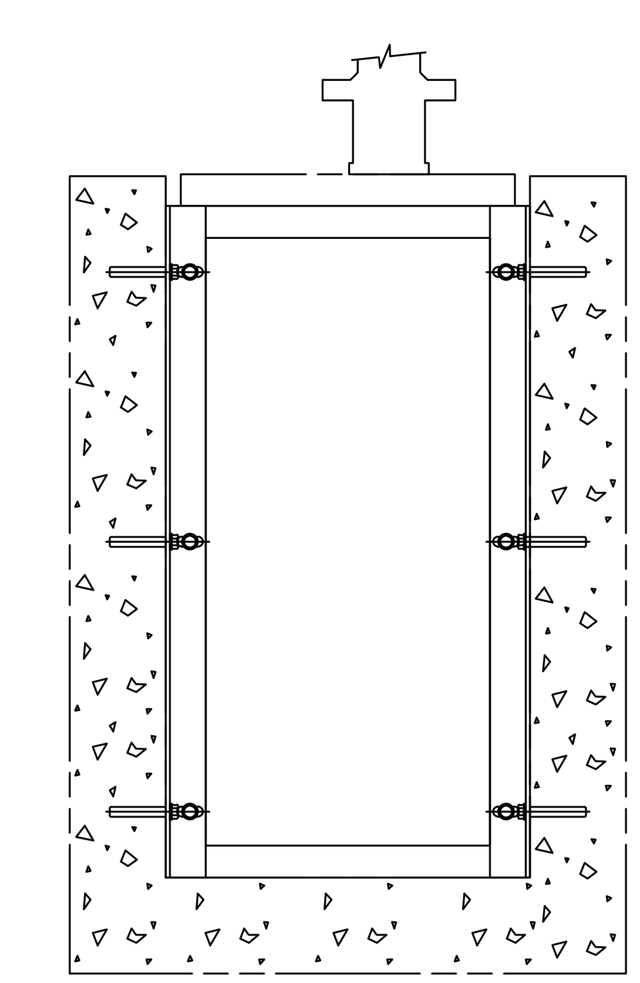
CONCRETE PUMP SUPPORT DETAIL

DETAIL G VAR

SCALE: NONE

NOTES:

1. GROUT OR SEAL GAPS BETWEEN FRAME AND CHANNEL TO PREVENT ANY LARGE PARTICLES FROM PASSING.
2. CHANNEL WIDTH SHALL EXCEED FRAME WIDTH BY 1/4" MIN.
3. MANUFACTURER TO VERIFY ANCHORING REQUIREMENTS. DESIGN OF MOUNTING BRACKETS ARE SPECIFIC TO THE MANUFACTURER EQUIPMENT, THE MANUFACTURER SHALL BE RESPONSIBLE FOR SUBMITTING BRACKET AND ANCHORAGE DESIGN.



COMMINUTOR FRAME INSTALLATION DETAIL

DETAIL H VAR

SCALE: NONE

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Sarasota, FL 34240

ENGINEER OF RECORD
R. GAYLORD, PE 80981

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD
FILENAME 156470-M-00-001.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389

MECHANICAL

MECHANICAL DETAILS 1

DRAWING NUMBER M-00-001

SHEET NUMBER 19 OF 47

Path: C:\BCPW\D2331107 FILENAME: 156470-M-00-001.DWG PLOT DATE: 8/23/2022 1:21 PM CAD USER: PHILLIP DAVIS

NORTH

PHOTO 1 MD-01-011

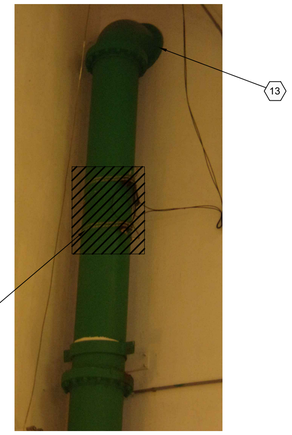
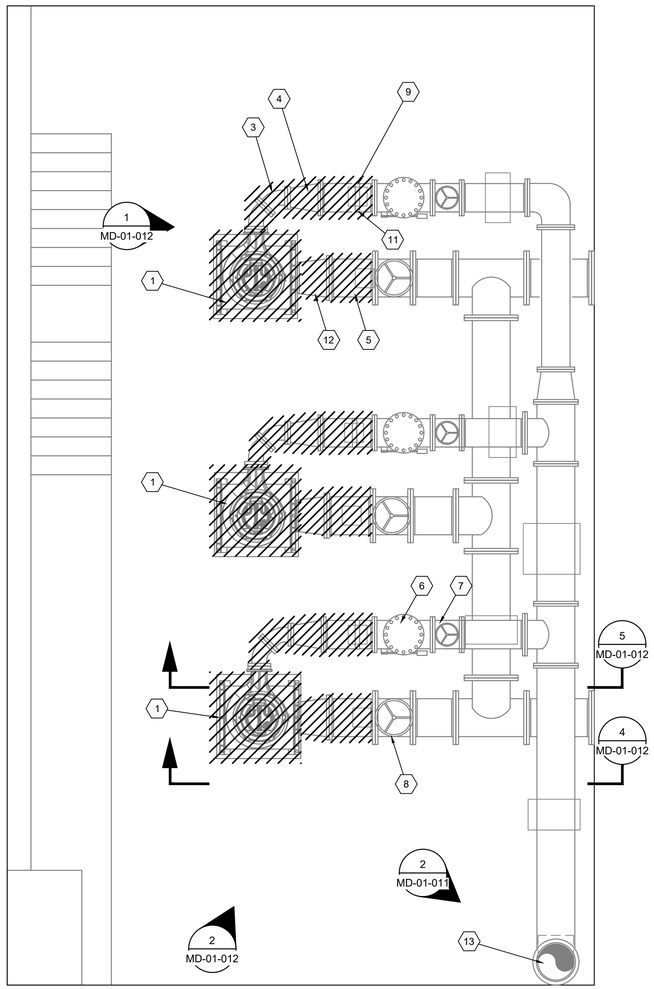
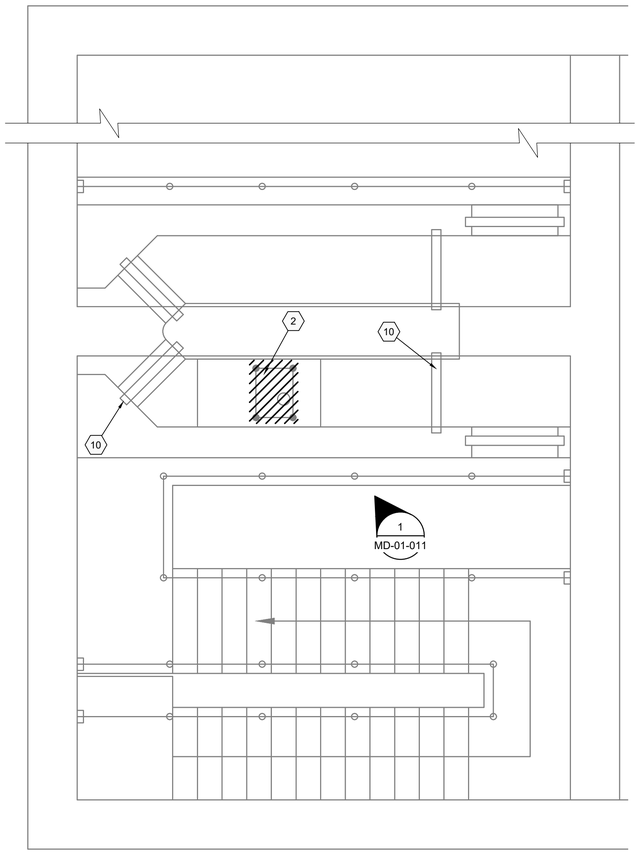


PHOTO 2 MD-01-011



MLS N1-B DEMOLITION PLAN 1

SCALE : 3/8" = 1'-0"



MLS N1-B WET WELL DEMOLITION PLAN

SCALE : 3/8" = 1'-0"

NOTE: BACKGROUND PLAN DRAWN BASED OFF IN-FIELD MEASUREMENTS

LEGEND

DEMOLISH

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY THE CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. REFER TO SPECIFICATION SECTION 01530 TITLED "PROTECTION OF EXISTING FACILITIES" FOR ADDITIONAL DETAIL OF REQUIREMENTS.
3. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241 AND SPECIFICATION SECTION 02050 WITH THE EXCEPTION OF PUMPS WHICH SHALL BE CLEANED AND RETURNED BACK TO THE COUNTY (UNDAMAGED).
4. THE CONTRACTED WORK INCLUDES DEMOLITION OF THE THREE (3) EXISTING PUMPS. THE DEMOLITION INCLUDES COMPLETE DEMOLITION OF THE EXISTING CONCRETE PUMP PADS.
5. CONTRACTOR SHALL CLEAN CHANNEL AND PERFORM ANY PRE-COATING REPAIRS RECOMMENDED BY THE COATING MANUFACTURER PRIOR TO INSTALLATION OF NEW DIMMINUTOR.
6. ANCHOR BOLTS FOR COMMINUTOR AND PUMP SHALL BE CUT OFF 1" BELOW CONCRETE, THEN EPOXY COVER FOR A CLEAN FINAL PRODUCT AND TO PROTECT THE REBAR IN THE FLOOR SLAB. FILL/FINISH USING NON-SHRINK GROUT OR EPOXY MORTAR.
7. AFTER FLOW IS BYPASSED, CONTRACTOR SHALL DEWATER AND CLEAN WET WELL. THE CLEANING SHALL BE IN ACCORDANCE OF SPECIFICATION 13350 TITLED "WET WELL CLEANING". AFTER CLEANING THE WET WELL, THE COUNTY INSPECTOR AND COATING REPRESENTATIVE SHALL INSPECT THE WET WELL AND DETERMINE THE EXTENT OF COATING REPAIRS AND PROVIDE RECOMMENDATIONS.
8. CONTRACTOR SHALL FIELD-VERIFY THE TYPE OF PIPE PENETRATION THROUGH WALL (SEE KEYNOTE 18). THE CONTRACTOR SHALL DEMOLISH EXISTING 16" DI PIPE THROUGH THE WALL AND TAKE NOTE OF WATERSTOP/LINK SEAL CONFIGURATION FOR WALL PENETRATION AND REPLACE-IN-KIND OR VIA DETAIL C/M-00-001.
9. DEMOLISH ALL PIPING, APPURTENANCES, AND SUPPORTS FROM SUCTION VALVE TO THE DISCHARGE CHECK VALVES AS SHOWN

KEYNOTES:

1. DEMOLISH PUMPS, MOTORS, PADS, AND PEDESTALS (TYP OF 3)
2. DEMOLISH COMMINUTOR
3. DEMOLISH 8" DI 45 BEND (FLANGED) (TYP)
4. DEMOLISH 8" X 12" DI ECCENTRIC REDUCER (FLANGED)
5. DEMOLISH 16" DI PIPE (FLANGED)
6. 12" SWING CHECK VALVE
7. 12" GATE VALVE
8. 16" GATE VALVE
9. PIPE STANCHION
10. EXISTING 316 SS GUIDE CHANNEL FOR SLIDE GATE
11. DEMOLISH EXISTING STRAP-ON MAGNETIC FLOW METER
12. DEMOLISH 6" X 16" DI ECCENTRIC REDUCER (FLANGED)
13. DEMOLISH 16" DI HORIZONTAL PIPE TO OUTSIDE (WALL PENETRATED PIPE) AND 90° BEND INSIDE BUILDING (SEE PHOTO 2/MD-01-011 AND GENERAL NOTE 8)

Brown AND Caldwell

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BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	B. SILLMAN
DRAWN:	P. VITERI
CHECKED:	S. HALL
CHECKED:	A. MODY
APPROVED:	R. GAYLORD

FILENAME
156470-MD-01-011.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

MECHANICAL

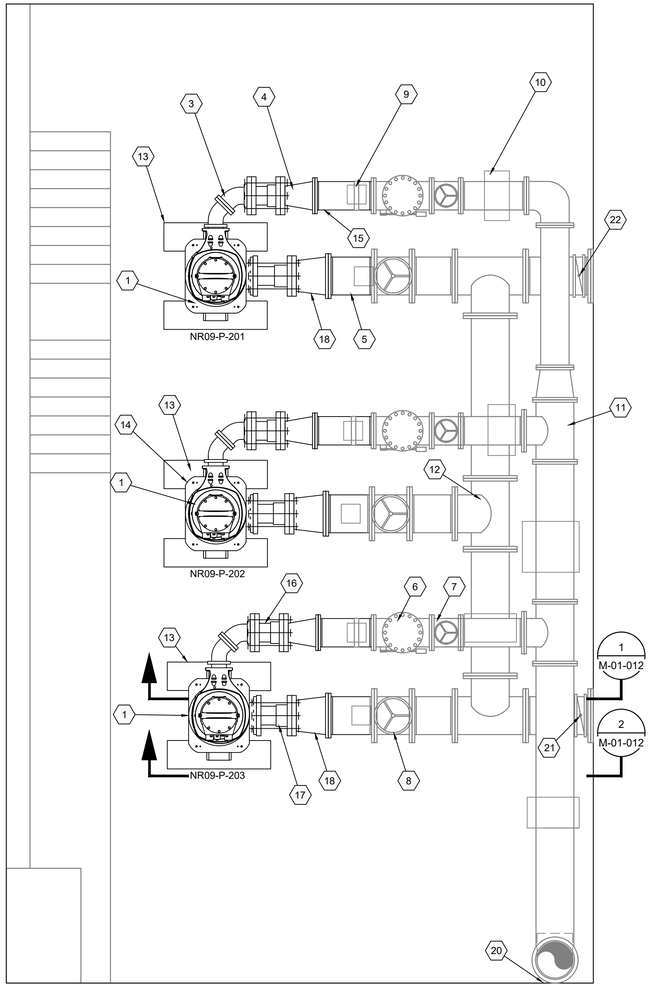
MLS N1-B ROOM DEMOLITION PLAN

DRAWING NUMBER
MD-01-011

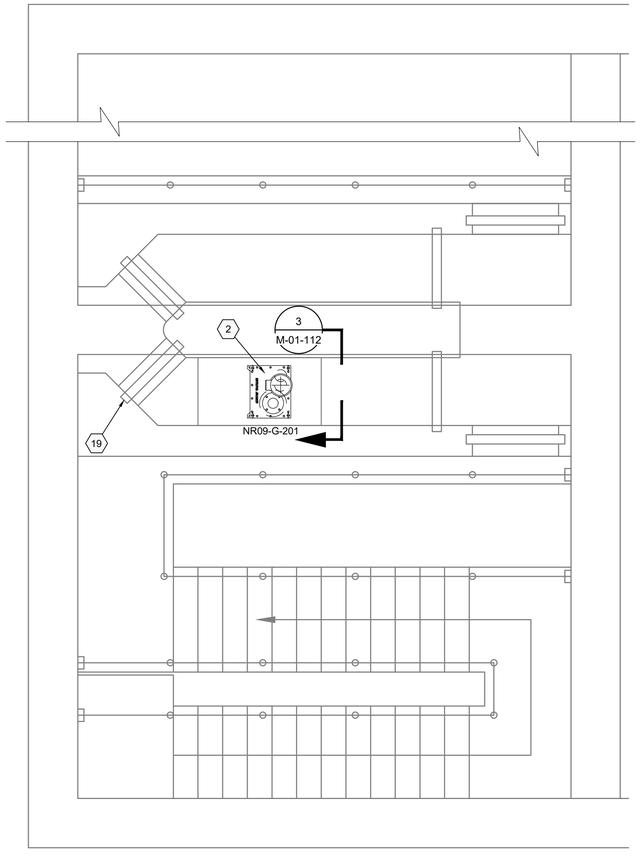
SHEET NUMBER 20 OF 47

Path: C:\BCPW\D2331107 FILENAME: 156470-MD-01-011.DWG PLOT DATE: 8/23/2022 1:33 PM CAD USER: PHILLIP DAVIS

NORTH



MLS N1-B PUMP ROOM PLAN
SCALE : 3/8" = 1'-0"



MLS N1-B WET WELL PLAN
SCALE : 3/8" = 1'-0"

NOTE: BACKGROUND PLAN DRAWN BASED OFF IN-FIELD MEASUREMENTS

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY THE CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. REFER TO SPECIFICATION SECTION 01530 TITLED "PROTECTION OF EXISTING FACILITIES" FOR ADDITIONAL DETAIL OF REQUIREMENTS.
3. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
4. ANCHOR COMMINUTOR PER MANUFACTURER'S RECOMMENDATION.
5. FOR PUMP ANCHORING, MOUNTING, LEVELING AND GROUTING, SEE DETAILS E & F ON SHEET M-00-001.

KEYNOTES:

1. PUMPS (SEE ANCHORING, MOUNTING, LEVELING AND GROUTING DETAILS D & E/M-00-001)
2. COMMINUTOR. SEE DETAIL G/M-00-001 FOR ANCHORING REQUIREMENTS.
3. 8" DI 45 BEND (FLANGED)
4. 8" X 12" DI ECCENTRIC REDUCER (FLANGED)
5. 16" DI PIPE (FLANGED)
6. 12" SWING CHECK VALVE
7. 12" GATE VALVE (EXISTING)
8. 16" GATE VALVE (EXISTING)
9. PIPE STANCHION (EXISTING)
10. CONCRETE SADDLE AND PIPE SUPPORT (EXISTING)
11. 12" (BRANCH) BY 16" (RUN) TEE (EXISTING)
12. 16" TEE (EXISTING)
13. CONCRETE PIER PUMP SUPPORT, TYP. (SEE DETAIL F/M-00-001)
14. MOUNTING PLATE
15. 12" DI PIPE (FLANGED)
16. 8" EQUIPMENT CONNECTION FITTINGS, ROMAC ECF-400 OR APPROVED EQUAL
17. 10" EQUIPMENT CONNECTION FITTINGS, ROMAC ECF-400 OR APPROVED EQUAL
18. 10" X 16" DI ECCENTRIC REDUCER (FLANGED)
19. 316 SS GUIDE CHANNEL
20. REPLACE EXISTING 16" DI PIPE THROUGH WALL. TYPE "F" WALL PENETRATION. SEE DETAIL C/M-00-001.
21. 16" BUTTERFLY VALVE

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ENGINEER OF RECORD
R. GAYLORD, PE 80981

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	B. SILLMAN
DRAWN:	P. VITERI
CHECKED:	S. HALL
CHECKED:	A. MODY
APPROVED:	R. GAYLORD

FILENAME
156470-M-01-111.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

MECHANICAL

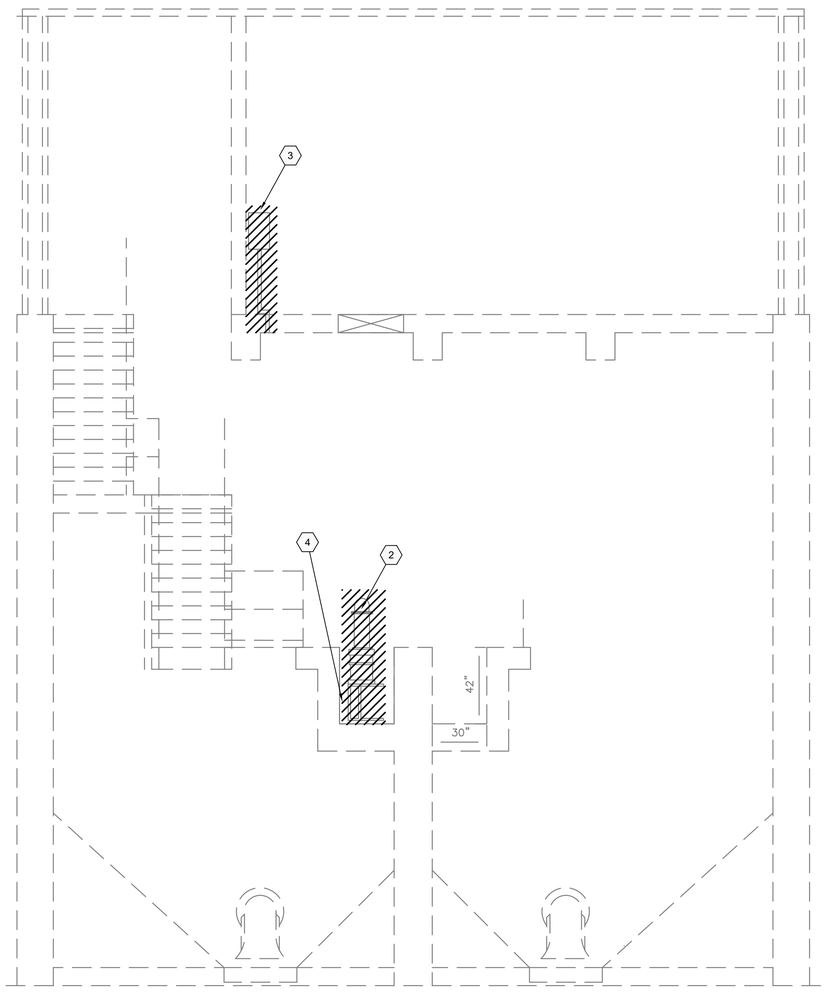
MLS N1-B ROOM PLAN

DRAWING NUMBER
M-01-111

SHEET NUMBER 21 OF 47

Path: C:\BCPW\D2331107 FILENAME: 156470-M-01-111.DWG PLOT DATE: 8/23/2022 1:25 PM CAD USER: PHILLIP DAVIS

NORTH



SECTION
SCALE: _"=1'-0"
1
M-01-008

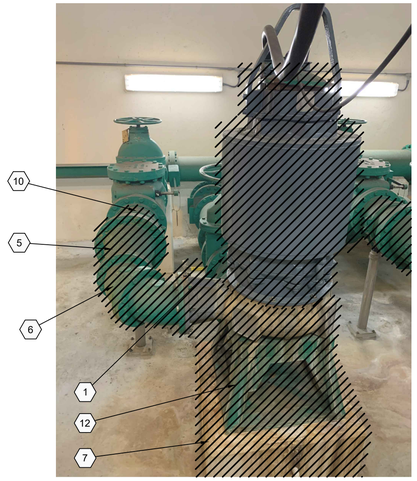
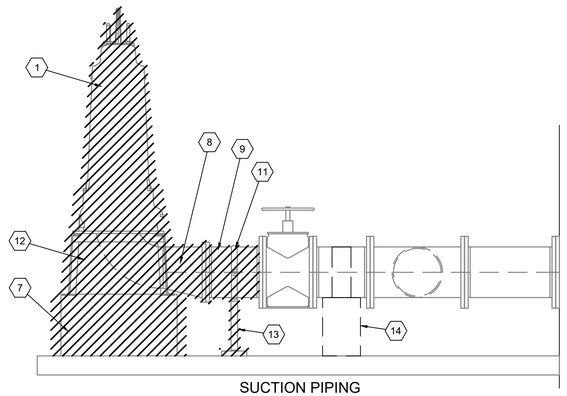


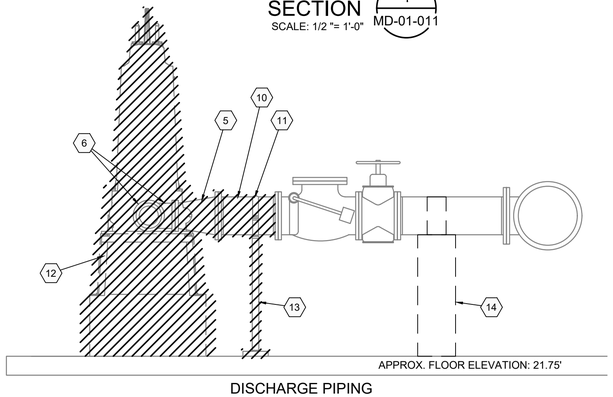
PHOTO 1 MD-01-012

PHOTO 2 MD-01-012



SUCTION PIPING

SECTION
SCALE: 1/2 "= 1'-0"
4
MD-01-011



DISCHARGE PIPING

SECTION
SCALE: 1/2" = 1'-0"
5
MD-01-011

LEGEND

DEMOLISH

NOTE: BACKGROUND PLAN DRAWN BASED OFF IN-FIELD MEASUREMENTS

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY THE CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. REFER TO SPECIFICATION SECTION 01530 TITLED "PROTECTION OF EXISTING FACILITIES" FOR ADDITIONAL DETAIL OF REQUIREMENTS.
3. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
4. THE CONTRACTED WORK INCLUDES COMPLETE DEMOLITION OF THE THREE (3) EXISTING PUMPS.
5. ANCHOR BOLTS FOR COMMINUTOR SHALL BE CUT OFF 1" BELOW CONCRETE SURFACE AND FILLED/REFINISHED USING NON-SHRINK GROUT OR EPOXY MORTAR.
6. AFTER FLOW IS BYPASSED, CONTRACTOR SHALL DEWATER AND CLEAN WET WELL. THE CLEANING SHALL BE IN ACCORDANCE OF SPECIFICATION 13350 TITLED "WET WELL CLEANING". AFTER CLEANING THE WET WELL, THE COUNTY INSPECTOR AND COATING REPRESENTATIVE SHALL INPECT THE WET WELL AND DETERMINE THE EXTENT OF COATING REPAIRS AND PROVIDE RECOMMENDATIONS.
7. THE APPROXIMATE ELEVATIONS WERE REFERENCED FROM THE ORIGINAL BUILDING RECORD DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ELEVATIONS TO ENSURE THE PIPE AND PUMP DIMENSIONS, LENGTH, ELEVATIONS, AND CONNECTIONS ARE COMPATIBLE WITH THE ACTUAL ELEVATIONS.

KEYNOTES:

1. DEMOLISH PUMPS AND MOTORS (TYP OF 3)
2. DEMOLISH COMMINUTOR
3. DEMOLISH COMMINUTOR CONTROL PANEL, CABLES, AND CONDUITS (WILL BE REPLACED IN PROP. ELECTRICAL BUILDING)
4. REMOVE SPRAY LINER, AS NECESSARY
5. DEMOLISH 6" X 12" DI ECCENTRIC REDUCER (FLANGED)
6. DEMOLISH 8" DI 45 BEND (FLANGED)
7. DEMOLISH PUMP PAD
8. DEMOLISH 8" X 16" DI ECCENTRIC REDUCER (FLANGED)
9. DEMOLISH 16" DI PIPE (FLANGED)
10. DEMOLISH 12" DI PIPE (FLANGED)
11. DEMOLISH NUT, WASHER, AND PIPE STRAP
12. DEMOLISH PUMP PEDESTAL
13. DEMOLISH AND REPLACE MECHANICAL PIPE SUPPORT (TYP.)
14. NEW CONCRETE PIPE SUPPORT TO BE INSTALLED BEFORE MECHANICAL PIPE SUPPORT IS REMOVED (DETAIL D/M-00-001)

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ENGINEER OF RECORD
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BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD

FILENAME
156470-MD-01-012.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

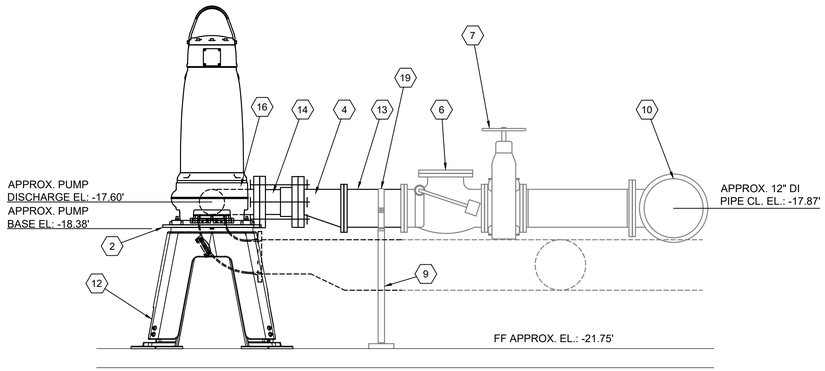
MECHANICAL

MLS N1-B ROOM DEMOLITION SECTIONS

DRAWING NUMBER
MD-01-012

SHEET NUMBER 22 OF 47

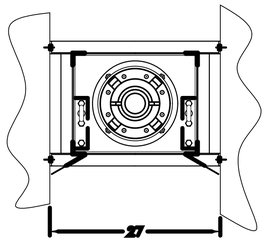
Path: C:\BCPWD2331107 FILENAME: 156470-MD-01-012.DWG PLOT DATE: 8/23/2022 1:35 PM CAD USER: PHILLIP DAVIS

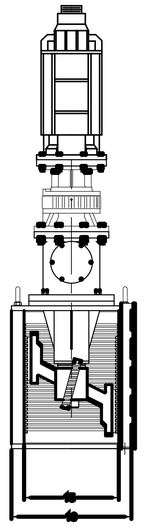


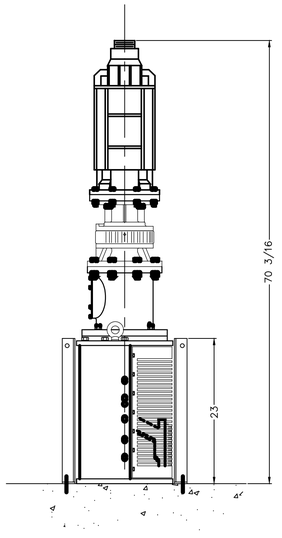
DISCHARGE PIPING

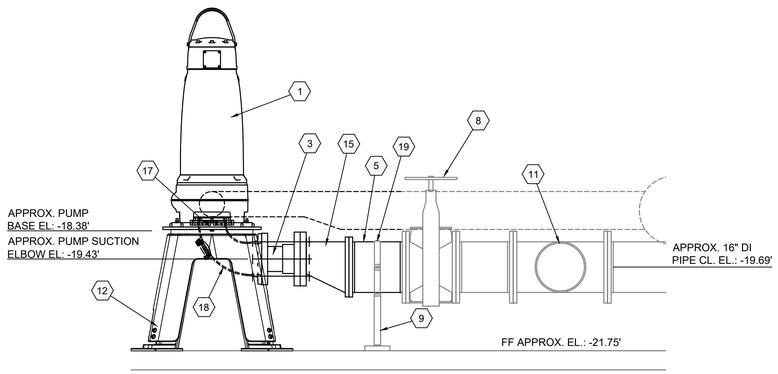
SECTION 1 MD-01-012

SCALE: 1/2" = 1'-0"









SUCTION PIPING

SECTION 2 MD-01-012

SCALE: 1/2 "= 1'-0"

COMMUNITOR

SECTION 3 M-01-012

SCALE: 1 1/2" = 1'-0"

NOTE: BACKGROUND PLAN DRAWN BASED OFF IN-FIELD MEASUREMENTS

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY THE CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. REFER TO SPECIFICATION SECTION 01530 TITLED "PROTECTION OF EXISTING FACILITIES" FOR ADDITIONAL DETAIL OF REQUIREMENTS.
3. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
4. THE CONTRACTED WORK INCLUDES DEMOLITION OF THE THREE (3) EXISTING PUMPS PADS AND PEDESTALS. THE WORK ALSO INCLUDES BUILDING PUMP CONCRETE PIERS, GROUTING, LEVELING, AND ANCHORING OF NEW PUMPS,
5. ANCHOR COMMINUTOR PER MANUFACTURER'S RECOMMENDATION.
6. THE APPROXIMATE ELEVATIONS WERE REFERENCED FROM THE ORIGINAL BUILDING RECORD DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ELEVATIONS TO ENSURE THE PIPE AND PUMP DIMENSIONS, LENGTH, ELEVATIONS, AND CONNECTIONS ARE COMPATIBLE WITH THE ACTUAL ELEVATIONS.
7. FOR PUMP ANCHORING, MOUNTING, LEVELING AND GROUTING, SEE DETAILS E, F, & G ON SHEET M-00-001.
8. CONTRACTOR SHALL FIELD VERIFY THE ACTUAL VERTICAL DISTANCE BETWEEN THE CENTERLINE OF THE SUCTION ELBOW AND DISCHARGE OUTLET. THE DISTANCE SHALL BE COORDINATING WITH THE PUMP MANUFACTURER TO PROVIDE A SPACER OF SPOOL PIECE WITH GASKETS FOR PROPER PUMP DISCHARGE/SUCTION PIPING FITTING.

KEYNOTES:

1. PUMP AND MOTORS (SEE ANCHORING, MOUNTING, LEVELING, AND GROUTING DETAILS E&F/M-00-001).
2. MOUNTING PAD
3. 10" FLANGED ADAPTOR, ROMAC ECF-400 OR APPROVED EQUAL
4. 8" X 12" DI ECCENTRIC REDUCER (FLANGED)
5. 16" DI PIPE (FLANGED)
6. 12" SWING CHECK VALVE (EXISTING)
7. 12" GATE VALVE (EXISTING)
8. 16" GATE VALVE (EXISTING)
9. PIPE STANCHION (EXISTING)
10. 12" (BRANCH) BY 16" (RUN) TEE (EXISTING)
11. 16" TEE (EXISTING)
12. STEEL PEDESTAL PUMP SUPPORT (TYP) (SEE DETAIL D/M-00-001).
13. 12" DI PIPE (FLANGED)
14. 8" EQUIPMENT CONNECTION FITTING, ROMAC ECF-400 OR APPROVED EQUAL
15. 10" X 16" DI ECCENTRIC REDUCER (FLANGED)
16. 6" PUMP DISCHARGE (FLANGED)
17. 8" PUMP INLET (FLANGED)
18. 10" INLET ELBOW
19. 316 SS NUT, WASHER, AND PIPE STRAP

Brown AND Caldwell

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BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: P. VITERI
CHECKED: S. HALL
CHECKED: A. MODY
APPROVED: R. GAYLORD

FILENAME
156470-M-01-112.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

MECHANICAL

MLS N1-B ROOM SECTIONS

DRAWING NUMBER
M-01-112

SHEET NUMBER 23 OF 47

RACEWAYS

HH23 — MANHOLE (MH), HANDHOLE (HH), PULLBOX (PB)

JB1900 (J) — JUNCTION BOX. OPTIONAL IDENTIFIER

TB-1301 (T) — TERMINAL BOX. OPTIONAL IDENTIFIER

PBD-1900-1,3,5 — HOME RUN EXPOSED - SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5

PBD-1900-1,3,5 — HOME RUN CONCEALED - SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION.

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5

CABLE TRAY MODIFIERS:
CTS - 24VDC OR LESS
CTC - 120V CONTROL CONDUCTORS
CTP - 600V POWER CONDUCTORS

CABLE #4/0 AND LARGER SHALL NOT BE STACKED VERTICALLY

WHEN TWO TRAY MODIFIERS IDENTIFY A SINGLE TRAY, THE CONTRACTOR MAY USE DIVIDER OR INSTALL SEPARATE TRAYS (CTC/CTS)

CABLE TRAY WITH COVER MODIFIER, AS ABOVE

P 05P1100 — RACEWAY IDENTIFIER

RACEWAY EXPOSED
MODIFIERS FOR RACEWAY TYPE:
H - POWER (ABOVE 600V)
P - POWER
C - CONTROL
S - SIGNAL
D - DATA
F - FIBER OPTIC
PC - POWER AND CONTROL
X - SPARE

RACEWAY CONCEALED

RACEWAY TURNED TOWARD THE THE VIEWER

RACEWAY TURNED DOWN

CONDUIT CAPPED

DB 05P1100 — DUCT BANK IDENTIFIER (OPTIONAL)

DB — DUCT BANK, DIRECT BURIED

CDB — DUCT BANK, CONCRETE ENCASED

RC — DUCTBANK, REINFORCED CONCRETE ENCASED

OHE — OVERHEAD POWER LINE

DISTRIBUTION EQUIPMENT

APPROXIMATE SHAPE AND SCALE REPRESENTED WHERE POSSIBLE. HOWEVER, EXACT SIZE AND NUMBER OF SECTIONS IS ESTIMATED

FLOOR-STANDING DISTRIBUTION ASSEMBLY, SUCH AS A SWITCHBOARD, TRANSFORMER, OR MOTOR CONTROL CENTER

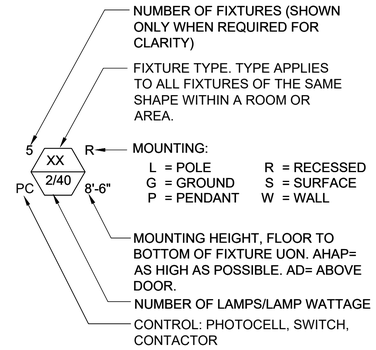
MCC-1200 — EQUIPMENT DESIGNATION (EXAMPLE)

WALL-MOUNTED DISTRIBUTION ASSEMBLY, SUCH AS PANELBOARD, MOTOR STARTER PANEL, OR TERMINAL CABINET

PBD-1900 — EQUIPMENT DESIGNATION (EXAMPLE)

LIGHTING

FIXTURE IDENTIFIER:



NUMBER OF FIXTURES (SHOWN ONLY WHEN REQUIRED FOR CLARITY)

FIXTURE TYPE. TYPE APPLIES TO ALL FIXTURES OF THE SAME SHAPE WITHIN A ROOM OR AREA.

MOUNTING:
L = POLE R = RECESSED
G = GROUND S = SURFACE
P = PENDANT W = WALL

MOUNTING HEIGHT, FLOOR TO BOTTOM OF FIXTURE UON. AHAP= AS HIGH AS POSSIBLE. AD= ABOVE DOOR.

NUMBER OF LAMPS/LAMP WATTAGE

CONTROL: PHOTOCELL, SWITCH, CONTACTOR

LIGHTING FIXTURE SHAPES AND SCALE ARE REPRESENTED WHERE POSSIBLE. THE EXAMPLES SHOWN BELOW ARE TYPICAL APPLICATIONS

RECESSED LED FIXTURE

SUSPEND PENDANT MOUNTED FIXTURE

SURFACE MOUNTED FIXTURE

NS — EMERGENCY LIGHTING FIXTURES, FIXTURES WITH EMERGENCY FIXTURES IDENTIFIED WITH AN 'NS' SHALL BE PROVIDED WITH NON-SWITCHED POWER SOURCE

E — LED FIXTURE WITH EMERGENCY BATTERY PACK

LIGHT FIXTURE

WALL MOUNTED FIXTURE

DIRECTIONAL LIGHT

POLE MOUNTED AREA LIGHT

EMERGENCY LIGHTING UNIT SELF CONTAINED

LIGHTING CONTINUED

EXIT LIGHTS:

SURFACE ON CEILING

WALL MOUNTED

WITH DIRECTIONAL ARROWS

3a — CIRCUIT IDENTIFIER: WHEN SHOWN ADJACENT TO FIXTURE IDENTIFIES CIRCUIT NUMBER AND SWITCH. EXAMPLE: CIRCUIT 3, CONTROLLED BY SWITCH a

PC — PHOTO CELL

OS — OCCUPANCY SENSOR

WIRING DEVICES

SWITCHES:

UNLESS OTHERWISE NOTED, ALL SWITCHES ARE WALL MOUNTED

$ — TOGGLE SWITCH, SINGLE POLE

$ $ — GANGED SWITCHES IN COMMON BOX WITH COMMON WALL PLATE

$a3 — SUPERSCRIPT INDICATES CIRCUIT CONTROLLED: a, b, c, ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 4b, ETC

SUBSCRIPT MODIFIER INDICATES:
2 = DOUBLE POLE
3 = THREE WAY
4 = FOUR WAY
K = KEY OPERATED
MC = MOMENTARY CONTACT, THREE POSITION
MS = MANUAL (MOTOR) STARTER OR SWITCH WITH OVERLOADS
R = RHEOSTAT (DIMMER, SPEED CONTROL)
O = OCCUPANCY SWITCH

D — DIMMER

RECEPTACLES:

WP — DUPLEX RECEPTACLE

RECEPTACLE MODIFIERS:
WP = WEATHER PROOF

GFI = GROUND FAULT CIRCUIT INTERRUPTER

H = HAZARDOUS AREA-EXPLOSION PROOF

EXPLOSION PROOF, CLASS 1, DEAD FRONT, 45° ANGLE, TWO GANG

RECESSED FLOOR RECEPTACLE-- ANY RECEPTACLE INSIDE A SQUARE

SURFACE FLOOR RECEPTACLE-- ANY RECEPTACLE INSIDE A TRIANGLE

GANGED RECEPTACLES--IN COMMON BOX, WITH COMMON WALL PLATE

RECEPTACLE, CLOCK HANGER

RECEPTACLE, DUPLEX ON EMERGENCY

480V RECEPTACLE

GROUNDING

GROUND ROD

GROUND ROD WITH GROUND WELL

GROUND CONNECTION, COMPRESSION TYPE, EXOTHERMIC. SEE SPECIFIC

G — GROUNDING CONDUCTOR

GROUND CONNECTION

GROUND CONNECTION TO STRUCTURAL REINFORCEMENT

LIGHTNING ROD/AIR TERMINAL

MOTORS AND EQUIPMENT

MOTOR STARTER, INDIVIDUAL. NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

COMBINATION MOTOR STARTER. NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

60 — DISCONNECT SWITCH, NON-FUSED EXAMPLE: 60 AMP

F 100/2/80 — DISCONNECT SWITCH, FUSED EXAMPLE: 100 AMP, 2P, 80 AMP FUSES

M — MOTOR

SV — SOLENOID VALVE

H — HEATER

T — THERMOSTAT

WH — WATER HEATER

FIELD INSTRUMENT

LOCAL CONTROL STATION

LCP-0001 — EQUIPMENT DESIGNATION

CONTROL PANEL, VFD, RVSS, APPROXIMATE SHAPE AND SCALE.

AREA IDENTIFICATION

CI-D1 — HAZARDOUS AREA CLASSIFICATION

CI-D2 — HAZARDOUS AREA CLASSIFICATION

TELEPHONE & COMMUNICATION SYSTEMS

UNLESS OTHERWISE NOTED, TELEPHONE OUTLETS SHALL BE MOUNTED AT SAME HEIGHT AS THE RECEPTACLES. VERIFY

A — EXTERNAL LINE OR PLANT PHONE SYSTEM OUTLET

OPTIONAL MODIFIERS:
A = ATTENDANT'S CONSOLE
F = FUTURE INSTRUMENT
J = JACK, PLUG-IN TYPE
W = WALL INSTRUMENT

BELL

D — OUTLET, DATA COMMUNICATION

SECURITY CAMERA

SPEAKER

H — AUDIBLE HORN

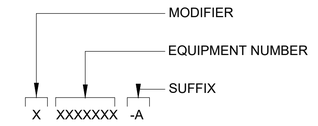
B — STROBE LIGHT (BLUE SHOWN)

CS — ELECTRONIC CARD SWIPE

SD — SMOKE DETECTOR

R — RATE-OF-RISE DETECTOR

CIRCUIT IDENTIFICATION



NOTE:

MODIFIERS FOR CABLE TYPE INCLUDE:
H - POWER (ABOVE 600V)
P - POWER
C - CONTROL
S - SIGNAL
D - DATA
F - FIBER OPTIC
PC - POWER AND CONTROL
X - SPARE

SUFFIX:
A - LETTER TO CREATE UNIQUE ID

EXAMPLE 1: P101-1: 3 #2/0, #6G, 2"C	FOR CIRCUIT P101: THREE NO, 2/0 CONDUCTORS, ONE NO. 6 AWG GROUND WIRE IN A 2" CONDUIT
EXAMPLE 2: SES-2: 2[3 #1/0, #6G, 1 1/2"C]	FOR SES-2: TWO PARALLEL RUNS OF THREE NO. 1/0 CONDUCTORS, ONE NO. 6 AWG GROUND IN 1 1/2" CONDUIT
EXAMPLE 3: C111: 2-1 PR #16S, 1"C	FOR CONTROL CIRCUIT: TWO SIGNAL CABLES OF #16 AWG TWISTED SHIELDED PAIR IN 1" C.
VND, 1"C	VENDOR CABLE, 1"C (CONDUIT BY CONTRACTOR) TYP

GENERAL NOTES:

1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS
2. SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS
3. IDENTIFICATIONS (ID), SIZES, RATINGS, LOCATIONS AND SIMILAR INFORMATION SHOWN ASSOCIATED WITH SYMBOLS ARE OPTIONAL; EXAMPLES OF SUCH INFORMATION ARE SHOWN WITH SOME SYMBOLS FOR CLARITY

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BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-00-001.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

LEGENDS AND SYMBOLS SHEET 1

DRAWING NUMBER
E-00-001

SHEET NUMBER 24 OF 47

CONTROL DIAGRAM SYMBOLS

GENERAL

- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED
- TERMINAL POINT FOR EXTERNAL CONNECTIONS
- EXISTING EQUIPMENT (SCREENED)

INDICATING LIGHTS

INDICATING LIGHTS

L = LENS COLOR:
A = AMBER
B = BLUE
G = GREEN
R = RED
W = WHITE

LINE — PUSH TO TEST. TEST VOLTAGE TERMINAL SHOWN

PUSHBUTTONS

- HS–XXXX — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY OPEN
- HS-XXXX — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY CLOSED
- HS–XXXX — PUSHBUTTON WITH MUSHROOM HEAD, EMERGENCY STOP,

SELECTOR SWITCHES

HS-XXXX (1, 2; OX) — 2 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED
O = CONTACTS OPEN

HS-XXXX (1, 2; XO, OX) — 2 POSITION SPRING RETURNED TO RIGHT
O = CONTACTS OPENED
X = CONTACTS CLOSED

HS-XXXX (H, O, A; OXO, XOO) — 3 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED
O = CONTACTS OPENED

CONTROL RELAYS

- CR 2 / FUNCTION — OPERATING COIL
  CR = CONTROL RELAY
  U = UNLATCH
  L = LATCH
- OL — OVERLOAD RELAY
- CR2 (LINE) CR2 (LINE) — OUTPUT CONTACTS. LINE NUMBER OF RELAY COIL SHOWN (OPTIONAL)

INPUT SWITCHES

NORMALLY OPEN	NORMALLY CLOSED	INITIATING VARIABLE
SS	SS	SPEED
TS	TS	TEMPERATURE
WS	WS	FORCE OR TORQUE
ZS	ZS	POSITION (LIMIT)
FS	FS	FLOW
LS	LS	LEVEL
PS	PS	PRESSURE

TIMING RELAYS

- TR 3 — OPERATING COIL
  ON or OFF DELAY
  RANGE:SEC/MIN
  SET:SEC/MIN

NORMALLY OPEN	NORMALLY CLOSED	
TR3 OR TC (LINE)	TR3 OR TO (LINE)	DELAY ON COIL ENERGIZATION (ON DELAY)
TR3 OR TO (LINE)	TR3 OR TC (LINE)	DELAY ON COIL DE-ENERGIZATION (OFF DELAY)

CONTACTORS

- ID — OPERATING COILS
  C = CONTACTOR, LIGHTING OR GENERAL USE
  F = FAST OR FORWARD
  M = MAIN OR LINE
  1M = FIRST MAIN OR WYE
  2M = SECOND MAIN OR DELTA
  R = RUN OR REVERSE
  S = SLOW OR START
  IC = ISOLATION CONTROL
- ID / SIZE X — MAIN CONTACTS
  MAIN CONTACTS AIR BREAK, NEMA SIZE OPTIONAL
- M / SIZE 3 — VACUUM CONTACTOR, NEMA SIZE OPTIONAL.

MISCELLANEOUS

- FU 2B / 15 AMP — FUSE WITH SIZE AND OPTIONAL IDENTIFICATION
- FU 3/15 AMP — FUSE WITH BLOWN FUSE INDICATOR
- 480V / 120V, 250VA — CONTROL TRANSFORMER PRIMARY AND SECONDARY SHOWN SIZE AS SHOWN OR AS SPECIFIED
- 50/5 (3) — CURRENT TRANSFORMER. PRIMARY TURNS RATIO SHOWN (OPTIONAL)
- 250 OHM RES — RESISTOR
- RECTIFIER
- SURGE OR ARC SUPPRESSOR
- KVAR — CAPACITOR
- CONNECTOR
- XX — INCOMING LINE POWER SUPPLY
- DRAWOUT MECHANISM
- SOLENOID VALVE
- BUS DUCT
- GROUND CONNECTION
- POTENTIOMETER
- METER WITH ALPHA IDENTIFIERS:
  H = ELAPSED TIME
  A = AMMETER
  V = VOLTMETER
- BATTERY
- SHIELDED CABLE
- LOCATED IN FIELD
- AC TERMINAL BLOCK
- DC TERMINAL BLOCK
- XX — PLC I/O POINTS
  DO = DIGITAL OUT SIGNAL
  DI = DIGITAL IN SIGNAL
  AO = ANALOG OUT SIGNAL
  AI = ANALOG IN SIGNAL

ONE LINE DIAGRAM SYMBOLS

- TRIP FRAME / 52 — POWER CIRCUIT BREAKER (AIR, OIL, OR GAS) FRAME AND TRIP SETTING AND OPTIONAL I.D. SHOWN
- TRIP FRAME LSIG — CIRCUIT BREAKER WITH ADJUSTABLE ELECTRONIC TRIP OVER BREAKER FRAME SIZE. SOLID STATE TRIP FEATURES SHOWN:
  L = LONG DELAY
  S = SHORT DELAY
  I = INSTANTANEOUS
  G = GROUND FAULT
- SIZE / TYPE — CIRCUIT BREAKER (TYPE: MCP = MOTOR CIRCUIT PROTECTOR OR 3P = 3-POLE THERMAL MAGNETIC TRIP
- 30A 3P CLF — FUSED SWITCH: FUSE RATING AND POLES SHOWN
  MODIFIERS:
  CLF = CURRENT LIMITING FUSE
  DE = DUAL ELEMENT
  F = CLASS F
  E = E RATED
- 100F — FUSE. 100 AMP CLASS "F" SHOWN
- ATS # 60A, 3P — POWER TRANSFER SWITCH. DESIGNATION, AMP RATING AND CONFIGURATION SHOWN
  MTS = MANUAL TRANSFER SWITCH
  ATS = AUTOMATIC TRANSFER SWITCH
  SUSE= SUITABLE FOR USE AS SERVICE ENTRANCE
- AIR BREAK CONTACTOR, FVNR U.O.N. NEMA SIZE 1 INDICATED
  FVR = FULL VOLTAGE, REVERSING STARTER
  2S2W = TWO SPEED, TWO WINDING STARTER
- METERING (ANSI/IEEE FUNCTIONS AS SPECIFIED)
  POWER MONITOR (PM) POWER QUALITY MONITOR (HARMONIC ANALYSIS) (PQM) MOTOR MONITOR AND PROTECTION RELAY (MPR) FEEDER PROTECTION RELAY (FPR)
- 5 KVA — PACKAGED EQUIPMENT OR NON-MOTOR LOAD. KVA, KW, AMPS AS NOTED.
- XXHP ##AMPS — VARIABLE FREQUENCY DRIVE, (VFD) NORMAL DUTY UON. HP IS INDICATED IF DIFFERENT THAN DRIVEN LOAD HP.
  ##AMPS=RATED CONTINUOUS AMPS
- RVSS — REDUCED VOLTAGE SOLID STATE STARTER
- SPD — SURGE PROTECTION DEVICE
- 64 N 3 — ANSI C37.2 DEVICE. QUANTITIES SHOWN.

- 600kW G 480V, 60 Hz 3ph, 4w — GENERATOR WITH WINDING CONFIGURATION VOLTAGE, POWER, FREQUENCY SHOWN. POWER FACTOR OPTIONAL
- 5 — MOTOR, HORSEPOWER SHOWN
- 55 KVAR — POWER FACTOR CORRECTION CAPACITOR. KVAR RATING INDICATED
- POTHEAD
- STRESS CONE
- INDICATES THAT ALL OR PART OF CONDUIT MAYBE ROUTED IN DUCT BANK OR UNDERGROUND
- PORTABLE CABLE
- CABLE BUS
- BUS CONDUCTOR
- CABLE CONDUCTOR
- SURGE ARRESTOR
- LIGHTNING ARRESTOR AND GROUND
- TEST DEVICE
- 200A — DISCONNECT OR ISOLATING SWITCH. 200 AMP SHOWN
- 480 V, 30KVA, 5% Z, 208/120V — POWER TRANSFORMER. VOLTAGES, SIZE, IMPEDANCE SHOWN
- 1.5 KVA 480 V, 2.5% Z 480 V — ISOLATION TRANSFORMER. VOLTAGES, SIZE, IMPEDANCE SHOWN
- 3, 480V - 120V — POTENTIAL TRANSFORMER. PT QUANTITY (3) AND VOLTAGES SHOWN
- 250/5, 3 — CURRENT TRANSFORMER. CT QUANTITY AND 250:5 TURNS RATIO SHOWN

WINDING CONFIGURATIONS:
- DELTA
- WYE (GROUNDED)
- K — KIRK KEY INTERLOCK
- 50 AMP/ 10 SEC GDR — NEUTRAL GROUNDING RESISTOR. AMPS/TIME RATING SHOWN

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DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-00-002.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

LEGENDS AND SYMBOLS SHEET 2

DRAWING NUMBER
E-00-002

SHEET NUMBER 25 OF 47

ABBREVIATIONS

NOTES:
1. ABBREVIATIONS SHOWN ON ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ASME STANDARD Y14.38A
2. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION TO THE ABBREVIATIONS DEFINED ON OTHER DRAWINGS.
3. ABBREVIATIONS HERE IN SHALL TAKE PRECEDENCE IN CASE OF CONFLICT.
4. ABBREVIATIONS ARE NOT EQUIPMENT NUMBERING PREFIXES LISTED ON OTHER DRAWINGS.

A, AMP	AMP(S), AMPERE(S)
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AIC	AMPS INTERRUPTING CAPACITY, SYMM.
AL	ALUMINUM
ARCH	ARCHITECT(URAL)
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BLDG	BUILDING
BOT	BOTTOM
C	CONDUCTOR, CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CM	CENTIMETERS
CND	CONDUIT
CNTL	CONTROL
C.O.	CONDUIT ONLY, SPARE
CONC	CONCRETE
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DB	DUCT BANK, DIRECT BURIAL
DC	DIRECT CURRENT, DATA CABLE
DCU	DISTRIBUTED CONTROL UNIT
DET	DETAIL
DIAG	DIAGRAM
DISC	DISCONNECT
DWG	DRAWING
EA	EACH
EC	EMPTY CONDUIT
ECP	EQUIPMENT CONTROL PANEL
EDB	ELECTRICAL DUCTBANK
EG	ENGINE GENERATOR SET
EL	ELEVATION
ELEC	ELECTRIC(AL)
EMH	ELECTRICAL MANHOLE
EMER	EMERGENCY
ENCL	ENCLOSURE/ENCLOSED
EPB	ELECTRICAL PULLBOX
ETM	ELAPSED TIME METER
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
EX	EXISTING
FDR	FEEDER
FL	FLUORESCENT
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE CONDUIT
F.O.	FAIL OPEN
FO	FIBER OPTIC
FUT	FUTURE
GDR	GROUNDING RESISTOR
GEC	GROUND ELECTRODE CONDUCTOR
GF	GROUND FAULT
GFI	GROUND FAULT INTERRUPTER
GND, G	GROUND
GRS	GALVANIZED RIGID STEEL

H	HIGH
HGT	HEIGHT
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HMI	HUMAN MACHINE INTERFACE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HZ	HERTZ (CYCLES PER SECOND)
ICOM	NTERCOM
ID	INSIDE DIAMETER
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
INTLK	INTERLOCK
INST	INSTANTANEOUS
I/O	INPUT-OUTPUT
IPB	INSTRUMENT PULLBOX
JB	JUNCTION BOX
KCMIL	1000 CIRCULAR MIL
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVOLT-AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT-HOUR
L	LONG
LC	LIGHTING CONTACTOR
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LED	LIGHT EMITTING DIODE
LHH	LOW VOLTAGE HANDHOLE
LMH	LOW VOLTAGE MANHOLE
LP	LIGHTING PANEL
LT	LONG TIME
LTG	LIGHTING
LV	LOW VOLTAGE
M	METER
MA	MILLIAMPERE
MBS	MANUAL BYPASS SWITCH
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MPC	MINI POWER CENTER
MECH	MECHANICAL
MFR	MANUFACTURE(R)
MH	MANHOLE, METAL HALIDE
MIC	MICROPHONE
MIS	MANAGEMENT INFORMATION STATION
MISC	MISCELLANEOUS
MM	MILLIMETER
MMH	MEDIUM VOLTAGE MANHOLE
MOV	MOTOR OPERATED VALVES
MTS	MANUAL TRANSFER SWITCH
MV	MILLIVOLT, MEDIUM VOLTAGE
MVMC	MEDIUM VOLTAGE MOTOR CONTROL
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NEUT, N	NEUTRAL NEUT,N
NF	NON-FUSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO.	NUMBER
NOM	NOMINAL
NP	NAMEPLATE

NTS	NOT TO SCALE
OC	ON CENTER
OCC	OPERATION CONTROL CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OIS	OPERATOR INTERFACE STATION
OT	OIL TIGHT
OWS	OPERATOR WORKSTATION
P	POLE, PHASE
PBD	PANEL BOARD
PB	PUSHBUTTON, PULLBOX
PCP	PROCESS CONTROL PANEL
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMM	POWER METERING MODULE
PNL	PANEL
PP	POWER PANEL
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
QSB	QUARTZ STANDBY
RCPT	RECEPTACLE
REF	REFERENCE
REQD	REQUIRED
RE STL	REINFORCING STEEL
RMS	ROOT MEAN SQUARE
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
SA	SURGE ARRESTOR
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SEC	SECONDARY
SEL	SELECTOR
SHH	SIGNAL HANDHOLE
SMH	SIGNAL MANHOLE
SPEC	SPECIFICATION
SPD	SURGE PROTECTION DEVICE
SPKR	SPEAKER
ST	SHORT TIME
STP	SHIELDED TWISTED PAIR
SUB	SUBSTATION
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
TB	TERMINAL BOX
TEL	TELEPHONE
TEMP	TEMPERATURE
TFR	TRANSFORMER
TRI	TRIAD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VA	VOLTAMPERE
VAR	VOLTAMPERE REACTIVE
VC	VACUUM CONTACTOR
VCP	VENDOR CONTROL PANEL
VND	VENDOR
W	WATT, WIRE, WIDE
W/	WITH
W/O	WITHOUT
WW	WIREWAY
WG	WITH GROUND
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
XP	EXPLOSION PROOF
Z	IMPEDANCE

GENERAL NOTES

1. THE ELECTRICAL DRAWINGS USE THE ONE LINE DIAGRAMS AND RISER DIAGRAMS AND PANEL SCHEDULES IN CONJUNCTION WITH SHOWING THE LOCATION OF THE ELECTRICAL/INSTRUMENTATION SOURCES AND LOADS/DEVICES SHOWN ON THE PLAN DRAWINGS TO DEPICT THE WORK. THE CONTRACTOR SHALL USE THESE DOCUMENTS TO DETERMINE AND PROVIDE THE NECESSARY RACEWAY AND WIRING SYSTEM FOR EACH CIRCUIT. ALL INDOOR RACEWAY SHALL BE RUN EXPOSED AND ROUTED BY THE CONTRACTOR, UNLESS OTHERWISE NOTED. THE TYPE OF RACEWAY AND WIRE USED SHALL BE AS SPECIFIED.
2. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN INDICTED ON THE SINGLE LINE DIAGRAM, THE CONSTRUCTION MANAGER SHALL BE NOTIFIED. THE CABLE, CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SIZED AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
3. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETS., OR WHERE EQUIPMENT IS LIFTED AND MOVED FOR MAINTENANCE OR REPLACEMENT, NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT OR ACCESS TO EQUIPMENT.
4. THE LOCATION OF THE CONTROL STATIONS SHOWN ON THE PLAN DRAWINGS ARE DIAGRAMMATIC ONLY. THE ACTUAL LOCATION SHALL BE COORDINATED IN THE FIELD WITH THE CONSTRUCTION MANAGER AND ADJACENT EQUIPMENT SUCH AS PIPING, PROCESS EQUIPMENT, ETC.
5. THE CONTRACTOR SHALL COORDINATE WITH THE STRUCTURAL AND MECHANICAL DRAWINGS FOR CONDUIT STUB UP AND TERMINATION LOCATIONS.

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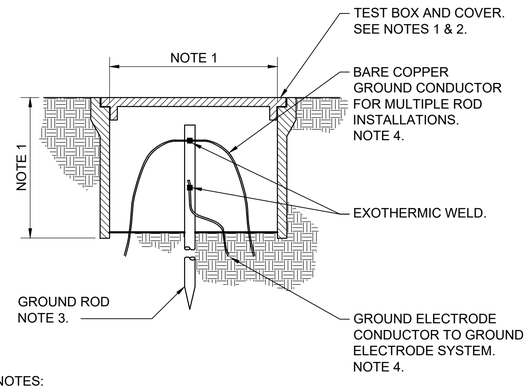
ELECTRICAL

LEGENDS AND SYMBOLS SHEET 3

DRAWING NUMBER
E-00-003

SHEET NUMBER 26 OF 47



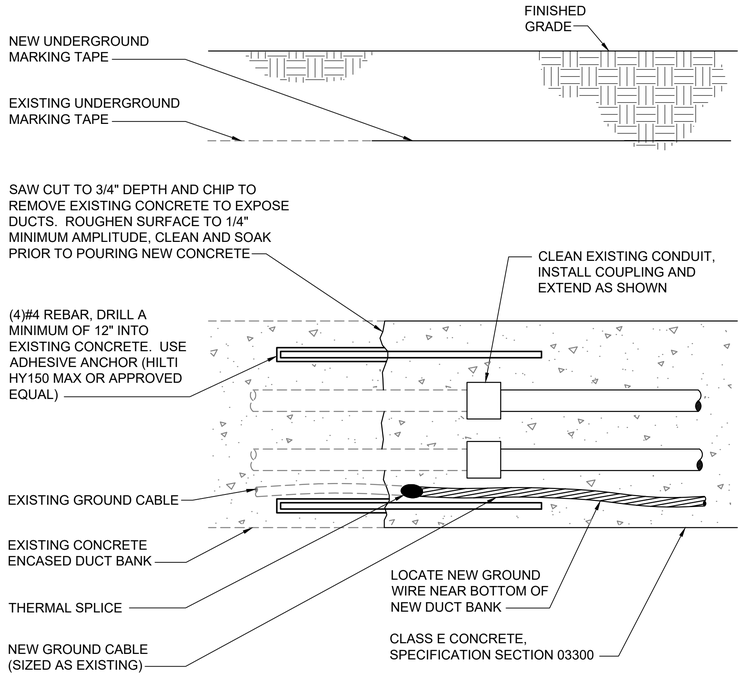
NOTES:

1. TEST BOX SHALL BE TRAFFIC RATED, TYPE AND SIZE PER SPECIFICATION DIVISION 16.
2. TEST BOX COVER SHALL BE H-20 LOAD RATED WITH LEGEND "GROUND" CAST ON COVER.
3. GROUND ROD TYPE AND SIZE SHALL BE PER SPECIFICATION DIVISION 16.
4. GROUND CONDUCTORS SHALL BE PER SPECIFICATION DIVISION 16.

GROUND ELECTRODE
TEST WELL

DETAIL A VAR

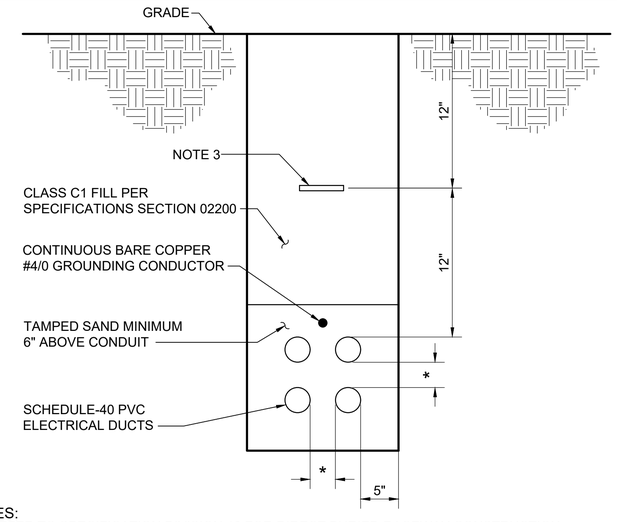
SCALE: NONE



UNDERGROUND BANKS
DUCTBANK EXTENSION

DETAIL E2013

NO SCALE



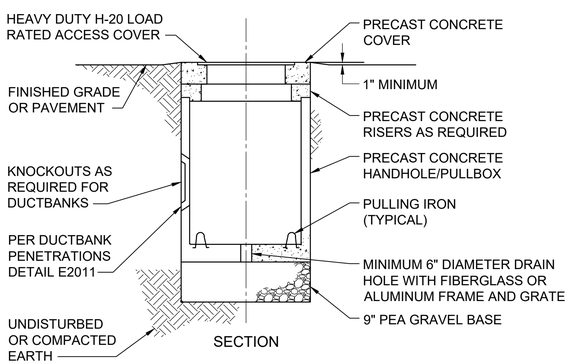
NOTES:

1. REFER TO SPECIFICATION DIVISION 16 FOR DIRECT BURIED RACEWAY CONSTRUCTION REQUIREMENTS.
2. NUMBER AND SIZE OF ELECTRICAL DIRECT BURIED RACEWAYS AS INDICATED ON DRAWINGS OR SCHEDULES.
3. OSHA APPROVED 6" WIDE RED WARNING TAPE (IDEAL DU-601 OR EQUAL).
4. DIMENSIONS ARE MINIMUM.
5. BOND GROUNDING CONDUCTOR TO BUILDING GROUNDING ELECTRODES, POWER SOURCE AND LOAD ENCLOSURES.
6. SADDLE-TYPE CONDUIT SPACERS REQUIRED EVERY 8' (CARLON SNAP-LOC, SNAP-N-STAC, OR EQUAL).
   *PROVIDE 2" SEPARATION FOR CONDUITS LESS THAN 4".
   *PROVIDE 3" SEPARATION FOR CONDUITS 4" AND LARGER.

UNDERGROUND RACEWAYS
DIRECT BURIED

DETAIL E2101

NO SCALE



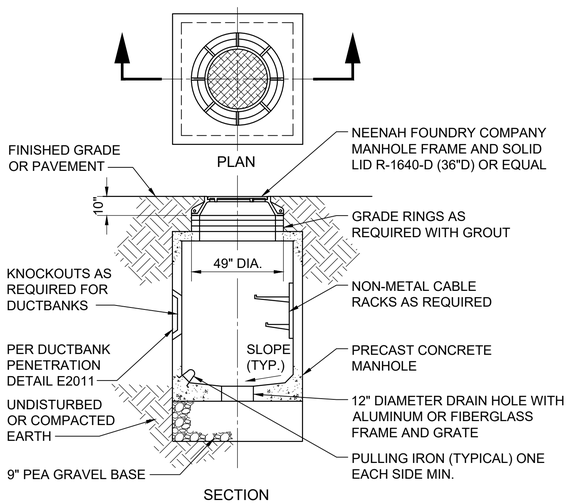
NOTES:

1. HANDHOLE/PULLBOX DEPTH, SIZE AND LOCATION PER DRAWINGS.
2. MINIMUM INTERIOR DIMENSIONS SHALL BE 3' x 3' x 3'D UON.
3. BOND DUCTBANK GROUND CONDUCTORS TOGETHER.
4. MANHOLE INTERIOR SPACE: CLASSIFIED AS CORROSIVE AREA PER SPECIFICATION DIVISION 16.

RACEWAY BOXES
HANDHOLE/PULLBOX

DETAIL E2701

NO SCALE



NOTES:

1. PROVIDE MANHOLE DEPTH, SIZE AND LOCATIONS PER DRAWINGS.
2. MINIMUM INTERIOR DIMENSIONS FOR MANHOLES SHALL BE 5' x 7' x 6'D
3. BOND DUCTBANK GROUND CONDUCTORS TOGETHER.
4. MANHOLE INTERIOR SPACE: CLASSIFIED AS "CORROSIVE AREA" PER SPECIFICATION DIVISION 16.
5. H20 LOAD RATED AT ROADWAYS OR WHERE NOTED.
6. PROVIDE GRADE RINGS AS REQUIRED.
7. PROVIDE ALUMINUM LADDER WHERE DEPTH OVER 4'.

RACEWAY BOXES
PRECAST MANHOLE

DETAIL E2703

NO SCALE

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-00-004.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

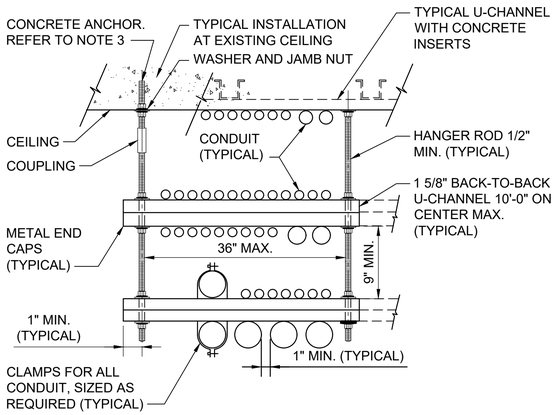
ELECTRICAL

INSTALLATION DETAILS SHEET 1

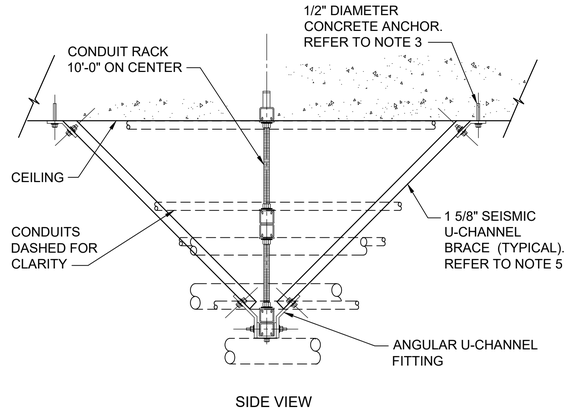
DRAWING NUMBER
E-00-004

SHEET NUMBER 27 OF 47

Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-00-004.DWG PLOT DATE: 8/23/2022 1:13 PM CAD USER: JEFFREY ZHANG



FRONT VIEW

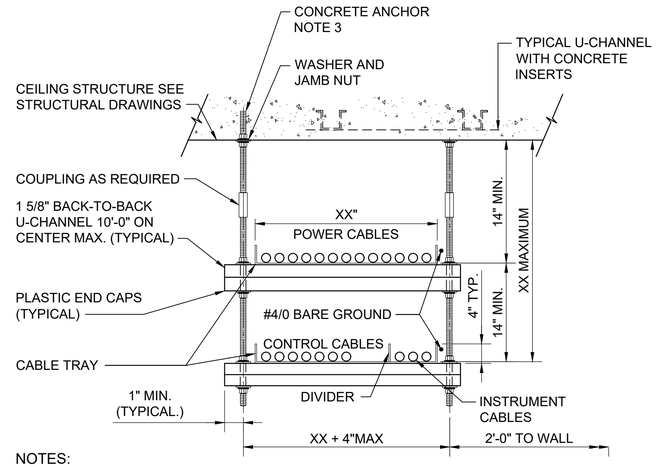


SIDE VIEW

NOTES:

1. MATERIALS AND HARDWARE PER SPECIFICATION DIVISION 16 REQUIREMENTS.
2. HOLE SIZES ON FITTINGS SHALL BE 9/16" DIAMETER WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRING.
3. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR ANCHOR REQUIREMENTS.
4. MAX. UNIFORMLY DISTRIBUTED LOAD (CONDUIT AND FILL) PER UNIT TO BE 1000 LBS.

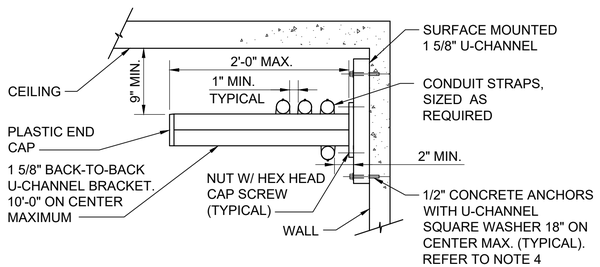
RACEWAY SUPPORTS SUSPENDED
DETAIL E2801
NO SCALE



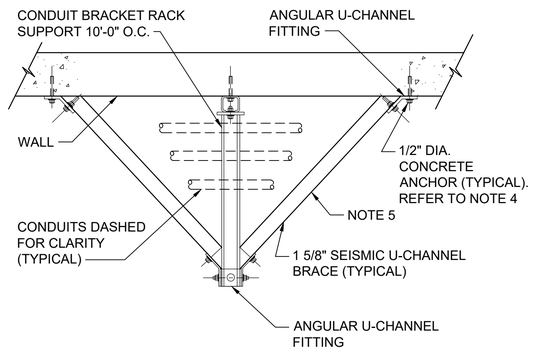
NOTES:

1. MATERIALS AND HARDWARE PER SPECIFICATION DIVISION 16 REQUIREMENTS.
2. HOLE SIZES ON FITTINGS SHALL BE 9/16" DIAMETER WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRING.
3. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR ANCHOR REQUIREMENTS.
4. IDENTIFY TRAY EVERY 20' AS TO THE TYPE OF CABLE: POWER, CONTROL, OR INSTRUMENTATION.

RACEWAY SUPPORTS SUSPENDED CABLE TRAY
DETAIL E2802
NO SCALE



SEISMIC BRACING NOT SHOWN FOR CLARITY



PLAN

NOTES:

1. MATERIALS AND HARDWARE PER SPECIFICATION DIVISION 16 REQUIREMENTS.
2. MAX. UNIFORMLY DISTRIBUTED LOAD (CONDUIT AND FILL) PER UNIT TO BE 1000 LBS.
3. HOLE SIZES ON FITTINGS SHALL BE 9/16" DIA. WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRING.
4. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR ANCHOR REQUIREMENTS

RACEWAY SUPPORTS WALL MOUNT
DETAIL E2803
NO SCALE

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME E-00-005.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389

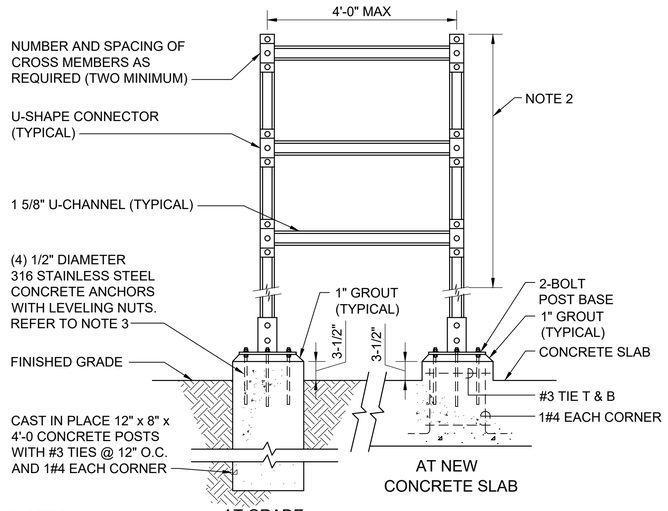
ELECTRICAL

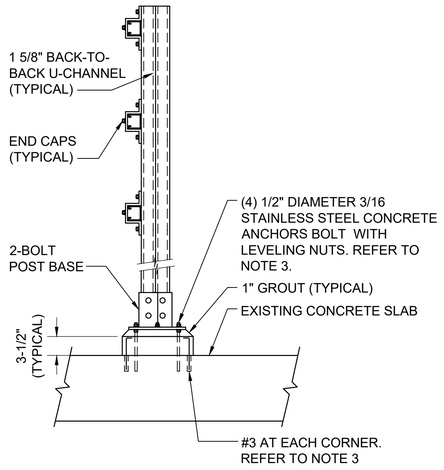
INSTALLATION DETAILS SHEET 2

DRAWING NUMBER
E-00-005

SHEET NUMBER 28 OF 47

Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-00-005.DWG PLOT DATE: 8/23/2022 1:13 PM CAD USER: JEFFREY ZHANG

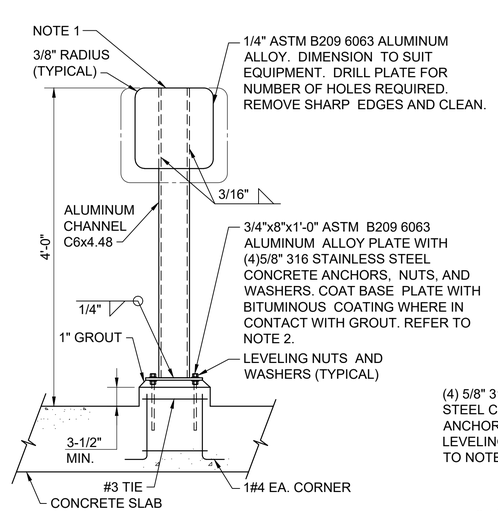


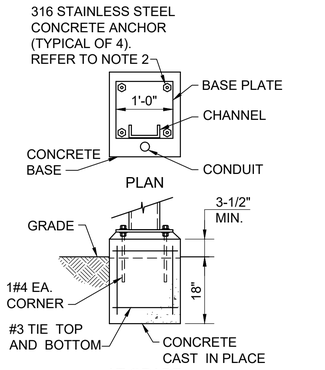


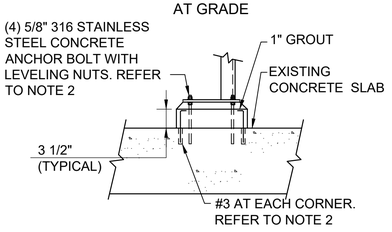
NOTES:

1. EQUIPMENT RACK SIZING:
   - A. ONE ITEM GREATER THAN 150 SQUARE INCHES.
   - B. TWO EQUIPMENT ITEMS GREATER THAN 130 SQUARE INCHES.
   - C. THREE OR MORE EQUIPMENT ITEMS.
   - D. PROVIDE 316 STAINLESS STEEL CHANNEL END-CAPS, AND FITTINGS
   - E. PROVIDE 1/4" MINIMUM ALUMINUM PLATE FOR SMALL ITEMS
2. MOUNT INDICATORS OR EQUIPMENT OPERATING HANDLES FOUR FEET ABOVE FLOOR OR PLATFORM.
3. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATION FOR ANCHORAGE MATERIAL AND METHOD REQUIREMENTS.
4. MATERIAL AND HARDWARE PER SPECIFICATION DIVISION 16.

EQUIPMENT SUPPORTS
STRUT RACK
DETAIL E4001
NO SCALE



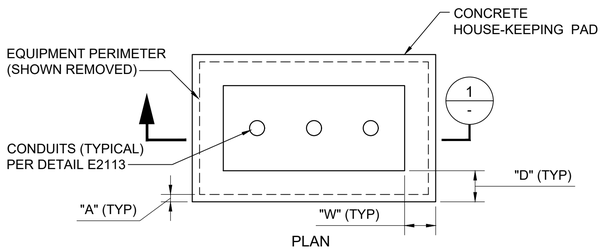




NOTES:

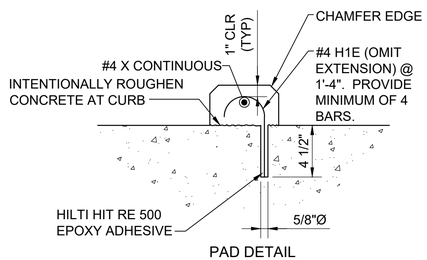
1. MOUNTING STAND PLATE: 2'x2' MAXIMUM
2. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR ANCHOR REQUIREMENTS.

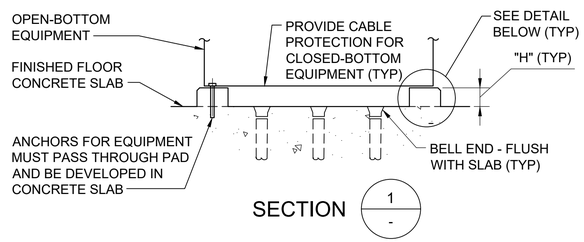
EQUIPMENT SUPPORTS
INSTRUMENT/CONTROL STAND - ALUM
DETAIL E4011
NO SCALE



NOTES:

1. W = WIDTH, 6" MINIMUM
2. D = DEPTH, 6" MINIMUM
3. H = HEIGHT, 3-1/2"
4. A = PAD OVERAGE, 1" MINIMUM





EQUIPMENT SUPPORTS
HOUSE-KEEPING PAD
DETAIL E4021
NO SCALE

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Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-00-006.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

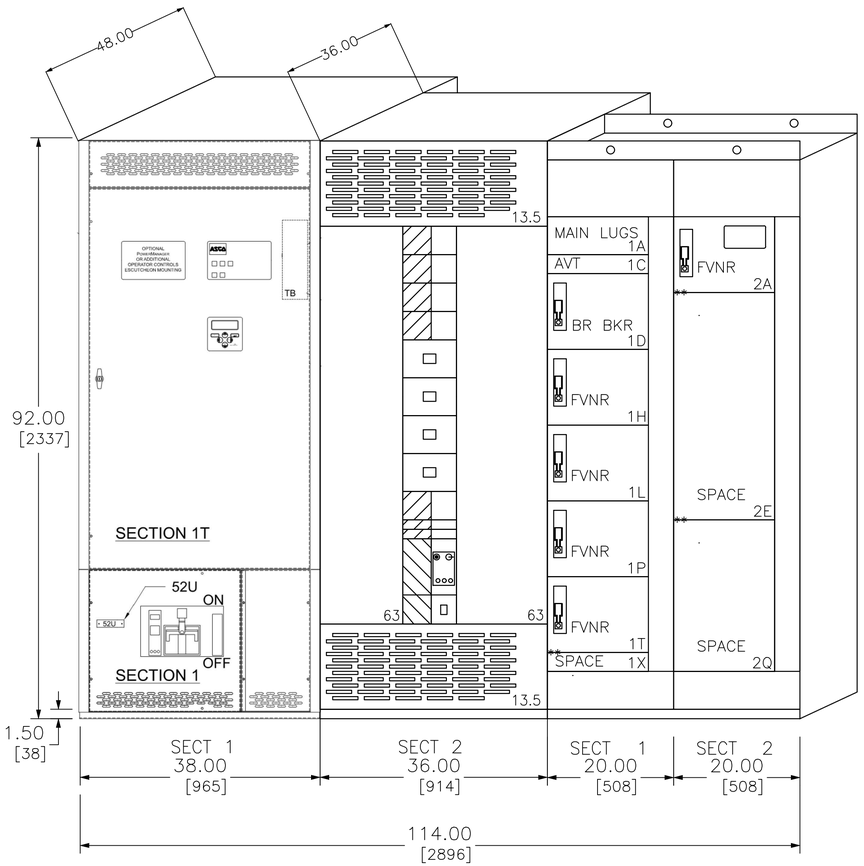
INSTALLATION DETAILS SHEET 3

DRAWING NUMBER
E-00-006

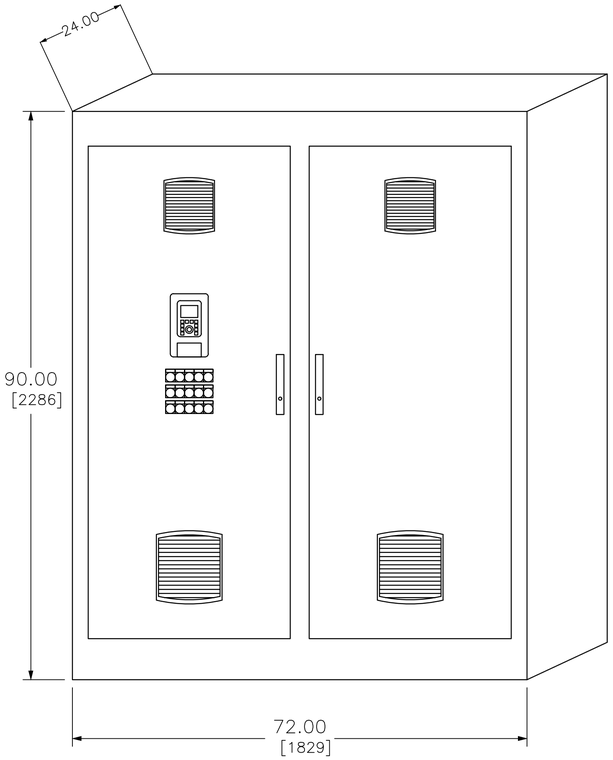
SHEET NUMBER 29 OF 47

GENERAL NOTES:

1. ELEVATION SHOWN IS A GUIDE ONLY. COORDINATE WITH APPROVED VENDOR SUBMITTAL FOR EXACT LAYOUT AND DIMENSION.
2. SWBD IS A FRONT ACCESSIBLE UL891. THE MAIN BREAKERS ARE FIXED INSULATED CASE BREAKERS, 3 CYCLE INTERRUPTING RATING, PER UL-1066.
3. ALL EQUIPMENT SHALL BE TOP ENTRY FOR ENTRANCE AND EXIT OF CONDUCTORS TO AND FROM CABLE TRAY.
4. NEW RTU 90 CABINET SHALL BE 48"W X 20"D X 90"H MAXIMUM.
5. NEW ENCLOSURE NOT SHOWN FOR EXISTING RTU 90 EQUIPMENT LOCATED INSIDE THE EXISTING PUMP BUILDING. CABINET SHALL BE 48"W X 20"D X 90"H MAXIMUM. CONTRACTOR SHALL SEE I&C DRAWINGS FOR DETAILS ABOUT RTU.



SERVICE MAIN/ATS, SWITCHBOARD, AND MCC ELEVATIONS



VFD ELEVATION

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6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	S. MCELROY
DRAWN:	J. ZHANG
CHECKED:	S. MCELROY
CHECKED:	R. ABORDO
APPROVED:	A. MODY

FILENAME
E-00-007.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

SERVICE MAIN, ATS, SWBD, MCC, AND VFD EQUIPMENT ELEVATIONS

DRAWING NUMBER
E-00-007

SHEET NUMBER 30 OF 47

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER AND MODEL #
A 212	LUMINAIRE, HIGH BAY, LED, EFFICIENCY, VOLTAGE 120-277V, DUAL COAT FINISH, TEMPERED GLASS LENS. CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED.	MANUFACTURER: SAFESITE, OR EQUAL MODEL NO.: HEC9MC4PN-SSG MANUFACTURER: DAILIGHT BRACKET PART NO.: HBX-W3SS-L316
BE1 72	LUMINAIRE, WALLPACK, LED, VOLTAGE 120V, COLOR TEMPERATURE 5K, BRONZE FINISHED CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED, PHOTOELECTRIC CELL, EMERGENCY BATTERY BACKUP	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: TWH LED 20C 50K T3M MVOLT PE SPD DDBXD
BE2 39	LUMINAIRE, WALLPACK, LED, VOLTAGE 120V, COLOR TEMPERATURE 5K, BRONZE FINISHED CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED, EMERGENCY BATTERY BACKUP	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: TWH LED 10C 50K T3M MVOLT SPD DDBXD
C 40	LUMINAIRE, WET LOCATION, LED, VAPOR TIGHT, VOLTAGE 120V, COLOR TEMPERATURE 5K. CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED.	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: DMW2 L24 4000LM PCL MD MVOLT GZ10 50K 80 CRI
D 33	LITHONIA LIGHTING, WPX LED WALL PACKS, LED WPX1 LED P2 5K 120V PE DDBXD WALL MOUNTED. CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED.	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: WPX1 LED P2 50K MVOLT PE DDBXD, INTEGRATED PHOTOCELL
DE 22	LITHONIA LIGHTING, WPX LED WALL PACKS, LED WPX1 LED P2 5K 120V E14WC PE DDBXD WALL MOUNTED. CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED.	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: WPX1 LED P2 50K MVOLT E14WC PE DDBXD INTEGRATED PHOTOCELL AND BATTERY BACKUP
EE 2.2	LED EXIT SIGN WITH BATTERY BACKUP, 120V. GREEN LETTERS WITH ARROW. WALL MOUNTED. CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED.	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: LV S 1 G 120V EL N
F 33	LITHONIA LIGHTING, VAP LINEAR ROUGH SERVICE, LED VAP 4000LM FST WD 120V GZ10 5K 80CRI SURFACE BRACKETS FOR CEILING OR PENDANT MOUNT. MOUNTED AS INDICATED. CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED.	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: VAP 4000LM FST WD MVOLT GZ10 50K 80CRI
FE 33	LITHONIA LIGHTING, VAP LINEAR ROUGH SERVICE, LED VAP 4000LM FST WD 120V GZ10 5K 80CRI E15WCP SURFACE BRACKETS FOR CEILING OR PENDANT MOUNT. MOUNTED AS INDICATED. CORROSION RESISTANT HOUSING, ENCLOSED AND GASKETED.	MANUFACTURER: LITHONIA LIGHTING OR EQUAL MODEL NO.: VAP 4000LM FST WD MVOLT GZ10 50K 80CRI E15WCP WITH INTEGRATED EMERGENCY BATTERY BACKUP

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-00-008.DWG

BC PROJECT NUMBER
156470

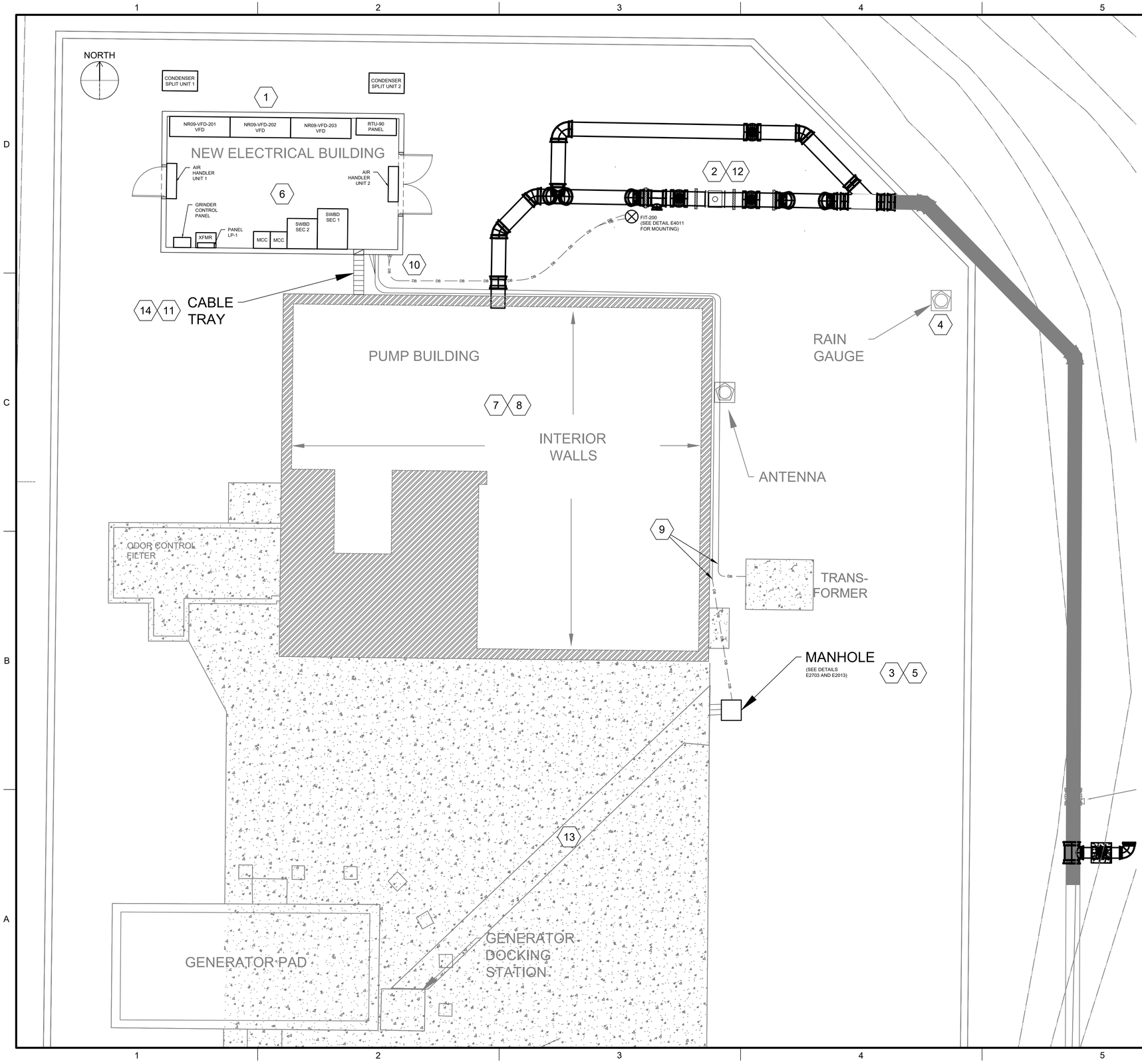
CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

LUMINAIRE SCHEDULE

DRAWING NUMBER
E-00-008

SHEET NUMBER 31 OF 47



ELECTRICAL SITE PLAN

SCALE : 1" = 5'

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND UTILITIES, PIPES, CONDUITS, ETC. PRIOR TO CONSTRUCTION.
2. EQUIPMENT LOCATION AND ROUTING OF CONDUITS AND CABLE TRAY AS SHOWN ARE DIAGRAMMATIC ONLY. THE CONTRACTOR SHALL FIELD VERIFY AND CONFIRM EXACT ARRANGEMENT AND MAKE REQUIRED ADJUSTMENTS BASED ON THE SUPPLIER PRINTS AND INSTALLATION INSTRUCTIONS.
3. PROVIDE BONDING JUMPERS, SIZED PER NEC REQUIREMENTS, TO MAINTAIN ELECTRICAL CONTINUITY OVER THE ENTIRE LENGTH OF THE CABLE TRAY.
4. ALL CABLE TRAY HARDWARE OUTDOOR AND INDOOR SUPPORTS SHALL BE STAINLESS STEEL.
5. ALL EXPOSED CONDUIT INSTALLATIONS IN OUTDOOR AREAS SHALL BE PVC-COATED RIGID GALVANIZED CONDUITS. ALL HARDWARE AND SUPPORTS SHALL BE STAINLESS STEEL.
6. CONTRACTOR SHALL INSTALL PULLBOXES AS NECESSARY TO ROUTE SERVICE CONDUITS AND GENERATOR CONDUITS TO THE NEW ELECTRICAL BUILDING SWITCHBOARD. SERVICE AND GENERATOR CONDUITS SHALL NOT SHARE A COMMON PULLBOX.

KEYNOTES:

1. PROPOSED PREFABRICATED ELECTRIC BUILDING (BY OTHERS) WITH CONCRETE SLAB AND FOUNDATION.
2. PROPOSED FLOW METER CONTRACTOR TO FIELD ROUTE DIRECT BURY CABLE IN CONDUIT TO THIS LOCATION.
3. ONLY ONE HANDHOLE SHOWN FOR CLARITY, HOWEVER, PROVIDE SEPARATE HANDHOLES FOR POWER AND CONTROL WIRING.
4. CONTRACTOR SHALL REUSE EXISTING DIRECT BURY CONDUIT TO RAIN GAUGE AND ROUTE CONDUCTORS VIA CABLE TRAY AS NECESSARY TO NEW LOCATION FOR RTU 090.
5. INSTALL MANHOLES AND PULL BOXES AS SHOWN. BOND FACILITY GROUND GRID TO DUCT BANKS.
6. CONTRACTOR SHALL COORDINATE WITH VFD, ATS, AND AND SWBD PROVIDER FOR EXACT OPENINGS AND ENTRY AND EXIT TO ALLOW FOR TOP ENTRY FOR OVERHEAD CABLE TRAY.
7. PUMP BUILDING'S PERIMETER WALL MOUNTED LIGHT FIXTURES ALONG WITH ITS INTERIOR LIGHT FIXTURES TO BE REPLACED. CONTRACTOR SHALL INSTALL NEW LIGHTING CONDUCTOR CIRCUITS.
8. CONTRACTOR SHALL REUSE EXISTING CONDUIT PENETRATIONS IN PUMP BUILDING WHERE POSSIBLE.
9. CONTRACTOR SHALL ROUTE CONDUIT EXPOSED FOR BOTH THE UTILITY AND GENERATOR RELATED CONDUITS ON THE EXTERIOR OF THE PUMP BUILDING TO THE NEW ELECTRICAL BUILDING.
10. CONDUIT ROUTES CONTINUED ON DRAWING E-01-101.
11. CABLE TRAY SHALL BE ALUMINUM 18"W WITH 6" SIDE RAIL HEIGHT AND 5"D LOADING DEPTH. EXTERIOR CABLE TRAYS SHALL BE SOLID BOTTOM (EATON B-LINE SERIES 26A09-12-XXX). THE LOWER TRAY SHALL BE INSTALLED WITH A SOLID TRAY COVER (EATON B-LINE SERIES 806A-12-XXX). THE TOP TRAY SHALL BE INSTALLED WITH A PEAKED COVER (EATON B-LINE SERIES 826A-12-XXX). TRAY COVERS SHALL BE FASTENED USING HEAVY DUTY ALUMINUM COVER CLAMPS BY EATON OR EQUAL.
12. CONTRACTOR SHALL GROUND THE FLOW METER LOCALLY.
13. DUCTBANK IS EXISTING. CONTRACTOR SHALL INTERCEPT THIS DUCTBANK WHERE THE NEW MANHOLE IS SHOWN AND PULL-IN NEW CABLES FROM THE DOCKING STATION TO THE SWITCHBOARD AND ROUTE NEW RACEWAYS AS INDICATED. ONLY ONE MANHOLE IS SHOWN FOR CLARITY; AN ADDITIONAL HANDHOLE MAY BE REQUIRED.
14. INSTALL SS UNISTRUT FRAMING SUPPORTS ON BOTH ENDS OF THE CABLE TRAYS AND ALL EXPOSED OVERHEAD CONDUITS (TYPICAL OF 4 PLACES).

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

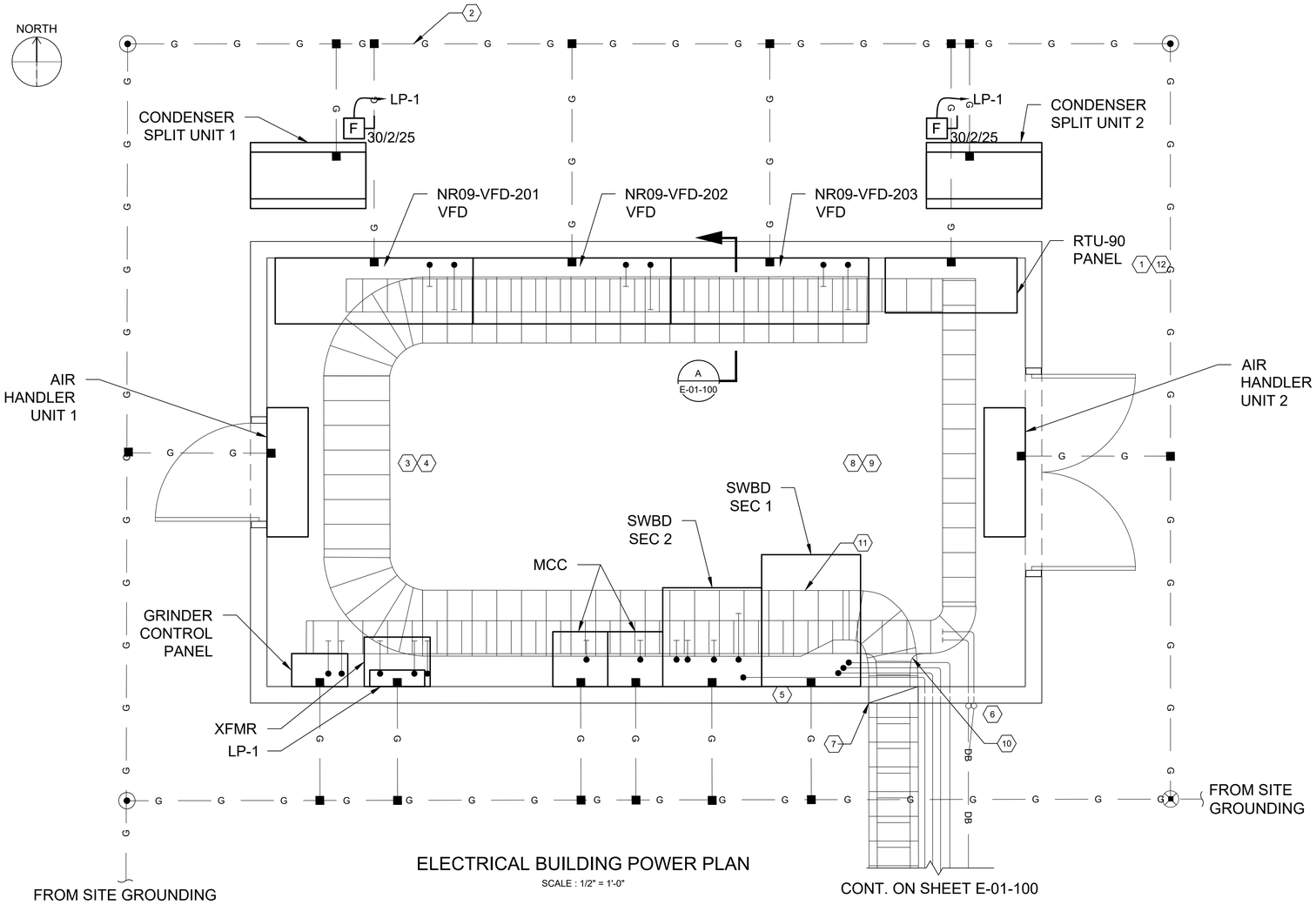
FILENAME
E-01-100.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

ELECTRICAL SITE PLAN

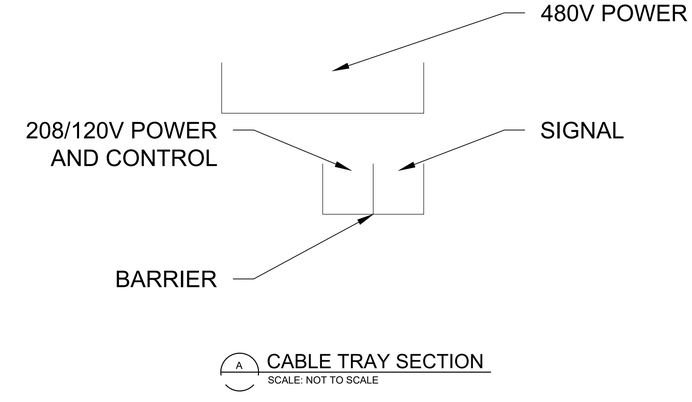
DRAWING NUMBER
E-01-100

SHEET NUMBER 32 OF 47



ELECTRICAL BUILDING POWER PLAN

SCALE : 1/2" = 1'-0"



A CABLE TRAY SECTION

SCALE: NOT TO SCALE

GENERAL NOTES:

1. INTERCONNECTING WIRING BETWEEN SWITCHGEAR EQUIPMENT SHALL BE IN ACCORDANCE WITH THE SINGLE LINE AND RISER DIAGRAMS.
2. USE CADWELD CONNECTION OR EQUAL FOR GROUND CONNECTIONS. GROUND RODS SHALL BE 3/4"X10' COPPER CLAD STEEL. DRIVE IN THE GROUND UNTIL TOP IS BURIED 24" BELOW GRADE (MIN.), UNLESS GROUND ROD IS FOR A TEST WELL. SEE DETAIL FOR TEST WELL INSTALLATION. ADDITIONAL GROUND RODS MAY BE REQUIRED TO MEET NEC REQUIREMENT FOR LOW IMPEDANCE PATH TO GROUND.
3. EQUIPMENT LOCATION AND ROUTING OF CONDUITS, DUCTBANKS, AND CABLE TRAY AS SHOWN ARE DIAGRAMMATIC ONLY. THE CONTRACTOR SHALL FIELD VERIFY AND CONFIRM EXACT ARRANGEMENT AND MAKE REQUIRED ARRANGEMENT ADJUSTMENTS BASED ON THE SUPPLIER PRINTS AND INSTALLATION INSTRUCTIONS.
4. PROVIDE BONDING JUMPERS, SIZED PER NEC REQUIREMENTS, TO MAINTAIN ELECTRICAL CONTINUITY OVER THE ENTIRE LENGTH OF THE CABLE TRAY.
5. ALL CABLE TRAY HARDWARE AND INDOOR SUPPORTS SHALL BE 304SS.
6. USE UL APPROVED SEAL FOR THE WALL SLEEVES AND THE CABLE TRAY PENETRATIONS AFTER THE CABLES HAVE BEEN INSTALLED.
7. PROVIDE CABLE TRAY TROUGH DROP-OUT AND DROP-OUT BUSHING WHERE NECESSARY.
8. ALL EXPOSED CONDUIT INSTALLATION INSIDE THE NEW ELECTRICAL BUILDING SHALL BE RIGID ALUMINUM CONDUITS. ALL OUTDOOR INSTALLATIONS SHALL BE PVC COATED RIGID GALVANIZED CONDUITS.
9. ELECTRICAL DISCONNECT SHALL BE NEMA 4X STAINLESS STEEL ENCLOSURES.
10. CONTRACTOR SHALL PROVIDE THE LIGHTNING PROTECTION SYSTEM DESIGN BY A QUALIFIED LIGHTNING PROTECTION SYSTEM (LPS) FIRM REGISTERED TO DESIGN LIGHTNING PROTECTION SYSTEMS. REFER TO PROJECT SPECIFICATION SECTION 16446.
11. PROVIDE 3" HIGH CONCRETE HOUSEKEEPING PAD ON ALL FLOORSTANDING ELECTRICAL AND RTU EQUIPMENT
12. ALL EXPOSED CONDUIT INSTALLATIONS IN THE ELECTRICAL ROOM SHALL BE RIGID ALUMINUM CONDUITS. ALL HARDWARE AND SUPPORTS SHALL BE STAINLESS STEEL.
13. PROVIDE SWITCHBOARD MATTING (RUBBER) FOR ALL FLOORSTANDING EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS.

KEYNOTES:

1. THE EXISTING RTU 90 PANEL'S BACKPLANE WITH EQUIPMENT WILL BE INSTALLED INTO A NEW CABINET INSIDE THE NEW ELECTRICAL BUILDING.
2. GROUNDING CABLE #4/0 AWG BARE STRANDED COPPER CONDUCTOR (TYP.)
3. PROVIDE CABLE TRAY SUPPLIER FITTINGS, ACCESSORIES, AND HARDWARE. ANCHOR CABLE TRAY TO STRUCTURAL BUILDING ELEMENTS WITH APPROVED CLAMPS AND/OR REQUIRED HARDWARE, RODS, AND STRUT.
4. MOUNT CABLE TRAY AS SHOWN. SEE BUILDING STRUCTURAL VENDOR DRAWINGS AND COORDINATE SUPPORT LOCATIONS.
5. ROUTE CABLE TRAY AS SHOWN AND COORDINATE WITH HVAC AND OTHER TRADES. FIELD VERIFY EXACT LOCATION AND CONFIGURATION.
6. PROVIDE TWO 4" AND 1" GALVANIZED RIGID METAL CONDUIT THROUGH EXTERIOR WALL. ROUTE UTILITY FEED TO SWITCHBOARD AND GENERATOR FEED TO ATS. SEAL AROUND CONDUITS WITH FM APPROVED SEALANT. COORDINATE CONDUIT PENETRATIONS WITH BUILDING SUPPLIER AND/OR BUILDING TRADES FOR A WORKMANLIKE INSTALLATION.
7. CONTRACTOR SHOULD PROVIDE SIMILAR OPENINGS INTO THE NEW ELECTRICAL BUILDING AS SHOWN ON SHEET E-01-104 IN CUT-VIEW XX. PROVIDE WALL PENETRATIONS AND USE WALL SLEEVE (LEGRAND CABLOFIL 4G2-424-06-SG OR EQUAL). CONTRACTOR SHOULD WEATHERIZE AND SEAL AROUND WALL PENETRATION SLEEVES. COORDINATE OPENINGS BETWEEN BUILDINGS FOR A PERPENDICULAR CROSSING BETWEEN BUILDINGS. CONTRACTOR SHOULD CONFIRM CLEARANCES FOR TRAY INSTALLED OVER EQUIPMENT AND FOR LIGHTING INSTALLED BENEATH LOWEST TRAY LEVEL.
8. PROVIDE ALUMINUM LADDER TYPE CABLE TRAY IN BUILDING INTERIOR. TOP CABLE TRAY SHALL BE 24"W WITH 6" SIDE RAIL HEIGHT AND 5"D LOADING DEPTH (EATON B-LINE SERIES 26A09-24-XXX OR EQUAL). THE LOWER TRAY SHALL BE EATON 26A09-12-XXX.
9. TOP TRAY SHALL BE MOUNTED AT MINIMUM 14" FROM THE CEILING AND BOTTOM TRAY AT MINIMUM 9' FROM THE FLOOR..
10. CONTRACTOR SHALL USE HORIZONTAL TEE (EATON B-LINE SERIES 5A-12-90HT-XX OR EQUAL).
11. CONTRACTOR SHALL USE LEFT HAND REDUCER (EATON B-LINE SERIES 5A-18-LR-24 OR EQUAL).
12. CONTRACTOR SHALL ADD NEWMAR UPS 48-2000. THIS UPS WILL BE USED TO BACK UP THE TELEMETRY CONTROL TRANSFROMER.

Brown AND Caldwell
Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY
FILENAME E-01-101.DWG
BC PROJECT NUMBER E-01-101
CLIENT PROJECT NUMBER 6022388 / 6022389

ELECTRICAL

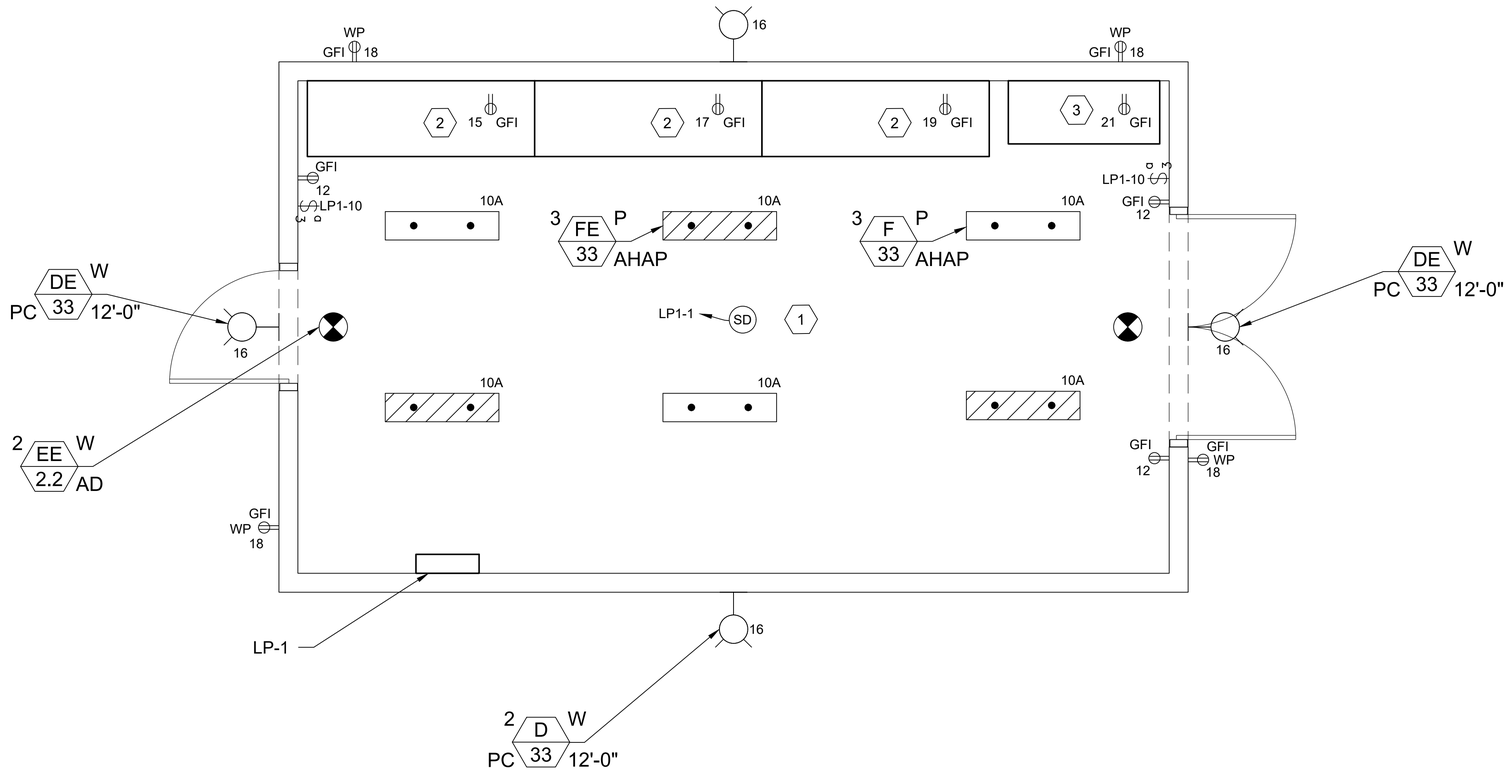
ELECTRICAL BUILDING POWER PLAN

DRAWING NUMBER
E-01-101

33 SHEET NUMBER OF 47

Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-01-101.DWG PLOT DATE: 8/23/2022 1:14 PM CAD USER: JEFFREY ZHANG

NORTH



ELECTRICAL BUILDING LIGHTING PLAN

SCALE : 1/2" = 1'-0"

GENERAL NOTES:

1. EQUIPMENT LOCATION IS DIAGRAMMATIC ONLY. THE CONTRACTOR SHALL FIELD VERIFY AND CONFIRM EXACT ARRANGEMENT AND MAKE REQUIRED ARRANGEMENT ADJUSTMENTS BASED NO THE SUPPLIER PRINTS AND INSTALLATION INSTRUCTIONS.
2. GROUND ALL LUMINAIRE FIXTURES TO THE BUILDING'S GROUNDING GRID SHOWN ON SHEET E-01-101.
3. ALL EXPOSED CONDUIT INSTALLATIONS SHALL BE RIGID ALUMINUM CONDUITS. ALL HARDWARE AND SUPPORTS SHALL BE STAINLESS STEEL.

KEY NOTES:

1. CONTRACTOR SHALL SUSPEND MOUNT ALL INTERIOR LIGHT FIXTURES AT THE SAME LEVEL AS HIGH AS POSSIBLE BENEATH CABLE TRAY SYSTEM. SEE SHEET E-01-101 FOR CABLE TRAY SYSTEM.
2. ONE GFI RECEPTACLE IS INSTALLED INSIDE EACH VFD PANEL.
3. ONE GFI RECEPTACLE IS INSTALLED INSIDE OF RTU-90 PANEL.

Brown AND Caldwell

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6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-01-102.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

ELECTRICAL BUILDING LIGHTING PLAN

DRAWING NUMBER
E-01-102

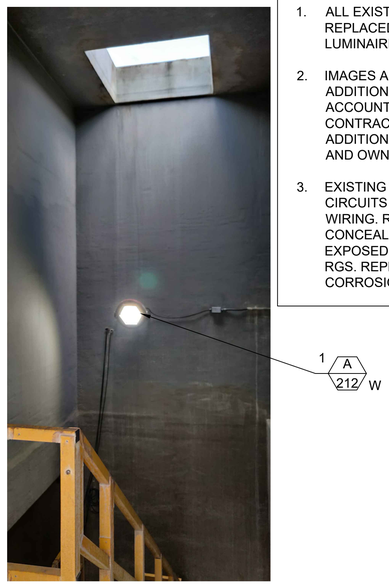
SHEET NUMBER 34 OF 47

Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-01-102.DWG PLOT DATE: 8/23/2022 1:15 PM CAD USER: JEFFREY ZHANG

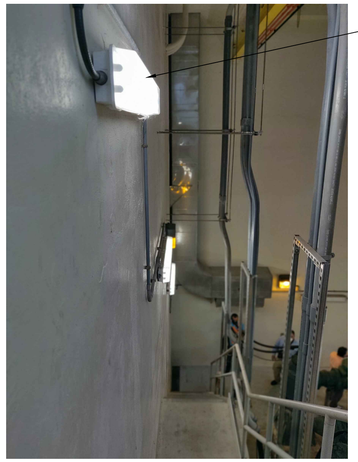
UPPER LEVEL A

UPPER LEVEL B

EXTERIOR



WETWELL INTERIOR



LOWER LEVEL A

LOWER LEVEL B

GENERAL NOTES:

1. ALL EXISTING FIXTURES SHALL BE REPLACED WITH NEW FIXTURES PER THE LUMINAIRE SCHEDULE ON SHEET E-00-008.
2. IMAGES ARE REPRESENTATIVE, ADDITIONAL FIXTURES MAY NOT BE ACCOUNTED FOR OR PICTURED. CONTRACTOR SHALL CONFIRM ANY ADDITIONAL FIXTURES WITH ENGINEER AND OWNER FOR REPLACEMENT.
3. EXISTING WIRES ON ALL LIGHTING CIRCUITS SHALL BE REPLACED WITH NEW WIRING. REUSE EXISTING CONDUITS IF CONCEALED IN CONCRETE. REPLACE ALL EXPOSED CONDUITS WITH PVC COATED RGS. REPLACE ALL LIGHT SWITCHES WITH CORROSION RESISTANT TYPE.

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Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-01-103.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

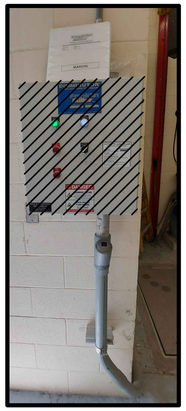
ELECTRICAL

PUMP BUILDING LIGHTING

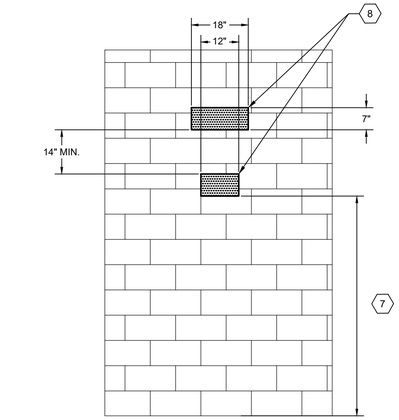
DRAWING NUMBER
E-01-103

SHEET NUMBER 35 OF 47

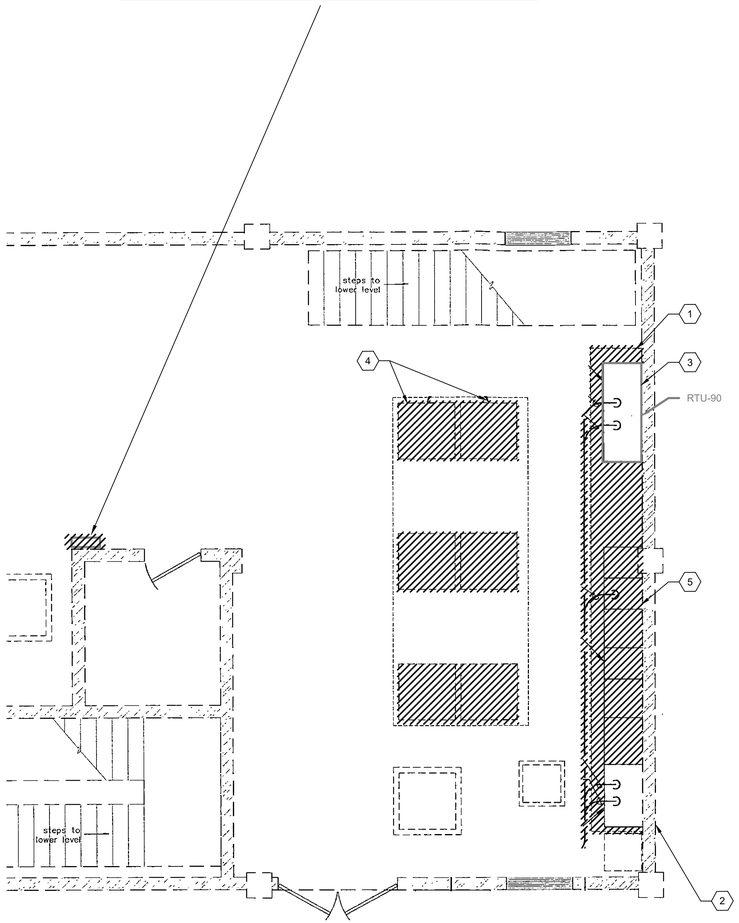
Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-01-103.DWG PLOT DATE: 8/23/2022 1:15 PM CAD USER: JEFFREY ZHANG



EXISTING COMMINUTOR CONTROL PANEL

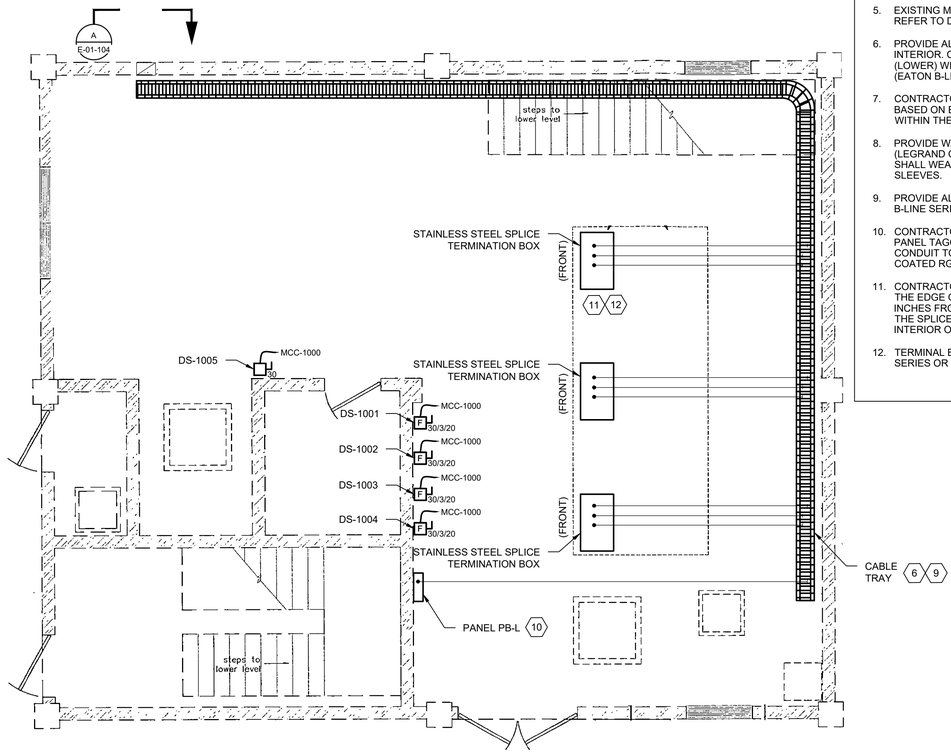


A EXTERIOR WALL VIEW



NORTH

PUMP BUILDING PLAN (DEMOLITION)



NORTH

PUMP BUILDING PLAN (CONDUIT AND TRAY)

GENERAL NOTES:

1. CONTRACTOR SHALL REUSE EXISTING PENETRATIONS WHERE POSSIBLE.
2. TERMINATION CABINET AND JUNCTION BOXES WHERE APPLICABLE WILL BE NON-CORROSIVE 316 STAINLESS STEEL, NEMA 4X USING UL LISTED, FINGER SAFE POWER AND CONTROL TERMINATION BLOCKS. BOXES WILL BE DESIGNED SO THAT NO LIVE PARTS ARE EXPOSED EXCEPT WHEN NECESSARY FOR EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE BY QUALIFIED PERSONS.
3. EQUIPMENT LOCATION AND ROUTING OF CONDUITS, DUCTBANKS, AND CABLE TRAY AS SHOWN ARE DIAGRAMMATIC ONLY. THE CONTRACTOR SHALL FIELD VERIFY AND CONFIRM EXACT ARRANGEMENT AND MAKE REQUIRED ARRANGEMENT ADJUSTMENTS BASED ON THE SUPPLIER PRINTS AND INSTALLATION INSTRUCTIONS.
4. PROVIDE BONDING JUMPERS, SIZED PER NEC REQUIREMENTS, TO MAINTAIN ELECTRICAL CONTINUITY OVER THE ENTIRE LENGTH OF THE CABLE TRAY.
5. ALL CABLE TRAY HARDWARE AND INDOOR SUPPORTS SHALL BE 304SS.
6. PROVIDE CABLE TRAY TROUGH DROP-IN AND DROP-OUT BUSHING WHERE NECESSARY.
7. ALL NEW EXPOSED CONDUIT INSTALLATIONS SHALL BE PVC COATED RGS CONDUITS. ALL SUPPORTS AND HARDWARE SHALL BE STAINLESS STEEL

KEY NOTES:

1. CONTRACTOR TO REMOVE EQUIPMENT PAD AND LEVEL OFF WITH EXISTING FLOOR.
2. CONTRACTOR SHALL REMOVE CONDUIT TO WALL AND CAP AND SEAL IF NOT REUSED.
3. RTU 90 CABINET'S BACKPLANE ALONG WITH EQUIPMENT TO BE RELOCATED TO NEW ELECTRICAL BUILDING IN A NEW CABINET. REFER TO DRAWING ED-01-601 AND E-01-101 FOR ADDITIONAL DETAIL. ONCE BACKPLANE WITH EQUIPMENT IS REMOVED, CABINET SHOULD BE DEMOLISHED.
4. EXISTING VFDS AND INPUT TRANSFORMER (TYPICAL THREE LOCATIONS) WILL BE DEMOLISHED. REFER TO DRAWING ED-01-601 FOR ADDITIONAL DETAIL.
5. EXISTING MCC AND SWITCHBOARD WILL BE DEMOLISHED. REFER TO DRAWING ED-01-601 FOR ADDITIONAL DETAIL.
6. PROVIDE ALUMINUM LADDER TYPE CABLE TRAY IN BUILDING INTERIOR. CABLE TRAY SHALL BE 18"W (UPPER) AND 12"W (LOWER) WITH 6" SIDE RAIL HEIGHT AND 5"D LOADING DEPTH (EATON B-LINE SERIES 26A09-12-XXX OR EQUAL).
7. CONTRACTOR SHALL DETERMINE TRAY ELEVATION HEIGHT BASED ON EQUIPMENT ELEVATIONS AND TRAY ELEVATIONS WITHIN THE NEW ELECTRICAL BUILDING.
8. PROVIDE WALL PENETRATIONS AND USE WALL SLEEVE (LEGRAND CABLOFIL 4G2-424-06-SG OR EQUAL). CONTRACTOR SHALL WEATHERIZE AND SEAL AROUND WALL PENETRATION SLEEVES.
9. PROVIDE ALUMINUM BARRIER FOR LOWER CABLE TRAY (EATON B-LINE SERIES 75A-XXXXXX OR EQUAL).
10. CONTRACTOR SHALL REPLACE EXISTING PB-L PANEL WITH NEW PANEL TAGGED WITH THE SAME NAME. EXISTING EXPOSED CONDUIT TO THIS PANEL SHALL BE REPLACED WITH PVC COATED RGS.
11. CONTRACTOR TO INSTALL SPLICE TERMINATION BOXES NEAR THE EDGE OF THE EXISTING CONCRETE PAD, NO MORE THAN 6 INCHES FROM THE FRONT EDGE TO AVOID A TRIPPING HAZARD. THE SPLICE TERMINATION BOXES' DOORS SHALL OPEN TO THE INTERIOR OF THE BUILDING.
12. TERMINAL BLOCKS SHALL BE FINGER-SAFE EATON PDBFS SERIES OR EQUAL.

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Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-01-104.DWG

BC PROJECT NUMBER
153586

CLIENT PROJECT NUMBER
6010881

ELECTRICAL

ELECTRICAL PUMP BUILDING PLAN

DRAWING NUMBER
E-01-104

SHEET NUMBER 36 OF 47

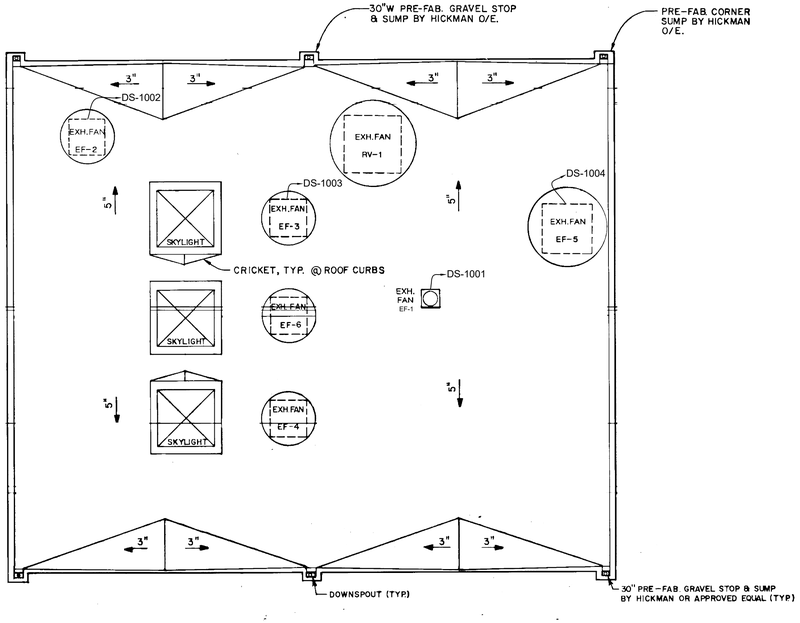
Path: C:\USERS\JZHANG\BCPW\D2331100 FILENAME: E-01-104.DWG PLOT DATE: 8/23/2022 1:15 PM CAD USER: JEFFREY ZHANG

GENERAL NOTES:

1. ALL EXPOSED CONDUIT INSTALLATIONS SHALL BE PVC COATED RGS. ALL CONDUIT SUPPORTS AND HARDWARE SHALL BE STAINLESS STEEL.
2. MOTOR/PUMP FRAMES SHALL BE BONDED TO GROUND GRID WITH #1/0 B.C.
3. EXHAUST FANS ON ROOF ARE EXISTING. CONTRACTOR SHALL REWIRE EXHAUST FANS EF-1, EF-2, EF-3, AND EF-5 TO THEIR RESPECTIVE DISCONNECT SWITCHES IN THE PUMP BUILDING.

KEY NOTES:

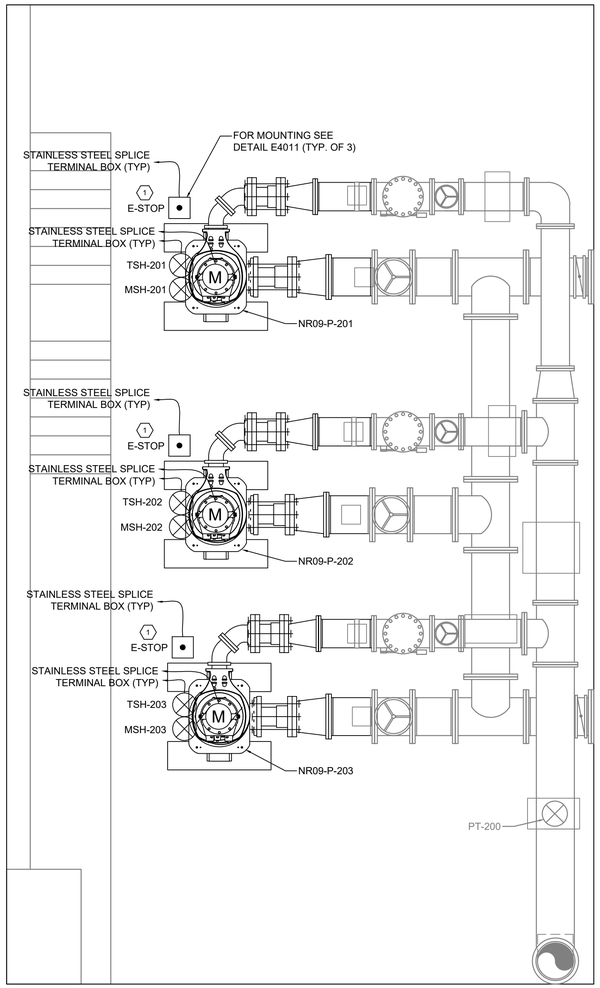
1. PEDESTAL SHALL BE BONDED TO GROUND GRID WITH #6 B.C.



NORTH

MLS N1-B ROOF PLAN

SCALE: NTS



NORTH

MLS N1-B PUMP ROOM PLAN

SCALE: 3/8" = 1'-0"

Brown AND Caldwell

Certificate of Authorization No. 2602
6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-01-105.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

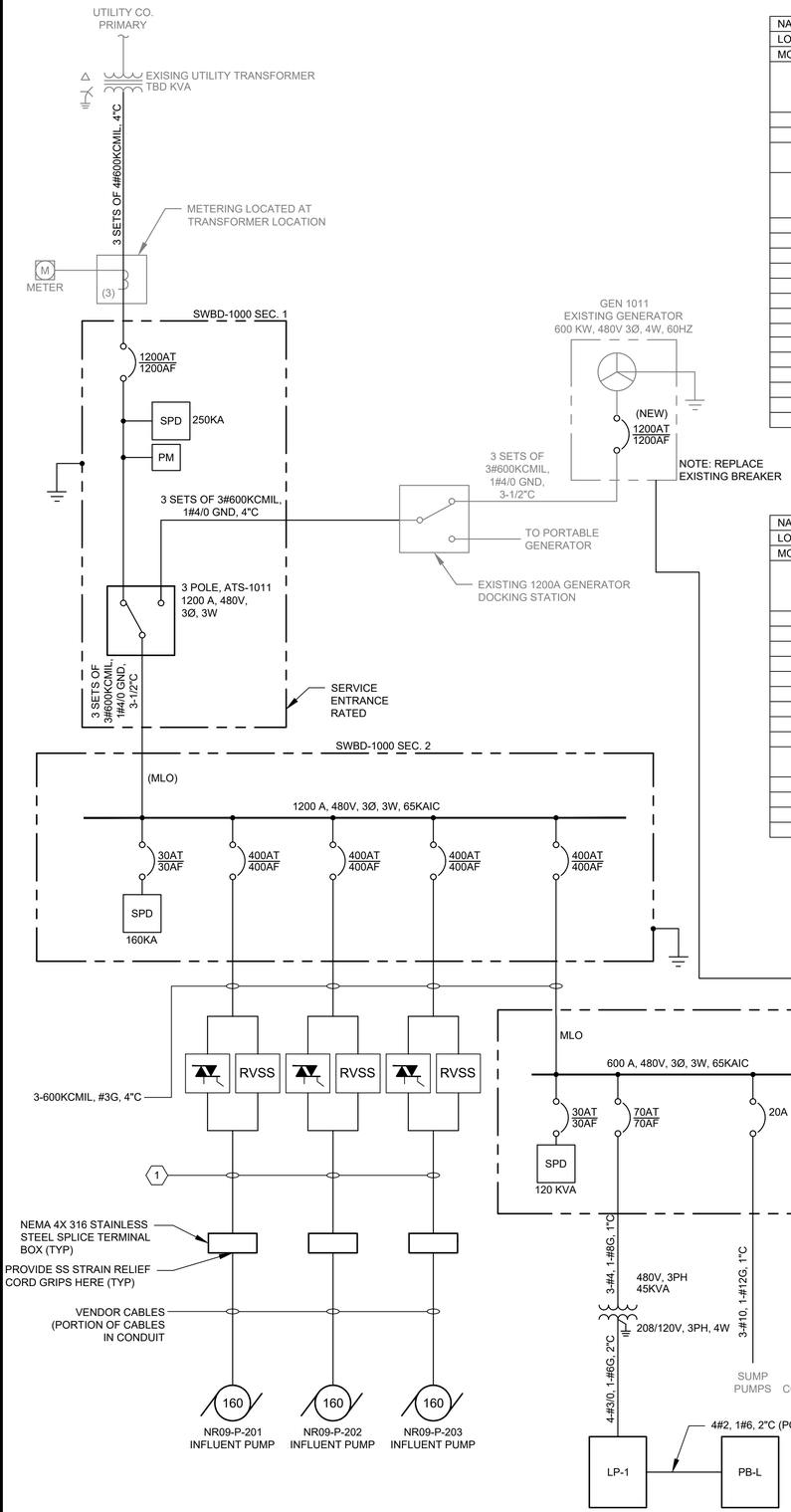
ELECTRICAL

PLAN VIEW FOR ROOF AND PUMP ROOM

DRAWING NUMBER
E-01-105

SHEET NUMBER 37 OF 47

Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-01-105.DWG PLOT DATE: 8/23/2022 1:15 PM CAD USER: JEFFREY ZHANG



NAMEPLATE: LP-1			SC LEVEL: 18 KAIC			VOLTS: 208/120V, 3-PH, 4W
LOCATION : PUMP BUILDING						BUS AMPS: 200A
MOUNTING : WALL						MAIN CB: 175A
LOAD DESCRIPTION	BKR AMP/ POLE	CIRCUIT NO		BKR AMP/ POLE	LOAD DESCRIPTION	
SMOKE DETECTOR	20/1	01	02	30/2	CONDENSER SPLIT UNIT 1	
EXIT SIGNS	20/1	03	04			
SPARE	50/2	05	06	30/2	CONDENSER SPLIT UNIT 2	
		07	08			
PB-L	100/3	09	10	20/1	ELECTRICAL BUILDING INDOOR LIGHTS	
		11	12	20/1	ELECTRICAL BUILDING INDOOR RECEPTACLES	
		13	14	20/1	ELECTRICAL BUILDING EXTERIOR LIGHTS	
RECEPTACLE INSIDE NR09-VFD-201	20/1	15	16	20/1	ELECTRICAL BUILDING OUTDOOR PERIMETER LIGHTS	
RECEPTACLE INSIDE NR09-VFD-202	20/1	17	18	20/1	ELECTRICAL BUILDING OUTDOOR RECEPTACLES	
RECEPTACLE INSIDE NR09-VFD-203	20/1	19	20	20/1	FIT-200	
RECEPTACLE INSIDE RTU 90 PANEL	20/1	21	22	20/1	SPARE	
SPARE	20/1	23	24	20/1	SPARE	
SPARE	20/1	25	26	20/1	SPARE	
SPACE	--	27	28	--	SPACE	
SPACE	--	29	30	--	SPACE	
SPACE	--	31	32	--	SPACE	
SPACE	--	33	34	--	SPACE	
SPACE	--	35	36	--	SPACE	
SPACE	--	37	38	--	SPACE	
SPACE	--	39	40	--	SPACE	
SPACE	--	41	42	--	SPACE	

LIGHTING PANELBOARD LP-1

(PROVIDE INTEGRAL 100KA SPD ON THIS PANELBOARD)

NAMEPLATE: PB-L			SC LEVEL: 10 KAIC			VOLTS: 208/120V, 3-PH, 4W
LOCATION : PUMP BUILDING						BUS AMPS: 150A
MOUNTING : WALL						MAIN CB: 100A
LOAD DESCRIPTION	BKR AMP/ POLE	CIRCUIT NO		BKR AMP/ POLE	LOAD DESCRIPTION	
EF-Z DRYWELL EXHAUST	20/1	01	02	20/1	WATER HEATER	
BATTEHRORSER	20/1	03	04	20/1	GEN DAY TANK & VR PANEL	
FLOW METER	20/1	05	06	20/1	LIGHTS - BASEMENT	
LIGHTS - EMERGENCY LIGHT	20/1	07	08	20/1	HAZARDOUS GAS PANELS	
EXHAUST FAN CONTROLS	20/1	09	10	20/1	PUMP CONTROL PANEL	
OUTSIDE LIGHTS	20/1	11	12	20/1	LIGHTS - GEN ROOM/RECEPTACLES	
LIGHTS - 1ST FLOOR PUMP ROOM	20/1	13	14	20/1	LIGHTS - TOILET/STORAGE	
RECEPTACLES - SOUTH WALL	20/1	15	16	20/1	SCRUBBER	
CONTROL BREAKER	20/1	17	18	50/2	JACKET HEATER	
OUTSIDE PANEL, RECEPT FOR 208V HOIST	50/2	19	20			
		21	22	20/1	SPARE	
SPARE	20/1	23	24	20/1	SPARE	
SPARE	20/1	25	26	20/1	SPARE	
SPARE	20/1	27	28	20/1	SPARE	
SPARE	20/1	29	30	20/1	SPARE	

NEW PANELBOARD PB-L

(IN NEMA 4X 316SS ENCLOSURE)
NOTE: EXISTING LOADS SHOWN IN GRAY TO BE TRANSFERRED TO THIS NEW PANELBOARD AS SHOWN

GENERAL NOTES:

1. INFORMATION FROM EXISTING EQUIPMENT IS FROM RECORD DRAWINGS AND LATEST DOCUMENTS PROVIDED BY MANATEE COUNTY. EXISTING DEVICES SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO WORK.
2. CONTRACTOR SHALL PROVIDE AN UPDATED PANEL SCHEDULE FOR PB-L BASED ON AS-BUILT CONFIGURATION.
3. CONDUCTOR ROUTES HAVE PORTIONS IN CONDUIT AND TRAY, SEE PLAN DRAWINGS: E-01-100, E-01-101, AND E-01-104.

KEY NOTES:

1. VFD RATED CABLE. 3#500KCMIL EQUIVALENT WITH 3 SYMMETRIC GROUNDING CABLE IN CABLE TRAY AND 4"C.

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BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY
FILENAME E-01-601.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389
ELECTRICAL

ONE-LINE DIAGRAM

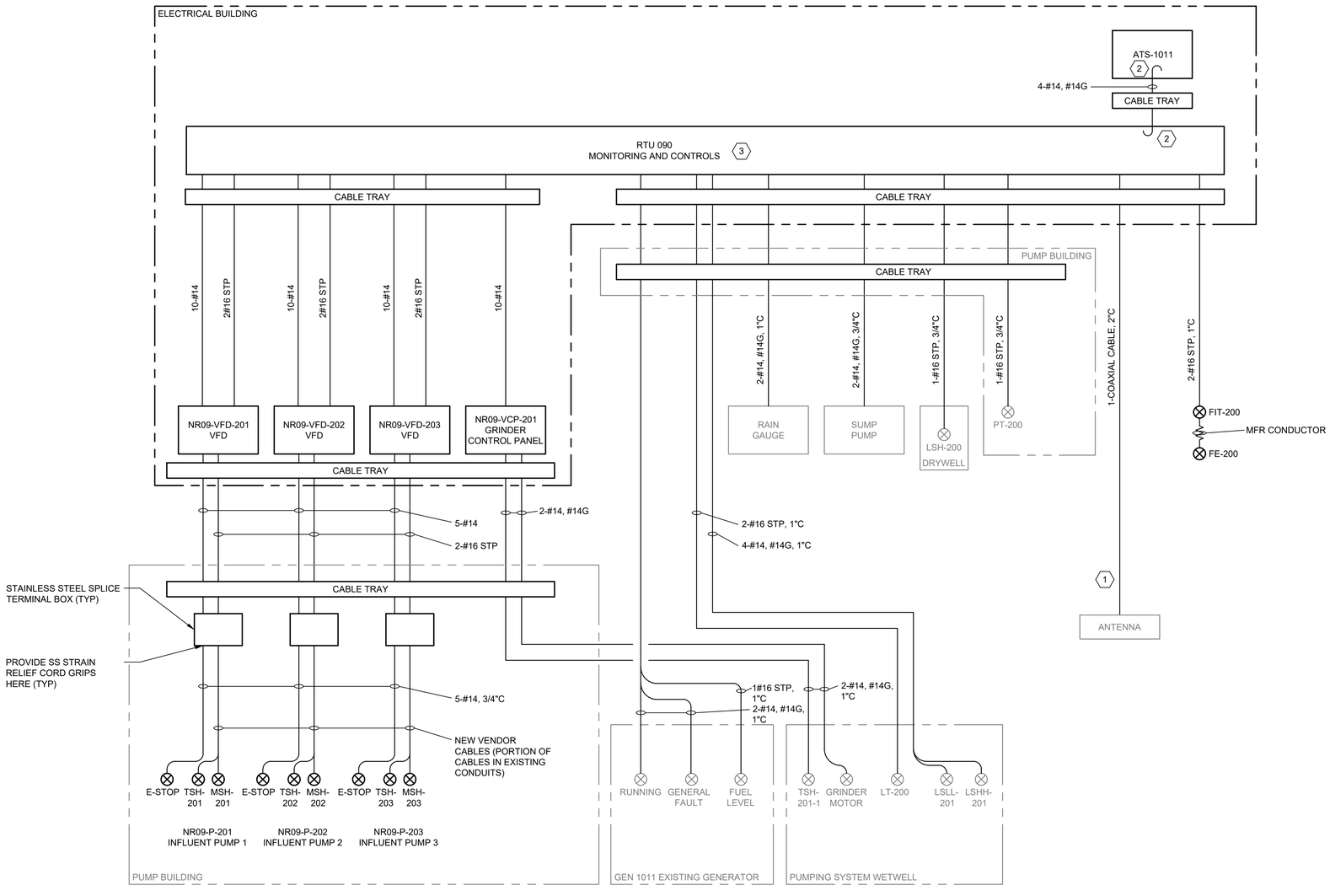
DRAWING NUMBER
E-01-601
SHEET NUMBER 38 OF 47

GENERAL NOTES:

1. SOURCE OF EXISTING FEATURES SHOWN ON DRAWINGS IS FROM RECORD DRAWINGS AND LATEST DOCUMENTS PROVIDED BY MANATEE COUNTY. A LIMITED FIELD SURVEY WAS PERFORMED FOR THIS PROJECT. EXISTING DEVICES SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO WORK.
2. CONTRACTOR SHALL COORDINATE I&C DEVICES AND EQUIPMENT WITH I-10-601.
3. USE MULTICONDUCTOR TYPE TC FOR ALL CONTROL AND SIGNAL CABLES.

KEY NOTES:

1. COAXIAL CABLE SHALL BE RG6 RATED FOR DIRECT BURY IN PVC, WATER TIGHT OR EQUAL.
2. CONTRACTOR SHALL INSTALL CONDUIT(S) AND CONDUCTOR SPARES FOR FUTURE USE BY OTHERS. CONDUCTORS SHALL BE PULLED INTO RTU-90 AND ATS-1011, WITH 5FT COILED TAPED AND SECURED IN THE BOTTOM OF EACH LOCATION.
3. CONTRACTOR SHALL NOTE THAT RTU 090 INTERNAL COMPONENTS ARE RELOCATED INTO A NEW NEMA 12 FLOOR STANDING ENCLOSURE INSIDE THE NEW ELECTRICAL BUILDING. CONTRACTOR SHALL REFER TO THE INSTRUMENTATION DRAWINGS FOR ADDITIONAL DETAILS.



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6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME E-01-602.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389

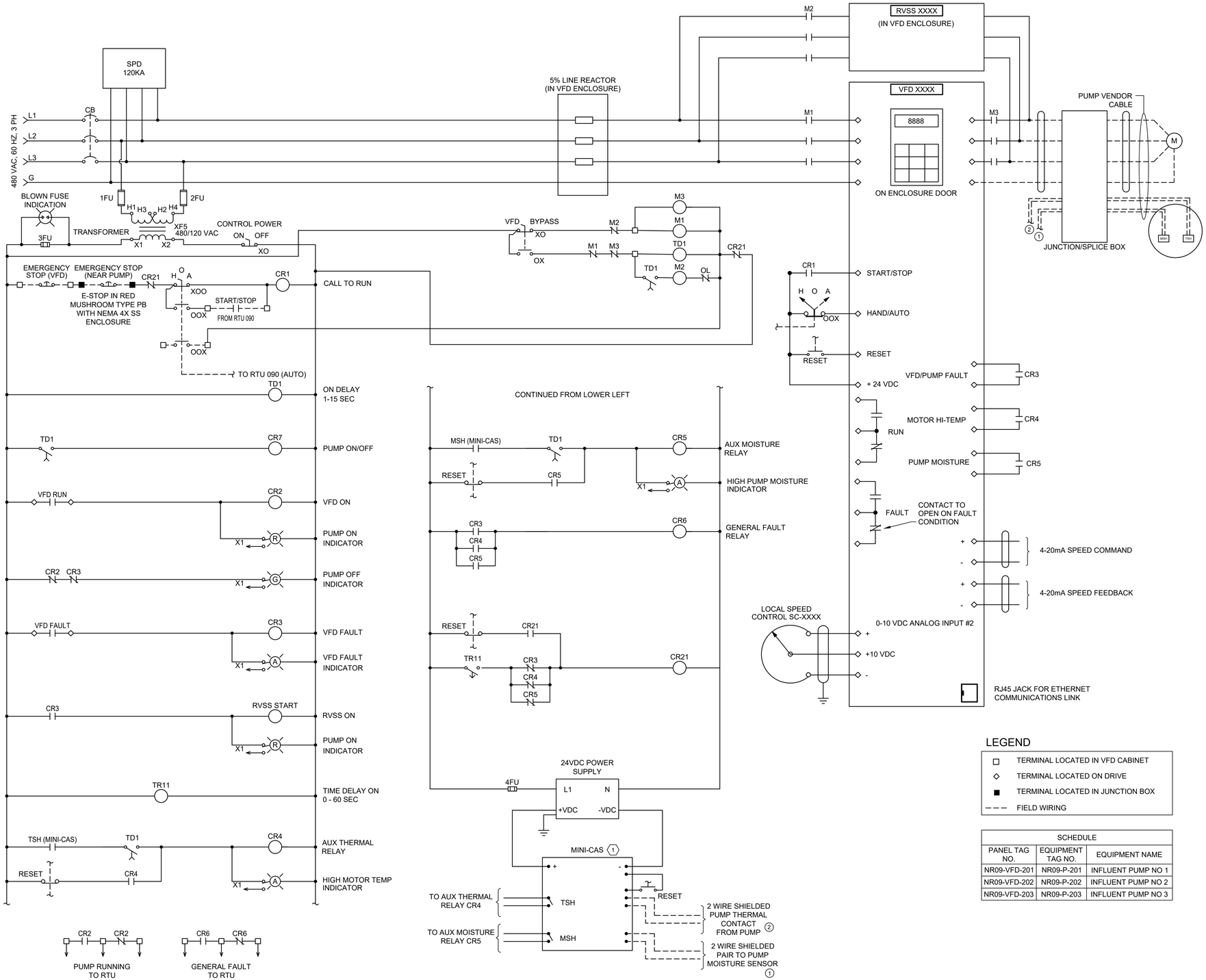
ELECTRICAL

RISER DIAGRAM

DRAWING NUMBER
E-01-602

SHEET NUMBER 39 OF 47

Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-01-602.DWG PLOT DATE: 8/23/2022 1:16 PM CAD USER: JEFFREY ZHANG



GENERAL NOTES:

1. JUMPER E-STOP IF NOT USED.
2. SCHEMATIC DIAGRAM INDICATES PRINCIPAL OPERATION ONLY. MANUFACTURER TO ADJUST SCHEMATIC TO MEET FUNCTIONAL AND OPERATION NEEDS AS OUTLINED IN THE CONTRACT DOCUMENTS.
3. ALL EQUIPMENT WIRING IS TO INCLUDE WIRE NUMBERS PER DIV 16.
4. THE VFD SHALL BE PROGRAMMED SO THAT WHEN THE POWER RETURNS THE UNIT WILL RESET AUTOMATICALLY AND BE READY TO RUN AGAIN.
5. SCHEMATIC DIAGRAM INDICATES PRINCIPAL OPERATION ONLY. MANUFACTURER TO ADJUST SCHEMATIC TO MEET FUNCTIONAL AND OPERATIONAL NEEDS AS OUTLINED IN THE CONTRACT DOCUMENTS.
6. PROVIDE DV/DT OUTPUT FILTER AT THE LOAD SIDE OF THE VFD (NOW SHOWN FOR CLARITY), NO EXCEPTIONS.

KEY NOTES:

1. MINICAS UNIT FURNISHED BY THE PUMP MANUFACTURER. TO BE MOUNTED, INSTALLED, WIRED, AND SHOWN ON SCHEMATIC DIAGRAM BY VFD MANUFACTURER. MINICAS UNIT IS BY FLYGT.

LEGEND

□	TERMINAL LOCATED IN VFD CABINET
◇	TERMINAL LOCATED ON DRIVE
■	TERMINAL LOCATED IN JUNCTION BOX
– – –	FIELD WIRING

SCHEDULE		
PANEL TAG NO.	EQUIPMENT TAG NO.	EQUIPMENT NAME
NR09-VFD-201	NR09-P-201	INFLUENT PUMP NO 1
NR09-VFD-202	NR09-P-202	INFLUENT PUMP NO 2
NR09-VFD-203	NR09-P-203	INFLUENT PUMP NO 3

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Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
E-01-603.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

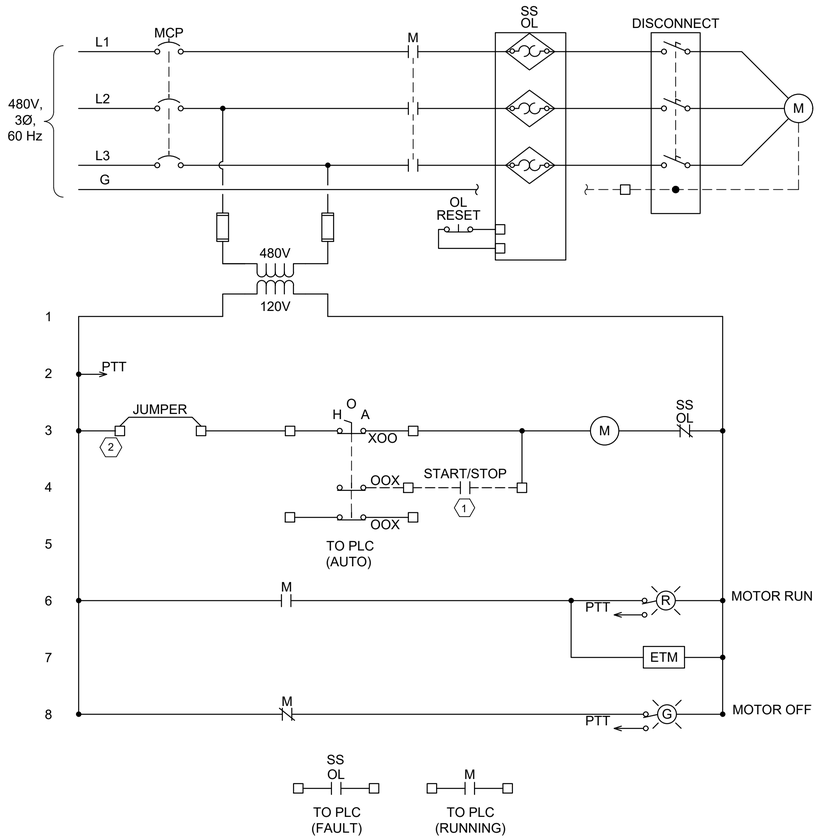
ELECTRICAL

ELECTRICAL PUMP VFD SCHEMATIC

DRAWING NUMBER
E-01-603

SHEET NUMBER 40 OF 47

Path: C:\USERS\JZHANG\BCPWD2331100 FILENAME: E-01-603.DWG PLOT DATE: 8/23/2022 1:16 PM CAD USER: JEFFREY ZHANG



LEGEND

□	TERMINAL LOCATED IN MCC
■	TERMINAL LOCATED IN FIELD
- - - -	FIELD WIRING

GENERAL NOTES:

1. THE SCHEMATIC SHOWN IS FOR EXISTING EXHAUST FANS IN THE PUMP BUILDING. CONTRACTOR SHALL REWIRE EXISTING EXHAUST FANS NOW CONTROLLED FROM MCC-1000 IN THE NEW ELECTRICAL BUILDING. THE EXISTING OPERATION OF THESE FANS SHALL BE MAINTAINED AND UNCHANGED. THE SCHEMATIC SHOWN IS TYPICAL AND REFERENCE ONLY.

⬡ KEYNOTES:

1. EXHAUST FANS ARE INTERLOCKED WITH EXISTING FAN CONTROLS AND ACTIVATED BY RESPECTIVE WALL THERMOSTATS. PROVIDE INTERCONNECTING WIRING FOR INTERLOCK AS REQUIRED.
2. OPTIONAL SHUTDOWN INTERLOCK IF NEEDED. JUMPER IF NOT USED.

EQUIPMENT NO.	EQUIPMENT DESCRIPTION	LOCATION
EF-1	EXHAUST FAN 1	MCC-1000
EF-2	EXHAUST FAN 2	MCC-1000
EF-3	EXHAUST FAN 3	MCC-1000
EF-5	EXHAUST FAN 5	MCC-1000

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90% DESIGN

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY
FILENAME E-01-604.DWG
BC PROJECT NUMBER 156470
CLIENT PROJECT NUMBER 6022388 / 6022389

ELECTRICAL

MASTER LIFT STATION N1-B REHABILITATION

DRAWING NUMBER
E-01-604

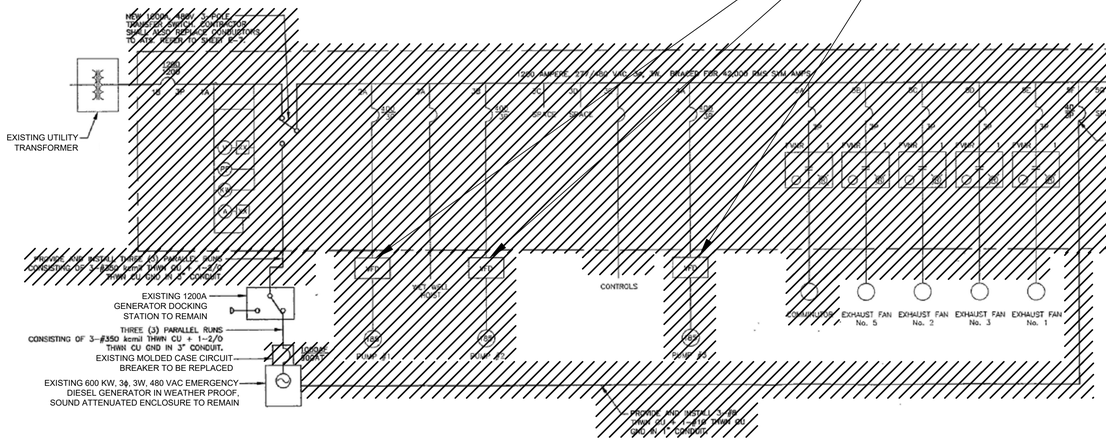
41 SHEET NUMBER OF 47

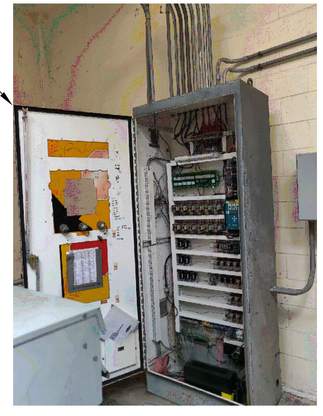
GENERAL NOTES:

1. CONTRACTOR TO REMOVE ALL DEMOED CONDUITS AND SUPPORTS/HARDWARE AND DISPOSE OFF SITE.
2. ALL DEMOLISHED VFDS, SWITCHGEAR, ETC. WHICH HAVE NO SALVAGE VALUES SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OFF SITE.
3. ALL NEW EXPOSED CONDUIT INSTALLATIONS SHALL BE PVC COATED RIGID GALVANIZED CONDUITS WITH SS HARDWARE AND SUPPORTS.

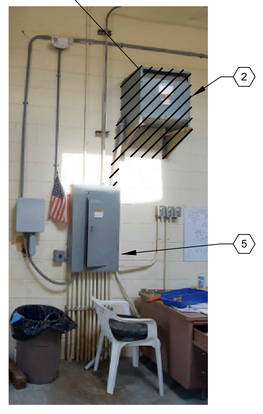
KEY NOTES:

1. EXISTING CONTROL PANEL TO RE REMOVED. BACKPLANE WITH EQUIPMENT AND DEVICES TO BE REINSTALLED IN NEW CABINET IN THE NEW ELECTRICAL BUILDING. SEE SHEET E-01-101 FOR LOCATION.
2. CONTRACTOR SHALL DEMOLISH PANEL AND TRANSFORMER. EXISTING CONDUITS ENTERING THE BOTTOM OF PANEL SHALL REMAIN. EXISTING CONDUITS TO TRANSFORMER AND TRANSFORMER SUPPORTS SHOULD BE DEMOLISHED.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLISHING AND DISPOSING EXISTING VFDS AND VFD INPUT TRANSFORMERS.
4. CONTRACTOR SHALL REMOVE ATS AND RETURN TO COUNTY. COUNTY MAY WANT TO SAVE THIS EQUIPMENT FOR FUTURE USE WITHIN THE COUNTY.
5. EXISTING ELECTRICAL PANEL PB-L WILL BE REPLACED. SEE DRAWING E-01-601 FOR PANEL SCHEDULE. PANEL PB-L SHALL BE REPOWERED FROM LP-1 IN THE NEW ELECTRICAL BUILDING.





RTU 090
MONITORING AND CONTROL



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MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. MCELROY
DRAWN: J. ZHANG
CHECKED: S. MCELROY
CHECKED: R. ABORDO
APPROVED: A. MODY

FILENAME
ED-01-601.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

ELECTRICAL

DEMOLITION ONE-LINE DIAGRAM

DRAWING NUMBER
ED-01-601

SHEET NUMBER 42 OF 47

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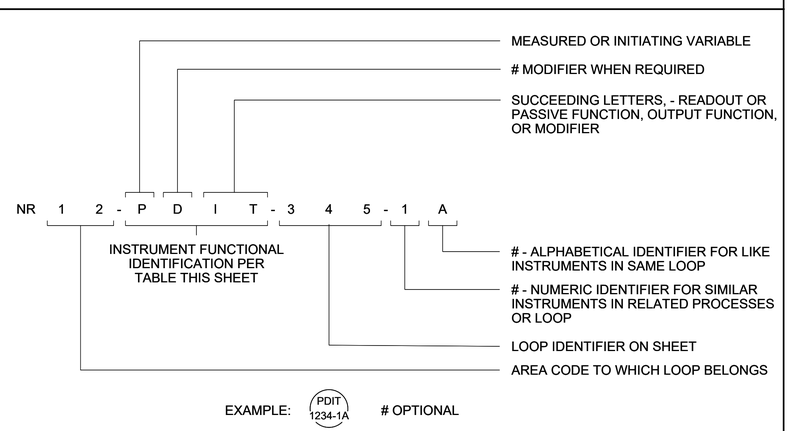
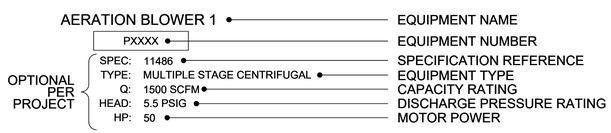
FUNCTIONAL IDENTIFICATION

VARIABLE	MEASURED OR INITIATING VARIABLE DESCRIPTION	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSE
D	DENSITY, SPECIFIC GRAVITY	DIFFERENTIAL			DEVIATION
E	VOLTAGE, SOLENOID		PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	FIRE, SMOKE		GLASS		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE, HUMIDITY, MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	EQUIPMENT STATUS				
O	DISSOLVED OXYGEN		ORIFICE		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE, TORQUE		WELL, PROBE		
X	UNCLASSIFIED	X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

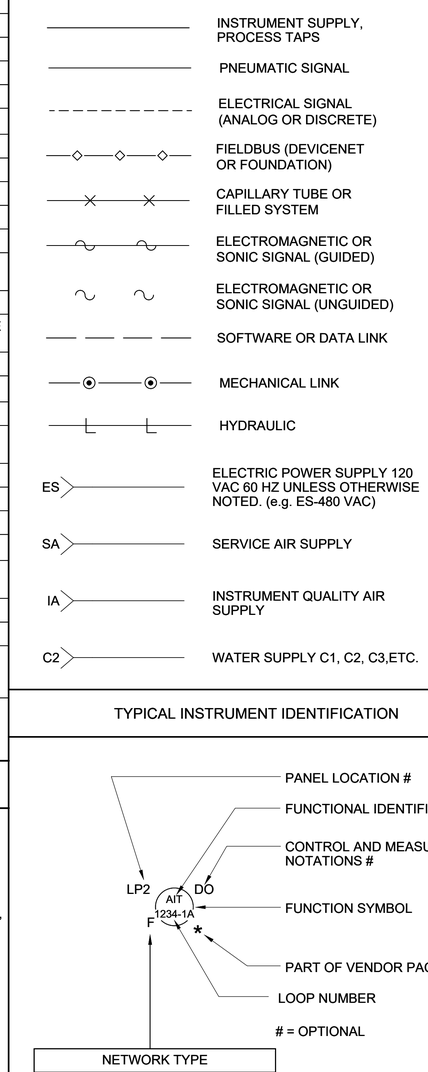
INSTRUMENT TAG AND LOOP IDENTIFICATION



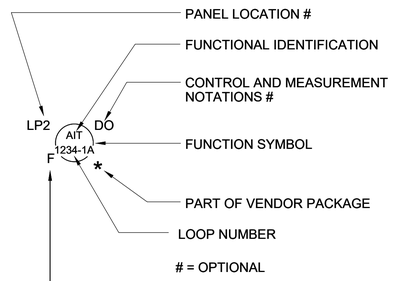
EQUIPMENT IDENTIFICATION SYSTEM



INSTRUMENT SIGNAL LINES



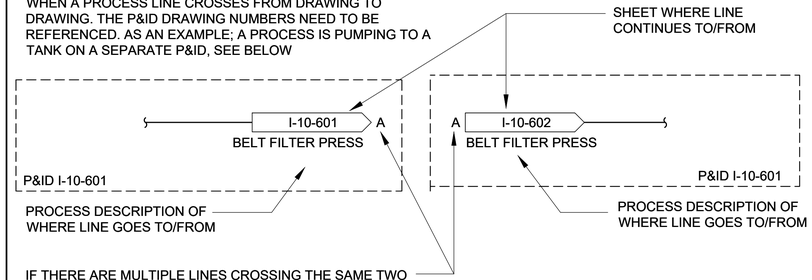
TYPICAL INSTRUMENT IDENTIFICATION



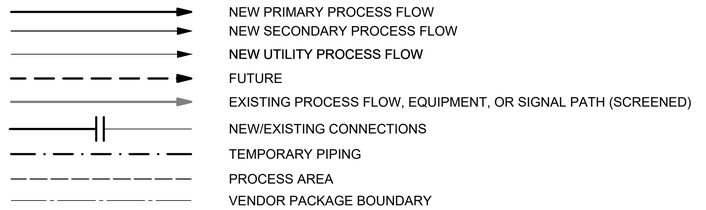
NETWORK TYPE	
F	FOUNDATION FIELDBUS
D	DEVICENET
E	ETHERNET
P	PROFIBUS
PN	PROFINET
M-RTU	MODBUS RTU
M-TCP	MODBUS TCP
CIP	CONTROL INDUSTRIAL PROTOCOL
E-SNMP	SIMPLE NETWORK MANAGEMENT PROTOCOL

PROCESS AND SIGNAL CROSS REFERENCE SYSTEM

WHEN A PROCESS LINE CROSSES FROM DRAWING TO DRAWING. THE P&ID DRAWING NUMBERS NEED TO BE REFERENCED. AS AN EXAMPLE; A PROCESS IS PUMPING TO A TANK ON A SEPARATE P&ID, SEE BELOW



PROCESS LINES



CONTROL AND MEASUREMENT NOTATIONS

ACK	ACKNOWLEDGE
AM	AUTO/MAN
BYP	BYPASS
CL	CLOSE
CL2	CHLORINE
CMAT	COMPUTER/MANUAL/AUTO/TRACKING
COMB	COMBUSTIBLE GAS
CP	CONTROL POWER
COND	CONDUCTIVITY
DEC	DECREASE
DO	DISSOLVED OXYGEN
ESP	EMERGENCY STOP
FORA	FORWARD/OFF/REVERSE/AUTO
FWD	FORWARD
F/R	FORWARD/REVERSE
F/S	FAST/SLOW
HLOA	HIGH/LOW/OFF/AUTO
HOA	HAND/OFF/AUTO
HOAL	HAND/OFF/AUTO/LOCAL
HOR	HAND/OFF/REMOTE
INC	INCREASE
JOA	JOG/OFF/AUTO
LL	LEAD/LAG
LOR	LOCAL/OFF/REMOTE
LOS	LOCKOUT STOP
L/R	LOCAL/REMOTE
M/A LS	MAN/AUTO LOADING STATION
OCA	OPEN/CLOSE/AUTO
OCP	PURGE VALVE OP/CL/PC
OL	OVERLOAD
OP	OPEN
OSC/LP	OPEN/STOP/CLOSE WITH LOCAL/REMOTE SELECT
PA	PAUSE
PAL	LOW PRESSURE
PB	PUSH BUTTON
pH	pH
POT	POTENTIOMETER
RDY	READY
REV	REVERSE
RNG	RUNNING
ROF	REVERSE/OFF/FORWARD
RST	RESET
SO2	SULFUR DIOXIDE
SP	STOP
ST	START
SS	START/STOP
TCP	TEST/CLOSE/PC
T/S	TEST/NORMAL/SILENCE
TBL	TROUBLE

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ENGINEER OF RECORD
RYAN ABRAHIEM, PE 73843

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: ##########
DRAWN: ##########
CHECKED: ##########
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APPROVED: ##########

FILENAME
I-00-001.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

INSTRUMENTATION

LEGEND AND SYMBOLS - 1

DRAWING NUMBER
I-00-001

SHEET NUMBER 43 OF 47

Path: C:\USERS\JZHANG\BCPWD2331106 FILENAME: I-00-001.DWG PLOT DATE: 8/23/2022 2:13 PM CAD USER: JEFFREY ZHANG

MISCELLANEOUS SYMBOLS

- MCC (MOTOR CONTROL/STARTER)
- PURGE OR FLUSHING DEVICE
- RESET FOR LATCH-TYPE OPERATOR
- SEAL WATER CONTROL UNIT
- INTERLOCKING OR CONTROL FUNCTION
- INTRINSIC SAFETY BARRIER
- DISCRETE INPUT
- DISCRETE OUTPUT
- ANALOG INPUT
- ANALOG OUTPUT
- CAMERA (CCTV)
- VFD — VARIABLE FREQUENCY DRIVE
- VSD — VARIABLE SPEED DRIVE

ACTUATORS/MOTORS/POWER

- ASD — ADJUSTABLE SPEED DRIVE (MECHANICAL)
- ROTARY PISTON ACTUATORS, VALVE OR GATE
- LINEAR PISTON ACTUATORS, VALVE OR GATE
- SOLENOID ACTUATOR, VALVE
- MANUAL OR HAND ACTUATOR, VALVE OR GATE (OR BLANK)
- MOTOR (ACTUATOR, VALVE , GATE OR EQUIPMENT)
- ENGINE
- EJECTOR, PNEUMATIC
- GENERATOR

PRIMARY ELEMENT SYMBOLS

- ORIFICE PLATE
- VENTURI OR FLOW TUBE
- NOZZLE FLOW
- PITOT TUBE
- PROPELLER OR TURBINE METER
- FLUME
- WEIR
- VARIABLE AREA FLOW INDICATOR (ROTAMETER) — OR — FI
- DIAPHRAGM SEAL
- IN-LINE ANNULAR SEAL
- MAGNETIC FLOWMETER
- SONIC FLOWMETER (DOPPLER OR TRANSIT TIME)
- POSITIVE DISPLACEMENT METER
- THERMAL FLOW ELEMENT
- VORTEX FLOW ELEMENT
- CORIOLIS FLOW ELEMENT
- FLOAT LEVEL ELEMENT
- ULTRASONIC LEVEL ELEMENT
- BUBBLER LEVEL TUBE
- SUBMERSIBLE LEVEL TRANSMITTER
- HYDROSTATIC LEVEL PROBE
- RADAR OR ULTRASONIC LEVEL ELEMENT
- ANNUBAR, PITOT TUBE
- AVERAGING PITOT TUBE

VALVES

NORMALLY OPEN		NORMALLY CLOSED
	GATE VALVE	
	PLUG VALVE	
	BALL VALVE	
	GLOBE VALVE	
	NEEDLE VALVE	
	KNIFE GATE VALVE	
	DIAPHRAGM VALVE	
	BUTTERFLY VALVE	
	ANGLE VALVE	
	THREE WAY VALVE	
	FOUR WAY VALVE	
	FLOAT VALVE	
	PINCH VALVE	
	BALANCING COCK	
	THERMOSTATICALLY CONTROLLED VALVE	

- DOUBLE LEAF CHECK VALVE
- CHECK VALVE
- BALL CHECK VALVE
- PUMP DISCHARGE VALVE
- GAUGE OR ROOT VALVE
- PRESSURE AND VACUUM RELIEF VALVE
- VACUUM RELIEF VALVE
- PRESSURE RELIEF VALVE
- IN-LINE SPRING LOADED RELIEF VALVE
- PRESSURE REGULATING VALVE (SELF-CONTAINED)
- BACK PRESSURE REGULATING VALVE (SELF-CONTAINED)
- FUSIBLE LINK

- SOLENOID VALVE
- DIAPHRAGM OPERATED VALVE
- PRESSURE BALANCE OPERATED VALVE
- MOTOR OPERATED VALVE
- MOTOR OPERATED VALVE, MODULATING

NOTE: USE VALVE BODY SYMBOL TO MATCH TYPE OF VALVE.

- PISTON OPERATED VALVE
- TELESCOPING VALVE
- MUD VALVE
- ANTI SIPHON VALVE
- LIFT CHECK VALVE
- BRAIDED FLEX CONNECTOR

FUNCTION SYMBOLS

- SHARED DISPLAY, PROCESS CONTROL SYSTEM
- SOFTWARE FUNCTIONALITY
- FIELD OR PANEL DEVICE

LOCATION AND ACCESSIBILITY MODIFIERS FOR FUNCTION SYMBOLS

- STAND ALONE DEVICE, OPERATOR ACCESSIBLE
- LOCATED ON FRONT OF PANEL OR CONSOLE, OPERATOR ACCESSIBLE
- LOCATED IN REAR OF PANEL OR CONSOLE, OPERATOR INACCESSIBLE

INSTRUMENTATION SYMBOLS

- INTEGRAL INSTRUMENT — PRIMARY ELEMENT SYMBOL
- CLOSE COUPLED INSTRUMENT — PRIMARY ELEMENT SYMBOL
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL
- MULTI VARIABLE INSTRUMENT
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL — FLANGE OR ELEMENT TAPS
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL — PIPE TAPS
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL — COMBINATION TAPS
- SINGLE VARIABLE INSTRUMENT

SLIDE AND SLUICE GATES

NORMALLY OPEN		NORMALLY CLOSED
	FLAP GATE	
NO	BUTTERFLY GATE	NC
	STOP GATE	
	SLIDE GATE	
	SLUICE GATE	

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BID SET

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MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: ##########
DRAWN: ##########
CHECKED: ##########
CHECKED:
APPROVED: ##########

FILENAME
I-00-002.DWG

BC PROJECT NUMBER
156470

CLIENT PROJECT NUMBER
6022388 / 6022389

INSTRUMENTATION

LEGEND AND SYMBOLS - 2

DRAWING NUMBER
I-00-002

SHEET NUMBER 44 OF 47

PUMPS

- PUMP, CENTRIFUGAL
- PUMP, DIAGHRAGM
- PUMP, GEAR
- PUMP, METERING
- PUMP, PERISTALTIC
- PUMP, PROGRESSING CAVITY
- PUMP, ROTARY LOBE
- PUMP, SUBMERSIBLE
- PUMP, JET
- PUMP, VERTICAL

BLOWERS/COMPRESSORS

- BLOWER OR CENTRIFUGAL FAN
- BLOWER OR COMPRESSOR, LIQUID RING
- BLOWER OR COMPRESSOR, ROTARY LOBE
- COMPRESSOR, ROTARY SCREW
- COMPRESSOR, ROTARY SLIDING VANE
- COMPRESSOR, PISTON

PIPE LINE DEVICES

- TRAP (T)
- SEDIMENT TRAP
- GAS DRIP TRAP (DT)
- SEPARATOR/ DRYER
- PIPELINE FILTER
- RUPTURE DISK (VACUUM RELIEF)
- RUPTURE DISK (PRESSURE RELIEF)
- CONNECTION BETWEEN NEW AND EXISTING PIPING
- UNION
- QUICK CONNECTOR
- CAP OR PLUG
- BLIND FLANGE
- FLEX CONNECTOR
- FABRIC EXPANSION JOINT
- VENT TO ROOF
- VENT
- STEAM VENT
- AUTOMATIC VENT
- MANUAL VENT
- STRAINERS
- FOOT VALVE
- AIR SEPARATOR
- DRAIN (D)
- DRAIN VALVE (DV)
- CALIBRATION CHAMBER
- PULSATION DAMPENER
- INJECTOR
- FLAME TRAP
- FLAME TRAP WITH THERMO SHUTOFF ASSEMBLY
- FLAME CHECK
- SAMPLING AND FLUSHING CONNECTIONS
- SUCTION DIFFUSER
- TEMPERATURE WELL
- FLOW STRAIGHTENING VANES
- PRESSURE REDUCING ASSEMBLY (PRA)
- AMMONIA UNION
- DAMPER
- SIGHT GLASS
- PIG LAUNCHER/ RECEIVER
- REDUCER
- FLEX COUPLING

HVAC RELATED

- FAN, INLINE
- CHILLER
- FILTER OR FILTER-SILENCER INLET AIR
- BOILER
- CHILLER

MIXERS

- MIXER
- DRAFT TUBE MIXER
- MIXER, INLINE STATIC

GRINDERS

- GRINDER

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS AND IDENTIFICATIONS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
2. SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.

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6151 Lake Osprey Drive, 3rd Floor
Sarasota, FL 34240

ENGINEER OF RECORD
RYAN ABRAHIEM, PE 73843

BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: ##########
DRAWN: ##########
CHECKED: ##########
CHECKED:
APPROVED: ##########

FILENAME
I-00-003.DWG

BC PROJECT NUMBER
156470

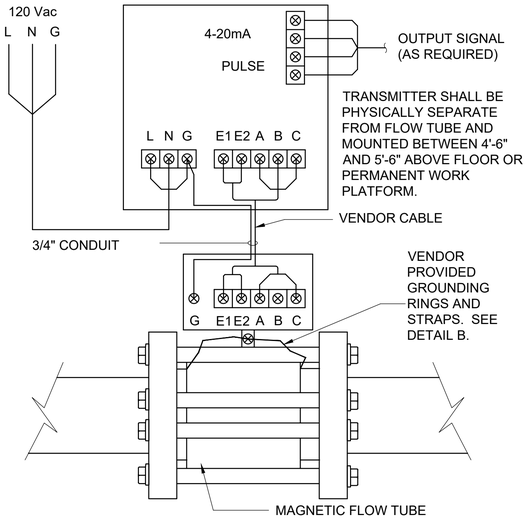
CLIENT PROJECT NUMBER
6022388 / 6022389

INSTRUMENTATION

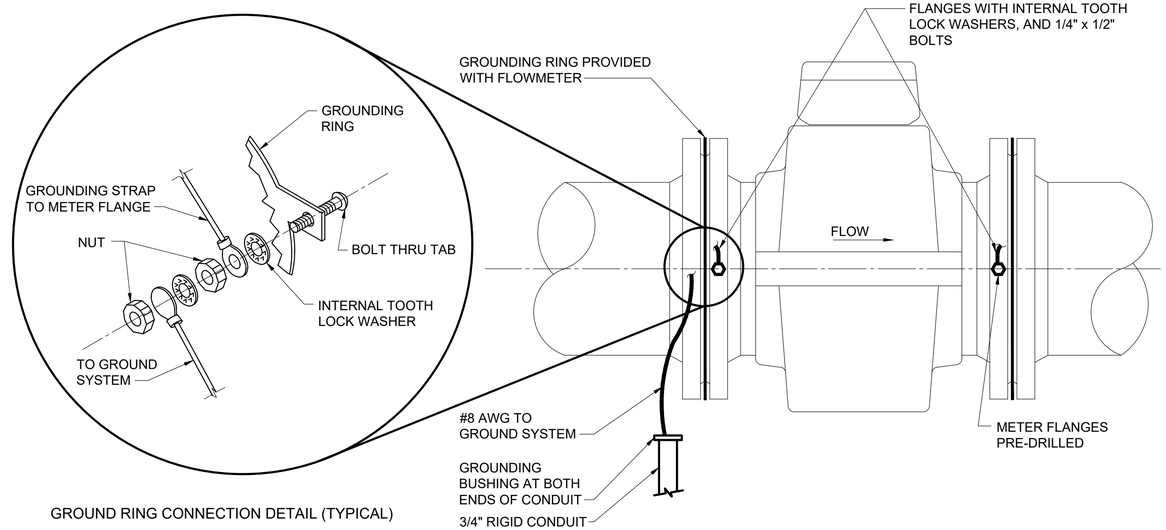
LEGEND AND SYMBOLS - 3

DRAWING NUMBER
I-00-003

SHEET NUMBER 45 OF 47



WAFER STYLE
MAGNETIC FLOW METER
DETAIL A
SCALE: NONE



GROUND RING CONNECTION DETAIL (TYPICAL)

MAGNETIC FLOW METER
GROUNDING
DETAIL B
SCALE: NONE

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BID SET

Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: ----
CHECKED: R. GAYLORD
CHECKED:
APPROVED: A. MODY

FILENAME
I-00-501.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

INSTRUMENTATION

INSTALLATION DETAILS SHEET

DRAWING NUMBER
I-10-501

46 SHEET NUMBER OF 47

MONITORING AND CONTROLS ARE EXISTING

EXISTING RTU090

RUNNING
GENERAL FAULT
RUNNING
GENERAL FAULT
FUEL LEVEL
PULSE POINT
WETWELL LEVEL
WETWELL LOW LOW ALARM
WETWELL HIGH-HIGH ALARM
COAX
IN AUTO
START COMMAND
RUNNING
GENERAL FAULT
SPEED
SPEED CONTROL
SUMP PUMP POWER
HIGH ALARM
PRESSURE
FLOW

ES 480 Vac
GRINDER CONTROL PANEL NR09-VCP-201
JY 201

GENERATOR
RAIN GAUGE
ANTENNA

HOA
HS 201
RNG
NL 201
UA 201
SI 201
SC 201
TAH 201
MAH 201
RST
HS 201
SKC 201
I

ES 480 Vac
NR09-VFD-201

SUMP PUMP
DRY WELL
LSH 200

ES 120 Vac
FIT 200
FE 200
M

16"
TO WWTP

PT 200
PI 200

LOOP P-203 IS TYPICAL OF P-201.
M
TSH 203
MSH 203
NR09-P-203

LOOP P-202 IS TYPICAL OF P-201.
M
TSH 202
MSH 202
NR09-P-202

M
TSH 201
MSH 201
NR09-P-201

LSHH 201

INFLUENT

M
TSH 201-1
NR09-G-201

LT 200
LSLL 201

PUMPING SYSTEM WETWELL

16"
12"

GRINDER
NR09-G-201
SPEC: 11116A

INFLUENT PUMP 1
NR09-P-201
SPEC: 11347

INFLUENT PUMP 2
NR09-P-202
SPEC: 11347

INFLUENT PUMP 3
NR09-P-203
SPEC: 11347

FLOWMETER
NR09-FE/FIT-200
SPEC: 17212

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Manatee County FLORIDA

MASTER LIFT STATION N1-B REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. SILLMAN
DRAWN: ----
CHECKED: R. GAYLORD
CHECKED:
APPROVED: A. MODY

FILENAME
I-10-601.DWG
BC PROJECT NUMBER
156470
CLIENT PROJECT NUMBER
6022388 / 6022389

INSTRUMENTATION

N1B MASTER LIFT STATION P&ID

DRAWING NUMBER
I-10-601

SHEET NUMBER 47 OF 47

Path: C:\USERS\JZHANG\BCPWD2331106 FILENAME: I-10-601.DWG PLOT DATE: 8/23/2022 2:14 PM CAD USER: JEFFREY ZHANG