# CONTRACT DOCUMENTS FOR THE CONSTRUCTION OF

# BRADEN WOODS LIFT STATION REHABILITATION AND NEW FORCE MAIN



PREPARED FOR

MANATEE COUNTY UTILITIES MANATEE COUNTY, FL

VOLUME 2 OF 2 DRAWINGS

NIEL POSTLETHWAIT, P.E.
ONE TAMPA CITY CENTER
201 N. FRANKLIN STREET
SUITE 1400
TAMPA, FL 33602



Project No. D3339100

MAY 2021

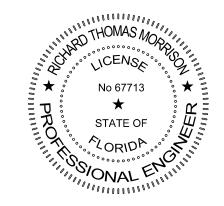
# SIGNATURE FLY SHEET



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#### TAO FU - PROCESS MECHANICAL

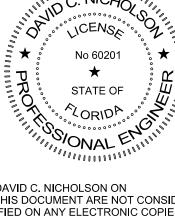
2	G-001	INDEX OF DRAWINGS
5	G-007	PROCESS MECHANICAL LEGEND
25	D-201	LIFT STATION UPPER AND LOWER PLA
26	D-301	LIFT STATION SECTION
27	D-501	LIFT STATION DETAILS
28	D-502	LIFT STATION DETAILS
29	D-503	LIFT STATION DETAILS



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#### RICHARD MORRISON - CIVIL

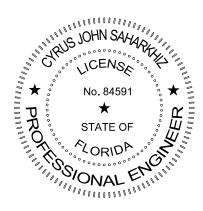
3	G-003	CIVIL GENERAL NOTES AND LEGENDS
11	C-001	OVERALL PROJECT PLAN
12	C-101	LIFT STATION DEMOLITION AND EROSION CONTROL PLAN
13	C-102	LIFT STATION CONCEPTUAL EXCAVATION PLAN
14	C-201	FORCE MAIN PLAN AND PROFILE
15	C-202	FORCE MAIN PLAN AND PROFILE
16	C-203	FORCE MAIN PLAN AND PROFILE
17	C-204	LIFT STATION SITE PLAN
18	C-501	MANATEE COUNTY STANDARD DETAILS
19	C-502	MANATEE COUNTY STANDARD DETAILS
20	C-503	MANATEE COUNTY STANDARD DETAILS
21	C-504	STANDARD DETAILS



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# DAVID NICHOLSON - ELECTRICAL

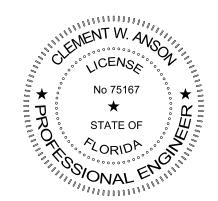
G-009	ELECTRICAL LEGEND SHEET 1 OF 3
G-010	ELECTRICAL LEGEND SHEET 2 OF 3
G-011	ELECTRICAL LEGEND SHEET 3 OF 3
E-201	LIFT STATION SITE PLAN
E-202	MOTOR CONTROL AND RISER DIAGRAM
E-501	SINGLE-LINE DIAGRAM DEMOLITION AND MODIFICATIONS
E-502	STANDARD DETAILS
E-503	STANDARD DETAILS
E-504	STANDARD DETAILS
E-505	STANDARD DETAILS
	G-010 G-011 E-201 E-202 E-501 E-502 E-503 E-504



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# CYRUS SAHARKHIZ - I & C

9	G-012	INSTRUMENTATIONA ND CONTROL LEGEND SHEET
10	G-013	INSTRUMENTATIONA ND CONTROL LEGEND SHEET
22	N-601	P&ID PUMP STATION
23	N-501	STANDARD DETAILS



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# **CLEMENT ANSON - STRUCTURAL**

4 G-005 STRUCTURAL NOTES SHEET 24 S-501 STANDARD DETAILS

# INDEX OF DRAWINGS

#### 01 - GENERAL

INDEX OF DRAWINGS CIVIL GENERAL NOTES AND LEGENDS STRUCTURAL NOTES AND LEGENDS
STRUCTURAL NOTES SHEET
PROCESS MECHANICAL LEGEND
ELECTRICAL LEGEND SHEET 1 OF 3
ELECTRICAL LEGEND SHEET 2 OF 3
ELECTRICAL LEGEND SHEET 3 OF 3
INSTRUMENTATIONA ND CONTROL LEGEND SHEET 1
INSTRUMENTATIONA ND CONTROL LEGEND SHEET 2 G-005 G-007

#### CIVIL

OVERALL PROJECT PLAN
LIFT STATION DEMOLITION AND EROSION CONTROL PLAN
LIFT STATION CONCEPTUAL EXCAVATION PLAN
FORCE MAIN PLAN AND PROFILE
FORCE MAIN PLAN AND PROFILE
FORCE MAIN PLAN AND PROFILE
LIFT STATION SITE PLAN
MANATEE COUNTY STANDARD DETAILS
MANATEE COUNTY STANDARD DETAILS
MANATEE COUNTY STANDARD DETAILS
STANDARD DETAILS C-101 C-201 C-202 C-203 C-501 C-502 C-503 C-504

# INSTRUMENTATION AND CONTROL

P&ID PUMP STATION STANDARD DETAILS N-501

#### STRUCTURAL

24 S-501 STANDARD DETAILS

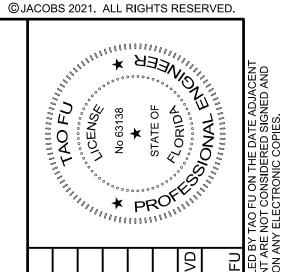
# PROCESS MECHANICAL

LIFT STATION UPPER AND LOWER PLAN
LIFT STATION SECTION
LIFT STATION DETAILS
LIFT STATION DETAILS D-501 D-502 D-503 LIFT STATION DETAILS 29

STANDARD DETAILS

#### ELECTRICAL

E-201 LIFT STATION SITE PLAN MOTOR CONTROL AND RISER DIAGRAM E-202 E-501 SINGLE-LINE DIAGRAM DEMOLITION AND MODIFICATIONS 32 E-502 E-503 E-504 E-505 33 STANDARD DETAILS STANDARD DETAILS 35 36 STANDARD DETAILS



643 SW 4TH AVE, SUITE 400									
GAINES VILLE, PLONIDA 3200 I EB2822									
TAO FU PE 63138									
BRADEN WOODS LIFT STATION									
REHAB									
MANATEE COUNTY	Ö	DATE		N	REVISION			BY APVE	APV
BRADENTON, FLORIDA 34205	DSGN			DR	CHK		APVD		
			T FU	TLOOSE		T INNISS			TFU
AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF OT TO BE USED. IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.	IN INSTRU	MENT OF PRO HOUT THE WI	DFESSION RITTEN A	OF PROFESSIONAL SERVICE, IS THE PROPER THE WRITTEN AUTHORIZATION OF CH2M HILL	TY OF	THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT A	DIGITALLY SIGNED COPIES OF T	LED AND S	SEALED IMENT /

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	1" = X'	
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TE	MAY 2021	
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PROJECT LOCATION MAP

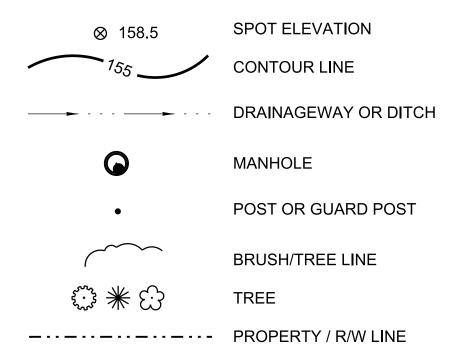
PROJECT

- EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
- HORIZONTAL DATUM: FLORIDA STATE PLAN COORDINATE SYSTEM (WEST ZONE NAD 1983 / 2011 ADJUSTMENT).
- VERTICAL DATUM: THE FOLLOWING NGS VERTICAL CONTROL MONUMENT WAS RECOVERED AND UTILIZED FOR THE ELEVATIONS INDICATED HEREIN: "HORSESHOE BEACH" NAVD 1988
- MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
- COORDINATES AND DIMENSIONS SHOWN FOR ROADWAY IMPROVEMENTS ARE TO FACE OF CURB OR EDGE OF PAVEMENT.
- IF NECESSARY, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A STAGING AREA FOR EMPLOYEE PARKING, CONTRACTOR'S TRAILERS AND ON-SITE STORAGE OF MATERIALS.
- PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY AT ALL TIMES.
- 9. ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
- 10. SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
- 11. UNLESS SHOWN OTHERWISE, ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE SHALL BE COVERED WITH GRASS.
- 12. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION. EROSION CONTROL DEVICES SHOWN ARE THE MINIMUM REQUIRED.
- 13. CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE.
- 14. CONTRACTOR SHALL OBTAIN THE CAD FILE FROM THE ENGINEER FOR CONSTRUCTION LAYOUT.
- 15. THE COUNTY PROJECT MANAGER IS ALEJANDRO GONZALEZ, 708-7450 EXT. 7338.
- 16. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING MAINTENANCE OF TRAFFIC DEVICES DURING CONSTRUCTION, AS NEEDED. CONTRACTOR SHALL SUBMIT A FULL MAINTENACE OF TRAFFIC PLAN FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO BEGINNING THE MOT WORK, THE MOT PLAN SHALL CLEARLY SHOW THE AREAS TO BE CLOSED, APPROXIMATE DURATIONS, AND DETOURS NEEDED.

#### **GENERAL YARD PIPING AND UTILITIES NOTES:**

- EXISTING UNDERGROUND UTILITIES OBTAINED FROM COUNTY GIS, AS-BUILTS AND FROM FIELD SURVEY. CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION PRIOR TO EXCAVATION. PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
- EXISTING PIPING AND EQUIPMENT ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW PIPING AND EQUIPMENT ARE SHOWN HEAVY-LINED.
- UNLESS OTHERWISE SHOWN ALL PIPING SHALL HAVE A MINIMUM OF 36" COVER.
- 4. ALL PIPES SHALL HAVE A CONSTANT SLOPE BETWEEN INVERT ELEVATIONS UNLESS A FITTING IS SHOWN.
- FOR TRENCHING AND BACKFILL, SEE MANATEE COUNTY STANDARD DETAILS UG-11 AND UG-12.
- FOR SURFACE RESTORATION OF ASPHALT CONCRETE, SEE MANATEE COUNTY STANDARD DETAIL UG-12, AND FOR GRASS, SEE SPECIFICATION 32 92 00.
- MINIMUM ALLOWABLE CLEARANCE BETWEEN PIPES AT CROSSINGS SHALL BE AS SHOWN ON THE DRAWINGS. CONTROLLED LOW-STRENGTH FILL MATERIAL SUPPORT IS REQUIRED AS SHOWN ON (3123-120)

#### CIVIL LEGEND



CENTER LINE, BUILDING, ROAD, ETC. ---- STAGING OR WORK AREA LIMITS EXISTING WATER LINE

— SD — SD — **EXISTING STORM SEWER** EXISTING SEWER LINE **EXISTING OVERHEAD ELECTRIC** — E-OVH —

N 1000.00 STRUCTURE, BUILDING OR FACILITY **LOCATION POINT - COORDINATES** E 1000.00

>>>>>> OR

**DEMOLITION** 

CHAIN LINK FENCE

STRUCTURE, BUILDING OR FACILITY

SINGLE SWING GATE

DOUBLE SWING GATE

**GRAVEL SURFACING** 

CONCRETE

ASPHALT PAVEMENT

# SURVEYEGEND

SITE CONTROL POINT

O IRON PIPE FOUND IRON ROD FOUND

■ CONCRETE MONUMENT FOUND

GRATE INLET MITERED END SECTION

D STORM MANHOLE

☐ MAILBOX O GAS MARKER ○ BOLLARD

Φ CLEANOUT \_O\_ SIGN

Ø WOOD UTILITY POLE CONCRETE UTILITY POLE

□ WATER METER

₩ WATER VALVE (S) SANITARY MANHOLE

FIRE HYDRANT

-O- BACKFLOW PREVENTER

COMMUNICATION MARKER

□ UTILITY RISER

UTILITY HANDHOLE - TRAFFIC SIGNAL POLE

ANTENNA

R/W RIGHT-OF WAY ND NAIL W/ DISC

IR IRON ROD W/ CAP

PID PARCEL IDENTIFICATION ORB OFFICIAL RECORDS BOOK

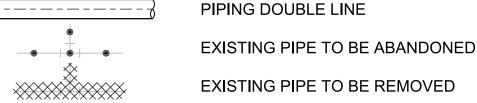
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# YARD PIPING LEGEND

**EXISTING** 

THIS CONTRACT NOMINAL PIPE DIAMETER PIPE MATERIAL ~ 6" PVC PIPING SINGLE LINE \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_



PIPING DOUBLE LINE

EXISTING PIPE TO BE REMOVED

# **EROSION CONTROL LEGEND**

COVER PRACTICES <u>SYMBOL</u> SILT FENCE COIR LOG BARRIER (BIOFILTER)  VEER \* W

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	A MALONE		C CHILDRESS	SISON	R MORRISON			
APVD		CHK	DR			DSGN	BRADENTON, FLORIDA 34205	
	NO	REVISION	RE		DATE	NO.	MANATEE COUNTY	
							REHAB	
							BRADEN WOODS LIFT STATION	
							RICHARD THOMAS MORRISON PE 67713	
							GAINES VILLE, PLONIDA 3200 I EB2822	
							643 SW 4TH AVE, SUITE 400	

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. MAY 202 D3339100 G-003

\$PWURL

3 of 36

REFER TO THE DRAWINGS FOR ADDITIONAL AND SPECIFIC STRUCTURE LOADINGS AND REQUIREMENTS.

ALL LOADS SHOWN ARE SERVICE LEVEL (UNFACTORED) UNLESS OTHERWISE NOTED.

DEAD LOADS: = SELF WEIGHT

FLOOR LIVE LOADS:

UNLESS OTHERWISE NOTED = 100 PSF LIFT STATION TOP SLAB = 300 PSF ELECTRICAL BLDG FLOOR SLAB = 300 PSF

DEFLECTION CRITERIA FOR CONTRACTOR DESIGNED FLOOR FRAMING MEMBERS UNLESS OTHERWISE

TOTAL LOAD = L/180LIVE LOAD = L/240

WHERE L IS THE MEMBER SPAN LENGTH

SNOW LOAD: GROUND SNOW LOAD, Pg = 0 PSF

WIND LOADS:

\$PWURL

= DIRECTIONAL PROCEDURE ASCE 7 METHOD

BASIC WIND SPEED, Vult = 155 MPH NOMINAL WIND SPEED, Vasd = 120 MPH **RISK CATEGORY** = ||| **EXPOSURE CATEGORY** 

SPECIAL LOADS: SEE PLANS FOR STRUCTURE SPECIFIC LOADS

HYDRAULIC LOADS: SEE PLANS FOR STRUCTURE SPECIFIC LOADS

#### **GENERAL INFORMATION**

FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATIONS AND ACRONYMS: PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.

VERIFY FINAL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION OF THESE ELEMENTS.

FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS, SEE OTHER DISCIPLINE DRAWINGS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS. COORDINATE PIPING OPENINGS WITH OTHER DISCIPLINE DRAWINGS.

DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR PIPES, DUCTS, ETC, UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.

VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT ENGINEER IS GUARANTOR OF CONSTRUCTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, OR SAFETY AT THE JOB SITE.

#### INICDECTION AND TECTIMO INSPECTION AND TESTING

CONTRACTOR SHALL SCHEDULE INSPECTIONS AND TESTING.

SPECIFIED CONCRETE AND OTHER MATERIAL TESTING RELATED TO INSPECTION DURING CONSTRUCTION WILL BE

SPECIFIED LABORATORY TEST MIXES AND SIMILAR TEST RESULTS TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO SPECIFICATIONS, AND SUBMITTED FOR REVIEW PRIOR TO ACCEPTANCE FOR USE ON THE PROJECT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

INSPECTION AND TESTING (OWNER FURNISHED) WILL BE PERFORMED IN ACCORDANCE WITH FBC SECTION 110.

#### **FOUNDATIONS**

XXXXX, DATED XX/XX/2020.

SOIL DESIGN PARAMETERS: ALLOWABLE SOIL BEARING PRESSURES ALL STRUCTURES UNLESS OTHERWISE NOTED = XXX PSF **GROUND WATER (GW) ELEVATION:** = 14.00 100 YEAR FLOOD ELEVATION EQUIVALENT DRAINED FLUID PRESSURES (ABOVE GW): AT REST = XX PCF EQUIVALENT UNDRAINED FLUID PRESSURES (BELOW GW): AT REST = XX PCF VERTICAL SURCHARGE EQUIVALENT TO 2 FT OF SOIL WEIGHT = XX PSF **EARTH PRESSURE COEFFICIENTS:** = XX AT REST, Ko COEFFICIENT OF FRICTION = XX MODULUS OF SUBGRADE REACTION = XX PCI NATIVE SOIL UNIT WEIGHT = XX PCF SATURATED = XX PCF

MINIUM FACTOR OF SAFETY FOR UPLIFT RESISTANCE (SOIL FRICTION AND WEDGE FAILURE NOT CONSIDERED):

100 YEAR FLOOD ELEVATION = 1.25 OVERFLOW CONDITION = 1.10

EXCAVATIONS SHALL BE SHORED TO PREVENT SUBSIDENCE AND DAMAGE TO ADJACENT EXISTING STRUCTURES, ROADS, UTILITIES, ETC.

FOUNDATION SLABS AND SLABS-ON-GRADE SPECIFICALLY NOTED TO BE ON FILL SHALL BEAR ON XX INCHES OF COMPACTED GRANULAR FILL UNLESS OTHERWISE NOTED.

FOUNDATION BEARING SURFACES SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER OR QUALIFIED DESIGNEE PRIOR TO PLACEMENT OF FORMWORK OR REINFORCING STEEL. THE OBSERVATION SHALL VERIFY IF THE ACTUAL EXPOSED SUBGRADE IS AS ANTICIPATED BY THE SITE SPECIFIC BORINGS AND DATA REPORTS AND MEETS THE ALLOWABLE SOIL BEARING PRESSURES NOTED ON THE DRAWINGS.

NO BACKFILL SHALL BE PLACED BEHIND WALLS UNTIL THE WALL'S CONCRETE HAS ATTAINED 100 PERCENT AND TOP SUPPORTING SLAB'S CONCRETE HAS ATTAINED 80 PERCENT OF THEIR SPECIFIED 28 DAY COMPRESSIVE STRENGTH, OR UNTIL TOP-OF-WALL FRAMING SYSTEMS, INCLUDING STEEL OR WOOD DIAPHRAGMS, HAVE BEEN COMPLETED.

#### FORMWORK, SHORING, AND BRACING

STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. DESIGN SHOWN DOES NOT INCLUDE NECESSARY COMPONENTS OR EQUIPMENT FOR STABILITY OF THE STRUCTURES DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.

#### CONCRETE REINFORCING

REINFORCING STEEL

OTHER CONCRETE SURFACES

= ASTM A615, GRADE 60

= 2" UNLESS OTHERWISE NOTED

FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE"AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"

CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE: WHEN PLACED ON GROUND

4. 90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS.

REINFORCING STEEL FOR FOUNDATION SLABS AND SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON BAR SUPPORTS WITH SPACERS TO KEEP REINFORCING ABOVE THE PREPARED GRADE. LIFTING REINFORCING OFF GRADE DURING CONCRETE PLACEMENT IS NOT PERMITTED.

REFER TO OPENING REINFORCING DETAILS 0330-001.

REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM

CONCRETE DE	SIGN STRENGTH	= 4,000 F	PSI MIN .	AT 28 D	AYS	GRAD	E 60 RE	INFORC	ING STE	EL
BAR SIZE		#3	#4	#5	#6	#7	#8	#9	#10	#11
LAP SPLICE LEI	NGTH									
SPACING < 6"	TOP BAR	1'-4"	1'-8"	2'-1"	3'-0"	5'-2"	6'-8"	8'-6"	10'-10"	13'-4"
	OTHER BAR	1'-4"	1'-4"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"
SPACING ≥ 6"	TOP BAR	1'-4"	1'-8"	2'-0"	2'-5"	3'-6"	4'-0"	5'-0"	6'-2"	7'-5"
	OTHER BAR	1'-4"	1'-4"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"
EMBEDMENT LENGTH										
SPACING < 6"	TOP BAR	1'-0"	1'-3"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-10"	3'-1"	4'-0"	5'-1"	6'-5"	7'-11"
SPACING ≥ 6"	TOP BAR	1'-0"	1'-3"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-5"	2'-1"	2'-5"	3'-0"	3'-8"	4'-5"

LAP LENGTHS ARE BASED ON MINIMUM CONCRETE COVER OF 2 INCHES. LONGER LENGTHS ARE REQUIRED

FOR CONCRETE COVER LESS THAN 2 INCHES. TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

#### CAST IN PLACE CONCRETE

28-DAY COMPRESSIVE STRENGTH

DESIGN STRENGTH SAME AS 28-DAY COMPRESSIVE STRENGTH

ROUGHEN AND CLEAN CONSTRUCTION JOINTS AS SPECIFIED PRIOR TO PLACING ADJACENT CONCRETE.

= 4000 PSI

COORDINATE PLACEMENT OF OPENINGS, PIPE PENETRATIONS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS AND INSERTS PRIOR TO PLACEMENT OF CONCRETE.

NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.

PATCH FORM TIE HOLES IN ACCORDANCE WITH DETAILS 0310-051

#### WELDING

WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS): D1.1, STRUCTURAL WELDING CODE STEEL

D1.2, STRUCTURAL WELDING CODE ALUMINUM D1.3, STRUCTURAL WELDING CODE SHEET STEEL

D1.6, STRUCTURAL WELDING CODE STAINLESS STEEL

REPAIR WELDS FOUND DEFFECTIVE IN ACCORDANCE WITH AWS D1.1 SECTIN 5.26.

USE INTERMITTENT WELDS AT FIELD WELDS OF EMBED PLATES AND ANGLES TO AVOID SPALLING OR CRACKING OF THE EXISTING CONCRETE.

BUTT JOINT WELDS SHALL BE COMPLETE JOINT PENETRATION (CJP) UNLESS INDICATED OTHERWISE

#### STRUCTURAL STEEL AND METAL FABRICATIONS

A276

STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS W-SHAPES

MISCELLANEOUS SHAPES INCLUDING

ANGLES, CHANNELS, PLATES, ETC.

HOLLOW STRUCTURAL SECTIONS (HSS) A500, GRADE B STEEL PIPE A53, GRADE B

STAINLESS STEEL SHAPES

ALUMINUM SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

STRUCTURAL SHAPES

PLATES B209

STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN CONFORMANCE WITH THE AISC MANUAL OF STEEL

CONSTRUCTION, CURRENT EDITION, AND CURRENT OSHA STANDARDS.

FASTENERS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO THE FOLLOWING ASTM STANDARDS EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE:

A325-N

UNLESS SHOWN OTHERWISE

SLIP CRITICAL A325-SC DIRECT TENSION INDICATORS OR

ASTM F959 LOAD INDICATOR WASHERS

ASTM A325 AND ASTM F1852 TENSION CONTROL (TC) BOLTS

**ANCHOR BOLTS (AB)** F593, AISI TYPE 316, CONDITION CW STAINLESS STEEL

STEEL OR GALVANIZED STEEL F1554, GR 36 / A153

MACHINE BOLTS (MB)

STAINLESS STEEL F593, AISI TYPE 316, CONDITION CW

**GALVANIZED STEEL** 

F468, ALLOY 2024-T4

ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE CLEAN AND FREE OF OIL, DIRT AND PAINT

NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL IS PERMITTED WITHOUT THE APPROVAL OF THE

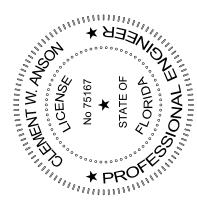
# DEFERRED SUBMITTALS

DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY FOR ACCEPTANCE PRIOR TO INSTALLATION OF THAT PORTION OF THE WORK OR ARE REQUIRED TO BE SUBMITTED FOR REVIEW ONLY BY THE ENGINEER.

WHERE DEFERRED SUBMITTALS INCLUDE ADDITIONAL MATERIALS, INSTALLATION, ANCHORAGE, OR CERTIFICATION OF COMPONENTS THAT REQUIRE SPECIAL INSPECTION AND/OR STRUCTURAL OBSERVATION TO MEET CODE REQUIREMENTS, THE DEFERRED SUBMITTAL SHALL INCLUDE SPECIFIC LINE ITEMS TO BE ADDED TO THE APPROPRIATE TABLES IN THE PROJECT'S STATEMENT OF SPECIAL INSPECTIONS PLAN IF THEY ARE NOT ALREADY IDENTIFIED.

THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS PER FBC SECTION 107.3.4.1 THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET BUILDING PERMITTING REQUIREMENTS FOR DESIGNED SYSTEMS. PRIOR TO INSTALLATION OF THE INDICATED STRUCTURAL ELEMENT, EQUIPMENT, DISTRIBUTION SYSTEM, OR COMPONENT OR ITS ANCHORAGE, THE CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS AND SUPPORTING DATA AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY THE ENGINEER. ADDITIONALLY, ACCEPTANCE INDICATED ON THE ENGINEER'S COMMENT FORM, ALONG WITH THE COMPLETED, FINAL SUBMITTAL SHALL THEN BE SUBMITTED BY THE CONTRACTOR TO THE PERMITTING AGENCY AND APPROVED PRIOR TO INSTALLATION OF THESE ITEMS.

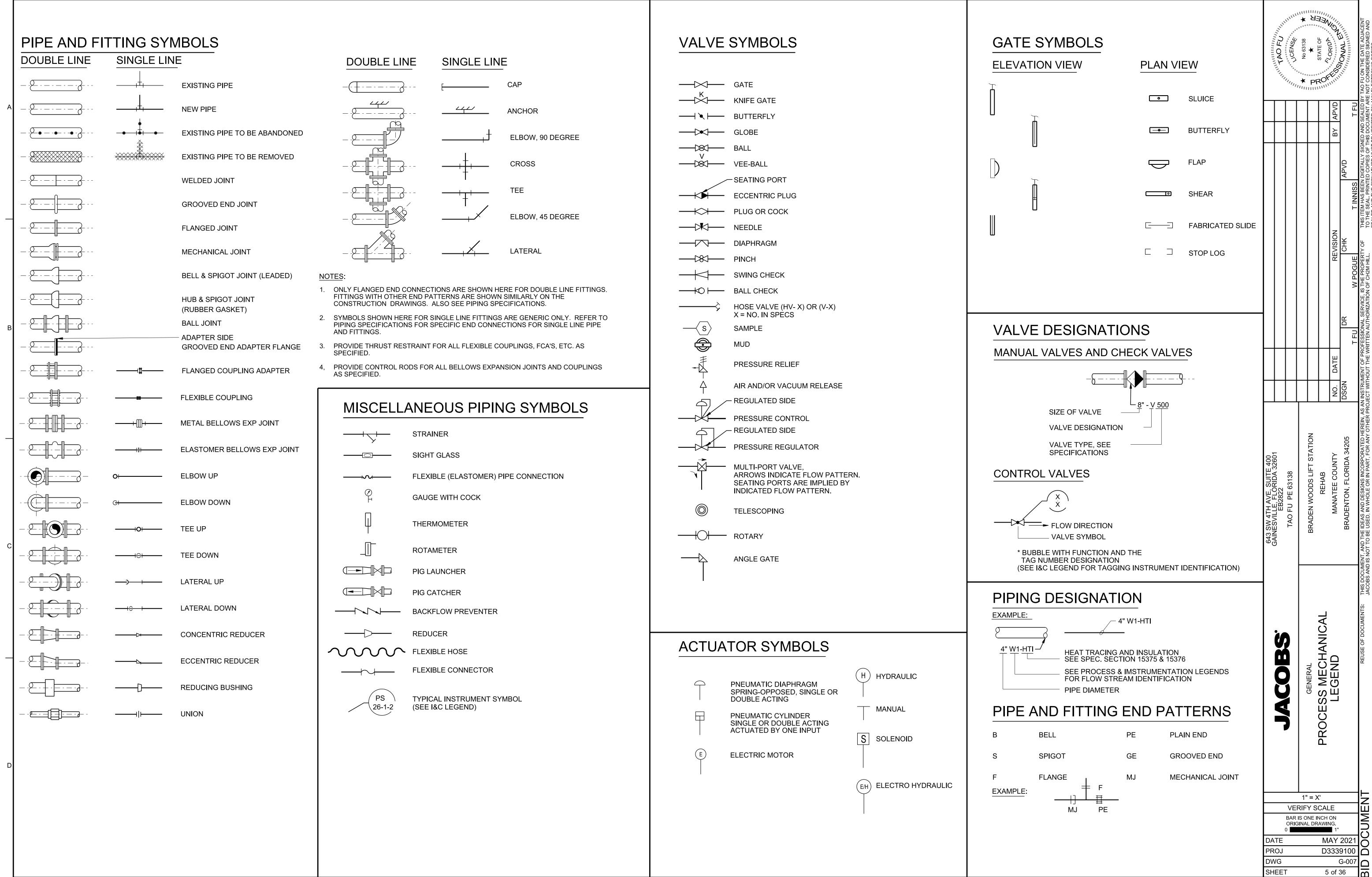
SPECIFICATION SECTION	CODE REQUIRED DEFERRED SUBMITTALS FOR REVIEW BY PERMITTING AGENCY
01 88 15	ANCHORAGE AND BRACING
33 05 13	MANHOLES
40 05 15	PIPING SUPPORT SYSTEMS
	ANY EQUIPMENT OR COMPONENT IN WHICH A TECHNICAL
OTHER	SPECIFICATION REQUIRES SUBMITTAL OF EQUIPMENT OR
	ANCHORAGE SYSTEM CALCULATIONS



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THIS ITEM HAS BEEN DIGITALLY S	L SERVICE, IS THE PROPERTY OF	STRUMENT OF PROFESSIONA	THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF	USE OF DOCUMENTS: THIS DOC
D EVERSON	P KARABAN	C ANSON		
APVD	DR CHK	DSGN DSGN	BRADENTON, FLORIDA 34205 DS	
	REVISION	NO. DATE	MANATEE COUNTY N	
			REHAB	NOTES
			BRADEN WOODS LIFT STATION	
			CLEMENT W. ANSON PE 75167	
			GAINESVILLE, FLORIDA 32001 EB2822	V
			643 SW 4TH AVE, SUITE 400	

PROJ



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MBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	ONE-LINE DIAGRAM-1		ONE-LINE DIAGRAM-2	3155	CONTROL DIAGRAM-1		CONTROL DIAGRAM-2	
	DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE	«———»	DRAWOUT POWER CIRCUIT BREAKER, MEDIUM VOLTAGE		PUSH-BUTTON SWITCH, MOMENTARY CONTACT,	—-(—-	CAPACITOR	INTERPLET OF THE OF THE OF
	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN,		NON DRAWOUT FUSED SWITCH, MEDIUM VOLTAGE	<u> </u>	NORMALLY OPEN PUSH-BUTTON SWITCH, MOMENTARY CONTACT,	_+  <sub> </sub> -	BATTERY	No STATE STATE
400	3 POLE, UNO CIRCUIT BREAKER, STATIC TRIP UNIT, SENSOR AMP		DRAWOUT FUSED SWITCH AND CONTACTOR, MEDIUM		NORMALLY CLOSED PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH	0	LIMIT SWITCH, NORMALLY OPEN, CLOSES AT END	PROFILING
AS or AT AF	TRIP AND FRAME RATINGS SHOWN, 3 POLE, UNO	— — — — — — — — — — — — — — — — — — —	DRAWOUT FUSED SWITCH AND VACUUM CONTACTOR,		MECHANICAL INTERLOCK	0_0	OF TRAVEL  LIMIT SWITCH, NORMALLY CLOSED, OPENS AT END	
100/M	CIRCUIT BREAKER, MAGNETIC TRIP ONLY, TRIP RATING SHOWN, 3 POLE, UNO	( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (	DRAWOUT VACUUM CONTACTOR, MEDIUM VOLTAGE		3 POSITION SELECTOR SWITCH MAINTAINED CONTACT	0-7-0	OF TRAVEL  TEMPERATURE SWITCH, OPENS ON TEMPERATURE RISE	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
400	CIDCUIT DDEAKED WITH CUDDENT LIMITING FUSES		MEDIUM VOLTAGE CABLE STRESS CONE TYPE	o	31 GOLLON GELEGICIT GWITOIT WAINTAINED GONTAGT	ک	TEMPERATURE SWITCH, CLOSES ON TEMPERATURE RISE	
400 400	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE, UNO	Ť	TERMINATION, OPEN TERMINATOR OR ELBOW	HAND OFF REMOTE	SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION WHEN NEEDED FOR CLARITY:	6 7-7-0	FLOAT SWITCH, NORMALLY OPEN, CLOSES ON	
400 225	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE, UNO		SWITCH - LOAD BREAK, GROUP OPERATED, MEDIUM VOLTAGE	***	POSITION	4	DESCENDING LEVEL	
100	SWITCH, CURRENT RATING INDICATED, 3 POLE, UNO		DISCONNECTING FUSE - SOLID MATERIAL,		CKTHANDOFFREMOTEX - CLOSED CONTACT1XOO2OOX      CKTHANDOFFREMOTEX - CLOSED CONTACTO - OPEN CONTACTO - OPEN CONTACT	~~	FLOAT SWITCH, NORMALLY OPEN, CLOSES ON RISING LEVEL	
60 (3)	FUSE, CURRENT RATING AND QUANTITY INDICATED		MEDIUM VOLTAGE			0		
1			TERMINAL BLOCK LUG	ON OFF	TOGGLE SWITCH, ON-OFF TYPE	oTo	PRESSURE SWITCH, NORMALLY CLOSED, OPENS ON RISING PRESSURE	
-1	MAGNETIC STARTER WITH OVERLOAD, NEMA SIZE INDICATED, FVNR UNO	Δ	DELTA CONNECTION	- ON OIT	SELECTOR SWITCH, ON-OFF TYPE		PRESSURE SWITCH, NORMALLY OPEN, CLOSES ON RISING PRESSURE	
AFD	ELECTRONIC STARTER/SPEED CONTROL RVSS = REDUCED VOLTAGE SOFT STARTER	<b>Y</b> 4	WYE GROUNDED CONNECTION, SOLID GROUND		,		FLOW SWITCH, CLOSES ON INCREASED FLOW	
	AFD = AC ADJUSTABLE FREQUENCY DRIVE DC = DC ADJUSTABLE SPEED DRIVE	R or Z	WYE NEUTRAL GROUND RESISTOR OR IMPEDANCE CONNECTION	0 0 ×		<u></u>	FLOW SWITCH, OPENS ON INCREASED FLOW	
	RVAT = REDUCED VOLTAGE AUTO TRANSFORMER TYPE RVRT = REDUCED VOLTAGE REACTOR TYPE	<u> </u>		\\`'	MUSHROOM HEAD PUSHBUTTON SWITCH	NGR	NEUTRAL GROUND CURRENT LIMITING RESISTOR	
<b></b>	CABLE OR BUS CONNECTION POINT	86	RELAY OR DEVICE, FUNCTION NUMBER AS INDICATED	-0, (A), (O	INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR	RES	CALIBRATING RESISTOR	
К	KEY INTERLOCK	<del> </del>	CURRENT TRANSFORMER, ZERO SEQUENCE, RATIO	(A)	INDICATING LIGHT - LETTER INDICATES COLOR	GEN	TACHOMETER GENERATOR	
<b>─</b>	SURGE ARRESTER (GAP TYPE)	50:5	AND QUANTITY INDICATED		A - AMBER G - GREEN S - STROBE B - BLUE R - RED C - CLEAR W - WHITE	GFS	GROUND FAULT SENSOR	
<b>——— (</b> 10	CAPACITOR - KVAR INDICATED, 3 PHASE	800/1200:5	BUSHING CURRENT TRANSFORMER, MULTI-RATIO AND QUANTITY INDICATED	ETM	ELAPSED TIME METER	$\hookrightarrow$		
		(3)		O(M)O	MOTOR STARTER CONTACTOR COIL	$\stackrel{\bullet}{\longleftrightarrow}$	FLASHER	Z Z
$\left(\begin{array}{c}3\end{array}\right)$	AC MOTOR, SQUIRREL CAGE INDUCTION - HORSEPOWER INDICATED	МО	MOTOR OPERATOR, BREAKER OR SWITCH	O(CRX)O	CONTROL RELAY, X INDICATES NUMERICAL ORDER		SEALED CONTACT	400 2601 60201 T STATIC
G	GENERATOR, KW/KVA RATING SHOWN	EUM	ENERGY MONITORING UNIT	O(DR)O	IN CIRCUIT TIME DELAY RELAY, X INDICATES NUMERICAL ORDER		BUZZER	UITE 4 IDA 32 I PE 6 S LIFT
500/625		MRP	MOTOR PROTECTION RELAY	SV	IN CIRCUIT  SOLENOID VALVE, X INDICATES NUMERICAL ORDER	<b>-</b> \\\\\-	POTENTIOMETER	AVE, S. PLOR 2822 OLSON MOOD.
VS VS	ANALOG METER WITH SWITCH - SCALE RANGE SHOWN				IN CIRCUIT  CONTACT - NORMALLY OPEN		RESISTOR	SW 4TH, IESVILLE EB C. NICH
0-600V	V = VOLTAGE KW = KILOWATTS A = AMPERAGE KVAR = KILOVARS				CONTACT - NORMALLY CLOSED	— <b>VVVV</b> —	KESISTOR	643 SV GAINES JAVID C
DPM -	PF = POWER FACTOR			11			BLOWN FUSE INDICATOR	
	DIGITAL POWER METER (MULTIFUNCTION)			-0	REMOTE DEVICE	<del></del>		
0	UTILITY REVENUE METER				TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSES WHEN ENERGIZED AND TIMED OUT	<u> </u>	COAXIAL CABLE	
$\perp$	GROUND			To	TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPENS WHEN ENERGIZED AND TIMED OUT		MULTICONDUCTOR SHIELDED CABLE	
= 15 KVA					TIME DELAY RELAY CONTACT, CLOSES WHEN ENERGIZED, OPENS WHEN DE-ENERGIZED AND TIMED OUT	<u>÷</u> [₩]		GEN GEN
480-120/2 1 PH	40V TRANSFORMER, SIZE, VOLTAGE RATINGS, AND PHASE INDICATED			<b>→</b>	TIME DELAY RELAY CONTACT, OPENS WHEN ENERGIZED, CLOSES WHEN DE-ENERGIZED AND TIMED OUT	Ψ	DUPLEX RECEPTACLE	
	AND PHASE INDICATED			വ്യീം	MOTOR SPACE HEATER	<u></u>		CAL CAL
$\frac{\omega}{m}$	SHIELDED ISOLATION TRANSFORMER				TERMINAL BLOCK, REMOTE		RELAY, WITH MECHANICAL LATCH	
480-120V	POTENTIAL TRANSFORMER, VOLTAGE RATING			0	TERMINAL BLOCK, INTERNAL	<del>-</del>	FULLWAVE DIODE BRIDGE (AC TO DC)	
)( <sub>(3)</sub>	AND QUANTITY INDICATED				FUSED TERMINAL BLOCK			
100:5	CURRENT TRANSFORMER, RATIO(100:5) AND QUANTITY INDICATED (3)	NOTES:			FUSE, RATING INDICATED			
	CONNECTION POINT TO EQUIPMENT SPECIFIED IN OTHER	1. THESE ARE STANDAR	RD LEGEND SHEETS. SOME SYMBOLS AND ABBREVIATIONS E LEGEND AND NOT ON THE DRAWINGS.	CPT _	, , , , , , , , , , , , , , , , , , , ,			
	DIVISIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS DIVISION	2. FOR ADDITIONAL ABE	BREVIATIONS OF OTHER DIVISIONS (HVAC, MECHANICAL, AND		TRANSFORMER, CONTROL POWER			NTS VERIFY SCALE
SPD		STRUCTURAL/ARCHI	TECTURAL) SEE OTHER LEGENDS.	1 120V I	TUEDMOCOUDLE			BAR IS ONE INCH O ORIGINAL DRAWING
590	SURGE PROTECTIVE DEVICE				THERMOCOUPLE			DATE MA

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ALL RIGHTS RESERVE
	POWER SYSTEM PLAN-1		POWER SYSTEM PLAN-2	FIRI	E ALARM SYSTEM PLAN AND RISER	10	NE LINE PROTECTION RELAYING AND		WILLIAM TO THE WAR THE
	CONNECTION POINT TO EQUIPMENT SPECIFIED. RACEWAY, CONDUCTOR, TERMINATION AND CONNECTION	100/40	BREAKER, SEPARATELY MOUNTED, CURRENT RATING INDICATED	F <sub>P</sub>	FIRE ALARM STATION, MANUAL	52	ELEMENTARY DIAGRAMS-1		o 60201 ★ ATE OF VAIL TOP
MCC-A	IN THIS DIVISION.		(100/40, 100 = FRAME SIZE; 40 = TRIP RATING) 3 POLE	0	FIRE ALARM SYSTEM, AUTOMATIC SMOKE DETECTOR	51 or $-52$	DEVICE FUNCTION NUMBER INDICATED, SEE DEVICE TABLE		TS V V
	MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN.	C <sup>2</sup>	CONTACTOR, MAGNETIC, NEMA SIZE INDICATED	HD	FIRE ALARM SYSTEM, AUTOMATIC, HEAT DETECTOR	(CS)	CONTROL SWITCH TRIP		* PROFILING
	PANELBOARD - SURFACE MOUNTED	L 30	LIGHTING CONTACTOR, CURRENT RATING INDICATED	FD	FIRE ALARM BELL	(CS)	CONTROL SWITCH CLOSE		APVD
LPXXA	PANELBOARD LETTER OR NUMBER	<b>x</b> <sup>2</sup>	STARTER, MAGNETIC NEMA SIZE INDICATED	F⊲	FIRE ALARM HORN	43/CS	43-DEVICE FUNCTION NUMBER, SEE DEVICE TABLE		BY
	<ul> <li>FACILITY NUMBER</li> <li>LP - LOW VOLTAGE PANEL</li> <li>DP - DISTRIBUTION PANEL</li> </ul>	XX <del>⊜</del>	CONVENIENCE RECEPTACLE - DUPLEX UNLESS NOTED OTHERWISE		FIRE ALARM HORN/STROBE LIGHT	□vs	VOLTMETER SWITCH		
		2	WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK CRE - CORROSION RESISTANT	. ×	FIRE ALARM STROBE LIGHT	□AS	AMMETER SWITCH		APVE
	PANELBOARD - FLUSH MOUNTED		GFCI- GROUND FAULT CIRCUIT INTERRUPTER SUBSCRIPT NUMBER AT RECEPTACLE INDICATES CIRCUIT	==	AIR DUCT DETECTOR	A	INDICATING LAMP LENG COLORS		
	TERMINAL JUNCTION BOX	€	240V RECEPTACLE	FS	FIRE SPRINKLER FLOW SWITCH		INDICATING LAMP LENS COLORS INDICATED AS FOLLOWS:		
M	MOTOR, SQUIRREL CAGE INDUCTION	<b>—</b>	CONVENIENCE RECEPTACLE - QUADRUPLEX	TS	FIRE SPRINKLER TAMPER SWITCH		A - AMBER R - RED B - BLUE W - WHITE G - GREEN		NOISI NOISI XH:
G	GENERATOR, VOLTAGE AND SIZE AS INDICATED.	φ φ φ	MULTI OUTLET ASSEMBLY	D	DOOR HOLDER	V	VOLTMETER		REV O
LPXXA	HOME RUN - DESTINATION SHOWN		DUPLEX CONVENIENCE RECEPTACLE - FLUSH IN FLOOR	TEL	EPHONE SYSTEM PLAN AND RISER	A	AMMETER		
— or —//// <sub>G</sub>	EXPOSED CONDUIT AND CONDUCTORS*	₽	CONVENIENCE RECEPTACLE, PEDESTAL, DUPLEX SINGLE FACE UNLESS INDICATED OTHERWISE	<u>TTC</u>	TELEPHONE TERMINAL CABINET	w	WATTMETER		
- or - +/+ + - G	CONCEALED CONDUIT AND CONDUCTORS*	L20R 20 🙆	RECEPTACLE, SPECIAL PURPOSE-NEMA CONFIGURATION		TELEPHONE RECEPTACLE FLOOR BOX	F	FREQUENCY METER		
NDUCTORS IN 3/4"	IDUIT RUNS CONSIST OF TWO NO. 12, ONE NO. 12 GROUND " CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE	<u> </u>	AND AMPERAGE INDICATED  THERMOSTAT	<b> </b>	TELEPHONE RECEPTACLE	PF	POWER FACTOR METER		
BER OF NO. 12 C EN GROUND WIR	CONDUCTORS. CROSSHATCH WITH SUBSCRIPT "G" INDICATES RE.	$\bigcap$	UTILITY REVENUE METERING FACILITY	т	TELEPHONE SYSTEM RACEWAY	WH	WATT-HOUR METER		DATE
	CROSSHATCHES WITH BAR INDICATE NO.10 CONDUCTOR. SIZE CONDUIT ACCORDING TO SPECIFICATIONS		OTILITY REVENUE METERING FACILITY	COMBI	NED TELEPHONE/COMPUTER SYSTEM PLAN AND RISER	ETM	ELAPSED TIME METER		ON
	AND APPLICABLE CODE.  CONDUIT AND CONDUCTOR CALLOUT, SEE LEGEND.	<b>←</b> EUH	ELECTRIC UNIT HEATER	<b>◄</b> 4	COMBINATION TELEPHONE/DATA RECEPTACLE, WALL MOUNTED, NUMBER OF PORTS INDICATED	RPM	TACHOMETER		
	CONDOIT AND CONDOCTOR CALLOCT, CLL LLCLIND.	<b>√</b>	ELECTRIC AIR CONDITIONER	<b>4</b>	COMBINATION TELEPHONE/DATA RECEPTACLE, FLOOR BOX, NUMBER OF PORTS INDICATED	WXD	WATTS TRANSDUCER		Z
<del>_</del>	CONDUIT DOWN	AC	(SELF CONTAINED UNIT)  UTILITY POLE			PF	POWER FACTOR TRANSDUCER	301 301 3201	STATIC
	CONDUIT UP	•	LIGHTING SYSTEM PLAN	SE	CURITY SYSTEM PLAN AND RISER	TD	TIME DELAY	UITE 40 IDA 320	S LIFT HAB
	CONDUIT, STUBBED AND CAPPED	or ①	LUMINAIRE, SEE SCHEDULE	CR	CARD KEY ACCESS	4	RELAY COIL, DEVICE FUNCTION NUMBER PER ANSI 37.2 - AMERICAN STANDARD MANUAL AND	AVE, SI FLORI 2822 OLSON	NOOD\$
	CONDUIT TERMINATION AT CABLE TRAY	(1)	LUMINAIRE, SEE SCHEDULE	[CS]	CONTROL STATION	<b>-</b>	AUTOMATIC STATION CONTROL, SUPERVISORY AND ASSOCIATED TELEMETRY EQUIPMENT	W 4TH / SVILLE EB C. NICH	ADEN V
—EX——	EXISTING CONDUIT/ DUCT BANK	(1)// or Ø	LUMINAIRE WITH INTERNAL BATTERY BACKUP, SEE SCHEDULE	DS	DOOR SWITCH	7 1 8	— NORMALLY OPEN CONTACT	643 SV 3AINES AVID C	B. B.
—BD——	BUS DUCT - SEE SPECIFICATIONS		STRIP LUMINAIRE, SEE SCHEDULE	<b>□</b> EP	EGRESS PUSHBUTTON	3 1 4	NORMALLY CLOSED CONTACT		
—CE——	CONCRETE ENCASED CONDUIT	□-4 or o-4	LUMINAIRE AND POLE, SEE SCHEDULE		ELECTRONIC LOCK  M = MAGENITIC S = STRIKE				
—DB——	DIRECT BURIED CONDUIT	+5 or $+5$	WALL MOUNTED LUMINAIRE, SEE SCHEDULE	<b>•</b>	INTERCOM				
—FO——	FIBER OPTIC CONDUIT	1) -	FLOOD LIGHTS - AIM IN THE DIRECTION SHOWN		MONITOR	NGR	NEUTRAL GROUNDING RESISTOR		Q Q
XXXX	CONCRETE ENCASED DUCT BANK WHERE XXXX IS THE DUCT BANK NAME. SEE CIRCUIT AND RACEWAY		STANDBY LIGHTING UNIT, SURFACE MOUNTED, SEE SCHEDULE	<b>&gt;&gt;</b>	MOTION SENSOR	PST	PHASE SHIFTING TRANSFORMER		— Щ В С
^^^^	CODING DEFINITION  CONCEALED CONDUIT ROUTING AREA	$xx \overrightarrow{\bigotimes}$ or $\overrightarrow{\bigotimes}$	EXIT LIGHTS - FILLED SECTION INDICATES LIGHTED FACE,		VIDEO CAMERA PTZ = PAN/TILT/ZOOM				RAL L LE( 2 OF
	CONDUIT ROUTING AREA		ARROW INDICATES EGRESS DIRECTIONAL INDICATORS, XX = FIXTURE NUMBER, SEE SCHEDULE		F = FIXED				CA ET
* * * * * * *	CABLE TRAY	\$ <sub>a or</sub> 2a	SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. SUBSCRIPT NUMBER		GROUND SYSTEM PLAN				CTRI SHE
T	TRANSFORMER	<b>\$</b> 3	AT LUMINAIRE INDICATES CIRCUIT  WALL SWITCH:	•	GROUND ROD				
① or HH	GENERAL CONTROL OR WIRING DEVICE.	<b>Ψ</b> 3	2- DOUBLE POLE P- PILOT LIGHT 3- THREE WAY K- KEY OPERATED		GROUND ROD IN TEST WELL				_
<u> </u>	LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE		4- FOUR WAY D- DIMMER WP- WEATHERPROOF CRE- CORROSION RESISTANT EX- EXPLOSIONPROOF L- MOMENTARY 3-WAY	G	<ul> <li>GROUNDING CONDUCTOR, SIZE AS INDICATED</li> </ul>				
CS	CONTROL STATION, SEE CONTROL DIAGRAMS FOR CONTROL DEVICE(S) REQUIRED.		M- MOTOR RATED MS- MANUAL STARTER WITH OVERLOADS		PIGTAIL FOR CONNECTION TO EQUIPMENT CABINET OR FRAME				NTS
30 🖳	NONFUSED DISCONNECT SWITCH, CURRENT RATING INDICATED, 3 POLE	os	OCCUPANCY SENSOR	G	EQUIPMENT GROUND BUS			BAR	RIFY SCALE IS ONE INCH ON
0/40 🗁	FUSED DISCONNECT SWITCH, CURRENT RATING INDICATED (60/40, 60=SWITCH RATING / 40=FUSE RATING)	[LC]	LIGHTING CONTACTOR	N	EQUIPMENT NEUTRAL BUS				GINAL DRAWING.  1"  MAY 20
2 🔀 -	3 POLÉ COMBINATION CIRCUIT BREAKER AND	MD	MOTION DETECTOR					PROJ	D333910 G-0
<b>-</b>	MAGNETIC STARTER, NEMA SIZE INDICATED	PC	PHOTOCELL					SHEET	7 of 36

#### **GENERAL NOTES**

- CONDUIT, WIRE AND EQUIPMENT SIZES AND LOCATIONS SHOWN ARE FOR BID BASIS ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL WORK WITH APPROVED SHOP DRAWINGS. WITH THE REQUIREMENTS OF EQUIPMENT PROVIDED FOR INSTALLATION BY CONTRACTOR AND WITH REQUIREMENTS OF OTHER DIVISIONS OF THE CONTRACT AS NECESSARY TO PROVIDE COMPLETE AND WORKING SYSTEMS COMPLYING WITH THE CONTRACT DOCUMENTS. ALL PROPOSED DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE SUBMITTED AND APPROVED BY ENGINEER BEFORE EXECUTION OF THE AFFECTED WORK.
- 2. THE TERMS RACEWAY AND CONDUIT ARE USED IN THESE DOCUMENTS TO DENOTE NOT ONLY THE RACEWAY OR CONDUIT ITSELF BUT ALSO ALL JUNCTION BOXES, PULL BOXES, CONDULETS, FITTINGS, CLAMPS, SUPPORTS AND ALL OTHER ITEMS NECESSARY FOR A COMPLETE AND WORKING SYSTEM COMPLYING WITH THE CONTRACT DOCUMENTS.
- 3. NOTES INDICATED AS "REF", "REFERENCE" OR "REFER TO" ARE PROVIDED TO ASSIST IN LOCATING RELATED CONTRACTUAL REQUIREMENTS BUT ARE NOT CONTRACTUAL INSTRUCTIONS THEMSELVES. MISSING. INCORRECT OR INCOMPLETE REFERENCES SHALL HAVE NO EFFECT ON THE REQUIREMENTS OF THE CONTRACT.
- 4. ITEMS MARKED MSC (MANUFACTURER SUPPLIED OR SPECIFIED CABLE): CONTRACTOR SHALL DETERMINE REQUIREMENTS FOR. AND PROVIDE, CONDUIT AND CABLE AS REQUIRED BY MANUFACTURER AND IN COMPLIANCE WITH CONTRACT DOCUMENTS.
- 5. EXCEPT AS NOTED BELOW, ALL WIRE AND CABLE, INCLUDING GROUNDED CONDUCTORS ABOVE GRADE AND FIBER OPTIC CABLE, SHALL BE INSTALLED IN RACEWAY AND ENCLOSURES. EXCEPTIONS ARE EQUIPMENT CABLES PROVIDED BY EQUIPMENT MANUFACTURERS AND UL LISTED FOR INSTALLATION OUTSIDE OF CONDUIT, INCLUDING FLOAT SWITCH AND SUBMERSIBLE PUMP CABLES.
- 6. SPARE RUNS OF CONDUCTORS SHALL BE INSULATED OR TERMINATED AND LABELED AT BOTH ENDS. SPARE RUNS OF FIBER OPTIC STRANDS SHALL BE LABELED AND TERMINATED AT BOTH ENDS. ALL CONDUCTORS AND FIBERS SHALL BE TESTED AFTER INSTALLATION AND TEST REPORTS SHALL BE SUBMITTED. REPLACE ALL DEFECTIVE MATERIAL; DO NOT SUBMIT TEST REPORTS SHOWING DEFECTS.
- 7. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED IN THE SPECIFICATIONS AND SHOWN ON THE DRAWINGS.
- 8. ALL CONDUITS SHALL HAVE AN EQUIPMENT GROUND CONDUCTOR SIZED PER TABLE 250.122 OF THE NEC, UNLESS OTHERWISE NOTED.
- 9. ALL EXISTING INFORMATION SHOWN MUST BE FIELD VERIFIED. ACCURACY OF EXISTING WIRING IS NOT GUARANTEED.
- 10. REFER TO SPECIFICATION SECTION 26 41 00, FOR LIGHTNING PROTECTION SYSTEM REQUIREMENTS.
- 11. REFER TO SPECIFICATION SECTION 26 05 70 FOR SHORT CIRCUIT, PROTECTIVE DEVICE COORDINATION, AND ARC FLASH STUDY REQIREMENTS.
- 12. CONDUCTIVE ENCLOSURES AND OTHER EXTERIOR METAL COMPONENTS OF INSTRUMENTS AND CONTROLS WHICH ARE NOT NORMALLY ENERGIZED SHALL BE CONNECTED TO FACILITY GROUNDING ELECTRODE SYSTEM (GROUND RING) WITH #6 MINIMUM TINNED SOLID COPPER CONDUCTOR.
- 13. PROVIDE #10 WIRE INSTEAD OF #12 WIRE FOR ALL 20 AMPERE 120 VOLT OR 208 VOLT CIRCUITS EXCEEDING 150 FEET CONDUIT LENGTH.
- 14. WHERE THE NUMBER OR SIZE OF CONDUCTORS SHOWN TO BE CONNECTED ARE IN EXCESS OF THE CAPACITY OF THE STANDARD TERMINALS OF THE CONNECTED EQUIPMENT, PROVIDE ADDITIONAL TERMINALS, ENCLOSURES, JUNCTION BOXES, PULL SECTIONS, WIRES, CONDUITS AND ALL OTHER MATERIALS AND LABOR AS NECESSARY TO MAKE THE CONNECTIONS SHOWN IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.
- 15. ALL MATERIALS AND EQUIPMENT PROPOSED FOR USE SHALL BE NEW, UN-USE, UNLESS NOTED OTHERWISE, AND BE FULLY RATED AS SPECIFIED AND SCHEDULED IN THE CONTRACT DOCUMENTS AT THE PROJECT ALTITUDE AND MAXIMUM AMBIENT TEMPERATURE.
- 16. PROVIDE ARC FLASH WARNING AND OTHER SIGNS ON ALL SWITCHGEAR PANELBOARDS, MOTOR CONTROL CENTERS, MOTOR CONTROLLERS. CONTROL PANELS. AND OTHER EQUIPMENT PROVIDED OR MODIFIED UNDER THIS CONTRACT AND REQUIRED TO BE LABLED BY NEC INCLUDING BUT NOT LIMTED TO PARAGRAPH 110.16 FLASH PROTECTION.
- 17. COORDINATE SIZE AND INSTALLATION OF ALL EQUIPMENT WITH EXISTING CONDITIONS AND WORK IN OTHER DIVISIONS OF CONTRACT TO ENSURE COMPLIANCE WITH THE NEC, INCLUDING BUT NOT LIMITED TO PARAGRAPH 110.26 SPACES ABOUT ELECTRICAL EQUIPMENT.
- 18. STANDARD DETAILS INCLUDED IN THESE DOCUMENTS SHALL BE USED WHERE APPLICABLE WHETHER SPECIFICALLY CALLED OUT ON THE PLANS OR NOT. PRACTICES CUSTOMARY TO THE TRADE MAY BE USED ONLY WHERE NO APPLICABLE STANDARD DETAIL CAN BE FOUND IN THESE DOCUMENTS AND WHERE THE CUSTOMARY PRACTICE WILL RESULT IN A COMPLETE AND WORKING SYSTEM IN COMPLIANCE WITH THESE DOCUMENTS.

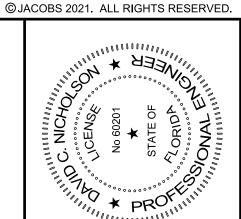
- 19. ALL TERMINATIONS OF RIGID METAL CONDUIT IN WALLS OF **ENCLOSURES WITHOUT CAST-IN-PLACE THREADED CONDUIT** CONNECTIONS, AND WHICH ARE LOCATED OUTDOORS OR IN WET OR DAMP LOCATIONS, SHALL BE MADE USING MYERS HUBS.
- 20. REFER TO DOCUMENTS OF OTHER DIVISIONS OF CONTRACT, INCLUDING BUT NOT LIMITED TO PROCESS MECHANICAL. AND INSTRUMENTATION AND CONTROL FOR LOCATIONS OF PROCESS. INSTRUMENTATION. CONTROL. AND OTHER EQUIPMENT REQUIRING ELECTRICAL, FIBER OPTIC OR RACEWAY-ONLY CONNECTIONS TO BE PROVIDED UNDER THIS DIVISION OF CONTRACT. ALL EQUIPMENT LOCATIONS SHOWN ON DRAWINGS IN THIS DIVISION ARE APPROXIMATE ONLY UNLESS DIMENSIONED.
- 21. COORDINATE EARTH WORK AND INSTALLATION OF ELECTRICAL ITEMS WITH INTERFERENCES SHOWN ON DOCUMENTS OF ALL DIVISIONS OF CONTRACT, INCLUDING CIVIL AND YARD PIPING. REPORT ALL DAMAGE AT ONCE TO OWNER AND ENGINEER AND REPAIR AS DIRECTED AT CONTRACTOR'S SOLE EXPENSE.
- 22. DO NOT INSTALL ANY CONDUITS, DUCT BANKS, PULL BOXES, MANHOLES, HANDHOLES, LIGHT POLES, CONTROL PANELS, ETC., IN AREAS DESIGNATED FOR FUTURE STRUCTURES.
- 23. REFER TO SPECIFICATIONS SECTION 28 31 00 FOR FIRE DETECTION AND ALARM SYSTEM REQUIREMENTS.
- 24. PROVIDE REINFORCED CONCRETE ENCASEMENT OF ALL DIRECT BURIED CONDUITS AND DUCT BANK UNDER ROADWAYS AND 10 FEET BEYOND ON EACH SIDE OF THE ROADWAY.

#### **HAZARDOUS LOCATION NOTES:**

- PER NFPA 820 (2016), TABLE 4.2.2, ROW 16a, THE AREA OF THE WASTE WATER LIFT STATION IS CLASSIFIED AS A HAZARDOUS LOCATION AS FOLLOWS:
- a) THE AREA INSIDE THE WET WELL IS CONSIDERED CLASS 1, DIV I LOCATION.
- b) THE AREA WITHIN A 3FT ENVELOPE AROUND THE VENT IS CONSIDERED CLASS 1, DIV I LOCATION.
- c) THE AREA WITHIN A 5 FT ENVELOPE AROUND THE VENT IS CONSIDERED CLASS 1, DIV 2 LOCATION.
- d) THE AREA WITHIN AN ENVELOPE 18 INCHES AND ABOVE 3FT BEYOND EACH HATCH IS CONSIDERED A CLASS 1, DIV 2 LOCATION.
- e) THE AREA BEYOND THE ENVELOPE IS UNCLASSIFIED
- f) COMBUSTIBLE GAS DETECTION IS NOT REQUIRED BECAUSE THE WET WELL IS NOT MECHANICALLY VENTILATED BASED ON CHANGE PER NFPA 820 (2016).
- 2. PROVIDE SUITABLE WIRING METHODS AND MATERIALS FOR HAZARDOUS LOCATIONS PER NFPA 70 (NEC).

#### GENERAL CIRCUIT CONDUCTOR AND CONDUIT IDENTIFICATION

	POWER CIRCU	JIT CALL	_OUTS	POV	WER CABLE CIRCUIT CALLOUTS
[P2] [3/4"C,2 [P3] [3/4"C,2 [P4] [3/4"C,2 [P4A] [3/4"C,2 [P6] [3/4"C,2 [P6] [3/4"C,2 [P7] [3/4"C,2 [P9] [3/4"C,2 [P10] [3/4"C,2 [P11] [3/4"C,2 [P12] [3/4"C,2 [P13] [3/4"C,2 [P13] [3/4"C,2 [P14] [3/4"C,2 [P16] [1"C,3# [P20] [1"C,3# [P20] [1"C,3# [P22] [1"C,3# [P25] [1"C,3# [P25] [1"C,3# [P26] [1"C,3# [1"C,3# [1"C,3# [1"C,3# [1"C,3# [1"C,3# [1"C,3# [1"C,3# [1"C,3# [1	2#12,1#12G] 3#12,1#12G] 4#12,1#12G] 4#12, 4#14, 1#12G] 5#12,1#12G] 5#12,1#12G] 6#12,1#12G] 6#12,1#12G] 6#12,1#12G] 6#12,1#12G] 6#12,1#12G] 6#12,4#14,1#12G] 6#12,5#14,1#12G] 6#10,1#10G] 6#10,1#10G] 6#10,4#14,1#10G] 10,6#12,1#10G] 8,1#10G] 8,1#10G] 8,1#10G] 8,2#14,1#10G] 8,3#14,1#10G] 8,3#14,1#10G] 8,3#14,1#10G] 8,3#14,1#10G]	[P34] [P34A] [P35] [P36] [P37] [37A] [P38] [P39] [P39A] [P40A] [P40A] [P40A] [P42] [P42A] [P42A] [P42A] [P42A] [P45] [P45A] [P45A] [P45A] [P46] [P46A] [P46] [P46A] [P46] [P46A] [P47] [P48] [P49] [P49A] [P50] [P50A] [P50A] [P50A]	[1"C,3#4,1#8G] [1 1/4"C, 4#4, 1#8G] [1 1/4"C,3#4,5#14,1#8G] [1 1/4"C,3#3, 1#8G] [1 1/4"C,3#3,1#8G] [1 1/4"C,3#3,3#14,1#8G] [1 1/4"C,3#3,3#14,1#8G] [1 1/4"C,3#2,1#6G] [1 1/2"C, 4#2, 1#6G] [1 1/2"C,4#1,1#6G] [1 1/2"C,4#1,1#6G] [1 1/2"C,3#1,5#14,1#6G] [2"C, 3#1/0,1#6G] [1 1/2"C,2#1/0, 1#6G] [1 1/2"C,3#2/0,1#6G] [2"C,4#2/0,1#4G] [2"C,4#2/0,1#4G] [2"C,4#3/0,1#4R] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [3"C,3#4/0,1#4G] [4"C,3#600KCM,1#1/0G] [4"C,4#600KCM,1#1/0G] [4"C,4#600KCM,1#1/0G] [4"C,3#600KCM,1#1/0G]	[PC1] [PC2] [PC3] [PC4] [PC5] [PC1A] [PC2A]  [CE-1] [CE-2] [CE-3] [CE-4] [CE-5] [CE-6] [CE-7] [CE-8] [CE-9]	[3/4"C,1 (3C#12,1#12G) TYPE 2] [3/4"C,1 (3C#10,1#12G) TYPE 2] [1"C,1 (3C#8,1#10G) TYPE 2] [1 1/4"C,2 (3C#12,1#12G) TYPE 2] [1 1/2"C,2 (3C#10,1#12G) TYPE 2] [3/4"C,1 (2C#12,1#12G) TYPE 2] [3/4"C,1 (3C#10,1#12G) TYPE 2] [3/4"C,1 (3C#10,1#12G) TYPE 2] [3/4"C,1 (3C#10,1#12G) TYPE 2]  EMPTY CONDUIT CALLOUT  [3/4"C,WITH PULL STRING] [1 1/4"C,WITH PULL STRING] [1 1/2"C,WITH PULL STRING] [2"C,WITH PULL STRING] [3"C,WITH PULL STRING] [4"C,WITH PULL STRING] [6"C,WITH PULL STRING] [6"C,WITH PULL STRING]
[P28] [1"C,3# [P29] [1"C,3# [P30] [1"C,3# [P31] [1"C,3# [P32] [1"C,3# [P33] [4"C,3# ANALC	6, 1#10G] 6, 2#14,1#10G] 6, 3#14,1#10G] 6, 4#14,1#10G] 6, 5#14,1#10G] 6, 1#10G]	[P52] [P53] [P54] [P55] [P56] [P57] [P58] [P59] [P60] [P61] [P62]	#350KCMG]  [2 EACH (3"C, 3#250KCM, 1#2G)]  [2 EACH (3"C, 3#350KCM, 1#1G)]  [2 EACH (4"C, 3#500KCM, 1#1/0G)]  [2 EACH (4"C, 3#600KCM, 1#1/0G)]  [3 EACH (4"C, 3#500KCM, 1#1/0G)]  [3 EACH (4"C, 3#600KCM, 1#3/0G)]  [4 EACH (4"C, 3#600KCM, 1#1/0G)]  [5 EACH (4"C, 3#600KCM, 1#1/0G)]  [6 EACH (4"C, 3#600KCM, 1#1/0G)]  [8 EACH (4"C, 3#600KCM, 1#1/0G)]  [10 EACH (4"C, 3#600KCM, 1#1/0G)]  CONTROL CIRCUIT CALLOUTS  [C1]  [1"C,MSC]  [C2]  [3/4"C,2#14,1#14G]	[CC5] [CC7] [CC9] [CC12] [CC19] [CC25] [CC37] [CCC1]	[3/4"C,1-5C TYPE 1] [3/4"C,1-7C TYPE 1] [1"C,1-9C TYPE 1] [1"C,1-12C TYPE 1] [1 1/2 ", 1-19C TYPE 1] [1 1/2"C,1-25C TYPE 1] [2"C,1-37C TYPE 1] [1-7C #12 TYP 1]
[A3] [1"C, [A4] [1"C, [A5] [1 1/2 [A6] [1 1/2 [A7] [1 1/2			[C3] [3/4"C,3#14,1#14G] [C4] [3/4"C,4#14,1#14G] [C5] [3/4"C,5#14,1#14G] [C6] [3/4"C,6#14,1#14G] [C7] [3/4"C,7#14,1#14G]	[CAT] [CX] [MSC]	[1"C, CAT 6 CABLE] [1"C, COAX] [MANUFACTURER SUPPLIED CABLE
[A9] [1 1/2 [A10] [2"C, [A11] [2"C, [A12] [2"C, [A13] [2"C, [A14] [2"C, [A15] [3/4"0 [A16] [1"C, [A16] [1"C, [A18] [1 1/2 [A20] [1 1/2 [A21] [1 1/2 [A23] [2"C, [A24] [3/4"0 [A25] [1"C, [	2"C,9 TYPE 3] 10 TYPE 3] 11 TYPE 3] 12 TYPE 3] 13 TYPE 3] 14 TYPE 3] 14 TYPE 4] 2,2 TYPE 4] 3 TYPE 4] 4"C,4 TYPE 4] 4"C,5 TYPE 4] 4"C,6 TYPE 4] 2"C,7 TYPE 4] 2"C,8 TYPE 4] 9 TYPE 4] 10,1-4 pr. TYPE 5] 12-4 pr. TYPE 5]		[C8] [3/4"C,8#14,1#14G] [C9] [3/4"C,9#14,1#14G] [C10] [3/4"C,10#14,1#14G] [C11] [3/4"C,11#14,1#14G] [C12] [3/4"C,12#14,1#14G] [C13] [3/4"C,13#14,1#14G] [C14] [3/4"C,13#14,1#14G] [C15] [3/4"C,15#14,1#14G] [C16] [3/4"C,16#14,1#14G] [C17] [3/4"C,17#14,1#14G] [C18] [3/4"C,18#14,1#14G] [C19] [3/4"C,19#14,1#14G] [C20] [1"C,20#14,1#14G] [C21] [1"C,21#14,1#14G] [C22] [1"C,22#14,1#14G] [C23] [1"C,23#14,1#14G] [C24] [1"C,24#14,1#14G] [C36] [1 1/4"C, 30#14, 1#14G] [C36] [1 1/2"C, 36#14, 1#14G] [C36] [2"C, 60#14,1#14G] [C68] [2"C, 68#14, 1#14G]	[PV1] [PV2] [PV3] [PV4] [PV5] [PV6] [PV7] [PV8] [PV9] [PV10] [PV11] [PV12] [PV13] [PV14] [PV15] [PV16]	[1"C,1(3C#12,1#12G) TYPE 8] [1 1/2"C,1(3C#10,1#10G) TYPE 8] [1 1/2"C,1(3C#8,1#8G) TYPE 8] [2"C,1(3C#6,1#6G) TYPE 8] [4"C,1(3C#6,1#6G) TYPE 8] [2"C,1(3C#4,1#4G) TYPE 8] [2"C,1(3C#4,1#4G) TYPE 8] [2 1/2"C,1(3C#2,1#2G) TYPE 8] [2 1/2"C,1(3C#1/0,3#10G) TYPE 9] [4"C,1(3C#1/0,3#10G) TYPE 9] [2 1/2"C,1(3C#2/0,3#8G) TYPE 9] [3"C,1(3C#4/0,3#8G) TYPE 9] [3"C,1(3C#250,3#8G) TYPE 9] [3 1/2"C,1(3C#350,3#8G) TYPE 9] [4"C,1(3C#500KCM,3#8G) TYPE 9] [2 EACH [2"C,1 (3C#4/0, 3#8G) TYPE 9] [2 EACH [3"C, 1(3C#250,1#8G) TYPE 9]



품 VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.

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MAY 2021

8 of 36

D3339100 |

G-011

DIGITAL PNEUMATIC C CONTROLLER VOLTAGE PF PULSE FREQUENCY I **INDICATOR** FREQUENCY PD PULSE DURATION RECORDER MOUNTED (OPERATOR H HYDRAULIC SWITCH RESISTANCE TRANSMITTER

**CURRENT TO PNEUMATIC** 

TRANSDUCER (BACK OF

PANEL, IN A FLOW LOOP)

UNCLASSIFIED

TRANSMITTER AS AN

ACCESSORY TO A

FLOW ELEMENT

**EXAMPLE** 

/ HS  $^{\setminus}$ 

/ HS \

**ON-OFF HAND SWITCH** MAINTAINED CONTACT SWITCH (CONTROLLED **DEVICE WILL RESTART** ON RETURN OF POWER

LIGHTS

AFTER POWER FAILURE).

STOP-START HAND SWITCH MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE).

#### **ABBREVIATIONS & LETTER SYMBOLS**

CHLORINE (TYPICAL: USE STANDARD CHEMICAL **ELEMENT ABBREVIATIONS)** DISTRIBUTED CONTROL SYSTEM FIELD PANEL NO. WX (W=UNIT PROCESS NUMBER X=PANEL NUMBER)

MOTOR CONTROL CENTER NO. X MANUFACTURER SUPPLIED CABLE

OXIDATION REDUCTION POTENTIAL HYDROGEN ION CONCENTRATION

PROGRAMMABLE LOGIC CONTROLLER REMOTE MULTIPLEXING MODULE NO. X REMOTE TELEMETRY UNIT NO. X

SUPERVISORY SET POINT CONTROL

SELECT HIGHEST SIGNAL SELECT LOWEST SIGNAL

GAIN OR ATTENUATE

# SELF CONTAINED VALVE & **EQUIPMENT TAG NUMBERS**

D-WXY

PROCESS OR SIGNAL

N=1,2,3,ETC

►(N) LINE CONTINUATION (N)—

ARV AIR RELEASE VALVE AVRV AIR AND VACUUM RELEASE VALVE

E EJECTOR G GATE M MECHANICAL EQUIPMENT

**UNIT PROCESS NUMBER** 

LOOP NUMBER **UNIT NUMBER** 

P PUMP

T TANK

# **GENERAL NOTES**

- COMPONENTS AND PANELS SHOWN WITH A SINGLE ASTERISK (\*) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.
- COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (\*\*) ARE TO BE PROVIDED UNDER DIVISION 26, ELECTRICAL.
- COMPONENTS AND PANELS SHOWN WITH A DIAMOND ( ) ARE TO BE PROVIDED UNDER DIVISION 40, PROCESS INTEGRATION.
- THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THE PROJECT.

WINDER \*

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APVD APVD

2000						
DA 3200 I						
IZ PE 84591						
S LIFT STATION						
AB						
COUNTY	NO.	NO. DATE		RE	REVISION	
LORIDA 34205	DSGN			DR	CHK	AP\
		C SAHARKHIZ	KHIZ	A PASTRANA	C WILSON	

STRUMENTATIONA ND LEGEND SHEET

NTS VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. MAY 202 D3339100 **PROJ** G-012 SHEET 9 of 36

FIELD MOUNTED

**REAR-OF-PANEL** 

INACCESSIBLE)

PANEL MOUNTED

(OPERATOR

ACCESSIBLE)

MCC MOUNTED

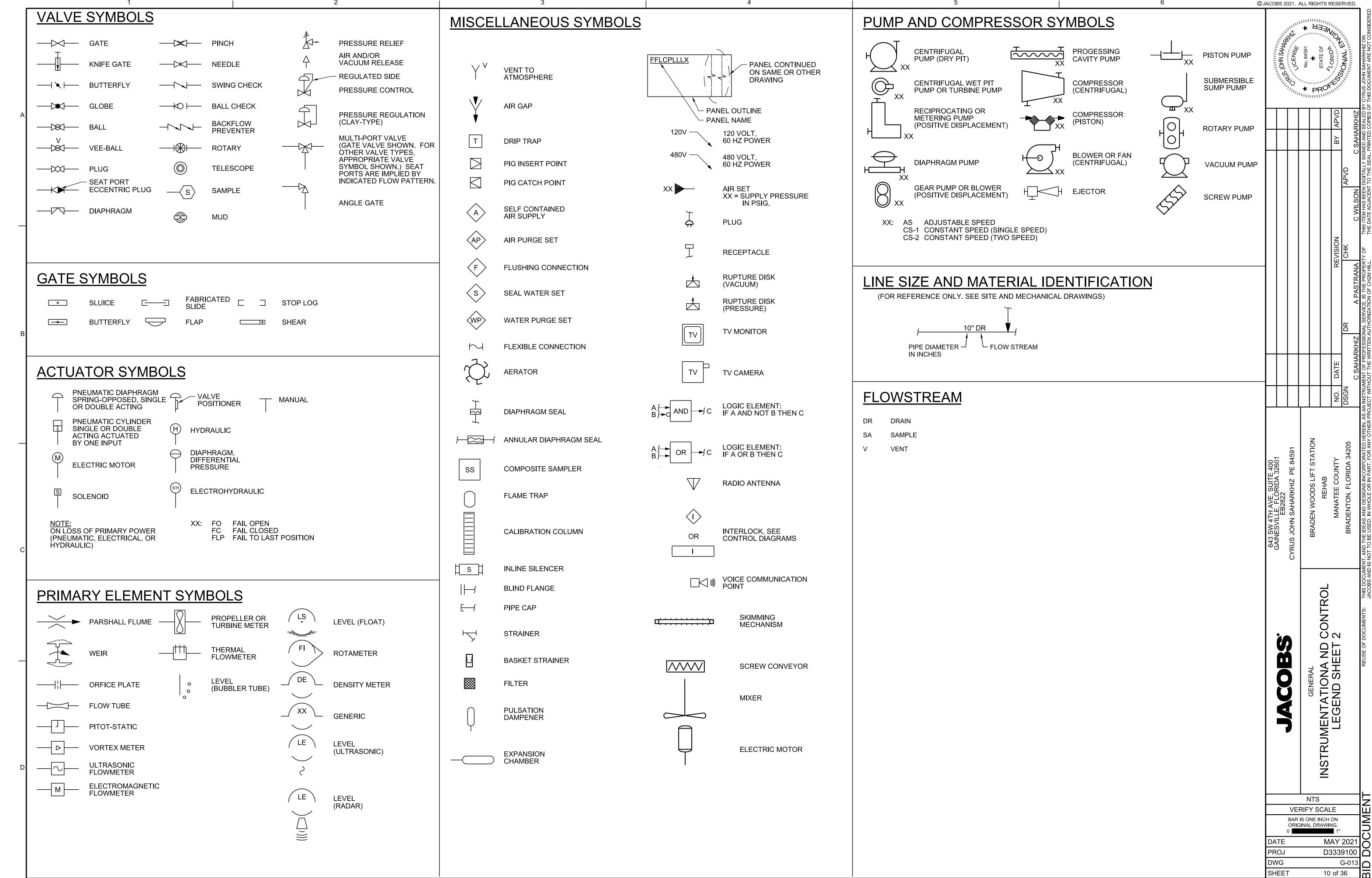
**PLC FUNCTION** 

SHARED DISPLAY, SHARED CONTROL

**COMPUTER FUNCTION** 

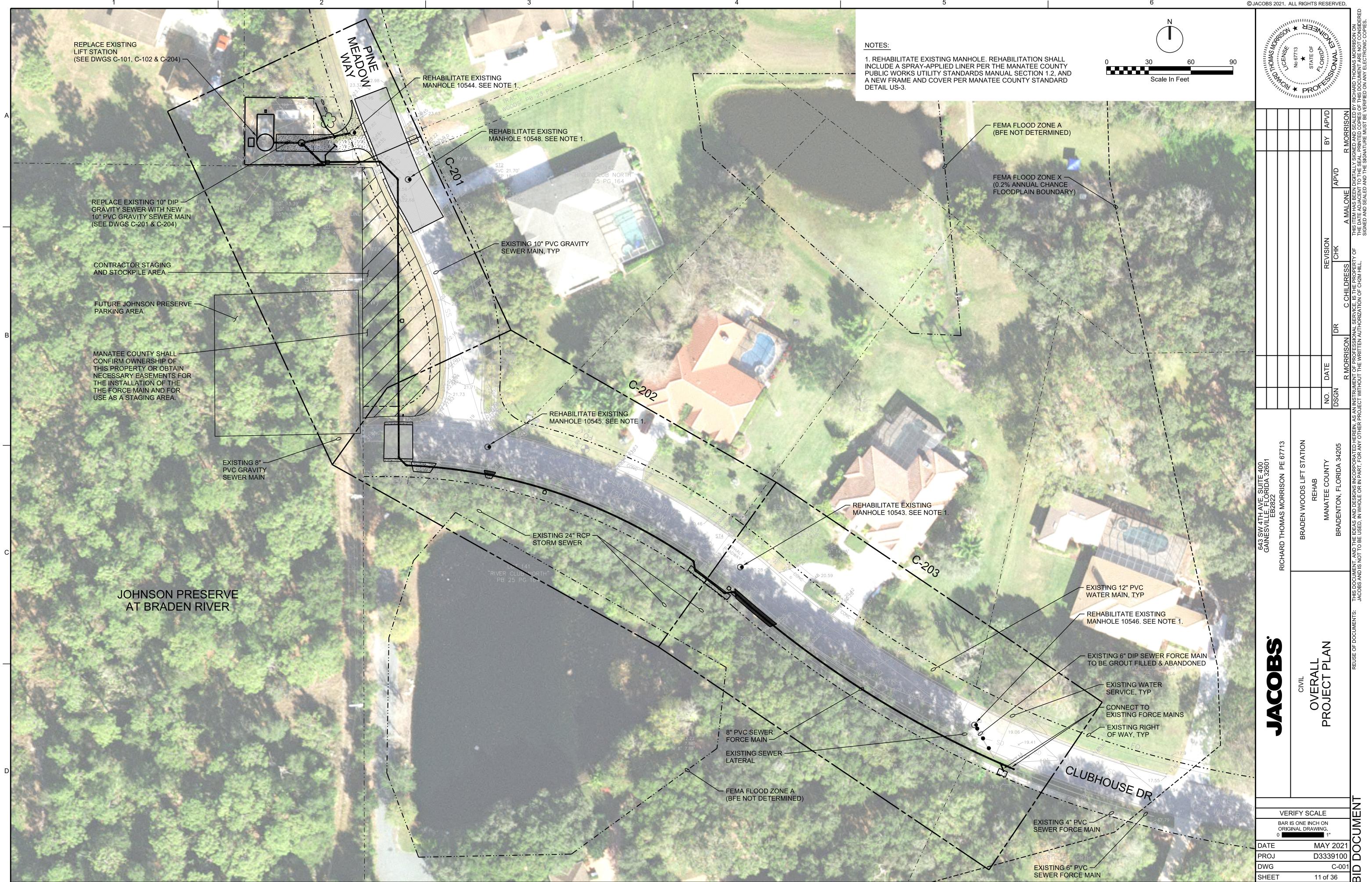
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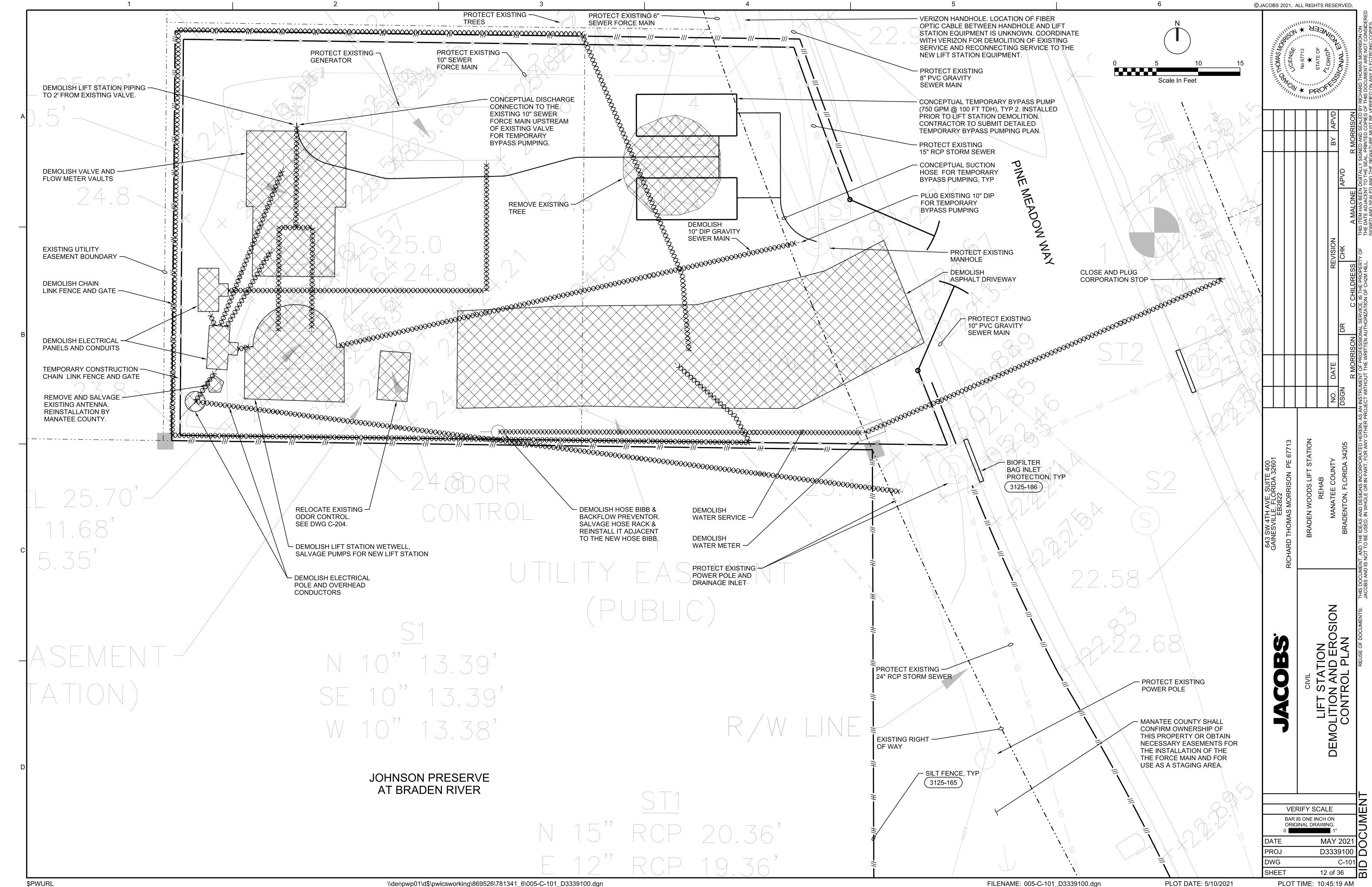
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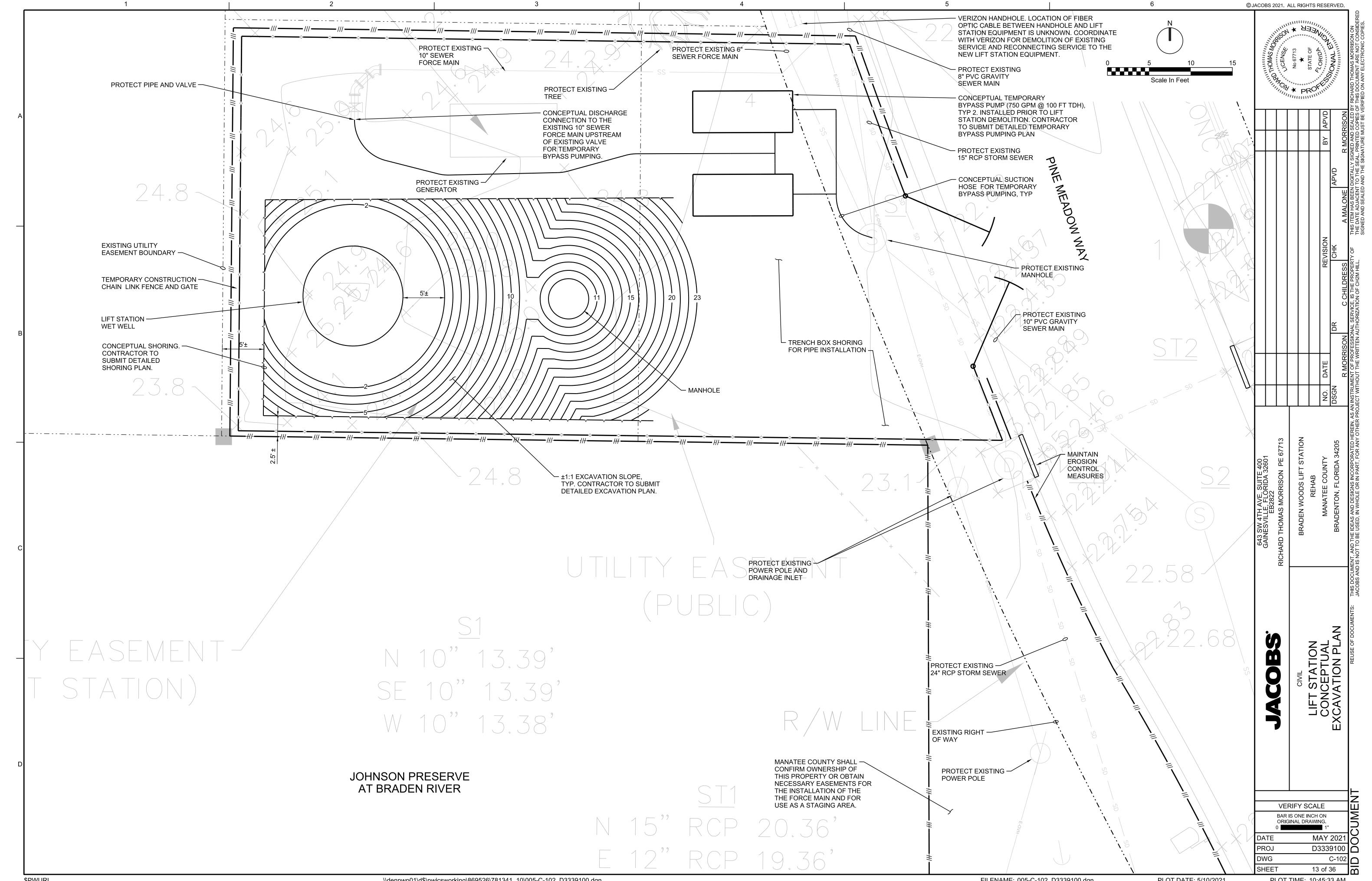


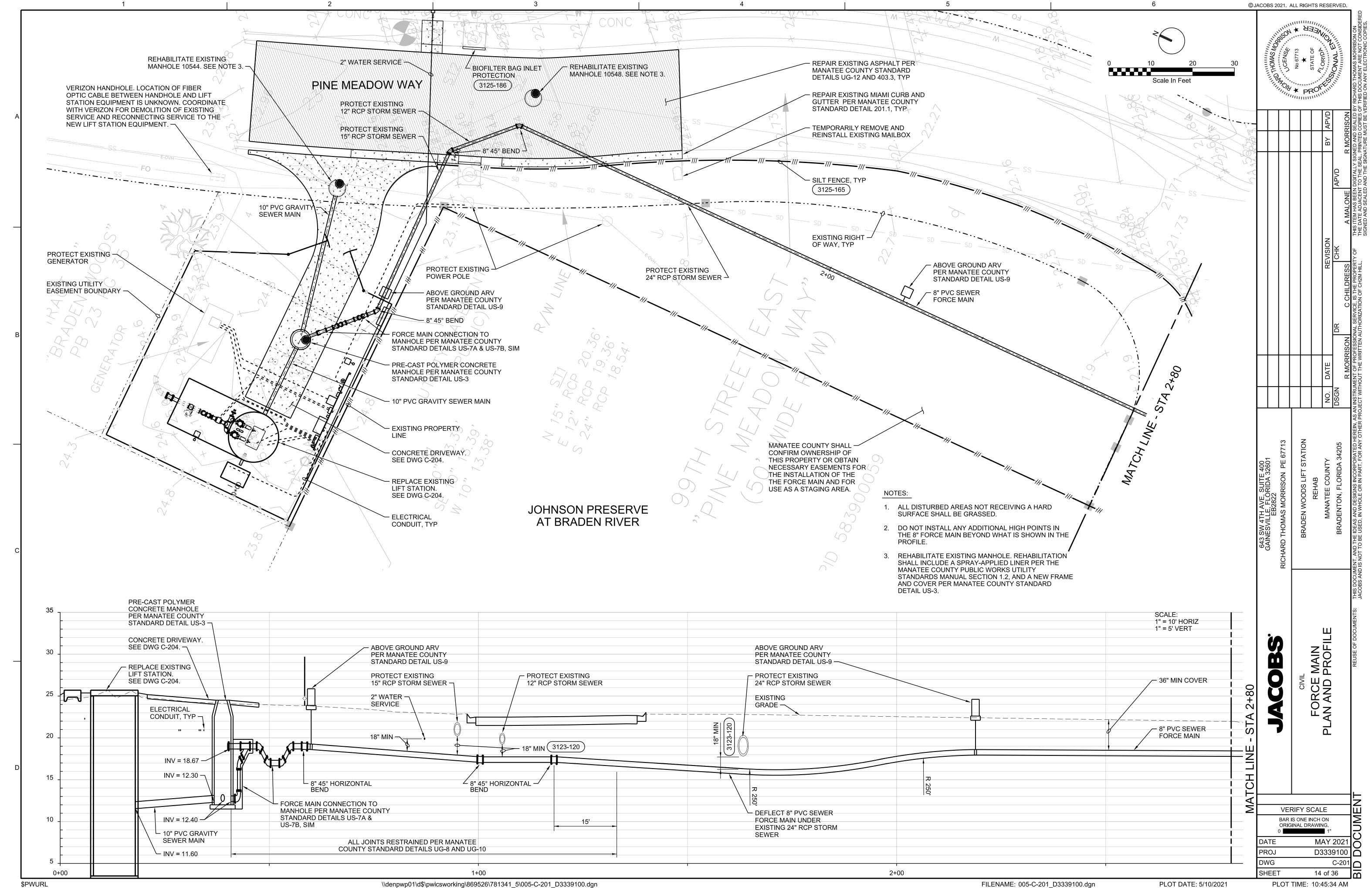
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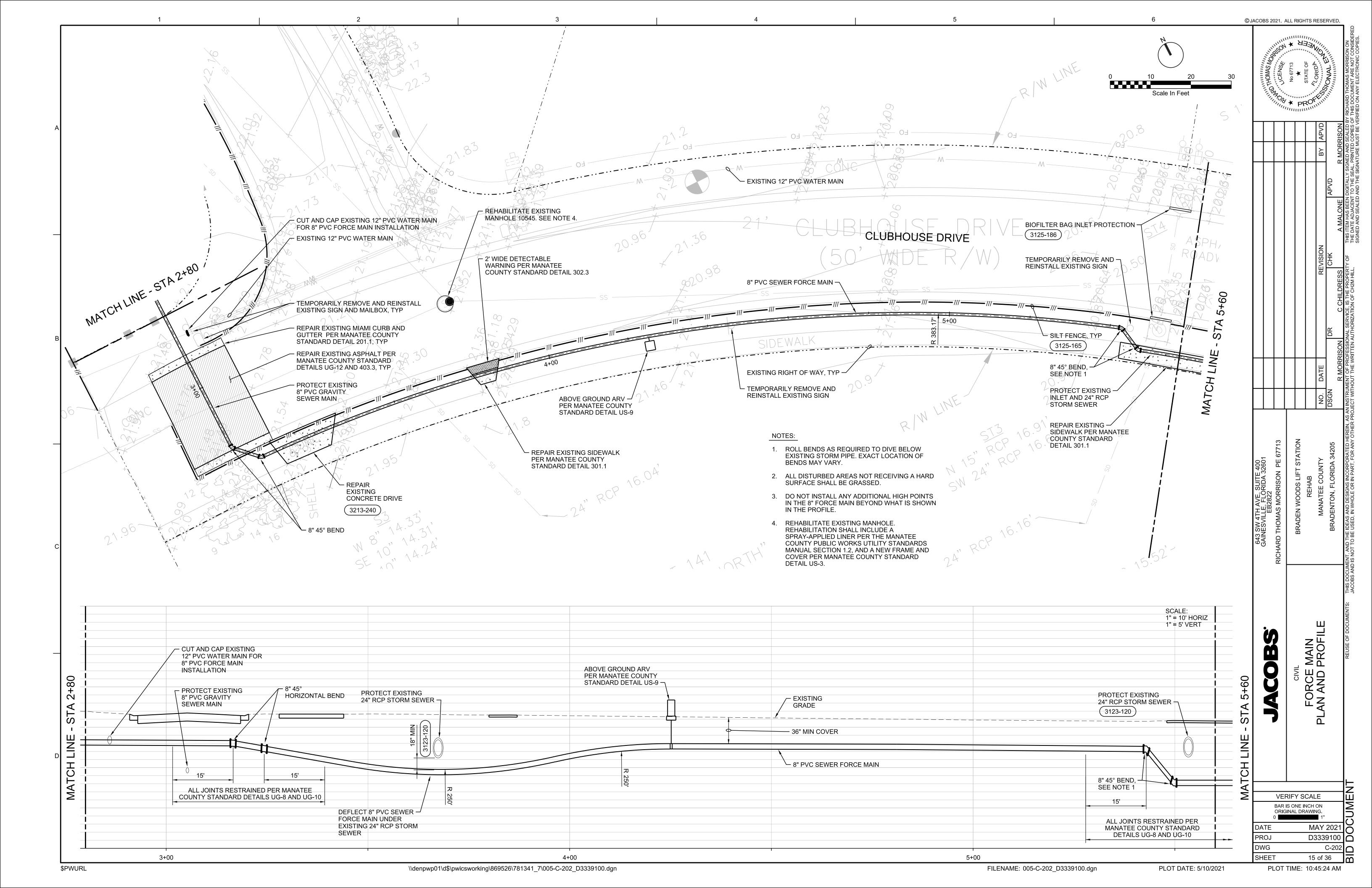
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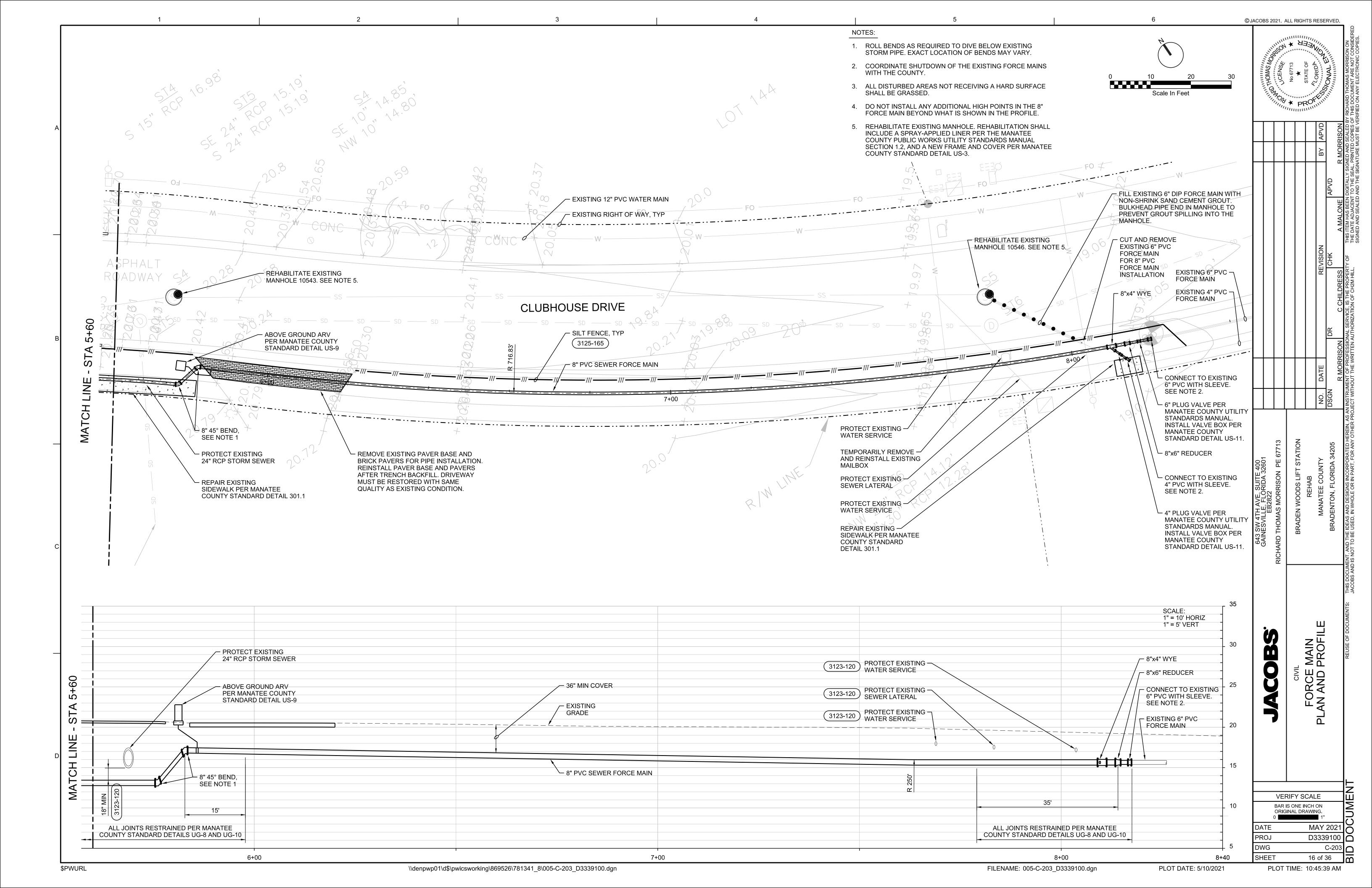


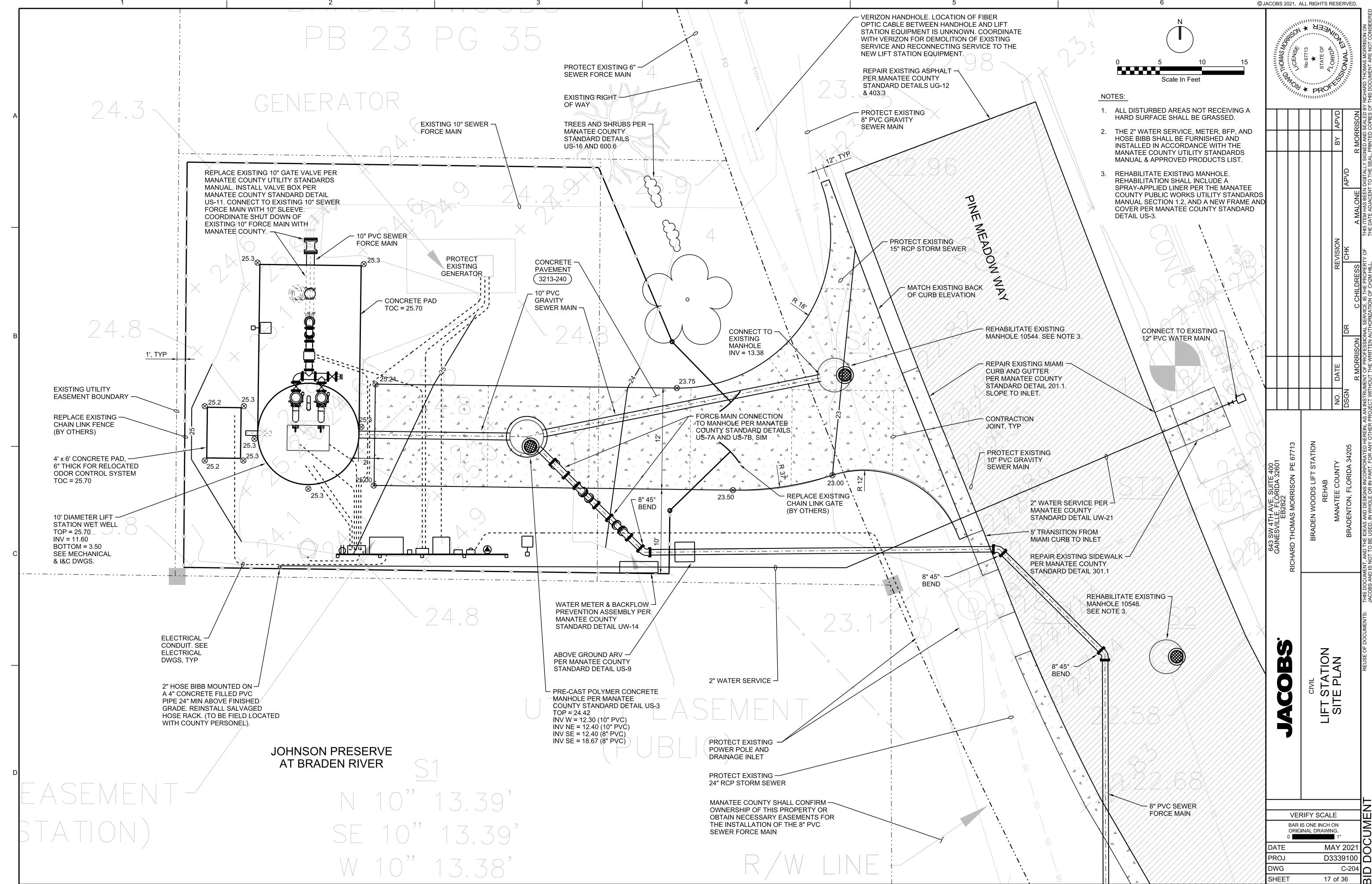












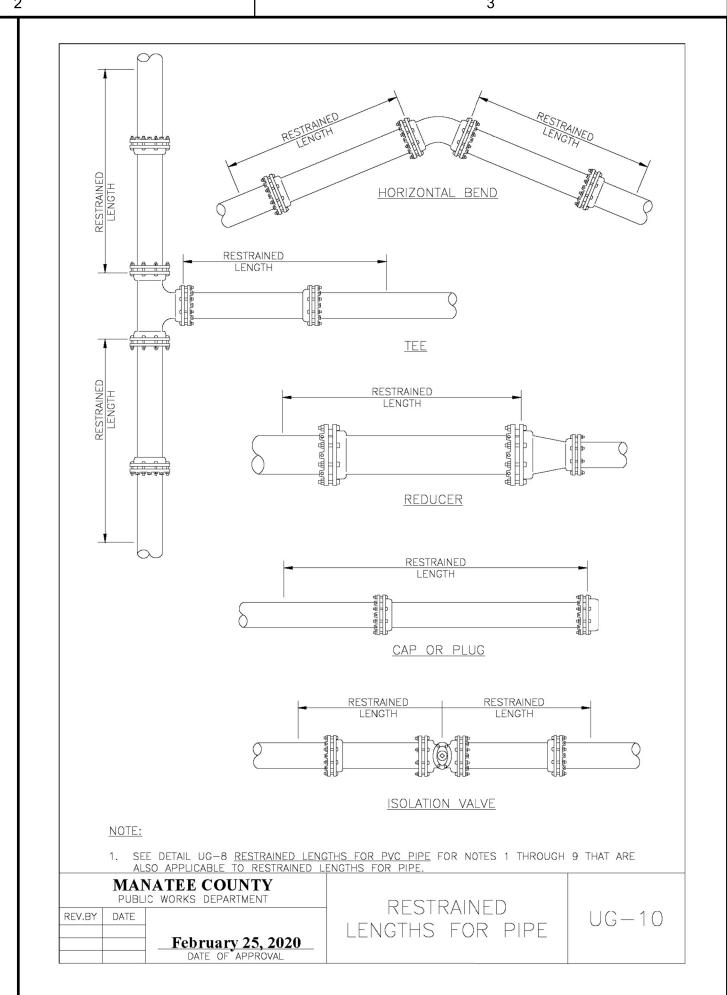
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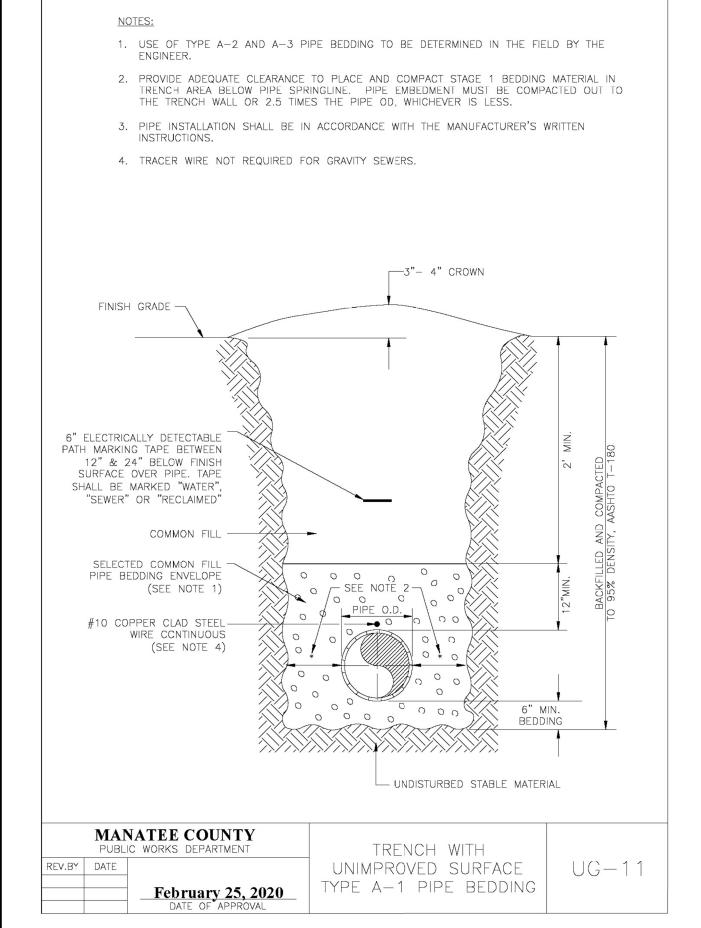
	-											
MAIN PIPE	HOR	IZ. BE	ENDS			TEES			R	EDUCER	S	PLUGS & VALVES
SIZE	90.	45°	22.5°		S	IZE LEN	NGTH		S	IZE LEN	IGTH	
24	90	38	18	X24 169	X20 132	X16 90	X12 38	X10 6	X20 64	X16 117	X12 158	214
20	78	32	16	X20 141	X16 101	X12 53	X10 24	X8 <sub>1</sub>	X16 65	X12 115	X10 149	184
16	66	27	13	X16 111	X12 67	X10 41	X8 12		X12 64	X10 107	X8 111	151
12	52	22	10	X12 80	X10 56	X8 31	X6 <sub>1</sub>		X10 58	X8 62	X6 86	118
10	44	18	9	X10 63	X8 40	X6 <sub>7</sub>			X8 33	X6 61	X4 81	100
8	37	15	7	X8 49	X6 18	X4 <sub>1</sub>			X6 35	X4 60		83
6	29	12	6	X6 29	X4 <sub>1</sub>				X4 33			63
4	21	8	4	X4 12								45

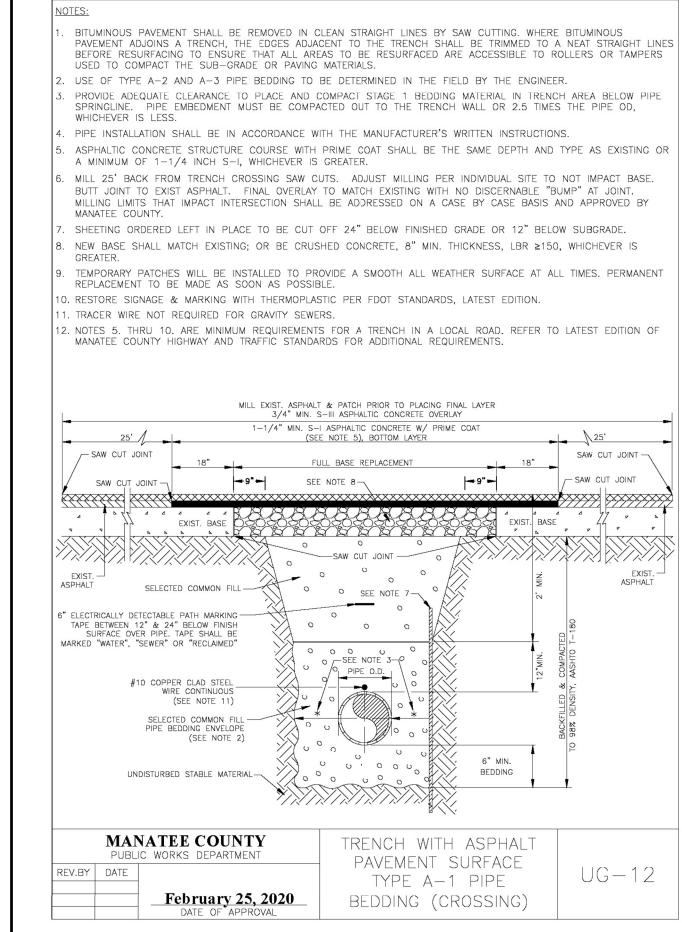
#### NOTES:

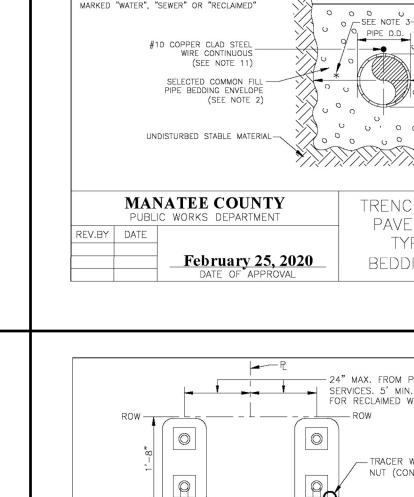
- . RESTRAIN 11.25' BENDS 50% OF LENGTH FOR 22.5' BENDS.
- 2. ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
- 3. ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI
- TEST PRESSURE IN EITHER DIRECTION.
- 4. PIPE SIZES ARE GIVEN IN INCHES.
- 5. RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
- 6. LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.
- THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON SOIL CLASSIFICATION SP WITH AWWA TYPE 3 TRENCH CONDITIONS, 180 PSI TEST PRESSURE, 3 FEET OF COVER AND 1.5 FACTOR OF SAFETY. ACTUAL BURY CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.
- 8. RESTRAINED LENGTHS TO BE APPLIED TO PIPELINES PER DETAIL UG-10 RESTRAINED LENGTHS FOR PIPE.
- 9. ALL RESTRAINED JOINT HARDWARE SHALL CONFORM TO 1.11.17 OF THE PUBLIC WORKS

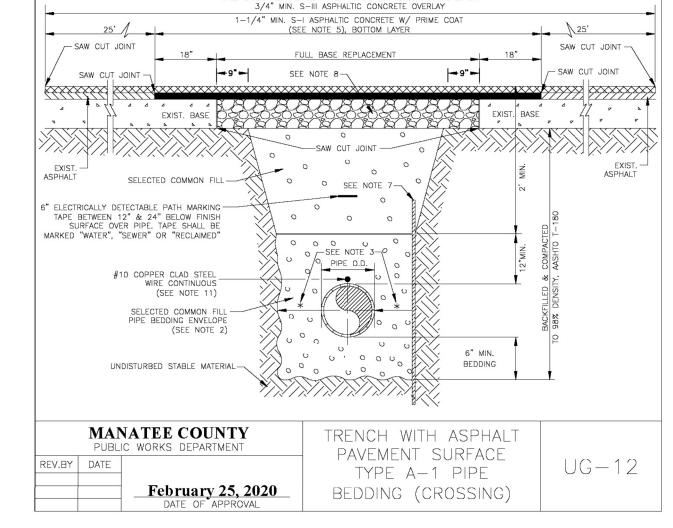
TILITIES	STANDARDS MANUAL.		
L THRE	EE "LEGS" OF TEES SHALL B	E RESTRAINED PER THE STATED LENGTH	IN THE TABLE.
		RESTRAINED	
DATE		LENGTHS FOR PVC	UG-8
	February 25, 2020	PIPE	
	L THRI  MAI  PUBL	MANATEE COUNTY PUBLIC WORKS DEPARTMENT DATE February 25, 2020	MANATEE COUNTY PUBLIC WORKS DEPARTMENT  DATE  RESTRAINED  RESTRAINED  LENGTHS FOR PVC

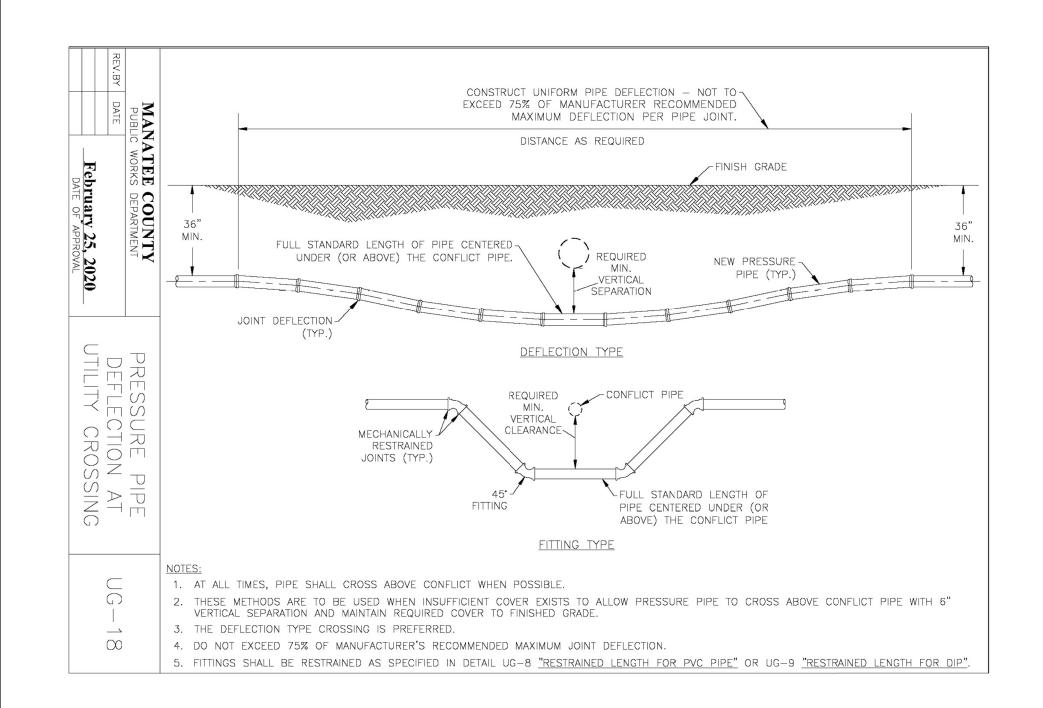


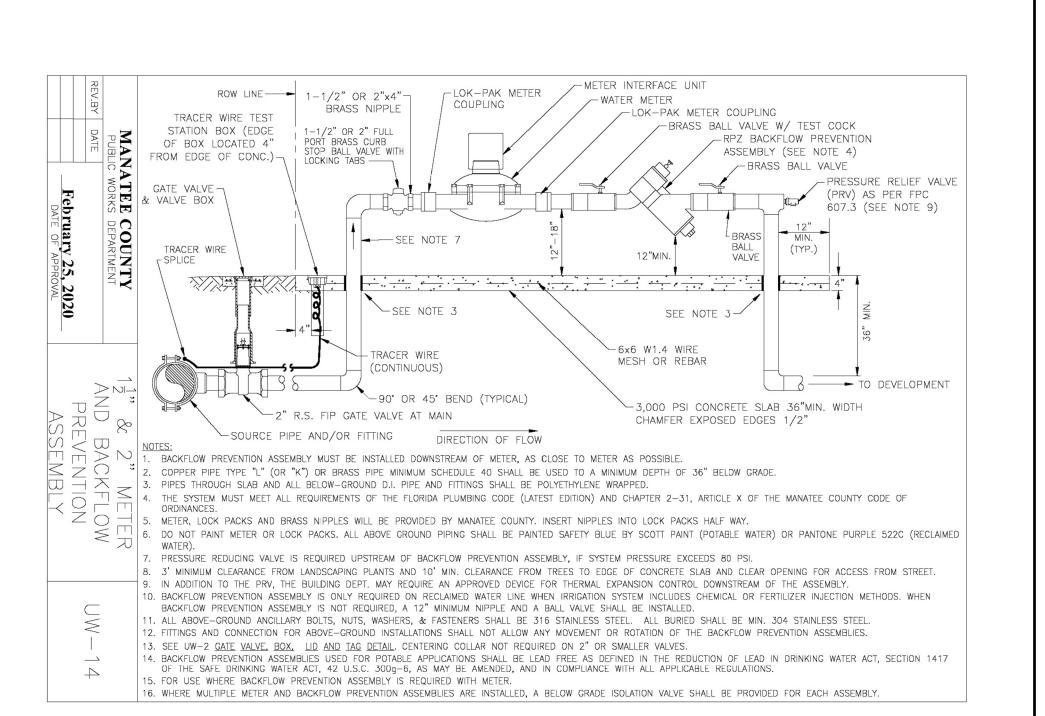


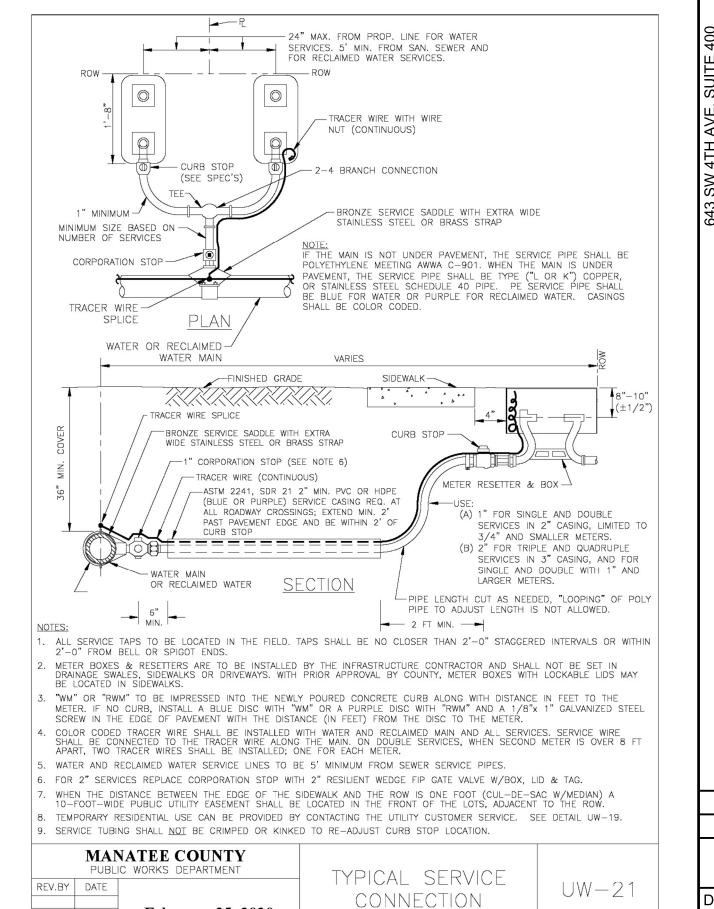


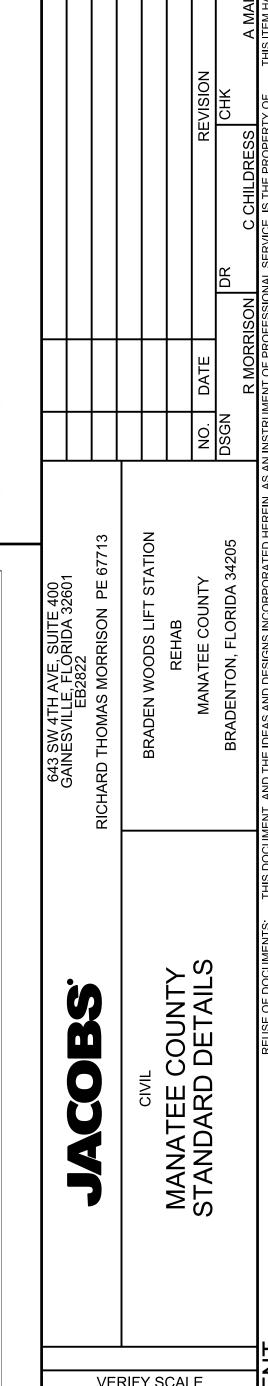












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VEER \* M

\$PWURL

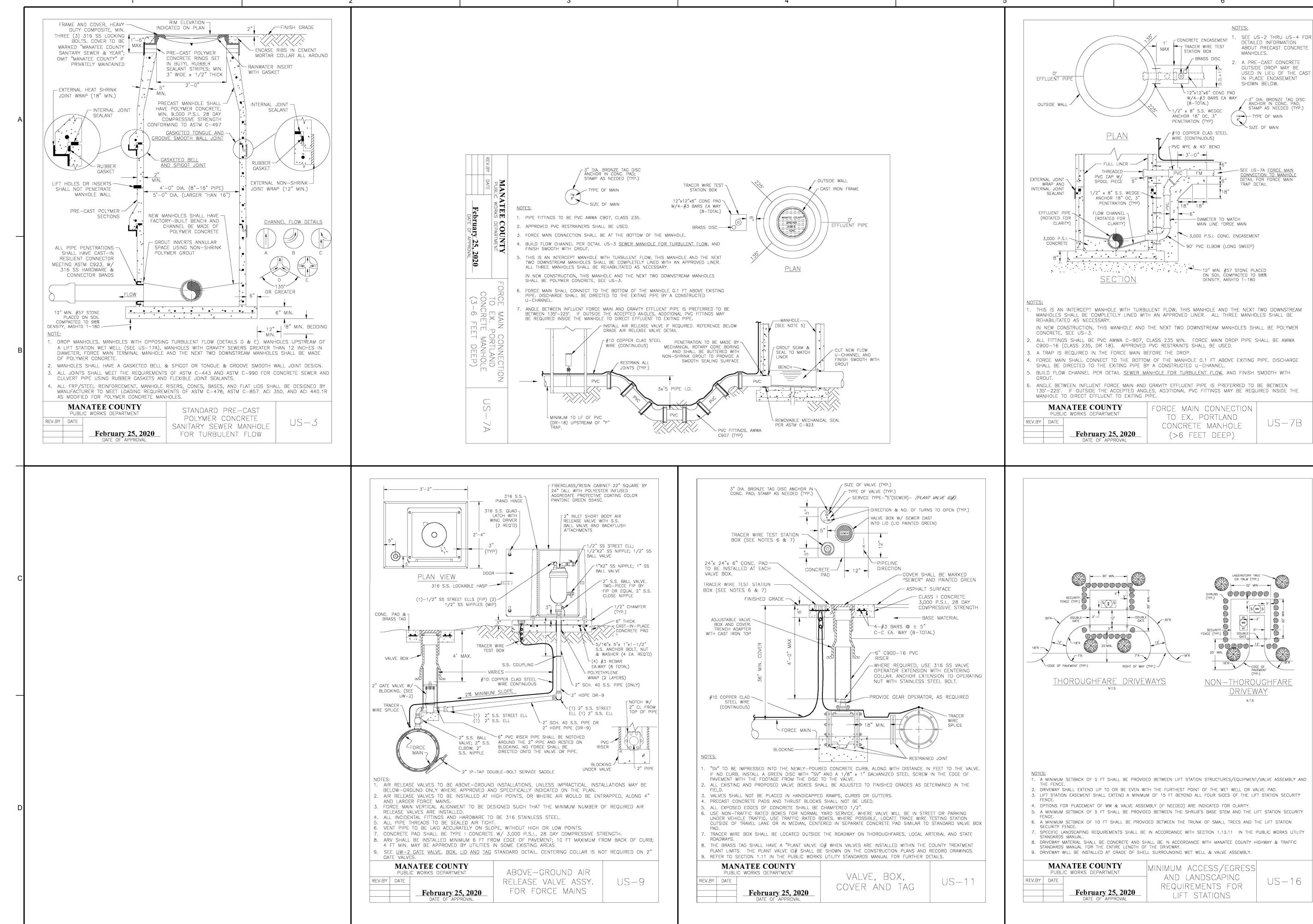
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**February 25, 2020** 

PLOT DATE: 5/10/2021

PLOT TIME: 10:45:18 AM

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. MAY 202 D3339100 **PROJ** C-501 18 of 36



" ★ PRO

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COUNTY

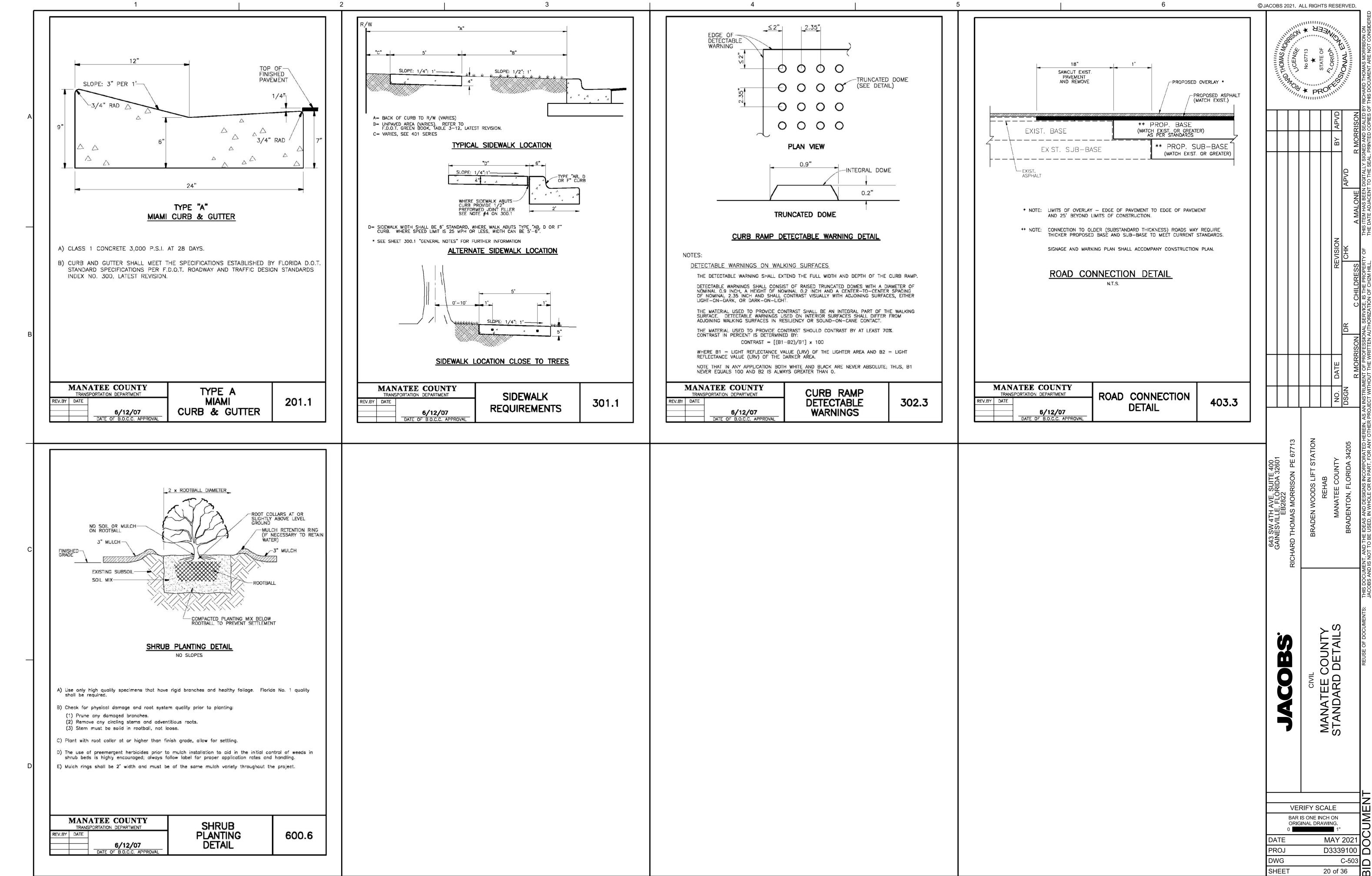
MANATEE C STANDARD

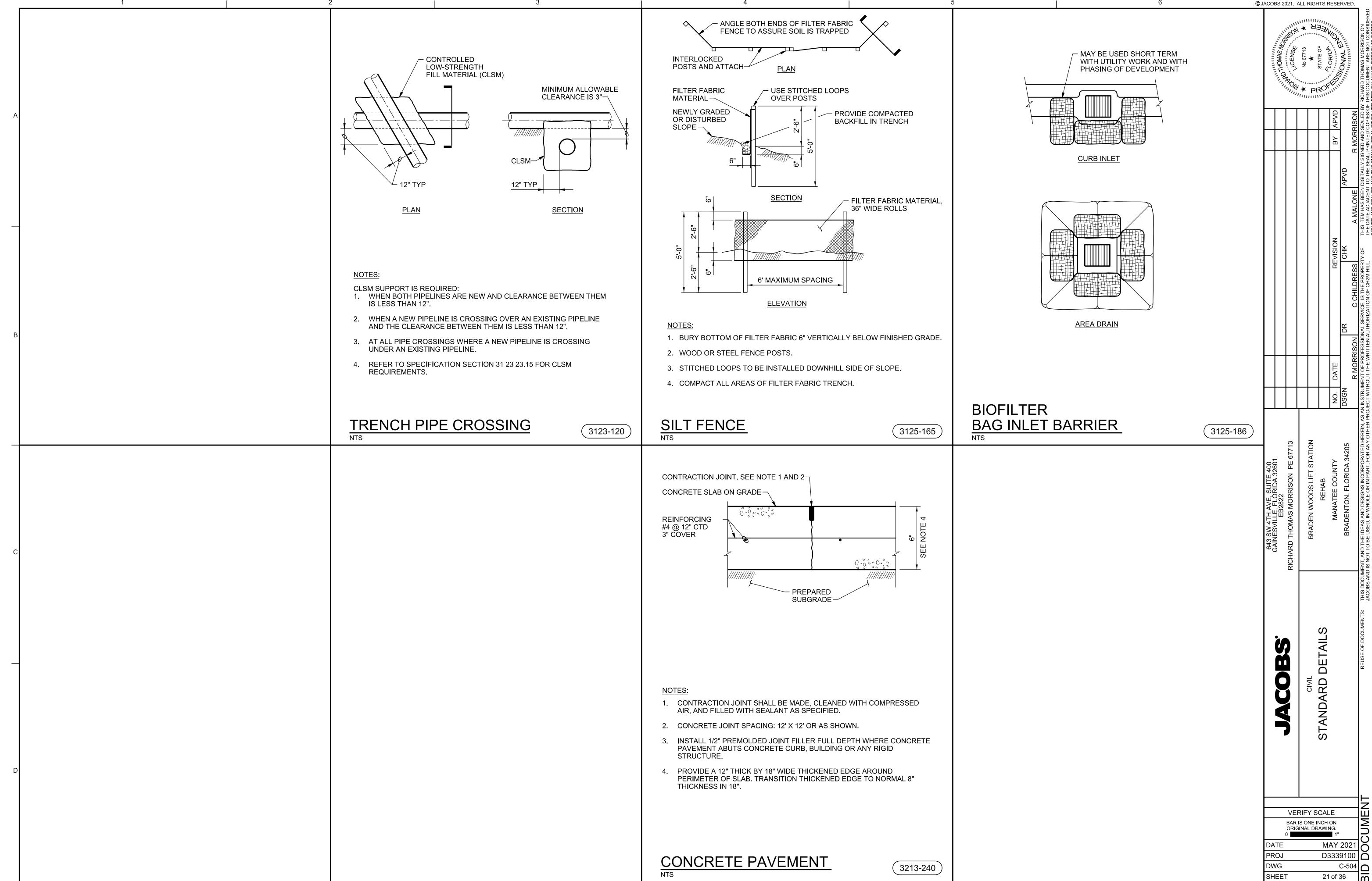
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. MAY 202 D3339100 **PROJ** C-502

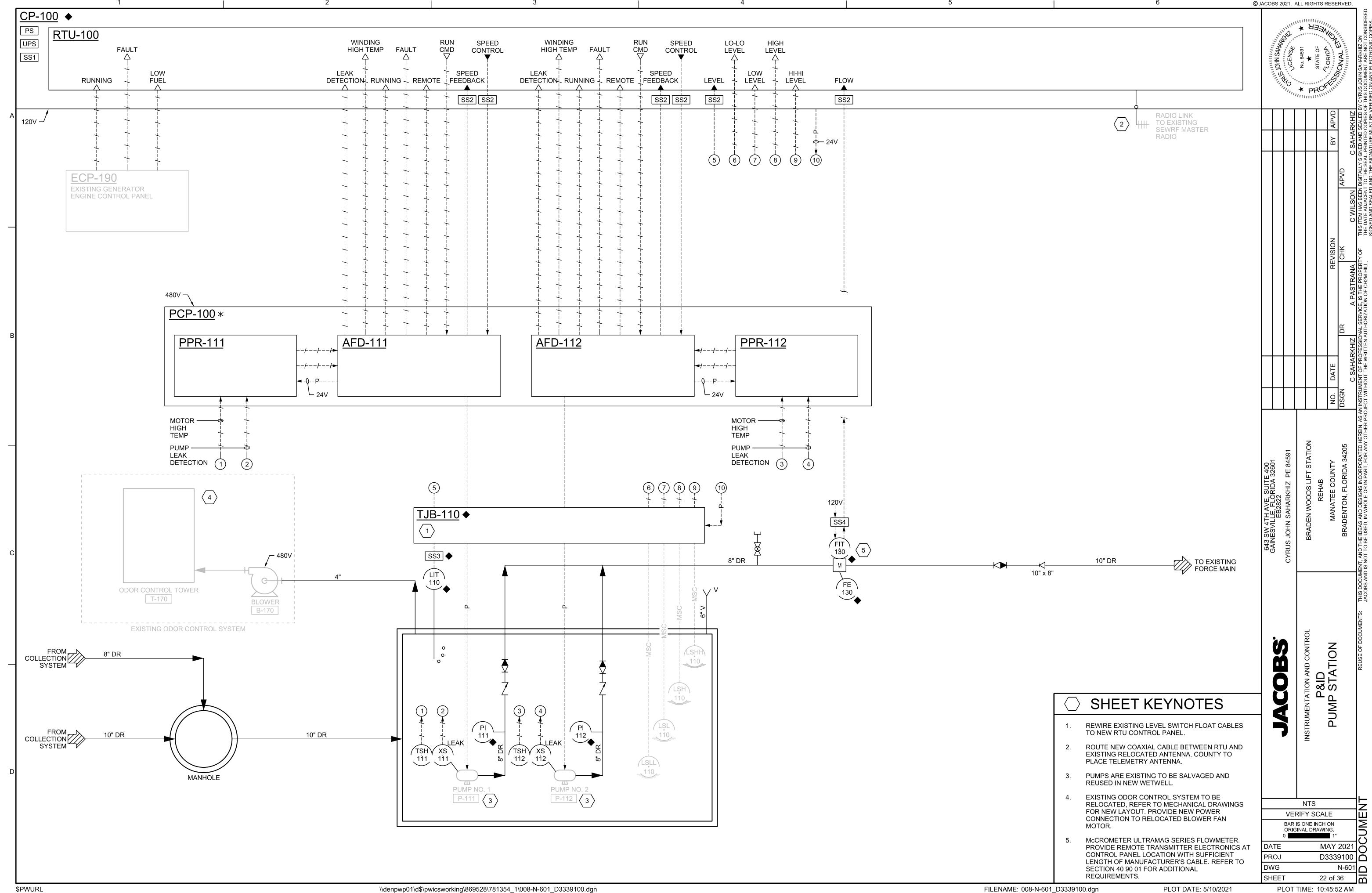
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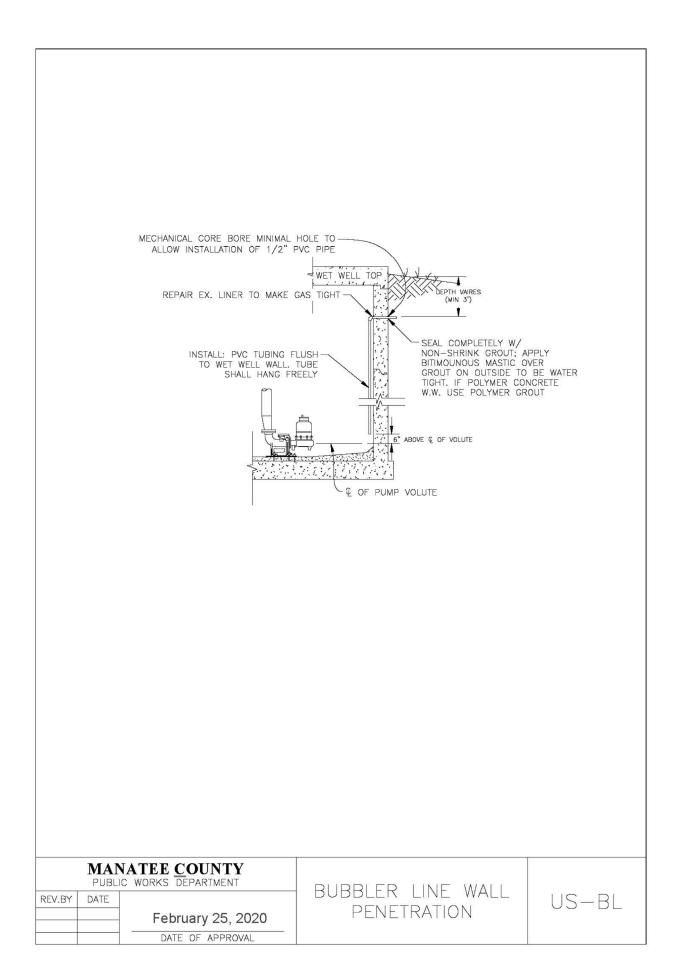
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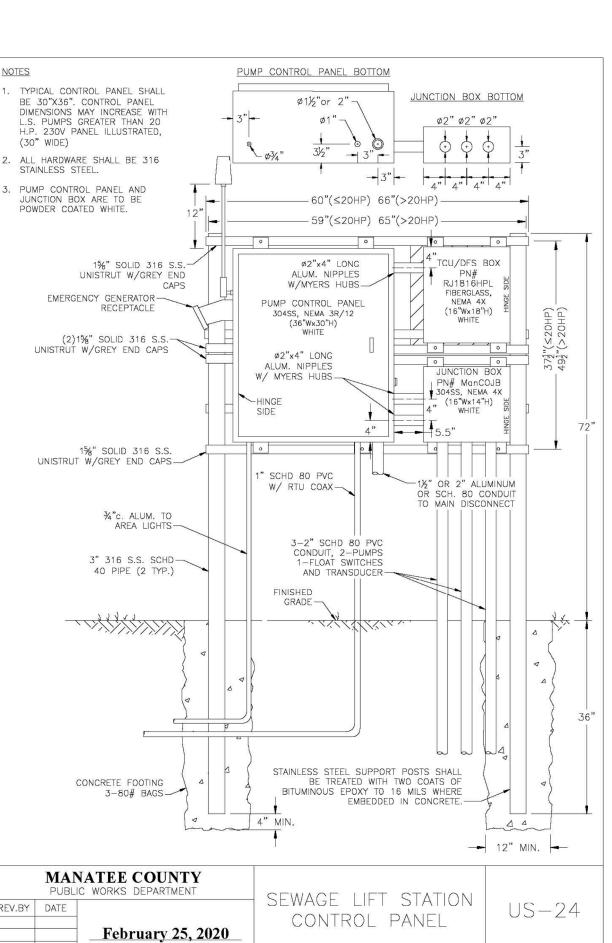
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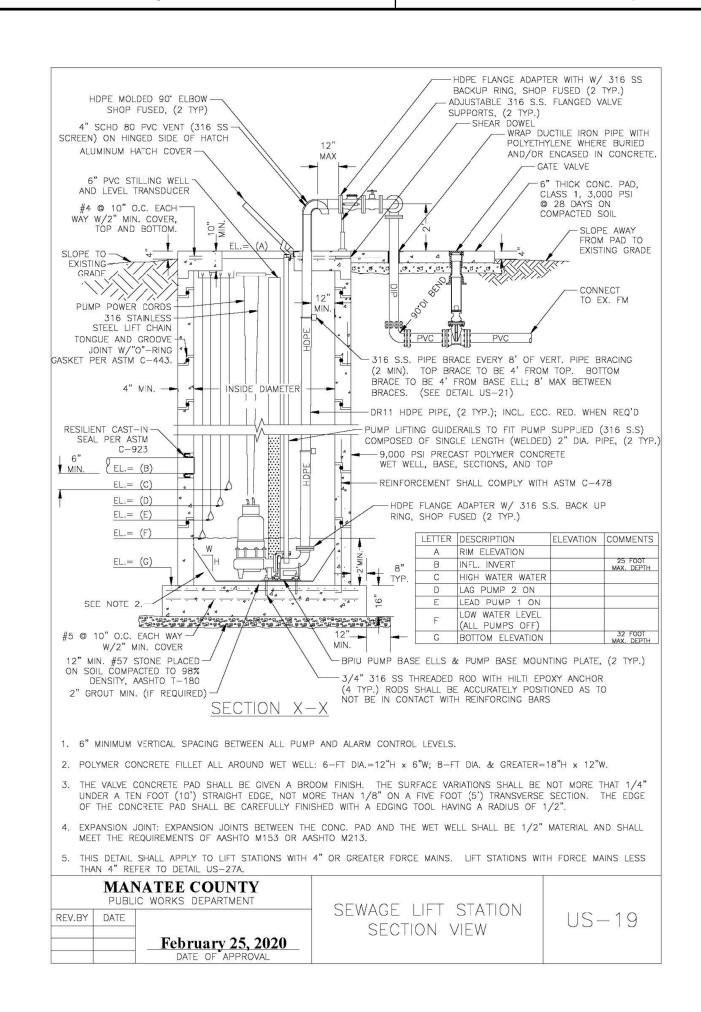


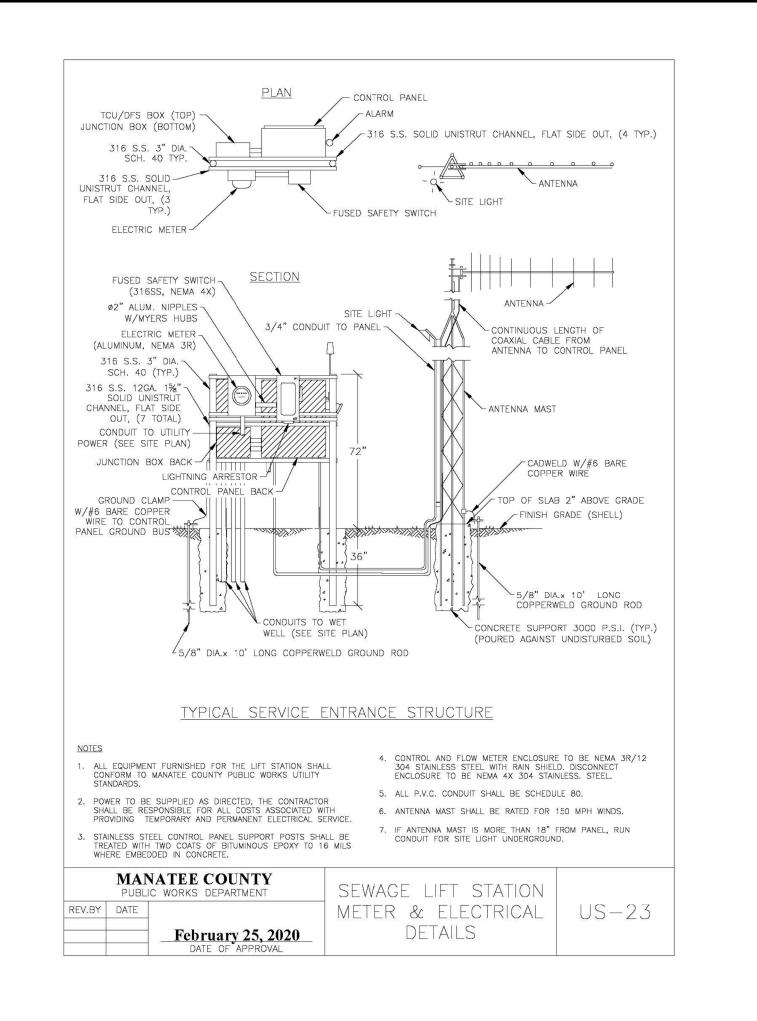


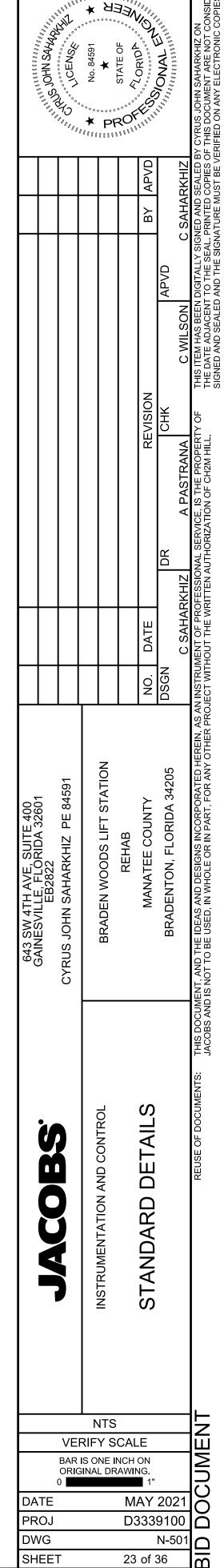




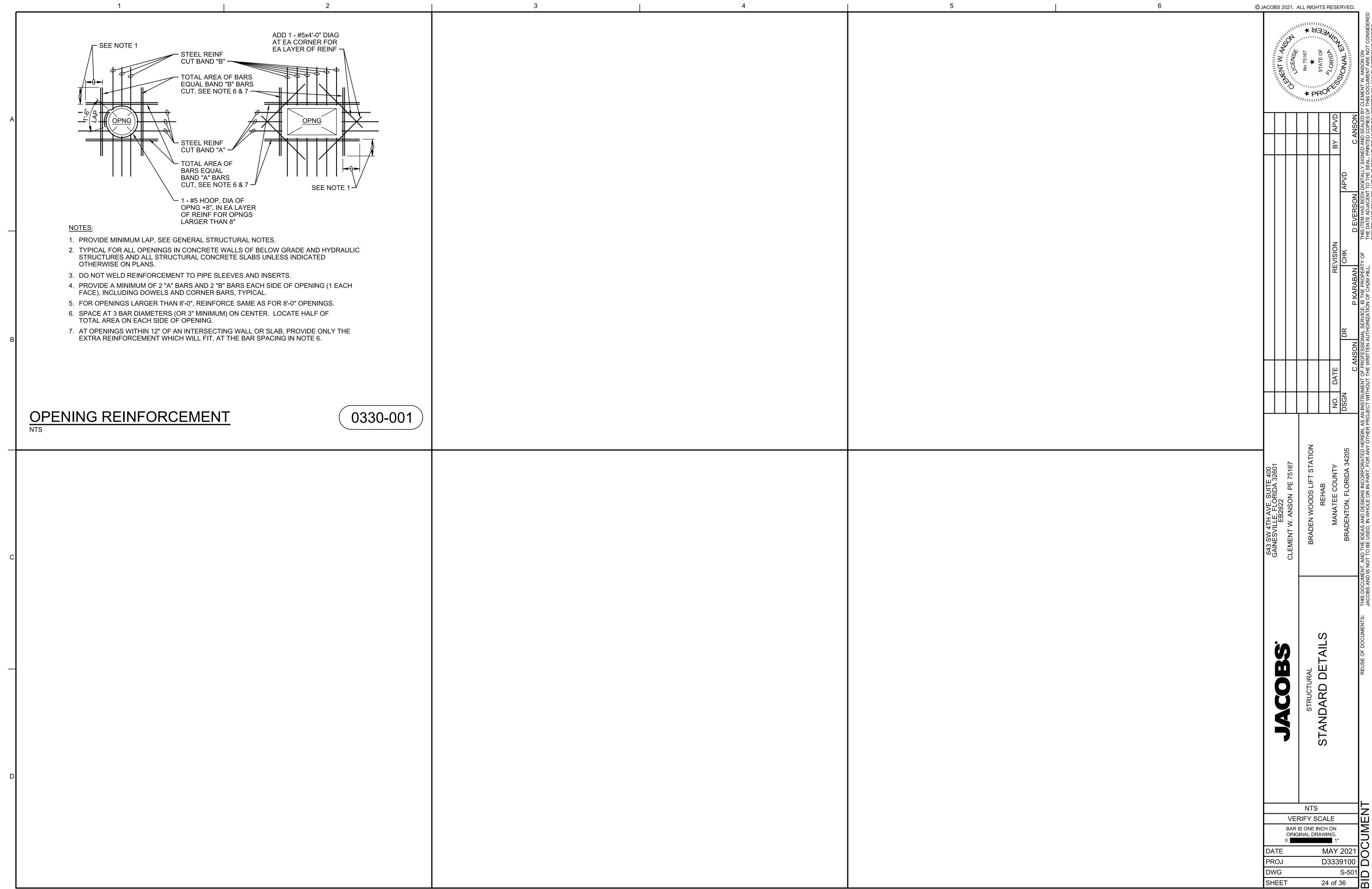


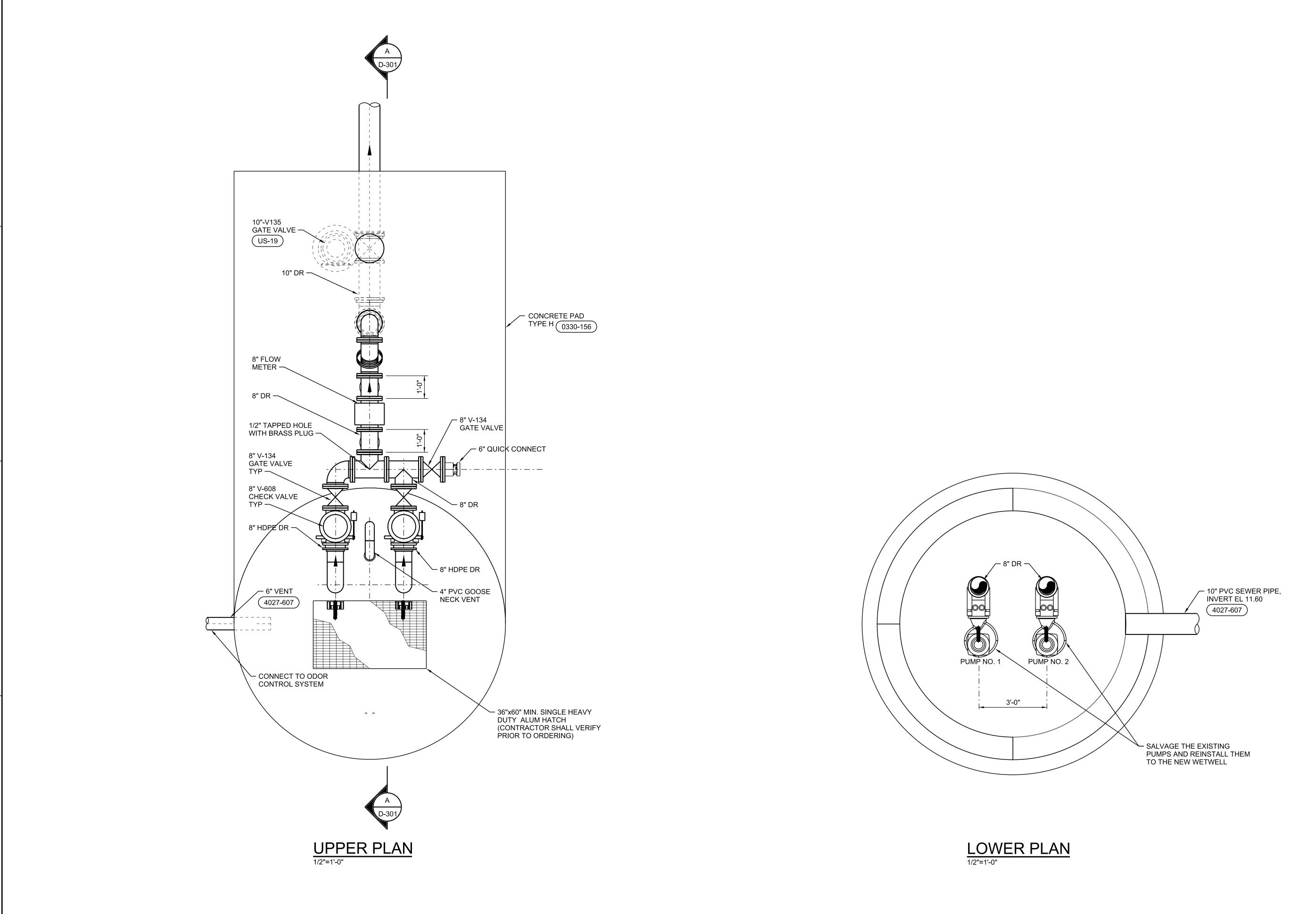






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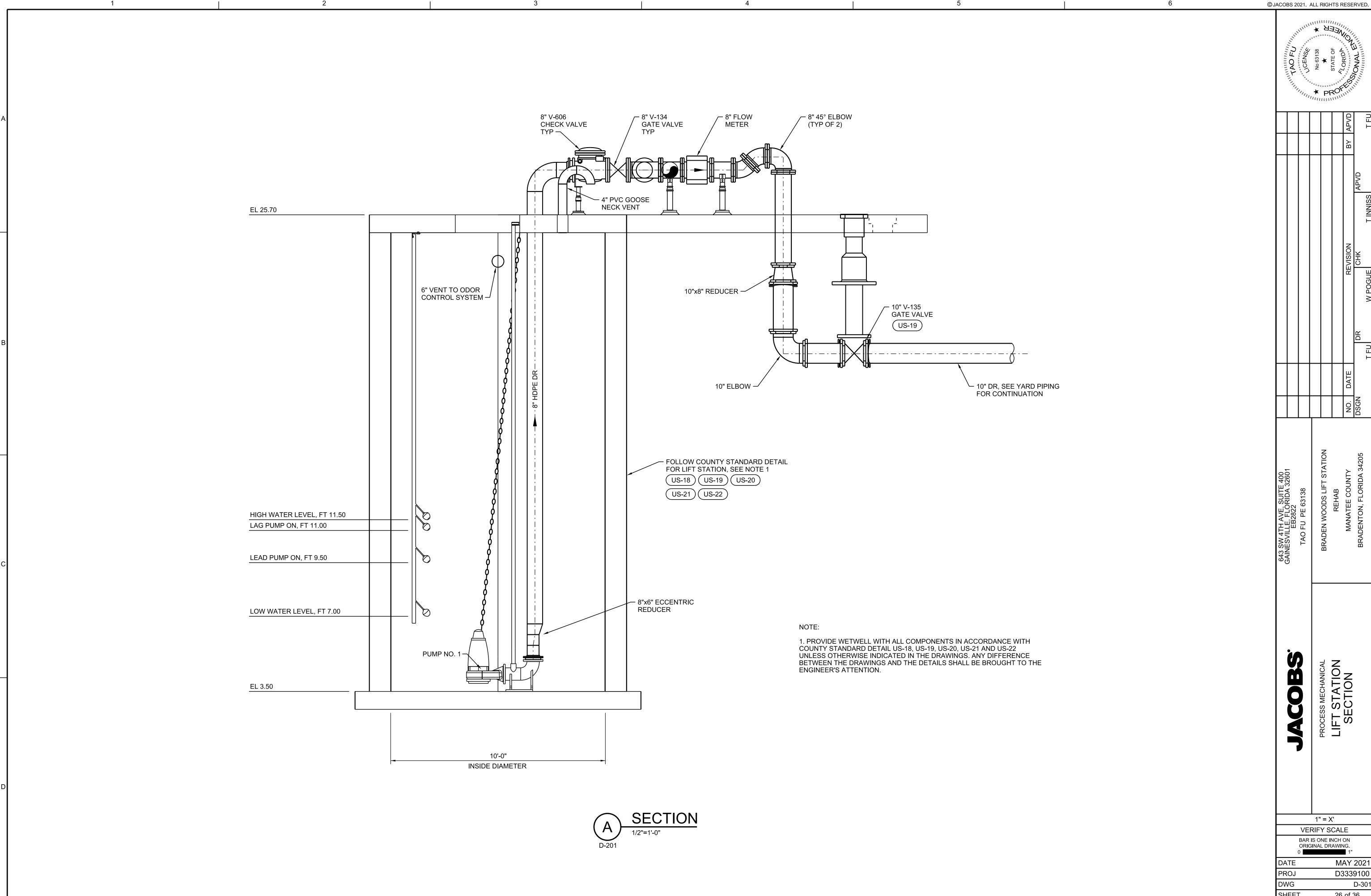
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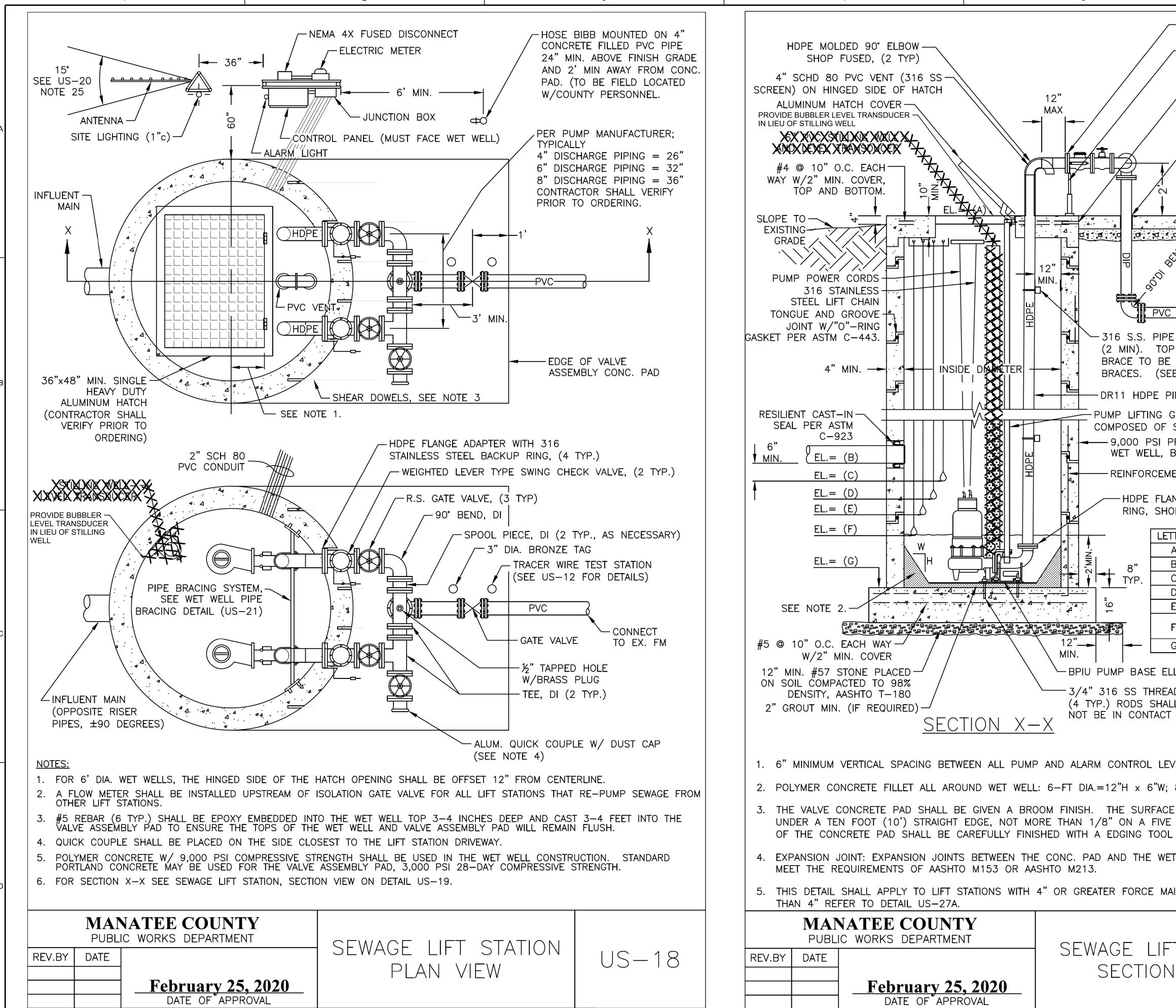
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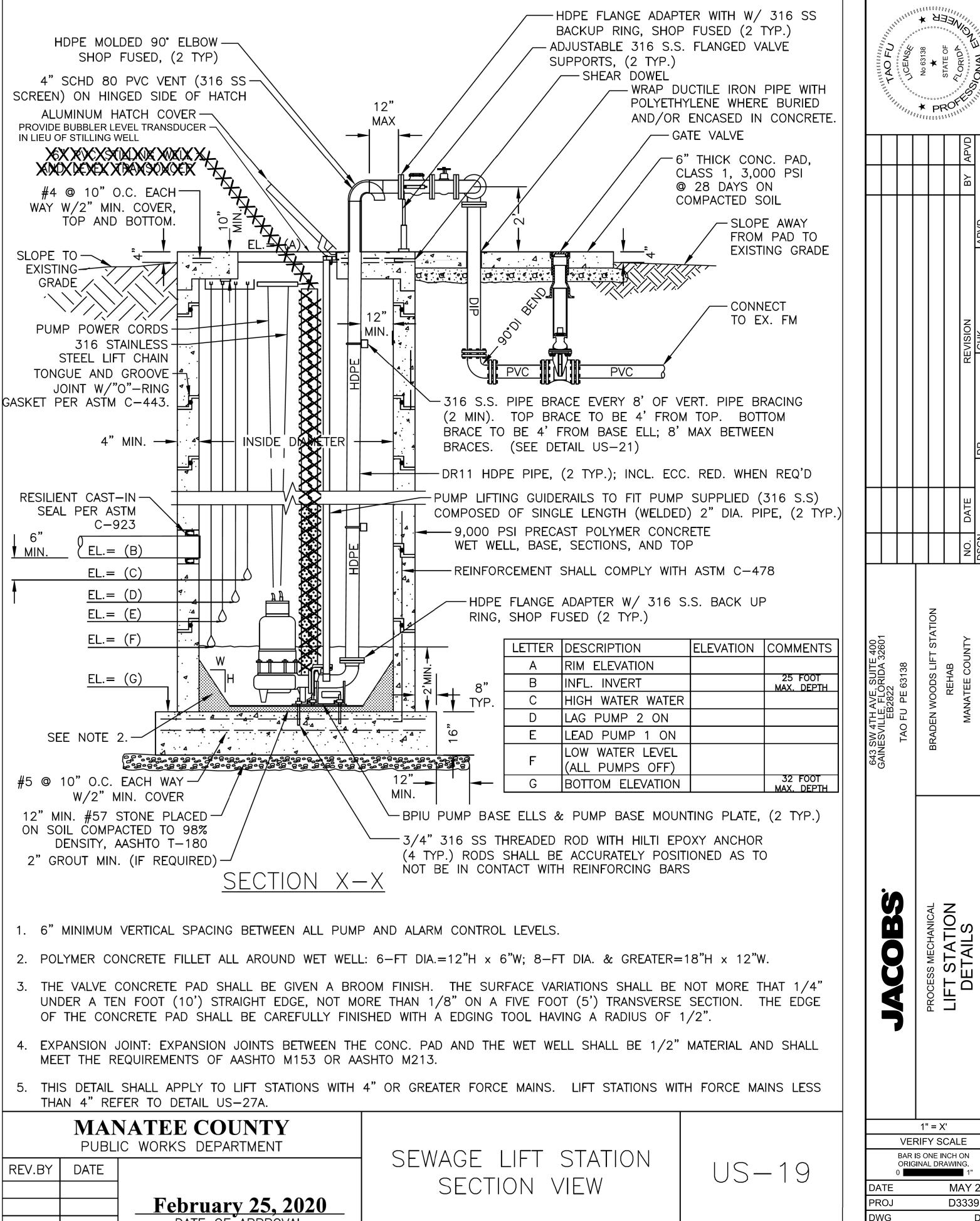


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1" = X' VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. D3339100 D-301

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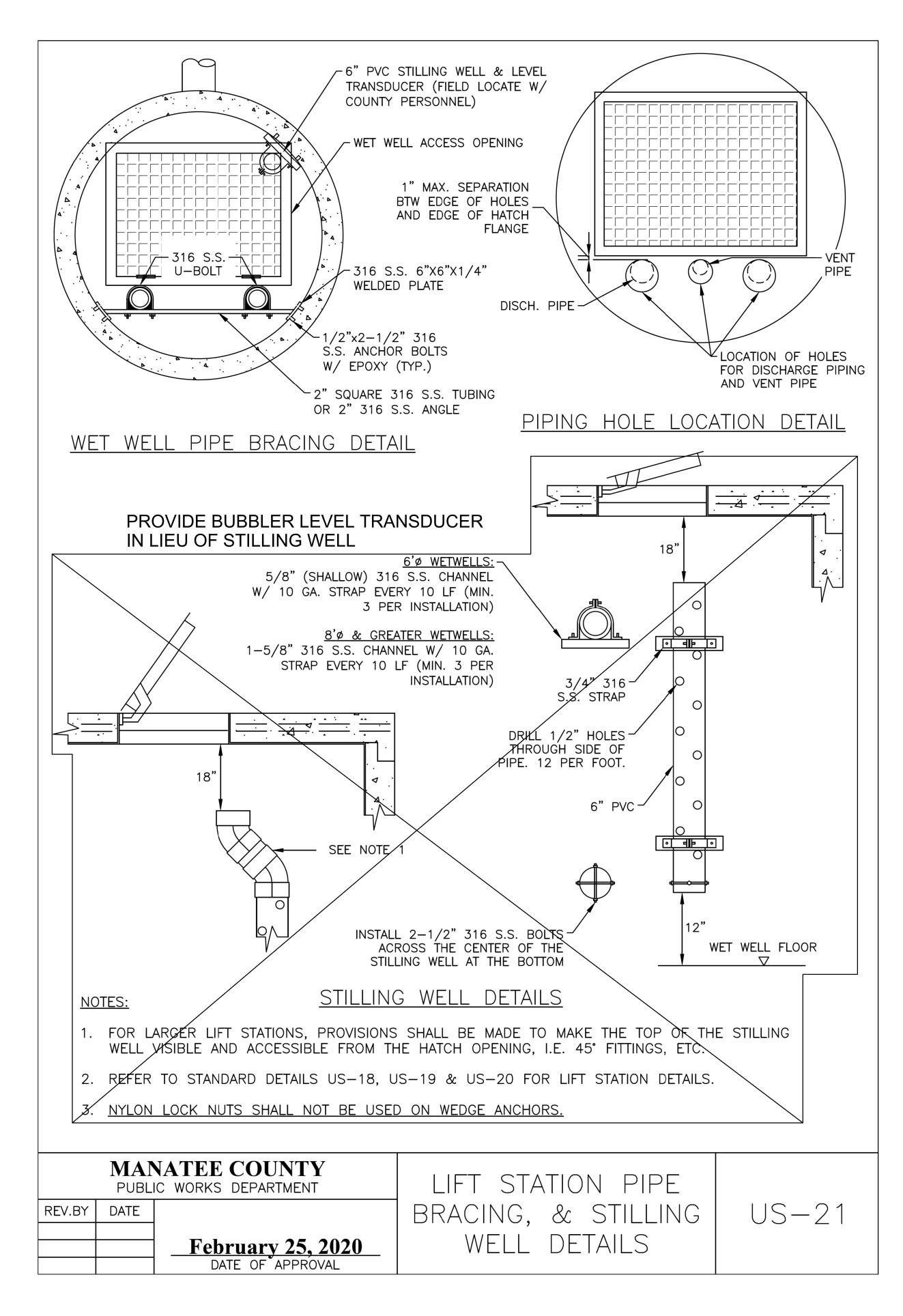
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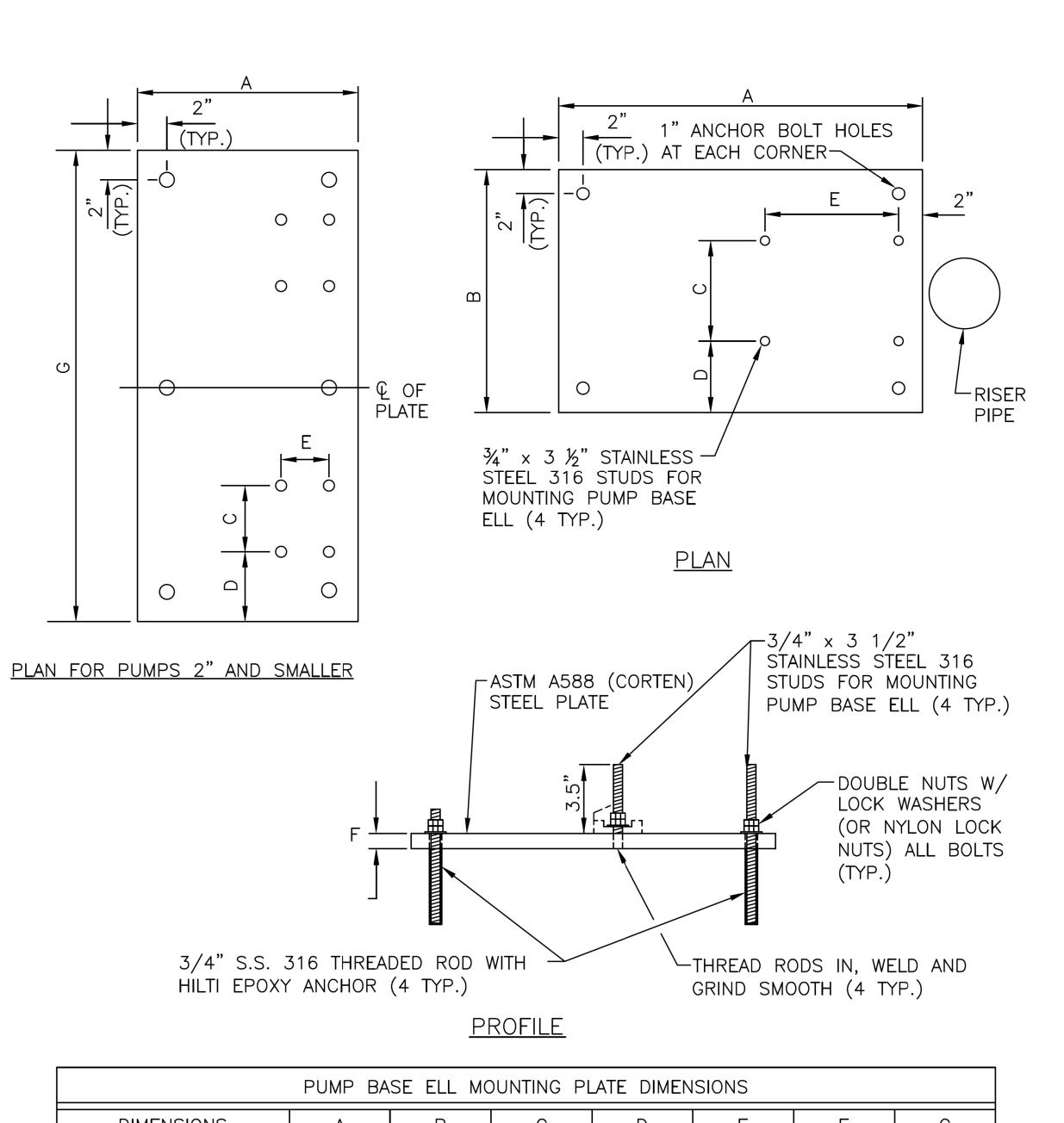
- ALL ACCESS COVERS SHALL BE ALUMINUM, WITH 316 STAINLESS STEEL HARDWARE AND RATED FOR 300 P.S.F. LOADING. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE 2 COATS BITUMASTIC EPOXY, TOTAL 16 MILS DFT. ALL ACCESS COVERS SHALL BE EQUIPPED WITH A LOCKING STAPLE OR BAR FOR USE WITH A PADLOCK. PADLOCKS FOR WETWELL, FENCE GATE AND CONTROL PANELS OF PUBLICLY OWNED & MAINTAINED LIFT STATIONS SHALL BE FURNISHED BY THE MANATEE COUNTY UTILITIES DEPARTMENT, UPON ACCEPTANCE.
- 2. INSTALL WET WELL VENT ON THE HINGED SIDE OF THE WET WELL HATCH COVER, BETWEEN DISCHARGE PIPING AND MATCH HEIGHT.
- 3. GROUND SHALL BE SLOPED AWAY FROM SLAB TO NATURAL GROUND ELEVATION IN ALL DIRECTIONS. A 4-INCH REVEAL SHALL BE PROVIDED AROUND THE STRUCTURES. SITE SHALL INCLUDE A WEED BARRIER FABRIC THAT IS COVERED WITH WASHED SHELL OR ROCK WITHIN LIFT STATION FENCING; SITE SHALL INCLUDE A WEED BARRIER FABRIC THAT IS COVERED WOOD TYPE MULCH UNDER THE SHRUBS AND UP TO OUTSIDE OF THE FENCE. WEED BARRIER FABRIC THAT IS COVERED WITH SHREDDED WOOD—TYPE MULCH SHALL BE LOCATED UNDER THE TREES FOR A MINIMUM DISTANCE OF 3 FEET FROM THE TREE. SODDING OR SHREDDED WOOD—TYPE MULCH SHALL BE INSTALLED ON THE REMAINDER OF THE SITE TO THE EDGE OF THE EASEMENT.
- 4. ALL FORCE MAIN PIPING AND FITTINGS FROM THE PUMP BASE ELBOW IN THE WETWELL UP TO THE CHECK VALVE IN THE ABOVE GROUND VALVE ASSEMBLY, SHALL BE DR11 HDPE. THE HDPE FITTINGS SHALL BE MOLDED FITTINGS. ALL CONNECTIONS TO IRON BODIED FLANGE FITTINGS IN THE WETWELL (PUMP BASE ELLS) AND TO THE CHECK VALVES SHALL BE MADE USING HDPE FLANGE ADAPTERS WITH 316 STAINLESS STEEL BACKUP RINGS. ALL HDPE CONNECTIONS SHALL BE THERMAL FUSED. ALL PIPING DOWNSTREAM OF THE VALVE ASSEMBLY TO THE FIRST BURIED FITTING SHALL BE DUCTILE IRON PIPE (CL-53), THEN PVC (DR18).
- 5. ALL PIPING BELOW GROUND SHALL BE COLOR CODED IN ACCORDANCE WITH THESE STANDARDS. GREEN-RAW SEWAGE; PURPLE-RECLAIMED: BLUE-POTABLE WATER.
- 6. ANCHORS & LIFTING DEVICES SHALL NOT PENETRATE THE WALLS OF THE WET WELL.
- 7. ALL TOP, SECTIONS, AND BASE SHALL BE PRECAST POLYMER CONCRETE, MIN. 9,000 PSI COMPRESSIVE STRENGTH. SEE PRECAST POLYMER CONCRETE SANITARY SEWER MANHOLE FOR TURBULENT FLOW DETAIL.
- 8. ALL ABOVE-GROUND METAL APPURTENANCES INCLUDING BOLTS, NUTS AND WASHERS SHALL BE 316 STAINLESS STEEL. ALL STAINLESS STEEL BOLTS SHALL BE TREATED WITH NEVER-SEIZE PRIOR TO ASSEMBLY.
- 9. VERTICAL HDPE PUMP DISCHARGE PIPE IN THE WET WELL SHALL BE BRACED PER DETAIL US-21. THE PIPE SHALL BE CLAMPED TO A SINGLE LENGTH OF 2" 316 SS TUBING (OR 2" 316 SS ANGLE) INSTALLED HORIZONTALLY. THE TUBE SHALL HAVE 6"X6"X¼" PLATES WELDED TO EACH END AND ATTACH TO THE WALL BY 316 SS ANCHORS. THE PIPE SHALL BE CLAMPED TO THE TUBING WITH CUSHIONED 316 SS U-BOLTS.
- 10. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT FLOTATION.
- 11. TOP OF WET WELL AND VALVE ASSEMBLY SLAB SHALL BE AT THE SAME ELEVATION
- 12. THE EXTERIOR SURFACES OF THE CONCRETE WET WELL AND VALVE ASSEMBLY PAD EXPOSED ABOVE GRADE SHALL BE COATED WITH A LEAST TWO COATS OF H&C SILICONE ACRYLIC CONCRETE STAIN, PATIO GREEN, MANUFACTURED BY FLR PAINTS, INC. ABOVE GROUND VALVE ASSEMBLY & PIPING SHALL BE PAINTED, RUSTOLEUM 7538 HUNTER GREEN. CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID OVER—SPRAY ONTO THE VALVE ASSEMBLY CONCRETE PAD.
- 13. FOR 5/8" WATER METER, PROVIDE POTABLE WATER SERVICE CONNECTION WITH 3/4" BRASS HOSE BIB. PROVIDE AN APPROVED BACKFLOW PREVENTION ASSEMBLY INSTALLED AT THE ROW. ALL WATER SERVICE PIPING FROM WATER METER TO BE TYPE "K" COPPER OR BRASS; 3/4" MIN. DIAMETER FOR 5/8" METER AND 2" MIN. DIAMETER PIPING FOR 2" METER.
- 14. LANDSCAPING SHALL BE IRRIGATED WITH NON-POTABLE WATER. A RAIN SENSOR SHALL BE FURNISHED AND INSTALLED.
- 15. HOSE BIB TO BE A MINIMUM OF 6 FEET FROM THE ELECTRICAL CONTROL PANEL, 24" ABOVE THE SURROUNDING FINISH GRADE, AND ANCHORED TO A 4" PVC CONCRETE FILLED PIPE. EXACT LOCATION TO BE DETERMINED IN THE FIELD W/COUNTY PERSONNEL.
- 16. WATER METER ASSEMBLY TO BE INSTALLED BY CONTRACTOR AS PART OF WATER SERVICE CONNECTION WITH FEES PAID BY THE DEVELOPER.
- 17. BASE AND FIRST WALL SECTION OF WET WELL SHALL BE MONOLITHIC.
- 18. EVERY EFFORT SHALL BE MADE BY THE CONTRACTOR TO CONSTRUCT WATERTIGHT STRUCTURES WITH NO VISIBLE LEAKS.

  COMPLETED STRUCTURES THAT ARE NOT WATERTIGHT AND/OR DO NOT MEET THE REQUIREMENTS OF ASTM C-443 WILL BE REJECTED.
- 19. FLEXIBLE GASKET CONNECTORS SHALL MEET THE REQUIREMENTS OF ASTM C-923 LATEST REVISION.
- 20. ALL GATE VALVES SHALL BE RESILIENT SEAT NON-RISING STEM TYPE IN ACCORDANCE WITH THESE STANDARDS.
- 21. ELECTRICAL SERVICE SHALL BE 3 PHASE MINIMUM, UNLESS THE ELECTRICAL UTILITY PROVIDES CORRESPONDENCE STATING THAT 3 PHASE SERVICE IS UNAVAILABLE.
- 22. ELECTRICAL CONDUIT SHALL BE RUN BY THE SHORTEST ROUTE POSSIBLE FROM THE ELECTRICAL SOURCE TO THE CONTROL PANEL AND FROM THE CONTROL PANEL TO THE LIFT STATION WET WELL.
- 23. A FLOW METER AND EMERGENCY BACKUP PUMP SHALL BE REQUIRED FOR ALL LIFT STATIONS THAT MEET THE CRITERIA LISTED IN SECTION 1.14.14 OF THE PUBLIC WORKS UTILITY STANDARDS MANUAL.
- 24. THE CONTROL PANEL, HOSE BIB, EMERGENCY BACKUP PUMP, FUEL STORAGE TANK AND ANTENNA SHALL NOT BE LOCATED BETWEEN THE WET WELL, VALVE ASSEMBLY AND THE DRIVEWAY. THE PUMP SHALL NOT BE LOCATED WITHIN 25 FEET OF THE EDGE OF THE LIFT STATION EASEMENT AT THE ROW LINE.
- 25. THE ANTENNA FOR THE RADIO TELEMETRY UNIT REQUIRES DIRECT LINE—OF—SIGHT SIGNALING CAPABILITY TO THE UTILITIES DEPARTMENT'S OFFICE THAT WILL RECEIVE THE SIGNAL. THERE SHALL BE AN UNOBSTRUCTED HORIZONTAL ANGLE OF FIFTEEN (15) DEGREES FROM THE ANTENNA MAST (7.5 DEGREES ON BOTH SIDES OF THE DIRECT LINE—OF—SIGHT AZIMUTH). NO TREE SHALL BE PLANTED WITHIN THE DESIGNATED UNOBSTRUCTED ANGLE FOR A TWENTY (20) FEET HORIZONTAL DISTANCE MEASURED FROM THE MAST. LANDSCAPE BUFFER PLANTINGS ARE TO BE FIELD ADJUSTED IN COORDINATION WITH THE LOCATION OF THE CONSTRUCTED TELEMETRY ANTENNA. THE ANTENNA TOWER/MAST SHALL BE TO THE LEFT OF THE CONTROL PANEL.

		NATEE COUNTY IC WORKS DEPARTMENT				
REV.BY	DATE		LIFT	STATION	NOTES	US-20
		February 25, 2020 DATE OF APPROVAL				



STATION ETAILS



	PUMP BA	SE ELL MO	DUNTING PL	ATE DIMEN	ISIONS		
DIMENSIONS	Α	В	С	D	E	F	G
FOR 6" PUMPS	24"	20"	8.25"	5.875"	11"	3/4"	N/A
FOR 4" PUMPS	20"	16"	6"	5"	10"	1/2"	N/A
2" PUMPS & SMALLER	15"	N/A	4.5"	4.75"	3.25"	1/2"	32"

#### NOTES:

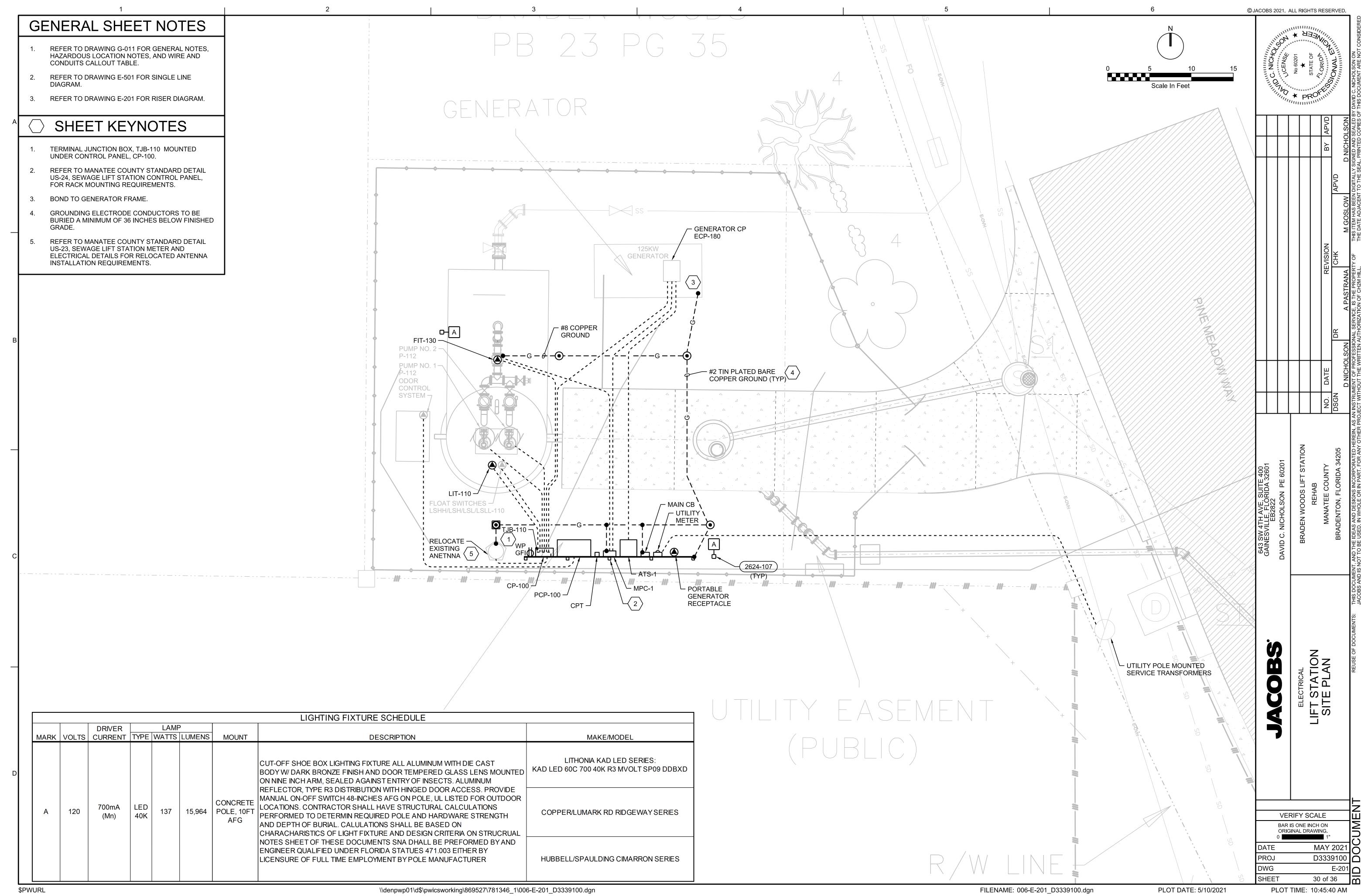
- 1. INSTALL DOUBLE NUTS (OR NYLON LOCK NUTS) ON ALL EIGHT (8) THREADED RODS. 2. THE PLATE EDGES AND ALL HOLES SHALL BE GROUND SMOOTH TO REMOVE ALL BURRS.
- 3. DIMENSIONS "C" & "E" ARE FOR BARNEY'S PUMPS, INC. BASE ELLS. 4. FOR PUMPS WITH A 2—INCH DISCHARGE OR LESS, A SINGLE BASE PLATE SHALL BE INSTALLED UNDER BOTH GRINDER PUMPS.

		NATEE COUNTY IC WORKS DEPARTMENT	PUMP BASE FII	
REV.BY	DATE			US - 22
		<b>February 25, 2020</b>	MOUNTING PLATE	
		DATE OF APPROVAL		

REVISION BY A PVD	ATION NO. DATE NO. DA	APVD
643 SW 4TH AVE, SUITE 400 GAINESVILLE, FLORIDA 32601 EB2822 TAO FU PE 63138         643 SW 4TH AVE, SUITE 400           TAO FU PE 63138         APVD           BRADEN WOODS LIFT STATION         NO. DATE           MANATEE COUNTY         NO. DATE           BRADENTON, FLORIDA 34205         DSGN	ATION NO. DATE NO. DA	APVD
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PLOT DATE: 5/10/2021



WEER \* WILLIAM

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MOTOR CONTROL AND RISER DIAGRAM

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D3339100 E-202 of 36 SHEET 31 of 36

PLOT DATE: 5/10/2021

